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The genotypes of the North American Hadeninae

Harrison Morton Tietz
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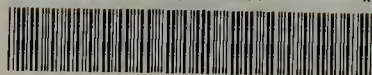
Tietz, Harrison Morton, "The genotypes of the North American Hadeninae" (1928). *Doctoral Dissertations 1896 - February 2014*. 892.
<https://doi.org/10.7275/pkhn-6x39> https://scholarworks.umass.edu/dissertations_1/892

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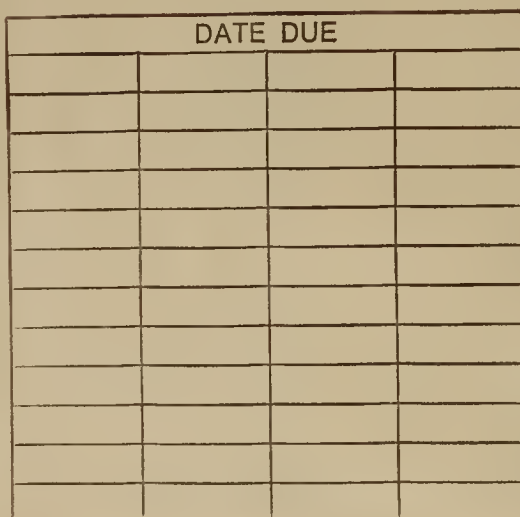
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The Genotypes of the North American Hadeninae

Harrison M. Tietz



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The Genotypes
of the
North American Madeninae

Marshall Horton Dietz

1926

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THE GENOTYPES OF THE NORTH AMERICAN HADENINAE *

Harrison Morton Tietz

Introduction

As we read over the older generic descriptions, we are impressed by the fact that, in many cases, the morphology of the species concerned is omitted or very inadequately treated. The recent workers go into more detail but here we frequently find a tendency on their part to be selective in their morphological descriptions that is to say taking some particular character and stressing that at the expense of all others.

To the writer, it seems that, as far as possible, we should have some uniformity in our generic descriptions and that we should make our morphological descriptions complete.

Possibly the best way to begin this task is to accept certain species as standards and then to study these carefully. Such species should be, of course, the genotypes of the genera under consideration. It is the aim of this work to make a detailed morphological study of the genotypes of our North American Hadeninae with the following objects in view - (1) to get a better conception of what constitutes a genus in this subfamily, and (2) to use this information as a basis for future classification. The writer realizes that before we define a genus we should know the morphology not only of the genotype but also of all the species supposedly belonging to that genus. We can not tell the latitude of variation within a genus by studying a

* A thesis presented to the Faculty of the Graduate School of the Massachusetts Agricultural College in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

single species in that genus, such as the genotype, and we are quite apt to give specific and even sub-specific morphological characters a generic value. However, as the writer has stated before, the only way to begin the task is to study the genotypes carefully and thoroughly. The next step is to review the generic conceptions of other authorities and show how the genotypes are typical of their respective genera. After we have done this, our genotypes become morphological yardsticks by means of which we can measure other species. To apply these measures to all the species in all the genera included in this article, would require more time and material than the writer has at his command. When this is done, however, some of the seemingly insignificant structural details, e.g. length of tarsal spurs and tarsal segments, may be found to have a distinct generic value. At any rate, it is hoped that the present work will serve as a foundation upon which we can build a more natural and satisfactory system of classification.

Scope of the Work

It is easy to realize that many difficulties were encountered in carrying on this work. The first task was to determine just what genera of the Hadeninae occur in North America. This problem was settled by accepting those listed in Dr. Barnes' catalogue to which certain additions were made to bring the list up to date. The next point to be considered was the question of synonymy. It is very evident that we can not tell the valid from the synonymous genera until we step outside the limits of North America and study Hadeninae from all parts of the world. For this reason many exotic species are included in this work. Some of these are genotypes of recognized North American genera. Others are genotypes of genera considered

synonymous with our genera. Still others are the genotypes of genera that are valid and to which our genera are considered synonymous. In working out the synonymy reference has been made to Sir George Hampson's work--Catalogue of the Lepidoptera Phalaenae volume five-- and all genera considered to be synonymous with those listed by Dr. Barnes are included in this paper.

The Original Descriptions of the Genera

The discussion of each genus begins with a copy of the original description of the genus followed by a list of the species that the author included with the description. These original descriptions are included for two reasons, - the information they contain, or for completeness. When the description is adequate, it gives the author's conception of his genus and shows the latitude of variation he would allow within the group and for this reason it is invaluable to the student. When, on the other hand, the description is meager, it has been included only for the sake of completeness. The appended list of species he would include in his genus follows the original description. In a case where the author has not described his genus fully, the morphology of the species he would include may be studied by a later worker and the group may be more clearly defined. Then too, if for any reason the genotype was wrongly selected, the student can tell by reading over the list of species listed with the original description what forms are available for subsequent designation. It is from this list that the new genotype must be selected. It is hoped that this portion of the article will prove helpful to all and especially to those whose library facilities are limited.

Selection of the Genotypes

After the original description comes the selection of the genotype. In the case of seventeen genera the authors of the genera designated their genotypes. Thirty one genera are monotypical; and, in the case of twelve genera, the genotypes were subsequently designated so soon after the original descriptions of the genera were published that we can feel fairly certain that they are the earliest designations. But, in the case of twenty two genera, the selection of the genotypes involved some "legal" problems, i.e. necessitated interpretation of the International Rules (Stiles-Int. Rules Zool. Nomen.). In some cases the only designation of genotypes known to the writer were those made by Hammond in 1905 (Cat. Lep. Phal.) which, in some instances, were made over seventy-five years after the original descriptions of the genera were published. It is natural to wonder whether these designations are the earliest. They have been accepted as such but are subject to correction if proof can be shown that earlier designations exist.

Sources of Material

Having decided upon the genera, and having selected the genotypes, the next step was to procure the specimens for study. In many instances it was impossible to procure series of the genotypes, and, in a few cases, the writer was unable to obtain even a single specimen of it. A work of this nature entails the destruction of the insect, a procedure which is not looked upon with any great favor by most collectors who wish to reserve their specimens for the cabinet. Largely through the kind cooperation of certain

individuals and museums most of the necessary species were finally obtained. To these persons and these institutions the writer wishes to make due acknowledgement.

By purchase: Barathra albicolon, Copioarestra brassicae, A. myrtilli, Mamestra persicariae, Aethria serena, Astragalis dentina, Haderonia subarschanica, Diateraxis sulandana, Dianthoecia carophaga, Aplocta nebulosa, Neuris reticulata, Hadena cucubali, Dargida grammivora, Charseas cespitis, Neuronis popularis, Epia echii, Cardipia irrisor, Hyscia cavernosa, Naesia moesta ♀, Monostola asiatica, Xylomyges conspicillaris, Perigra ha I-cinctum, Sideridis evidens, Aletia vitellina ♀, Hyphilare albiruncta, Borolia furcifera ♀, Meliana flemmea, and Heliothila pallens. Nearly all of the above species are common European forms that are well known and have been recognized for many years. Nearly all were purchased from the firm of Dr. Standinger and Bang-Hass who are quite reliable in their identifications of European species. In all cases the insects were compared with the descriptions and, where possible, with colored plates. In most cases the writer was able to find series of these forms in the American Museum and in the National Museum. It is hoped before this article goes to press that all identifications will be checked up by comparison with specimens in the British Museum.

Loaned by the American Museum of Natural History in New York City. Scotoxanthe submarina, Euxanthea procinctus, Trichoclea decemta, Tricholita semiserata, Urolonche niveiguttata, Himella fidelis, Pseudorthodes vecors, Nerhelodes minians, Stretchia plusiaeformis, (TYPE); Morrisonia evicta, Crocigraha normani, Ceramica ricta, Xanthopastes timais, Zosteroroda hirtipes, Perigonica angulata.

It was through the kindness of Dr. Lutz and Mr. Frank Watson of the museum that this material was made available for study.

National
The United States Museum, Washington, D. C.

Pestona rufis, Chabuata angia, Eriopyga punctulum, Hypotrix purpurigera, Naesia moesta ♂, Neleucania niveicosta, Craterestra lucina, Perigonica angulata. Both Dr. Dyar and Dr. Schaus of this museum allowed the author free access to the collections. Without this privilege the writer would not have had an opportunity to examine these scarce North and South American forms.

Dr. William Barnes:

From his very fine collection of North American lepidoptera, Dr. Barnes very kindly loaned the following species.

Miodera stigmata ♂, Discestra charteria, ♀, Admetovis oxycorus ♂, ♀, Lophoceraurica artega, Ulolonche niveiguttata, ♂, Trichopolia dentistella, Acerra normalis, Xanthopastes tinias, Engelhardtia ursina, Hyperopia pl. *

† Mr. George O. Day, Vancouver Is. British Columbia.

Mr. Day was able to furnish many Noctuidae from his locality and among those he sent the writer were Lasialestra phoca, and Xylomania hiemalis,

which were used in this article. They were identical in structure and color with ^{specimens} in the American and National Museums.

Mr. George V. Hudson, Wellington, New Zealand.

Mr. Hudson stated in a letter to the writer that the species he sent were identified in the first place by Mr. Meyrick. All the species Mr. Hudson so kindly furnished are rare forms not often seen in collections. They are: Meterana pictula, Alysia specifica, Ichneutica ceramias

* Also Buchholzia colorada, Sm; Paramoena laetabilis, Sm; Ommatostola lintneri, Gr; Trichocymia inornata, Gr; and Cea immaculata, Gr

† Through the kindness of Dr Headlee, the writer examined the type of Ursogastra lunata, Sm, in the Rutgers College collection

Dr. A. Jefferis Turner, Brisbane, Australia.

Dr. Turner sent among other species a ♂ of Meliana lawinii (Eurypsyche similis) and this specimen is described in this paper.

The following species are still needed to complete this work and the writer would be very grateful to individuals who would loan the necessary specimens: * Miodera stigmata, Smith ♀ -- California

Magellana trisema, Mab. ---- Tierra del Fuego

Lasionycta skraelingia, H-S. -- Sweden. Lapland, Siberia

Meterana pictula, White ♂ ---- New Zealand

* Admetovis oxymorus, Gr ♂ ---- Colorado and California

Chebuate ampla, Walk. ♂ ----- Brazil

Monostola asiatica, Alp. ♀ ---- Tibet

Alotia vitellina, Hub. ♂ ----- Europe

Borolia furcifera, Moore ♂ --- India

Eurypsyche similis, But. ♀ --- Australia

Cirphis costalis, Walk ----- Tasmania

* Ursogastra lunata, Smith ----- Arizona

Faronta eleada, Smith ----- Texas

Hyperopia pi, ♀ Barnes and Lindsey -- U.S.A.

* Have examined

Preparation of Material

The specimens were first examined under a binocular and notes were made regarding the vestiture, crests, size of the proboscis etc. Then the frons was denuded in order to see clearly all the structural characteristics it might present. After this the legs were broken off on one side and examined under the binocular in which was a micrometer eyepiece. In this way the length of the tarsal

sture and tibial spines could be determined.* The wings received special treatment. This was as follows: First the wings on one side were broken off and allowed to float in a watch glass containing a solution of 'Eau de Labarague until they were bleached a dull grey. If allowed to bleach longer they become too clear when mounted in balsam. From the bleaching fluid they were removed to water and from the water they were carefully floated on a clean slide. When the wings were properly placed on the slide, the excess water was drained off and the slide set away to dry. When thoroughly dry the wings would adhere to the glass. By this time it was only necessary to put a few drops of balsam on the wing and set the cover glass in place. The next step was to photograph the slide. This was done by first placing the slide in front of a strong light and focusing upon it with an enlarging camera. When the outline of the wing and the veins stood out in strong contrast, the shutter was closed and a film holder containing a sheet of photographic paper was put in the camera. The picture was taken not on a film but on this sheet of paper. When developed, the outline of the wing and the veins stood out white against a black background. When the paper was thoroughly dry, the outline of the wing and the veins were filled in with india ink and the paper again allowed to dry. After this the paper was plunged into a solution of Hypo and Potassium Ferri-cyanide. In a very short time, the photograph faded out and all that was left was the India ink lines. These line drawings were then copied on to the plates. In some cases the specimens could not be mutilated to the extent of having their wings broken off. In such cases, the insect was mounted in front of a strong light, the wings were soaked in benzine and while they were still wet a photograph was made of the insect. Prints were taken of these photos and the prints in turn were treated

*These data not included

with the Hypo and Potassium solution mentioned above after the lines had been inked in

The palpi were also mounted on slides after they had been demuded. Usually a short soaking (10 minutes) in KOH solution (10%) would soften these organs so that they would not break when the scales and hair were being brushed off. These slides were placed in an Edinger Drawing Apparatus and the image was enlarged to the desired size. The outline of this image was then copied on to the writer's plates. In cases where it was not permissible to mount the palpi in this way, no attempt has been made to estimate the ratio of the palpal segments.

Glossary of Terms

By referring to the figures in the plates, one can become acquainted with the terminology used in this article. These illustrations obviate the necessity of a long glossary. The following terms, however, do require a few words of explanation.

Fine hair --- hair that is silky in texture

Coarse hair --- where the filaments are appreciably thick even to their tips. (fig. 2)

Hair-like scales --- the same texture as coarse hair but notched at the tip. (fig. 3)

Deeply cleft scales -- see fig. 4

Ratio of the palpal segments -- The length of the distal segment is taken as 1 and the lengths of the other segments are expressed as multiples of it. Measurements were made along the median axis of each segment.

Proboscis:

Weak or poorly developed -- when it would barely extend beyond the pro-coxae when unrolled.

Fully developed -- when it would reach at least to the mid-coxae.

Crests --- tufts of hair that stand out above the surrounding vestiture. In many cases the crests are very poorly defined especially if the coat is shaggy. In some specimens the abdomen shrivels badly after death and then the hairs stand out in such a manner as to give the impression of lateral crests.

Primaries:

Apex truncated --- cut off as in fig. 7

Apex rounded --- see fig. 8

Apex drawn downward --- see fig. 9

Apex pointed --- see fig. 10

Outer margin straight --- When the insect is properly spread, (the hind margin of the front wing at right angles to the median longitudinal axis of the body) and the outer margin of the fore wing runs parallel at least as far as vein M_3 , with the longitudinal axis of the body, then the outer margin is considered straight. The outer margin may be cremulated and still be considered straight.

Morphology of the Genotypes

It can hardly be expected that any single species, such as the genotype, will possess all the morphological characteristics to be found within that genus. In fact it is quite possible that the genotype will be the least typical. At any rate, it would seem that a study of the morphology of a single species within a genus, especial-

ly if that genus is a large one, would give a very narrow and restricted view of the genus. For this reason the writer has tried to show to what extent the various genotypes are typical of the genera they represent.

Wherever possible a series of each species was examined and the more usual type of structure was noted. In some cases, however, only a single specimen was available for study and in such instances the descriptions may be misleading.

In designating the various types of vestiture, frons, etc., it would seem that the distinctions have been very finely drawn. While this may be so, the writer, in discussing the validity or invalidity of the several genera, has taken care not to place too much weight upon minor differences that probably have only a specific value.

In some of the genera, the wings are short and stumpy: in others long and narrow. But these terms have not been used in the article because no set of ratios could be established that would enable one to define a long narrow wing and differentiate it from a short stumpy one. The extremes could be noted easily but the border-line cases would have to go undefined.

While the neuration of the sub-family is very constant, it was hoped that the branching of the veins about the areole would be of some use in generic classification. The areolar region, however, was found to be quite erratic and subject to wide individual variation. The differences noted in fig. 12 are not unusual and similar differences may often be found between specimens of the same sex.

The Head

Vestiture:

Type 1 - hair

Type 2 - hair and scales

Type 3 - scales

Type 4 - deeply cleft scales

Compound Eyes:

Type 1 - naked

Type 2 - clothed with short hair that is restricted to the posterior portion of the eye.

Type 3 - uniformly clothed with hair.

Frons:

Type 1 - rather uniformly rounded.

Type 2 - not uniformly rounded but rather tends to project forward and upward.

Type 3 - not uniformly rounded, projects forward and downward.

Type 4 - protrudes forward, not rounded front almost vertical.

Type 5 - protrudes slightly forward and downward, indications of a slight "T" shaped protuberance.

Type 6 - rounded and full, front slightly excavated.

Type 7 - uniformly rounded, ventral margin with a knob-like prominence.

Type 8 - with an inverted heart shaped protuberance which is smooth on its frontal surface.

Type 9 - with an inverted heart shaped protuberance which is roughened on its frontal surface.

Type 10 - with a truncated conical corneous process.

Type 11 - with a semi-lunate corneous prominence raised at the edges.

Type 12 - Extends forward and upward in the form of an inverted wedge which bears near its apex a smaller wedge shaped prominence. The ventral margin with an upturned corneous ridge.

Type 13 - Protrudes forward and upward with the frontal surface convex.

Male Antennae:

Type 1 - filiform, scaled above, vestiture of the ventral surface varies from long hair to fine cilia, setae may or may not be present. Antennae oval or round in cross section, sometimes flattened on ventral surface.

Type 2 - filiform, scaled above, vestiture of the ventral surface varies from long hair to fine cilia, setae may or may not be present. Antennae wedge shaped in cross section.

Type 3 - crenulated, scaled above, clothed with very long cilia beneath. Each segment bears a pair of very long lateral setae.

Type 4 - crenulated, scaled above, ventral surface of the crenulations bearing short cilia. At the tip of each crenulation there is a pencil of very long hair.

Type 5 - crenulated and flattened, scaled above, ventral

surface of the crenulations along their distal margins bear long hair. At the extremity of each crenulation there is a stiff seta which is more or less hidden by the hairy vestiture.

Type 6 - crenulated, scaled above, bearing fine cilia beneath. At the tips of the crenulations are pencils of long hair, no lateral setae.

Type 7 - crenulated, dorsal surface scaled, ventral surface covered with short hair. Each crenulation bears at its tip a tuft of long hair and a seta.

Type 8 - serrate, clothed above with scales and ventrally with a combination of fine cilia and long hairs, hairs restricted to the distal portions of the segments.

Type 8A - after Type 23

Type 9 - serrate-almost bivectinate-dorsal surface scaled, ventral surface covered with hair, longer bristles of hair on the tips of the serrations and on their mid-ventral surfaces. Serrations not of the same size on both sides of the antennae.

Type 10 - bivectinate, pectinations not of the same size on both sides of the shaft, even the longer ones quite short. At the end of each branch there is a rather prominent seta. Antenna scaled above, finely ciliated beneath with the exception of the pectinations which are clothed beneath with long hair.

Type 11 - flattened and bivectinate, pectinations not of the same size on both sides of the shaft. Dorsal surface scaled, ventral surface clothed with long hair. At the tips of each pectination there is a very prominent seta. Ventral surface of the shaft serrated.

Type 12 - bivectinate, pectinations not of the same

size on both sides of the shaft. Dorsal surface scaled, ventral surface ^{clothed with long hair} Each pectination terminated with a prominent seta. Ventral surface of the shaft crenulated.

Type 13 - bir ectinate and serrate, pectinations longer on one side than the other. Antenna scaled above, ventral surface of the shaft and pectinations clothed with long hair. At the end of each pectination there is a rather stout seta.

Type 14 - bir ectinate, pectinations not of the same size on both sides of the shaft. Dorsal surface of the antenna scaled, ventral surface of the shaft and the pectinations clothed with long hair.

Type 15 - bir ectinate, pectinations not of the same size on both sides of the shaft. Segments very distinct on their dorsal surface which is clothed with scales. Ventral surface of the shaft and the pectinations clothed with very long hair. Hair at the tips of the pectinations a trifle longer.

Type 16 - bir ectinate, pectinations not of the same size on both sides of the shaft. Antenna scaled above, ventral surface of the shaft and the pectinations clothed with moderately long hair.

Type 17 - bir ectinate, the pectinations not of the same size on both sides of the shaft. Antenna scaled above, ventral surface of shaft and pectinations clothed with long hair. At the tips of each pectination there are three prominent setae.

Type 18 - bir ectinate, pectinations not of the same size on both sides of the shaft. Antenna scaled above, ventral surface of the shaft and of the pectinations clothed with short hair. At the tips of each pectination there are two or three short setae.

Type 19 - bir ectinate, pectinations equal on both sides

of the shaft. Antenna scaled above, ventral surface of the shaft and the pectinations clothed with long hair. No setae at the tips of the pectinations

Type 20 - bipectinate, pectinations almost the same size on both sides of the shaft. Antenna scaled above, ventral surface of the shaft and the pectinations clothed with long hair. Each pectination bears at its tip a prominent seta.

Type 21 - bipectinate, pectinations of the same size on both sides of the shaft. Antenna scaled above, ventral surface of the shaft and the pectinations covered with short hair. Each pectination bears at its tip a prominent seta.

Type 22 - bipectinate, pectinations of the same size on both sides of the shaft. Antenna scaled above, ventral surface of the shaft and the pectinations clothed with long hair. Each pectination bears at its tip two or three prominent setae. Shaft serrate ventrally.

Type 23 - bipectinate, pectinations of the same size on both sides of the shaft. Antenna scaled dorsally, ventral surface of the shaft and the pectinations covered with short hair. Each pectination bears at its tips several prominent setae.

Type 8A - Serrate, the serrations formed by wedge shaped prominences on the ventral surfaces of the shaft. These prominences are clothed with long hair and a pair of lateral setae. Dorsally the antenna is scaled.

Note - a series of dashes indicates that material was not available for study.

Female Antennae:

Type 1 - filiform, scaled above, vestiture of the under surface varies from long hair to fine cilia. Setae may or may not be present. Antenna oval or round in cross section.

Type 2 - filiform, scaled above, vestiture beneath varies from long hair to fine cilia. Setae may or may not be present. Antenna wedge shaped in cross section.

Type 3 - serrate when viewed from the side, ventrally each segment is heart shaped, the upper lobes bearing several prominent setae. Dorsally scaled, ventral surface covered with fine cilia.

Type 4 - crenulated, scaled above, finely ciliated beneath. Each segment bears at least one pair of long setae near its distal extremity.

Type 5 - serrate, dorsally scaled, ventrally clothed with moderately long hair. Each segment bears a pair of prominent setae.

Type 6 - serrate and flattened. Dorsally scaled, ventral surface covered with long hair. Each segment bears a pair of lateral setae.

Type 7 - serrate, the serrations not of the same size on both sides of the shaft. Dorsal surface clothed with scales, ventrally covered with fine hair. Each segment bears a pair of very long lateral setae.

Type 8 - bipectinate, pectinations short and of the same size on both sides of the shaft. Dorsally scaled, ventral surface of the shaft and the pectinations clothed with long hair. Each pectination bears at its tip a prominent seta.

Type 9 - bipectinate, pectinations long and of the same size on both sides of the shaft. Dorsally scaled, ventral surface of the shaft and the pectinations covered with short hair. Each pectination bears at its tip a prominent seta.

Note - a series of dashes indicates that material was not available for study.

Vestiture of the palpi:

Type 1 - all segments connectively scaled

Type 2 - all segments scaled

Type 3 - proximal segment bearing a mixture of hair and scales, all other segments scaled.

Type 4 - proximal and middle segments bearing a mixture of hair and scales, distal scaled.

Type 5 - All segments bearing a mixture of hair and scales.

Ratio of the palpal segments

Type	Distal	Middle
1	1.0	.75 - 1.9
2	1.0	2.00 - 2.90
3	1.0	3.00 - 3.90

Note - a series of dashes indicates that the material could not be prepared for study

Proboscis:

Type 1 - fully developed.

Type 2 - poorly developed or weak.

The Thorax

Vestiture of the thorax:

Type 1 - hair

Type 2 - hair and scales

Type 3 - scales

Crests:

Type 1 - none.

Type 2 - a pro thoracic; others, if present, indistinct.

Type 3 - indistinct pro-and meta-thoracic crests

Type 4 - indications of a meta-thoracic crest.

Type 5 - a divided pro and a distinct meta-thoracic

crest.

Type 6 - a divided pro, a meso, and a meta-thoracic

crest.

Costal Margin of the Primaries:

Type 1 - straight.

Type 2 - straight but lobed at the base.

Type 3 - slightly convex.

Type 4 - concave.

Apex of the Primaries:

Type 1 - truncated.

Type 2 - rounded.

Type 3 - drawn downward, sometimes to a point.

Type 4 - pointed.

Outer Margin of the Primaries

Type 1 - straight to very obliquely incurved.

Type 2 - slightly convex.

Type 3 - rounded outwardly at the tips of veins M_2 and M_3 , very oblique to anal margin.

Type 4 - rounded outwardly at the tips of veins M_3 and Cu_1 , very oblique to anal margin.

Type 5 - excavated to the middle where it forms a distinct angulation.

Sc and R of the Secondaries:

Type 1 - Sc and R confluent at their bases.

Type 2 - Sc and R touching near the base of the wing then diverging.

Note - a series of dashes indicates that the material could not be prepared for study.

Vestiture of the fore-leg

Type 1 - femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled.

Type 2 - leg scaled throughout, not fringed with hair.

Structure of the fore-leg

Type 1 - typical in structure, i.e., with only the usual spines present.

Type 2 - fore tibia with a curved claw on the outer side.

Type 3 - a large curved spine near the distal end of the first tarsal segment, all spines on the first and second tarsal segment over developed.

Type 4 - one or two curved claws on the anterior face of the fore tibia, also a large curved spine at the distal extremity of the first tarsal segment.

Type 5 - the distal portion of the tibia bearing several large spurs on the anterior and posterior faces.

Type 6 - tibiae with several short spines.

Type 7 - with at least three very large spines on the outer side of the first tarsal segment, on the succeeding two segments the spines are over developed on the outer side.

Vestiture of the Middle-leg:

Type 1 - scaled, ventral edge of the femur and dorsal margin of the tibiae fringed with coarse hair and long scales.

Type 2 - scaled throughout, not fringed with hair.

Structure of the Middle-leg:

Type 1 - typical in structure, i.e., with only the usual spines on the tarsi and the two spurs on the tibia.

Type 2 - tibiae with several short spines rather evenly distributed.

Vestiture of the Hind-leg:

Type 1 - as type 1 of the middle-leg

Type 2 - as type 2 of the middle-leg

Structure of the Hind-leg:

Type 1 - typical in structure, i.e., with only the usual spines on the tarsi and four spurs on the tibia.

Type 2 - as type 2 of the middle-leg.

The Abdomen

Vestiture of the Abdomen:

Type 1 - hair dorsally and ventrally.

Type 2 - dorsally hair, ventrally mixed hair and scales.

Type 3 - dorsally hair, ventrally scaled.

Type 4 - dorsally mixture of hair and scales, ventrally mostly scales.

Type 5 - dorsally mixture of hair and scales, ventrally hair.

Type 6 - dorsally and ventrally mixture of hair and scales.

Type 7 - dorsally and ventrally scaled.

Dorsal Abdominal Crests:

Type 1 - none.

Type 2 - poorly defined.

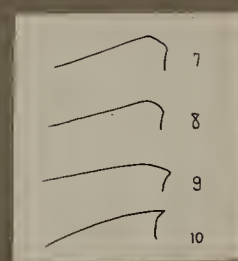
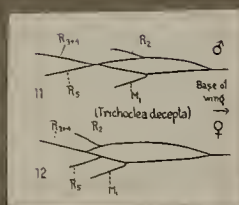
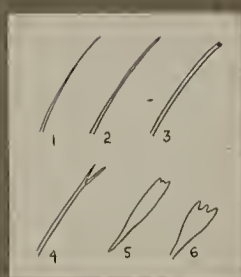
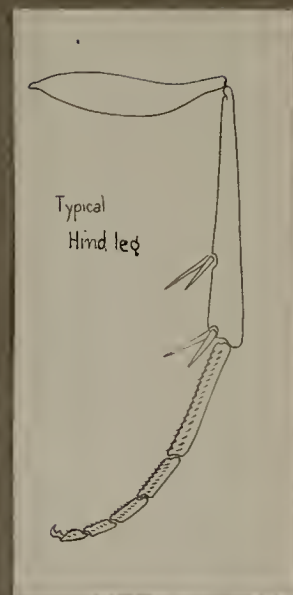
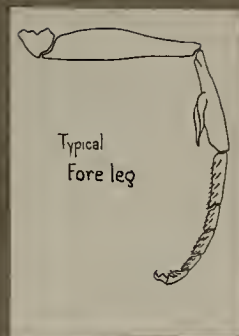
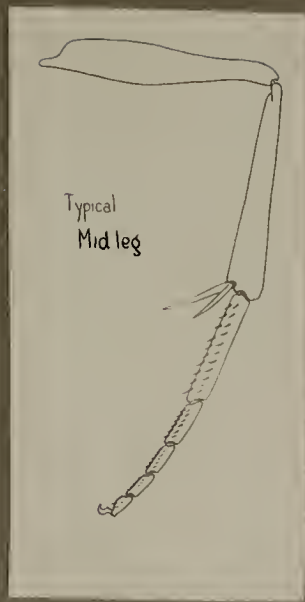
Type 3 - one on the first segment.

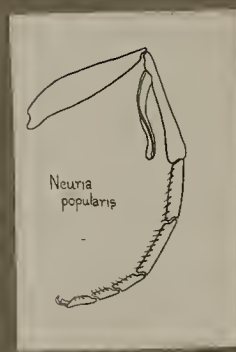
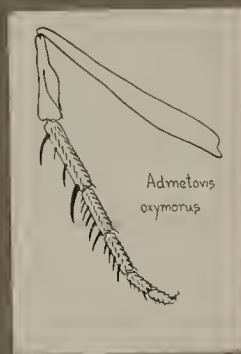
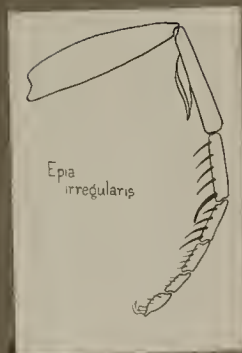
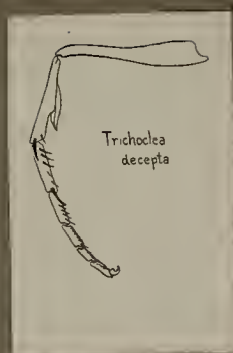
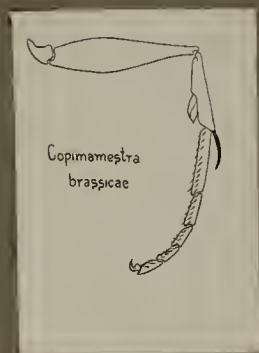
Type 4 - a crest on the first and second segments.

Type 5 - a crest on the first, indications of crests on the second and third.

Type 6 - crests on the first, second, and third segments.

Type 7 - a row of mid-dorsal crests.





All fore legs

Lateral Abdominal Crests:

Type 1 - none present.

Type 2 - crests indistinct.

Type 3 - present and distinct.

The Generic Concepts of Other Authorities

In many cases the original generic descriptions are so meager that one must consult the writings of other workers in order to get an adequate concept of the genera. In other instances the original descriptions are rather full but even here it is well to supplement them with notes from other authorities. Such notes usually include new morphological data and also show the range of variation that other workers would allow within the various genera. When ^a later writer has re-described a genus, such portions of his article as seem to give additional and valuable data have been included. X

Remarks

Under this topic the writer has attempted to show the various genera in which the genotype has been placed by other workers. Let us assume that genus A has for its type species b. Even after A has been erected, its type b may be placed in another genus for the following reasons:

(1) A later worker may refuse to recognize genus A and so place b in genus C. Then A and C may be identical if the type of A (b) and the type of C (d) do not differ markedly in their morphology. The law of priority should determine which generic name will stand.

If, on the other hand, b and d are very much unlike, then A and C are distinct genera and b can not remain in genus C.

(2) A later worker may recognize A but did not know at the time he wrote that b was its type, or at the time he wrote no type had been selected for A. For either reason he places b under C instead of A. If b had already been selected as genotype of A, then b and type of C must be compared as in (1) and the status of A and C be determined by comparative morphology and the law of priority. If b had not yet been selected as type of A it could be removed to C. When, at a later date, b was removed from C and made type of A, then the status and relationship of A and C would have to be determined by comparing b with the type of C. It might be possible that b not having been selected as type of A would be made genotype of C. In such a case b could not be selected later as type of A but another species (f) would have to be chosen as genotype of A. Then b and f should be compared to determine the status of A and C.

By making such comparisons of genotypes and by adhering to the law of priority, the writer has attempted to solve some of the problems of synonymy.

The Key, the Table and the Body of the Article.

The Key: This is based upon a study of the genotypes alone. It is hoped that it can be used in determining the generic position of species other than genotypes.

The Table: In order to very quickly compare two or more genera the table of morphological characteristics has been added. By means of this table it becomes easy to determine the ways in which the

various genera resemble or differ from each other.

The Body: This follows the table and is devoted to a detailed description of the various genera considered in this article.

Key to Genotypes

In making this key the writer has avoided, as far as possible, the use of such sexual characters as the structure of the male or female antennae. To do this it was sometimes necessary to make distinctions on the basis of the vestiture of the head or thorax or even the presence or absence of thoracic and abdominal crests. The use of such characters in the key is merely for convenience and they are not to be considered of primary importance in generic classification.

It is hoped that this key can be used to classify the many North American species of Hadeninae other than Genotypes.

A Eyes naked or apparently so

A¹ Tibiae of all legs bearing spines (An Agrotine genus ?)

Neleucania

B¹ Tibiae not bearing spines

A² Frons protrudes forward and upward with the frontal surface convex

Parameana

B² Frons rather uniformly rounded although sometimes very prominent

A³ Legs rather compactly scaled, antenna of the male serrate

Ommatostola

B³ Legs fringed with long hair and scales, antenna of the male filiform

Buchholzia

B Eyes clothed with short hair that is restricted to the posterior portion

A¹ Vestiture of the thorax a mixture of hair and scales

A² Apex of the primaries truncated, antenna of the male bipectinate, of the female filiform

Lophoceramica

B² Apex of the primaries rounded, antennae bipectinate in both sexes

Tricholita

C² Apex of the primaries drawn downward, antenna of male filiform

Ursogastra

- B¹ Vestiture of the thorax scales Trichopolia
- C Eyes hairy, hair uniformly distributed
- A¹ Frons uniformly rounded
- A² Proboscis fully developed
- A³ Costal margin of the primaries straight
- A⁴ Outer margin of the primaries straight to obliquely incurved
- A⁵ Fore leg with only the usual spines
- A⁶ Vestiture of the head hair, no scales
- A⁷ Vestiture of the thorax hair only
- A⁸ Apex of the primaries drawn downward, vestiture of the abdomen
hair and scales dorsally and ventrally Acerra
- B⁸ Apex of the primaries truncated, dorsal surface of the abdomen
covered with hair, ventral surface with hair and scales
Alysia
- B⁷ Vestiture of the thorax hair and scales
- A⁸ No dorsal abdominal or thoracic crests Heliophila
- B⁸ Thoracic and dorsal abdominal crests present Chabuata
- B⁶ Vestiture of the head hair and scales or scales only
- A⁷ Vestiture of the thorax hair
- A⁸ Antenna of the male filiform Pseudorthodes
- B⁸ Antenna of the male bipectinate pectinations not of the same
size on both sides of the shaft. Dorsal surface scaled,
ventral surface clothed with long hair. Each pectination
terminated with a prominent seta. Ventral surface of the
shaft crenulated Stretchia
- B⁷ Vestiture of the thorax hair and scales or scales only
- A⁸ Antenna of the male filiform oval or round in cross section
Mamestra group

B⁸ Antenna of the male filiform, wedge shaped in cross section

Hadena group

C⁸ Antenna of the male crenulated, ventral surface bearing short cilia. Pencils of long hair at the tips of the crenulations

Xylomyges

D⁸ Antenna of the male crenulated and flattened, scaled above ventral surface of the crenulations along their distal margin bearing long hair. At the extremity of each crenulation there is a stiff seta

Morrisonia

E⁸ Antenna of the male bipectinate, pectinations of equal length and all quite short. Ventral surface ciliated and at the end of each pectination there is a long seta

Nephelodes

F⁸ Antenna of the male flattened and bipectinate, the branches not of the same size on both sides of the shaft. Ventral surface of the shaft serrate and clothed with long hair. At the tip of each pectination there is a stout seta

Hyperepia

G⁸ Antenna of the male bipectinate and serrate but not flattened. Pectinations longer on one side than the other. Antenna scaled above ventral surface clothed with long hair. There is a stout seta at the tip of each pectination

Haderonia

B⁵ Fore leg with at least three very large spines on the outer side of the first tarsal segment. On the next two segments the spines on the outer side are over-developed

Admetovis

B⁴ Outer margin of the primaries rounded outwardly at the tips of veins M₂ and M₃, very oblique to the anal margin Pastona

- C⁴ Outer margin of the primaries rounded outwardly at the tips of veins M₃ and Cu₁, very oblique to the anal margin
Hypotrix
- D⁴ Outer margin of the primaries excavated to the middle where it forms a distinct angulation
Perigonica
- B³ Costal margin of the primaries straight but lobed at the base
Ulolonche
- C³ Costal margin of the primaries slightly convex
- A⁴ Vestiture of legs consists of compact scales
Meliana
- B⁴ Vestiture of legs consists of hair and scales
- A⁵ Apex of the primaries drawn downward
Eriopyga
- B⁵ Apex of the primaries truncated
- A⁶ Vestiture of head hair only
Himella
- B⁶ Vestiture of head a mixture of hair and scales or scales only
- A⁷ Vestiture of palpi scales only
Borolia
- B⁷ Proximal and middle segments of the palpi bearing scales and hair distal segment scaled
Naesia
- D³ Costal margin of the primaries concave
- A⁴ Apex of the primaries truncated
Anarta
- B⁴ Apex of the primaries pointed
Zosteropoda
- B² Proboscis poorly developed
- A³ Outer margin of the primaries slightly convex
Charaeas
- B³ Outer margin of the primaries straight or very obliquely incurved
- A⁴ Vestiture of the head and thorax hair
Monostola
- B⁴ Vestiture of the head and thorax hair and scales or scales only
Neuronia
- B¹ Frons not uniformly rounded but tends to project upward and forward
- A² Proboscis fully developed

- A³ Costal margin of the primaries straight
- A⁴ Fore legs with only the usual spines
- A⁵ Legs compactly scaled Trichocosmia
- B⁵ Legs fringed with hair and scales
- A⁶ Antenna of the male bipectinate of the female serrate Xylomania
- B⁶ Antennae of both sexes filiform
- A⁷ No distinct thoracic crest Cardepia
- B⁷ Distinct thoracic crest Barathra, Scotogramma
- B⁴ Fore leg with a curved claw on the outer side Copinamestra
- B³ Costal margin of the primaries straight but lobed at the base Lasiestra
- C³ Costal margin of the primaries slightly convex Eurypsyche
- B² Proboscis poorly developed
- A³ Apex of the primaries truncated, a distinct pro and meta thoracic crest present Perigrapha
- B³ Apex of the primaries drawn downward, no thoracic crests present Engelhardtia
- C¹ Frons not uniformly rounded but projects forward and downward
- A² Outer margin of the primaries straight or very obliquely incurved, vestiture of the thorax hair Sideridis
- B² Outer margin of the primaries slightly convex, vestiture of the thorax scales Neuria
- D¹ Frons not rounded, front almost vertical Dianthoecia
- E¹ Front protrudes forward and downward with indications of a slight "T" shaped protuberance Epia
- F¹ Frons rounded and full front slightly excavated Ichneutica

G¹ Frons uniformly rounded, ventral margin with a knob-like prominence

Xanthopastes

H¹ Frons with an inverted heart shaped protuberance which is smooth on its frontal surface

Trichoclea

I¹ Frons with an inverted heart shaped protuberance which is roughened on its frontal surface

Miodera

J¹ Frons extends forward and upward in the form of an inverted wedge which bears near its apex a prominence

Cea

K¹ Frons with a truncated conical corneous process

Craterestra

L¹ Frons with a semi lunate corneous prominence raised at the edge

Discestra

I		Table of Morphological Characters		(synonym) exotic genus?		Neleucania niveicosta, 5m		Copinamestra brassicæ, 1m		Trichoclea decepta, 6r		Ornmatostola linteri, 6r		Buchholzia colorada, 5m		Paramoana laetabilis, 5m		Ursogastra lunata, 5m		Lophoceramica arteaga, Barnes		Tricholita semiperta, Morr		Trichopolia dentatella, 6r		Perigonica angulata, 5m		Pastona rudis, Walk		Hypotrix purpurigera, 6m		
						♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	
HEAD	Vestiture			2	2	2	2	2	2	2	2	3	3	3	2	3	3	3	3	3	2	2	2	2	2	2	1	1	3	3	1	1
	Compound Eyes			1	1	3	3	3	3	3	3	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	
	Frons			1	1	2	2	8	8	1	1	1	1	1	1	13	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Antennæ			2	1	1	1	2	1	8A	1	2		2				21	21	9	13	1			9	1	1	1	1	1	1	
	Vestiture of Palpi			1	1	4	4	4	4	2	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
	Ratio of Palpal Seg			x	x	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	x	x	x	
	Proboscis			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Vestiture			2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	3	3	3	3
	Crests			6	6	5	5	1	1	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5
	Primaries-costa			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
THORAX	" -apex			3	3	1	1	2	2	2	2	2	2	3	3	2	2	2	3	1	1	2	2	1	1	4	4	2	2	3	3	3
	" -outer mar.			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	3	3	4	4	4	4
	Secondaries			x	x	1	1	1	1	1	1	1	1	1	1	2	2	2	x	2	2	2	2	1	1	x	x	x	x	x	x	
	Fore leg-vestiture			x	x	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	" -structure			5	5	2	2	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Mid leg-vestiture			x	x	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	" -structure			2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Hind leg-vestiture			x	x	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	" -structure			2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Vestiture			4	4	6	6	4	4	7	7	4	4	4	4	6	6	6	7	4	4	4	4	4	4	6	6	7	7	4	4	4
ABDOMEN	Dorsal Crests			3	3	7	3	3	3	1	1	1	1	1	3	3	3	3	1	1	3	3	3	3	3	2	2	1	1	1	1	1
	Lateral Crests			1	1	2	1	2	2	3	3	2	2	2	2	1	1	1	3	1	3	3	3	3	3	3	3	1	1	1	1	1

[illegible]

	Hadena cucubali, Schiff		(Aethria) serena, Schiff		(Astrapetis) dentina, Schiff		(Diataraxia) splendens, Hub		(Dargida) grammivora, Walk		(Eupsephopactes) procinctus, Gr		(Crocigrapha) normani, Gr		(Aplecta) nebulosa, Hufn		Eriopyga punctulum, Gn		Pseudorthodes vecors, Gn		Naesia moesta, Walk		Borolia turcitera, Moore		Meliana flamma, Curt		Heliophila pallens, Linn	
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
Vestiture	2	2	2	2	2	2	3	3	2	2	3	3	2	2	2	2	2	2	2	3	3			3	2	2	1	1
Compound Eyes	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3	3	3	3	3
Frons	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1	1
Antennae	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2			1	2	1	2	1
Vestiture of Palpi	3	3	4	4	4	4	4	4	4	4	4	4	4	4	2	2	2	4	4	4	4			2	2	2	2	2
Ratio of Palpal Seg	3	3	2	2	2	2	3	3	3	3	2	2	2	2	2	2	x	1/2	1/2	2	2			3	3	3	2	2
Proboscis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1	1
Vestiture	3	3	3	2	2	2	2	2	3	3	2	2	2	2	3	3	2	2	1	2	2			2	1	1	2	2
Crests	5	5	4	4	3	3	5	5	2	2	5	5	3	3	5	5	2	3	3	3	3			2	1	1	1	1
Primaries: costa	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	1	3	3			3	3	3	1	1
" - apex	1	1	2	1	1	1	1	1	1	1	1	1	2	2	1	1	3	3	2	1	1			1	3	3	3	3
" - outer mar	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1	1
Secondaries	2	2	2	2	2	2	2	2	1	1	2	2	1	1	2	2	x	1	1	1	1			2	2	2	2	2
For leg-vestiture	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	2	2	1	1
" - structure	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1	1
Mid leg-vestiture	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	2	2	1	1
" - structure	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1	1
Hind leg-vestiture	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	2	2	1	1
" - structure	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1	1
Vestiture	4	4	6	6	2	4	4	4	5	4	4	4	6	6	6	6	4	4	4	4	4			4	4	4	4	4
Dorsal Crests	7	7	2	2	7	7	7	7	2	2	4	4	3	3	3	3	3	3	1	1	1			1	1	1	1	1
Lateral Crests	3	1	2	2	3	2	2	2	3	1	3	3	3	3	1	1	1	1	3	1	1			1	1	1	1	1

HEAD

THORAX

ABDOMEN

VI

IV	Morrisonia evicta, Gr		Xylomyges conspicillaris, W.V		Himella fidelis, Gr		Alysia specifica, Gr		Hyperopia pi, B. & L		Nephelodes mimians, Gr		Monostola asiatica, Alph		Charaeg cespitis, W.V		Haderonia subarschanica, Stau		Epineuronia popularis, Fab	
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
Vestiture	2	2	2	2	1	1	1	1	3		2	2	1		2	2	2	2	2	2
Compound Eyes	3	3	3	3	3	3	3	3	3		3	3	3		3	3	3	3	3	3
Frons	1	1	1	1	1	1	1	1	1		1	1	1		1	1	1	1	1	1
Antennæ	5	1	4	1	6	1	7	1	11		10	1	22		19	1	13	1	23	3
Vestiture of Palpi	4	4	4	4	4	4	4	4	4		2	2	4		4	4	4	4	4	4
Ratio of Palpal Seg	$2\frac{1}{3}$	$2\frac{1}{3}$	2	2	1	1	2	2	2		2	2	2		2	2	1	1	2	2
Proboscis	1	1	1	1	1	1	1	1	1		1	1	2		2	2	1	1	2	2
Vestiture	3	3	3	3	2	2	1	1	3		2	2	1		3	3	3	3	2	2
Crest	5	5	5	5	1	1	1	1	5		5	5	1		5	5	5	5	1	1
Primaryes-costa	1	1	1	1	3	3	1	1	1		1	1	1		1	1	1	1	1	1
" - apex	1	1	1	1	1	1	1	1	1		1	1	1		1	1	1	1	1	1
" - outer mar.	1	1	1	1	1	1	1	1	1		1	1	1		1	1	1	1	1	1
Secondaries	2	2	1	1	1	1	2	2	2		2	2	1		2	2	1	1	1	1
Fore leg-vestiture	1	1	1	1	1	1	1	1	1		1	1	1		1	1	1	1	1	1
" - structure	1	1	1	1	1	1	1	1	1		1	1	1		1	1	1	1	1	1
Mid leg-vestiture	1	1	1	1	1	1	1	1	1		1	1	1		1	1	1	1	1	1
" - structure	1	1	1	1	1	1	1	1	1		1	1	1		1	1	1	1	1	1
Hind leg-vestiture	1	1	1	1	1	1	1	1	1		1	1	1		1	1	1	1	1	1
" - structure	1	1	1	1	1	1	1	1	1		1	1	1		1	1	1	1	1	1
Vestiture	6	6	6	6	6	4	2	2	4		4	4	6		4	4	6	6	6	4
Dorsal Crests	1	3	3	3	1	1	1	1	3		4	2	4		4	2	6	6	3	3
Lateral Crests	3	1	3	3	3	1	3	3	1		3	1	1		1	1	1	1	3	3

V	Acerra normalis, Gr		Stretchia plusiaeformis, H-Edw		Perigrappa I-cinctum, Sv		Xylomania hiemalis, Gr		Engelhardtia ursina, Smith		Lasigstra phoca, Mosch		Furypsycha similis, Butler		Cardeppa irritor, Frsch		Trichocosmia inornata, Gr		Barathra albicollis, Ochs		(Scotogramma) submarina, Gr		Dianthoecia carpophaga, Treit	
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
HEAD	Vestiture		1	1	2	2	1	1	3	3	1	1	3?	2	2	2	3	2	2	2	1	1	2	2
	Compound Eyes		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
	Frons		1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	
	Antennae		14	5	12	8	20	8	17	7	15	6	3	3	2	1	2	1	1	1	1	1	1	
	Vestiture of Palpi		2	2	5	5	4	4	5	5	4	4	1	1	4	4	2	2	4	4	4	4	3	
THORAX	Ratio of Palpal Seg.		1	1	2	2	1	1	$\frac{2}{3}$	$\frac{2}{3}$	2	2	3	3	$\frac{2}{3}$	3	2	2	2	2	2	2	3	
	Proboscis		1	1	1	1	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	
	Vestiture		1	1	1	1	1	1	2	2	1	1	3	3	3	3	3	3	2	2	2	2	3	
	Crests		5	5	5	5	5	5	5	5	1	1	1?	1	1	1	4	5	6	6	5	5	5	
	Primaries - costa		1	1	1	1	1	1	1	1	1	2	2	3	3	1	1	1	1	1	1	1	1	
ABDOMEN	" - apex		3	3	2	2	1	1	3	3	1	1	3	3	2	2	2	2	1	1	2	2	1	
	" - outer mar.		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
	Secondaries		1	1	1	1	2	2	1	1	2	2	2	2	2	2	2	2	1	1	x	x		
	Fore leg - vestiture		1	1	1	1	1	1	1	1	1	1	2	2	1	1	2	2	1	1	1	1	1	
	" - structure		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Mid leg - vestiture		1	1	1	1	1	1	1	1	1	1	2	2	1	1	2	2	1	1	1	1	1	
	" - structure		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Hind leg - vestiture		1	1	1	1	1	1	1	1	1	1	2	2	1	1	2	2	1	1	1	1	1	
	" - structure		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Vestiture		6	6	6	6	7	7	6	6	6	6	x	x	4	4	7	7	3	3	4	4	4	
Dorsal Crests		3	3	3	3	3	3	3	3	1	1	x	x	2	2	3	3	3	3	3	3	3		
Lateral Crests		3	1	3	1	3	3	3	3	1	1	x	x	2	2	1	1	1	1	1	1	3		

HEAD

THORAX

ABDOMEN

VI	Sideridis evidens, Hub		Neuria reticulata, Vill		Xanthopastes timais, Cram		Ichneutica ceramias, Mey		Craterestra lucina, Pruce		Discestra charitaria, Gr		Modera stigmata, Sm.		Cea immaculata, Gr	
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
HEAD	Vestiture															
	Compound Eyes															
	Frons															
	Antennæ															
	Vestiture of Palpi															
	Ratio of Palpal Seg															
	Proboscis															
	Vestiture															
	Crests															
	Primaries - costa															
THORAX	" - apex															
	" - outer mar.															
	Secondaries															
	Fore leg - vestiture															
	" - structure															
	Mid leg - vestiture															
	" - structure															
	Hind leg - vestiture															
	" - structure															
	Vestiture															
ABDOMEN	Dorsal Crests															
	Lateral Crests															

The Hadeninae

The Noctuidae can be divided into two groups on the bases of the development of vein 5 (M_2) of the hind wing. By far the greater number belong to the group in which this vein is well developed but in four subfamilies i e Agrotinae, Hadeninae, Cucullianae, and Acronyctinae, vein 5 is obsolescent from the middle of the discocellulars. It can be seen from this that the Hadeninae are closely related to three other subfamilies.

Hampson gives the following key for the separation of the four subfamilies

- a¹ Mid and hind tibiae or hind tibiae only spined - Agrotinae
- b¹ Mid or hind tibiae not spined
 - a² Eyes hairy Hadeninae
 - b² Eyes not hairy
 - a³ Eyes overhung by cilia Cucullianae
 - b³ Eyes not overhung by cilia Acronyctinae

A more complete discription of the Hadeninae, taken from Hampson, is as follows

"Proboscis usually well developed, sometimes aborted; palpi usually short, upturned or porrect; frons often with rounded prominence with corneous plate below it, or with corneous processes of various forms; eyes hairy, sometimes overhung by long cilia; antennae usually ciliated, often pectinated or serrate. Thorax clothed with hair and scales when there are usually crests on the pro- and meta thorax, or a ridge like dorsal crest, or clothed with hair only; tibiae without spines, the fore tibia rarely with terminal spine, the proximal joints of the fore tarsi sometimes with curved claw like spines; abdomen usually with series of dorsal crests or one crest at the base. Wings usually broad, the termen rounded or crenulate, rarely slightly angulated at the middle; fore wing with vein 1a weak, not anastomosing with 1b; 1c absent; 2 from middle of cell; 3 and 5 from near lower angle; 6 from

upper angle; 9 from 10 anastomosing with 8 to form the areole; in Eriopyga with 7, 8, 9, stalked; 10 from cell. Hind wings with veins 1a and 1b present, 1c absent; 3 and 4 from lower angle of cell; 5 obsolescent from or from just below the middle of the discocellulars; 6, 7 from upper angle or shortly stalked; 8 arising free then bent down touching the cell then again diverging. In several genera the males often have secondary sexual tufts of hair or fans of scales on the thorax, legs or abdomen and in the genus Eriopyga patches of androconia on the wings of very diverse form. In Cirphis the underside is sometimes clothed with silvery metallic scales."

Of the characteristics mentioned above, many of which are not peculiar to the Hadeninae, the vestiture of the eyes and the spinosity of the tibiae deserve further consideration.

In a typical Hadenine, the eyes are evenly clothed with hair which may be long or short. However, this characteristic is not constant for the entire subfamily for in four genera the eyes appeared to be naked (Dr. Barnes claims that the hair is present but very fine and difficult to see) and in four other genera the hair is present but confined to the posterior portion of the eye.

As a rule the tibiae of the Hadeninae are not provided with spines the spinose condition being found chiefly in the Agrotinae. However several genera whose hairy eyes place them in the Hadeninae, show well developed spines or claws on the tibiae.

It would seem from what has been said concerning the vestiture of the eyes and the spinosity of the tibiae, that there are several Hadenine genera which stand between the true Hadeninae and its allied subfamilies. This fact has had some bearing upon the arrangement of the genera in this article. Since the members of the related subfamilies have naked eyes the writer assumes that the stock from which the Hadeninae arose also had naked eyes.

This idea seems to be supported by the fact that in four genera the eyes are either naked or apparently so and in four other genera are only partly clothed with hair.

The four genera in which the eyes are apparently naked have been placed first but this group shows two lines of development - one in which the spinose condition of the tibiae is retained (related to Agrotinae ?) as in Meleucania, and the other in which the spines have been lost viz. Buchholzia, Ommatostola, and Parameana. From the Meleucania section the writer would evolve genera in which the fore tibiae are provided with a single claw and the eyes have taken on a hairy vestiture, - Copimamestra and Trichoclea. Related to the group represented by Buchholzia etc. are the forms in which the eyes are partly clothed with hair - Ursogastra, Lophoceramica, Tricholita and Trichopolia. Next comes the bulk of the genera that are typical Hadenines having uniformly hairy eyes and no tibial spines or claws. There are many ways in which these could be divided but the writer has chosen to arrange them on the bases of wing form - those in which the outer margin is more or less even and those in which the outer margin is produced in the form of a lobe or angulated. The former section (normal wing form) can be further divided into two groups: (1) those with enlarged spines on the first tarsal segment and (2) those in which all tarsal spines are normal in their development.

The genera are accordingly grouped in the following sequence

- I Meleucania - Copimamestra, Trichoclea
- II Buchholzia - Parameana, Ommatostola
- III Ursogastra - Lophoceramica, Trichopolia, Tricholita
- IV Perigonica - Pastona, Hypotrix
- V Epia - Admetovis

The remaining genera - passing from those in which the frons is simple to those in which it is modified and ornamented can be arranged as follows

VI Frons uniformly rounded, antennae in both sexes simple filiform

(a) The antenna in the male may be oval in cross section (Manestra and allied genera) or

(b) wedge shaped in cross section (Hadena and its allies)

a. Manestra, Anarta, Chabuata, Ulolonche, Aletia, Zosteropoda,

b. Hadena, Eriopyga, Pseudorthodes, Maesia, Borolia ?, Mehana,

Heliophila

VII Frons uniformly rounded, antennae of the male, variously formed but never filiform - A number of genera which do not differ markedly from each other with the exception that the male antenna range from serrate to bipectinate

Morrisonia, Xylomyges, Himella, Alysia, Hyperopia, Nephelodes,

Monostola, Charaeas, Haderonia, Epineuronia, Acerra, Stretchia

VIII The remaining genera in which the frons may protrude slightly or bear some distinctive type of ornamentation

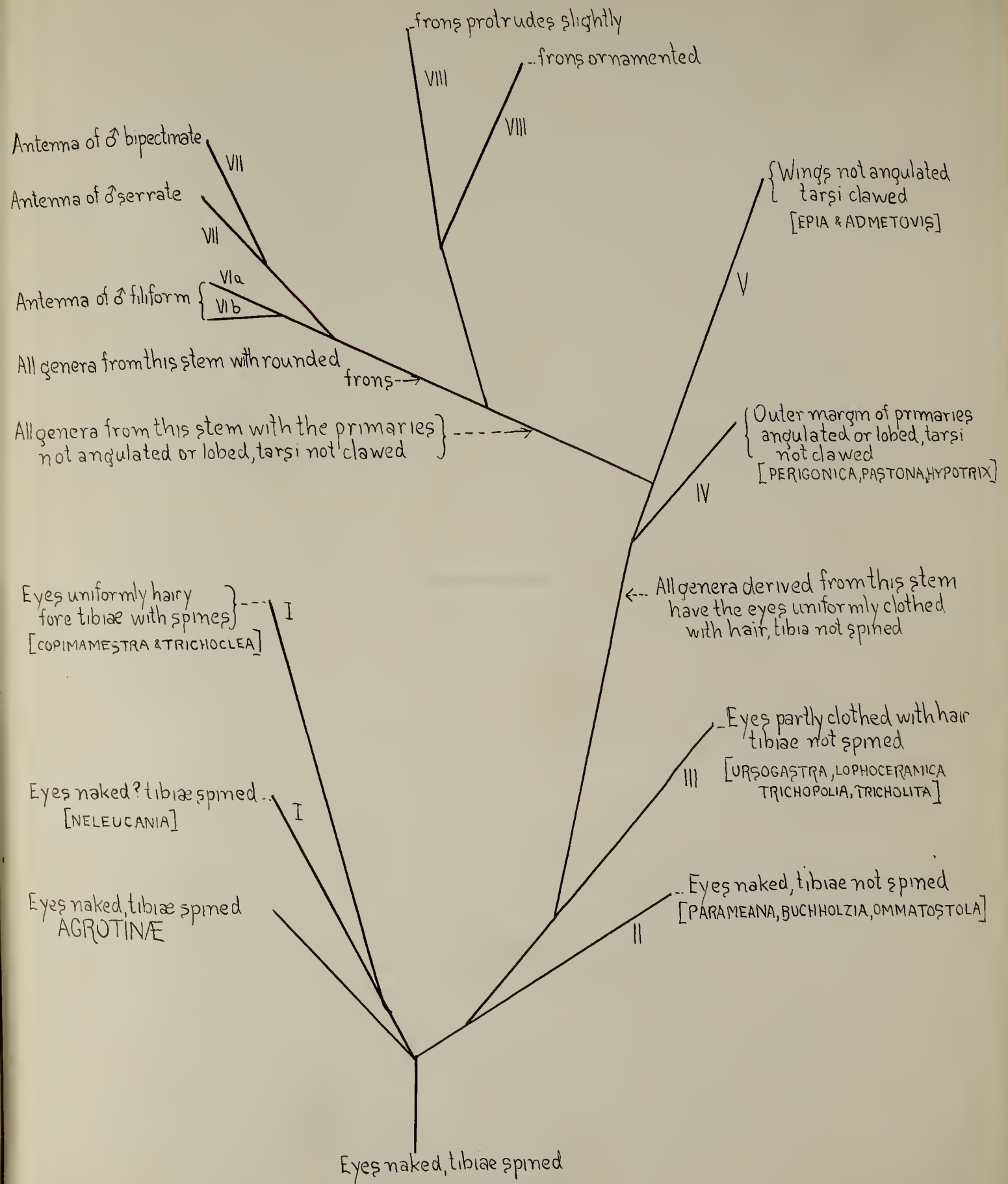
Perigrapha, Xylomania, Engelhardtia, Lasiestra, Eurypsyche, Cardeia,

Trichocosmia, Barathra, Scotogramma, Dianthoecia, Sideridis, Leuria,

Xanthopastes, Ichneutica, Crateristra, Discestra, Miodera, Cea.

The relationship of the various groups on this basis is shown in the following diagram. When our knowledge of the Hadeninae and related sub-families becomes more complete, it is quite likely that this arrangement will have to be modified or even discarded. At present however it seems to the writer to be a convenient grouping of the genera of the North American Hadeninae.

THE RELATIONSHIP OF THE HADENINE GROUPS.



GENUS NELEUCANIA Smith

Original Description of the Genus

Smith, J. B.: Proceedings of the United States National Museum, XXV, p. 203, 1902.

"Eyes hairy, without bristly lashes, round convex not prominent. Head as a whole moderate in size, retracted rather than prominent, but not strongly defined either way, vestiture loose, fine hair, giving a smooth wooly appearance. Palpi moderate or rather short, oblique, reaching to and sometimes exceeding middle of front, rather slender, the terminal joint proportionally rather long, oblique or even drooping, vestiture loose. Antennae of the ♂ feebly ciliated. Thorax moderately developed, with loose, long, thin vestiture forming no tufts and leaving collar and patagiae undefined. Abdomen reaching to or exceeding the hind angle of secondaries, more often longer and somewhat disproportionately slight. Legs unarmed except for the usual tibial spurs, in the ♂ with more or less well marked sexual tuftings which are most obvious on the middle tibiae. Primaries rather narrow, elongate, the costa a little depressed, apices a little pointed, outer margin a little arcuate or entirely rigid, oblique. --- The genus differs from Leucania chiefly in the narrow subequal primaries, having the costa depressed, the outer margin rather rigidly cut off, and in the long abdomen."

N.niveicosta n.sp.

N.bicolorata Gr.

N.citronella n.sp.

N.patricia Gr.

N.praegracilis Gr.

Colorado

Colorado, New Mexico

Colorado

Colorado, New Mexico

Idaho.

Selection of the Genotype

Neleucania niveicosta Smith Genotype designated by Hampson
(Catalogue of the Lepidoptera Phalaenae, Vol. V, p. 576, 1905).

Morphology of the Genotype

The writer made his descriptions from specimens in the United States National Museum one of which, a ♀, was the type. The following characteristics were noted:

Head

Vestiture: coarse hair and hair-like scales; Compound Eyes: naked;
Frons: uniformly rounded, ventrally, margin with an upturned point;
Antennae: ♂ filiform, scaled above, finely ciliated beneath. When seen in cross-section the antenna is wedge-shaped. In the ♀, the antenna is filiform, scaled above, finely ciliated beneath, and oval in cross-section. Each segment bears a pair of lateral setae; Palpi: all segments closely scaled. Ratio of the segments:-----
Proboscis: fully developed.

Thorax

Vestiture: coarse hair and some scales; Crests: a pro, meta, and also a meso-thoracic crest; Wings: primaries with the costal margin straight, apex drawn downward to a point, outer margin oblique. Secondaries with Sc and R ---; Legs: distal portion of the tibia of the fore-leg bearing several large spurs on the anterior and posterior surfaces. Tibiae of mid and hind-leg also bearing smaller spurs evenly distributed; Vestiture of the legs - undetermined legs badly rubbed.

Abdomen

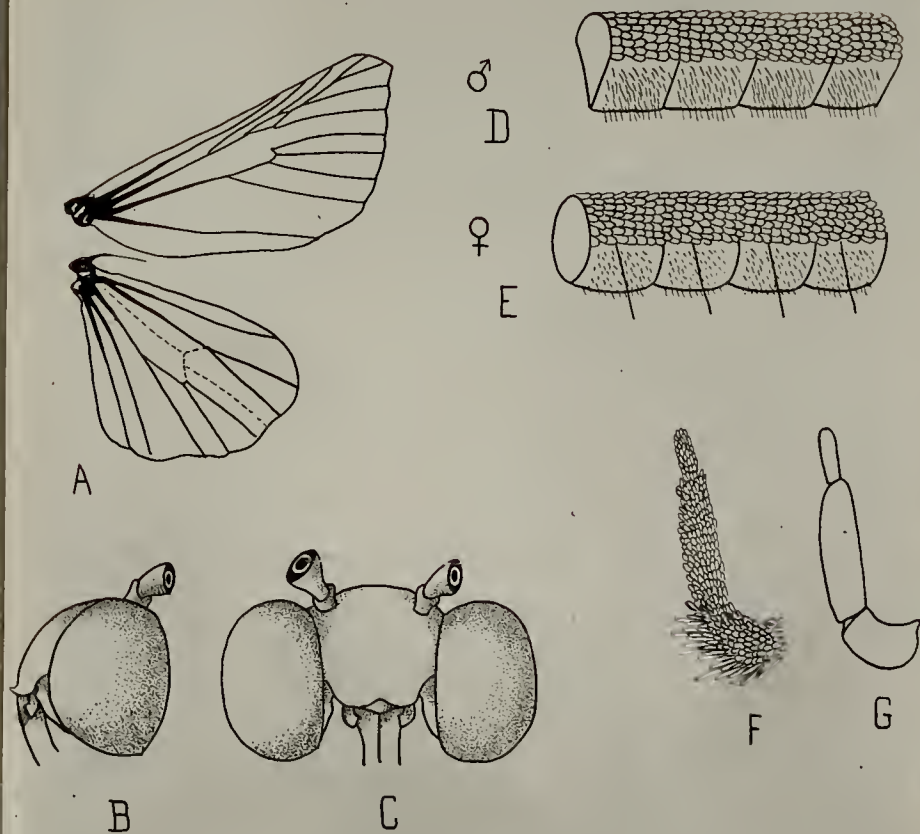
Vestiture: dorsally hair and scales, ventrally scales; Crests: a mid-dorsal on the first segment; Size: body extends beyond the Secondaries.

It can be seen that niveicoata does not agree very well with the generic description of Smith, particularly in the naked eyes and the spinose tibiae. The species, therefore, is not typical of its genus.

Remarks

Barnes, Dyar, and Hampson place niveicoata under Naleucania thereby recognizing this genus although the genotype does not agree very well with the original description. In niveicoata the most striking characteristics are its naked eyes and well developed spurs on the legs. These characters not mentioned by Smith would seem sufficient to make the genus worthy of recognition and it should stand near Lophoceramica, Tricholita, and Trichopolia whose eyes are only partly clothed with hair.

Genus Neleucania, Smith



A-Wing

B-Head, side view

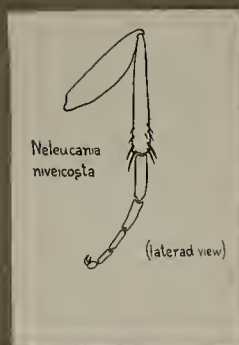
C-Head, front view

D-Antenna of the ♂

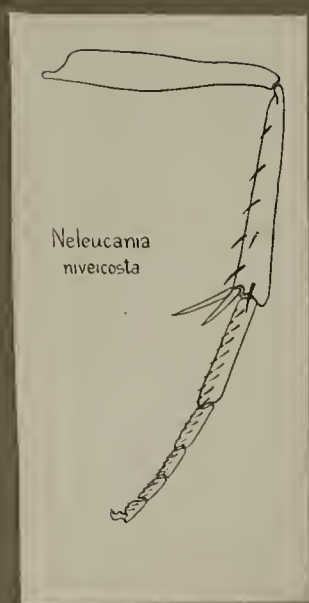
E-Antenna of the ♀

F-Palpus

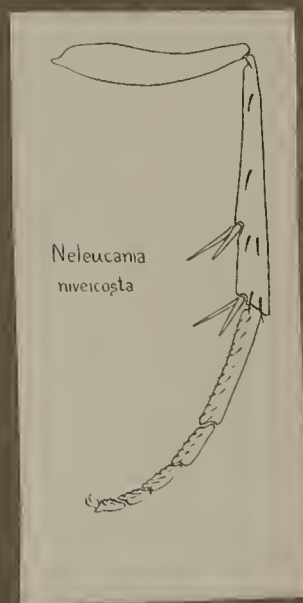
G-Palpus denuded.



Fore leg



Middle leg



Hind leg

GENUS COPIMAMESTRA Grote.

Original Description of the Genus.

Grote: Annals and Magazine of Natural History, (5) XI, p. 54, 1883.

"This agrees with Mamestra except that the fore tibiae are armed with a distinct large claw. Eyes hairy. Abdomen tufted. Tibiae unarmed. The types are the European C. brassicae, and the following new species.

Copimamestra occidentis, n.s. New Mexico"

Selection of the Genotype.

Copimamestra brassicae Linn Designated by the author in this original description of the genus. Also selected by Hampson as the type of Copimamestra in 1905, (Cat. Lep. Phalaenae Vol. 5.)

Morphology of the Genotype

Head

Vestiture: coarse hair and scales; Compound Eyes: uniformly clothed with long hair; Frons: protrudes forward and upward not rounded, ventral margin pointed but without a corneous ridge; Antennae: ♂ filiform scaled above, clothed with hair beneath, a pair of lateral setae on each segment. In the ♀ the antennae are like those in the ♂ but clothed with ciliae beneath; Palpi: proximal and middle segments scaled and bearing coarse hair beneath, distal segment scaled. Ratio of the segments: prox. 2.25, mid. 2.25, distal 1; Proboscis: fully developed.

Thorax

Vestiture: some coarse hair but mostly scales; Cresta: divided prothoracic, and a distinct meta-thoracic; Wings: primaries with the costa straight, outer margin incurved, apex truncated. Secondaries with Sc and R confluent at their bases; Legs: femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Tibia with a curved

claw on the outer side. Middle-leg: scaled, ventral edge of the femur and the dorsal margin of the tibia fringed with coarse hair and long scales. Hind-leg: with the same type of vestiture as the middle-leg. Middle and hind legs typical in structure.

Abdomen

Vestiture: covered dorsally and ventrally with hair and scales;
Crests: ♂ mid dorsal crests on the first to fifth segments inclusive. Some indications of lateral tufts. ♀ mid-dorsal crest on the first abdominal segment. No lateral crests; Size: extends well beyond the secondaries.

The Genus Copinamestra According to Other Authorities

Copinamestra is not recognized as a valid genus. Hampson lists it as a synonym of Barathra. He makes brassicae its type and this is in harmony with Grote's conception of his genus (See original description of the genus Copinamestra) Brassicae is rightly taken as the type of Copinamestra, so albicolon must be taken as the type of Barathra (See original description of the genus Barathra) by elimination. Since albicolon and brassicae are not congeneric owing to their differences in structure, the genus Barathra of Hübner must be split up into two genera: Barathra with albicolon as its type and Copinamestra with brassicae as its type. The status of Copinamestra will be discussed in the following paragraph.

Remarks

Copinamestra brassicae differs from Barathra albicolon in having a curved claw on the tibia of the fore leg. On the bases of this characteristic, the writer would make Copinamestra a valid genus.

Guenee: Manestra brassicae

Hampson: Barathra brassicae

Herrich-Schaeffer: *Polia brassicae*

Ochsenheimer: *Manestra brassicae*

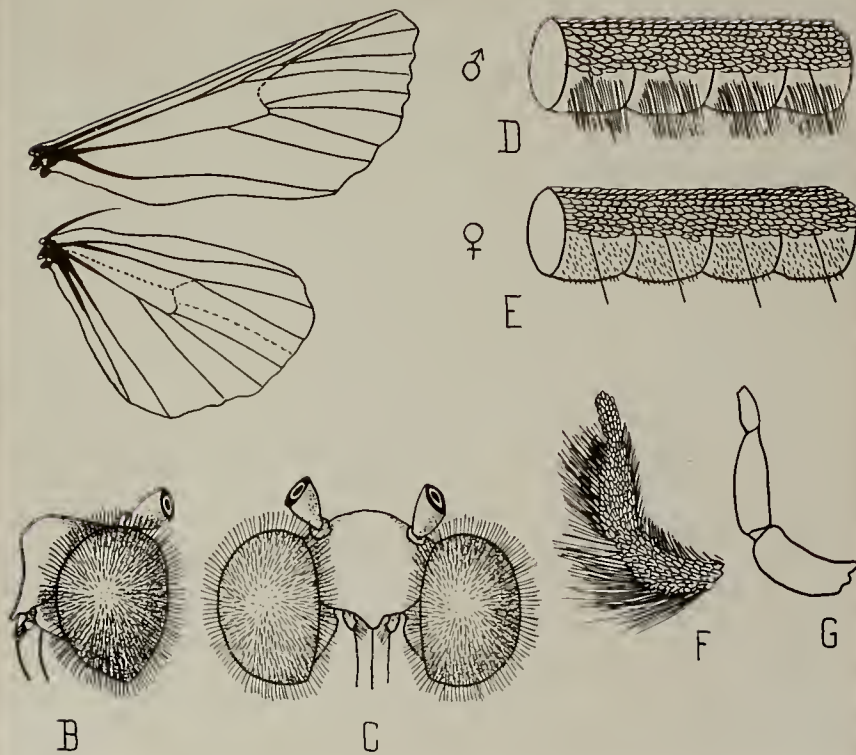
Seitz: *Barathra brassicae*

Staudinger: *Manestra brassicae*

Stephens:

Walker: *Manestra brassicae*

Genus Copimamestra Gr



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

G-Palpus denuded

GENUS TRICHOCLEA Gr.

Original Description of the Genus

Grote: Papilio, Vol. III, p. 30, 1833.

"Eyes hairy, lashed. Front with a protuberance concealed by the short, close scales; globosa, clypeal plate prominent. Palpi moderate, third article distinct, oblique. Tongue well sized. Tibiae unarmed. Body untufted. Male antennae ciliated, simple. Aspect of Carneades. Looks like a small Manestra trifolii. Care must be taken to distinguish this from very similar forms, differing structurally, from the same locality."

"Trichoclea decepta, n.s. Arizona"

Selection of the Genotype

Trichoclea decepta Gr. Genus is monotypical.

Morphology of the Genotype

Inasmuch as decepta was the only species listed in the original description, it must bear all the characteristics of the genus so far as the authors conception of his genus is concerned. However, he failed to see the spines which occur on the fore tibia, and the large spine on the first tarsal segment of the fore-leg.

Head

Vestiture: hair and hair-like scales; Compound Eyes: uniformly clothed with short hair; Frons: with an inverted "heart-shaped" protuberance, ventral margin with an upturned point; Antennae: ♂ filiform, scaled above, clothed with moderately long hair beneath, each segment bears a pair of lateral setae. When seen in cross-section, the antennae is wedge-shaped. In the ♀, the antennae is filiform, scaled above, finely ciliated beneath and oval in cross-section. Each segment bears a pair of lateral setae; Palpi: proximal segment scaled

and with some coarse, long hair beneath, middle segment scaled and with a very few short hairs beneath, distal segment scaled. Ratio of the segments: prox. 2.0, mid. 2.5, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: scales and hair-like scales; Crests: if present not well defined; Wings: primaries with the costal margin straight, apex rounded, outer margin nearly straight. Secondaries with Sc and R confluent at their bases; Legs: femur of fore-leg fringed with hair beneath, remainder of leg scaled. There are one or two curved claws on the anterior face of the fore tibia. There is also a large curved spine at the distal extremity of the first tarsal segment, Middle-leg: scaled; ventral edge of the femur and dorsal margin of the tibia, fringed with coarse hair and long scales. Hind-leg: the same type of vestiture as the middle-leg. Middle and hind legs typical in structure.

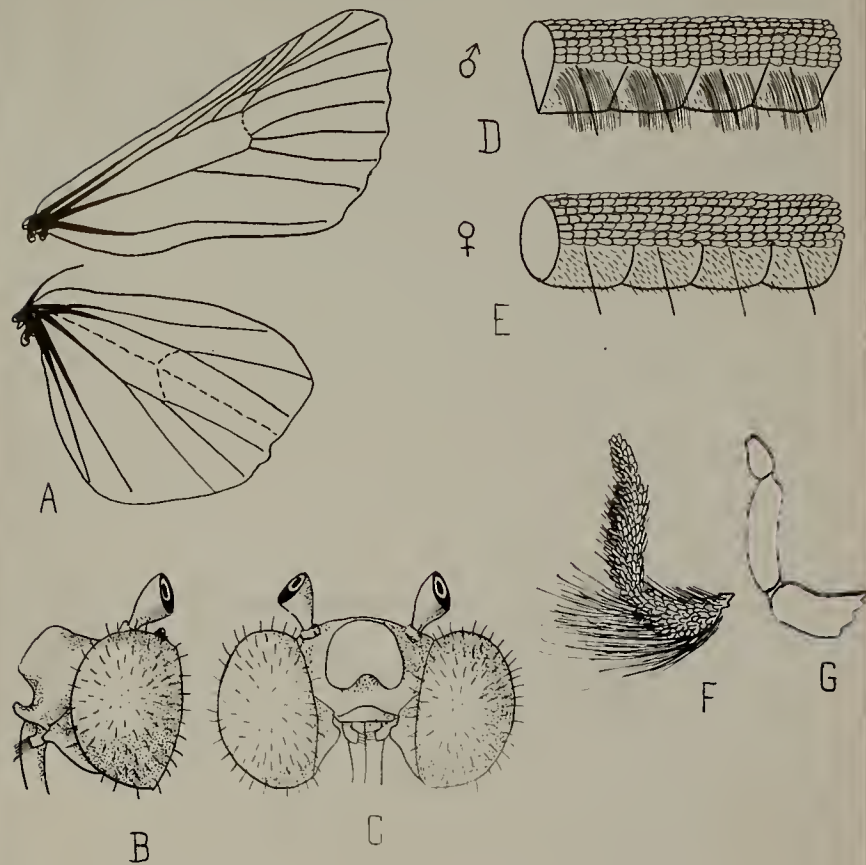
Abdomen

Vestiture: dorsally hair and scales, ventrally scales; Crests: a mid-dorsal crest on the first abdominal segment. Faint indications of lateral crests; Size: body extends well beyond the secondaries.

Remarks

This genus cannot be confused with any other as the spinosity of the fore tibia and the heart shaped protuberance are very distinctive.

Genus Trichoclea, Gr.



A-Wings
 B- Head, side view
 C- Head, front view
 D-Antenna of the ♂

E-Antenna of the ♀
 F-Palpus
 G-Palpus denuded

GENUS OMMATOSTOLA Grote.

Original Description of the Genus

Grote Bulletin Buffalo Society of Natural Science Vol. I, p. 112, 1873.

"Ocelli. Eyes naked, strongly lashed, Maxillae comparatively stout, corneous, dark. Antennae scaled above, bristled beneath, with two more rigid spinules on each joint. Robust, thickly haired; thorax large, square in front without tufts; head prominent, eyes large. Wings elongate: primaries with straight costal and rounded external margin."

"Ommatostola lintneri, Grote"

Selection of the Genotype

Ommatostola lintneri Grote monotypical.

Morphology of the Genotype

Head

Vestiture: scales; Compound Eyes: apparently naked; Frons: uniformly rounded, ventral margin without corneous ridge or point. Antennae ♂ serrate, the serrations formed by wedge shaped prominences on the ventral surface of the shaft. These prominences are clothed with long hair and bear a pair of lateral setae. Dorsally the antenna is scaled. ♀ Filiform, scaled above, clothed with fine cilia beneath. Each segment bears a pair of lateral and a single mid ventral setum. Palpi: proximal and middle segments scaled and bearing some longer scales beneath, distal segment compactly scaled. Ratio of the palpal segments; prox. 2.0, middle 2.3, distal segment 1.0. Proboscis: fully developed.

Thorax

Vestiture: hair like scales; Crests: a meta-thoracic crest; Wings: Primaries with the costa straight, apex rounded, outer margin obliquely incurved. Secondaries with Sc and R confluent at their bases; Legs: All legs rather compactly scaled and normal in structure.

Abdomen

Vestiture: dorsally and ventrally scaled; Crests: no dorsal crests, lateral crests in both sexes. Size: body extends beyond the secondaries.

Genus *Ommatostola* According to other Authorities

Barnes and Benj. Pan Pacific Ent., Oct. 1926, p. 68.

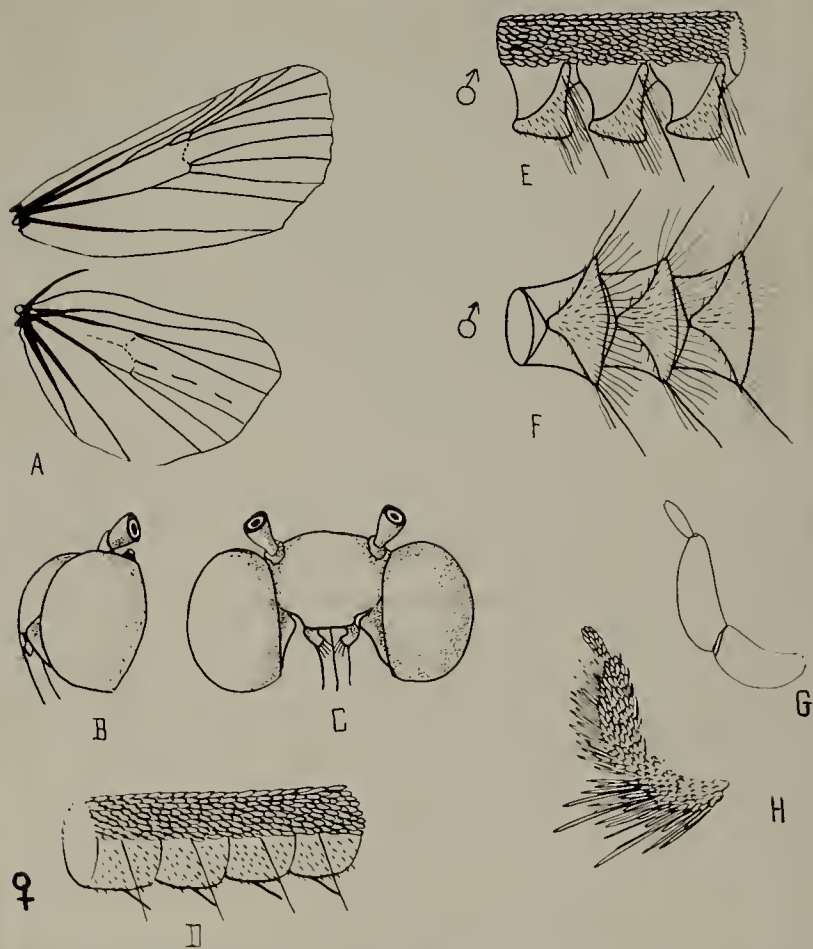
"Proboscis fully developed, palpi obliquely upturned the second joint not reaching the middle of the frons, the third joint porrect, frons somewhat roughened but not greatly rounded out, eyes large, round, ciliated from behind only, hairy, the hair obsolescent and difficult to see. Antennae of the male beaded and ciliated; thorax clothed with hair intermixed with flattened hair and a few narrow bifurcated scales; crests obsolescent practically obsolete, tibiae fringed with hair, first abdominal segment with some hair dorso-laterally, abdomen otherwise rather smoothly scaled without crests. Fore wing with the apex rounded, the termen obliquely curved and not crenulate:"

A true Hadenine close to Faronta but having a more normal wing shape, somewhat longer palpi, possession of rough hair on the basal abdominal segment, the thoracic vestiture without broad scales, and the obsolescent nature of the hair on the eyes.

Remarks

A good genus and one that is easily recognized but its position among the Hadeninae is questionable.

Genus *Ommatostola*, Grote.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♀

E-Antenna of the ♂

F-♂ antenna, ventral view

G-Palpus denuded

H-Palpus.

Original Description of the Genus

Barnes and Benjamin: Pan Pacific Entomologist Vol. III, p. 68, 1926.

" Type *Arsilonche colorada* Sm.

"Proboscis fully developed; palpi unturned, the second joint reaching the frons and moderately fringed with hair, the third joint porrect; vertex with a strong band of hair like scales between and ventrad of the antennae sockets; frons with a rounded roughened prominence covered with scales, the central scales usually lost due to rubbing, the clypeal plate small; eyes large, round, ciliated from behind, hairy, the hair obsolescent and difficult to see; antennae of the male ciliated: thorax clothed with hair and hair-like scales, the pro and meta-thorax with small spreading crests; tibiae unarmed, moderately fringed with hair; abdomen with some rough hair at the base, especially laterally, dorsally tending to form an obsolescent crest on the first segment. Fore wing with the apex somewhat produced and acute, the termen evenly curved and hardly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; radial veins variable individually, 9 from 10 anastomosing with 8 to form the areole, or 9 from 10 anastomosing with the stalk of 7 and 8 to form the areole; 11 from cell. Hind wings with veins 3, 4 from angle of cell; 5 obsolescent from about one third below middle of discocellulars; 6 and 7 shortly stalked from upper angle (in all available material, probably a character subject to individual variation); 8 anastomosing with the cell near base only".

" This is in reality the genus Cea of Hampson, but not of Grote. The genus belongs to the Hadeninae, and is close to Paronta, Sm. The obsolescent nature of the hair on the eyes will immediately separate this genus from its allies in the Melaeucania - Paronta group except from the genus Ommatostola. In wing shape and hair on the eyes it resembles the latter.

Buchholzia has the frons heavily rounded out and clothed with closely appressed scales; Ommatostola has the frons much less rounded out, smoother, and covered with a dense vestiture of hair, hair-like scales, and scales.ⁿ

Selection of the Genotype.

Buchholzia colorada Sm. designated in original description.

Morphology of the Genotype

Head

Description from a single male specimen.

Vestiture: coarse hair and scales; Compound Eyes: apparently naked; Frons: uniformly rounded prominent, ventral margin without corneous ridge or point; Antennae: ♂ Filiform scaled above, clothed with long hair beneath, each segment bears a pair of lateral setae. Antenna wedge shaped in cross section ♀ ----- ; Palpi: proximal and middle segments scaled and clothed with coarse hair and scales beneath, distal segment scaled. Ratio of the segments: prox. 2.75; middle 2.75; distal 1.0. Proboscis: fully developed.

Thorax

Vestiture: scaled; Crests: a meta thoracic tuft; Wings: Primaries with the costa straight, apex drawn downward, outer margin incurved, Secondaries with Sc and R touching at their bases. Legs: Femur of the fore leg fringed with coarse hair beneath, remainder of the leg scaled. Middle leg scaled, ventral edge of the femur and dorsal margin of the tibia fringed with coarse hair and long scales. Hind leg with the same type of vestiture as the middle leg. All legs typical in structure.

Abdomen

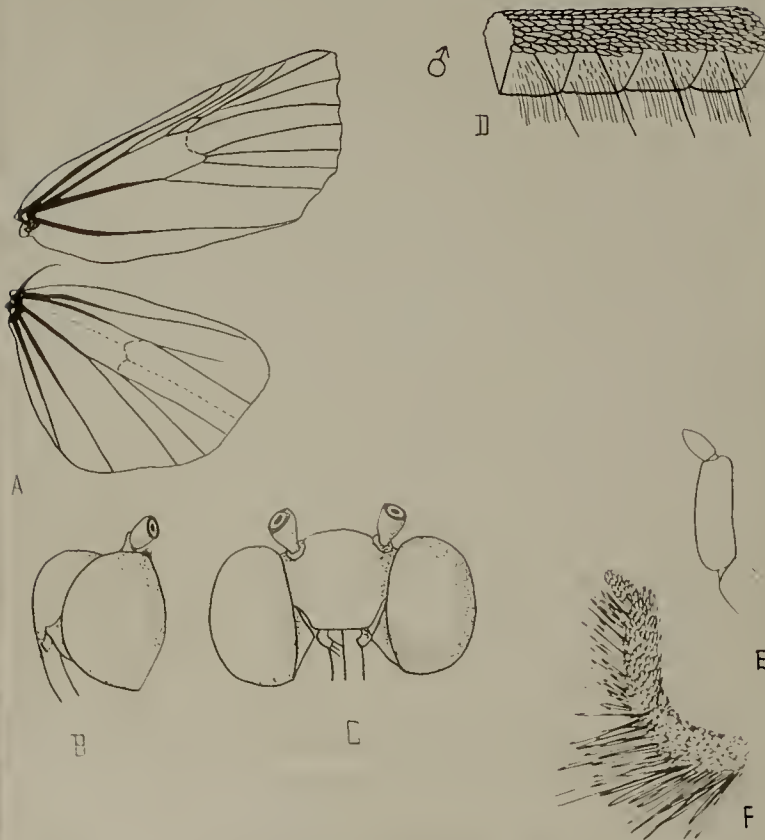
Vestiture: dorsally hair and scales, ventrally mostly scales. Crests: no dorsal, indications of lateral crests. Size: body extends beyond the secondaries.

Remarks

Some specimens of colorada may have a small amount of hair upon the eyes but the male examined by the writer had the eyes entirely naked. This

naked condition would almost warrant the removal of Euchholzia from the
Hadeninae.

Genus *Buchholzia*, Barn & Benj.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Palpus denuded

F-Palpus

Original Description of the Genus

Barnes and Benjamin Contributions to the Natural History of the Lepidoptera of North America Vol. V, No. 3, p. 154, 1924.

"Type *P. laetabilis* Sm.

Proboscis fully developed, palpi upturned, short, the second joint somewhat fringed with hair in front, the third moderate; frons with a strongly rounded prominence with a corneous plate below it; eyes large, rounded, with a few cilia from behind and a tuft of hair like scales on the base of the antennal shaft resembling lashes; antennae of the male minutely laminate, almost simple, setae and cilia short; of the female, simple, setae and cilia short, head and thorax clothed chiefly with scales, the pro and meta-thorax with spreading crests; tibiae moderately fringed with hair, abdomen with a strong dorsal crest in the base only. Fore wing with the apex rounded, the termen evenly curved, slightly crenulate. Veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wings with veins 3, 4 from angle of cell; 5 obsolescent from somewhat below middle of discocellulars; 6, 7 from upper angle; 8 anastomosing with cell near base only."

(Would include "*Cerma*" *marina* Sm. and "*Trachea*" *smargdina* Newm, and probably "*Namangana*" *cano* Barnes.)

Selection of the Genotype

Parameana laetabilis Sm. designated by the author in his original description.

Morphology of the Genotype

Head

Vestiture: scales; Compound Eyes: apparently naked; Frons: protrudes

forward and upward with the frontal surface convex. Antennae: ♂

♀ Filiform, scaled above, finely ciliated beneath, no lateral setae present.

Palpi: proximal and middle segments scaled and bearing longer scales and coarse

hair beneath, distal segment scaled. Ratio of the palpal segments; prox. 1.5, middle 2.5, distal 1.0. Proboscis: fully developed.

Thorax

Vestiture: scales; Crests: a meta thoracic crest; Wings: Primaries with the costa straight, apex rounded, outer margin incurved, Secondaries with Sc and R touching at their bases then diverging. Legs: Femur of the fore leg fringed with coarse hair beneath, remainder of the leg scaled. Middle leg scaled, ventral edge of the femur and dorsal margin of the tibia fringed with coarse hair and long scales. Hind leg with the same type of vestiture as the middle leg. All legs typical in structure.

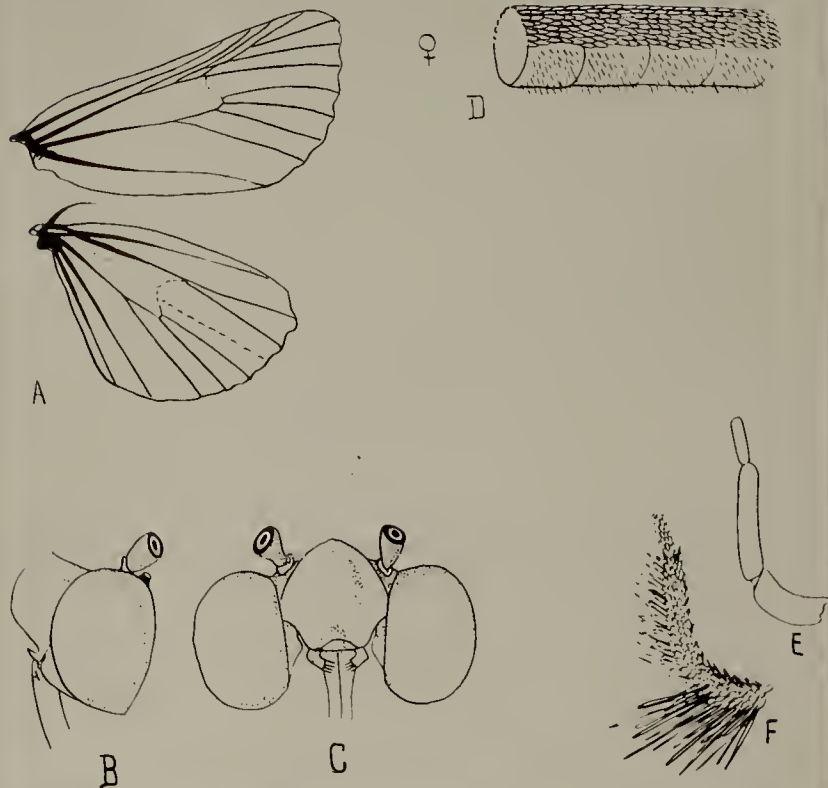
Abdomen

Vestiture: ♀ dorsally and ventrally hair and scales; Crests: a dorsal crest on the first abdominal segment, no lateral crests present.

Remarks

Laetabilis Sm. owing to its peculiar shaped frons and naked (?) eyes must be removed from the genus Hadena and placed elsewhere. So far as the writer knows no other genus of North American Hadeninae shows the morphological characteristics of laetabilis and the erection of a new genus such as Parameana seems justified. Whether Parameana and its allied genera (Meleucania, Osmatostola, and Buchholzia) belong to the subfamily Hadeninae is questionable for specimens of the genotypes of these genera examined by the writer showed no indication of hair on the eyes.

Genus *Parameana*, Barn. & Benj.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♀

E-Palpus denuded

F-Palpus.

GENUS *URSOGASTRA* Smith

Original Description of the Genus

Smith, J. B. Jour. N. Y. Ent. Soc. Vol. XIV, p. 12, 1906.

"Head moderate in size, distinct yet hardly prominent; eyes hairy, globose, of good size; front smooth: scarcely even bulging, antennae in the male simple and in the female probably so; tongue well developed, functional; palpi small and weak, scarcely attaining the middle of front; vestiture even, composed mostly of projecting flattened hair. Thorax moderate, convex, collar well defined, patagia hardly relieved, a small posterior tuft; vestiture, flattened hair only without admixture of distinct scales; legs unarmed except by the usual spurs of the middle and posterior pair, somewhat aborted and set with very dense brushes of thick hair so as to conceal the parts effectively. Abdomen without dorsal tufts, in the male the 4, 5, 6, 7 segments furnished with lateral tufts of long hair which curve down under meeting on the median line of the venter; long brushes of specialized scales are also attached to the male clasping organs. The primaries are proportionate only a little wider outwardly, venation apparently normal on the cell beneath, on the male, a clothing of fine silky hair similar to that found in Orthodes. Secondaries with vein 5 reduced to a mere fold.

This genus is based upon the peculiar combination of male characters and would come under Eriopyga, Hampson and nearest to his section C none of the species of which are cited as typical of discarded genera". Goes on to say that if we ignore secondary sexual characters this genus might sink into synonymy

" *Ursogastra lunata*, n. sp. Arizona "

Selection of the Genotype

Ursogastra lunata Sm. monotypical

Morphology of the Genotype

The writer examined but one specimen of this species, a male (type) in the Rutgers College collection.

Head

Vestiture: hair like scales; Compound eyes: clothed with short hair confined to the posterior portion of the eye; Frons: uniformly rounded (apparently); Antennae: male filiform, scaled above bearing short hair beneath, each segment with a pair of lateral setae. Segments rather distinct and flattened on the under side. In the ♀ -----; Palpi: proximal segment scaled and bearing a few coarse hairs and long scales beneath, mid segment closely scaled, distal segment scaled. Ratio of the segments -----; Proboscis: fully developed.

Thorax

Vestiture: coarse hair and some hair like scales; Crests: a meta-thoracic crest; Wings: Primaries with the costa straight, apex drawn downward, outer margin obliquely incurved. Secondaries ----- Legs: Femur of the fore leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with coarse hair and long scales. Hind leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: covered dorsally with scales, ventrally with hair? (lateral tufts hide vestiture on the ventral side); Crests: no dorsal crests, very prominent lateral crests.

Remarks

Inasmuch as the specimen examined was the type of the species, it could not be dissected and examined thoroughly.

This genus, because of the distribution of hair on the eyes, should be placed with Lophoceramica, Tricholita, and Trichopolia. It differs from all these in having the male antennae filiform. There are also differences

in the vestiture of the head and palpi and in the absence of a dorsal crest on the abdomen.

It can not be confused with the genus Eriopyga of Hampson because of the restricted distribution of hair on the eyes and because of other structural differences.

GENUS LOPHOCERAMICA Dyer

Original Description of the Genus

Dyer: Proceedings of the Entomological Society of Washington,
X, p. 32, 1908.

"I propose the new generic term Lophoceramica for Tricholita artega Barnes, the genus being allied to Ceramica Gn., and differing chiefly in the hairiness of the eyes. In Ceramica the eyes are densely hairy throughout, in Lophoceramica only the posterior half."

"Lophoceramica artega Barnes Arizona"

Selection of the Genotype

Lophoceramica artega Barnes The genus is monotypical

Morphology of the Genotype

Head

Vestiture: coarse hair and hair-like scales; Compound Eyes: clothed with short hair that is confined to the posterior portion of the eye only; Frons: uniformly rounded, ventral margin without corneous ridge or point; Antennae: ♂ bipectinate, the pectinations of the same size on both sides of the antenna. Dorsally scaled, ventral surface of the antenna and its pectinations covered with short hair. Each pectination bears at its tip a prominent seta. In the ♀ the antennae is filiform, scaled above, finely ciliated beneath. Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled, bearing longer scales and short hair beneath, distal segment scaled. Ratio of the segments: prox. 1.5, mid. 2.0, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: hair and hair-like scales; Crests: a pro and a meta thoracic crest; Wings: primaries with the costa straight, apex truncated,

outer margin strongly incurved. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of the fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long hair and scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

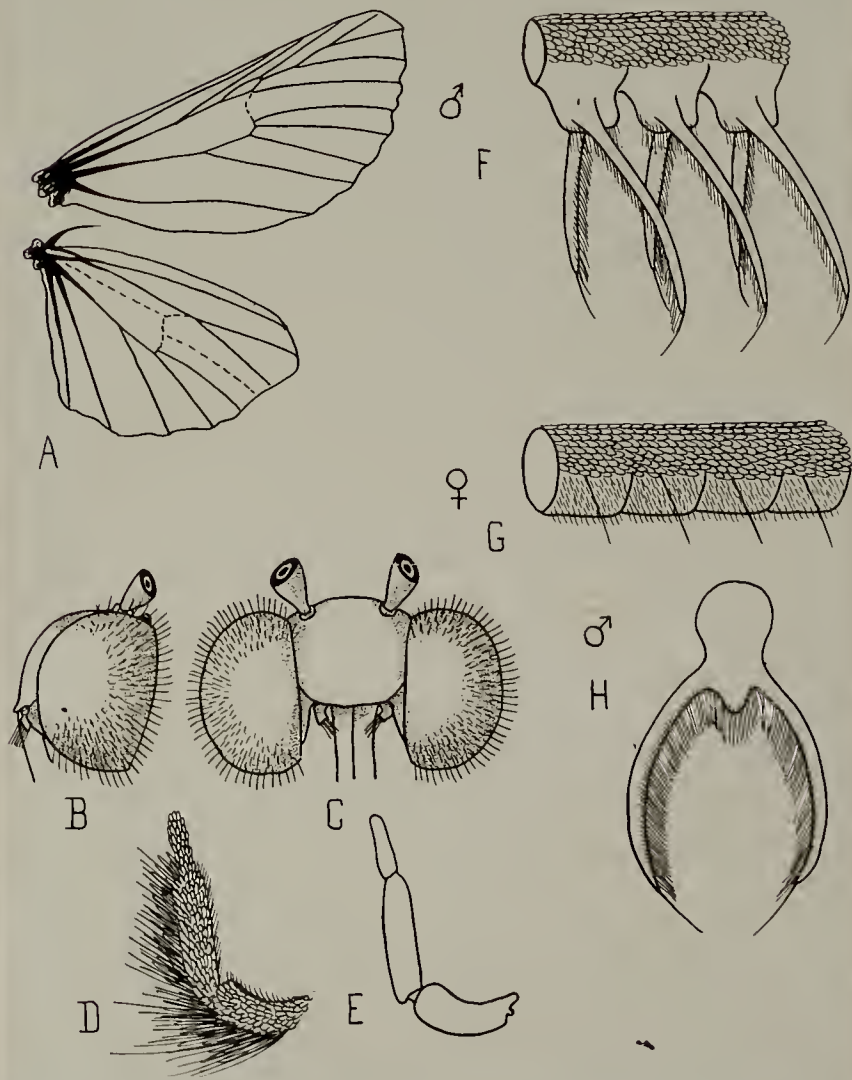
Vestiture: dorsally hair and scales, ventrally scaled; Cresta: a slight indication of a mid-dorsal crest on the first abdominal segment. Lateral crests prominent in the ♂, less so in the ♀; Size: body extends beyond the secondaries.

Remarks

Dr. Dyar erected the genus Lophoceramica for artega because in this species the hair on the compound eyes is restricted to the posterior portion. Tricholita, the genus under which Dr. Barnes placed artega, also shows this characteristic so that Dr. Dyar would hardly be justified in removing artega on that basis alone.

Grote did not describe the genus Tricholita when he erected the genus, but a comparison of artega, the type of Lophoceramica, and of semianerta, the type of Tricholita, shows that these two species run very close so far as morphology is concerned. The only outstanding difference between the two is in the structure of the female antennae. In artega they are filiform, while in semianerta they are birrectinate. Probably this would justify the establishment of the genus Lophoceramica.

Genus *Lophoceramica* Dyar



A-Wings

B-Head, side view

C-Head, front view

D-Palpus

E-Palpus denuded

F-Antenna of the ♂

G-Antenna of the ♀

H-♂ antenna, cross section

CAMELO TRICHOLOMA Grote

Original Description of the Genus

Grote: Bulletin of the Buffalo Society of Natural Sciences, II, p. 215, 1875.

"Tricholita Grote.

Type: *Hydroecia semiaperta* Morr."

Selection of the Genotype

Tricholita semiaperta Morr. Designated by the author in the original description of the genus.

Morphology of the Genotype

Head

Vestiture: coarse hair and hair-like scales; Compound Eyes: clothed with short hair that is confined to the posterior portion of the eye only; Frons: uniformly rounded, ventral margin with a corneous ridge; Antennae: ♂ bipectinate, the pectinations of the same size on both sides of the antenna. Dorsally scaled, ventral surface of the antenna and its pectination covered with short hair. Each pectination bears at its tip a prominent seta. In the ♀ the antennae are exactly like those in the male; Talpi: proximal and middle segments scaled and bearing longer scales and some coarse hair beneath, distal segment scaled. Ratio of the segments: prox. 1.0, mid. 2.5, distal 1.; Proboscis: fully developed.

Thorax

Vestiture: coarse hair and hair-like scales; Crests: a pro and a meta-thoracic crest, although these are not always distinct; Wings: primaries with the costa straight, apex rounded, outer margin almost straight. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of the fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long hair and scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally hair and scales, ventrally largely scales; Crests: a mid-dorsal crest on the first segment, lateral crests present; Size: body extends beyond the secondaries.

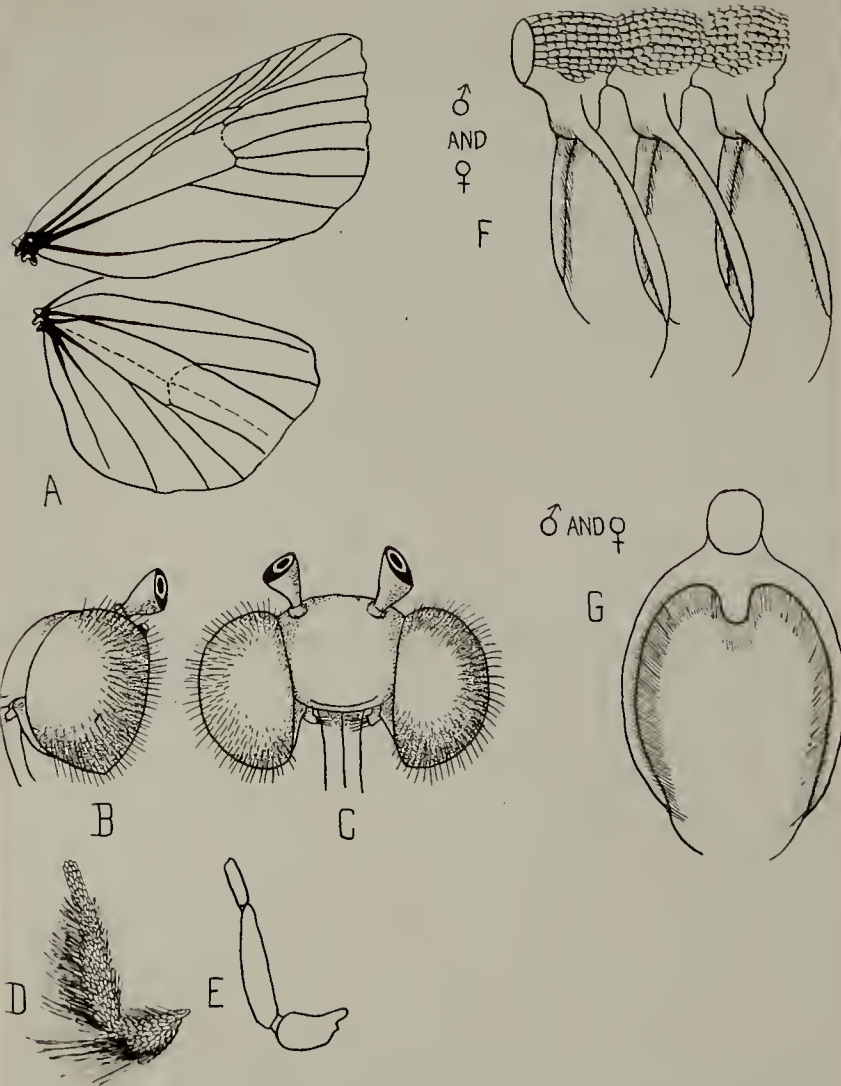
Remarks

Tricholita semiaperta Morr. because of type of vestiture of the eyes can be placed with Loophocera and allied genera.

Barnes: Chabuata semiaperta Morr.

Smith: Tricholita semiaperta Morr.

Genus Tricholita, Gr.



A-Wings

B-Head, side view

C-Head, front view

D-Palpus

E-Palpus denuded

F-Antenna of ♂ & ♀

G-♂, ♀ antenna, cross section

GENUS TRICHOPOLIA Grote

Original Description of the Genus

Grote: Papilio, Vol. III, p. 76, 1833.

"Eyes hairy, lashed; tibiae unarmed. Male antennae simple, or finely bipectinate tapering to tips. Abdomen exceeding hind wings, with reduced basal tuft. Thorax hairy without defined tufts. Form like Heterocampa. Hind wings white or whitish in both sexes without subapical sulcation. Wings entire, straight along the costa; apices determinate; outer margin a little rounded and rather short, the inner margin being sub-parallel with costal and in T. dentatella, with a rounded, basal enlargement. The insects have a resemblance to some Heterocampae (Caltiphaea).

Trichopolia dentatella, n.s.

Arizona

" ptilodonta, n.s.

"

It is yet possible that a different genus must be used for the second species"

Selection of the Genotype

Trichopolia dentatella Gr. The other species, ptilodonta Gr, is doubtfully placed in this genus by the author and according to the International Rules cannot be designated as the genotype. This leaves dentatella as genotype. This species was also selected as the genotype by Hampson (Catalogue of the Lepidoptera Phalaenae, Vol, v. p. 361, 1905).

Morphology of the Genotype

The genotype does not agree very well with either Grote's or Hampson's description.

In the case of Grote's description, the wing characters do not

quite fit the insect. In the case of Hampson's description, most of the morphological details mentioned by him are not to be found in dentatella. Here is a case where the latitude of variation to be allowed within a genus is a matter of personal opinion. At any rate, dentatella must be considered the genotype and is the species about which the genus should be formed.

Head

Vestiture: hair and hair-like scales; Compound Eyes: clothed with short hair which is confined to the posterior portion only; Frons: uniformly rounded, ventral margin with a corneous ridge; Antennae: ♂ bipectinate, and serrate, the pectinations longer on one side than the other. Scaled above, the ventral surface of the antenna and the pectinations clothed with long hair. At the end of each pectination there is a rather stout seta. In the ♀ the antenna is filiform, scaled above, finely ciliated beneath and each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and bearing longer scales and coarse hair beneath, distal segment scaled. Ratio of the segments; Prox. 1.5, mid. 1.8, distal 1.0. In one ♂ the ratio was as follows: prox. 1.0, mid. 1.5, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: scaled; Cresta: a pro and a meta-thoracic crest; Wings: primaries with the costal margin straight, apex truncated, outer margin straight. Secondaries with Sc and R confluent at their bases; Legs: femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long hair and scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally hair and scales, ventrally scales; Crests: a mid-dorsal crest on the first abdominal segment, lateral crests in the ♂; Size: body extends beyond the secondaries.

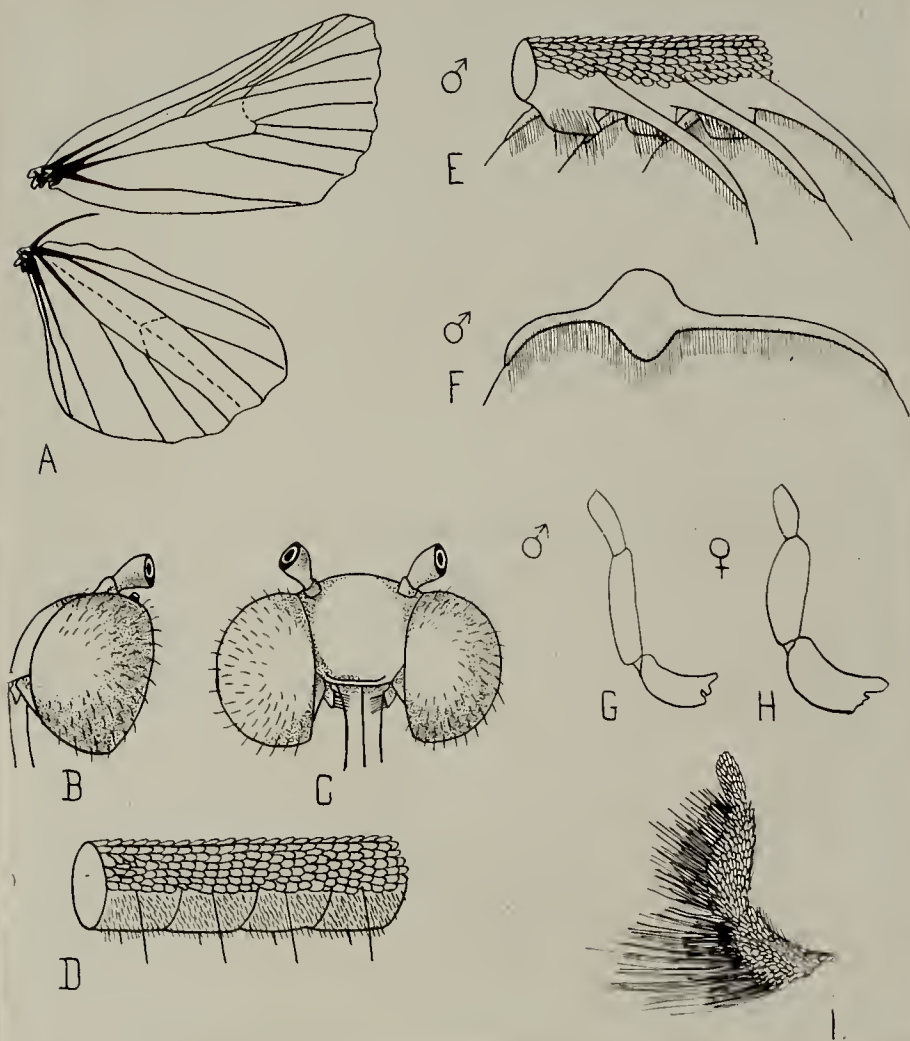
The Genus *Trichopolia* According to Other Authorities

Hampson: "Proboscis aborted, minute -- antennae typically bipectinate in the ♂, with short branches at right angles to the shaft, serrate at the base and extremity. Thorax clothed with long hair and without crests. Tibiae hairy. Abdomen without dorsal crests and with lateral fringes of long hair. Fore wings rather narrow, the apex produced and the termen obliquely curved."

Remarks

The genus is recognized by Dyer, Hampson, and Smith but its exact limits vary according to different authorities. Its one outstanding character is the restriction of the hair on the compound eyes to the posterior portion. In this respect it resembles Lophoceramica and Tricholita. It differs from Lophoceramica in the type of male antennae and from Tricholita in the structure of the female antennae and should be considered a valid genus.

Genus Trichopolia Gr.



A-Wings

B-Head, side view

C- Head, front view

D- Antenna of the ♀

E- Antenna of the ♂

F- ♂ antenna, cross section

G- Palpus of a ♂, denuded

H- Palpus of a ♀, denuded.

i- Palpus

GENUS PERICONICA Smith.

Original Description of the Genus

Smith, J. B. Entomologica Americana, Vol. VI, p. 123, 1890

"Eyes hairy; tibiae not spinose; form robust; vestiture hairy; thorax with a somewhat indefinite and loose median crest or keel; palpi short, not exceeding front, slightly drooping; antennae of the ♂ serrate and bristled, or pectinated. Wings large, primaries with apices prominent acute, outer margin somewhat excavated to the middle where it forms a distinct angulation.

Habitus of Taeniocampa and Perigrapha. From both it differs in the wing form and this is the bases of the genus, which otherwise agrees fairly well with the Taeniocampa, save in the thoracic crest. Perigrapha which has this crest, has also a different wing form, and has the antennae uniformly pectinated and longer than in the present genus.

Perigonica angulata, sp. nov. Sierra Nevada, Cal.
Male antennae serrate and bristled --- "Brush-like"

P. fulminans, sp. nov. Colorado
Male antennae rather lengthily bi-pectinated."

Selection of the Genotype

Perigonica angulata Smith. Designated by Hampson

(Catalogue of the, Lepidoptera Phalaenae, Vol. V, p. 434, 1905).

Morphology of the Genotype

Head

Vestiture: coarse hair mostly; Compound Eyes: uniformly clothed with long hair; Frons: uniformly rounded, ventral margin without a corneous ridge, but bearing a very small point; Antennae: ♂ serrate almost bipectinate dorsal surface scaled ventral surface covered with hair, longer bristles of hair on the tips of the serrations and on their mid ventral surface. Serrations not the same size on both sides of the antenna. In the ♀ the antenna is filiform, scaled above, finely ciliated below.

Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and bearing longer scales and some coarse hair beneath, distal segment scaled, Ratio of the segments: prox. 1.5, mid. 2.6, distal 1.0 ; Proboscis: fully developed.

Thorax

Vestiture: hair and hair-like scales; Crests: a pro and a meta-thoracic crest; Wings: primaries with the costal margin straight, apex pointed, outer margin "excavated to the middle where it forms a distinct angulation". Secondaries -- Legs: femur of the fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally and ventrally hair and scales; Crests: indications of dorsal crests, lateral crests evident; Size: barely extends beyond the secondaries in some specimens.

Remarks

Because of its angulated primaries, this group can not be confused with any other Hadenine genus considered in this article.

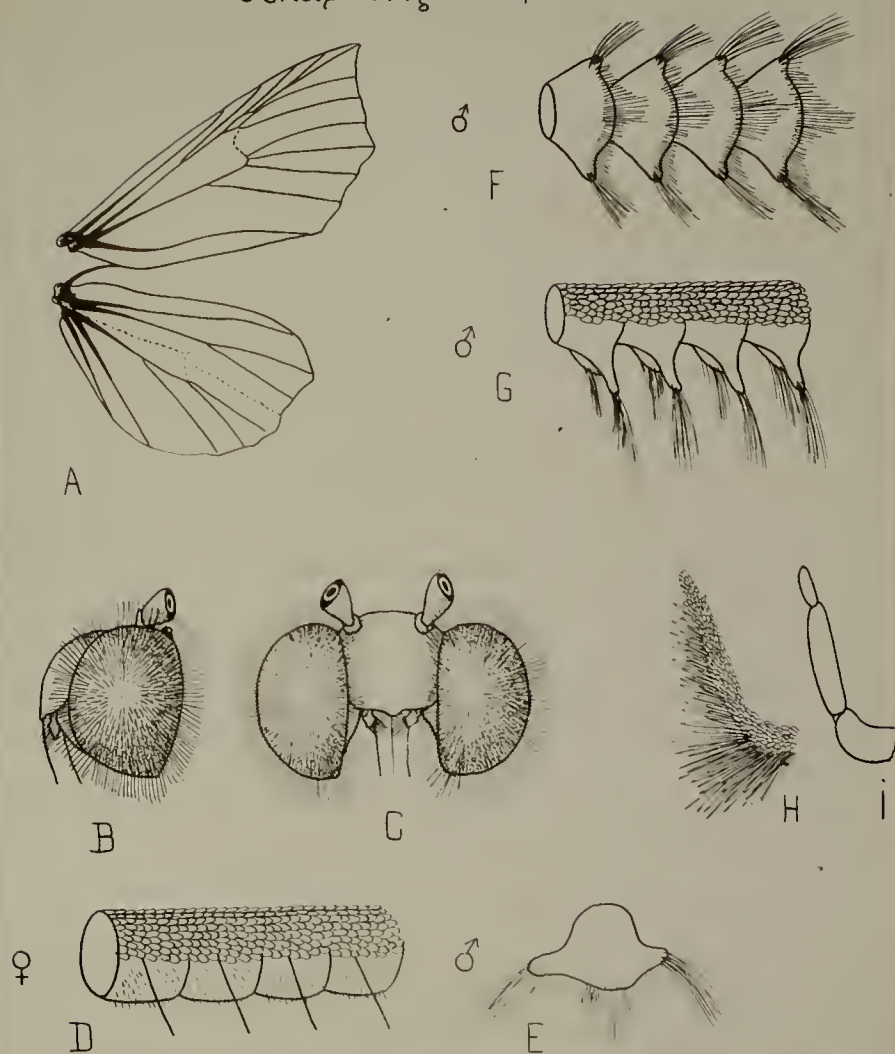
Barnes: *Perigonica angulata*

Dyar: *Perigonica angulata*

Hampson: *Perigonica angulata*

Smith, J. B.: *Perigonica angulata*

Genus Perigonica, Smith.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♀

E-Antenna of ♂, cross section

F-♂ antenna, ventral view

G-♂ antenna, lateral view

H-Palpus

I-Palpus denuded

GENUS PASTONA Walk.

Original Description of the Genus.

Walker: List of Lepidopterous Insects in the British Museum, XV, p. 1754, 1856.

"Female: Body stout. Proboscis moderately long. Palpi slender, porrect; third joint acute, not more than one fourth of the length of the second. Antennae stout, much more than half the length of the body. Abdomen not extending beyond the hind wings. Legs stout; hind tibiae with long spurs. Wings rather narrow. Fore wings straight along the costa, rectangular, but somewhat rounded at the tips; exterior border somewhat angular, on the middle, very oblique along the hind part.

Pastona rudis

Brazil."

(GENUS MAGUSA, Walk.)

Walker: List of the Lepidopterous Insects in the British Museum, XXXIV, p. 1223, 1865.

"Male: Body stout. Proboscis of usual length. Palpi squamous, rather slender, obliquely ascending, not rising higher than the vertex, much shorter than the breadth of the head; third joint conical, not more than one-sixth of the length of the second. Antennae robust, smooth. Abdomen extending much beyond the hind wings; apical tuft rather small. Legs stout, slightly pilose; spurs slender rather short. Wings elongate. Fore wings rounded at the tips, exterior border forming a slight rounded angle in the middle; third inferior vein rather remote from the second.

Magusa albiguttalis.

Brazil."

According to Hampson, albiguttalis is a synonym of rudis and so Magusa sinks as a synonym of Pastona each having the same species for its genotype.

Selection of the Genotype

Pastona rudis Walk. Genus is monotypical.

Morphology of the Genotype

Head

Vestiture: chiefly scaled; Compound Eyes: uniformly clothed with short hair; Frons: uniformly rounded, ventral margin without ridge or point; Antennae: ♂ filiform, scaled above, ciliated beneath. Each segment bears a pair of lateral setae. In the ♀ the antennae are like those of the male but the ventral surface is covered with finer cilia and the lateral setae, if present, are very indistinct; Palpi: proximal segment scaled and with longer scales and some hair beneath, middle segment scaled with longer scales beneath, distal segment bearing short scales only. Ratio of the segments not determined; Proboscis: fully developed.

Thorax

Vestiture: scaled; Crests: a divided pro and a meta thoracic crest; Wings: primaries with the costal margin straight, apex very much rounded, outer margin rounded outwardly at the tips of veins M_2 and M_3 and then very oblique to the anal margin; Legs: femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and coarse hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

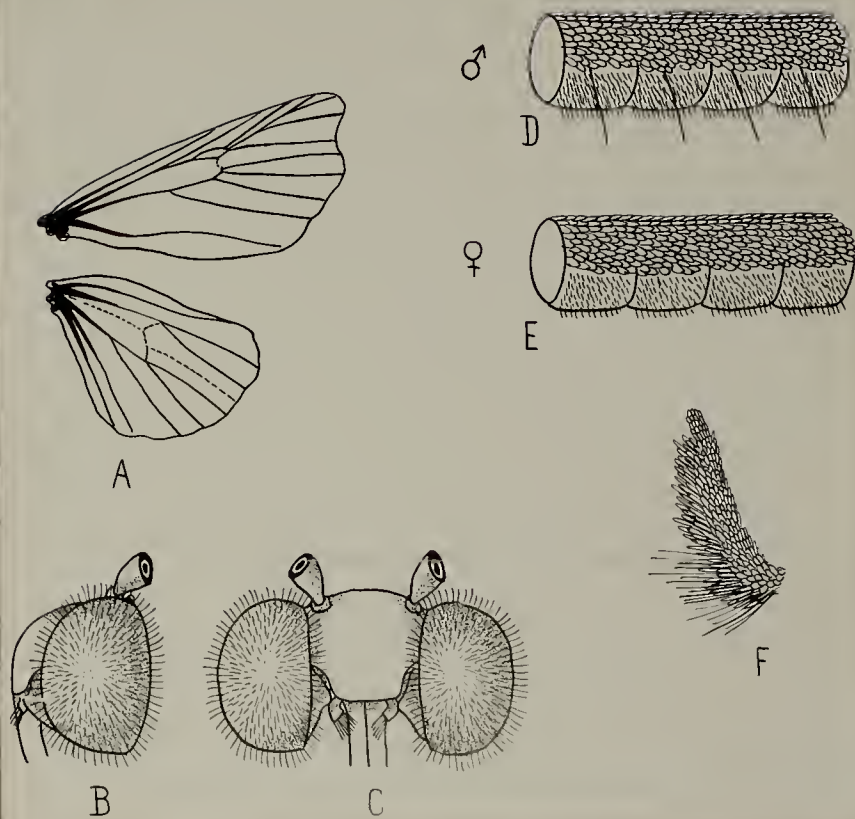
Abdomen

Vestiture: In the ♂ dorsally and ventrally scaled. In the ♀ clothed dorsally with hair and scales, ventrally scaled; Crests: no distinct crests in either sex; Size: body extends beyond the secondaries.

Remarks

Hampson would make Pastona a synonym of Mamestra but the shape of the outer margin of the primaries in Pastona, removes that genus from the Mamestra group. The writer knows of no North American genus of the Hadeninae that resembles Pastona in wing shape. Pastona is probably a valid genus confined to South America or a synonym of the South American genus Hypotrix.

Genus *Pastona*, Walk.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

GENUS HYPOTRIX Guenée

Original Description of the Genus

Guenée: Species General des Lepidopteres (Noctuidae) I, p.369, 1852.

"Antennes à tige complètement glabre, à la réserve d'un cil fin court, et à peine perceptible par chaque article. Palpes subascendants, courts, le 2^e article velu-serré, non comprimé, le 3^e courte mais distinct, épais et obtus. Trompe moyenne. Thorax un peu oblong. Abdomen long très velu latéralement et muni de longs poils fasciculés sous le ventre dans les ♂, plus court et de forme ordinaire dans les ♀♀. Pattes assez longues, peu velues, à ergots courts. Ailes supérieure oblongues, aiguës à l'apex, avec la ligne subterminale très nette, les inférieures larges et bien développées."

Hypotrix	purpurigera	Gn.	Brazil
"	flavigera	Gn.	"
"	carneigera	Gn.	"

Selection of the Genotype

Hypotrix purpurigera, Gn. Genotype designated by Hampson

(Catalogue of the Lepidoptera Palaenae, Vol. V, p.291, 1905).

Morphology of the Genotype

Head

Vestiture: coarse hair; Compound Eyes: uniformly clothed with long hair; Frons: uniformly rounded, ventral margin without corneous ridge or point; Antennae: ♂ filiform, scaled above, clothed with cilia beneath, each segment bears a pair of lateral setae. In the ♀ the antenna is like that of the ♂ but the cilia are finer; Palpi: proximal and middle segments scaled and bearing longer scales and short hair beneath, distal segment scaled; Proboscis: fully developed.

Thorax

Vestiture: scales; Crests: a pro and a meta thoracic crest; Wings:

primaries with the costal margin straight, apex drawn downward to a point, outer margin rounded outwardly at the tips of veins M_3 and Cu_1 , very oblique to the anal margin; Legs: femur of the fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with coarse hair and long scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

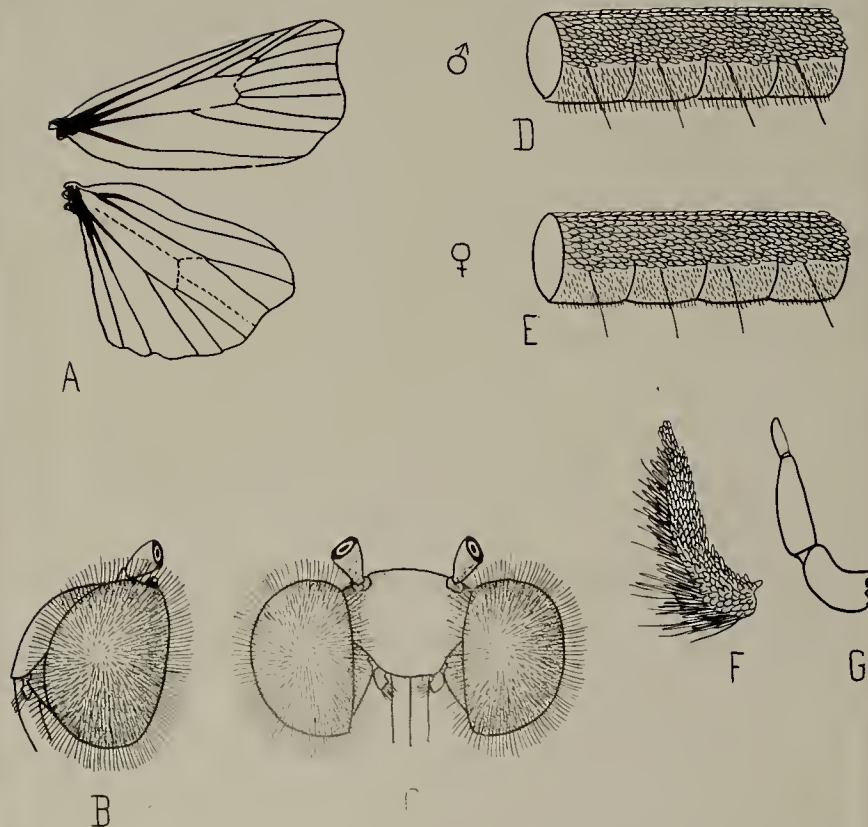
Abdomen

Vestiture: in the ♂ dorsally hair and scales, ventrally some scales mostly coarse hair. In the ♀ dorsally hair and scales, ventrally scales; Crests: no lateral or dorsal crests; Size: body extends beyond the secondaries.

Remarks

Hampson would make Hypotrix a synonym of Eriopyga but the shape of the outer margin of the primaries in Hypotrix removes it from the genus. It would be better to consider Hypotrix a valid genus which, like Pastona, is probably not represented in North America.

Genus Hypotrix, Gn.



A-Wings

B- Head, side view

C- Head, front view

D- Antenna of the ♂

E- Antenna of the ♀

F- Palpus

G- Palpus denuded.

Original Description of the Genus

Hubner: Verzeichniss bekannter Schmetterlinge, p. 214, 1822.

"Die Schwingen sehr sanftfarbig und zartstreifig"

Epia echii Borkh., (*brecciaeformis* Hüb.)

E. silenes Hüb.

Selection of the Genotype

Epia echii Borkh., (*irregularis* Hufn.) Genotype designated by
Hampson (Catalogue of the Lepidoptera Phalaenae, Vol. V,
p. 226, 1905).

Morphology of the Genotype

According to Hampson, the second palpal joint is fringed with hair in front. In the genotype, the fringe is composed, for the most part, of long scales. In *irregularis* one would hardly call the slight protuberance a "truncated conical process" nor was there any corneous plate below it. The process and the corneous plate very likely would be found in this genus although they are not developed in the species chosen as the genotype. As for the palpal vestiture, this is not always constant in a genus so that the genotype might well differ from other species in the same genus by the armature borne by the segments of the palpi.

Head

Vestiture: mostly hair-like scales; Compound Eyes: uniformly clothed with very short hair; Frons: protrudes slightly forward and downward, indications of a slight "T" shaped protuberance. Ventral margin pointed; Antennae: ♂ filiform, scaled above, clothed with moderately long hair beneath. Each segment bears a pair of lateral setae. In the ♀ the antenna is filiform, scaled above, finely ciliated beneath. Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and with longer scales beneath, distal segment bearing short

scales only. Ratio of the segments: prox. 1.6, mid. 2.3, distal 1.0;
proboscis: fully developed.

Thorax

Vestiture: hair, hair-like scales, and some scales; Crests: a pro and a meta thoracic crest; Wings: primaries with the costal margin straight, apex somewhat rounded, outer margin almost straight. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled. A large curved spine near the distal end of the first tarsal segment. All the spines on the first and second tarsal segments over developed; Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and coarse hair. Hind-leg: the same type of vestiture as the middle-leg. Middle and hind legs typical in structure.

Abdomen

Vestiture: dorsally fine hair and scales, ventrally scales; Crests: a mid-dorsal on the first abdominal segment. Lateral crests present; Size: Body extends well beyond the secondaries in the ♂, not so long in the ♀.

The Genus *Epia* According to Other Authorities

Hampson: "Proboscis fully developed, palpi short, upturned, 2nd joint fringed with hair in front; frons with a truncate conical process on lower part with a corneous plate below it; eyes large and rounded, antennae of the ♂ ciliated, head and thorax clothed chiefly with scales, pro and meta thorax with spreading crests. Fore tibiae with long curved claw-like spines on outer side of proximal joints. Abdomen with dorsal crests on the basal segment. Fore wings rather short and broad, apex rounded Veins 3, 5 from near angle of cell, 6 from upper angle, 9 from

10 anastomosing with 8 to form the areole, 11 from cell. Hind wings with veins 3 and 4 from angle of cell, 5 obsolescent from middle of discocellulars, 6, 7 from upper angle, 8 anastomosing with cell near base only."

Seitz: adds nothing to Hampson's description but recognizes the genus.

Remarks

A distinct genus in which the genotype has a peculiarly shaped frons and a spinose fore leg. On the bases of these characters it need not be confused with any other genus.

Guenee: *Dianthoecia echii*

Hampson: *Epia irregularis*, (*echii*)

Herrich-Schaeffer: *Dianthoecia echii*

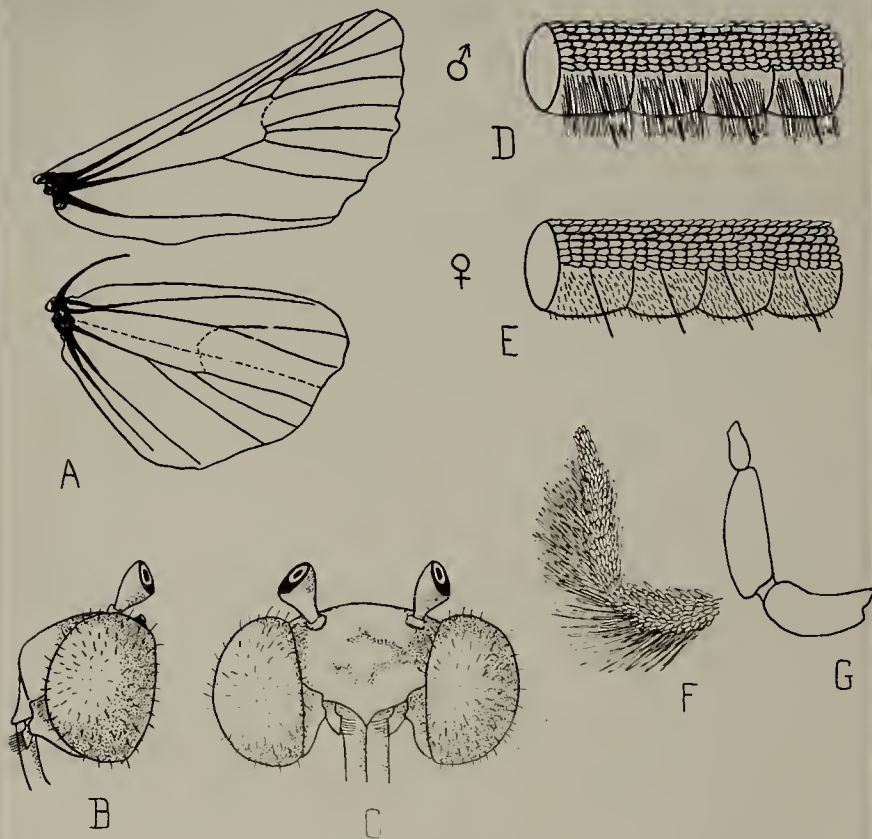
Ochsenheimer: species not recognized?

Seitz: *Epia irregularis*

Staudinger: *Dianthoecia irregularis*

Walker: *Dianthoecia echii*

Genus *Epia*, Hub.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

G-Palpus denuded.

GENUS ADMETOVIS Grote

Original Description of the Genus

Grote: Bulletin of the Buffalo Society of Natural Sciences, I, p.133, 1873.

"Ocelli. Eyes hairy, front full, closely scaled, exceeded by the roughly scaled labial palpi. Antennae shorter in the male, each joint provided with rather stout corneous lateral pectinations, giving off at their extremity a stouter bristle, and more finely bristled beneath; in the female longer and simple. The tibiae are unarmed; legs stout and long. the body is long, stout and fusiform, thorax elevated, rather short, crested behind; abdomen long and stout, exceeding the secondaries by nearly a third of its length. In the female, the stout ovipositor is notably extruded. The maxillae are moderately stout. The wings are long, with very straight costal margin of primaries, rather acute apices and oblique, but little rounded hind margin.

Apparently the nearest European ally to our genus is Brithys, from which Admetovis differs decidedly in the shape of the wings, extruded (♀) ovipositor, the sexual difference in the antennal length, and stouter maxillae.

Admetovis oxymorus Gr. Colorado, California."

Selection of the Genotype

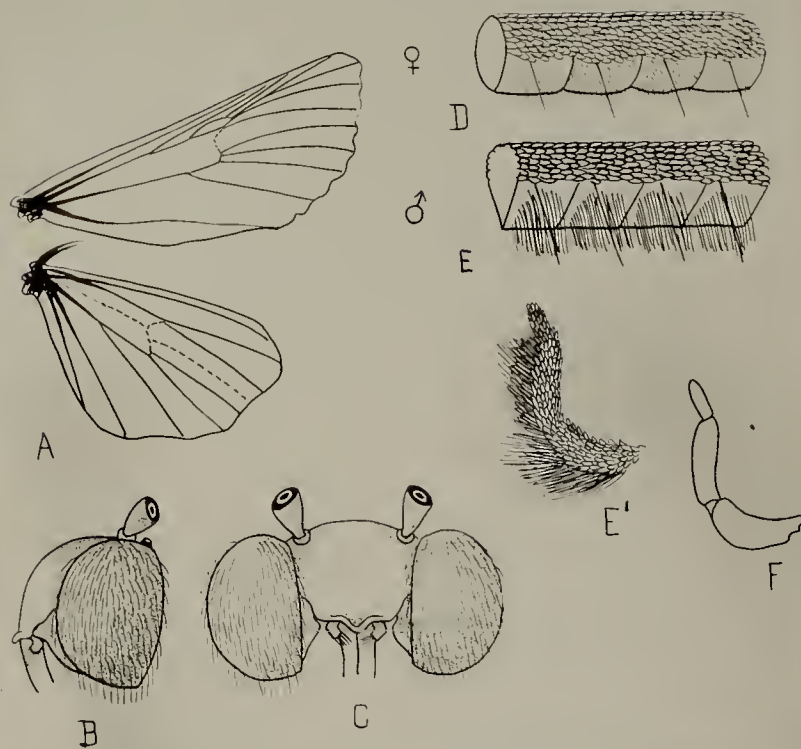
Admetovis oxymorus Gr. The genus is monotypical

Morphology of the Genotype

Head

Vestiture: coarse hair and hair-like scales; Compound Eyes: uniformly clothed with long hair; Frons: uniformly rounded, ventral margin with a point; Antennae: ♂ Filiform, scaled above, clothed with long hair beneath, each segment bears a pair of lateral setae. Antenna wedge shaped in cross section. In the ♀, the antenna is filiform, scaled above,

Genus Admetovis Gr.



A-Wings

B-Head, side view

C- Head, front view

D-Antenna of the ♀

E - Antenna of the ♂

E' - Palpus

F- Palpus denuded.

GENUS MAMESTRA Ochs.

Original Description of the Genus.

Ochsenheimer: Die Schmetterlinge von Europa, IV, p. 76, 1816.

"Arten

Pisi Linn
Splendens Hub
Oleracea Linn
Suasa W.V. (Dissimilis Knoch, V-letinum Esp.)
Aliena Hub.
Abjecta Hub. (Nigricans View)
Chenopodii W.V. (Verna it Saucia Esp.)
Albicolor Hub.
Brassicae Linn.
Furva W.V.
Persicariae Linn. "

Ochsenheimer: Die Schmetterlinge von Europa, V, (2), p. 127, 1825.

"Die Schmetterlinge haben einen doppelten Suckenschopf, gekerbte, feiner Fühler; die abhängenden breiten Vorderflügel sind abgerandet mit deutlichen Fackeln und Linien, besonders einer weissen, meist in der Mitte gezähnten Zackenlinie. Ihre Bestäubung zeigt sich marmorartig und grobkörnig."

Selection of the Genotype.

Mamestra persicariae Linn: Genotype designated by Westwood in 1839 (Introduction to Modern Classification of Insects, Vol. 1, p. 95, 1839).

* The monotypical genus Melanchra Hub has for its type persicariae Linn (Hub. Verzeich. Bekann. Schmett., p. 207, 1822.

Morphology of the Genotype.

Guenee speaks of the antennae being covered with fascicles of hair. This character was not noticed in persicariae. Stephens describes the structure of the palpi quite minutely but in some respects this description does not fit persicariae. In this species the basal joint of the palpus is not equal in length to the terminal nor is the second segment twice as long as the basal. In practically all other respects, persicariae agrees fairly well with the generic concepts of several authorities.

Head

Vestiture: largely scaled; Compound Eyes: uniformly clothed with short hair; Frons: uniformly rounded, ventral margin without corneous ridge or point; Antennae: ♂ filiform, scaled above, ciliated beneath, a pair of lateral setae on each segment. In the ♀ the antennae are like those in the ♂ but the ciliae are much finer; Palpi: proximal and middle segments scaled and bearing some coarse, short hair beneath, distal segment scaled. Ratio of the segments: prox. 2.5, mid. 3, distal 1.; Proboscis: fully developed.

Thorax

Vestiture: scales; Crests: a divided pro and a single meta thoracic crest; Wings: primaries with the costal margin straight, apex rounded, outer margin incurved. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and coarse hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: covered dorsally and ventrally with hair and scales; Crests: a row of mid-dorsal crests in both sexes, indications of lateral crests; Size: body extends beyond the secondaries.

The Genus *Manestra* According to Other Authorities

Guenee: Antennae quite long, simple to notched, covered with isolated cilia or fascicles very short in the ♂. Palpi thick, short, hairy shaggy with the last segment very short. Proboscis average in size. Thorax robust, convex, hairy mixed with scales, almost square. Abdomen quite long, robust more or less carinated, crested at least on the first segment in the two sexes, hairy laterally. Feet robust, legs hairy. Wings entire or subdentate, the primaries thick, scaly, powdered with somber colors,

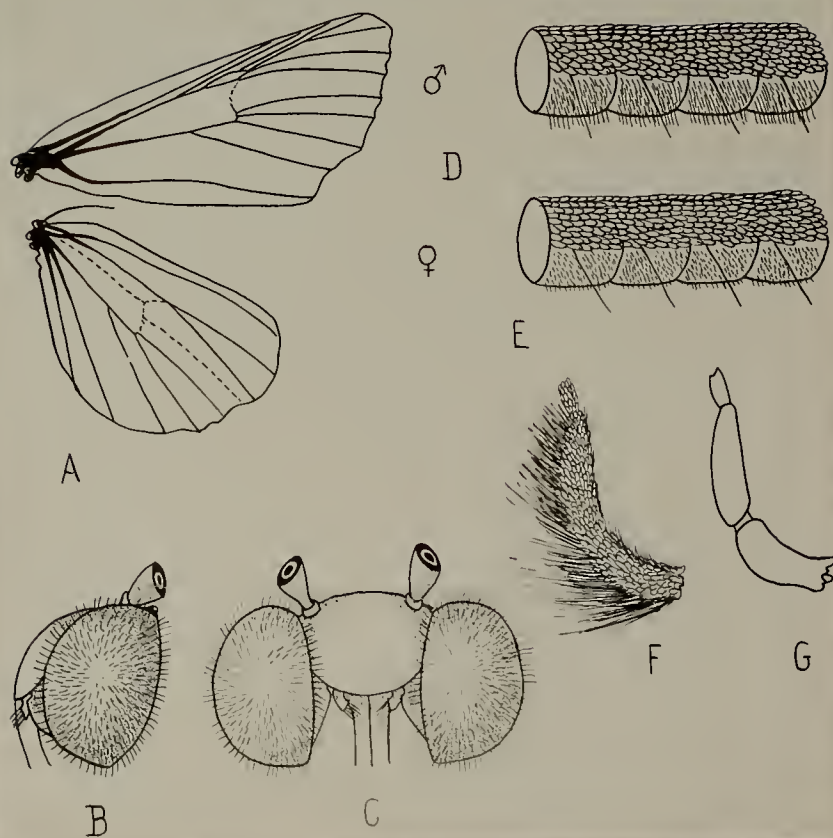
more or less cloudy but with spots and lines distinct.

Stephens: " Palpi clothed with elongate scales at the base, the terminal joint not very distinctly exposed, the basal joint the length of the terminal, subconic; the following as long again more slender than the basal, subcylindric a little bent, and slightly attenuated at the tip, which is obliquely truncate; terminal elongate ovate. Antennae elongate rather slender, simple in both sexes, each joint producing a short bristle on each side, ciliated beneath in the ♂♂; head rather small, the forehead with a dense crest; eyes rather large globose, pubescent; Thorax with a bifid dorsal crest. Apex of the abdomen with a small tuft. Anterior wings obscurely denticulate on their hinder margin, posterior simple. Legs short, stout, femora and tibiae very pilose interiorly, tibial spurs moderate; " Walker: " Palpi with third joint elongate conical: about $\frac{1}{2}$ the length of the second. Wings moderately broad. Fore wings straight in front, somewhat rounded denticulate and moderately oblique along the exterior border. Male antennae hardly ciliate. "

Remarks

The combination of morphological characters to be seen in M. persicariae will also be found in several other genotypes - Meterana pictula, Hyssia cavernosa, Hyphilare albipuncta, and Ceramica picta. Because of these resemblances it would seem advisable to make these genera synonymic with Mamestra and to define the genus Mamestra as follows: Compound eyes uniformly hairy, frons uniformly rounded, antennae in both sexes, filiform oval or round in cross section, proboscis fully developed, costal margin of the primaries straight, legs with only the usual spines and spurs.

Genus *Mamestra*, Ochs.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

G-Palpus denuded.

Original Description of the Genus.

Butler: Proceedings of the Zoological Society of London, p. 385, 1877.

"Allied to *Metana*, but with rather longer palpi, broader thorax, the abdomen with lateral and dorsal tufts of hair scales, the antennae of the male not pectinated but each article bearing short pencils of hair; the wings slightly broader, the median veins of the primaries emitted more regularly, the discoidal cell of the secondaries much longer, the subcostal and radial branches emitted from a very short foot stalk, and the second and third median branches (without foot stalk) from the inferior extremity of the cell. Type *M. pictula*, White. New Zealand"

Selection of the Genotype.

Meterana pictula White. Genus is monotypical

Morphology of the Genotype (♀ only)

In describing this genus, Butler used comparative rather than absolute terms. For this reason, his description is not adequate. Inasmuch as *pictula* was the only species listed in the original description, it must bear all the characteristics of the genus so far as the authors conception of this genus is concerned.

Head

Vestiture: hair-like scales; Compound eyes: uniformly clothed with long hair; Trochanters: uniformly rounded, ventral margin without corneous ridge or point; antennae: ♂ "not pectinated but each article bearing short pencils of hair" in the ♀ filiform, scaled above, ciliated beneath, a pair of lateral setae on each segment; Palpi: proximal and middle segments scaled and bearing some coarse short hair beneath, distal segment scaled. Ratio of the segments: prox. 1.5, mid. 2, distal 1.; Proboscis: fully developed.

Thorax

Vestiture: a mixture of scales, hair-like scales and hair; Crests: a divided pro and indications of a meta thoracic crest; Wings: primaries with the costal margin straight, apex drawn down to a point, outer margin only very slightly incurved. Secondaries with Sc. and R touching near the base of the wing then diverging; Legs: femur of fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and coarse hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure,

Abdomen

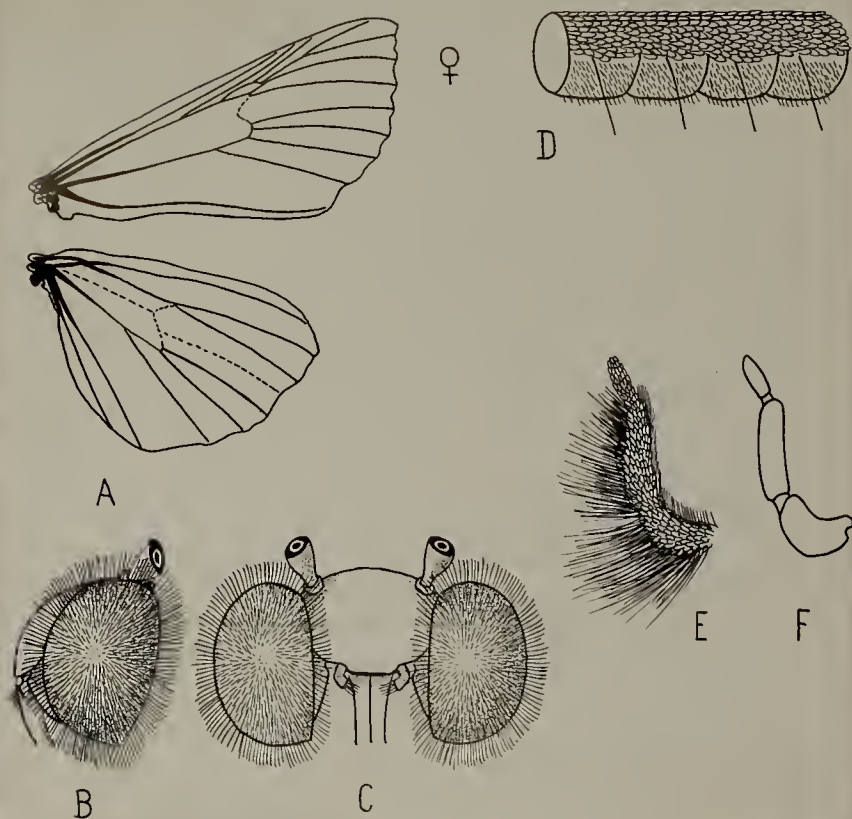
Vestiture: covered dorsally with hair and hair-like scales, ventrally mostly coarse hair but some hair-like scales present; Crests: mid-dorsal crest on the first abdominal segment, lateral crests present; Size: body stout hardly projecting beyond the secondaries.

Remarks

The genotype of Meterana in its morphology runs so close to persicariae that it would seem best to sink Meterana as a synonym of Mamestra. The only important differences between the two species are in the vestiture of the thorax, and the thoracic and abdominal crests.

The uniformly rounded frons would remove it from Lianthoecia but its relationship to Hadena, suggested by Walker, may be correct.

Genus Meterana, But.



A-Wings
 B-Head, side view
 C- Head, front view

D-Antenna of the ♀
 E-Palpus
 F- Palpus denuded.

GENUS HYSSIA, Guenee

Original Description of the Genus

Guenee: *Species General des Lepidopteres (Noctuides)* I, p. 345, 1852.

"Antenne assez courtes, minces, à tige non dentée et simplement pubescente dans les ♂. Palpes greles, incombants, à articles peu distincts, le 2^e velu-herisse le 3^e aussi velu, confondu avec le 2^e. Trompé assez courte. Thorax subarrondi, velu-laineux. Abdomen lisse, carene, termine par un faisceau de poils discolores. Pattes greles, moyennes, a jambes non epineuses, peu velues. Ailes superieures entieres, veloutées, ayant les trois taches très distinctes et la ligne subterminale bien marquée.

Hyssia cavernosa Evers.

Russia"

Selection of the Genotype

Hyssia cavernosa Evers. The genus is monotypical.

Morphology of the Genotype

Head

Vestiture: hair and hair-like scales; Compound Eyes: uniformly clothed with short hair; Frons: uniformly rounded with a small upturned corneous ridge; Antennae: ♂ filiform, scaled above, covered with long hair beneath. Each segment bears a pair of lateral setae. In the ♀ the antenna is like the ♂ but the under surface is covered with fine cilia. Lateral setae also present; Palpi: proximal and middle segments scaled and bearing very long hair beneath. Distal segment mostly scaled but also with some hair beneath. Ratio of the segments: prox. 1.6, mid. 2.5, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: hair and hair-like scales; Crests: a pro and a meta-thoracic crest sometimes poorly defined; Wings: primaries with the costa straight, apex rounded, outer margin almost straight. Secondaries with Sc and R confluent at their bases; Legs: femur of the fore-leg fringed with hair

beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long hair and scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally hair and scales, ventrally scales; Crests: if present very poorly defined; Size: body extends beyond the secondaries.

The Genus Hyssia According to Other Authorities.

Hampson: "Proboscis fully developed. Frons smooth. Head and thorax clothed with rough hair and scales, pro thorax with triangular crest, meta. with spreading crest. Tibia clothed with rough hair. Abdomen with dorsal crest at the base and slight lateral fringes of hair."

Seitz: "Antennae of the ♂ pubescent."

Walker: "Body stout. Proboscis rather short. Fore wings nearly straight along the border, acuminate at the tips, entire and slightly oblique along the exterior border."

Remarks

A genotype that does not differ markedly in its structure from persicariae and is therefore typical of a genus that might well be ^{considered} a synonym of Mamestra. Staudinger places cavernosa under Mamestra, Hampson, Seitz and Walker under Hyssia.

Hampson: Hyssia cavernosa

Herrich-Schaeffer: Orthosia cavernosa

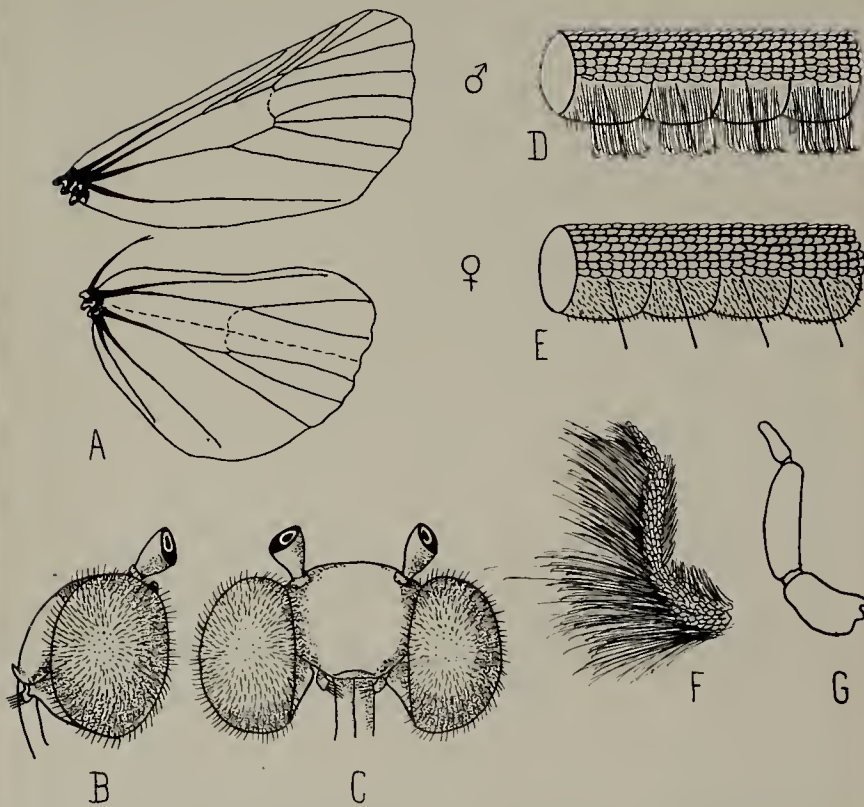
Ochsenheimer: -----

Seitz: Hyssia cavernosa

Staudinger: Mamestra cavernosa

Walker: Hyssia cavernosa

Genus Hyssia, Gn.



A-Wings

B- Head, side view

C- Head, front view

D- Antenna of the ♂

E- Antenna of the ♀

F- Palpus

G- Palpus denuded

GENUS HYTHILARE Hubner

Original Description of the Genus

Hübner: Verzeichniss bekannter Schmetterlinge, p. 239, 1822.

"Die Schwingen mit undeutlichen Mittezeichen und Wellinlinien bezeichnet,
schattig angelegt."

Hyphilare albipuncta Schiff.

H. lithargyria Esp.

Selection of the Genotype

Hyphilare albipuncta Schiff. Genotype designated by Hampson

(Catalogue of the Lepidoptera Phalaenae, Vol. V, p. 436, 1905).

Morphology of the Genotype

There is nothing in the original description of the genus that would enable one to decide whether *albipuncta* is more typical than the other species listed by Hübner. It agrees with Seitz's description of the genus and therefore can be considered typical.

Head

Vestiture: mostly hair-like scales; Compound Eyes: uniformly clothed with long hair; Frons: uniformly rounded, ventral margin with an upturned point; Antennae: ♂ filiform, scaled above, ventral surface clothed with long hair. Each segment bears a pair of lateral setae. In the ♀, the antenna is like that of the ♂ but the ventral surface is covered with fine cilia; Palpi: all segments very compactly scaled. Ratio of the segments: prox. 1.5, mid. 3.5, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: coarse hair and hair-like scales; Crests: a pro and an indistinct meta thoracic crest; Wings: primaries with the costal margin straight, apex truncated, outer margin almost straight. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of the fore-leg fringed with long hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia

fringed with long hair and long scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Vestiture: in the ♂, ^{Abdomen} dorsally and ventrally hair; in the ♀ hair and scales dorsally, scales ventrally; Crests: indications of dorsal crests in both sexes, lateral crests in the ♂; Size: Body extends beyond the secondaries.

The Genus Hyphilare According to Other Authorities

Seitz: "Tongue developed, frons smooth, head and thorax roughly haired, antennae of the ♂ ciliated, abdomen of the ♂ with a pair of lateral tufts of long hair from the base."

Remarks

This genotype is not easy to place for it possesses characters that are to be found in Leucania as well as Mamestra. In the structure of the male antenna and in the shape of the primaries it seems to stand close to Mamestra. For this reason the genus is made a synonym of Mamestra although further studies of the group as a whole may warrant its removal.

Guenée: Leucania albipuncta

Hampson: Sideridis albipuncta

Herrich-Schaeffer: Leucania albipuncta

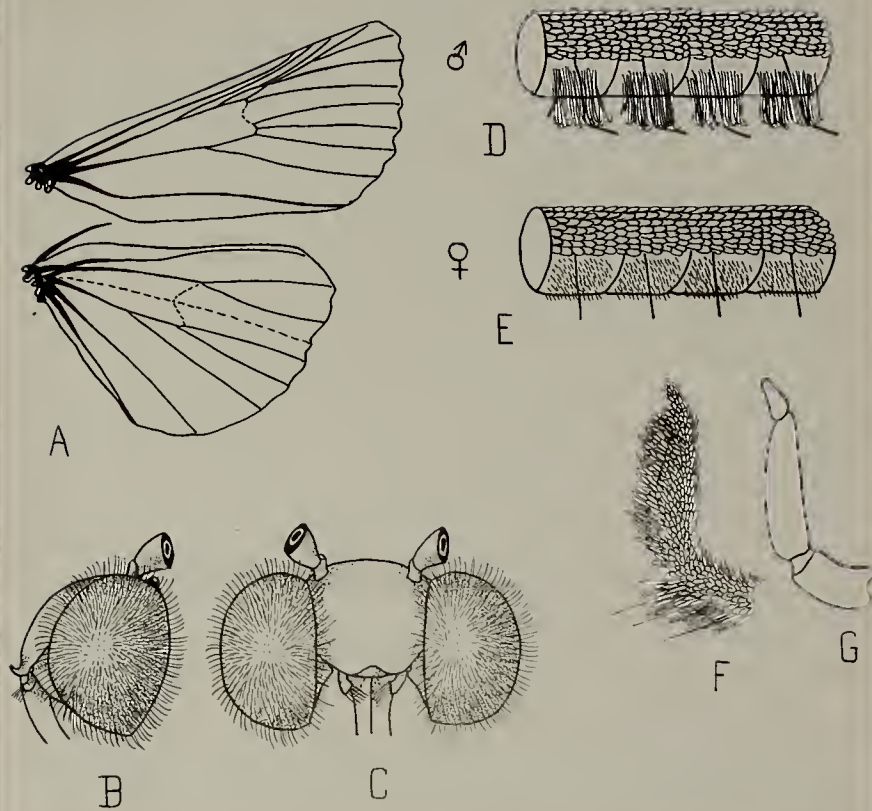
Ochsenheimer: Mythimna albipuncta

Seitz: Hyphilare albipuncta

Staudinger: Leucania albipuncta

Walker: Mythimna albipuncta

Genus Hyphilare, Hub.



A- Wings

B- Head, side view

C- Head, front view

D- Antenna of the ♂

E- Antenna of the ♀

F- Palpus

G- Palpus denuded.

GENUS CERAMICA Guenee

Original Description of the Genus

Guenee: Species Ceneral des Lepidopteres, (Noctuidae), I, p.343, 1852.

"Antennes minces, pubescentes dans les ♂, filiformes dans les ♀. Palpes tres-courtes, velues-herissés, se confondant avec le toupet frontal, ascendants, non securiformes, a dernier article tres-court et en bouton. Trompe robuste. Thorax convexe, un peu carré, velu-cotonneux, lisse. Abdomen caréné, velu lateralement, mince et coupé carrément dans les ♂, epais et en pointe obtuse dans les ♀. Pattes moyennes, non epineuses, assez epaisses. Ailes supér. entieres, epaisses, veloutées, un peu aigües a l'apex, a lignes et taches souvent tres-peu distinctes.

Ce genre, comme la plupart de ceux de cette famille, n'a pas de caracteres tres-tranches. Il se rapproche un peu des Taeniocampa de la section de Rubricosa, mais il en diffère par les palpes et les antennes. Il ne renferme que des especes exotiques, presque toutes de couleur briquetee et dont une seule a des dessins un peu nets. Toutes les especes sont inédites"

<u>Ceramica exusta</u> Gn	Amerique Septentrionale
<u>Ceramica maryx</u> Gn	Nouvelle Hollande
<u>Ceramica vindemialis</u> Gn	Floride
<u>Ceramica U-Album</u> --	Floride

Selection of the Genotype

Ceramica exusta (picta Harris) Genotype selected by Grote

(Abhandlungen des naturwissenschaftlichen Vereins zu Bremen, XIV, p. 72, 1898).

Morphology of the Genotype

Picta differs only from the original description of the genus in having the under side of the 2nd and 3rd palpal joint fringed with long scales.

Head

Vestiture: coarse hair and hair-like scales; Compound Eyes: uniformly clothed with short hair; Frons: uniformly rounded, ventral margin with an upturned point; Antennae: ♂ filiform, scaled above, clothed with long

hair beneath. Each segment is quite distinct and bears a pair of lateral setae. In the ♀ the antenna is like that of the male but the segments are not distinct and their ventral surface is clothed with fine cilia; Palpi: proximal and middle segments scaled and clothed with longer scales beneath, distal segment scaled. Ratio of the segments: prox. 2.0, mid. 3.25, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: coarse hair and hair-like scales; Crests: a pro and a meta thoracic crest; Wings: primaries with the costal margin straight, apex truncated, outer margin slightly incurved. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of the fore-leg fringed with long hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with hair and long scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: hair and scales dorsally and ventrally; Crests: indistinct mid dorsal crests, lateral crests present in both sexes; Size: body extends beyond the secondaries.

The Genus *Ceramica* According to Other Authorities

Hampson: "Proboscis fully developed, palpi short, obliquely upturned, 2nd joint fringed with hair, 3rd short. --- antennae of the ♂ ciliated; head and thorax clothed with rough hair only and without distinct crests. Tibiae fringed with hair on outer side, abdomen with dorsal crest on basal segment and slight lateral tufts of hair towards extremity. Fore wings with the apex produced and acute".

Remarks

This genus does not differ in any important details from Mamestra and it would seem better to consider it a synonym of Mamestra.

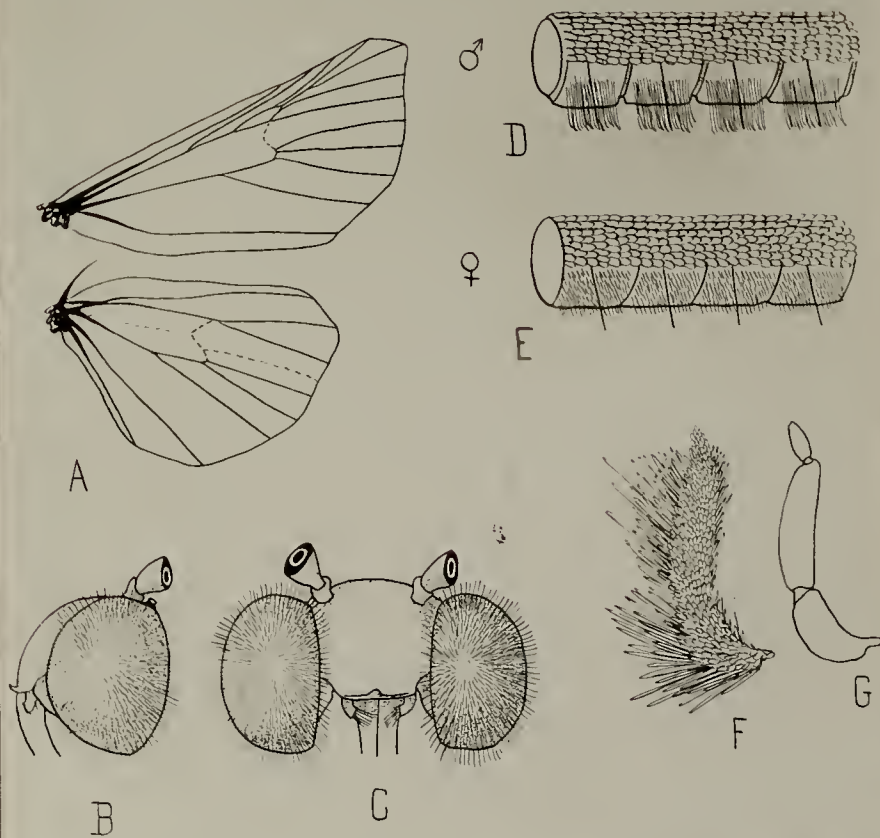
Barnes: Ceramica picta

Dyar: Mamestra picta

Hampson: Ceramica picta

Smith, J. B.: Mamestra picta

Genus *Ceramica*, Gn.



A- Wings

B- Head, side view

C- Head, front view

D- Antenna of the ♂

E- Antenna of the ♀

F- Palpus

G- Palpus denuded

GENUS ANARTA Ochs.

Original Description of the Genus.

Ochsenheimer: Die Schmetterlinge von Europa, IV, p.90, 1816.

"Arten

Fam. A. Myrtilli Linn.

Cordigera Thunb. (Albirana Hub.)

Meladeuca, Thunb. (Leucoptera Esp. Moesta Hub.)

Fam. B. Radiosa Esp. (Lyncæa Hub.)

Vidua Hub. (Tristis Hub.)

Funebris Hub.

Fam. C. Ruricola W.V. (Helyophila Hub. Pellius Borkh)

Heliaca W.V." Hub. Borkh. (Fasciola, Esp. Arbuti Fabr.)"

Ochsenheimer: Die Schmetterlinge von Europa, V, p.200, 1826.

"Die Schmetterlinge sind klein, haben dicke vollige Körper, zerkörnte Fühler, marmorirte oder bindenartig gefärbte Vorderflügel und breite schwarz Randbinden auf der Hinterflügeln, die gelb oder weisslich schwarz and der Wurzel beginnen. Sie schwärmen bei Tage im Sonnenschein."

"Fam. A. Schmetterlinge mit schmälern abgerundeten Vorderflügel"

Selection of the Genotype.

Anarta myrtilli Genotype designated by Curtis in 1826 (British Entomology, III, p. 145.).

Morphology of the Genotype.

Anarta myrtilli agrees with the generic concepts of some authorities with a few exceptions. The eyes are small but one would hardly call them reniform. Furthermore they are ciliated but not lashed. The antennae of the male are hardly serrate and in the specimens examined not at all flattened. Stephens noted that the basal segments of the palpi were equal in length. This might be so, depending upon where the measurements were made.

Head

Vestiture: coarse hair: Compound Eye: uniformly clothed with long

hair; Prona: uniformly rounded, ventral margin with an upturned point; Antennae: ♂ filiform, scaled above, clothed with moderately long hair beneath. Each segment bears a pair of lateral setae. In the ♀ the antenna is filiform, scaled above, finely ciliated beneath and each segment bears a pair of prominent setae; Palpi: proximal and middle segments scaled and bearing long, coarse hair beneath, distal segment scaled. Ratio of the segments: prox. 2., mid. 2.5., distal 1.; Proboscis: fully developed.

Thorax

Vestiture: coarse hair and hair-like scales; Crests: indications of a pro and a meta thoracic crest. The vestiture is very rough in some specimens and the crests are not always distinct; Wings: primaries with the costal margin slightly concave, apex truncated outer margin only slightly incurved. Secondaries with Sc and R touching near the base of the wing, then diverging; Legs: femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with coarse hair and long scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: covered dorsally and ventrally with hair and scales; Crests: one mid-dorsal crest on the first abdominal segment. Indications of other dorsal crests on the second and third segments. Also indications of lateral crests; Size: body stout but extends beyond the secondaries.

The Genus *Anarta* According to Other Authorities

Guenée: "Antennae slender, velvety or with short pubescence in both sexes. Palpi upright, covered with shaggy hair, with the third segment distinct but equally shaggy. Head small, retracted, with the

front narrow and arched. Thorax globular short, provided with scaly hairs, the patagiae a little spreading. Abdomen short very hairy in both sexes: that of the female quite large. Feet short, legs hairy without claws or spines. Wings thick, velvety, the superiors entire."

Hampson: "This authority makes the following additions to Guenée's description. Proboscis fully developed, frons with a corneous plate below, eyes small and reniform, not ciliated. Antennae of the ♂ minutely serrate. Fore and hind thorax with slight spreading crests. Basal segment of abdomen with a dorsal crest. Abdomen provided with lateral fringes of hair."

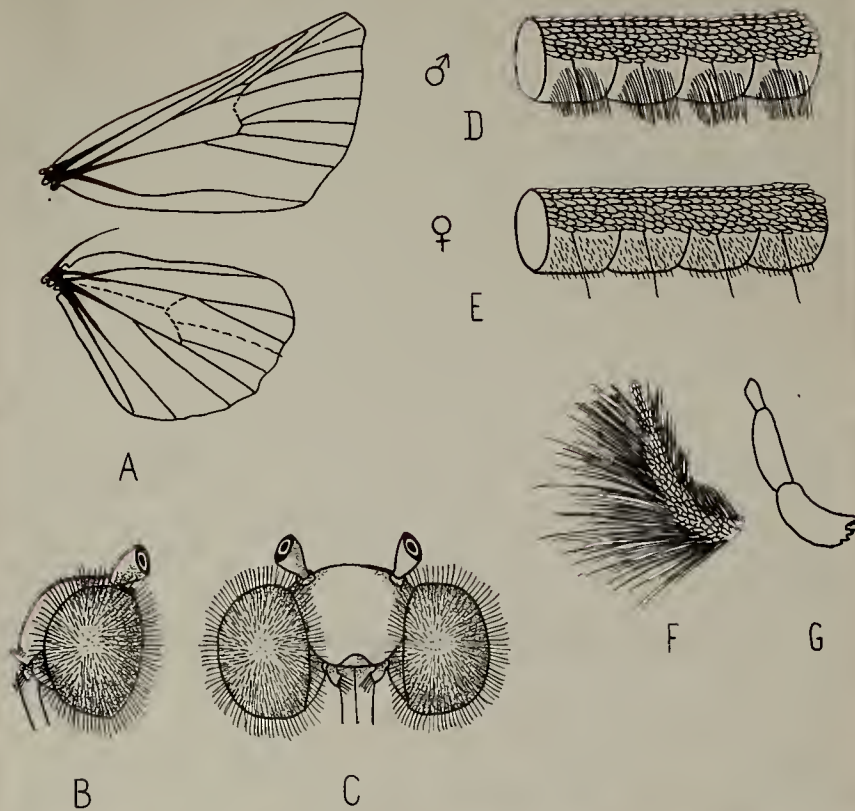
Seitz: "In the *"myrtilli"* group the antennae of the ♂ is slightly flattened, segments laterally tuberculate with short fascicles of cilia."

Stephens: "Palpi short--terminal joint concealed; the two basal segments of equal length, the basal stout slightly curved, the second rather more slender, sublinear, terminal very minute, subglobose. Antennae similar in both sexes. Head small; eyes globose somewhat pubescent."

Remarks

This genus seems to be well recognized and well established. Superficially myrtilli resembles a Memestra but it differs from persicariae, the type of that genus, in having small eyes, hairy head, scaly thorax and a slightly different shape in the primaries. It should be considered the type of a valid genus standing close to Memestra.

Genus Anarta, Och



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

G-Palpus denuded.

GENUS CHABUATA Walker

Original Description of the Genus

Walker: List of Lepidopterous Insects in the British Museum, XIII,
p. 1034, 1857.

"Male body stout. Proboscis moderately long. Palpi porrect, stout, pilose; third joint cylindrical, much more slender than the second, and about half its length. Antennae very minutely setose, more than half the length of the body. Abdomen extending very little beyond the hind wings. Legs stout; hind tibiae with long spurs. Wings moderately broad. Fore wing almost straight along the costa, acute and rectangular at the tips; exterior border slightly convex and hardly oblique

Chabuata ampla.

Brazil."

Selection of the Genotype

Chabuata ampla Walk. Genus is monotypical.

Morphology of the Genotype

Head

Vestiture: coarse hair; Compound Eyes: uniformly clothed with long hair; Frons: uniformly rounded, ventral margin without corneous ridge or point; Antennae: ♂. In the ♀ the antenna is filiform, scaled above, finely ciliated beneath. Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and bearing longer scales beneath. Distal bearing short scales only. Ratio of the segments: -----
Proboscis: fully developed.

Thorax

Vestiture: coarse hair and hair-like scales; Crests: a pro and a meta thoracic crest; Wings: primaries with the costal margin straight, apex drawn downward to a point, outer margin almost straight. Secondaries ----
Legs: femur of fore-leg fringed with hair beneath, remainder of leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with coarse hair and scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

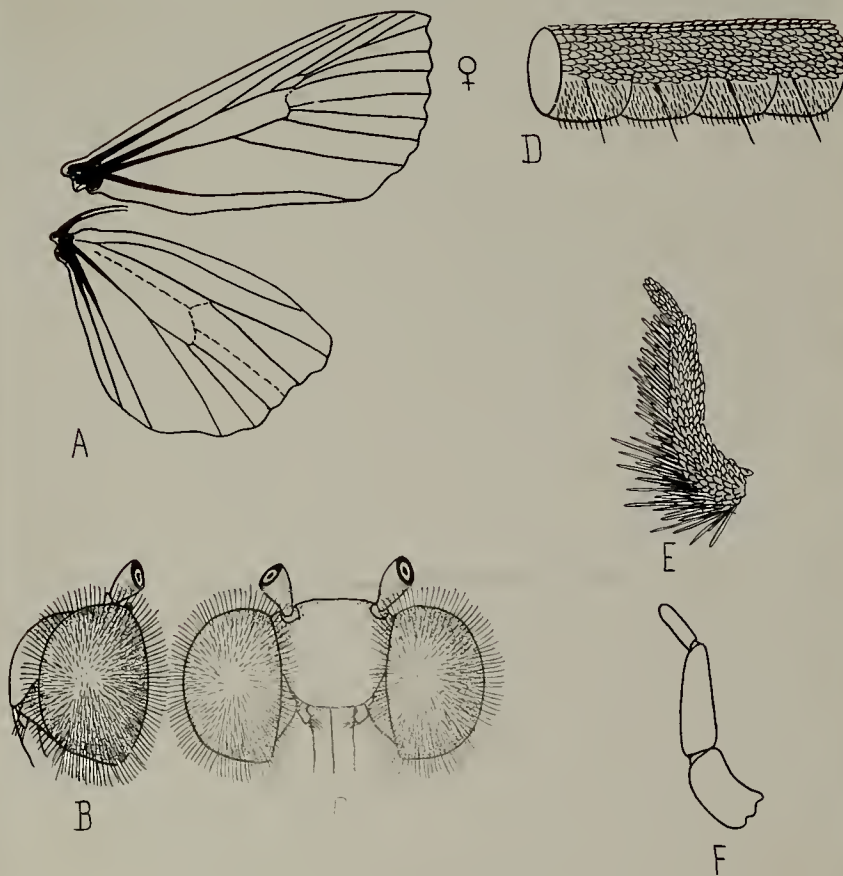
Vestiture: dorsally a mixture of hair and scales, ventrally largely scaled; Crests: a mid-dorsal crest on the first abdominal segment, no lateral crests present; Size: body extends beyond the secondaries.

Remarks

The North American genus Tricholita has been made synonymous with the South American genus Chabuata but in the distribution of the hair on the compound eyes, the two genera are quite distinct. In Chabuata the eyes are uniformly clothed with long hair while in Tricholita the hair is confined to the posterior portion.

The writer was unable to procure males of C. ampla and is therefore not in a position to discuss the validity of this genus.

Genus Chabuata, Walk.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♀

E-Palpus

F-Palpus denuded

GENUS ULOLONCHE Smith

Original Description of the Genus

Smith: Proceedings of the United States Museum, X, p. 471, 1887.

"Eyes hairy, tibiae not spinose or in any way armed. Thorax plump, stout, rather densely clothed with hairy or mixed vestiture, forming a more or less obvious divided anterior crest, and distinct posterior tuft. Abdomen rather elongate, slender, untufted. Head more or less evidently retracted; palpi well developed and reaching middle of front. Primaries rather small, short, trigonate, with marked apices and oblique outer margin. The male antennae are simple.

The species referred to this genus are Mamestra niveiguttata Gr., Taeniocampa modesta Morr., and a new species U. fasciata Smith.

The genus differs from Mamestra by the elongate, untufted abdomen, and from both Mamestra and Taeniocampa in the short, rather broad, trigonate wings, and from the latter in the coarse frontal vestiture. The genital structure is peculiar and not paralleled in any other genus.

U. fasciata Smith. sp. nov. New Mexico "

Selection of the Genotype

Ulolonche niveiguttata Gr. Designated by Grote

(Abhandlungen des naturwissenschaftlichen Vereins zu Bremen, XIV, p. 74, 1894).

Morphology of the Genotype

The genotype, niveiguttata, does not agree in every respect with the original description of the genus. In the species just mentioned, the tibiae are armed with the usual spurs, the abdomen is tufted, and the primaries do not have the apices well marked. It is possible that these characters are more evident in the other species

mentioned in the original description.

Head

Vestiture: coarse hair and hair-like scales; Compound Eyes: uniformly clothed with short hair; Frons: uniformly rounded, ventral margin without corneous ridge or point; Antennae: ♂ filiform, scaled above, clothed with fine hair beneath. Each segment bears a pair of lateral setae. In the ♀ the antenna is like the ♂ but cilia on the ventral surface is finer. Lateral setae also present; Palpi: proximal and middle segments scaled and bearing long hair beneath, distal segment scaled. Ratio of the segments: prox. 1.6, mid. 2.3, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: hair-like scales; Crests: indistinct pro and a more evident meta-thoracic crest; Wings: primaries with the costal margin straight but lobed at the base, apex rounded, outer margin incurved. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of the fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long hair and long scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

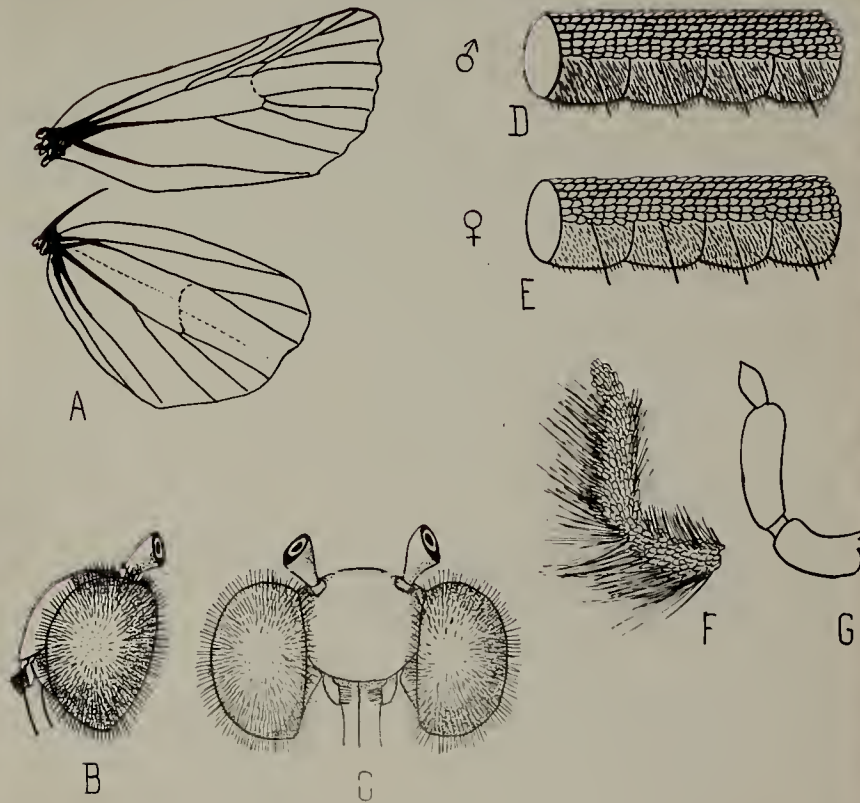
Vestiture: dorsally scales and some fine hair, ventrally mostly scales and some fine hair; Crests: a mid-dorsal crest on the first segment. Some lateral crests which are more evident in the ♂; Size: Body extends beyond the secondaries.

Remarks

It would be difficult to point out any character that would differentiate *this* genus from Mamestra or Hyssia (which we may consider

synonymic with Mamestra)). It may be considered a valid genus based on the fact that the costal margin of the primaries is slightly lobed at the base.

Genus *Ulolonche*. Sm.



A-Wings

B- Head, side view

C- Head, front view

D- Antenna of the ♂

E- Antenna of the ♀

F- Palpus

G- Palpus denuded

GENUS ALETIA Hübner

Original Description of the Genus

Hubner: Verzeichnes bekannter Schmetterlinge, p. 239, 1822.

"Die Schwingen mit ungewöhnlichen Mittezeichen und fast welligen Linien bezeichnet

Aletia vitellina Hub.
A. conigera Schiff.
A. turca Linn."

Selection of the Genotype

Aletia vitellina Hub. Genotype designated by Moore

(Proceedings of the Zoological Society of London p. 333, 1881).

Morphology of the Genotype

Head

Vestiture: coarse hair and hair-like scales; Compound Eyes: uniformly clothed with long hair; Frons: uniformly rounded, ventral margin with a slight corneous ridge; Antennae: ♂

In the ♀, the antenna is filiform, scaled above, finely ciliated beneath.

Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and bearing longer scales beneath, distal segment clothed with short scales only. Ratio of segments: prox. 2, mid. 2.5, distal 1;

Proboscis: fully developed.

Thorax

Vestiture: coarse hair and hair-like scales; Crests: a pro and an indistinct meta-thoracic crest; Wings: primaries with the costal margin straight, apex truncated, outer margin strongly incurved. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of the fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and coarse hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally and ventrally hair; Crests: indications of some mid-dorsal crests, no lateral crests; Size: body extends beyond the secondaries.

Remarks

There is nothing in the original description of the genus that would enable one to decide whether vitellina is more typical than any of the other species listed by Hübner. It would seem best under the circumstances to accept this species as typical and form the genus Aletia about it.

The slight difference in the wing shape removes this from Leucania, and the uniformly rounded frons separates it from Sideridis. It is a true Hadenine and should not be placed under Xanthia or Orthosia. There are no strong characters for this genus and it may have to sink as a synonym of Mamestra or Hadena.

Guenee: Leucania vitellina

Hampson: Sideridis vitellina

Herrich-Schaeffer: Orthosia vitellina

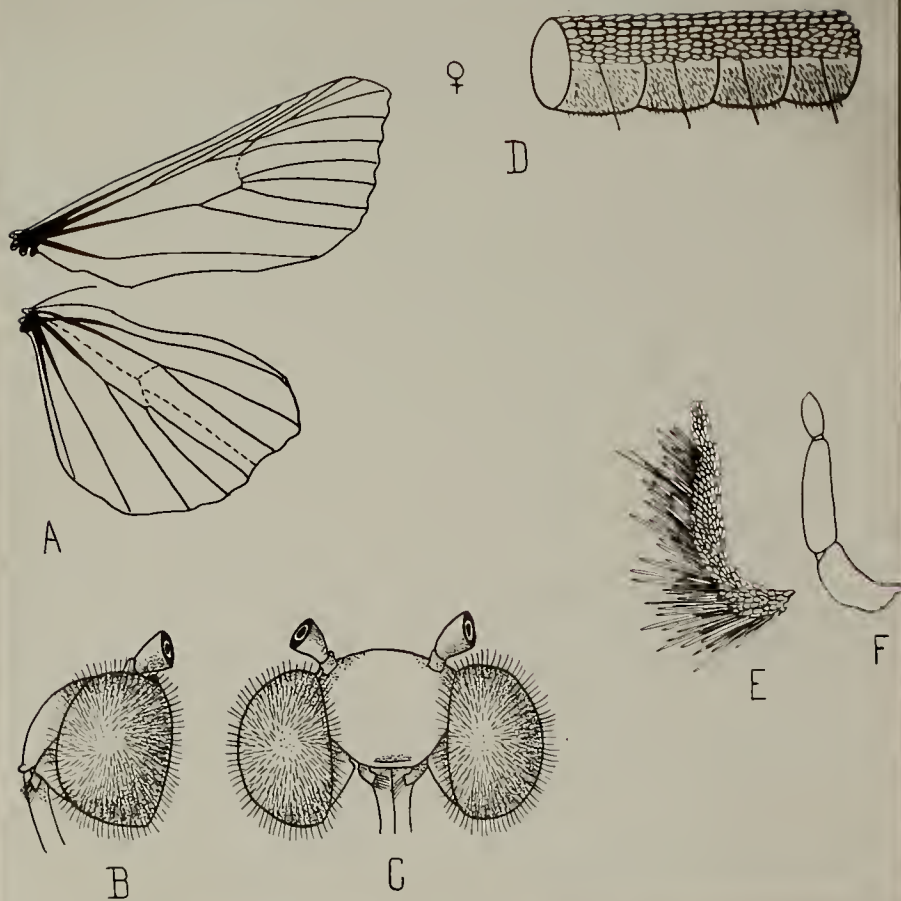
Ochsenheimer: Xanthia vitellina

Seitz: Sideridis vitellina

Staudinger: Leucania vitellina

Walker: Mythimna vitellina

Genus Aletia, Hub.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♀

E-Palpus

F-Palpus denuded.

Original Description of the Genus

Grote: Bulletin of the Buffalo Society of Natural Sciences, II,
p. 67, 1875.

"A singular genus with narrow wings and linear body parts, recalling, in its colors, Xanthia but with extraordinarily tufted middle and hind legs. The antennae (♂) are long and pubescent with two long setae on each joint. The eyes are naked. The maxillae long and stout. The palpi long, exceeding the front, with rather long and prominent terminal joint. The fore wings are narrow of equal width, with parallel margins and slightly produced apices. The hind wings show a singular fringing of longer scales above, along the internal, median, and subcostal nervures. The middle and hind tibiae are thickly tufted, especially the latter, which show an inwardly projecting lengthy and discolorous tuft. The abdomen is pointed terminally, without dorsal tufts, is narrow and exceeds the hind wings in length. In the shape of the primaries and by the tufted legs, a relationship with Heliophila pseudargyria is evidenced.

Zosteropoda hirtipes Grote. California "

Selection of the Genotype

Zosteropoda hirtipes Grote The genus is monotypical.

Morphology of the Genotype

The genotype agrees well with the descriptions of Hampson and Grote, with the exception of the palpal vestiture which consists of scales only.

Vestiture: coarse hair; Head Compound Eyes: uniformly clothed with long hair; Frons: uniformly rounded, ventral margin without corneous ridge or point; Antennae: ♂ filiform, scaled above, clothed with short hair beneath. Each segment bears a pair of lateral and a pair of mid-ventral setae. In the ♀ the antenna is like that of the ♂ but the under

side is clothed with fine cilia; Palpi: all segments closely scaled, the proximal with a few longer scales and some coarse hair beneath. Ratio of the segments: prox. .75, mid. 1.6, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: coarse hair; Crests: no distinct crests; Wings: primaries with the costal margin concave, apex drawn downward to point, outer margin slightly incurved. Secondaries with Sc and R confluent at their bases; Legs: femur of the fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and coarse hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally hair and scales, ventrally scaled; Crests: none; Size: body extends beyond the secondaries.

The Genus Zosteropoda According to Other Authorities

Hampson: "Proboscis fully developed, palpi -- fringed with long hair in front, 3rd. porrect rather long, frons smooth --- antennae of the ♂ ciliated, head and thorax clothed with hair only without crests, mid and hind tibiae fringed with very long hair on outer side, abdomen without crests and with lateral fringes of hair on the basal segments. Fore wings with apex produced and acute, termen nearly straight. --- Costa lobed at the base."

Remarks

The peculiar wing shape, particularly the concave costal margin, makes this genus quite distinct.

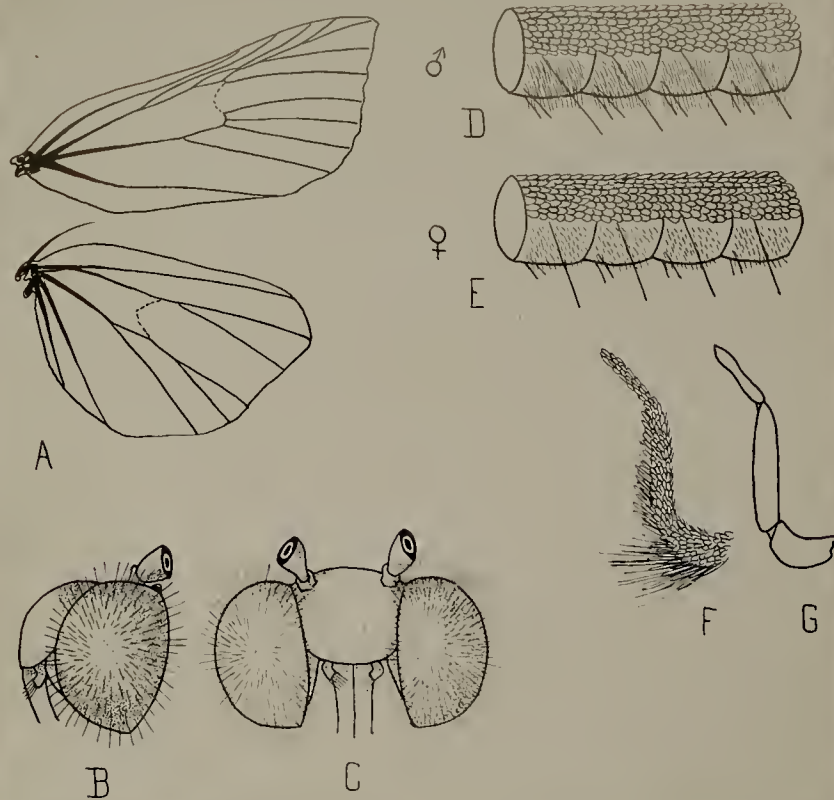
Barnes: Zosteropoda hirtipes

Dyar: Zosteropoda hirtipes

Hampson: Zosteropoda hirtipes

Smith, J. B.: Zosteropoda hirtipes

Genus *Zosteropoda*, Grt.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

G-Palpus denuded

GENUS HADENA Schrank

Original Description of the Genus

Schrank: Fauna Boica, II, (2), p. 158, 1802.

"Die Eulenfamilien M und N des Wienerverzeichniss* (K und L unser Fauna) liessen sich etwa züglich in einerleg Gattung zusammenstellen, die den Namen Gemeineule, Noctua, haben könnte; eben so glaube ich bey Vergleichung meines geringen Vorrathes aus den Familien O und P (In der Fauna M und N) das sie wohl zusammen eine einzige Gattung ausmachen dürften, welche ich den namen Hadena, Trubeule, geben würde. Ich bemerke von beyden diesen vorgeschlagenen Gattung, das die Männchen, so weit mir mein in diesem Stücke sehr geringen Vorrath Beobachtungen erlaubt, gefrenzte Fuhlhörnen haben: deutlich sind bey einem Stücke, das ich vor mir haben, diese Franzen Kämme: aber bei anderen scheinen es nur Haerfranzen, oder höchstens seine Bursten kämme zu seyn."

* Denis and Schiffenmuller: Systematische Verzeichniss von den Schmetterlinge der Wiener Gegend, 1801;

Family O (page 267)

Noctua pinestri L	Noctua caesia	Noctua hepatica L.
" cespitis	" atriplicis L.	" porphyrea
" greminis L.	" herbida	" adusta
" typica L.	" prasina	" oleracea L.
" leucophaea	" praeceps L.	" xanthographa L.
" chenopodii	" thalassina	" leucographa
" contigua	" pisi L.	" chrysographa Anh.
" dentina	" brunnea	

Family P (page 281)

Noctua meticulosa	Noctua cucubali
" satara	" capsicola
" lucinara L.	" protea
" serena	" convergens

Selection of the Genotype

Hadena cucubali Schiff. Genotype designated by Grote
(Entomological Record, VI, p. 75, 1895).

Morphology of the Genotype

Head

Vestiture: hair-like scales, some hair; Compound Eyes: uniformly clothed with short hair; Frons: uniformly rounded very slightly protuberant, ventral margin without corneous ridge or point; Antennae: ♂ filiform, scaled above, clothed with moderately long hair beneath, each segment bears a pair of lateral setae. When seen in cross-section, the antenna is wedge-shaped. In the ♀ the antenna is filiform, scaled above, finely ciliated beneath, and oval in cross-section. Each segment bears a pair of lateral setae; Palpi: proximal segment scaled and bearing coarse hair beneath, middle segment scaled and with longer scales beneath, distal segment clothed with short scales only. Ratio of the segments: prox. 2, mid. 3, distal 1; Proboscis: fully developed.

Thorax

Vestiture: scales; Crests: a divided pro and a meta-thoracic crest; Wings: primaries with the costal margin straight, apex truncated, outer margin nearly straight. Secondaries with Sc and R touching at the base of the wing then diverging; Legs: femur of fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and coarse hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally hair and some scales, ventrally largely hair-like scales; Crests: a series of mid-dorsal crests in both sexes,

lateral crests in the male only; Size: body extends beyond the secondaries.

The Genus Hadena According to Other Authorities

Hampson: takes reticulata as the type of Hadena so his conception of the genus would differ from that of a person who accepts Grote's designation of the genotype. According to Hampson, Neuria is the same as Hadena for both have the same genotype, reticulata. Reticulata? however, cannot be accepted as genotype of Hadena because of Grote's earlier designation. In Hadena the frons is only very slightly protuberant, ventral margin does not bear an upturned point. The middle segment of the palpi bears only long scales beneath. In these particulars, Hadena differs from Neuria.

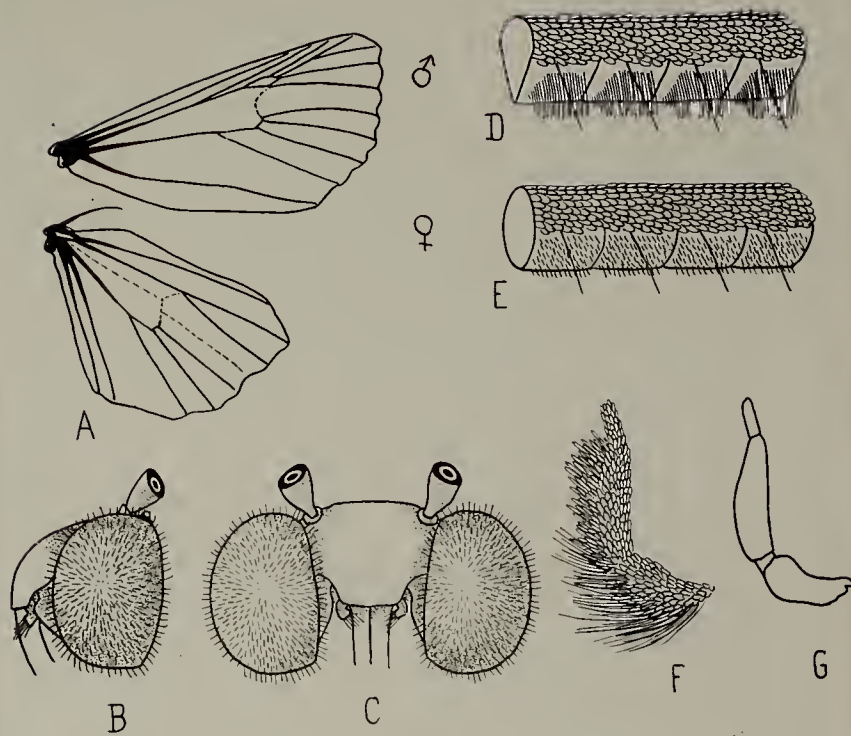
Remarks

The species, cucubali, has been considered by some foreign workers (Herrich Schaeffer, Staudinger, Walker) as belonging to the Genus Dianthoecia and for this reason no description of the genus Hadena written by them would quite fit our present conception of the genus but Grote's designation must stand unless an earlier designation is brought to light. We may therefore take cucubali as typical in every way and build our new genus Hadena about it. The most striking difference between Hadena and Dianthoecia is the protruding frons in the latter genus very much unlike the more uniformly rounded front of Hadena. On the other hand upon comparing the morphology of Hadena cucubali and Mamestra persicariae it is quite difficult to find any strong points of difference. It could well be said that Hadena shows most of the characters of Mamestra with the exception of the structure of the male antennae. In Mamestra, the male antenna is filiform round or

oval in cross section. In Hadena the male antenna is also filiform but wedge shaped in cross section.

The genus Hadena might be said to include all forms in which the frons is uniformly rounded, antennae of both sexes filiform those of the male wedge shaped in cross section, proboscis fully developed, primaries with the costal margin straight, and the legs bearing only the usual spines and spurs. Such a classification would include the genotypes of Aethria, Anlecta, Astrapetis, Diaterixia, Dargida, Eusephopactes, and even Crocigranha. Some of these genotypes could be removed on the bases of vestiture and tuftings but from a purely morphological standpoint they ought to be grouped under one genus - Hadena.

Genus *Hadena*, Schrank.



A-Wings
 B-Head, side view
 C-Head, front view
 D-Antenna of the ♂

E-Antenna of the ♀
 F-Palpus
 G-Palpus denuded

GENUS AETHRIA Hüb.

Original Description of the Genus.

Hübner: Verzeichniss bekannter Schmetterlinge, p. 218, 1822.

"Die Schwingen sehr deutlich flickig und streifig bezeichnet, heiter blaulichgrau. gefarbt."

Aethria serena Schiff (Placida Esp.)
A. glauca Hüb.

Selection of the Genotype

Aethria serena Schiff. Genotype designated by Hampson

:(Catalogue of the Lepidoptera Phalaenae, Vol. V, p. 60, 1905).

Morphology of the Genotype

Head

Vestiture: coarse hair and hair-like scales; Compound Eye: uniformly clothed with short hair; Frons: uniformly rounded, ventral margin pointed but without corneous ridge; Antennae: ♂ filiform, scaled above, clothed with moderately long hair beneath. When seen in cross-section the antenna is wedge-shaped. In the ♀ the antenna is filiform, scaled above, finely ciliated beneath, and oval in cross section. Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and bearing coarse hair beneath, distal segment scaled. Ratio of the segments: prox. 2.5, mid. 2.5, distal 1. : Proboscis: fully developed.

Thorax

Vestiture: scales; Crests: indications of a meta thoracic crest. The vestiture is very rough and the crests are not very distinct; Wings: primaries with the costal margin straight, apex rounded, outer margin nearly straight. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of fore-leg fringed with

coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral ridge of the femur and dorsal margin of the tibia fringed with long scales and coarse hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: covered dorsally and ventrally with hair and scales;

Crease: dorsal and lateral crease present but ill defined in most cases;

Size: body extends beyond the secondaries.

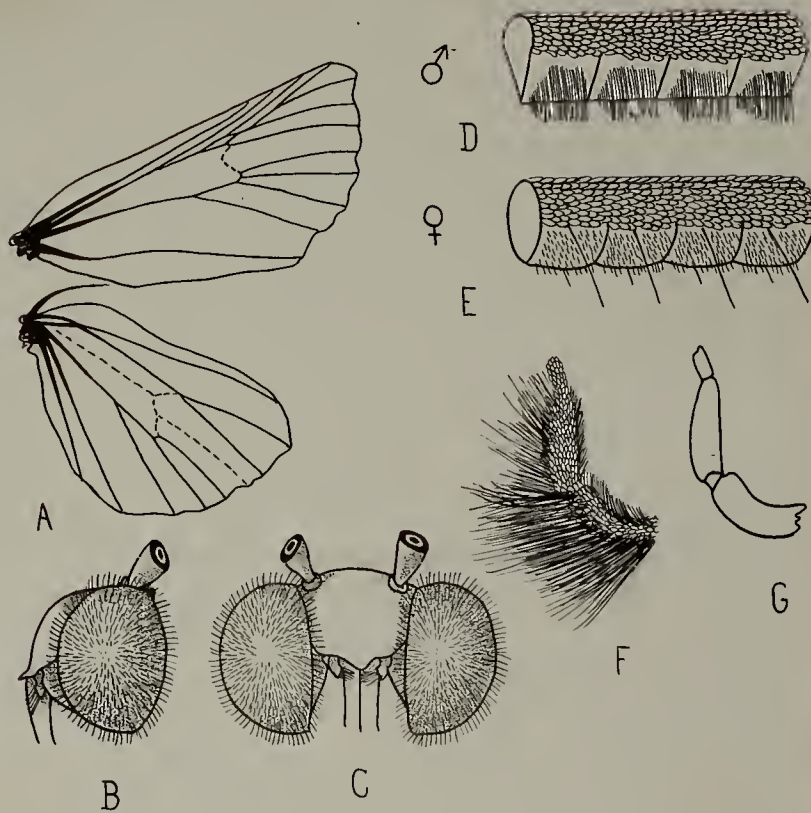
The Genus Aethria According to Other Authorities.

The genus Aethria has not been recognized by the more prominent workers on the Noctuidae.

Remarks

This genus has been placed by most writers under Polia (Mamestra) but the wedged shaped antennae in the male would remove it to the Hadena group it being synonymous with that genus.

Genus Aethria, Hub.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

G-Palpus denuded

GENUS ASTRAPETIS Hüb.

Original Description of the Genus.

Hübner: Verzeichniss bekannter Schmetterlinge, p. 218, 1822.

"Die Schwingen zwischen den Mittelecken fast zahnformig, gezeichnet und nahe am Rande blissackig gestreift."

Astrapetis dentina, Schiff.

A. remissa Hub.

A. distincta Hub.

A. contigua Schiff. (*Spartii* Borkh.)

A. genistae Borkh.

A. valida Hub.

A. satura Schiff. (*Porphysia* Esp.)

A. gerina Hub.

A. achates Hub.

Selection of the Genotype.

Astrapetis dentina Schiff. Genotype designated by Hampson

(Catalogue of the Lepidoptera Phalaenae, Vol. V, p.60, 1905.).

Morphology of the Genotype.

Head

Vestiture: coarse hair and hair-like scales; Compound Eye: uniformly clothed with long hair; Erga: uniformly rounded slightly protuberant in the ♂, more so in some ♀ specimens. Ventral margin sometimes slightly upturned in the ♀; otherwise not demarked; Antennae: ♂ filiform, scaled above, clothed with moderately long hair beneath, each segment bearing a pair of lateral setae. When seen in cross-section the antennae is wedge shaped. In the ♀ the antennae is filiform, scaled above, finely ciliated beneath, and oval in cross-section. Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and bearing coarse hair beneath, distal segment scaled. Ratio of the segments: prox. 1.5, mid. 2.5, distal 1; Proboscis: fully developed.

Thorax.

Vestiture: a mixture of scales, hair-like scales and hair; Crests: a pro and meta thoracic crest but not well defined; Wings: primaries

with the costal margin straight, apex truncated, outer margin strongly incurved. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and coarse hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

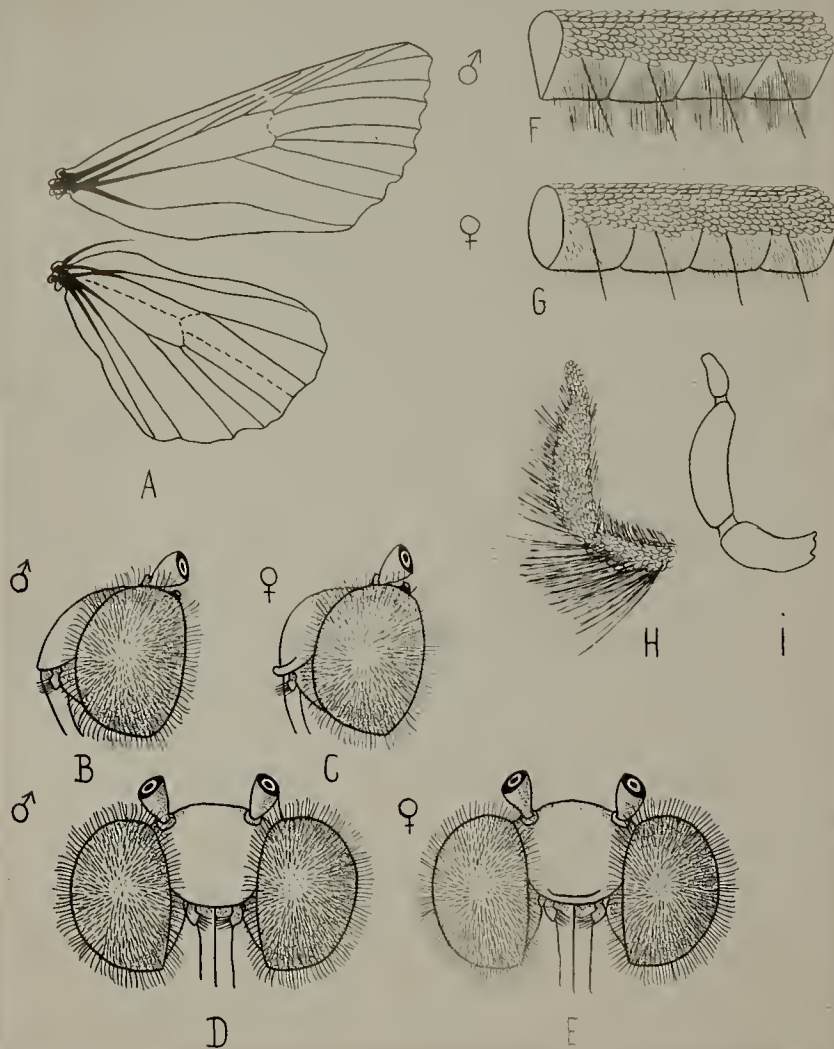
Abdomen

Vestiture: In the ♂ covered dorsally with hair, ventrally hair and scales. In the ♀ covered with scales and hair dorsally, ventrally mostly scaled; Crests: some mid-dorsal crests in both sexes, lateral crests in the ♂ not so evident in the ♀; Size: body extends beyond the secondaries.

Remarks

The genotype agrees so well in its morphology with Hadena that the genus might well be considered a synonym of it. It has been placed under Hadena by Guenee, Ocheenheimer and Walker and under Polia by Hampson and Herrich Schaeffer.

Genus Astrapetis Hub.



A-Wings
 B-Head of ♂, side view
 C-Head of ♀, side view
 D-Head of ♂, front view
 E-Head of ♀, front view

F-Antenna of the ♂
 G-Antenna of the ♀
 H-Palpus
 I-Palpus denuded

GENUS DIATARAXIA Hüb.

Original Description of the Genus

Hübner: Verzeichniss bekannter Schmetterlinge, p. 219, 1822.

"Die Schwingen blutfarbig, mit hellem Fleck und hellen Striemen"

Diataraxia splendens Hüb.

D. fibrosa Hüb.

D. tenera Hüb.

D. leucostigma Hüb.

D. oleracea Linn.

D. aliena Hüb.

D. suasa Schiff.

D. chenopodii Schiff.

Selection of the Genotype

Diataraxia splendens Hüb. Genotype designated by Hampson

(Catalogue of the Lepidoptera Phalaenae, Vol. V, p. 60, 1905).

Morphology of the Genotype

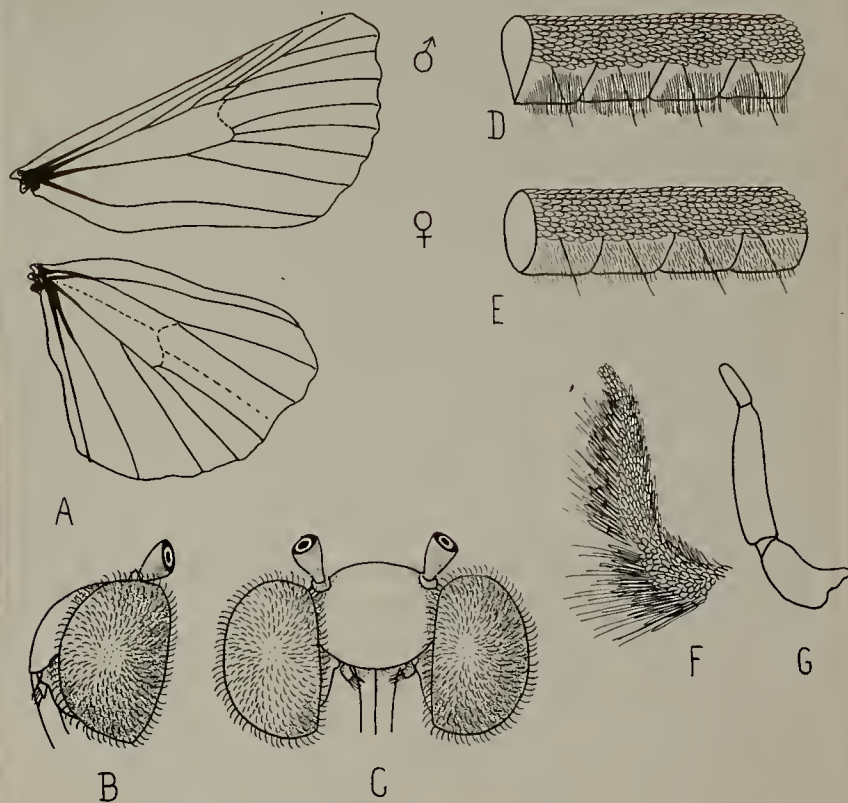
Head

Vestiture: hair-like scales; Compound Eyes: uniformly clothed with short hair; Frons: uniformly rounded, ventral margin without corneous ridge or point; Antennae: ♂ filiform, scaled above, clothed with moderately long hair beneath, each segment bearing a pair of lateral setae. When seen in cross-section, the antenna is wedge shaped. In the ♀ the antenna is filiform, scaled above, finely ciliated beneath, and oval in cross section. Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and bearing longer scales and short hair beneath, distal segment scaled. Ratio of the segments: prox. 1.5, mid. 3, distal 1; Proboscis: fully developed.

Thorax

Vestiture: hair and hair-like scales; Crests: a divided pro and a mate thoracic crest; Wings: primaries with the costal margin straight, apex truncated, outer margin slightly incurved. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur

Genus Diataraxia, Hub



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

G-Palpus denuded

GENUS DARGIDA Walker

Original Description of the Genus

Walker: List of Lepidopterous Insects in the British Museum, IX, p. 201, 1856.

"Male, Body stout. Proboscis moderately long. Palpi stout, pilose ascending; third joint extremely minute. Antennae very minutely ciliated, more than half the length of the body. Abdomen extending for one third of its length beyond the hind wings, crested towards the base. Legs stout; hind tibiae with four moderately long spurs. Wings moderately broad, denticulate, rather oblique, and hardly convex along the exterior border; first, second and third inferior veins approximate; fourth moderately remote

Dargida grammivora, (Morritz MSS) Venezuela."

Selection of the Genotype

Dargida grammivora Walk. Genus is monotypical.

Morphology of the Genotype

Head

Vestiture: coarse hair and hair-like scales; Compound Eye: uniformly clothed with short hair; Frons: uniformly rounded, ventral margin without ridge or point and slightly protuberant; Antennae: ♂ filiform, scaled above, clothed with moderately long hair beneath, each segment bears a pair of lateral setae. When seen in cross-section, the antenna is wedge-shaped. In the ♀, the antenna is filiform, scaled above, finely ciliated beneath, and oval in cross section. Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and with long hair beneath, distal segment scaled. Ratio of the segments; prox. 7, mid. 3, distal 1; Proboscis: fully developed.

Thorax

Vestiture: scales and hair-like scales; Crests: a divided pro and possibly a meta thoracic crest; Wings: primaries with costal margin straight, apex truncated, outer margin strongly incurved. Secondaries with Sc and R confluent at their bases; Legs: femur of fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and coarse hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

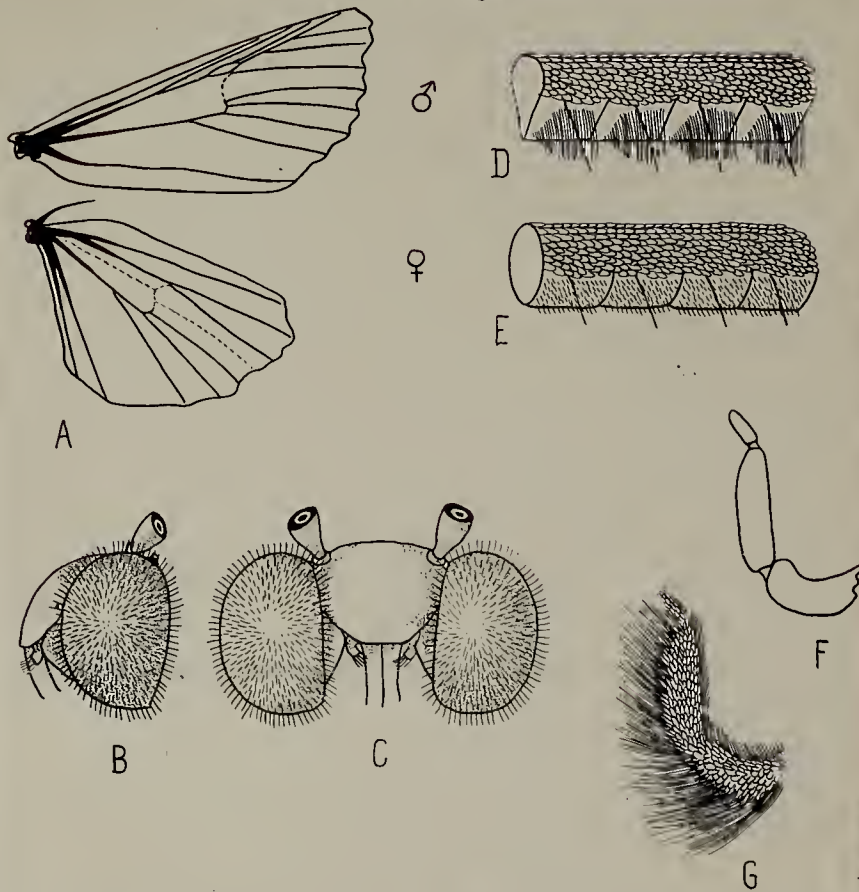
Abdomen

Vestiture: dorsally hair, some scales. Ventrally coarse hair in the ♂, largely scaled in the ♀; Crests: slight indications of dorsal crests. Distinct lateral crests in the ♂ only; Size: Body extends beyond the secondaries.

Remarks

In its morphology, this genotype runs too close to Hadena to be separated from it. For this reason, Dargida should be considered synonymic with Hadena.

Genus *Dargida*, Walk.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus denuded

G-Palpus.

GENUS EUPSETHOPAECTES Grote.

Original Description of the Genus

Grote: Bulletin of the Buffalo Society of Natural Sciences, I, p. 137, 1872-4.

"Eyes hairy, without lashes; antennae (♀) of the usual length, scaled above, pilose beneath, with two short stout bristles to each joint; front closely scaled without prominence, rather narrow; tongue long and corneous; legs unarmed; thorax subquadrate with a slight anterior and a more prominent posterior crest; abdomen with a dorsal ridge but untufted (♀). Head prominent; the caputal squamation is massed between the antennae, front untufted. Palpi prominent, exceeding the front, directed obliquely forwards, closely scaled. Wings elongate and rather narrow; primaries widening outwardly, with a straight costal edge; apices very slightly blunted; external margin short evenly rounded; internal margin subsinuate. Hind wings moderate exceeded by the abdomen. The fringes and external margins of both wings lightly scalloped. Ornamentation Hadena like; mimicking the Sphinx genus Duro.

This genus differs at once from all the genera allied to Hadena (with which I would associate it) such as Prodenia, Brotolomia, Phlogophora, Euplexia, Jaspidea, by its distinctly hairy eyes. From the Mamestra by the sinuate internal margin of the primaries and the more produced apices.

Eupsethopaectes procinctus. Gr. California."

Selection of the Genotype

Eupsethopaectes procinctus. Gr. Genus is monotypical.

Morphology of the Genotype

Head

Vestiture: scales; Compound Eyes: uniformly clothed with long hair; Frons: uniformly rounded, ventral margin without corneous ridge or point; Antennae: ♂ filiform, scaled above, clothed with moderately long hair beneath, each segment bears a pair of lateral setae. When seen in cross-section, the antennae is wedge-shaped. In the ♀, the antennae is filiform, scaled above, finely ciliated beneath, and oval in cross-section. Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and bearing longer scales and short hair beneath, distal segment scaled. Ratio of the segments: prox. 1.75, mid. 2.75, distal 1.00; Proboscis: fully developed.

Thorax

Vestiture: mixture of scales and hair; Crests: pro and meta thoracic crests; Wings: primaries with the costal margin straight, apex truncated, outer margin slightly incurved. Secondaries with Sc and R touching at the base of the wing then diverging; Legs: femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long hair and scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

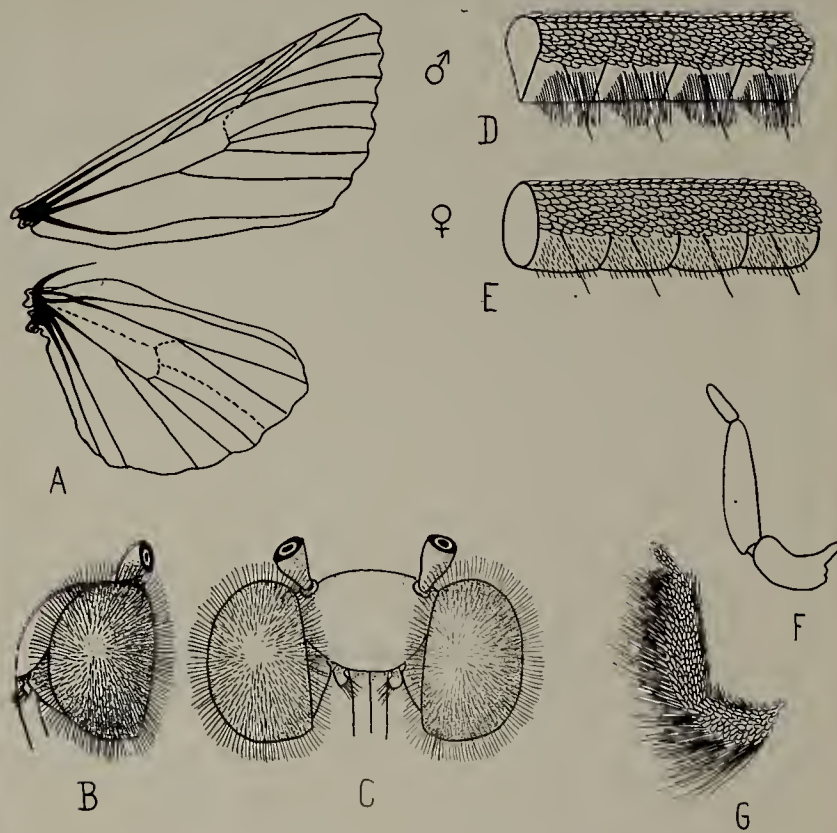
Vestiture: dorsally largely hair, scaled at the tip. Ventrally scaled; Crests: mid-dorsal crests on the first and second abdominal segments. Lateral crests in both sexes but more prominent in the ♂; Size: body extends beyond the secondaries.

Remarks

This genus should be considered synonymic with Hadena as its genotype differs so little in its morphology from Hadena cucabali. It

seems odd that Grote did not realize that Hadens and its allied genera have hairy eyes.

Genus *Eupsephopaectes*, Gr.



A-Wings
 B-Head, side view
 C-Head, front view
 D-Antenna of the ♂

E-Antenna of the ♀
 F-Palpus denuded
 G-Palpus.

GENUS CROCIGRAPHA Grote.

Original Description of the Genus

Grote: The Canadian Entomologist, Vol. VII, p. 57, 1875.

"Dear Sir:

On page 250 of the Canadian Entomologist, Mr. Morrison doubts the propriety of the generic reference of Periclerus normani, Grote. I had previously (Bull. Buffalo Soc. Nat. Sci.) noted the different antennal structure of the American species, not being acquainted autoptically with the European forms. The species of Periclerus are regarded as related to Taeniocampa by Lederer, and it was natural that in describing an American species, differing by the presence of a prothoracic tuft, that I should refer it to a genus differing by this character from Taeniocampa, to which otherwise both were related. Lederer has divided the genus Taeniocampa (which should now be known, as I have shown elsewhere, as Graphinhora) into sections already, on peculiarities of antennal structure. There can be no propriety of further enlarging the genus by the admission of species with a tufted thorax, so that I propose the above name for C. normani."

Selection of the Genotype

Crocigerus normani Grote; monotypical.

Morphology of the Genotype

With the exception of the tufted abdomen, normani agrees well with Smith's conception of the genus.

Head

Vestiture: mostly hair some hair-like scales; Compound Eyes: uniformly clothed with long hair; Prona: uniformly rounded slightly protuberant, ventral margin with a corneous ridge; Antennae: ♂ filiform, scaled above, clothed with moderately long hair beneath, each segment

bears a pair of lateral setae. When seen in cross-section the antenna is wedge shaped. In the ♀ the antennae is filiform, scaled above, finely ciliated beneath, each segment bears a pair of lateral setae. Antennae oval in cross-section; Palpi: proximal and middle segments scaled and bearing long hair beneath, distal segment scaled. Ratio of the segments: prox. 2.25, mid. 2.25, distal 1.00 ; Proboscis: fully developed.

Thorax

Vestiture: hair and hair-like scales; Cresta: an indistinct pro and a prominent meta-thoracic crest; Wings: primaries with the costal margin straight, apex rounded, outer margin only slightly incurved. Secondaries with Sc and R confluent at their bases; Legs: femur of the fore-leg fringed with long hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long hair and long scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally and ventrally hair and scales; Cresta: a mid-dorsal on the first abdominal segment, lateral crests present in both sexes but more prominent in the ♂; Size: body extends beyond the secondaries.

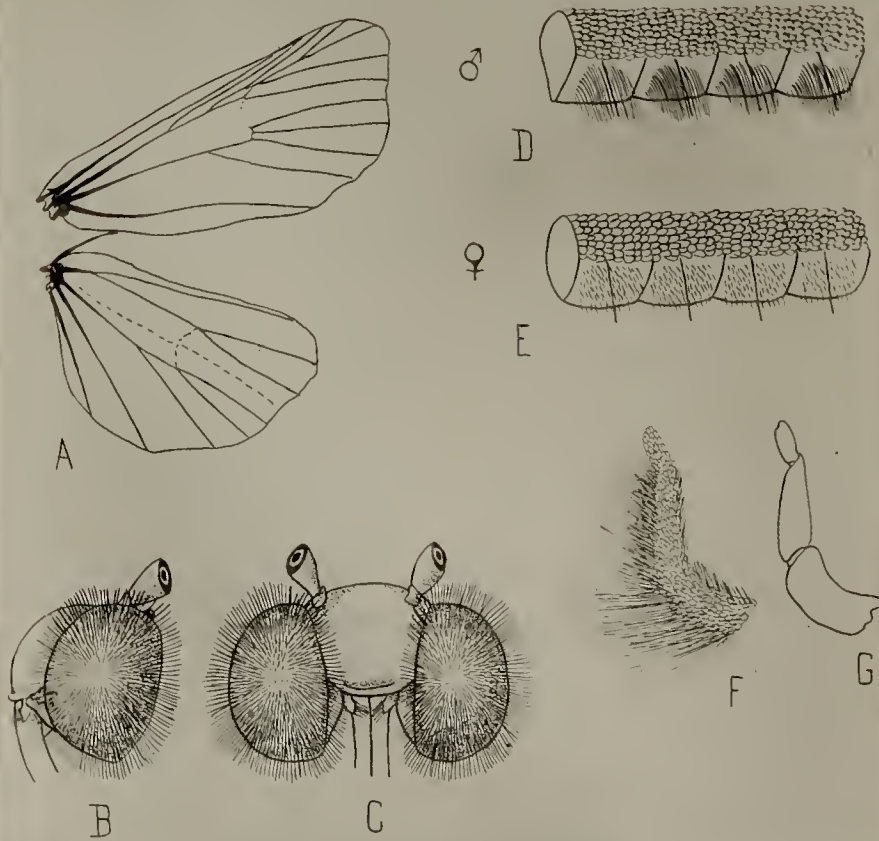
The Genus Crocigraphe According to Other Authorities.

Smith, J. B. "Eyes hairy, tibiae unarmed. Vestiture hairy with few scales intermixed. Thorax with an inconspicuous divided crest. Abdomen untufted. Primaries elongate, subequal, hind angle strongly retracted. Male antennae simple. Very unsatisfactorily removed from Taeniocampa"

Remarks

In the shape of the frons and in the structure of the male antennae, normani differs from the genotype of Siderides. In these respects as well as in other structural details, C. normani comes very close to Hadena cucubali, so close in fact that it would seem proper to sink Crocigrepha as a synonym of Hadena.

Genus *Crociographa*, Gr.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

G-Palpus denuded.

GENUS APLECTA Guenee.

Original Description of the Genus.

Guenee: Species General des Lapidivores (Noctuidae), II, p. 74, 1852.

"Antennae simples ou moniliformes, pubescentes, à cils inégaux dans les ♂. Palpes peu ascendants, le 2^e article velu-herissé, large surtout au sommet, le 3^e squameux et court. Thorax carré, velu-serré, doublement crêté, à collier sinué. Abdomen long, velu, un peu déprimé, surtout dans les ♀, où il est presque rectangulaire, jusqu'au dernier anneau, qui est terminé en pointe obtuse. Ailes subdentées, les supérieures épaisses oblongues, pulverulentes, plus ou moins nébuleuses les inférieures bien développées."

	"	Aplecta herbida W.V.	Europe
		A. occulta Linn.	Europe
		A. implicata Lef.	Groenland.
		A. imbrifera Gn.	U.S.A.
		A. nimbova Gn.	America.
Type		A. nebulosa Hufn.	Europe.
		A. latex Gn.	America.
		A. condita Gn.	America.
		A. schoenherri Bdv.	Laponie.
		A. speciosa Hb.	Vosges.
		A. tincta Brahm.	Europe.
		A. advena W.V.	Europe."

Selection of the Genotype.

Aplecta nebulosa Hufn. Designated by the author in the original description of the genus.

Morphology of the Genotype.

Head
Vestiture: scales and hair-like scales; Compound Eye: uniformly clothed with short hair; Frons: uniformly rounded, ventral margin without corneous ridge or point; Antennae: ♂ filiform, scaled above, ciliated beneath. Each segment bears a pair of lateral setae. When

seen in cross-section, the antennae is wedge shaped. In the ♀ the antennae is filiform, scaled above, finely ciliated beneath, and oval in cross-section. Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and with longer, coarser scales beneath, distal segment with short scales only. Ratio of the segments: prox. 1.0, mid. 2.5, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: scales; Crests: a divided pro and a meta thoracic crest; Wings: primaries with the costal margin straight, apex truncated outer margin slightly incurved. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and coarse hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: covered with hair and scales dorsally, ventrally with some scales but mostly coarse hair; Crests: a mid-dorsal crest on the first segment, no lateral crests; Size: body extends beyond the secondaries.

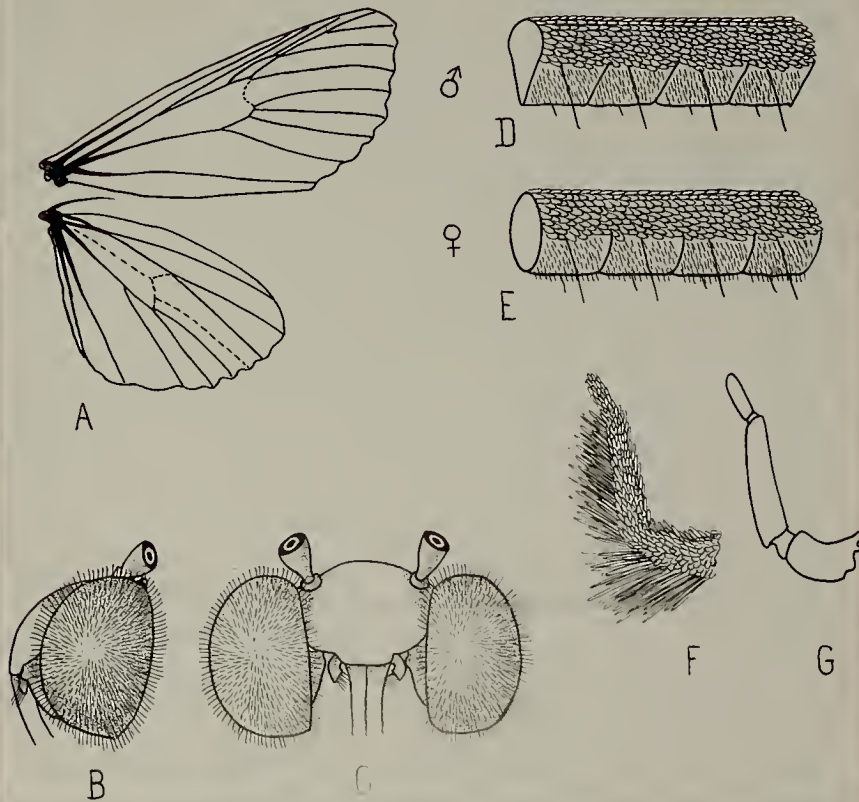
The Genus *Anlecta* According to Other Authorities.

Seitz: "Differs from Polia in the larger size of the insects comprising it, with narrower elongate wings; antennae of the ♂ simple or slightly ciliated."

Remarks

There are no outstanding characters for this genus and it would seem best to sink it as a synonym of Hadena. Hampson, Herrich-Schaeffer, and Ochseneimer placed nebulosa under Polia which in part is the equivalent of Hadena.

Genus *Aplecta*, Gn.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

G-Palpus, denuded.

GENUS ERIOPYGA Guenee.

Original Description of the Genus

Guenee: Species General des Lepidopteres (Noctuidae) I, p.203, 1852.

"Antennes assez longues, simplement pubescentes dans les ♂. Palpes ascendants, débordant peu le front, a 2^e article presque droit, velufourré, epais sur la tranche, le 3^e tres-court, mais distinct. Trompe assez courte. Front arrondi. Thorax peu robuste, velu-herissé. Abdomen dépassant notablement les ailes inferieures, peu robuste; lisse et seulement un peu velu à la base, mais epaissi à l'extremite et garnis dans les ♂ d'une quantité prodigieuse de bourre cotonneuse. Pattes moyenne, peu velus, à ergots moyens. Ailes entieres, assez etroits; les superieures à dessins confus.

Eriopyga punctulum Gn.

Brazil"

Selection of the Genotype

Eriopyga punctulum Gn.

The genus is monotypical.

Morphology of the Genotype

Head

Vestiture: scales and coarse hair; Compound Eyes: uniformly clothed with long hair; Frons: uniformly rounded, ventral margin without a corn-
eous ridge or point; Antennae: ♂ filiform, scaled above, covered with moderately long hair beneath, each segment bears a pair of lateral setae. When seen in cross-section the antenna is wedge shaped. In the ♀, the antenna is like that of the ♂ except that the ventral surface is clothed with fine cilia; Palpi: proximal and middle segments scaled and bearing longer scales beneath, distal segment scaled. Ratio of the segments: pros. --, mid. ---, distal ----- ; Proboscis: fully developed.

Thorax

Vestiture: coarse hair, and hair-like scales; Crests: a divided pro and indications of a meta-thoracic crest; Wings: primaries with the costal

margin slightly convex, apex drawn downward to a point, outer margin slightly incurved; Legs: femur of fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with coarse hair and scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

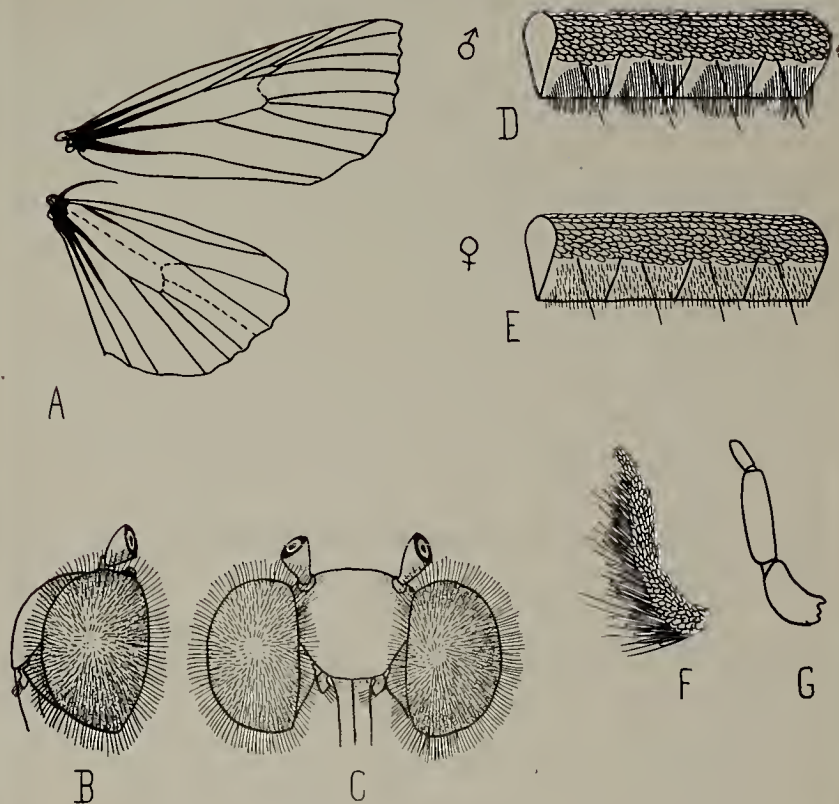
Vestiture: dorsally hair and scales, ventrally scales; Crests: indication of a mid-dorsal crest on the first segment, no lateral crest present; Size: body extends beyond the secondaries.

Remarks

Punctulum is a South American species, the genotype of Eriopyga. According to Hampson, the North American genera, Himella and Pseudorthodes are synonymous with Eriopyga.

In Pseudorthodes, the primaries are short and stubby and have rounded apices. These characters would separate Pseudorthodes from Eriopyga. In Himella the male antennae are crenulated instead of filiform as is the case with the males of Eriopyga. It would seem better to make Himella a valid and distinct genus. Eriopyga itself is probably a valid genus which may or may not be represented in North America.

Genus *Eriopyga*, Gn.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

G-Palpus denuded

GENUS PSEUDORTHODES Morrison

Original Description of the Genus

Morrison: Canadian Entomologist, Vol. VI, p. 253, 1874.

"Closely allied to Orthodes but we think it sufficiently distinct from it. The anterior wings are narrower than in Orthodes, and lack the distinctive sexual patch of closely compressed hair of the males. The markings are confused, and the ordinary spots are obsolete. The males have not the long anal tufts found in Orthodes. The third palpal joint is longer and better defined.

vecors (Guenee. Spec. Gen. des Lep. Noct. I, p. 376, 1852)
var. *griseocincta*, Harvey " Atlantic States

Selection of the Genotype

Pseudorthodes vecors Gn.: monotypical.

Morphology of the Genotype

The generic characters are not very distinctive and the one character of the long third palpal joint is not constant.

Head

Vestiture: coarse hair and hair-like scales; Compound Eyes: uniformly clothed with short hair; Frons: rather uniformly rounded only slightly protuberant, ventral margin without corneous ridge or point; Antennae: ♂ filiform, scaled above, under surface covered with short hair. Each segment bears a pair of lateral setae. When seen in cross-section, the antenna is wedge shaped. In the ♀, the antenna is filiform, scaled above, finely ciliated beneath. Each segment bears a pair of lateral setae. The antenna is oval in cross-section; Palpi: proximal and middle segments scaled and bearing long scales and long hair beneath, distal segment scaled. Ratio of the segments: prox. 1.2, mid 2.0, distal 1.0 (In one specimen the ratio was as follows, prox. .75,

mid. 1.50, distal 1.00) ; Proboscis: fully developed.

Thorax

Vestiture: coarse hair; Crests: an indistinct pro and a more prominent meta-thoracic crest; Wings: primaries with the costal margin almost straight, apex rounded, outer margin almost straight. Secondaries with Sc and R confluent at their bases; Legs: femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and coarse hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

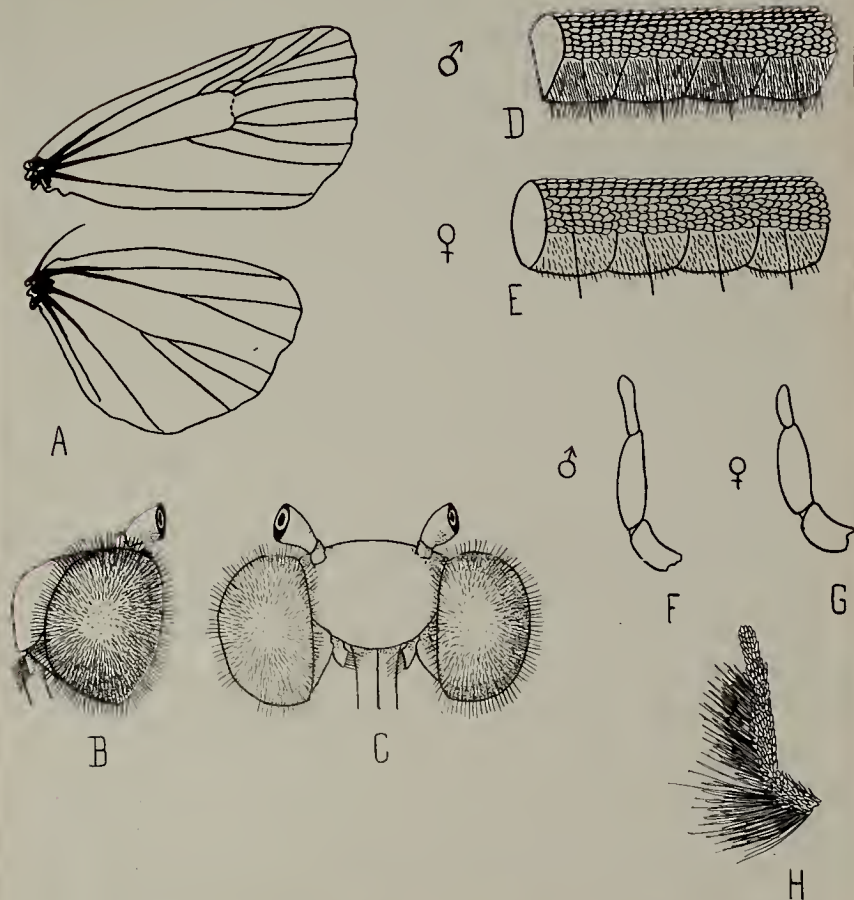
Abdomen

Vestiture: dorsally hair and scales (in some ♀ ♀ scales only), ventrally scales; Crests: no distinct dorsal crests in either sex, lateral crests in some ♂ ♂; Size: body extends beyond the secondaries.

Remarks

The rounded apex and the straight outer margin of the primaries separate this genus from Hadena near which it stands. Hampson would make Pseudorthodes a synonym of Eriopyga but here too the differences in wing shape should separate the two genera.

Genus *Pseudorthodes*, Morr.



A- Wings

B- Head, side view

C- Head, front view

D- Antenna of the ♂

E- Antenna of the ♀

F- Palpus of a ♂, denuded

G- Palpus of a ♀, denuded

H- Palpus.

GENUS NAESIA Walker.

Original Description of the Genus

Walker: List of Lepidopterous Insects in the British Museum, XV,
p. 1741, 1853.

"Male body stout. Proboscis rather short. Palpi vertical, very pilose; third joint conical, less than one fourth of the length of the second. Antennae stout, simple, rather less than half the length of the body. Pectus and abdomen densely pilose. Abdomen extending for half its length beyond the hind wings; apical tuft long. Legs stout, densely tufted; hind tibiae with long spurs. Wings moderately broad. Fore wings with the apical part of the costa slightly curved, rectangular at the tips; exterior border denticulated, slightly convex, moderately oblique

Naesia moesta. Venezuela
Noctua moesta Moritz. MSS"

Selection of the Genotype

Naesia moesta Walk.: monotypical.

Morphology of the Genotype.

Head

Vestiture: hair-like scales; Compound Eyes: uniformly clothed with short hair; Frons: uniformly rounded, ventral margin without corneous ridge or point; Antennae: ♂ filiform, scaled above, clothed with moderately long hair beneath. Each segment bears a pair of lateral setae. When seen in cross-section the antenna is wedge shaped. In the ♀ the antenna is filiform, scaled above, finely ciliated beneath, each segment bears a pair of lateral setae. The antenna is oval in cross-section; Palpi: proximal and middle segments scaled and bearing longer scales and some short hair beneath, distal segment scaled. Ratio of the segments: prox. 1.0, mid. 2.5, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: mostly fine hair, some hair-like scales; Crests: poorly defined pro and meta thoracic crests; Wings: primaries with the costal margin convex, apex truncated, outer margin strongly incurved. Secondaries with Sc and R confluent at their bases; Legs: femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and coarse hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

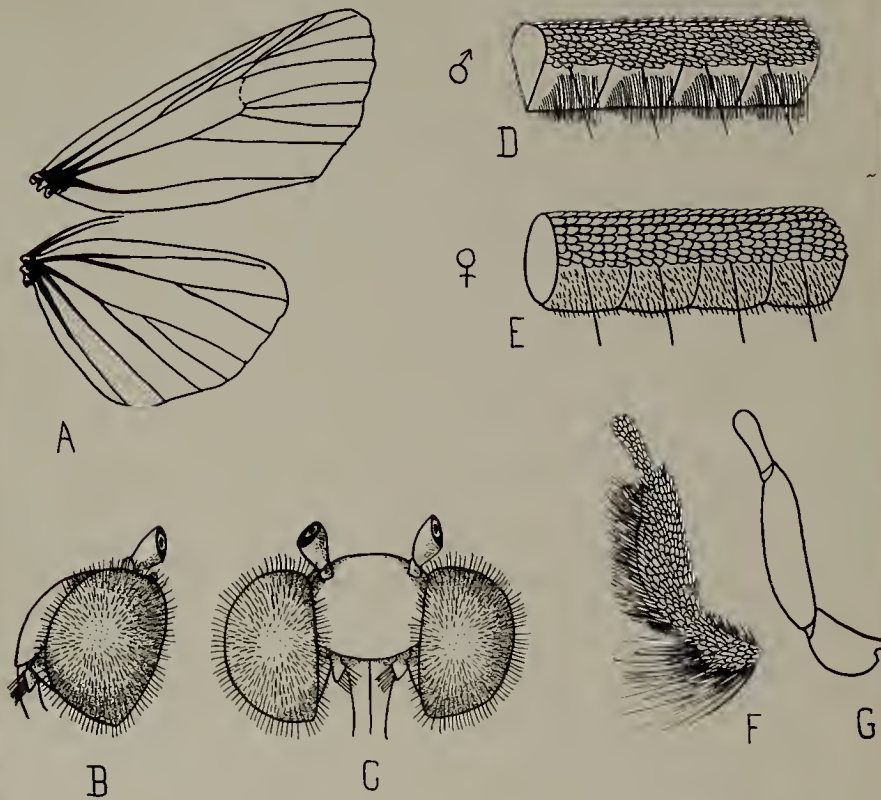
Abdomen

Vestiture: dorsally hair and scales, ventrally scales; Crests: none; Size: body extends beyond the secondaries.

Remarks

Neesia moesta is a South American species included in this paper because it is the type of a genus which has been considered synonymic with the North American genera Himella and Pseudorthodes. In Himella the male antennae is crenulated while in Neesia it is filiform. The almost straight outer margin of the primaries in Pseudorthodes would separate that genus from Neesia. It would seem better to consider Neesia a distinct and valid genus standing between Mamestra and Hadena. The group may not be represented in North America.

Genus *Naesia*, Walk.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

G-Palpus denuded.

GENUS BOROLIA Moore

Original Description of the Genus

Moore: Proceedings of the Zoological Society of London, p.334, 1881.

"Fore wings narrow, costa slightly arched at the base; apex pointed, exterior margin slightly oblique, posterior angle convex, cell narrow, first sub-costal branch emitted at half the length of the cell and extending close along side of the costa; second emitted before the end of the cell, trifid; the third starting from near its base above the cell, and touching the fifth; fourth short, fifth emitted and curving upwards from the end of the cell; upper discocellular short, outwardly oblique, lower concave; radial from end of upper discocellular; lower radial and two upper median branches from angle at lower end of the cell, fourth at some distance before the end; sub-median recurved. Hind wings with long costal margin, exterior margin very oblique, abdominal margin short; subcostal straight; both branches emitted from end of the cell; discocellulars concave; radial from the middle; median straight, two upper branches from end of the cell. Cila broad. Antennae setulose; palpi ascending, pilose beneath, second joint long, third short and slender; femora pilose beneath. Type *B. furcifera*"

Selection of the Genotype

Borolia furcifera Moore. Genotype designated by the author in his original description.

Morphology of the Genotype

The genotype examined by the writer agrees with the descriptions of Moore and Hampson with the exception of the vestiture of the palpi. In the specimens before him the palpi were compactly scaled and did not bear any hair.

Head

Vestiture: scales and some hair-like scales; Compound eyes: uniformly clothed with short hair; Frons: uniformly rounded, ventral margin

without ridge or point; Antennae: ♂

In the ♀, filiform, scaled above, finely ciliated beneath. Each segment bears a pair of lateral setae; Palpi: proximal segment scaled and bearing longer scales beneath, middle segment and distal segment compactly scaled. Ratio of the segments: prox. 2.0, mid. 3.3, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: hair and hair-like scales; Crests: a pro and an indistinct meta-thoracic crest; Wings: primaries with the costal margin slightly convex, apex truncated, outer margin very slightly oblique. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of the fore-leg fringed with long hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally fine hair and scales, ventrally scales; Crests: none; Size: body extends beyond the secondaries.

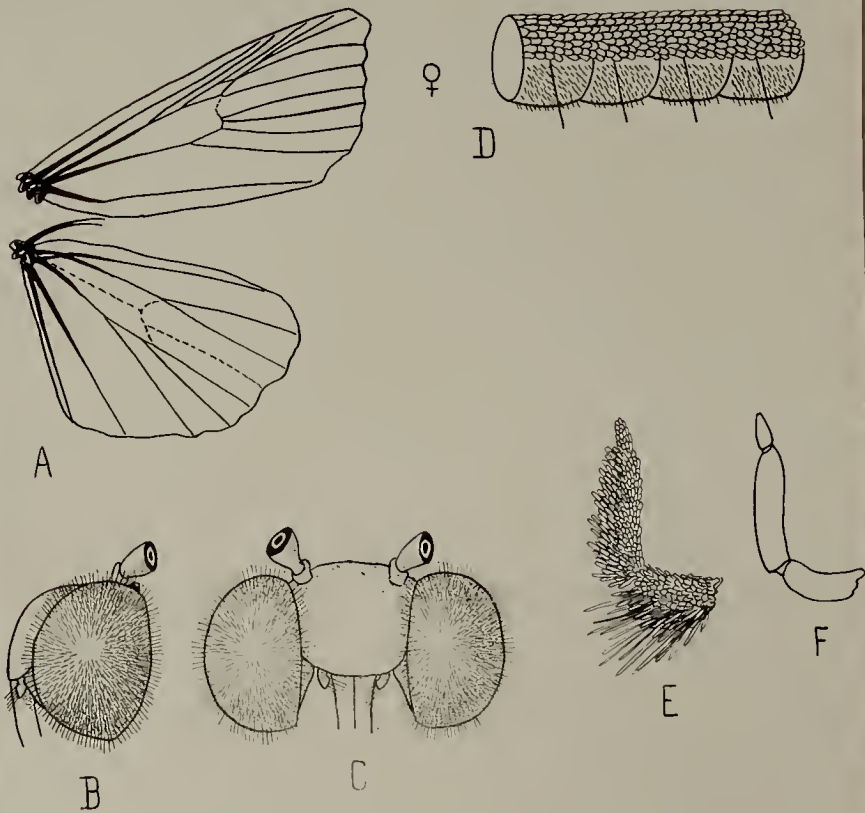
The Genus *Borolia* According to Other Authorities

Hampson: "Proboscis fully developed, palpi obliquely upturned, 2nd joint fringed with hair, third short, porrect, frons smooth, eyes large rounded, antennae of the ♂ ciliated; thorax clothed with scales and hair and without crests. Tibiae moderately fringed with hair, abdomen clothed with rough hair at base but without crests. Fore wings with apex somewhat acute, the termen obliquely curved ---"

Remarks

This species, a native of India, stands close to the genus Meliana from which it can be separated by the hairy vestiture of the legs.

Genus Borolia, Moore



A-Wings

B-Head, side view

C- Head, front view

D- Antenna of the ♀

E- Palpus

F- Palpus denuded.

GENUS MELIANA Curtis

Original Description of the Genus

Curtis: British Entomology, Vol. XVI, p. 13, 1839,

(Index to preceeding volumes)

"
Meliana flammea pl. 201, vol. 5."

Curtis: British Entomology, Vol. V, p. 201, 1828,

(Describes a new genus, Melia, designates Tinea sociella Fab. as the type, and includes flammea Curtis).

Selection of the Genotype

It would seem that Curtis in his index to the preceeding volumes made a mistake and wrote Meliana instead of Melia. If we accept Meliana as a genus distinct from Melia, as most authorities do, then flammea Curtis becomes the type as the genus is monotypical.

Morphology of the Genotype

Flammea agrees with the descriptions of Hampson, Guenee, and Seitz with the exception of the frons which does not have the corneous plate of the palpi which are not clothed with hair beneath, and in the vestiture of the tibiae.

The peculiar shape of the wings, especially the extremely convex costal margin, and the fact that the legs do not bear hair but are scaled throughout, makes this genus quite distinct.

Head

Vestiture: hair and hair-like scales; Compound Eyes: uniformly clothed with short hair; Frons: uniformly rounded, ventral margin without corneous ridge or point; Antennae: ♂ filiform, scaled above, clothed with hair beneath. Each segment bears a pair of lateral setae. When seen in cross-section, the antenna is wedge shaped. In the ♀ the antenna is filiform, scaled above, finely ciliated beneath. Each segment bears a pair of lateral and a pair of mid-ventral setae. The antenna is oval

in cross-section; Palpi: all segments compactly scaled except the proximal which bears a few longer scales beneath. Ratio of the segments: prox. 2.0, mid. 3.25, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: coarse hair; Crests: none; Wings: primaries with the costal margin very convex, apex drawn downward outer margin very oblique. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: scaled throughout, not fringed with hair. All legs typical in structure.

Abdomen

Vestiture: dorsally a mixture of scales and hair, ventrally scaled; Crests: none; Size: body extends beyond the secondaries.

The Genus Meliana According to Other Authorities

Hampson: "Proboscis fully developed, palpi obliquely upturned, fringed with hair in front; frons with rounded prominence with corneous plate below it, eyes large rounded. Antennae of the ♂ ciliated, head and thorax clothed with hair, with scales below it and without crests. Tibiae fringed with very long hair, abdomen without crests. Fore wings with the apex somewhat acute, termen rather obliquely rounded -- "

Guenée: "Palpi with the third joint short, conical and scaled. Thorax globular, smooth cottony hair with a "collar", abdomen long slender silky."

Seitz: "Fore wing narrow and elongate, the costa curved ---- scaling fine and smooth."

Remarks

The peculiar shape of the wings, especially the extremely convex costal margin, and the fact that the legs do not bear hair but are scaled throughout, makes this genus quite distinct.

Guenée: *Meliana flammea*

Hampson: *Meliana flammea*

Herrich Schaeffer: *Senta flammea*

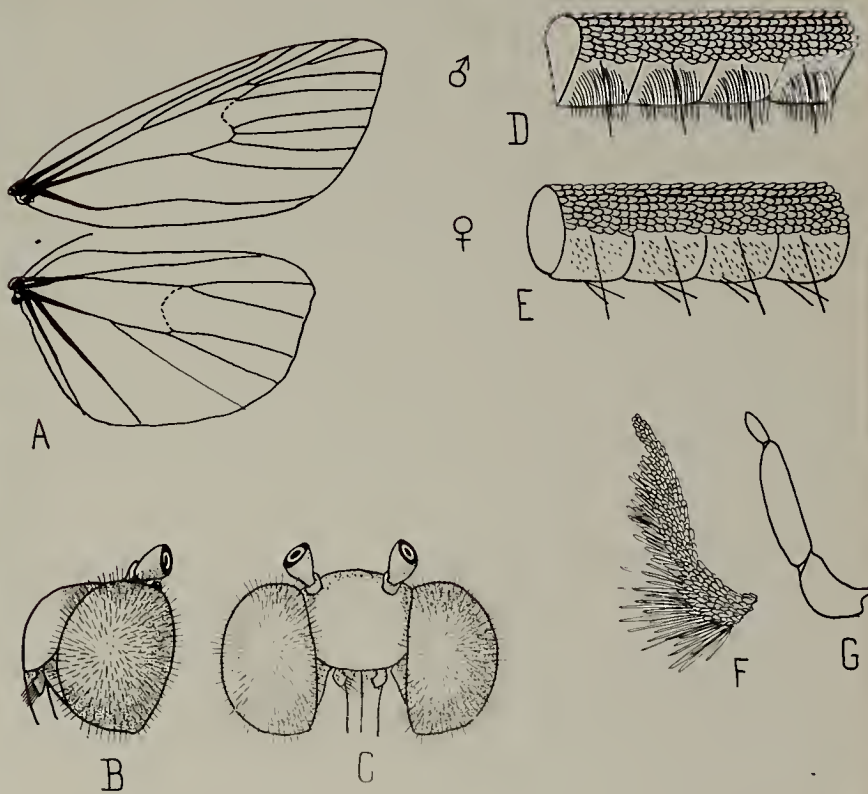
Ochsenheimer: *Simyra dubiosa* ?

Seitz: *Meliana flammea*

Staudinger: *Meliana flammea*

Walker: *Meliana flammea*

Genus Meliana, Curt.



A- Wings

B- Head, side view

C- Head, front view

D- Antenna of the ♂

E- Antenna of the ♀

F- Palpus

G- Palpus denuded.

GENUS HELIOPHILA Hub.

Original Description of the Genus

Hubner: Tentamen 1806.

"Heliophilae --- Heliophila pallens"

GENUS LEUCANIA Ochs.

Original Description of the Genus

Ochsenheimer: Die Schmetterlinge von Europa, Vol. IV, p.81, 1816.

"

Arten:

Pallens Linn.

Straminea O.

Impura Hub.

Pudorina W. V., (impudens Hüb.)

Obsoleta Hub.

Comma Linn., (pallens Esp., turbida et congrua Hub.)

L. Album Linn."

Ochsenheimer: Die Schmetterlinge von Europa, Vol. V, (2), p.289, 1825.

"Die Schmetterlinge haben einen wolligen Rücken, keinen Rückenamm, oder nur einen schwachen Anfang desselben, und gekerbte, lange, feine Fühler. Die abhängenden Vorderflügel sind von der Farbe des trockenen Schilfrohes, meistens schmal, am Aussenwinkel zugespitzt. Der Arderlauf ist erhaben und von der Grundfarbe verschieden Statt der Querlinien findet mann Punktreihen oder einzelne Punkte. Die gewöhnlichen Makeln fehlen; dagegen zeigt sich mehr oder minder deutlich am Ende der Hauptader, in der Flügelmitte, eine hellere Stelle oder Zeichnung."

Selection of the Genotype

Heliophila pallens, Linn.

The genus is monotypical.

Leucania pallens, Linn.

Designated by Curtis in 1829.

(Curtis: British Entomology, Vol. 4, p. 157, 1827.)

Morphology of the Genotype

Vestiture: coarse hair;

Head

Compound Eyes: uniformly clothed with long

hair; Frons: uniformly rounded, ventral margin with a corneous ridge and

indications of a point; Antennae: ♂ filiform, scaled above, clothed with long hair beneath, each segment bears a pair of lateral setae. When seen in cross-section the antenna is wedge shaped. In the ♀ the antenna is filiform, scaled above, finely ciliated beneath, each segment bears a pair of lateral setae. The antenna is oval in cross-section; Palpi: proximal and middle segments scaled and with longer scales beneath, distal segment scaled. Ratio of the segments: prox. 1.25, mid. 2.4, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: hair and hair-like scales; Crests: no defined crests; Wings: primaries with the costal margin straight, apex drawn downward to a point, outer margin straight. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of the fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally fine hair and scales, ventrally scales; Crests: no distinct crests; Size: body stout projecting beyond the secondaries.

The Genus Leucania According to Other Authorities

Guenée: "Antennae quite short, pubescent, with two large lashes to each segment in the ♂, sometimes crenulated, the lashes (hairs ?) whorled. Palpi quite thick connivent densely hairy with the last segment very short. Thorax sleek, quadrate. Abdomen sleek, quite long furnished with a crest at the base above, and sometimes crested along the sides. Feet more or less hairy. Proboscis well developed. Fore wings entire, apex more or less pointed --- "

Rampson: "Palpi with the second joint fringed with hair, frons smooth, eyes large and rounded, antennae of the ♂ typically ciliated. Head and thorax clothed with hair only, without crests. Tibiae moderately fringed with hair, abdomen with rough hair at the base but without crests."

Stephens: "Palpi --- the basal joints with compact elongate scales, terminal denuded almost, and exposed. Basal joint slightly bent, horizontal, second vertical, as long again as the first, slightly bent at the base and a little attenuated at the tip terminal slender, elongate-oval. Eyes large, globose, pubescent, rarely naked. Thorax wooly not crested."

Smith, J. B.: "Eyes hairy, legs unarmed, vestiture more or less hairy. Antennae of the ♂ simple or nearly so. Front of the head is without modification. Robust body moderate not retracted head, long functional tongue. Eyes round, moderate in size, palpi reach the middle of the front. Palpi stout and hairy, terminal joints short and obtuse. Thorax quadrate, collar and patagiae well marked, in some loosely clothed with parts undefined. Vestiture varies from thin hair, through flattened hair, to a mixture of long scales and hair, the latter an unusual feature. Behind the collar centrally there may be a small ridge or crest, a small divided crest, or no obvious tuftings at all. Abdomen untufted except at the sides in the ♂. Vestiture on the under side is loose and wooly. The ♂ apt to have the legs sexually tufted. Primaries vary in shape may be quite stumpy, or trigonate with marked or even acute apices. In the pallens group the vestiture is thin hair, no obvious tuftings in the thorax, collar and patigae feebly defined. Primaries normally trigonate with marked but not acute apices. In the ♂ the leg tuft is not prominent, femora fringed inferiorly and one or more pairs of tibiae with long hairs forming no tufts. The male antennae have a single, slightly longer lateral bristle on each joint. A marked difference in the male genitalia of American and European specimens."

Remarks

Pallens is quite typical of the genus it represents although the latitude of variation allowed within the genus varies with the individual who is defining the group.

A truly valid genus yet one possessing no outstanding characteristics unless it be the shape and form of the primaries.

Guenée: *Leucania pallens*

Hampson: *Leucania pallens*

Herrich Schaeffer: *Leucania pallens*

Ochsenheimer: *Leucania pallens*

Seitz:

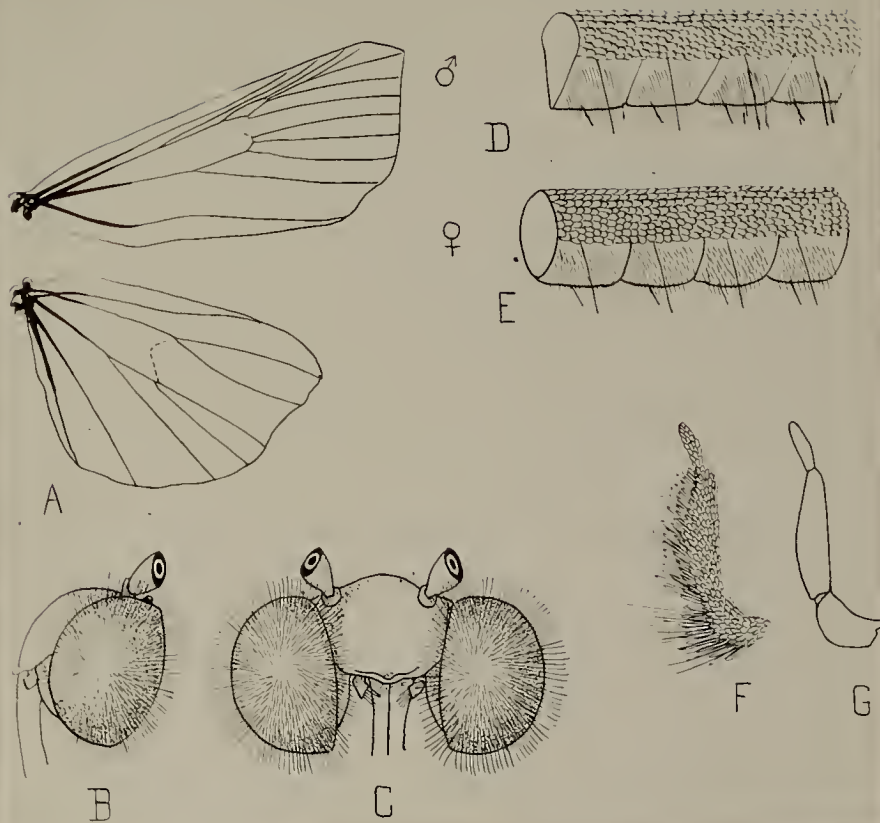
Stephens: *Leucania pallens*

Smith, J. B.: *Leucania pallens*

Dyar: *Heliophila pallens*

Barnes: *Leucania pallens*

Genus *Leucania* Och.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

G-Palpus denuded

GENUS MORRISONIA Grote

Original Description of the Genus

Grote: Bulletin of the Buffalo Society of Natural Sciences, II, p. 53, 1874.

"Morrisonia Grote. (1874)

Type: *Cloantha evicta* Grote.

evicta Grote: *Actinotia evicta* Grote, List p. 16.

vomerina Grote: *Actinotia vomerina* Grote, List p. 16."

"The position of this genus will be after *Actinotia*. The two species differ from *Ac. ramosula* and the three European species of the genus, by the hairy eyes."

Selection of the Genotype

Morrisonia evicta Gr. The genotype selected by the author in his original description of the genus.

Morphology of the Genotype

Head

Vestiture: coarse hair and hair-like scales; Compound Eyes: uniformly clothed with long hair; Frons: uniformly rounded, ventral margin without a corneous ridge or point; Antennae: ♂ cremlate, scaled above, the ventral surface of the serrations along their distal margins bearing long hair. At the extremity of each serration there is a stiff seta which is more or less obscured by the hairy vestiture. In the ♀ the antenna is filiform, scaled above, clothed with fine cilia beneath. Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and bearing longer scales and a few coarse hairs beneath, distal segment scaled. Ratio of the segments: prox. 1.6, mid. 2.25, distal 1.0. In another specimen the ratio was as follows: prox. 2.0, mid. 3.0, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: hair-like scales; Crests: a pro and a meta-thoracic

crest; Wings: primaries with the costal margin straight, apex truncated, outer margin almost straight. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of the fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long hair and scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: hair and scales dorsally and ventrally; Crests: ♂ no dorsal crests, lateral crests present. In the ♀, there are no lateral crests, at least a single mid-dorsal crest present and in some specimens several; Size: body extends beyond the secondaries.

The Genus Morrisonia According to Other Authorities

Hampson: "proboscis fully developed, palpi obliquely porrect, 2nd joint fringed with hair, 3rd short; frons smooth, eyes large, rounded, tegulae produced to a slight dorsal ridge; thorax clothed with hair and scales, and with divided ridge-like crest; tibiae moderately fringed with hair, abdomen with dorsal crests on basal segments. Fore wings with cilia crenulate."

J. B. Smith: "Eyes hairy, front smooth with short stiff vestiture forming a more or less obvious superimposed frontal tufts --- Antennae of the ♂ pectinate, serrate, and bristled, or simply ciliated. The thorax is rather short, quadrate, the vestiture consisting of flattened hair and scales, the patagiae are well defined. --- Legs unarmed, normally constructed. Primaries elongate, narrow, with oblique outer margin and somewhat retracting hind angle. Secondaries proportionate."

Remarks

The genotype agrees fairly well with the genus Morrisonia as defined by Hampson. Smith would include species in which the outer margin

of the primaries were more oblique and in which the antenna of the ♂
was simply ciliated.

This genus is quite distinctive if we restrict it to species in which
the male antennae are similar to those of the male of M. evicta.

Barnes: *Morrisonia evicta*

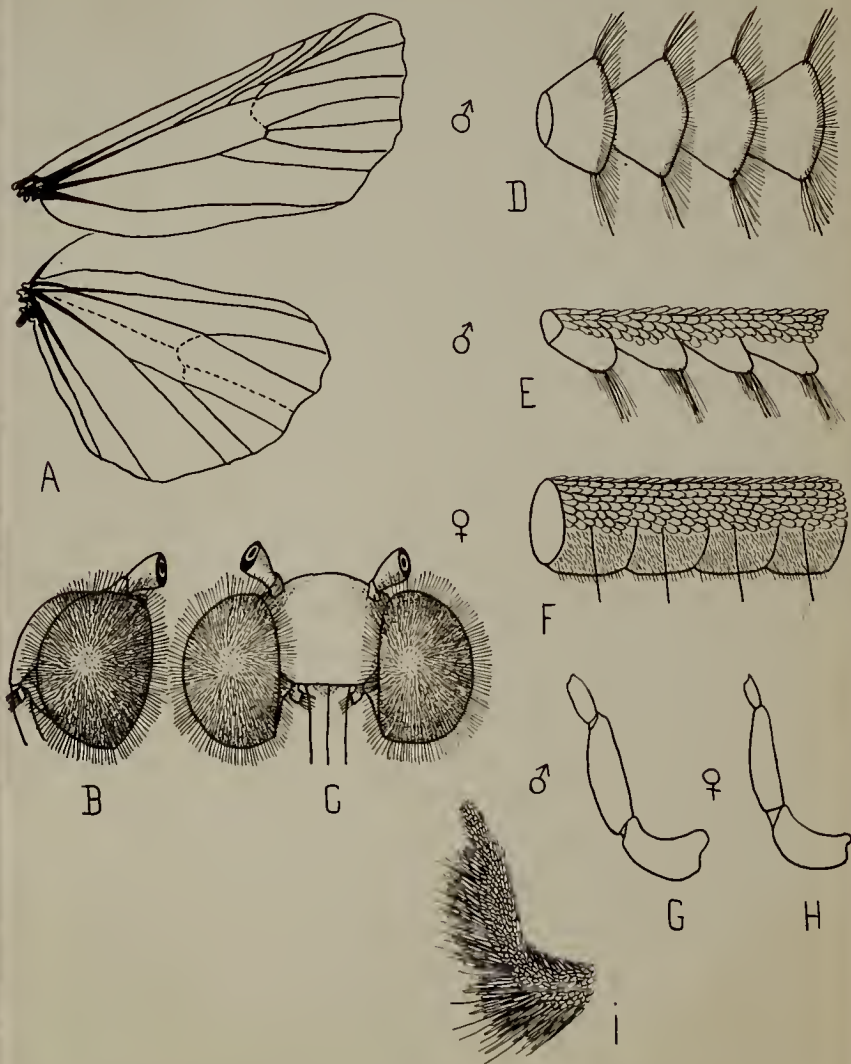
Dyar: *Morrisonia sectilis* (evicta)

Grote: *Morrisonia evicta*

Hampson: *Morrisonia sectilis* (evicta)

Smith: *Morrisonia sectilis* (evicta)

Genus *Morriisonia*, Gr.



A-Wings

B-Head, side view

C-Head, front view

D-♂ antenna, ventral view

E-♂ antenna, lateral view

F-Antenna of the ♀

G-Palpus of a ♂, denuded

H-Palpus of a ♀, denuded

I-Palpus.

GENUS XYLOMYGES Guenee

Original Description of the Genus

Guenee: Species General des Lepidopteres (Noctuidae), I, p. 147, 1852.

"Antennes filiformes, ou crénelées de cils courts dans les ♂, filiform dans les ♀. Palpes courts, droits, épais, biclores massés, le 3^e article court, ovoïde, obtus, squameux. Trompe assez courte. Thorax robuste, carré, velu-lissé, à collier saillant. Abdomen crête à la base un peu velu, obtus et terminé carrément dans les deux sexes.

Pattes courtes et velues. Ailes supérieures oblongues, subdentées, à dessins longitudinaux, à taches et lignes milles ou effacées en partie; inférieures peu développées, claires, subhyalines dans les deux sexes."

- "
Xylomyges eridanis Cr.
" putrida Gn.
" amygis Gn.
" sunia Gn.
" conspicillaris W.V."

Selection of the Genotype

Xylomyges conspicillaris, W.V. Designated by Grote

(Bulletin of the Buffalo Society of Natural Science, II, p. 27, 1874).

Morphology of the Genotype

Head

Vestiture: coarse hair and hair-like scales; Compound Eyes: uniformly clothed with moderately long hair; Frons: uniformly rounded, ventral margin with point; Antennae: ♂ crenulate, scaled above, the ventral surface of the serrations bearing short cilia. At the tip of each serration there is a pencil of long hair. In the ♀, the antenna is filiform, scaled above and finely ciliated beneath. Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and bearing very long, coarse hair beneath, distal segment scaled. Ratio of the segments: prox. 2.2, mid. 2.2, distal 1.0 ;

Proboscis: fully developed.

Thorax

Vestiture: hair-like scales; Crests: a pro and a meta-thoracic crest; Wings: primaries with the costa straight, apex drawn downward to a point, outer margin strongly incurved. Secondaries with Sc and R confluent at their bases; Legs: femur of fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with hair and long scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: scales and fine hair dorsally and ventrally; Crests: a mid-dorsal crest on the first segment, lateral crests also present; Size: body extends beyond the secondaries.

The Genus Xylomyges According to Other Authorities

Smith, J. B. "Eyes hairy, moderate. Head small, retracted, with even, short, stiff, scaly vestiture, forming superimposed flattened frontal tufts --- Tongue long and strong. Antennae of the ♂ pectinated, serrate and bristled or ciliate merely. In the ♀ simple only, sparsely ciliated. Thorax -- with a variably distinct anterior and posterior tufts. Abdomen dorsally tufted. Legs unarmed save for the ordinary spines on the mid and hind tibiae. Primaries narrow, trigonate, elongate, with marked apices and obliquely rounded outer margin, or short, narrow and stumpy."

Remarks

Both Smith and Guenee allow quite a range of variation in the form of the male antennae. Xylomyges conacicillaris with its serrated antenna in the ♂, agrees in general with the generic conceptions of

both these authorities and may be considered typical.

It would seem better to restrict this genus to species in which the male antennae are like those of the male of X. conspicillaris. If this species is taken as a standard, the genus could not be confused with any other. Hampson would place conspicillaris under Xylomania but in both the male and female antennal characters, Xylomania and Xylomyges are very distinct.

Hampson: Xylomania conspicillaris

Herrich-Schaeffer: Xylina conspicillaris

Ochsenheimer: Xylina conspicillaris

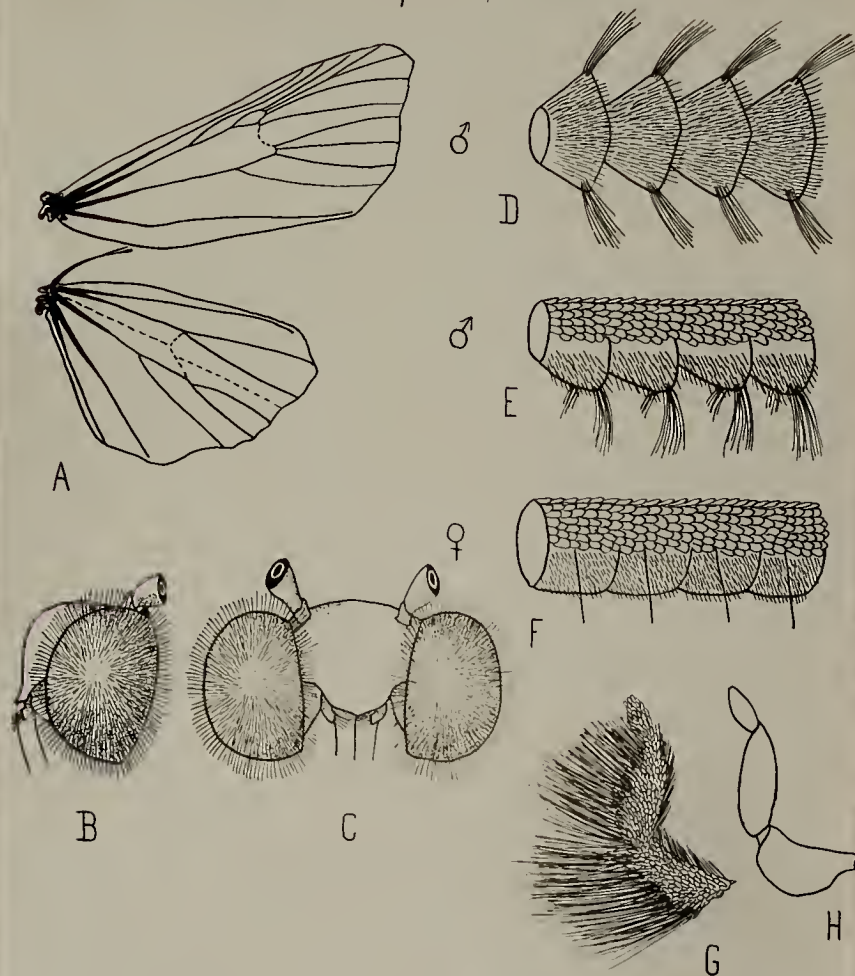
Seitz:

Standinger: Xylomyges conspicillaris

Stephens: Xylina conspicillaris

Walker: Xylomyges conspicillaris

Genus *Xylomyges*, Gn.



- | | |
|---------------------------|---------------------------|
| A-Wings | E-♂ antenna, lateral view |
| B-Head, side view | F-Antenna of the ♀ |
| C-Head, front view | G-Palpus |
| D-♂ antenna, ventral view | H-Palpus denuded |

GENUS HIMELLA Grote.

Original Description of the Genus

Grote: Proceedings of the Academy of Natural Sciences of Philadelphia,
page 200, 1874.

"The type of this genus, H.fidelis, is characterized by a resemblance to the species of Caradrina, while differing structurally by hairy eyes. The ♂ antennae are brush like. The palpi have the terminal article a little dependent. The tibiae are unarmed; the body parts linear and slender; thorax untufted, hairy. The wings are long, widening a little outwardly with slightly rounded, nearly straight external margin. The type has a casual resemblance to the species of Ipimorpha.

H.fidelis n.sp.

Albany

H.furfurata n.sp.

Albany"

Selection of the Genotype

Himella fidelis Grote. Genotype selected by the author in his original description.

Morphology of the Genotype

Head

Vestiture: coarse hair; Compound Eyes: uniformly clothed with short hair; Frons: uniformly rounded, ventral margin with a small point; Antennae: ♂ crenulate, scaled above, bearing fine cilia beneath. At the tips of the crenulations there are pencils of long hair. Lateral setae not present. In the ♀, the antenna is filiform, scaled above, bearing short hair beneath. Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and bearing longer scales and long hair beneath, distal segment scaled. Ratio of the segments: prox. 1.2, mid. 1.8, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: hair and hair-like scales; Crests: no distinct crests present;

Wings: primaries with the costa convex, apex truncated, outer margin almost straight. Secondaries with Sc and R confluent at their bases; Legs: femur of the fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with coarse hair and long scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

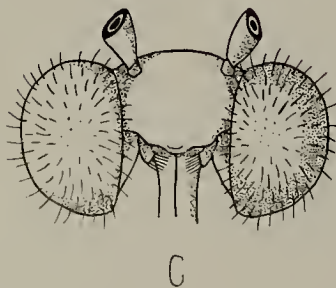
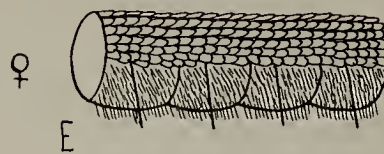
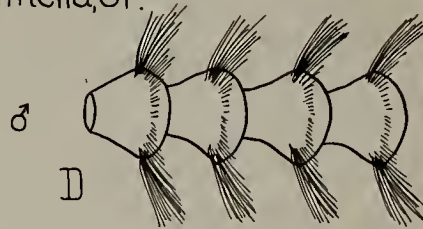
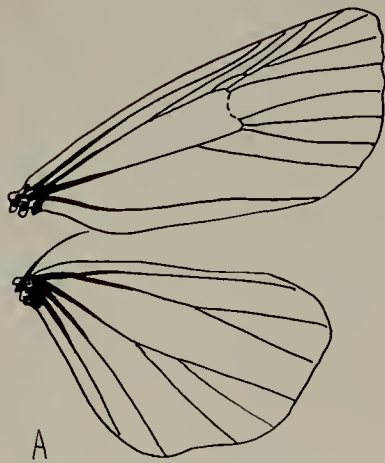
Vestiture: dorsally hair and scales, ventrally largely scales in the ♀, coarse hair in the ♂; Crests: no dorsal crests, lateral tufts in the ♂; Size: body extends beyond the secondaries.

Remarks

The original description is rather meager but the genotype, fidelis, agrees in every respect and is, therefore, typical.

The peculiar cremulated antenna in the male is so distinctive that the genus should not be confused with any other.

Genus Himella, Gr.



A-Wings
 B-Head, side view
 C-Head, front view
 D-♂ antenna, ventral view

E-Antenna of the ♀
 F-Palpus denuded
 G-Palpus.

GENUS ALYSIA, Guenée

Original Description of the Genus

Guenée: Entomologist's Monthly Magazine, Vol. V, p. 3, 1868.

"Antennae of the ♂ long, crenulated, each crenulation carrying a tuft of hairs at the tip, and a longer one in the middle; those of the female cylindrical, pubescent, each joint carrying two longer hairs. Palpi thick, ascending, robust, hairy; the third joint very distinct, scaly. Haustellum small, robust. Thorax broad, somewhat depressed, quadrate, strongly hairy, but not bristly; breast very hairy. Abdomen of the ♂ long smooth, silky, not crested, laterally hairy, not conical; that of the ♀ conical, thick and hairy. Legs robust; the tarsi with spines. Wings oblong and thick; the superior slightly prolonged at the apex; the inferior sinuated at the hinder margin. A genus of a very ambiguous aspect, and oscillating between the Leucanidae, Apamidae, and the Noctuidae. At first sight it resembles Xylophasia, but the non crested abdomen, unicolorous palpi, & c., will not permit its being united to that genus.

Alysia specifica Guenée, n.s." (Australia, New Zealand).

Selection of the Genotype

Alysia specifica Gn. The Genus is monotypical.

Morphology of the Genotype

Head

Vestiture: hair; Compound Eyes: uniformly clothed with long hair;

Frons: uniformly rounded, ventral margin without corneous ridge or point;

Antennae: ♂ crenulated, each crenulation bearing on its tip a tuft of long hair and a seta. Dorsal surface scaled, ventral surface covered with short hair. In the ♀ the antenna is filiform flattened beneath. The dorsal surface is covered with scales, ventrally clothed with fine cilia. Each segment bears a pair of lateral setae; Palpi: proximal and middle segments

scaled and bearing long hair beneath, distal segment scaled. Ratio of the segments: prox. 1.5, mid. 2.0, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: coarse hair; Crests: no distinct crests; Wings: primaries with the costal margin straight, apex truncated, outer margin strongly incurved. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long hair and scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

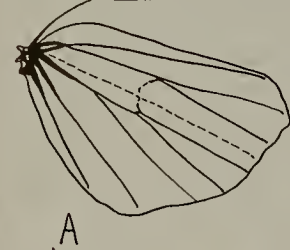
Abdomen

Vestiture: dorsally mostly fine hair, ventrally fine hair and scales; Crests: no distinct dorsal crests, rather prominent lateral crests; Size: body extends beyond the secondaries.

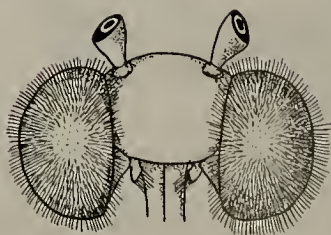
Remarks

Hampson would combine Alysia and Ulolonche making them synonymous with Hyssia. In the type of the male antennae, Alysia is distinctive and should be considered a valid genus standing near the American genus Himella.

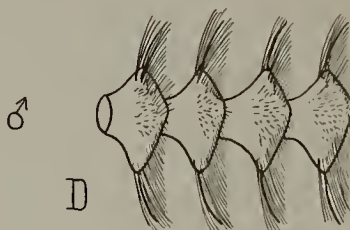
Genus Alysia, Gn.



B



C



♂

D



♀

E



♂

F



♀

G



H



I

A-Wings

B-Head, side view

C-Head, front view

D-♂ antenna, ventral view

E-Antenna of the ♀

F-♂ antenna, cross section

G-♀ antenna, cross section

H-Palpus

I-Palpus denuded

GENUS HYPEREPIA Barnes & Lindsey

Original Description of the Genus

Barnes & Lindsey: Bulletin of the Brooklyn Entomological Society, XVII, p. 56, 1922.

"Proboscis fully developed, palpi oblique, moderate, second joint deeply scaled, third very small. Front smooth, not prominent. Eyes large, rounded. Antennae of the ♂[♂] pectinate to near the tip, the branches moderately long, of the ♀ simple ciliate. Head and thorax clothed with long stemmed scales, broadened and once or twice cleft at tips. Pro and meta thorax with spreading tufts. Abdomen with dorsal crest on first segment. Primaries rather short and broad, much as in Epia, with a prominent acutely rounded apex. Neuration as in Epia; primaries with Cu₁ and M₂ near angle of cell, M₁ near upper angle; areole present, R₁ free from R₂ from areole; R₃ and R₄ stalked, connate with R₅ from apex of areole. Secondaries with M₃ and Cu₁ and R and M₁ from angles of cell; M₂ represented by a fold."

Type Hyperopia pi B. & L.

Selection of the Genotype

Hyperopia pi B. & L. Designated by the authors in their original description of the genus.

Morphology of the Genotype

Head

Vestiture: scales; Compound Eyes: uniformly clothed with long hair; Frons: uniformly rounded, ventral margin with a corneous ridge; Antennae: ♂ flattened and bipectinate, the pectinations not of the same size on both sides of the antenna. Dorsal surface scaled, ventral, surface clothed with long hair. At the tip of each pectination there is a very prominent seta. Shaft serrate ventrally; Palpi: proximal and middle segments scaled and bearing longer scales and some coarse hair beneath, distal segment scaled. Ratio of the segments: prox. 1.6, mid. 2.6, distal 1.0; Proboscis: fully

developed.

Thorax

Vestiture: hair-like scales; Crests: a pro and a meta-thoracic crest;
Wings: primaries with the costal margin straight, apex truncated, outer margin almost straight. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of the fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

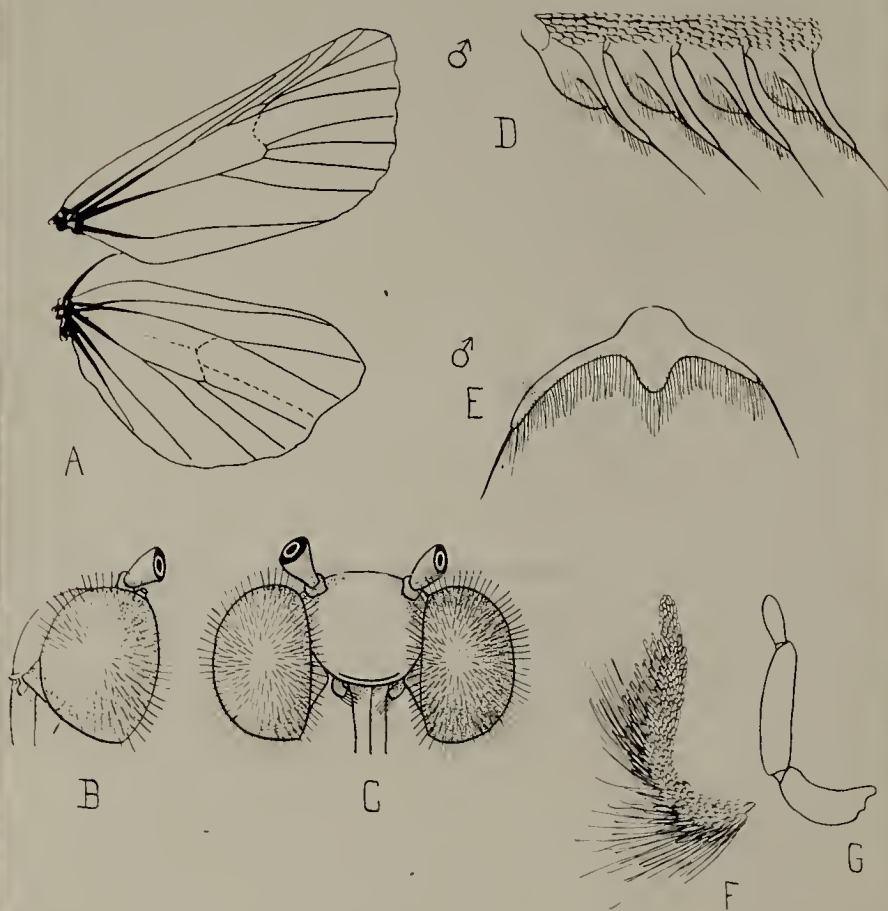
Abdomen

Vestiture: dorsally scales and fine hair, ventrally mostly scaled;
Crests: a mid-dorsal tuft on the first abdominal segment, no lateral tufts;
Size: body projects beyond the secondaries.

Remarks

The structure of the male antennae will serve to separate this valid genus from all other groups considered in this article.

Genus *Hypernepia* Barnes



A-Wings

B-Head, side view

C- Head, front view

D-Antenna of the ♂

E-♂ antenna, cross section

F-Palpus

G-Palpus denuded.

GENUS NEPHELODES Guenée

Original Description of the Genus

Guenée: Species General des Lepidopteres (Noctuidae), I, p.129, 1852

"Antennes courtes, demi-pectinées, c'est à dire garnies de dents pubescentes, surmontées d'une poil raide dans les ♂, minces et filiformes (à cils isoles) dans les ♀. Palpes ascendants-obliques, le 2^e article épais, velu-herissé, le 3^e grêle, court mais bien distinct, dirige en avant. Trompe courte. Thorax robuste, carré, velu-serre. Abdomen long, caréné, robuste, tres volumineux dans les ♀, ou il est cylindrique, avec le 7^e anneau formant une pointe brusque et obtuse, Poitrine velu. Pattes un peu velues, a jambes assez fortes, non epineuses, plutôt squameuses que velues. Ailes larges; les superieures epaisses, veloutées, subaiguës à l'apex, a lignes et taches distinctes, mais nébuleuses, les inferieurrs ayant l'indépendante aussi forte et même plus saillante que les autres nervules, mais confondu dans le pli cellulaire.

Nephelodes minians Gn

America

" violans Gn.

"

" rubeolans Gn

New Holland"

GENUS MONOSCA Walker

Walker: Characters of Undescribed Lepidoptera, Heterocera, p. 29, 1869

"Female. Body stout. Head with short erect hairs. Proboscis moderately long. Palpi porrect, stout, squamous, extending a little beyond the head, third joint conical, about one-fourth the length of the second. Antennae smooth. Abdomen extending a little beyond the hind wings. Legs stout, squamous: hind tibia with four long stout spurs. Wings elongate. Fore wing slightly rounded at the tips; exterior border much rounded, very slightly oblique: under side clothed with long hairs, except towards the interior border; first, second and third inferior veins approximate.

Monosca subnotata Walk."

Selection of the Genotype

The genus Monosca is monotypical with subnotata Walk. as its genotype. Subnotata, however, is considered a synonym of minians Gn. Grote, in 1874, selected minians as the genotype of Hephelodes, (Grote: Bulletin of the Buffalo Society of Natural Science, II, p. 18, 1874) This makes Monosca of Walker equal to Hephelodes of Guenee,

Morphology of the Genotype

Head

Vestiture: some coarse hair, mostly hair-like scales; Compound Eyes: uniformly clothed with long hair; Frons: uniformly rounded, ventral margin without corneous ridge or point; Antennae: ♂ bipectinate, pectinations not of the same size on each side of the antenna, and even the longer ones are quite short. At the end of each branch there is a rather prominent seta. The antenna is scaled above, finely ciliated beneath with the exception of the pectinations which are clothed beneath with long hair. In the ♀ the antenna is filiform, scaled above, finely ciliated beneath. Each segment bears a pair of lateral and a pair of mid-ventral setae; Palpi: proximal and middle segments scaled and bearing longer scales beneath, distal segment clothed with short scales only. Ratio of the segments: prox. 1.5, mid. 2.5, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: some coarse hair mostly hair-like scales; Crests: a pro and a meta-thoracic crest; Wings: primaries with the costa straight, apex truncated, outer margin straight. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with coarse hair and scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

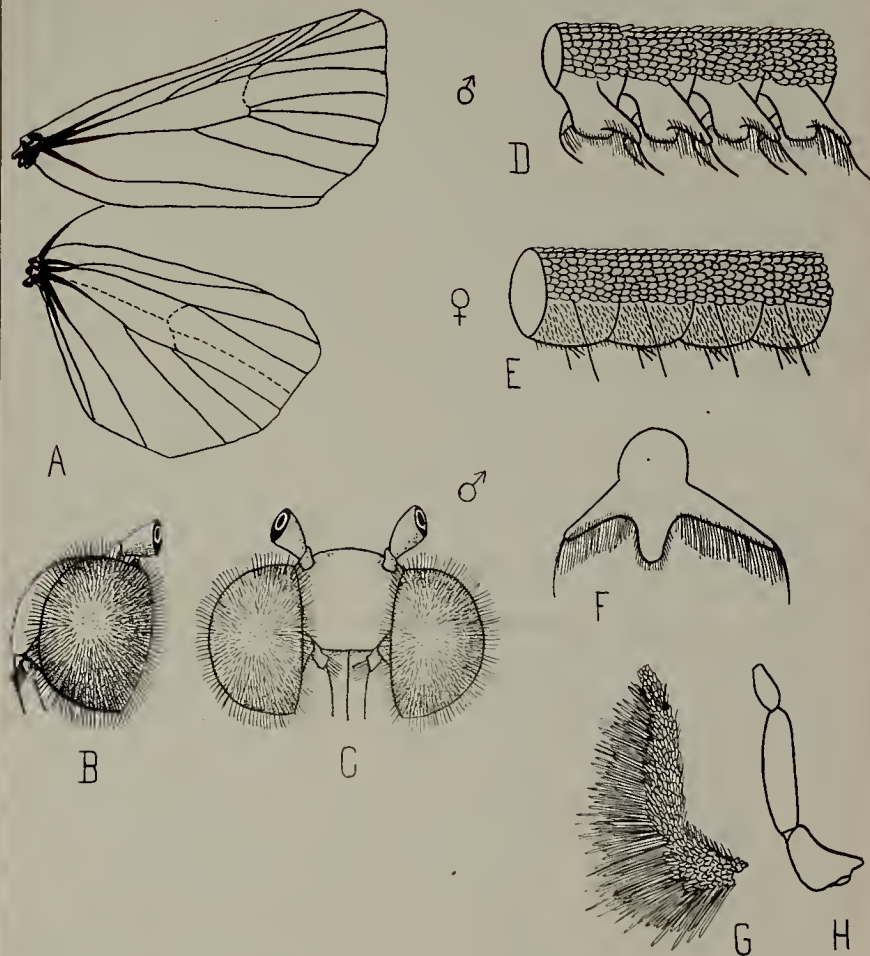
Abdomen

Vestiture: dorsally hair and scales, ventrally scales; Crests: mid-dorsal crests in the ♂, not always distinct in the ♀; lateral crests in the ♂; Size: body extends beyond the secondaries.

Remarks

A very good genus in which the structure of the male antennae is very characteristic.

Genus *Nephelodes* Gn.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-♂ antenna cross section

G-Palpus

H-Palpus denuded.

GENUS MONOSTOLA Alpheraky

Original Description of the Genus

Alpheraky: "Memoirs sur les Lepidopteres Homanoff", Tome VI, p. 37, 1892.

"Oculi parvi, hirsuti, circumciliati; antennae maris longe bipectinatae ut in genere Nyssocnemis, Led., sed multi breviores; - feminae ciliatae (ut in Hadena porphyria, Esp.); tibiae omnes sine spines. Caput, thorax, articulus secundus palporum tibiaeque longe sericeo-pilosi; articulus palporum terminalis subincumbens. Corpus robustum, maris abdomen barba anali longiuscula, feminae terebro exserto (semper?)

Alae fere ut in Mamestra, Tr. nervatae, sed minus dense squamatae, sericae, latiores; anticae angulo inferior magis rotundato.

Monostola asiatica Alph. nov. sp."

Selection of the Genotype

Monostola asiatica Alph. The genus is monotypical.

Morphology of the Genotype
(♂ only)

Head

Vestiture: fine hair; Compound Eyes: uniformly clothed with long hair; Frons: uniformly rounded, ventral margin without a corneous ridge or point; Antennae: ♂ bipectinate, the pectinations of the same length on each side of the antenna. The dorsal surface is scaled, while the ventral side of the antenna and the pectinations is clothed with long hair. Each pectination bears at its tip two or three prominent setae. The shaft is serrated ventrally; Palpi: proximal and middle segments scaled and bearing long hair beneath, distal segment scaled. Ratio of the segments: prox. 1.0, mid. 2.0, distal 1.0; ; roscis: weakly developed.

Thorax

Vestiture: hair; Crests: none; Wings: primaries with the costa straight, apex truncated, outer margin straight; Secondaries with Sc

and R confluent at their bases; Legs: femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with coarse hair and scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally and ventrally hair and scales; Crests: a small crest on the first and second abdominal segments, no lateral crests;

Size: body extends beyond the secondaries.

The Genus Monostola According to Other Authorities

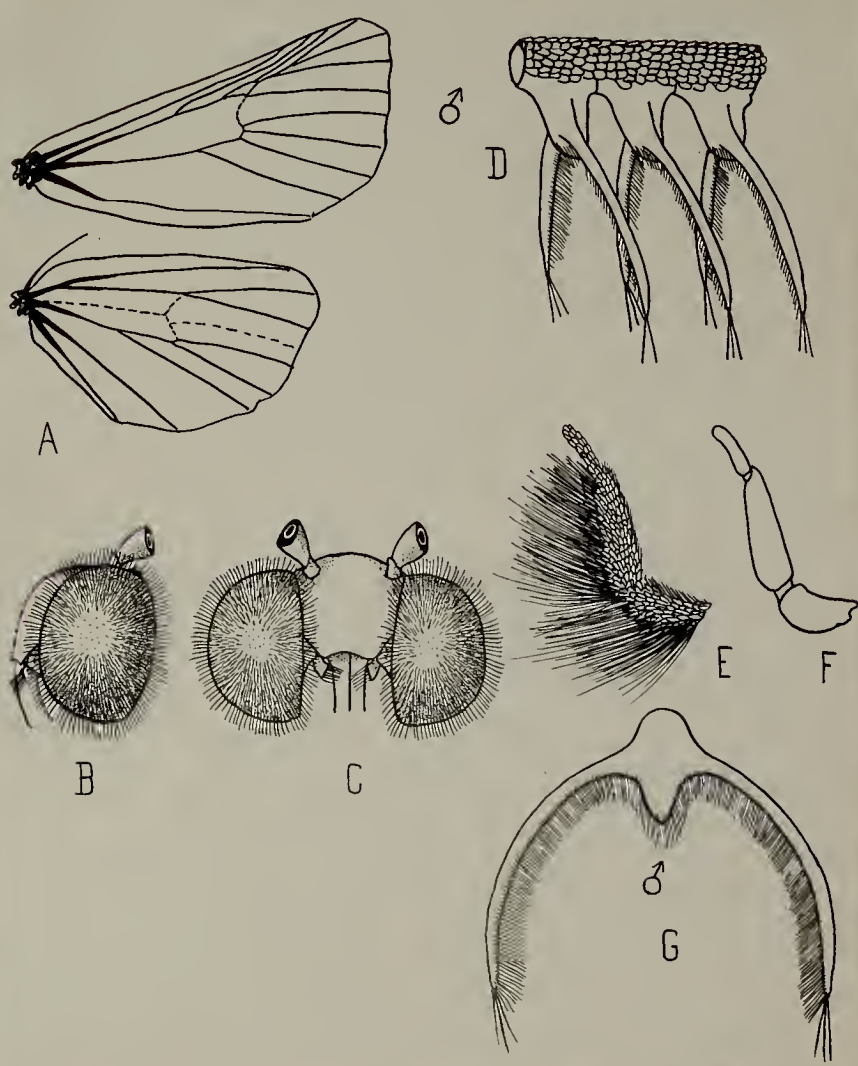
Seitz: "Tongue developed, frons smooth, antennae of the ♂ bipectinate to the apex, vestiture hairy, tibiae fringed with long hair."

Remarks

Monostola has been made a synonym of Nephelodes by Hampson and for this reason its genotype, asiatica, is included in the present article. While asiatica stands very close to minians, the type of Nephelodes, it can be readily separated from the latter species by the presence of two or three setae at the tip of each pectination while in minians each pectination ends in a single seta. On this basis alone, the two genera might be considered distinct though standing near each other.

21B

Genus Monostola, Alp.



- A-Wings
- B-Head, side view
- C-Head, front view
- D-Antenna of the ♂
- E-Palpus
- F-Palpus denuded
- G-♂ antenna, cross section

GENUS CHARAEAS Stephens

Original Description of the Genus

Stephens: Illustrations of British Entomology, Haustellata, II, p. 108, 1829.

"Palpi very short, triarticulate, the two basal joints densely squamous, the terminal slightly exposed, the basal joint shorter and stouter than the following, which is stout at the base and gradually attenuated to the apex, the terminal slightly elongate, acute, or ovate acuminate; maxillae long. Antennae simple in the females, more or less pectinated in the males; head small, squamous; thorax robust, not crested; body short, slightly carinated on the back; the apex of the males with a tuft; wings generally denticulated on the hinder margin, sometimes rounded; posterior not very large, ovate-triangular, usually whitish in the males, fuscous in the females.

The typical species of this genus are distinguished by having their wings more or less denticulated, a character not very common among the Noctuidae; but in Ch. graminis (which ought probably to be separated from the rest as a distinct genus) they are entire, and the palpi are somewhat dissimilar in their proportions. The antennae of the male Ch. cespitis and confinis are obviously different in their pectinations from those of the remaining species of the genus; and their wings are rather broader and less sensibly denticulated"

- Sp. 1 cespitis W. V.
- Sp. 2 confinis mihi.
- Sp. 3 fusca (Bo. fuscus Haworth)
- Sp. 4 nigra Haworth
- Sp. 5 graminis Linn.

Selection of the Genotype

Charaeas cespitis W. V. Genotype designated by Westwood in 1839

(Introduction to Modern Classification of Insects, Vol. 1, p. 93, 1839.), x

Morphology of the Genotype

Charaeas cespitis agrees with Stephens conception of his genus with the following exceptions. In the species selected as genotype, the maxillae are not very long and the thorax is crested. Otherwise the species can be considered typical

Head

Vestiture: scales and hair-like scales; Compound Eyes: uniformly clothed with long hair; Frons: uniformly rounded, ventral margin without corneous ridge or point; Antennae: ♂ bipectinate, the pectinations equal on both sides. Antenna scaled above, ventral surface of the shaft and pectinations clothed with long hair. In the ♀ the antenna is filiform, scaled above, finely ciliated beneath. Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and with long hairs beneath, distal segment scaled. Ratio of the segments: prox. 1.5, mid. 2.25, distal 1; Proboscis: poorly developed.

Thorax

Vestiture: scales; Crests: a pro and a meta-thoracic crest; Wings: primaries with the costal margin straight, apex truncated, outer margin convex. Secondaries with Sc and R touching at the base of the wing then diverging; Legs: femur of fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with hair and long scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally a mixture of hair and scales, ventrally scaled; Crests: mid-dorsal crests on the first and second abdominal segments in the ♂, either not present or very indistinct in the ♀. No lateral crests

in either sex; Size: body stout but extending beyond the secondaries.

The Genus Charaeas According to Other Authorities

Both Hampson and Seitz take cespitis as the genotype of Tholera. If this designation could hold, then Charaeas, erected in 1829 would sink as a synonym of Tholera Hub. erected in 1822. However, cespitis was taken as the type of Charaeas in 1839 by Westwood and is not therefore available for selection as genotype of Tholera. by such later workers as Hampson or Seitz. The other two species listed under the original description of Tholera do not belong to the subfamily Hadeninae and the genus Tholera, therefore, cannot replace Charaeas.

Remarks

This genus has been confused with Mamestra by some authorities but it differs from that genus and all other genera considered in this paper, by its peculiar type of bipectinated antennae in the male.

Hampson: Tholera cespitis

Herrich-Schaeffer: Polia cespitis

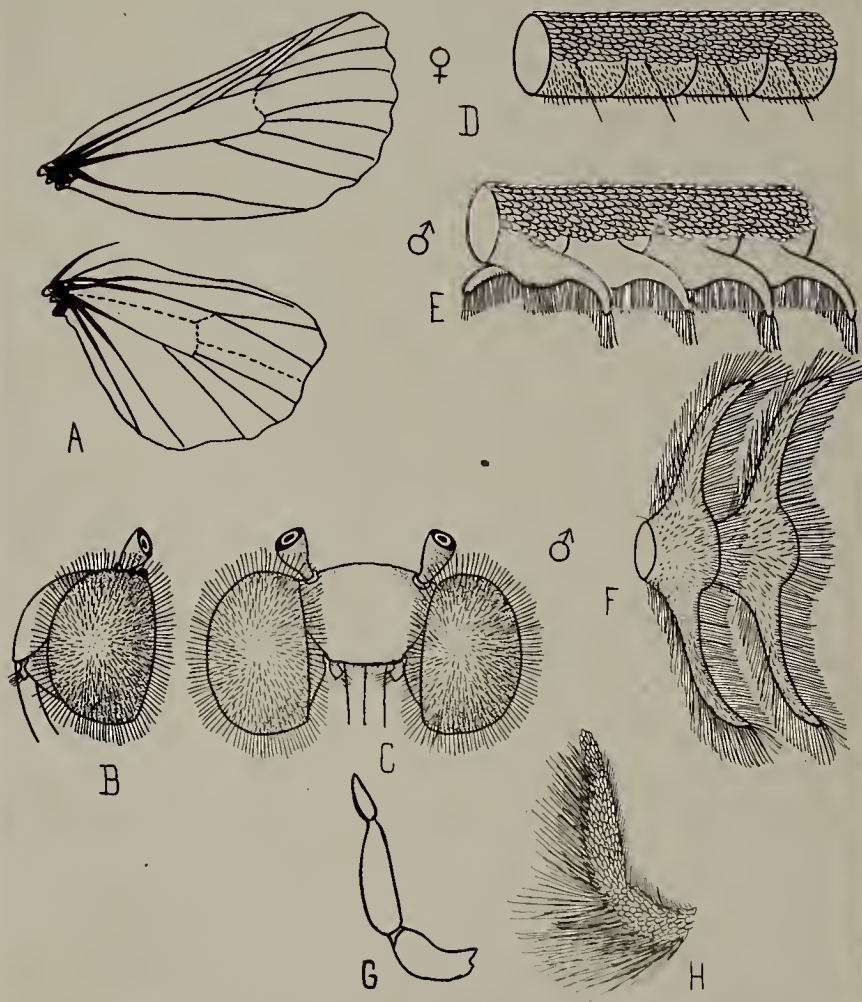
Ochsenheimer: Apamea cespitis

Seitz: Tholera cespitis

Staudinger: Epineuronia cespitis

Walker: Mamestra cespitis

Genus Charaeas, Steph.



A-Wings
 B-Head, side view
 C- Head, front view
 D-Antenna of the ♀

E-Antenna of the ♂
 F-♂ antenna, ventral view
 G-Palpus, denuded
 H-Palpus.

GENUS HADERONIA Staud.

Original Description of the Genus

Staudinger: Deutsche Entom. Zeit. von Gesell. Iris., VIII, p. 320, 1895.

"Der Rücken hat einen grösseren Vorder und einen kleineren Hinterschopf.

Die ziemlich langen Scheitel- und Sternhaare sind nach vorn gerichtet; die männlichen Fühler sind ziemlich lang gekämmt, die des ♀ kurz sägeförmig. Die Augen sind kurz behaart, die Spiralzunge ist kräftig und lang; die etwas aufwärts gerichteten Palpen sind ziemlich lang behaart, mit deutlichem, an der Spitze weisslichem Endglied. Brust, Hüften, und Schenkel sind lang behaart. Die schlanke Hinterleib führt auf dem Rücken drei sehr deutlich Schöpfe; der ziemlich lang Afterbüschel verdeckt die stark entwickelten Genitalien.

Diese suberschanica, die der Hadena, arschanica, Alph. (aus central-asien) ähnlich, ist, und mit ihr fast gleich Bildung der Körper theile hat, passt ihrem ganzen Aussehen, besonders auch den behaarten Augen nach, nicht in der Gattung Hadena. Ebenso wenig kann sie, des beschöpften Hinterleib und der starken Spiralzunge wegen, eine Neuronia sein, zu der sie Snellen, wohl besonders der starke gekämmte Fühler wegen zu setzen geneigt war. Will man daher diese beiden Arten nicht zu Mamestra setzen (die niemals so lang Rückenschöpfe hat, deren Aussenlinie der vöfl. M-förmig gezeichnet ist, u.s.v.) so wird man sie in eine eigene Gattung stellen müssen, für die ich den Namen Haderonia vorschlagen würde. Had. Suberschanica hat nicht so spitz ausgezogene Vöfl. wie Arschanica und wie mir scheint, etwas weniger lang gekämmt Fühler. Die ähnlichen Zeichnungen bieten auch mehrere Unterschiede, so tritt bei Arschanica stets eine deutliche, kurz Pfeilmakel auf, die meist sehr verloschene äussere

Querlinie ist, wenn sie deutlich zu erkennen ist, weil weißer gezackt, besonders aber macht die lichte Aussenlinie in ihrem unteren Theil nie einen Winkel wie stets bei Subarschanica."

Selection of the Genotype

Haderonia subarschanica Staudinger: monotypical.

Morphology of the Genotype

Subarschanica agrees in all particulars with the original description of the genus with the exception that in the ♀ of the genotype the antennae are filiform instead of serrate.

Head

Vestiture: coarse hair and hair-like scales; Compound Eyes: uniformly clothed with long hair; Frons: uniformly rounded, ventral margin without corneous ridge or point; Antennae: ♂ serrate and bipectinate the pectinations longer on one side than the other. Scaled above, ventral surface of the antennae and the pectinations clothed with long hair. At the end of each pectination there is rather stout seta. In the ♀ the antennae is filiform, scaled above finely ciliated below and each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and bearing long hair beneath, distal segment scaled. Ratio of the segments: prox. 1, mid. 1.5, distal 1; Proboscis: fully developed.

Thorax

Vestiture: hair-like scales; Crests: a divided pro and a meta thoracic crest; Wings: primaries with the costal margin straight, apex rounded, outer margin strongly incurved. Secondaries with Sc and R confluent at their bases; Legs: femur of fore-leg fringed with coarse hair beneath, remainder of leg scaled. Middle-leg: scaled, ventral

edge of the femur and dorsal margin of the tibia fringed with long scales and coarse hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: covered dorsally and ventrally with hair and scales; Crests: three mid-dorsal crests, no lateral crests; Size: body extends beyond the secondaries.

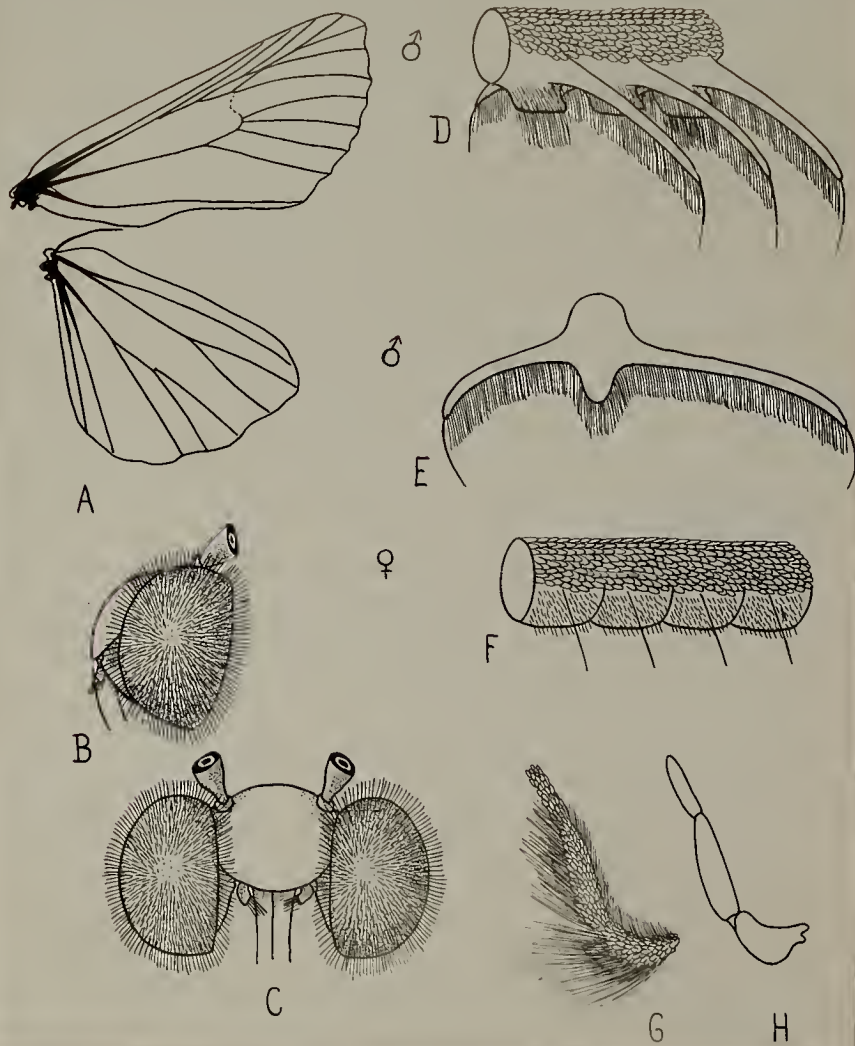
The Genus Haderonia According to Other Authorities

Seitz: "Frons smooth as in Polia but with the antenna of the ♂ bipectinate to two thirds its length with long branches.

Remarks

Haderonia, recognized by Seitz, is probably a valid genus but may have no representatives in this country. It is included because it has been made a synonym of Mamestra (Polia) by Sir George Hampson. The distinctly bipectinated antennae of the male sub-arschanica should remove it from the Mamestra group.

Genus *Haderonia*, Staud.



A-Wings
 B-Head, side view
 C-Head, front view
 D-Antenna of the ♂

E-♂ antenna, cross section
 F-Antenna of the ♀
 G-Palpus
 H-Palpus denuded.

GENUS EPINEURONIA

GENUS NEURONIA Hub.

Original Description of the Genus.

Hubner: Verzeichniss bekannter Schmetterlinge, p. 215, 1822 .

"Die Schwingen blossenig und den gewöhnlichen Flecken und Streifen
zierlich schwarz ausgezeichnet."

Neuronie popularis Fab. (*Graminia* Schiff, *Lolii* Esp.)

N. perplexa Schiff (*Filograma* of Esp. *Carpophaga* Bkh.).

Selection of the Genotype

Neuronie popularis Fab. Genotype by elimination and also by subsequent designation. *Perplexa* Schiff. is the same as *carpophaga* Bkh. and *carponhaga* was designated as genotype of *Dianthoecia* by Grote in 1874. This leaves *popularis* alone available so that Hampson's designation of this species as the genotype of *Neuronie* will stand.

Morphology of the Genotype

With *perplexa* removed and taken as the type of another genus, *Neuronie* is almost equivalent to a monotypical genus and *popularis* would therefore be typical in every respect.

Head

Vestiture: hair and hair-like scales; Compound Eyes: uniformly clothed with long hair; Frons: uniformly rounded, ventral margin with a corneous ridge; Antennae: ♂ binectinate, the pectinations of the same size on both sides of the antenna. Dorsally scaled, ventral surface of the antenna and its pectinations covered with short hair. Each pectination bears at its tip several prominent setae. In the ♀ the antenna is serrate when viewed from the side. Ventrally each segment appears heart-shaped, the upper lobes bearing several prominent setae. Dorsally the antenna is scaled, ventrally it is covered with fine cilia; Palpi:

proximal and middle segments scaled and with long hair beneath, distal segment scaled. Ratio of the segments: prox. 1.2, mid. 2.2, distal 1.0; Proboscis: poorly developed.

Thorax

Vestiture: coarse hair and some hair-like scales; Cresta: no crests very evident; Wings: primaries with the costa straight, apex truncated, outer margin almost straight. Secondaries with Sc and R confluent at their bases; Legs: femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia, fringed with long hair and scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally hair and scales, ventrally hair and scales in the ♂, mostly scales in the ♀; Cresta: mid-dorsal crest on the first abdominal segment, more pronounced in the ♂. Lateral crests present in both sexes; Size: body extends well beyond the secondaries.

The Genus *Neuronia* According to Other Authorities

Guenée makes *popularis* the type of the genus *Heliochobus* of Boisduval. This genus was made in 1829 and the type designated in 1852.

Staudinger suggests the name *Epineuronia* as the name *Neuronia* is preoccupied. It was used by Leach for a genus of Trichoptera in 1815, (Edinburgh Encyclopaedia, Vol. IX, p. 136, 1815).

Remarks

The females of this species have a distinctive type of serrated antennae. On this basis it would seem best to consider the genus valid although the name must be changed to *Epineuronia* as suggested by Staudinger.

Hampson: Tholera popularis

Herrich-Schaeffer: Neuria popularis

Ochsenheimer: Hadena popularis

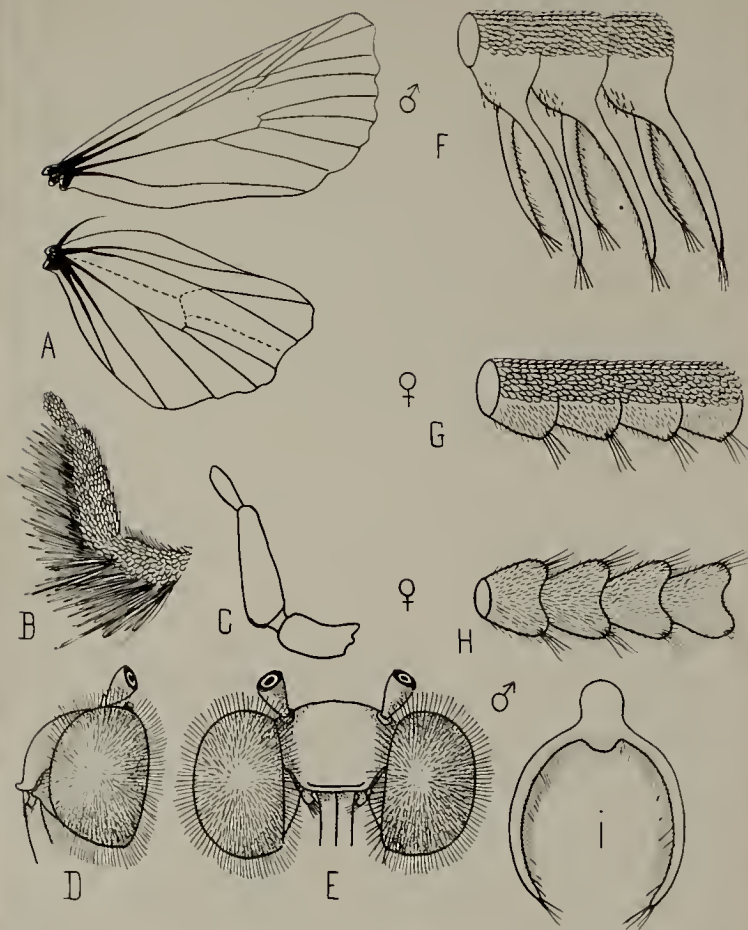
Seitz: Tholera popularis

Staudinger: Epineuronia popularis

Walker: Heliophobus popularis

Guenee: Heliophobus popularis

Genus *Epineuronia* Staud.



A-Wings

B-Palpus

C-Palpus denuded

D-Head, side view

E-Head, front view

F-Antenna of the ♂

G-Antenna of the ♀

H-♀ antenna, ventral view

I-♂ antenna, cross section

GENUS ACERRA Grote.

Original Description of the Genus

Grote: Bulletin of the Buffalo Society of Natural Sciences, III, p. 162, 1874.

"Male- related to Plusia, the squamation entirely hairy the colors are those of Lyganthoecia and Plagiomimicus. Eyes hairy. Front full, with the vestiture converging from the sides but without depression as in Plagiomimicus, Stibadium, or Steria. Antennae with stout though not lengthy pectinations. Between the antennae the vestiture is somewhat pointedly massed. Tibiae apparently unarmed. Palpi short with the third joint concealed. The tibiae and femora are fringed with loose hair. The thorax and abdomen are proportionate, untufted.

Acerra normalis Grote. California."

Selection of the Genotype.

Acerra normalis. Grote. The genus is monotypical.

Morphology of the Genotype

Contrary to the statement in the description of the genus, the specimens examined showed distinct tufts on the thorax and abdomen.

Head

Vestiture: hair; Compound Eyes: uniformly clothed with long hair; Frons: uniformly rounded, ventral margin pointed; Antennae: ♂ bipectinated, the pectinations not of the same size on both sides of the antenna. Dorsal surface scaled, ventral surface of antenna and of the pectinations clothed with long hair. In the ♀ the antenna is serrate, dorsally scaled, ventral surface clothed with moderately long hair. Each segment bears a pair of very prominent setae; Palpi: All three, segments scaled and bearing very long scales on the under side. Segments relatively short and broad. Ratio of the segments: prox. 2.5, mid. 1.75, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: coarse hair; Crests: a pro and a meta-thoracic crest;
Wings: primaries with the costa straight, apex drawn downward to a point, outer margin only slightly incurved. Secondaries with Sc and R confluent at their bases; Legs: femur of the fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long hair and long scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally and ventrally fine scales, some hair; Crests: a mid-dorsal tuft on the first segment, lateral tufts in the ♂; Size: body stout but extends beyond the secondaries.

The Genus Acerra According to Other Authorities

Smith, J. B.: "Stretchia is valid and must replace Acerra of Grote". (Trans. Amer. Ent. Soc. Vol. XVIII, p. 118, 1884.)

Remarks

Acerra has been confused with Stretchia and Perigrapha and there can be no doubt that these three genera are very closely related. If, however, a careful comparison is made of the male and female antennae characters of their genotypes, the three groups can be readily separated.

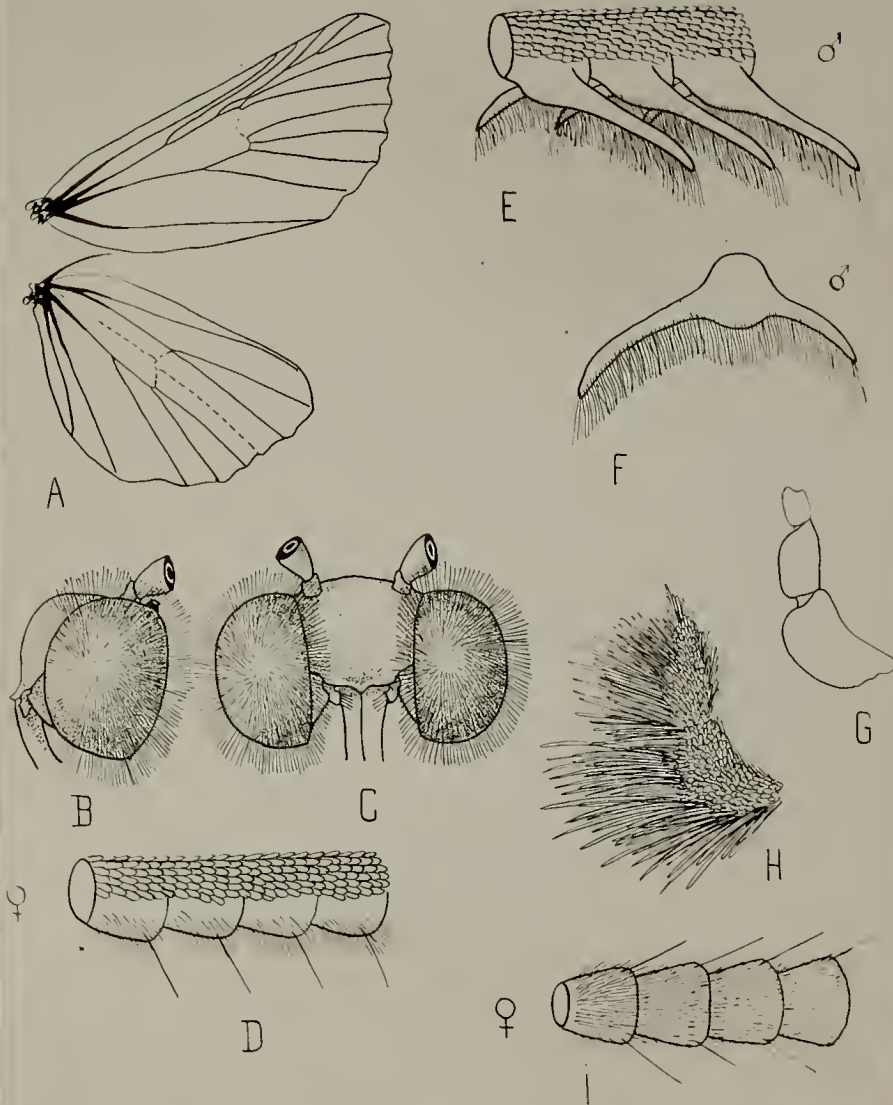
Barnes: Perigrapha normalis

Dyar: Stretchia normalis

Hampson: Perigrapha normalis

Smith, J. B.: Stretchia normalis.

Genus *Acerna* Gr.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♀

E-Antenna of the ♂

F-♂ antenna, cross section

G-Palpus denuded

H-Palpus

I-♀ antenna, ventral view

Original Description of the Genus

Henry Edwards: Proceedings of the California Academy of Science, p.266, 1874.

"Head small, tufted in front. Palpi short, stout, porrect, not extending beyond the head. Proboscis moderate. Thorax slightly crested in front. Abdomen pilose, extending for one third of its length beyond the margin of the secondaries. Antennae rather coarsely pectinated. Tibiae with long hairs. Tarsi simple. Primaries with costal edge straight, acute at its tip. Posterior margins rounded interiorly. Interior margins oblique, tufted in the middle. Some plumose tufts are also visable along the costa and subcostal vein. Secondaries small, with the margins much rounded. Larvae unknown.

This genus, which appears to bear a close relation to Edema Walk., is dedicated to Mr. F. H. Stretch."

S. plusiaeformis n. sp. White Pine, Nevada.

Note: Edwards placed this genus among the Lotodontidae.

Selection of the Genotype

Stretchia plusiaeformis Hy. Edw. The genus is monotypical.

Morphology of the Genotype

The female specimen in the American Museum of Natural History which is the type, appears to be aberrant for its naked eyes, filiform antennae and spinose tibiae do not agree with other females of this species.

Head

Vestiture: hair and hair-like scales; Compound eyes: uniformly clothed with long hair, (in one ♀ the eyes were naked [an aberrant form ?]); Frons: uniformly rounded. Ventral margin without corneous ridge or point. In two ♂s the ventral margin had a corneous ridge; Antennae: ♂ bipectinate, the pectinations not of equal length on each side of the antenna. Dorsal surface scaled, ventral side clothed with short hair. Pectinations also bear short

hair on their ventral surface and terminate with a prominent seta shaft crenulated ventrally. In the ♀, the antenna is bipectinate, pectinations short and of the same size on both sides of the shaft. Dorsally scaled, ventral surface of the shaft and pectinations clothed with long hair. Each pectination bears at its tip a prominent seta; Palpi: All segments scaled and all bear long, coarse hair beneath. Ratio of the segments: prox. 1.5, mid. 2.5, distal 1.0 (in the ♀s the ratio was as follows prox. 2.0, mid. 2.0, distal 1.0. The basal and middle segments were very stout.); Proboscis: fully developed.

Thorax

Vestiture: coarse hair, scales in some ♀s; Crests: a pro and a meta-thoracic crest; Wings: primaries with the costa straight, apex rounded, outer margin almost straight. Secondaries with Sc and R confluent at their bases; Legs: femur of fore-leg fringed with long hair beneath. Tibia with several (6) short spines in one ♀. Most of the fore-leg is clothed with scales. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long hair and scales. Tibia with several short spines in one ♀. Hind-leg: the same type of vestiture as the middle-leg. Tibia also spinose in one ♀.

Abdomen

Vestiture: dorsally and ventrally hair and scales; Crests: a mid-dorsal on the first abdominal segment, lateral crests in the ♂; Size: body extends beyond the secondaries.

Remarks

A genus which differs little from Acerra and Perigrapha especially from the former which may be a synonym of it.

Barnes: Stretchia plusiaeformis.

Dyar: Stretchia plusiaeformis.

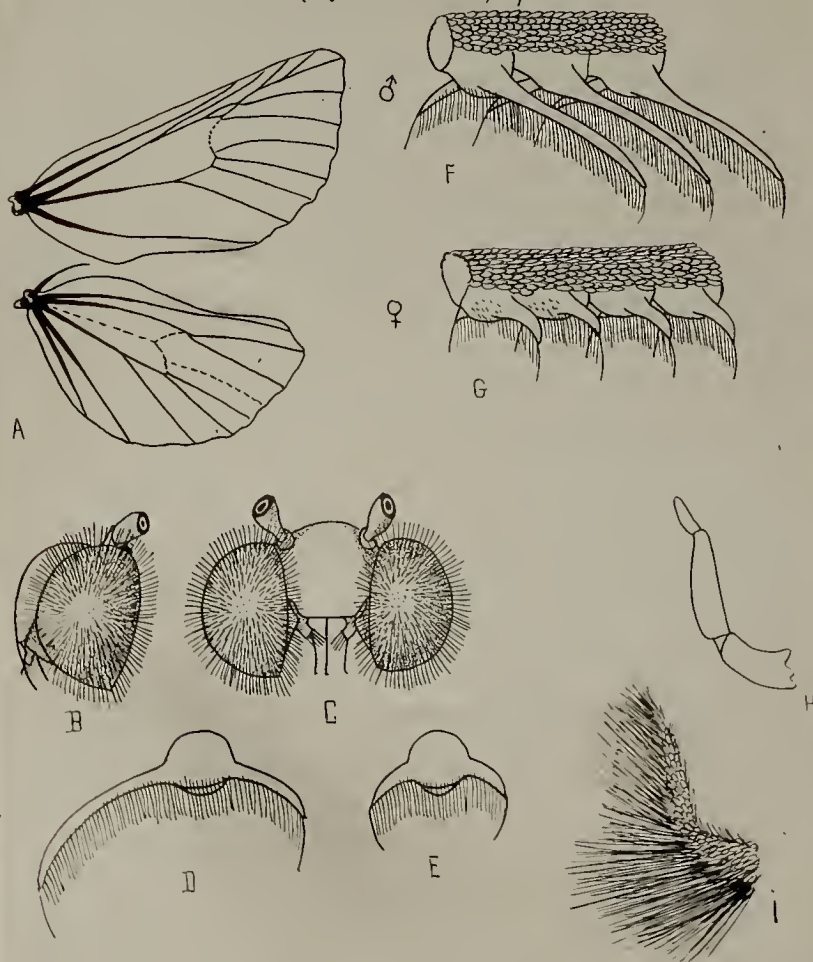
Grote: "The species described by Henry Edwards as S. plusiaeformis I have originally referred to the Agrotid genus Perigrapha" (Grote: Abhand

Natur. Verein zu Bremen, Vol. XIV, p. 93).

Hampson: Stretchia plusiaeformis.

Smith, J. B.: At first places plusiaeformis under Perigrapha then in his catalogue (Bulletin of the U. S. N. M. No. 44, 1893) he recognizes Stretchia and makes Acerra Grote a synonym of it. x

Genus *Stretchia*, Hy-Edw.



A-Wings

B-Head, side view

C-Head, front view

D-♂ antenna, cross section

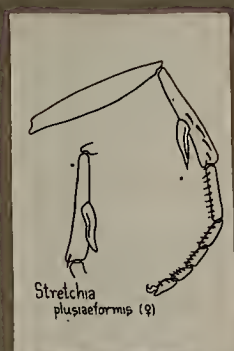
E-♀ antenna, cross section

F-Antenna of the ♂

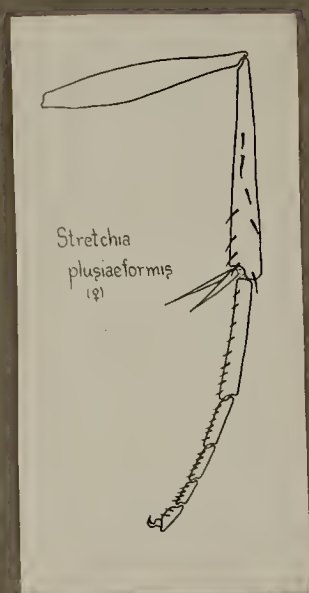
G-Antenna of the ♀

H-Palpus denuded

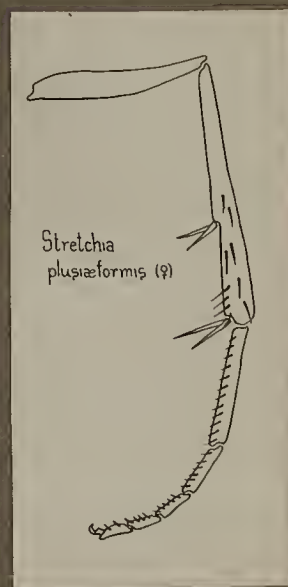
I-Palpus.



Fore leg



Middle leg



Hind leg

GENUS PERIGRAPHA Lederer

Original Description of the Genus

Lederer: Die Noctuiden Europas, p. 136, 1857.

"Die Schmetterlinge gleichen in Habitus und haarigen Augen ganz denen der folgenden Gattung, ihr Halskragen ist jedoch ausgeschnitten und stösst mitten in scharfer Kante zusammen; ihn Thorax bildet in den Seiten einen eikigen Vorstoss und hat hinter dem Halskragen einen hohen, schneidigen Langsarm; ihr Hinterlieb führt auf dem ersten segmente einen abgestützten Harrbuschel

Fühler in beiden Geschlechtern gekammt, die Kammezahne beim Weibchen kurzen Afterklappen wie bei den ersten drei Arten von Taeniocampa doch ohne Zahne am inneren Ende.

Arten

I-Cinctum S.V.
circumducta (m) (Altai)"

Selection of the Genotype

Perigrapha i-cinctum S.V. Genotype designated by Hampson

(Catalogue of the Lepidoptera Phalaenae, Vol. V, p. 403, 1905).

Morphology of the Genotype

Head

Vestiture: fine hair; Compound Eyes: uniformly clothed with long hair;

Frons: not uniformly rounded, tends to project forward and upward, ventral margin pointed, front vertical; Antennae: ♂ bipectinate, the pectinations almost of the same length on both sides of the antenna. Dorsally scaled, ventral surface of the antenna and pectinations clothed with long hair. Each pectination bears at its tip a prominent seta. In the ♀ the antenna is like that of the ♂ but the pectinations are of the same length on both sides of the antenna and are short and stumpy; Palpi: proximal and middle segments scaled and clothed with long hair beneath, distal segment scaled. Ratio of the segments: prox. 1.4, mid. 1.8, distal 1.0; Proboscis: Weakly developed.

Thorax

Vestiture: mostly hair; Crests: a pro and a meta-thoracic crest;
Wings: primaries with the coastal margin straight, apex truncated, outer margin only very slightly incurved. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of the fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with hair and long scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally and ventrally scales; Crests: a mid-dorsal crest on the first segment, lateral crests present; Size: body extends beyond the secondaries.

The Genus Perigrapha According to Other Authorities

Hampson: "proboscis fully developed ---- tegulae produced upwards into a slight ridge. Fore wings with the apex somewhat produced."

Seitz: "Antennae varying from bipectinate to ciliated. Abdomen rough haired."

Smith, J. B.: "Head strongly retracted --- body robust, somewhat clumsy appearing from the thick rather loose vestiture. Abdomen -- not exceeding hind angles of the secondaries. In addition to the large truncated basal tufts the $\delta\delta$ are furnished with lateral tufts. Primaries -- apices acute, outer margin obliquely rounded."

Remarks

Perigrapha I-cinctum, agrees well with the generic conceptions of Lederer, Hampson, and J. B. Smith. Warren (in Seitz) would include forms that have simple antennae as well as those having the antenna bipectinate. He would include I-cinctum and this species may be considered typical of the genus in which it was placed.

This is a true Hadenine genus and its type should not be placed in Taeniocampa, Orthosia, Episema or Semiophora as these genera do not belong to this subfamily. Both the male and female antennal characters make perigrapha a distinct genus.

Guenee: Taeniocampa I-cinctum

Hampson: Perigrapha I-cinctum

Herrich-Schaeffer: Orthosia I-cinctum

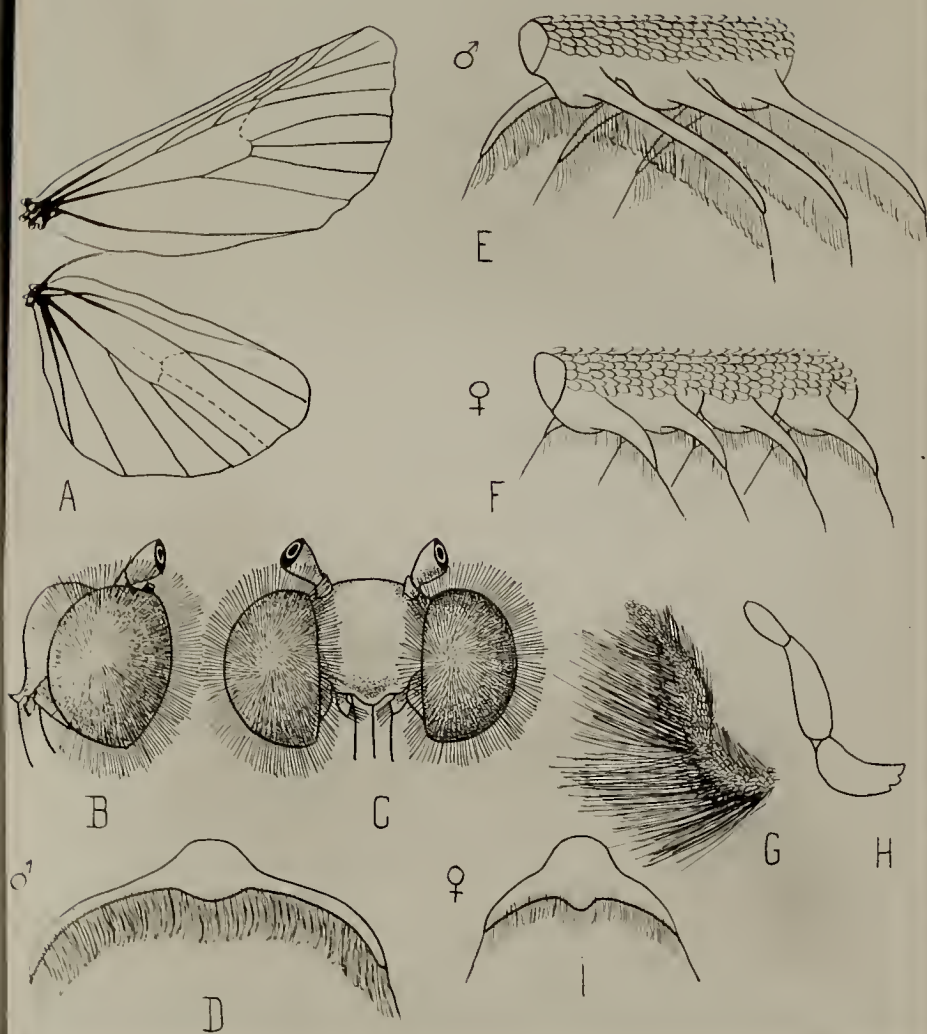
Ochsenheimer: Episema I-cinctum

Seitz: Perigrapha I-cinctum

Stephens:

Walker: Semiophora I-cinctum

Genus Perigrapha Led.



A-Wings

B-Head, side view

C-Head, front view

D-♂ antenna, cross section

E-Antenna of the ♂

F-Antenna of the ♀

G-Palpus

H-Palpus denuded

I-♀ antenna cross section

GENUS XYLOMANIA Hampson

Original Description of the Genus

Hampson: Catalogue of the Lepidoptera Phalaenae, Vol. V, p. 339,
1905.

"Type *X. hiemalis* Gr.

Proboscis fully developed, palpi porrect to just beyond the frons, 2nd joint fringed with hair below, the 3rd short, frons smooth, eyes large rounded; tegulae dorsally produced into a slight ridge; pro and meta-thorax with spreading crests; pectus clothed with wooly hair; tibiae fringed with hair; abdomen with dorsal crest on basal segment. Fore wings with the apex slightly produced, the termen oblique and somewhat angled at vein 3; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form areole; 11 from cell. Hind wings with veins 3, 4 and 6, 7 shortly stalked; 5 obsolescent from middle of discocellulars; 8 anastomosing with cell near the base

Sect. I - antennae of male bipectinate, with rather long branches, the apex simple (includes hiemalis.)

Sect. II - antennae of the male with short branches, apex simple.

Sect. III- antennae of the male serrate and fasciculate.

Sect. IV - antennae of the male ciliated."

Selection of the Genotype

Xylomania hiemalis Gr. Designated by the author in his original description of the genus .

Morphology of the Genotype

Head

Vestiture: scales and hair-like scales; Compound Eyes: uniformly clothed with long hair; Frons: not uniformly rounded tends to project

forward and upward, ventral margin with a small point; Antennae: ♂ bipectinate, the pectinations not of the same length on each side of the antenna. Dorsal surface scaled, under side of the antenna and pectinations clothed with long hair. At the tip of each pectination there are three prominent setae. In the ♀ the antenna is serrate, the serrations not of equal size on both sides of the antenna. The dorsal surface is clothed with scales, ventrally covered with fine hair. Each segment bears a pair of very long lateral setae; Palpi: all segments scaled and bearing very long hair beneath. Ratio of the segments: prox. 1.0, mid. 1.8, distal 1.0 --- in another specimen the ratio was: prox. 1.5, mid. 2.75, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: coarse hair and hair-like scales; Crests: a pro and a meta-thoracic crest; Wings: primaries with the costal margin straight, apex drawn downward, outer margin oblique. Secondaries with Sc and R confluent at their bases; Legs: femur of the fore-leg fringed with long hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally hair and hair-like scales, ventrally hair and scales; Crests: a mid-dorsal crest on the first segment, lateral crests present; Size: body extends beyond the secondaries.

Remarks

The genotype is typical of group one in which the ♂ antennae are birectinate.

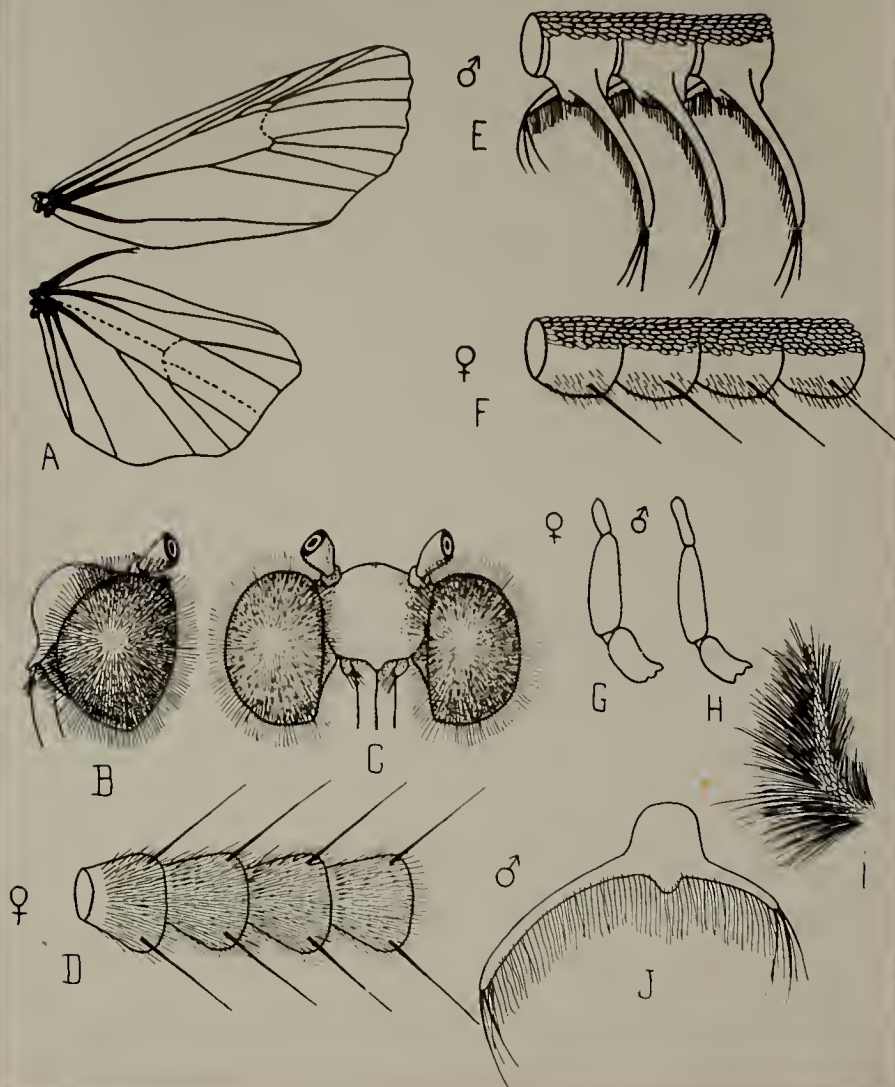
If hiemalis is taken as typical, then Xylomania is one of the few Hadenine genera in which the antenna of the female is not filiform. In this respect it is quite distinctive from Xylomyges with which it has been confused.

Barnes: Xylomyges hiemalis

Dyar: Xylomiges hiemalis

Smith, J. B.: Xylomyges hiemalis

Genus *Xylomania*, Hamp.



A-Wings

B-Head, side view

C-Head, front view

D-♀ antenna, ventral view

E-Antenna of the ♂

F-Antenna of the ♀

G-Palpus of a ♀, denuded

H-Palpus of a ♂, denuded

I-Palpus

J-♂ antenna, cross section

GENUS ENGELHARDTIA Barnes

Original Description of the Genus

Barnes: Bulletin of the Brooklyn Entomological Society, XVIII, p.125, 1923.

"Proboscis aborted, minute; palpi short, porrect to beyond the frons, fringed with long hair, frons somewhat rounded out, roughened, with corneous plate below the frons laterally produced, eyes moderate, somewhat constricted, very hairy, and overhung by very long cilia from behind with moderate cilia from near the base of the antennae, antennae of the ♂ bipectinate, the cephalic pectinations longer than the caudal pectinations, serrate at the base and extremity, the pectinations and serrations at right angles to the shaft and heavily fasciculate with cilia: of the ♀, lamellate and ciliated; head and thorax clothed with long hair and without definite crests; Tibiae hairy, without spines or claws; tarsi heavily spined; abdomen without crests; a slight patch of dorsal hair on the first segment as a fringe rather than a true crest, and with strong lateral fringes of long hair; fore wing rather narrow, the apex produced and the termen obliquely curved; vein 3 from near angle of cell, 4 from angle, 5 from slightly above angle, 6 from upper angle, 9 from 10 anastomosing with 7, 8 to form the areole, 11 from cell; hind wing with veins 3, 4 from angle of cell, 5 obsolescent from about one-third below middle of discocellulars; 6, 7 stalked, 8 anastomosing with cell near base only; beneath, secondaries with a heavy black spot on the discocellular vein connected to the base of the wing by a black bar through the center of the cell --- Possibly belongs to the hairy eyed genera of the Cucullinae,

Type Engelhardtia ursina Smith."

Selection of the Genotype

Engelhardtia ursina Smith. Designated by the author in his original description of the genus.

Morphology of the Genotype

Head

Vestiture: coarse hair; Compound Eyes: uniformly clothed with long hair; Frons: not uniformly rounded but tends ^{to} project forward and upward, ventral margin with a corneous ridge and a small point; Antennae: ♂ bipectinate, the pectinations not of the same size on each side of the antenna. Segments very distinct even on the dorsal surface which is clothed with scales. Ventral surface clothed with very long hair, hairs at the tips of the pectinations a trifle longer. In the ♀ the antenna is flattened and serrate. The dorsal surface is clothed with scales and the ventral side is covered with long hair. Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and fringed with very long hair beneath, distal segment scaled. Ratio of the segments: prox. 1.3, mid. 2.3, distal 1.0; Proboscis: weak.

Thorax

Vestiture: long hair; Crests: none; Wings: primaries with the costal margin straight, apex drawn downward, outer margin very oblique. Secondaries with Sc and R confluent at their bases; Legs: femur of the fore-leg fringed with long hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibiae fringed with long hair and some long scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

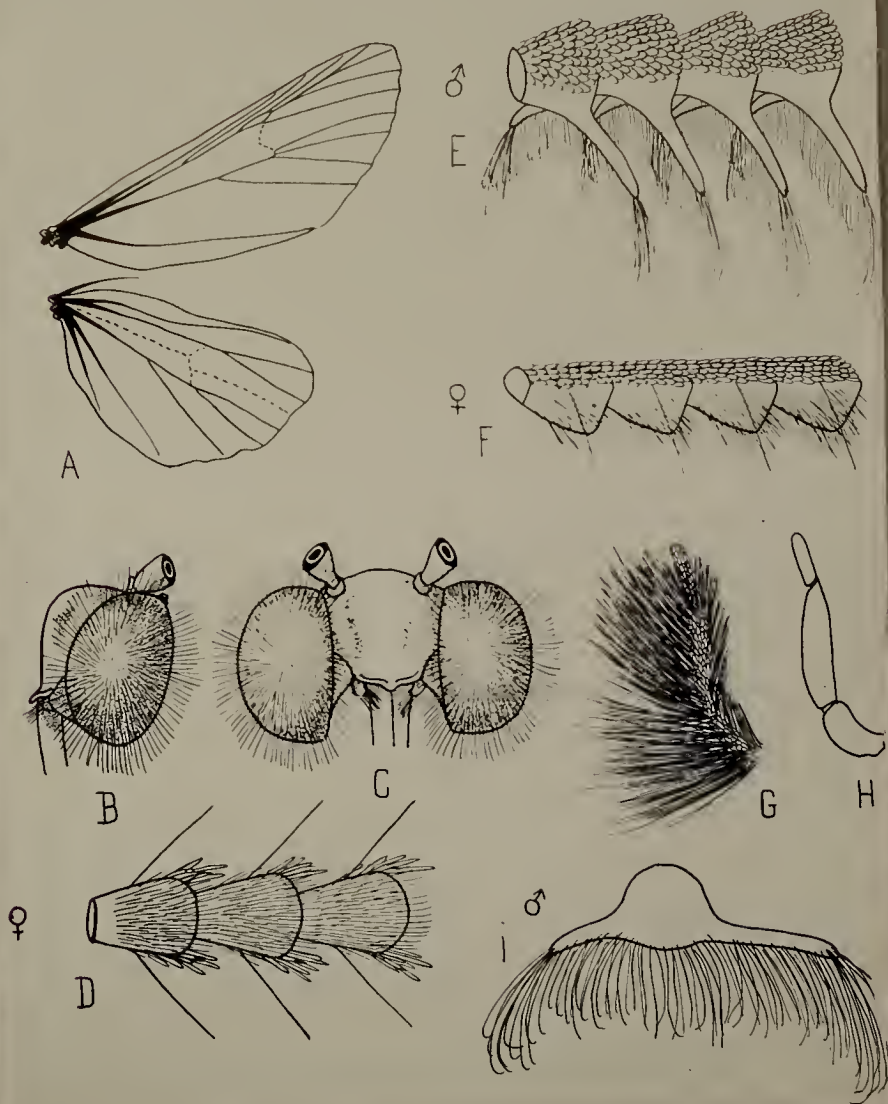
Abdomen

Vestiture: dorsally scales and some hair, ventrally mostly hair; Crests: no dorsal or lateral crests; Size: hardly projects beyond the secondaries.

Remarks

A good genus that can be recognized by the peculiar type of male and female antennae.

Genus Engelhardtia, Barnes



A-Wings

B-Head, side view

C- Head, front view

D-♀ antenna, ventral view

E- Antenna of the ♂

F- Antenna of the ♀

G- Palpus

H- Palpus denuded

I- ♂ antenna, cross section

GENUS LASIESTRA Hampson

Original Description of the Genus

Hampson: Catalogue of the Lepidoptera Phalaenae, Vol. 5, p.47,
1905.

"Type *L. phoca*.

Proboscis fully developed; palpi upturned, the 2nd. joint clothed with long hair in front, the 3rd. moderate; frons smooth; eyes large, rounded, overhung by long cilia; head and thorax clothed with rough hair and without crests; tibiae fringed with rough hair; abdomen with dorsal crests on basal segments. Fore wing with the termen obliquely curved; veins 3 and 5 from close to the angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wings with vein 3 from close to angle of cell; 5 obsolescent, from just below middle of discocellures; 6, 7 shortly stalked; 8 anastomosing with the cell near base only"

<i>Dianthoecia phoca</i> Moschl.	Canada, Labrador.
<i>Polia montana</i> Leach.	China.
<i>Dianthoecia subdita</i> Moschl.	Canada, Labrador.
<i>Mamestra promissa</i> Morr.	Colorado.
<i>Scotogramma uniformis</i> Smith	Canada, Colorado.
<i>Dianthoecia dovrensis</i> Staud.	Norway, Siberia.
<i>Hadena olvesi</i> Hampson	Sikkim, Tibet.
<i>Dianthoecia deliciosa</i> Alph.	Tibet, Kulu-noor, Kashmir.
<i>Scotogramma parvula</i> Smith	Canada, Colorado.
<i>Mamestra persa</i> Alph.	N. Persia.

Selection of the Genotypes.

Lasiestra phoca Moschl: Designated by the author in the original description of the genus.

Morphology of the Genotype.

Head

Vestiture: coarse hair; Compound Eyes: uniformly but sparsely clothed with long hair; Frons: projects forward, front vertical,

ventral margin without corneous ridge or point; Antennae: ♂ serrate, clothed above with scales and ventrally with a combination of fine cilia and long hairs. The hairs are restricted to the distal portions of the segments. In the ♀ the antenna is filiform, scaled above, finely ciliated beneath, a pair of lateral and a pair of mid-ventral setae on each segment; Palpi: Proximal and middle segments scaled and bearing coarse hair beneath, distal segment scaled. Ratio of the segments: prox. 2, mid. 3.25, distal 1; Proboscis: Fully developed.

Thorax.

Vestiture: A mixture of coarse and fine hair; Crests: None. Wings: Primaries with the costal margin straight but lobed at the base, apex truncated, outer margin strongly incurved. Secondaries with Sc and R touching near base of wing, then diverging; Legs: Femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with coarse hair and long scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: covered dorsally and ventrally with hair and scales; crests: one mid-dorsal crest on the first abdominal segment. Lateral crests in the ♂ only; Size: body extends beyond the secondaries.

The Genus Lesiastrea According to Other Authorities.

The genus is so new that, so far as the writer knows, it has never been redescribed.

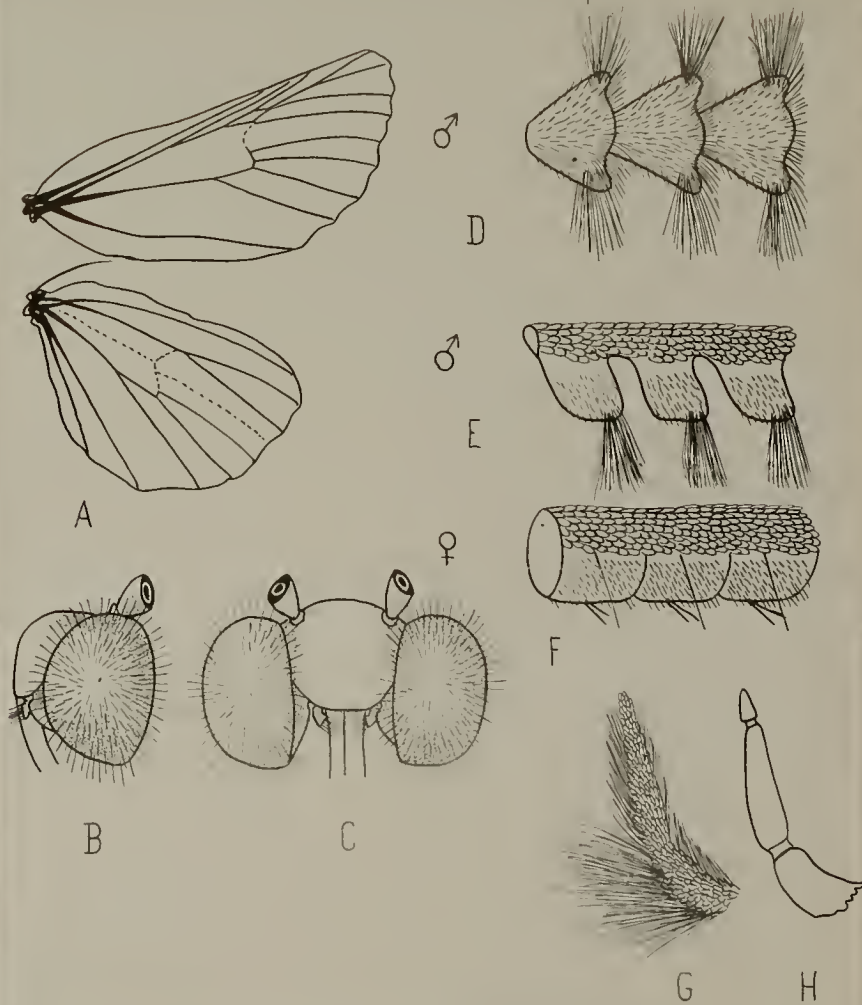
Remarks

Lesiastrea rhoca Moschl. agrees with Hampson's concept of the genus, and may be considered typical. X

Dyar and Smith placed rhoca under Scotoxenus but Hampson seems

justified in erecting a genus with this species as its type. The most noticeable difference between Scotogramma submarina and Lasiestra phoca is that the male antennae of the latter species is serrate rather than filiform. There are also other slighter differences that would count in making Lasiestra a distinct and valid genus.

Genus *Lasiestra*, Hamp



A-Wings

B-Head, side view

C-Head, front view

D-♂ antenna, ventral view

E-♂ antenna, lateral view

F-Antenna of the ♀

G-Palpus

H-Palpus denuded

GENUS EURYPSCHE Butler

Original Description of the Genus

Butler: Transactions of the Entomological Society of London, p.392,
1886.

"Allied to Leucania, with which it agrees in venuration, excepting that the veins are wider apart owing to the greater width of the wings; antennae finely ciliated; body more slender than Leucania."

E. similis n. s.

Gayndah.

Selection of the Genotype

Eurypsche similis, Butler

The genus is monotypical.

Morphology of the Genotype

Head

Vestiture: scales ? ; Frons: not uniformly rounded protrudes slightly forward and upward, front vertical, ventral margin without corneous ridge or point; Compound Eyes: uniformly clothed with short hair; Antennae: ♂ crenulate, scaled above, clothed with very long hair beneath. Each segment bears a pair of very long lateral setae. In the ♀ ----- ; Palpi: all segments very closely scaled. Ratio of the segments: prox. 1.75 mid. 3.0, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: scales; Crests: none ? ; Wings: primaries with the costal margin convex, apex drawn downward, outer margin very oblique. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: scaled throughout, not fringed with hair. All legs typical in structure.

Abdomen

Vestiture: undetermined ; Crests: undetermined ;

Abdomen badly rubbed

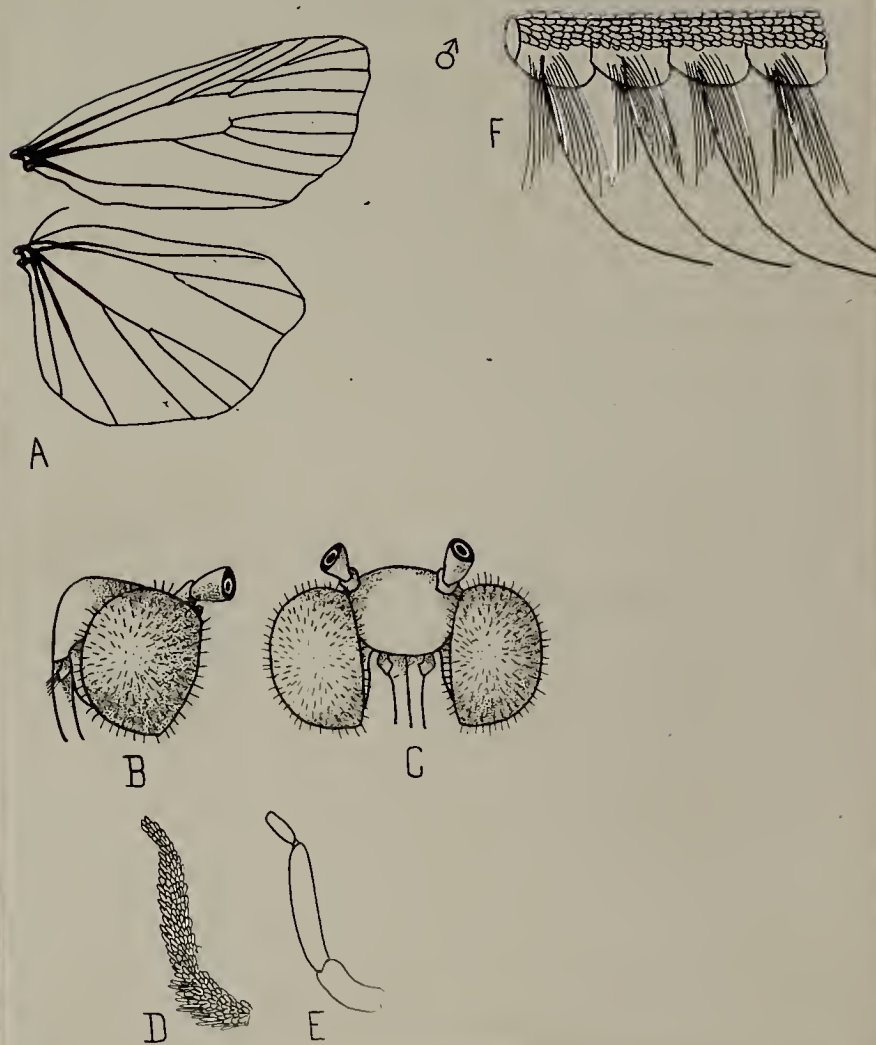
Remarks

In the form of the wings and in the vestiture of the legs this genus

stands very close to Meliana. In E. similis, however, the antennae of the male bear very long setae and this characteristic would separate the genus Eurypsyche from all other genera considered in this article.

Hampson: Borolia similis,

Genus Eurypsyche, But



A- Wings

B- Head, side view

C- Head, front view

D- Palpus

E- Palpus denuded

F- Antenna of the ♂

GENUS CARDEPIA Hampson

Original Description of the Genus

Hampson: Catalogue of the Lepidoptera Phalaenae, Vol. V, p. 234, 1905.

"Type *C. irrisor* Ersch.

Proboscis fully developed; palpi oblique; frons with truncate reniform prominence, excised below; eyes large, rounded, antennae of the male ciliated; thorax clothed chiefly with scales, the pro and meta-thorax with spreading crests; fore tarsi with curved claw-like spines on outer side of first joint; abdomen with dorsal crest on basal segment. Fore wing with veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wings with veins 3, 4 from angle of cell; 5 obsolescent from middle of discocellulars; 6, 7 shortly stalked; 8 anastomosing with cell near the base only."

Hamestra irrisor, Ersch.
Trichoclea nova Smith

Russia, Syria, Turkestan.
Col. New Mex., Ariz."

Selection of the Genotype

Cardenia irrisor Ersch. Genotype designated by the author in the original description of his genus.

Morphology of the Genotype

The species *irrisor* differs from the description of the genus in several particulars. In the specimens examined, the fore tarsi did not have claw-like spines on the outer side of the first joint, nor did the claws increase in size. The protuberance on the frons could hardly be called "reniform" and the crests were so poorly defined that one could say that they were wanting.

Head

Vestiture: hair and hair-like scales; Compound Eyes: uniformly

clothed with long hair; Frons: not round protrudes forward and upward, ventral margin with point; Antennae: ♂ filiform, scaled above, clothed with moderately long hair beneath, each segment bears a pair of lateral setae. When seen in cross-section, the antennae is wedge-shaped. In the ♀, the antennae is filiform, scaled above, finely ciliated beneath and oval in cross-section. Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled, and with long hair beneath, distal segment scaled. Ratio of the segments: prox. 2, mid. 3, distal 1. (in one ♂ the ratios were as follows; prox. 1.5, mid. 2.0, distal 1); Proboscis: fully developed.

Thorax

Vestiture: scales; Crests: if present not at all distinct; Wings: primaries with the costal margin straight, apex rounded, outer margin almost straight. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg; scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and coarse hair. Hind-leg: the same type of vestiture as the middle-leg typical in structure.

Abdomen

Vestiture: dorsally hair and scales - ventrally scales; Crests: if present not at all distinct; Size: body extends beyond the secondaries.

The Genus Cardopia According to Other Authorities.

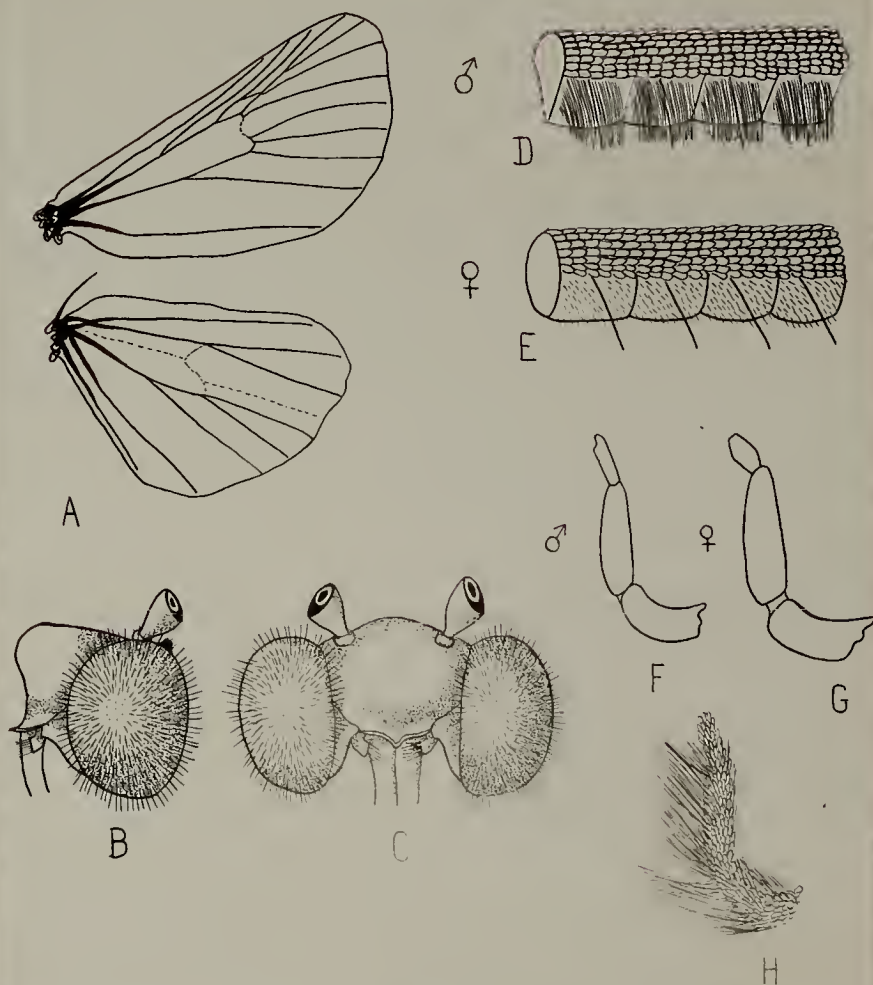
Seitz: "Differs from Epie in the frontal prominence being excised below and ending in a central projecting rim, while in Epie the projection is at the lower end of face; claws on fore-tarsi small, increasing in size towards the extremity of the segments."

Remarks

In the shape of the frons, Cardenia differs from Epia and each should be considered a distinct and valid genus.

Seitz: Cardenia irrisor.

Genus *Cardepi*, Hamp.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus of a ♂, denuded

G-Palpus of a ♀, denuded

H-Palpus.

GENUS TRICHOCOSMIA Grote

Original Description of the Genus

(Grote: Canadian Entomologist, Vol. XV, p. 6, 1883)

"Allied to Cosmia, but with hairy eyes. Vestiture flattened hair, mixed with broader scales on thorax, close and short. Wings entire. Abdomen untufted, a little exceeding the secondaries. Tibiae unarmed. Surface of the unlashd eyes covered with short hairs. Clypeus smooth. Palpi rather short. The type is a smaller insect than Cosmia orina, with similarly shaped wings."

Trichocosmia inornata, n. s. .

Selection of the Genotype

Trichocosmia inornata Grote - monotypical.

Morphology of the Genotype

Head

Vestiture: scales; Compound Eyes: uniformly but sparsely clothed with short hair; Frons: not uniformly rounded but bulges forward, ventral margin with an upturned corneous ridge; Antenna: ♂ -----; ♀ filiform, scaled above, ventral surface clothed with short hair. Each segment bears a pair of lateral and a single mid ventral setum; Palpi: all segments scaled. Ratio of the palpal segments prox. 2.5, middle 2.5, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: scales; Crests: a meta thoracic crest; Wings: Primaries with the costa straight, apex rounded, outer margin almost straight. Secondaries with Sc and R touching at their bases then diverging. Legs: All legs rather compactly scaled and normal in structure.

Abdomen

Vestiture: dorsally and ventrally scales; Crests: a dorsal crest on the first abdominal segment, no lateral crests present. Size: body

extends slightly beyond the secondaries.

The Genus Trichocosmia According to Other Authorities

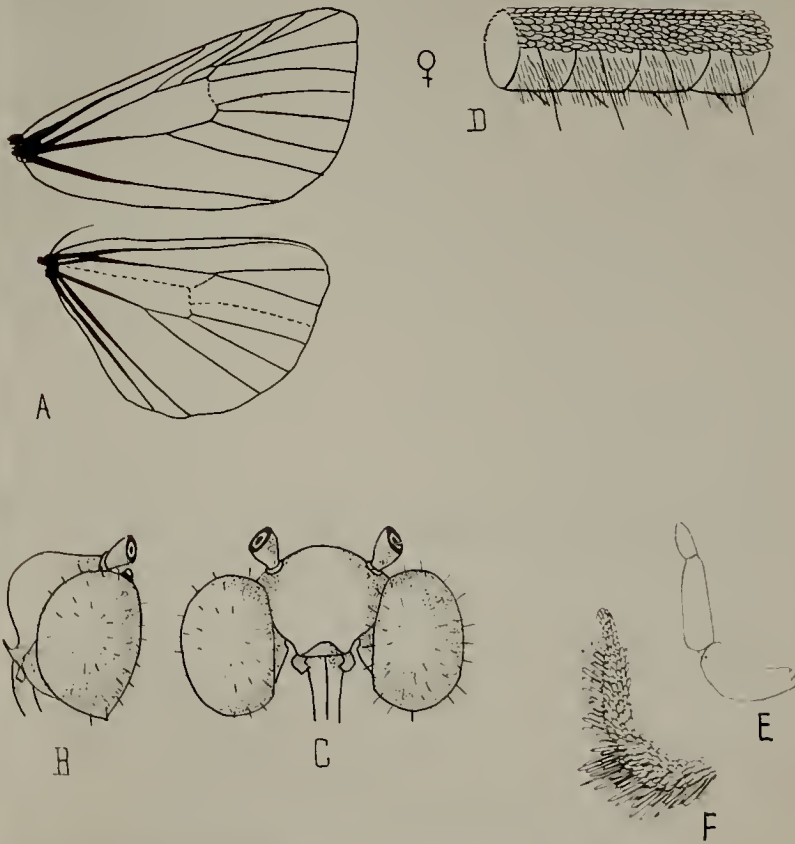
Barnes and Benjamin (Pan Pacific Ent. Vol. III, p. 68):

"Vein 5 of the hind wing is scarcely more than a fold and rather strongly bent for a member of the Hadeninae ----- Clypeal plate rather weak but present --- we suggest placing it after Trichoclea"

Remarks

Placed between Cardepia and Barathra but differing from either of these genera by the vestiture of the legs. Its position here may not be correct. It can not be placed after Trichoclea because of the shape of frons.

Genus *Trichocosmia*, Grote.



A- Wings

B- Head, side view

C- Head, front view

D- Antenna of the ♀

E- Palpus denuded

F- Palpus.

GENUS BARATHRA Hub.

Original Description of the Genus

Hübner: Verzeichniss bekannter Schmetterlinge, p. 218, 1822,

"Die Schwingen erdferbig gemischt, wie bestäubt."

Barathra brassicae Linn.

B. albicolaria Ochs.

Selection of the Genotype.

Barathra albicolaria Ochs. Grote in 1883 (Ann. Mag. Nat. Hist. 5, xi p. 54, 1883) names *brassicae* as one of the types of his new genus *Conimamestra*, leaving *albicolaria* as the type of *Barathra* by elimination. No other earlier designation of the type of *Barathra* is known to the writer.

Morphology of the Genotype.

Head

Vestiture: coarse hair and scales; **Compound Eyes:** uniformly clothed with long hair; **Frons:** projects forward and upward, ventral margin pointed and with an upturned corneous ridge; **Antennae:** ♂ filiform, scaled above, clothed with hair beneath, a pair of lateral and a pair of mid-ventral setae on each segment. In the ♀ the antennae are like those in the ♂ but clothed with cilia beneath; **Palpi:** proximal and middle segments scaled and bearing coarse hair beneath, distal segment scaled. Ratio of the segments: prox. 2, mid. 2, distal 1; **Proboscis:** fully developed.

Thorax

Vestiture: some coarse hair but mostly scales; **Crests:** divided prothoracic, indications of a meso-thoracic, a distinct meta-thoracic; **Wings:** primaries with the costa straight, apex truncated, outer margin incurved. Secondaries with Sc and R confluent at their bases; **Legs:** femur of fore-leg fringed beneath with coarse hair, remainder of leg

scaled. Middle-leg: scaled, ventral edge of the femur and the dorsal margin of the tibia fringed with coarse hair and long scales. Hind-leg: with the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: covered dorsally with fine hair, ventral surface scaled.

Crests: one small mid dorsal crest on the first abdominal segment, no lateral crests; Size: extends well beyond the secondaries.

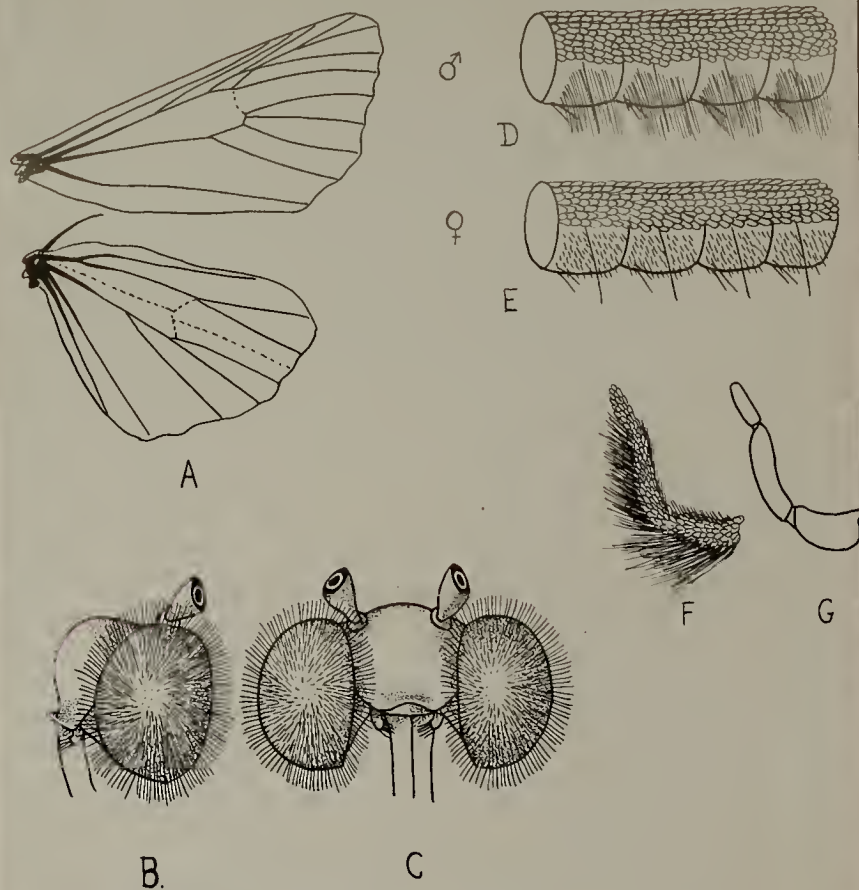
The Genus Barathra According to Other Authorities

Both Hampson and Warren recognize the Genus Barathra but each picks brassicæ Linn as the type of the genus. Brassicæ and albicolon are not congeneric as the former has a curved spine on the fore tibia that is not present in albicolon. Therefore the genus Barathra of Hampson and Warren with brassicæ as the type would not be the same as Barathra with albicolon as type. Furthermore, there is nothing in the original description of the genus that would lead one to believe that either one of the two species was more typical.

Remarks

The genotype is usually placed under Mamestra. It does not differ greatly from a mamestra except in the shape of the frons. In albicolon the frons projects forward and upward instead of being uniformly rounded and because of this difference, Barathra may be considered a distinct and valid genus.

Genus Barathra, Hub.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

G-Palpus, denuded

GENUS SCOTOGRAMMA Smith

Original Description of the Genus.

Smith: Proceedings of the United States National Museum, Vol. X, p. 469, 1887.

"Eyes hairy; tibia unarmed; vestiture loose, somewhat irregular, either hairy or scaly. Antenna of the ♂ simple. Form moderate; wings ample; primaries trigonate, with marked apices and oblique outer margin. The head is retracted; the palpi well developed, always exceeding the front. Thorax with usually an indefinite anterior and posterior tuft; abdomen not or very indefinitely, tufted. This genus has no strong characters and is almost entirely a negative one. Of only one of the five species (submarina) is the ♂ known, and this species is to be considered the type of the genus."

Scotogramma submarina Grote.

Scotogramma phoca, Mosch.

Scotogramma perplexa Smith.

Scotogramma inconcinna Smith.

Scotogramma umbrosa Smith.

Selection of the Genotype.

Scotogramma submarina Gr. Designated by the author in the original description of the genus.

Morphology of the Genotype.

The genotype agrees with the generic descriptions of Smith and Hampson except that the primaries do not have an oblique outer margin and the abdominal tufts are not prominent except in the first abdominal segment.

Head

Vestiture: coarse hair; Compound Eye: uniformly clothed with short

hair. These hairs are sometimes curled; Frons: projects forward and upward, ventral margin with a slightly unturned corneous ridge;

Antennae: ♂ filiform, scaled above, clothed with moderately long hair beneath. In the ♀ the antenna is filiform, scaled above, finely ciliated beneath and each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and bearing some short hairs beneath, distal segment scaled. Ratio of the segments: prox. 1.6, mid. 2.0, distal 1; Proboscis: fully developed.

Thorax

Vestiture: coarse hair and hair-like scales; Crests: a divided prothoracic and a distinct meta thoracic crest; Wings: primaries with the costal margin straight, apex rounded, outer margin nearly straight; Legs: femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Typical in structure. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with coarse hair. Structure typical. Hind-leg: the same type of vestiture as the middle-leg. Typical in structure.

Abdomen.

Vestiture: covered dorsally with hair and scales, ventral surface scaled; Crests: one mid-dorsal crest on the first abdominal segment, no lateral crests; Size: short, barely extends beyond the secondaries.

The Genus Scotogramma According to Other Authorities.

Hampson (Cat. Lep. Phalaenae, Vol. V.) recognizes the genus and describes it, in part, as follows: "Proboscis fully developed, palpi oblique, the second joint fringed with hair in front, the third moderate, porrect: frons with rounded prominence with slight vertical ridge and corneous plate below it, eyes large, rounded, antennae of ♂ ciliated: head and thorax clothed with hair and scales, the pro and meta thorax

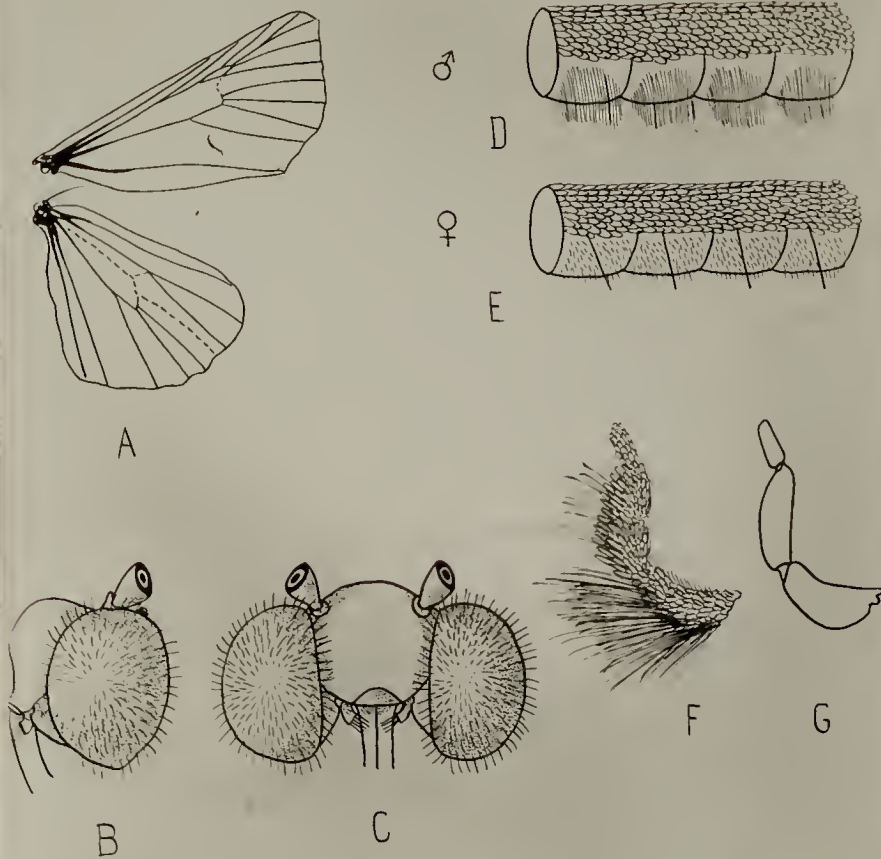
with spreading crests, tibiae fringed with hair, abdomen with dorsal series of crests and lateral fringes of hair."

Remarks

Not a strong genus as the author himself admitted and yet possessing enough characters to remove it from the Mamestra-like groups near which it stands. Probably the most noticeable character is the frons which projects forward and upward. This in connection with the filiform antennae of the male, causes it to resemble a Barathra, or Copimamestra.

From Copimamestra, the type of Scotogramma differs in many details, eg., the absence of the spine on the fore leg which is present in Copimamestra. The differences between Scotogramma and Barathra are so slight, however, that it is hard to separate them. It would seem better to combine the two genera sinking Scotogramma as a synonym of Barathra although Hampson, Barnes and Dyar recognize the genus Scotogramma.

Genus *Scotogramma*, Sm.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

G-Palpus denuded.

GENUS DIANTHOECIA Bois.

Original Description of the Genus

Boisduval: Silbermann; Revue Entomologique, p. 246, 1834.

"Insecte parfait. Antennes simples, filiformes. Palpes très-values, peu allongées, ne dépassant pas la hauteur des yeux; le dernier article très court, mu et peu saillant. Corselet assez épais, un peu sinué en avant, presque globuleux et arrondi en dessous, un peu comprimé latéralement. Abdomen créte, cylindrique, caréné (dans le mâle) velu et coupé carrément à l'extrémité; conique (dans la femelle) et terminé par un oviductus saillant et térébriforme, composé d'articles rentrant l'un dans l'autre, comme les pièces d'une lunette d'approche. Ailes en toit; les supérieures rarement nébuleuses, traversées par des raies sinueuses; les inférieures rembrunies à l'extrémité. Pattes annelées de blanchâtre."

1. *D. cucubali* Hub. (*Noctua rivularis* Fab.)
2. *D. capsicola* Hub.
3. *D. silenes* Hub.
4. *D. carpophaga* Treit. (*Noctua perplexa* Hub.)
5. *D. corsica* Ramb.
6. *D. tephroleuca* Bois.
7. *D. caesia* Hub.
8. *D. filigrana* Treit. (*Noctua polymita* Hub.)
9. *D. magnolia* Bois.
10. *D. albimacula* Treit. (*Noctua concinna* Hub.)
11. *D. conspersa* Hub.
12. *D. compta* Hub.

Selection of the Genotype.

Dianthoecia carnophaga Treit. Genotype designated by Grote

(Bulletin of the Buffalo Society of Natural Science, Vol. II, 1874.).

Morphology of the Genotype.

In *carnophaga* the antennae of the ♂ is neither crenate or minutely ciliated. The terminal segment of the palpus is small but longer than one-sixth the length of the second (ratio of 1 to 3.25) In other

respects the species agrees fairly well with the generic conceptions of the authorities quoted. It may be considered typical.

Head

Vestiture: coarse hair and hair-like scales; Compound Eye: uniformly clothed with short hair; Frons: protrudes forward, not rounded, ventral margin excavated, without corneous ridge or point; Antennae: ♂ filiform, scaled above, clothed with moderately long hair beneath. Each segment bears a pair of lateral setae. In the ♀ the antennae are like those in the male but the ventral surface is covered with fine cilia; Palpi: proximal segment scaled and bearing long hair beneath. Middle segment scaled with longer scales beneath. Distal segment scaled. Ratio of the segments: prox. 2.0, mid. 3.25, distal 1; Proboscis: fully developed.

Thorax

Vestiture: scaled; Crests: a divided pro and a meta thoracic crest; Wings: primaries with the costal margin straight, apex truncated, outer margin slightly incurved. Secondaries with Sc and R confluent at their bases; Legs: femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and coarse hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: Dorsally covered with scales and hair, ventrally scaled; Crests: mid-dorsal crest on the first abdominal segment. Lateral crests in the ♂ only; Size: body extends beyond the secondaries.

The Genus Dianthoecia According to Other Authorities.

Herrich-Schaeffer: "Abdomen pointed, ovipositor extruded in living specimens. Antennae of the ♂ crenate penciled with cilia."

Guenee: " Antennae simple with a very long hair (seta) on each segment. Palpi short, erect, the second segment hairy, shaggy, the third very short and like a nipple. Abdomen carinated, tufted at its base, terminated in an elongated cone and pointed in the ♀ with the oviduct more or less extruded etc."

Walker: " Body stout. Proboscis rather short. Palpi porrect, pilose, hardly extending beyond the head, third joint very minute, not more than one-sixth the length of the second --- Fore wings straight in front, rounded at the tips, slightly convex and moderately oblique along the exterior border. Male antennae minutely ciliated, Female abdomen elongated and attenuated."

Remarks

Dianthoecia is considered by some to be synonymous with Hadena or Mamestra, but in carpophaga its protruding frons is quite distinctive and marks it from these genera and in fact from many other genera included in this paper. Dianthoecia should be considered a valid genus which may or may not have representatives in this country.

Guenee: Dianthoecia carpophaga

Hampson: Polia carpophaga

Herrich-Schaeffer: Dianthoecia carpophaga

Ochsenheimer: Hadena carpophaga, (perplexa)

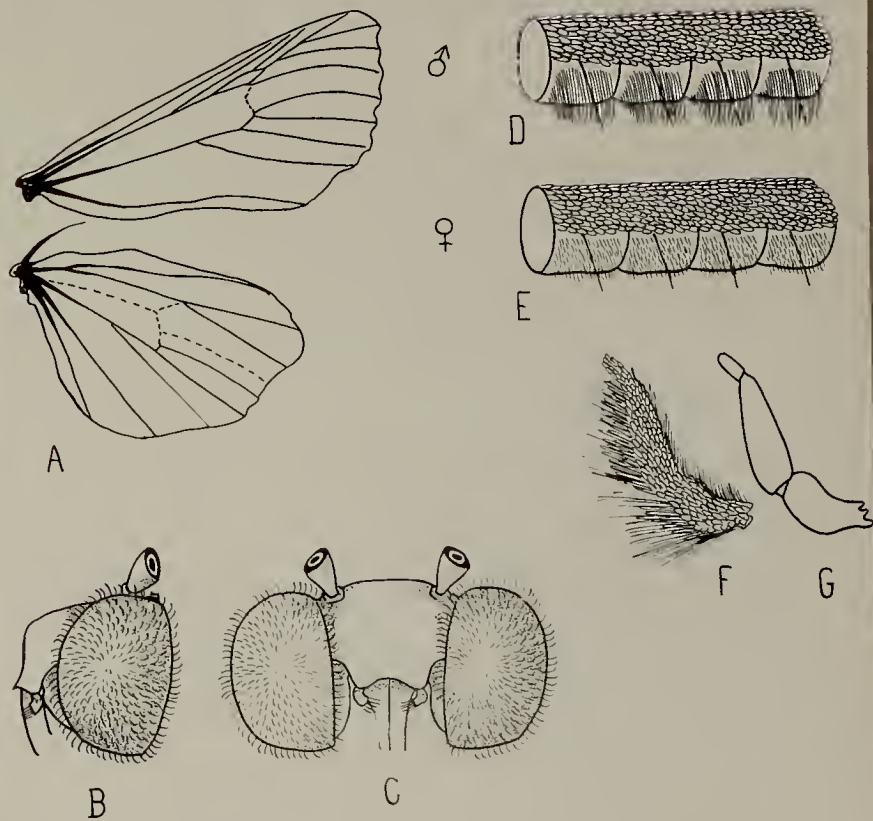
Seltz:

Staudinger: Dianthoecia carpophaga

Stephens:

Walker: Dianthoecia carpophaga.

Genus *Dianthoecia* Bois.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

G-Palpus denuded

GENUS *SIDERIDIS* Hub.

Original Description of the Genus

Hübner: Verzeichniss bekannter Schmetterlinge, p. 252, 1822.

"Die Schwingen rostbraun, schattig und wellig schwarzlichbraun bezeichnet.
Sideridis evidens Hub.
S. ferruginea Schiff. (*rubecula* Esp.)
S. xanthographa Schiff.
S. nictitans Linn. (*chrysographa* Schiff.)
S. luteago Schiff."

Selection of the Genotype

Sideridis evidens Hub: Designated by Hampson

:(Catalogue of the Lepidoptera Phalaenae, Vol. V, p. 436, 1905).

Morphology of the genotype

Head

Vestiture: coarse hair and hair-like scales; Compound Eyes:

uniformly clothed with long hair; Erga: rounded, protrudes forward and downward, ventral margin with an up-turned point; Antenna: ♂ filiform, scaled above, clothed beneath with short hair. Each segment bears a pair of lateral setae. In the ♀ the antenna is like that of the ♂, but the ventral surface is covered with fine cilia; Palpi: All segments scaled and bearing longer, coarser scales beneath. Ratio of the segments: prox. 2.5, mid. 2.5, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: coarse and fine hair; Crests: indistinct pro and meta-thoracic crests; Wings: primaries with the costal margin straight, apex truncated, outer margin strongly incurved. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of the fore-leg fringed with hair beneath, remainder of the leg scaled.

Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia clothed with long hair and long scales. Hind-leg: the same type

of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally hair and scales, ventrally scales; Crests: a mid-dorsal on the first segment, some indications of lateral crests;

Size: body extends beyond the secondaries.

The Genus Sideridis According to Other Authorities

Hampson: "Proboscis fully developed, palpi short obliquely upturned 2nd joint fringed with hair, 3rd. short. Eyes large rounded, antennae of the ♂ ciliated; head and thorax clothed with rough hair only and without distinct crests. Tibiae fringed with hair on outer side. Abdomen with dorsal crest on the basal segment and slight lateral tufts of hair towards extremity. Fore wings with apex produced and acute"

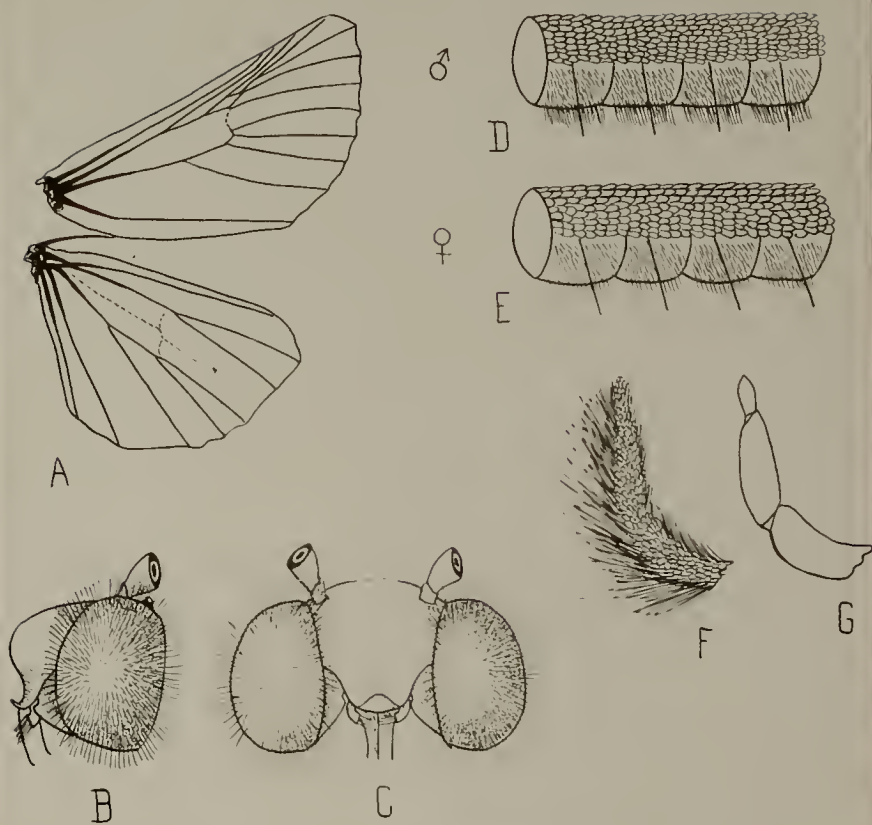
Seitz: "Differs from Hyphilare Hub. on the absence of the black lateral tufts of hair at the base of the abdomen"

Remarks

Evidens has been placed under Xanthia by Guenée, Ochsenheimer and Walker, and under Orthosia by Herrich - Schaeffer. Staudinger would include it with the other species of Leucania. Both Hampson and Seitz list it under Sideridis.

This is a true Hadenine and therefore cannot be placed under Xanthia or Orthosia. Neither can it be confused with any forms of Leucania, from which it differs in the shape of the wings, the frons and the form of the male antennae. On the other hand it stands very close to Neuria in its structural details, the chief difference consisting of the shape of the male antenna.

Genus *Sideridis*, Hub



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

G-Palpus denuded.

GENUS NEURIA Guenee

Original Description of the Genus

Guenee: Species General des Lepidopteres (Noctuidae) I, p.166, 1852.

"Antennes assez courtes, pubescent dans les ♂, subrubescens dans les ♀. Palpes subascendants, dépassant la tête, les deux premiers artic- les, larges, comprimés, velutinisés, le 3^e très courtes, tronque. Les yeux velus. Toupet frontal court, serré, subbide. Trompe moyenne. Thorax robuste, carré, velu, à pterygodes écartées, à collier relevé et muni de deux crêtes bifides. Abdomen robuste, un peu velu, rectan- gulaire et déprimé dans les ♂, caréné et terminé en pointe obtuse dans les ♀. Pattes assez longues et assez robustes. Ailes un peu oblongues, presque entières, à nervures claires, à lignes et taches très distinctes; les inférieures à bordure tranchée.

On a considéré longtemps l'espèce qui forme le type de ce genre comme très voisin des Dianthascia, à cause d'une certaine ressemblance de dessins entre elle et le Cansincola; mais le fait est qu'elle n'a pas d'autres rapports sous toute ses états. Les chenilles ne se renferment nullement dans les capsules, et les chrysalides n'ont point d'appendice ventral; enfin, les papillons présentent une affinité marquée avec ceux du genre Prodenia.

En créant ce genre j'y avais compris le Grammiptera, espèce nouvelle alors, et dont je n'avais vu qu'un seul exemplaire en mauvais état. Maintenant que je puis l'étudier sur plusieurs individus bien intacts, je pense avec M. Rambur, qu'elle est beaucoup mieux placée dans les Noctuelides. Le genre Neuria se trouve donc réduit à deux espèces dont la seconde, encore extrêmement rare, partage absolument tous les caractères de la première. Elles sont l'une et l'autre européennes

et ne different point, pour les mœurs, des autres Noctuelidae.

Nota. Il est bien entendu que mon genre Neuria, n'est pas identique avec celui que vient de donner M. Herrich-Schaeffer, et qui est le plus heterogene qu'on puisse voir.

Neuria saponariae De Geer
Neurie dentigera Ever.

Selection of the Genotype.

Neuria reticulata Vill. (saponariae, De Geer.) Genotype designated by Hampson (Catalogue of the Lepidoptera Phalaenae, Vol. V, p. 203, 1905).

Morphology of the Genotype.

In studying slides made of denuded palpi of both sexes, it was found that they did not altogether agree with the descriptions of Guenee and Walker with regards to the ratio of the segments. It is very likely that the authorities quoted did not mount these organs but examined them while they were still upon the insect. This would account for the discrepancy. In other respects saponariae agrees well with the generic conceptions of Guenee and Walker.

Head

Vestiture: coarse hair and hair-like scales; Compound Eyes: uniformly clothed with long hair; Frons: rounded, protruding forward and downward. Ventral margin with an upturned point; Antennae: ♂ filiform, scaled above, clothed with moderately long hair beneath, each segment bears a pair of lateral setae. When seen in cross-section the antenna is wedge-shaped. In the ♀ the antenna is filiform, scaled above, finely ciliated beneath, and oval in cross-section. Each segment bears a pair of lateral setae; Palpi: proximal and middle segments scaled and bearing hair beneath, distal segment

scaled. Ratio of the segments: prox. 1.3, mid. 1.8, distal 1.0;

Proboscis: Fully developed.

Thorax.

Vestiture: scales and hair-like scales; Crests: a divide pro and a meta thoracic crest; Wings: primaries with the costal margin straight, apex truncated, outer margin slightly convex. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and coarse hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally hair and some scales, ventrally mostly scales; Crests: mid-dorsal crests present in both sexes, lateral crests in the ♂; Size: body extends beyond the secondaries.

The Genus Neuria According to Other Authorities.

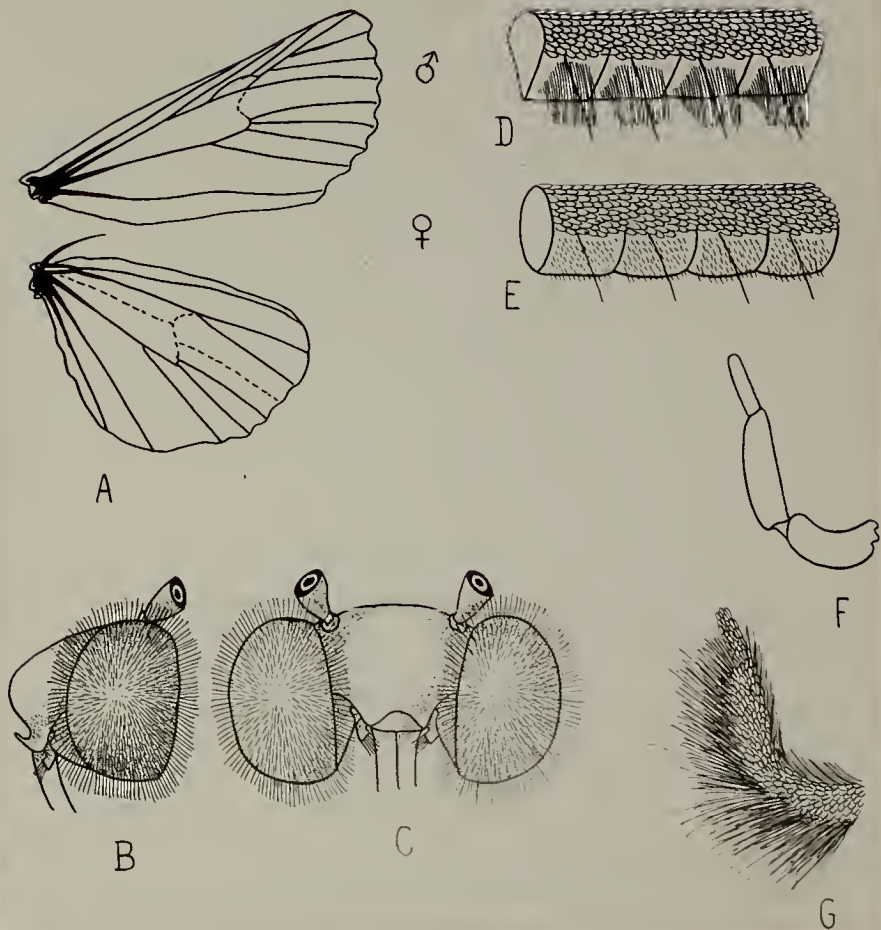
Herrich-Schaeffer: names Neuria as a subgenus of Haden

Walker: (Vol. IX, p.199, 1856) "Body stout. Proboscis moderately long, Pal-i stout, vilose, slightly ascending, third joint cylindrical not one fourth of the length of the second. Antennae much more than half the length of the body. Abdomen extending for about one third of its length beyond the hind wings. Legs stout, hind tibiae with four long spurs. Wings moderately broad. Fore wings almost straight in front, angular at the tips, slightly oblique and hardly convex along the exterior border; 1st, 2nd, and 3rd. inferior veins contiguous at the base, 4th remote. Male antennae minutely crenulated." Includes saponariae.

Remarks

This genotype has been placed under Hadena by Hampson, Ochsenheimer and Seitz, and under Mamestra by Staudinger. Herrich Schaeffer placed it under Neuria. On account of its peculiarly shaped frons it would seem better to consider reticulata the type of a distinctive genus Neuria.

Genus *Neuria*, Gn.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus denuded

G-Palpus.

GENUS XANTHOPASTES Hubner

Original Description of the Genus

Hubner: Verzeichniss bekannter Schmetterlinge, p. 211, 1822.

"Die Schwingen braunlichgrau gemengt, hell gelb gezeichnet."

Xanthopastes timais Cram.

X. xanthomista Hub.

X. flavicincta Schiff.

X. dysodea Schiff. (chrysozona, Borkh.)

X. flavivibica (polymita Schiff., serena Esp., filigramma Ochs.).

GENUS PHILOCHRYSA Grote

(Synonym of Xanthopastes; see below)

Original Description of the Genus

Grote: Proceedings of the Entomological Society of Philadelphia, Vol. II, p. 338, 1863.

"Antennae short, stout, simple, head depressed; eyes large; proboscis short, slender, palpi depressed, short not exceeding the head, well clothed with hair, terminal, joint well defined, pointed; thorax convex stout; abdomen stout, hardly exceeding the posterior wings; not crested nor tufted on the sides, anal segments moderately tufted in the male. Anterior wings straight along the costa; apex prolonged, rounded; exterior margin rounded, very oblique; median nervure throwing off 1st, 2nd, 3rd, and 4th inferior nervules; 1st., and 2nd. springing from almost the same place, costal and subcostal nervures in the posterior wing diverging from a common stem near the base of the wing."

(Note: regatrix Gr is the same species as timais Cram.)

Selection of the Genotype

Xanthopastes timais Cram.	Genotype designated by Grote in 1896.
(Abhandlungen des naturwissenschaftlichen Vereins zu Bremen, XIV, p.85, 1896).	
Philochrysa regatrix Gr	The genus is monotypical.

Morphology of the Genotype

The genotype agrees very well with Hampson's conception of the genus with the exception of the abdominal crests. In the specimens examined by the

writer there were no lateral crests and there was some indication of a mid-dorsal crest on the first abdominal segment.

Head

Vestiture: coarse hair and hair-like scales; Compound Eyes: uniformly clothed with short hair; Frons: uniformly rounded, ventral margin with a knob-like prominence; Antennae: ♂ filiform, scaled above, clothed with short hair beneath. Each segment is quite distinct. In the ♀, the antenna is filiform, scaled above, finely ciliated beneath, segments not distinct. Each segment bears a pair of lateral setae; Palpi: all segments scaled and bearing long hair beneath. Ratio of the segments: prox. 2.0, mid. 2.0, distal 1.0; Proboscis: aborted.

Thorax

Vestiture: very loose hair and hair-like scales; Crests: An indistinct crest on the meta thorax; Wings: primaries with the costal margin straight, apex rounded, outer margin almost straight. Secondaries with Sc and R touching near the base of the wing then diverging; Legs: femur of the fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: dorsally hair and scales, ventrally scales; Crests: a mid-dorsal crest on the first segment, no lateral crests; Size: body extends beyond the secondaries.

The Genus Xanthopastes According to Other Authorities

Hampson: "Proboscis aborted, minute, palpi short porrect, clothed with long hair, frons smooth, eyes large, rounded; antennae of the ♂ pubescent on under surface, head and thorax clothed with very long rough hair and scales, tibiae moderately hairy, abdomen without crests, with lateral fringes of hair. Fore wing broad with apex rounded."

Remarks

The knob-like prominence on the frons will distinguish this genus from all other genera of the Hadeninae.

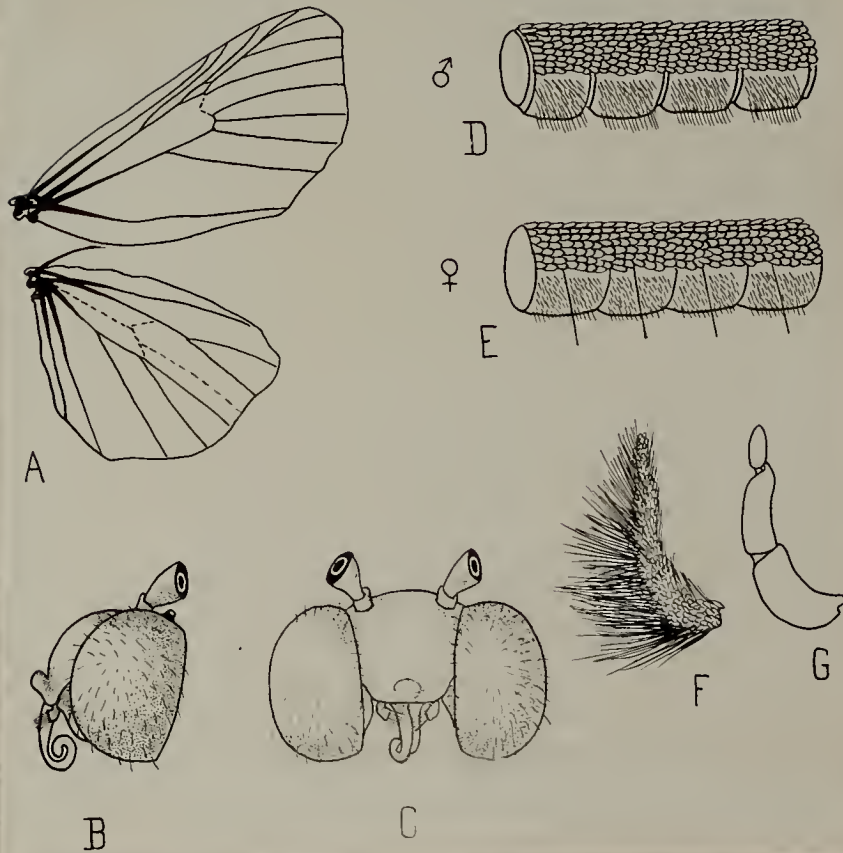
Barnes: Xanthopastes timais.

Dyar: Xanthopastes timais.

Hampson: Xanthopastes timais.

Smith, J. B.: Euthisanotia timais.

Genus *Xanthopastes*, Hub.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus

G-Palpus denuded

GENUS ICHNEUTICA Meyrick

Original Description of the Genus

Meyrick: Transactions of the New Zealand Institute, XIX, p.13, 1886.
(issued May 1887).

"Eyes hairy. Antennae in the male strongly bipectinated throughout.

"
Thorax and abdomen smooth.

Ichneutica ceraunias, n. sp.

" ----- Fore wings moderately dilated, costa almost straight, apex obtuse,
hind margin rather oblique, rounded beneath. -----

Mount Arthur, (4,700 feet) "

Selection of the Genotype

Ichneutica ceraunias, Meyr. The genus is monotypical.

Morphology of the Genotype

Head

Vestiture: hair; Compound Eyes: uniformly clothed with long hair;

Frons: rounded and full, front slightly excavated, ventral margin with an
upturned point; Antennae: ♂ bipectinate, scaled above, ventral surface

of the antenna and pectinations clothed with short hair. At the tip of
each pectination there are one or more short setae. Pectinations not of
equal length on both sides of the antenna. In the ♀ the antenna is

crenulated, scaled above, finely ciliated beneath. Each segment bears
at least one pair of long setae near its distal extremity; Palpi: proximal
and middle segments scaled and bearing very long hair beneath, distal segment
scaled. Ratio of the segments: prox. 2.0, mid. 2.75, distal 1.0 ;

Proboscis: fully developed.

Thorax

Vestiture: hair; Crests: none ? ; Wings: primaries with the costal
margin straight, apex drawn downward to a point, outer margin straight.

Secondaries with Sc and R confluent at their bases; Legs: femur of the

fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

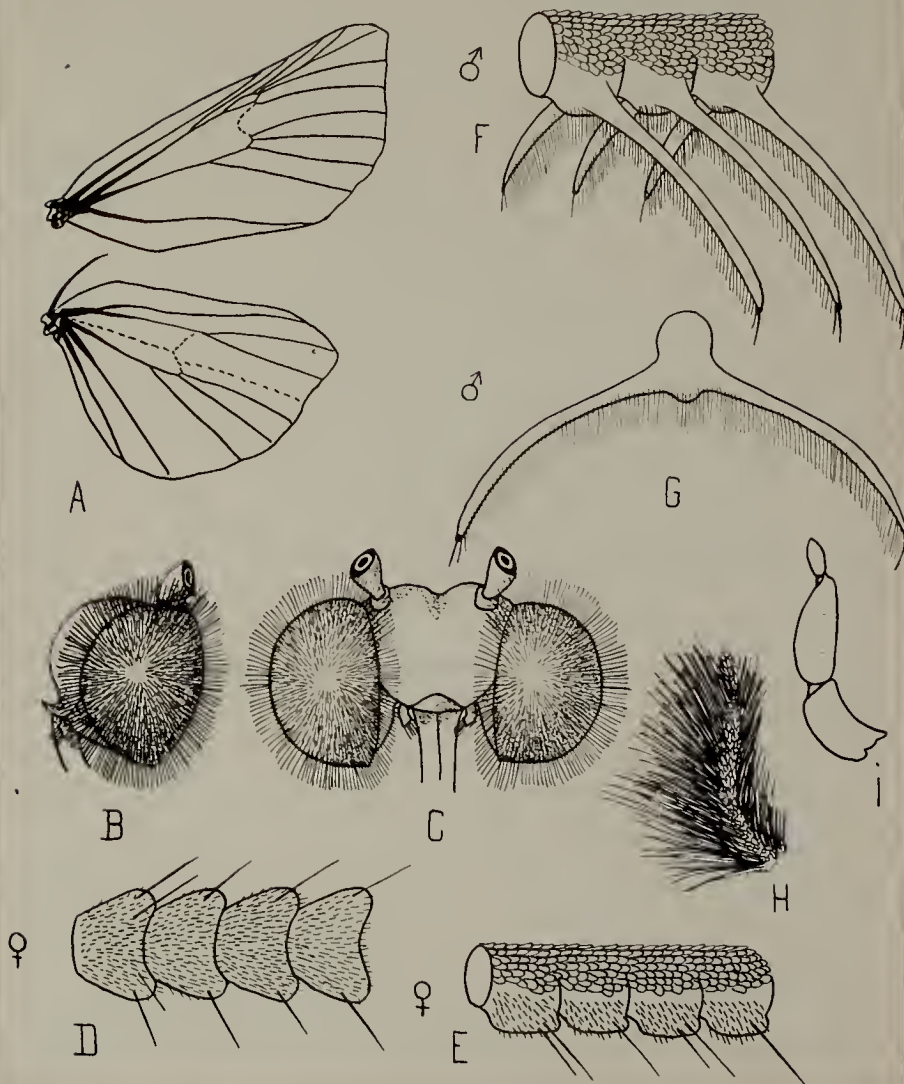
Abdomen

Vestiture: dorsally and ventrally hair; Crests: a mid-dorsal crest on the first segment, lateral crests present; Size: body extends beyond the secondaries.

Remarks

In the structure of both the male and female antennae and in the peculiar excavated frons, this genus is distinct from Leueania where it has been placed as a synonym by some authorities. The genus may have no representatives in North America.

Genus *Ichneutica*, Meyr.



- | | |
|---------------------------|----------------------------|
| A-Wings | F-Antenna of the ♂ |
| B-Head, side view | G-♂ antenna, cross section |
| C-Head, front view | H-Palpus |
| D-♀ antenna, ventral view | I-Palpus denuded |
| E-♀ antenna, lateral view | |

Original Description of the Genus

Hampson: Catalogue of the Lepidoptera Phalaenae, Vol. V, p.17, 1905.

"Proboscis fully developed; palpi upturned, the 2nd joint fringed with hair in front, the 3rd moderate, oblique; frons with truncate, conical, corneous prominence, with corneous plate below it; eyes large and rounded; antennae ciliated; head and thorax clothed with scales and hair; the pro and meta-thorax with spreading crests; tibiae fringed with rather long hair, abdomen with dorsal series of crests and lateral fringes of hair. Fore wings with veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wings with veins 3, 4 from angle of cell; 5 obsolescent from middle of discocellulars; 6, 7 from upper angle, 8 anastomosing with the cell near the base only."

"Type *C. lucina* Druce."

Mexico.

Perigea niveopicta Butl.

Chile.

Perigea terranea, Butl.

Chile

Hadena media Walk.

India

Manestra hoplites Staud.

Russia, Turkestan

Manestra yacira Smith.

Washington, Utah

Axylia bifascia Hamp.

Ceylon

Axylia albicosta Hamp.

Madras

Craterestra subterminata Hamp. n.sp. Sikkim.

Craterestra semifusca Hamp. n.sp., Uganda.

Craterestra subvelata Walk.

St. Helena.

Craterestra definitiens Walk.

Cape Colony.

Selection of the Genotype

Craterestra lucina Druce. Designated by the author in his original description of the genus.

Morphology of the Genotype

Head

Vestiture: scaled; Compound Eyes: uniformly clothed with short hair;

Frons: with a truncated, conical, corneous process; ventral margin with an

upturned corneous point; Antennae: ♂ filiform, scaled above, finely ciliated beneath, each segment bears a pair of lateral setae. When seen in cross-section, the antenna is wedge-shaped. In the ♀ the antenna is like that of the ♂ but it is oval in cross-section; Palpi: proximal middle scaled and with longer scales beneath. Ratio of the segments --- Distal segments bearing short scales only; Proboscis: fully developed.

Thorax

Vestiture: scaled; Crests: a divided pro and a meta-thoracic crest; Wings: primaries with the costal margin straight, apex drawn down to a point, outer margin incurved; Legs: femur of the fore-leg fringed with hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with long scales and hair. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

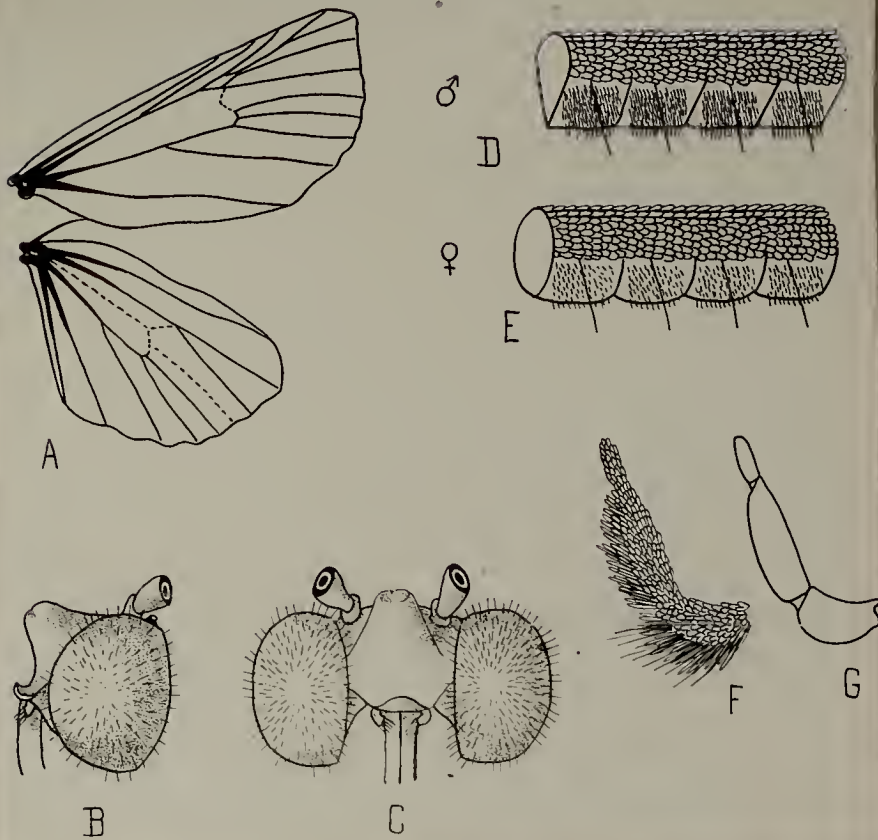
Vestiture: dorsally scales and hair, ventrally scales; Crests: mid-dorsal crests on the first, second, and third segments. No distinct lateral crests; Size: body extends beyond the secondaries.

Remarks

The genotype agrees in most respects with the generic description and can be considered typical.

The peculiar protuberance on the frons, makes this genus quite distinctive.

Genus Graterestra, Hamp



A-Wings

B-Head, side view

C- Head, front view

D- Antenna of the ♂

E- Antenna of the ♀

F- Palpus

G- Palpus denuded.

GENUS DISCESTRA Hampson

Original Description of the Genus.

Hampson: Catalogue of the Lepidoptera Phalaenae, Vol. V, p.14, 1905.

"Type *D. chartaria* Grote.

Proboscis fully developed; palpi upturned, the second joint fringed with hair in front; frons with a semilunate process-corneous prominence with raised edges; a corneous plate below the frons; eyes large, rounded; antennae of the male ciliated, head and thorax clothed chiefly with scales, the pro and metathorax with divided crests; abdomen with dorsal series of crests. Fore wings with veins 3, 5, from near angle of the cell; 6 from the upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from the cell. Hind wings with veins 3, 4 from angle of cell; 5 obsolescent from middle of discocellulars; 6, 7 from upper angle; 8 anastomosing with the cell near base only." Hampson includes the following species:

<i>Mamestra chartaria</i> Grote	Wash., Col., and Cal.
<i>Mamestra florida</i> Smith	U.S.A., Fla.
<i>Mamestra cremistis</i> Fung	Turkestan
<i>Discestra arenaria</i> Hamp. n.sp.	Sind.

Selection of the Genotype

Discestra chartaria Gr. Designated by the author in the original description of the genus.

Morphology of the Genotype

Head

Vestiture: coarse hair and scales; Compound Eye: uniformly clothed with long hair; Frons: "with a semilunate corneous prominence with raised edges" Ventral margin with an upturned corneous ridge; Antennae: ♂ filiform, scaled above, clothed with moderately long hair beneath. When seen in cross-section the antenna is wedge-shaped. In the ♀ the antenna is filiform, scaled above, finely ciliated beneath, and oval in cross-section. Each segment bears a pair of lateral setae; Palpi:

proximal and middle segments scaled and bearing coarse hair beneath, distal segment scaled. Ratio of the segments: prox. 2, mid. 2.5, distal 1; Proboscis: fully developed.

Thorax

Vestiture: scales; Crests: indications of a pro-and meta thoracic crest. The vestiture is very rough and the crests are not distinct; Wings: primaries with the costal margin straight, apex rounded, outer margin incurved. Secondaries with Sc and R confluent at their bases; Legs: femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with coarse hair and long scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

Abdomen

Vestiture: covered dorsally with hair and scales, ventral surface scaled; Crests: one mid-dorsal crest on the first abdominal segment, indistinct lateral crests; Size: short and stout and barely extends beyond the secondaries.

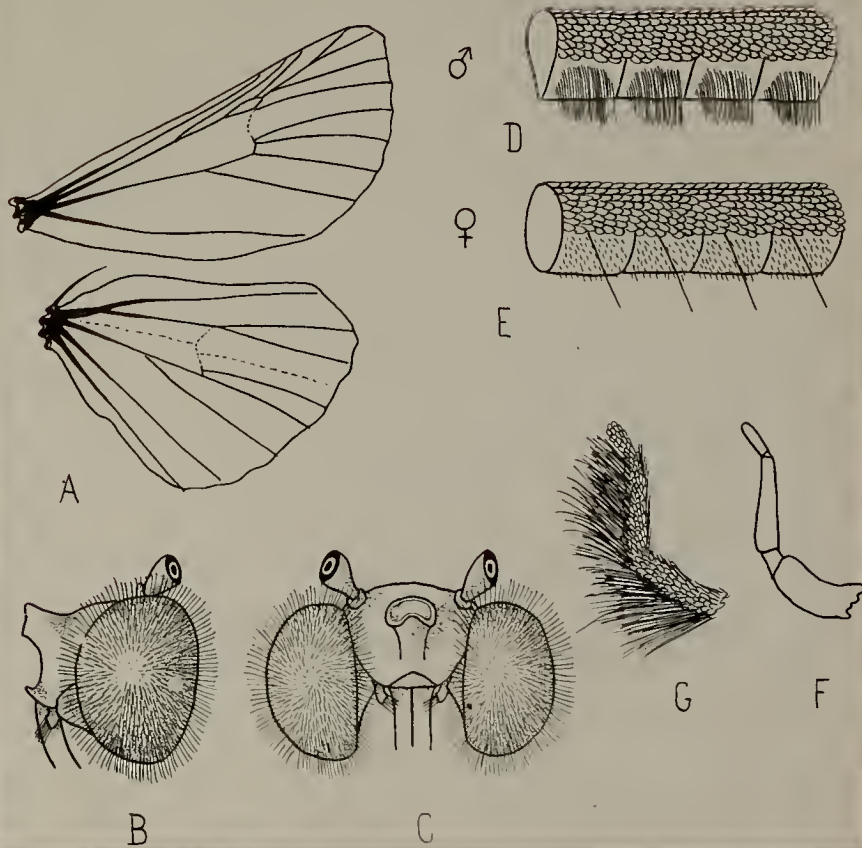
Remarks

The shape of the protuberance on the frons makes this genus quite distinctive.

Barnes: *Discestra chartaria*.

Dyar: *Mamestra chartaria*.

Genus *Discestra*, Hamp.



A-Wings

B-Head, side view

C-Head, front view

D-Antenna of the ♂

E-Antenna of the ♀

F-Palpus denuded

G-Palpus.

GENUS MIODERA Smith

Original Description of the Genus

Smith: Annals of the New York Academy of Science, XVIII, p.101, 1908.

"Eyes moderate in size, round, hairy. Front protuberant, roughened, obtuse, without processes or plates. Tongue fully developed. Palpi small, oblique, not reaching to the middle of the front. Antennae of the ♂ lengthily bipectinated, the branches decreasing in length toward the tip, the last few joints merely serrate. Thorax quadrate, heavily clothed with scaly vestiture, forming an obscure anterior and somewhat more obvious posterior tuft; patagia well marked. Vestiture of the underside dense, somewhat hairy, loose. Legs short not especially stout, though the heavy vestiture makes them appear so. Anterior tibiae and tarsi without special armature, the terminal claws, however, unusually long. Abdomen with a loose tuft at the base, otherwise dorsum untufted. Primaries short, broad, trigonate, the apices well marked.

Differs from Mamestra chiefly in the very stout body, lengthily pectinated antennae and protuberant roughened front. I cannot identify it with any of the genera of Hampson's monographic work,

Miodera stigmata, nov. sp. Habitat: Witch Creek, Cal.

Selection of the Genotype

Miodera stigmata Smith. Genus is monotypical.

Morphology of the Genotype

Head

Vestiture: deeply cleft hair-like scales; Compound Eyes: uniformly clothed with long hair; Frons: projects forward and upward in the form of an inverted heart-shaped protuberance which is roughened on its frontal surface. Ventral margin with an upturned corneous ridge; Antennae: ♂ scaled above, bipectinate the pectinations longer on one side than the other. Ventral surface of the antenna and the pectinations clothed with moderately

long hair. In the ♀ serrate when viewed from the side, ventrally each segment is heart shaped, the upper lobes bearing several prominent setae. Dorsally scaled, ventral surface covered with short hair; Palpi: proximal and middle segments bearing some scales but covered for the most part with an uneven growth of long hair. Distal segment scaled and bearing some coarse hair-like scales. Ratio of the segments: prox. 2, mid. 1.5, distal 1; Proboscis: fully developed.

Thorax

Vestiture: broad scales and some cleft hair-like scales; Crests: a prothoracic crest, the rest of the vestiture is rough and the crests, if present, are not distinct; Wings: primaries, with the costa straight, apex rounded, outer margin incurved. Secondaries with Sc and R confluent at their bases; Legs: femur of the fore-leg fringed with coarse hair beneath, remainder of the leg scaled. Middle-leg: scaled, ventral edge of the femur and dorsal margin of the tibia fringed with coarse hair, and long scales. Hind-leg: the same type of vestiture as the middle-leg. All legs typical in structure.

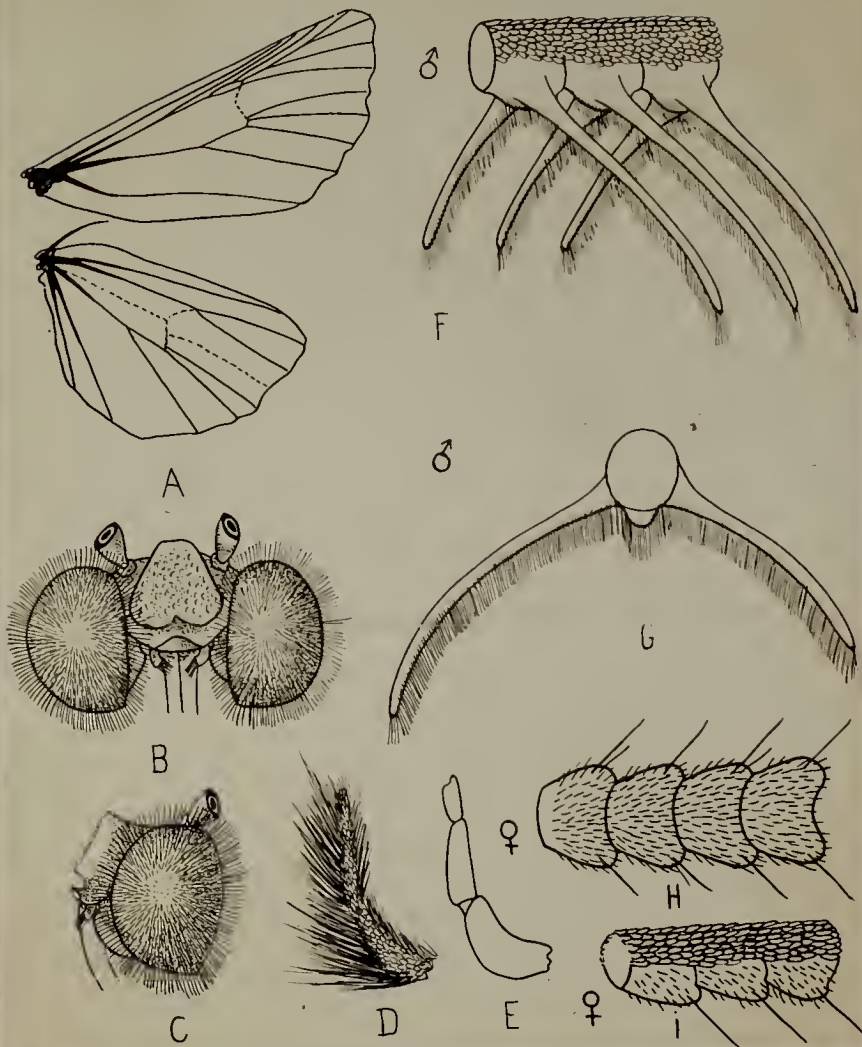
Abdomen

Vestiture: covered dorsally and ventrally with hair and scales; Crests: no indications of crests; Size: body is short and stout and hardly projects beyond the secondaries.

Remarks

The shape of the protuberance on the frons makes this genus quite distinctive.

Genus Miodera, Sm.



A-Wings

B-Head, front view

C-Head, side view

D-Palpus

E-Palpus denuded

F-Antenna of the ♂

G-♂ antenna, cross section

H-♀ antenna, ventral view

I-♀ antenna, lateral view

GENUS CEA Grote

Original Description of the Genus

Grote, ^Pallio, Vol. III, pl. 78, 1863.

"Allied in form, texture, and vestiture to Trichocosmia. Eyes naked, unlashd. Vestiture narrow-scaly. Form slight, weak, tegument pale. Antennae simple. Colors pale, a little silky. Front wide, rising to an embossed protuberance, around which the short clypeal vestiture circles; infra clypeal plate distinct. Ocelli. Labial palpi slender, rather weak, with elongate third joint. Vestiture not strongly adherent and not hairy. White, immaculate, fore wings very pale yellow. Tibiae unarmed. Legs weak, not hairy. Abdomen very little exceeding hind wings, with dorsal carina. Body untufted. Wings entire, rather broad and short, apices determinate, and outwardly the primaries are full."

Cea immaculata n. sp.

Selection of the Genotype

Cea immaculata Grote monotypical.

Morphology of the Genotype

Description of a single male specimen.

Head

Vestiture: scales; Compound Eyes: uniformly but sparsely clothed with short hair; Frons: extends forward and upward in the form of an inverted wedge which bears near its apex a smaller wedge shaped prominence. The ventral margin with an upturned corneous ridge. Antennae: ♂ Filiform, segments when viewed from beneath appear bead like, Dorsal surface scaled, ventral surface covered with long and short hairs, each segment bears a pair of lateral setae; ♀ -----; Palpi: all segments scaled the proximal and middle segments bearing long scales beneath. Ratio of the segments, prox. 1.5, mid. 2.5, distal 1.0; Proboscis: fully developed.

Thorax

Vestiture: scales; Crests: specimen too badly rubbed to determine whether or not crests were present. Wings: primaries with the costa straight, apex rounded, outer margin incurved. Secondaries with Sc and R confluent at their bases. Legs: all legs compactly scaled and normal in structure.

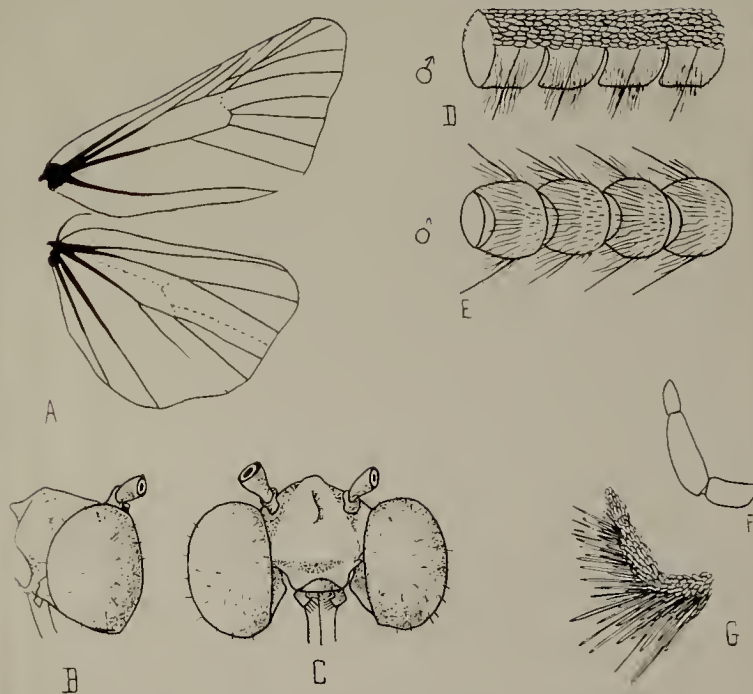
Abdomen

Vestiture: dorsally and ventrally scales; Crests: a single mid dorsal crest on the first abdominal segment, no lateral crests present. Size: body extends beyond the secondaries.

Remarks

The peculiar shape and ornamentation of the frons makes this genus quite distinctive. It should stand near Miodera.

Genus Gea Grote.



A. Wings

B-Head, side view

C-Head, front view

D- Antenna of the ♂

E-♂ antenna, ventral view

F-Palpus denuded

G-Palpus.

The Male Genitalia .

The Male Genitalia

In describing the various parts the writer has followed the nomenclature used by F. H. Fierce in his excellent article "The Genitalia of the Noctuidae". However some modifications have been made and the nomenclature of Walker and Crampton have been added.

Uncus - Epandrium or Epiproct (in part). This is a dorsal appendage of the tenth somite. It may be simple, cygnated, tongue shaped, diamond form, spatulate, or bifurcate. (mandibulate of Pierce).

Peniculus a lobed process on either side of the tegumen which bears a brush of long hair.

Scaphium - process on the upper surface of the anus.

Subscaphium process attached to the lower surface of the anus.

Harpe - Gonapophyses or Gonostyli. Two~~x~~wing-like projections one on each side below the tegumen. The most distal portion which Pierce calls the cucullus may be peaked, bifurcate, trisinate, or rounded (the latter term includes the battledore type of Pierce).

Corona - a row of incurved spines at the distal margin of the Harpes.

Marginal Spines - long slender spines on the distal margin of the Harpes.

Protuberances - Under this heading the writer describes the "Clasper" and "Ampulla" of Pierce and any other similar organs that are to be found arising from the Harpes.

Editum - a finely spined prominence arising usually near

the ampulla. This can not be shown in all the figures although it may be present.

Clavus - A prominence arising from the base of the Harpes. It may be brush form, rounded, produced or scobinated.

Aedoeagus - the penis sheath which may be ornamented anywhere along its length or at the orifice.

Vesica an eversible sac sometimes provided with spines or cornuti or other ornamentation. Not always easy to see for it may be turned back into the aedoeagus.

Juxta - (Pseudosternite ?) Beneath the anal aperture a sheath through which the aedoeagus passes. Sometimes this sheath is heavily chitinized.

vinculum-Ninth sternite. A ventral chitinous band or ring.

For a more complete description and discussion of these parts the reader is referred to the following articles:

Eyer, J. R. - "The Male Genitalia of Lepidoptera". Ann. of Ent. Soc. Amer. Vol. XVII, pages 275-342, 1924.

Eyer, J. R. - "Morphological Significance of the Juxta in Male Lepidoptera", Bull. Brook, Ent. Soc. Vol. XXI, pp. 32-37, 1926.

Pierce, F. N. - "The Genitalia of the Noctuidae", 1909.

Note: In some of the following descriptions certain organs or structures are not described, a blank space being left where such descriptions could be inserted. These blanks indicate that the organ was not present (broken off) or so poorly preserved that it was impossible to describe it.

Copimamestra brassicae L.

Uncus: tongue shaped; Peniculus: present; Scaphium: slight indication of; Subscaphium: slight indication of; Harpe: trigonate; Marginal Spine: absent; Corona: present; Protuberances: a flap attached to the skin; Editum: present; Clavus: slightly produced; Aedoeagus: orifice with hook on one side; Vesica: Probably bearing two small cornuti.

Trichoclea decepta Gr.

Uncus: simple; Peniculus: present; Scaphium: absent; Harpe: rounded spinose; Marginal Spine: none; Corona: none; Protuberances: chitinous strap rounded at the tip also chitinous ridge hardly free and with a waved edge (two views shown in the figure); Editum: absent; Clavus: produced, more so on the right side, both bear bristles on the rounded portion; Aedoeagus: scobinated on one side; Vesica: without ornamentation.

Ommatostola lintneri Gr.

Uncus: simple; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: tends to be trigonate; Marginal Spine: present; Corona: present; Protuberances: a very small poorly chitinized rod also a stiff curved strap; Editum: present; Clavus: rounded; Aedoeagus: orifice scobinate on one side; Vesica: not ornamented.

Buchholzia colorada Sm.

Uncus: tongue shaped; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: flattened very irregular along its edge. Pollex present; Marginal Spines: a few; Corona: partial; Protuberances: a weak rod and a thick

chitinized rod; Editum: present; Clavus: produced and bearing a curved strap like organ; Aedoeagus: orifice provided with a hook laterally; Vesica: probably with a band of teeth.

Lophoceramica artega Barnes

Uncus: tongue shaped; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: peaked not spinose; Marginal Spines: a few present; Corona: absent; Protuberances: a slender bent rod also a short process ending in a spine; Editum: present; Clavus: rounded; Aedoeagus: not ornamented; Vesica: not ornamented.

Tricholita semiaperta Morr.

Uncus: tongue shaped; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: peaked and spinose; Marginal Spines: a single one; Corona: absent; Protuberances: curved strap and a smaller strap; Editum: present; Clavus: rounded; Aedoeagus: without ornamentation; Vesica: with a single cornutus.

Trichopclia dentatella Gr.

Uncus: simple; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: rounded, spinose; Marginal Spines: none; Corona: none; Protuberances: an inwardly curved chitinous bar and a small flat organ produced to a point; Editum: present; Clavus: rounded; Aedoeagus: orifice hooked on one side scobinated on the other; Vesica: with a cornutus.

Epia echii Bork.

Uncus: cygnated; Peniculus: absent; Scaphium: absent; Subscaphium: slight indications; Harpe: trigonate spinose;

Marginal Spine: absent; Corona: present; Protuberances: a flat lobe rounded at tip and an irregular hook shaped organ; Editum: present; Clavus: rounded; Aedoeagus: without ornamentation; Vesica: with cornutus; Juxta: present.

Admetovis oxymorus Gr.

Uncus: diamond shape; Peniculus: present; Scaphium: absent; Subscaphium: indication of; Harpe: rounded; Marginal Spines: present; Corona: present; Protuberances: a chitinous organ rounded at the end; Editum: absent; Clavus: produced with short bristly hairs on the protuberance. Sacculus elongated into a chitinous ridge; Aedoeagus: bearing a cornutus at the base and a slight hook at the orifice; Vesica: with cornutus.

Mamestra persicariae Linn.

Uncus: tongue shaped; Peniculus: absent; Scaphium: absent; Subscaphium: large diamond shape; Harpe: trigonate spinose; Marginal Spine: absent; Corona: absent; Protuberances: a flap attached to the Harpe; Editum: present; Clavus: produced scobinated; Aedoeagus: orifice with two small lateral spines; Vesica: with cornutus.

Hyssia cavernosa Eversm.

Uncus: simple; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: trigonate and spinose; Marginal Spines: few present; Corona: present; Protuberances: an irregular chitinous ridge ending in a protruding disc; Editum: present; Clavus: rounded; Aedoeagus: with orifice provided with a ventral and lateral hook; Vesica: not ornamented ?

Nyphilare albipuncta Schiff.

Uncus: simple; Peniculus: present; Scaphium: absent;
Subscaphium: absent; Harpe: rounded, spinose; Marginal
Spines: present; Corona: absent; Protuberances: a distorted
"Y" shaped organ, one arm of the "Y" broad the other narrow.
Also a curved spine; Editum: absent ? ; Clavus: produced;
Aedoeagus: without ornamentation; Vesica: without ornament-
ation.

Ceramica picta Harris

Uncus: knobbed; Peniculus: present; Scaphium: absent;
Subscaphium: absent; Harpe: peaked, spinose. The dorsal
border with two thumb like projections; Marginal Spines:
absent; Corona: absent; Protuberances: a mere thickening
of the wall of the sacculus; Editum: present; Clavus:
rounded; Aedoeagus: with the orifice provided with lateral
hooks; Vesica: not ornamented.

Anarta myrtilli Linn.

Uncus: cygnated; Peniculus: present; Scaphium: absent;
Subscaphium: absent; Harpe: asymmetrical, rounded; Marginal
Spines: ; Corona: ; Protuberances: left
clasper a rough tapered arm, right clasper much larger
produced into a peaked flattened plate; Editum: ;
Clavus: rounded; Aedoeagus: ; Vesica: with a large
bulbed cornutus.

Ulolonche niveiguttata Gr.

Uncus: simple; Peniculus: absent ? ; Scaphium: absent;
Subscaphium: absent; Harpe: peaked spinose; Marginal Spines:
absent; Corona: absent; Protuberances: a mere membranous
fold; and a long curved bar; Editum: present; Clavus: round-

ed; Aedoeagus: without ornamentation; Vesica: with rows of teeth.

Zosteropoda hirtipes Gr.

Uncus: bifurcate; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: rounded, spinose; Marginal Spines: present; Corona: absent; Protuberance: a curved strap; Editum: present; Clavus: produced and bearing a few bristly hairs; Aedoeagus: without ornamentation; Vesica: bearing several small spines, one bulbed cornutus and a small cornutus without a bulb.

Hadena cucubali Schiff.

Uncus: simple; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: rounded, spinose; Marginal Spines: absent ? ; Corona: absent; Protuberances: a fold and a papilla from the base of the cucullus; Editum: ; Clavus: strongly scobinated; Aedoeagus: with serrations at the orifice, and extending along the vesica; Vesica: .

Aethria serena Schiff.

Uncus: tongue shaped; Peniculus: present; Scaphium: absent; Subscaphium: indications of; Harpe: rounded; Marginal Spines: few ; present; Corona: present; Protuberances: a broad and flattened strap rounded at its tip. Also a chitinous ridge; Editum: present; Clavus: strongly produced; Aedoeagus: orifice with a lateral hook; Vesica: without bulbed cornutus.

Astrapetis dentina Schiff.

Uncus: tongue shaped; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: rounded, spinose;

Marginal Spines: few present; Corona: present; Protuberances: a chitinous ridge above which there is a flat strap ending in a round curved head; Editum: present; Clavus: rounded; Aedoeagus: orifice provided with a long lateral hook; Vesica: provided with a cluster of spines.

Diataraxia splendens Hüb.

Uncus: simple and covered with spines; Peniculus: present; Scaphium: absent; Subscaphium: consists of two or more chitinous bands; Harpe: rounded; Marginal Spines: absent; Corona: present; Protuberances: a chitinous thickening with a slender spine also a bipartate organ, one part a rounded lobe, the other a short pointed rod; Editum: present; Clavus: slightly produced and bearing a few bristles; Aedoeagus: orifice without ornamentation; Vesica: with two lobes, one bears a large bulbed cornutus, the other a small bulbed cornutus.

Eupsephopaectes procinctus Gr.

Uncus: diamond shape; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: trigonate; Marginal Spines: absent; Corona: present; Protuberances: a very slender much curved rod bearing a few bristles at its tip. There is also a sharp stout hook; Editum: ; Clavus: scobinated; Aedoeagus: without ornamentation; Vesica: without ornamentation.

Crocigrapha normani Gr.

Uncus: simple; Peniculus: present; Scaphium: absent; Subscaphium: indications of; Harpe: rounded, spinose; Marginal Spines: present; Corona: present; Protuberances: a flat "Y" shaped organ, one arm of the "Y" bearing bristly

hairs, also a curved rod terminating in a point; Editum: poorly developed; Clavus: produced; Aedoeagus: with the orifice scobinated on one side; Vesica: with bulbed cornutus.

Aplecta nebulosa. Hufn.

Uncus: simple; Peniculus: indications of; Scaphium: absent; Subscaphium: absent; Harpe: trigonate, spinose. The anal angle produced, bearing a spine; Marginal Spines: present; Corona: present; Protuberances: The sacculus provided with a terminal prominence which is spinose. The inner edge of the sacculus is very irregular, more so on the right side. On the right side there is also a curved hook hidden in the figure by the large spines. On the left another more irregular hook and a small strap like projection slightly knobbed at its end; Editum: present ? ; Clavus: very irregular; Aedoeagus: without ornamentation; Vesica: without ornamentation.

Pseudorthodes vecors Gn.

Uncus: simple; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: rounded not spinose; Marginal Spines: absent; Corona: absent; Protuberances: a large incurved strap; Editum: absent; Clavus: rounded; Aedoeagus: without ornamentation; Vesica: with a cornutus.

Meliana flammea Curt.

Uncus: simple; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: rounded; Marginal Spines: present; Corona: absent; Protuberances: A tripartate organ, the inner lobe club shaped provided with a few spines, the middle a simple rod, the outer broad and flat; Editum: present

and prominent; Clavus: irregular; Aedoeagus: without ornamentation; Vesica: provided with a bunch of teeth and a row of small spines.

Heliophila pallens Linn.

Uncus: crenated; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: rounded spinose; Marginal Spines: present; Corona: absent; Protuberances: a stout curved strap and a slender rod; Editum: present; Clavus: slightly rounded; Aedoeagus: without ornamentation; Vesica: with a band of teeth.

Morrisonia evicta Gr.

Uncus: simple; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: almost trigonate; Marginal Spines: present; Corona: present; Protuberances: a very slender chitinous rod and a large curved strap; Editum: absent; Clavus: rounded; Aedoeagus: without ornamentation; Vesica: without ornamentation.

Xylomyges conspicillaris M. V.

Uncus: slightly crenated; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: truncated not spinose; Marginal Spines: present; Corona: absent; Protuberances: an irregular chitinous ridge ending in a small rod also a prominent curved hook; Editum: slight indications of; Clavus: produced; Aedoeagus: without ornamentation; Vesica: with a row of teeth and an irregular hook.

Himella fidelis Gr.

Uncus: simple; Peniculus: absent; Scaphium: absent; Subscaphium: absent; Harpe: truncated with the edges bordered.

some spines; Marginal Spines: absent; Corona: absent; Protuberances: a small chitinous projection bearing a short papilla provided with spines and a small pointed projection, also a very long chitinous rod ending in a small spine; Editum: absent; Clavus: rounded; Aedoeagus: not ornamented; Vesica: not ornamented.

Alysis specifica Gn.

Uncus: simple; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: rounded, spinose; Marginal Spines: absent; Corona: present; Protuberances: two flat straps turned out at their tips; Editum: absent; Clavus: rounded ? ; Aedoeagus: ; Vesica: .

Hyperepia pi B. & L.

Uncus: cygnated; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: rounded spinose; Marginal Spines: absent; Corona: absent; Protuberances: a somewhat hook shaped spine and a smaller curved chitinous protuberance; Editum: present; Clavus: rounded; Aedoeagus: furnished with one stout spine, and two clusters of smaller spines, one cluster lies dorsad, the other laterad and on the side opposite the stout spine; Vesica: no ornamentation.

Nephelodes minians Gn.

Uncus: spoon shaped; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: rounded with a pollex that bears two small spines at its tip. Spinose; Marginal Spines: present; Corona: absent; Protuberances: a flat curved strap longer on the right side and a flat strap rounded at its tip; Editum: present; Clavus: scobinated; Aedoeagus: without ornamentation; Vesica: without ornamentation.

Monostola asiatica Alph.

Uncus: broad with tip truncated; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: rounded hardly spinose; Marginal Spines: absent; Corona: present; Protuberances: an incurved organ, roughened at its tip; Editum: present; Clavus: scobinated; Aedoeagus: without ornamentation; Vesica: without ornamentation.

Charaess cespitis W. V.

Uncus: tongue shaped; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: more or less truncated spinose; Marginal Spines: absent; Corona: absent; Protuberance: a flattened organ with its free edge curved; Editum: present; Clavus: rounded; Aedoeagus: without ornamentation; Vesica: with large cornutus and a roughened area.

Haderonia subarsehanica Staud.

Uncus: cygnated; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: trigonate, spinose and with anal spine; Marginal Spines: present; Corona: present; Protuberances: a weak chitinous bar and a small tubercle; Editum: absent; Clavus: rounded; Aedoeagus: without ornamentation; Vesica: without ornamentation.

Epineuronia popularis Fab.

Uncus: spatulate; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: peaked, hairy, with pollex; Marginal Spines: present; Corona: absent; Protuberances: a flattened curved lobe which appears to be pointed when viewed from the side; Editum: present; Clavus: rounded;

Aedoeagus: a band of teeth near the orifice; Vesica: roughened.

Acerra normalis Gr.

Uncus: broad diamond tip; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: peaked; Marginal spines: a few; Corona: absent; Protuberances: a small scobinated tubercle and a rough bar bent at an angle; Editum: absent; Clavus: rounded; Aedoeagus: orifice provided with two scobinated ridges; Vesica: not ornamented.

Stretchia plusiaeformis H. Edw.

Uncus: simple; Peniculus: present ? ; Scaphium: absent; Subscaphium: absent; Harpe: rounded, spinose; Marginal spines: absent; Corona: absent; Protuberances: a chitinous thickening and a slender curved bar; Editum: present; Clavus: rounded; Aedoeagus: not ornamented; Vesica: scobinated and with a cornutus.

Perigrapha I-cinctum S. V.

Uncus: broad diamond tip; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: trigonate, spinose. the anal tip produced to form a small protuberance which bears a tuft of marginal spines; Marginal spines: present; Corona: absent; Protuberances: a very small projection bearing a few stiff bristles, and a curved strap which may or may not be roughened along one edge; Editum: present; Clavus: rounded; Aedoeagus: without ornamentation; Vesica: without ornamentation.

Xylocania hiemalis Gr.

Uncus: a knobbed tongue; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: peaked; Marginal Spines: a few present; corona: indication of; Protuberances: a very small chitinous spine also another curved spine; Editum: present; Clavus: rounded; Aedoeagus: not ornamented; Vesica: a scobinated ridge and small spines.

Engelhardtia ursina Smith

Uncus: cymbated; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: broad flattened at its apex with indications of a pollex, not spinose; Marginal Spines: absent; Corona: absent; Protuberances: a chitinous hook hardly free, and a curved spine; Editum: present; Clavus: rounded; Aedoeagus: not ornamented; Vesica: with a cornutus.

Lasiestra phoca Mosch.

Uncus: tongue shaped; Peniculus: ; Scaphium: absent; Subscaphium: absent; Harpe: rounded; Marginal Spines: a few; Corona: present; Protuberances: a curved claw turned inward and a shorter curved bar turned outward; Editum: absent; Clavus: rounded, almost produced; Aedoeagus: without ornamentation; Vesica: with two small cornuti.

Eurypsyche similis Butler

Uncus: tongue shaped; Peniculus: present ? ; Scaphium: absent; Subscaphium: absent; Harpe: rounded, spinose, slightly pointed; Marginal Spines: absent ? ; Corona: absent; Protuberances: Three curved processes; Editum: ; Clavus: rounded; Aedoeagus: without ornamentation ? ;

Vesica: provided with a row of very large spines.

Cardepia irrisor Ersch.

Uncus: spatulate; Peniculus: present; Scaphium: absent;
Subscaphium: absent; Harpe: rounded, spinose; Marginal
Spines: absent ? ; Corona: present; Protuberances: a
broad chitinous organ somewhat pointed at its tip; Editum:
; Clavus: concave on one side, irregular on the other;
Aedoeagus: ; Vesica: .

Barathra albicolon Ochs.

Uncus: simple; Peniculus: present; Scaphium: absent;
Subscaphium: absent; Harpe: trigonate, spinose; Marginal:
Spines: present; Corona: present; Protuberances: a flat
slightly curved scobinated strap above which is a more
slender curved organ; Editum: present; Clavus: produced;
Aedoeagus: orifice with a hook on one side and a band of
teeth; Vesica: provided with a band of teeth ? .

Dianthoecia carpophaga Treit.

Uncus: simple; Peniculus: absent; Scaphium: absent;
Subscaphium: absent; Harpe: small rounded, spinose;
Marginal Spines: absent; Corona: absent; Protuberances:
a small flat lobe with rounded tip, and a chitinous fold;
Editum: present; Clavus: rounded; Aedoeagus: provided
with two scobinated lobes, one on each side; Vesica:
provided with a small bulted cornutus.

Sideridis evidens Hüb.

Uncus: simple; Peniculus: present; Scaphium: absent;
Subscaphium: absent; Harpe: rounded, spinose; Marginal
Spines: a few present; Corona: present; Protuberances:

a curved strap slightly rough at its tip; Editum: present; Clavus: produced; Aedoeagus: without ornamentation; Vesica: without ornamentation.

Neuria reticulata Vill.

Uncus: tongue shaped; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: trigonate, spinose; Marginal Spines: present; corona: present; Protuberances: a chitinous flap, a ridge, and a small curved bar; Editum: present; Clavus: scobinated; Aedoeagus: orifice provided with a hook; Vesica: with a band of small teeth.

Xanthopastes timais Cram.

Uncus: large, bilobed, spinose; Peniculus: ; Scaphium: absent; Subscaphium: absent; Harpe: truncated, spinose; Marginal Spines: absent; corona: present; Protuberances: on one harpe a flat, rounded, spinose projection; Editum: ; Clavus: rounded, very spinose; Aedoeagus: without ornamentation ? ; Vesica: a cornutus and many small spines.

Ichneutica ceraunias Meyr.

Uncus: tongue shaped; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: rounded spinose; Marginal Spines: absent; corona: present; Protuberances: a flat chitinous organ drawn to a point and bearing transverse ridges; Editum: absent; Clavus: rounded; Aedoeagus: not ornamented; Vesica: not ornamented.

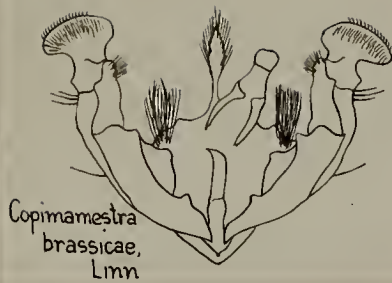
Miodera stigmata Sm.

Uncus: slender diamond tip; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: rounded not

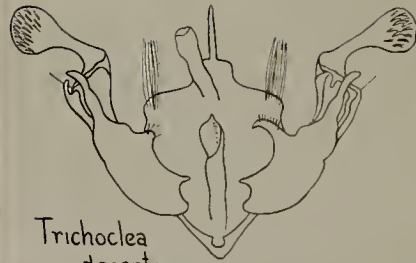
spinose; marginal spines: absent; corona: present; protuberances: a broad flat hook and a chitinous thickening hardly free at its tip; Editum: present; clavus: rounded; Aedoeagus: orifice with a single cornutus; Vesica: with a large cornutus ? .

Cea immaculata Gr.

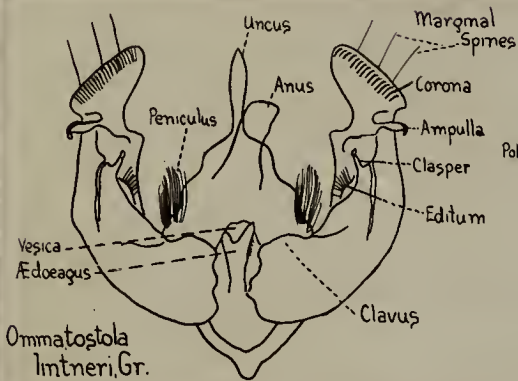
Uncus: tongue shaped; Peniculus: present; Scaphium: absent; Subscaphium: absent; Harpe: rounded, spinose; Marginal spines: few present; corona: absent; Protuberances: a strong bent chitinous strap; Editum: present; clavus: rounded; Aedoeagus: the base provided with a long hook; Vesica: not ornamented.



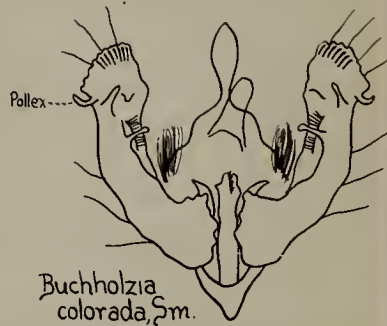
*Copimamestra
brassicae*,
Linn



*Trichoclea
decepta*,
Gr



*Ommatostola
linterni*, Gr.



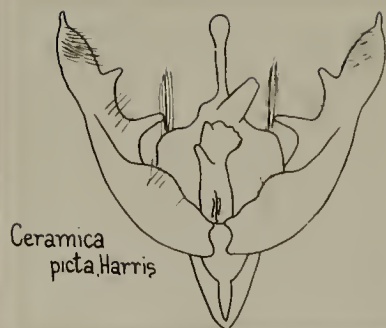
*Buchholzia
colorada*, Sm.



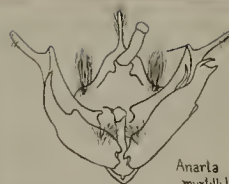
*Lophoceramica
artega*
Barnes



*Tricholita
semiaperta*,
Morr.



*Ceramica
picta*, Harris



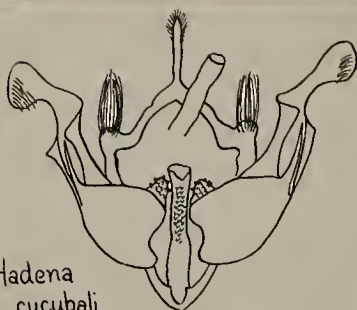
*Anarta
myrtili*, Linn



*Ulolonche
niveiguttata*,
Gr.



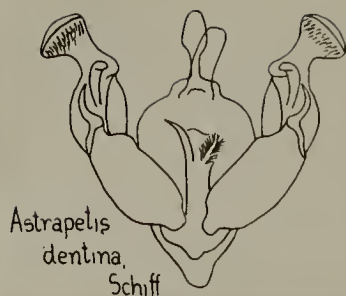
*Zosteropoda
hirtipes*, Gr



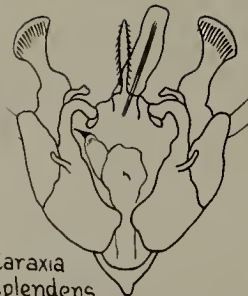
*Hadenä
cucubali*,
Schiff



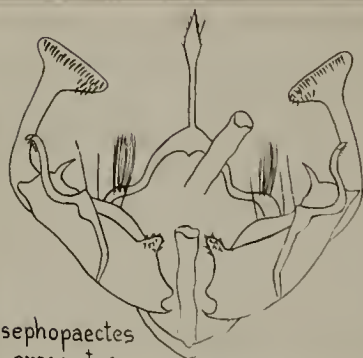
*Aethria
serena*,
Schiff



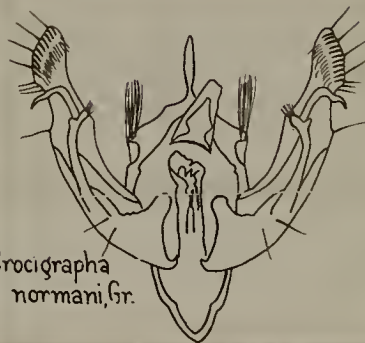
Astrapelis
dentina,
Schiff



Diataraxia
splendens,
Hub.



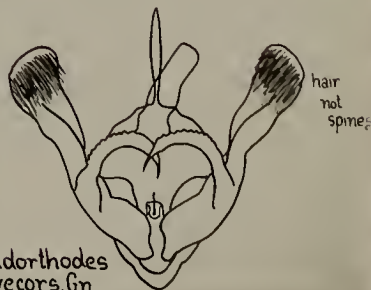
Eupsephopaectes
procinctus, Gr



Crociographa
normani, Gr.



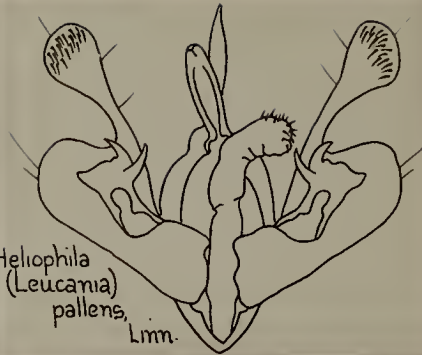
Aplecta
nebulosa, Huf.



Pseudorthodes
vecors, Gn



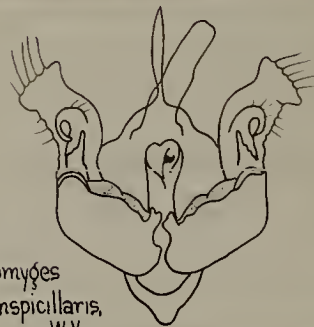
*Meliana
flammea,*
Curt.



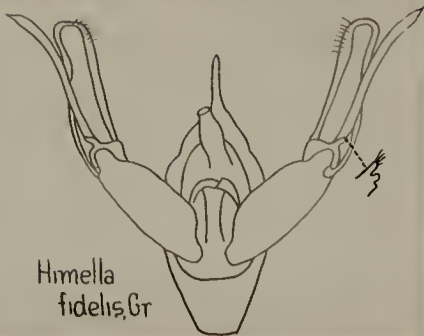
*Heliophila
(Leucania)
pallens,*
Linn.



*Morrisonia
evicta,* Gr



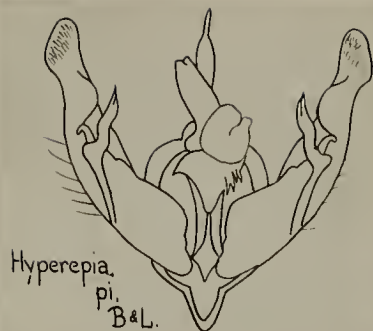
*Xylomyges
conspicillaris,*
W.V.



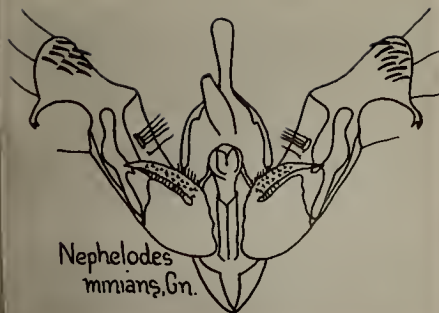
*Himella
fidelis,* Gr



Alysia specifica, Gn



Hyperepia.
pi.
B&L.



Nephelodes
mmians, Gn.



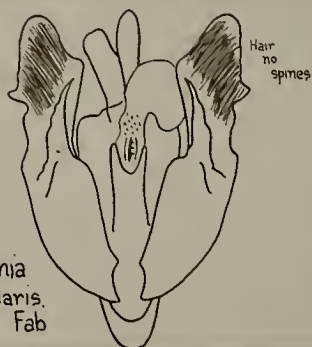
Morioslola
asiatica, Alp.



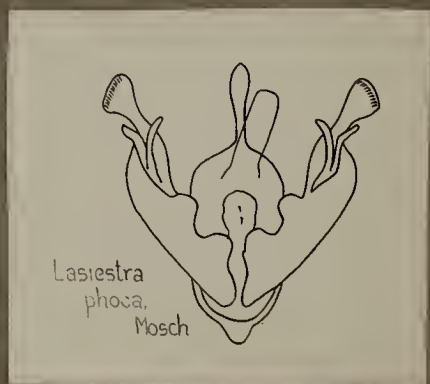
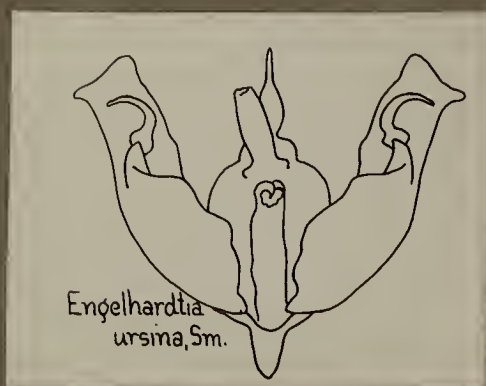
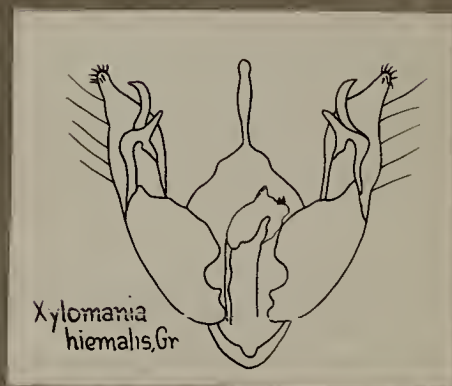
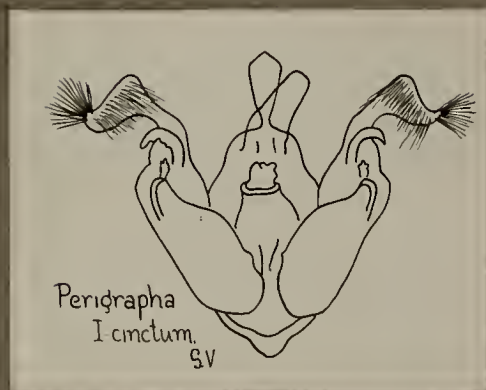
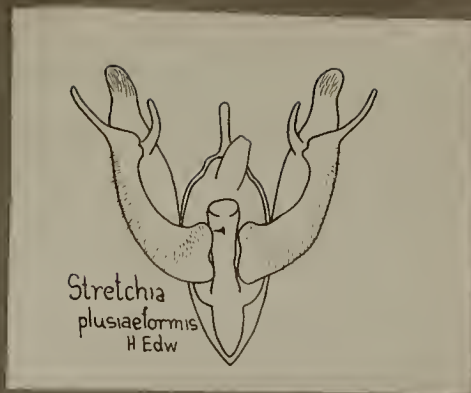
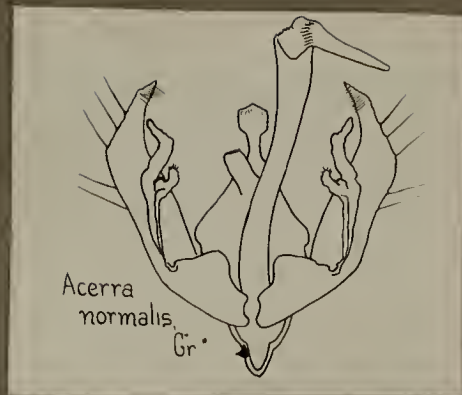
Charaeas
cespitis
W.V.

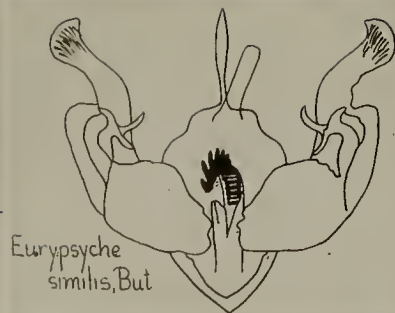


Haderonia
subarschanica,
Staud

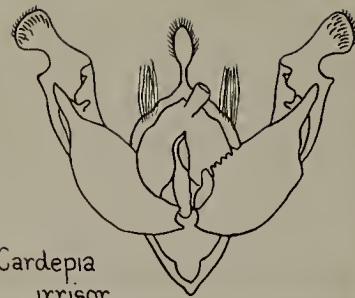


Neuronia
popularis.
Fab

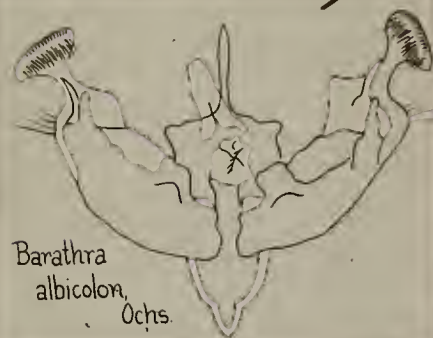




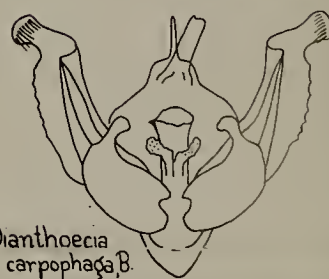
Eurypsycha
similis, But.



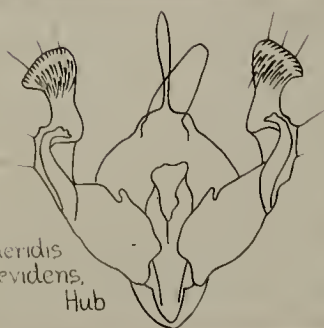
Cardepra
irrison, Ersch.



Barathra
albicolon,
Ochs.



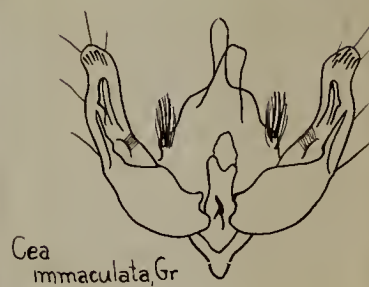
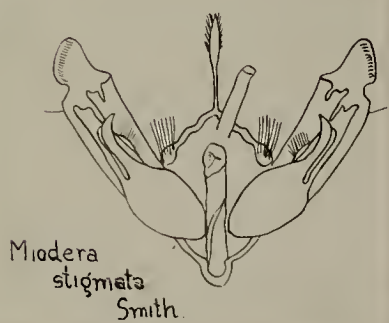
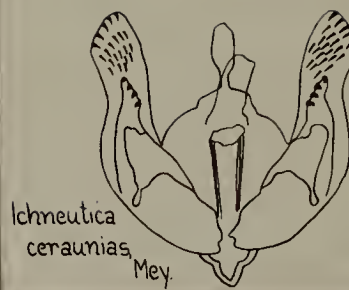
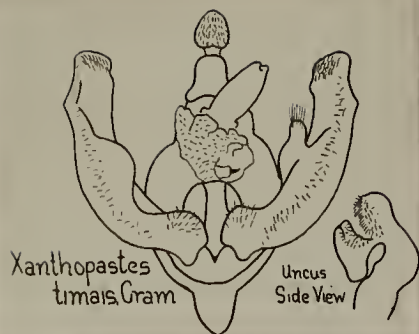
Dianthoecia
carpophaga, B.



Sideridis
evidens,
Hub.



Neuria
reticulata,
Vill.



Summary

It will be noted that very many characteristics have been mentioned by the authors in their generic descriptions. The range runs from coloration and marking to the minutest structural details. Some writers will select certain characters as a basis for their genera. Others give no clue as to the structures they consider of generic value. While it is true that a genus is a definite combination of characters exhibited by one or more species, it is also true that certain of these characters have more weight than others in generic classification. In this article the modifications of the following parts have been considered of generic value and the status of each genus has been determined on the basis of these characteristics

- (a) Compound eyes - distribution of hair
- (b) Frons - form and ornamentation
- (c) Male antennae - structure
- (d) Female antennae - structure
- (e) Proboscis - development of
- (f) Costal margin of the primaries - form of
- (g) Apex of the primaries - form of
- (h) Outer margin of the primaries - form of
- (i) Vestiture of the legs - questionable value
- (j) Structure of the legs - unusual spurs or spines

It may seem that the preceeding list is an arbitrary selection but, having examined over sixty genotypes, these characters appear to have a real generic value. To other writers who would stress vestiture and tuftings a somewhat

different relationship of the genera would be established.

In the male genitalia there are undoubtedly characteristics of generic value but this part of the insect varies so much according to species that it would be impossible to determine by an examination of the genitalia of the genotype alone just what structures would remain constant for all species within the genus. The figures of the genitalia and their descriptions have been added for two reasons. First to aid in specific determinations; second to help others who wish to make a comparative study of the male genitalia of the Hadeninae.

It is to be hoped that the generic standards established in this article will facilitate the placing of species, other than genotypes, in their proper genera. The article was written with this end in view.

The following is the writer's classification based upon the characteristics which he considers of generic value.

Genera represented in North America, their genotypes being North American species:

Nelcucania

Trichoclea

Ommatostola

Bachholzia

Parameana

Ursogastra

Lophoceramica

Tricholita (not a synonym of Chabuata)

Trichopolia

Perigonica

Admetovis

Ulolonche (not a synonym of Hyssia)

Zosteropoda

Pseudorthodes (not a synonym of Eriopyga)

Heliophila (syn.- Leucania)

Morrisonia

Himella (not a synonym of Eriopyga)

Hyperepia

Nephelodes

Acerra (not a synonym of Perigrapha)

Stretchia

Xylomania

Engelhardtia

Lasiestra

Trichocosmia

Xanthopastes

Craterestra (Texas ?)

Discestra

Miodera

Cea.

The genotypes of the following genera are exotic species but their genera are very likely represented in North America:

Copimamestra (not a synonym of Barathra)

Manestra (syn.- Meterana, Hyssia, Hyphilare, Ceramica)

Anarta

Hadena (syn.- Aethria, Astrapetis, Diataraxia, Dargida, Eupsephopaectes,

Crocigrapha, Aplecta)

Meliana (not a synonym of Meleucania)

Barathra (syn. - Scotogramma)

Neuria.

The genotypes of the following genera are exotic species and their genera are very likely not represented in North America:

Pastona (not a synonym of Mamestra)

Hypotrix (not a synonym of Eriopyga)

Epia

Chabuata

Aletia (a synonym of Mamestra ?)

Eriopyga

Naesia (not a synonym of Eriopyga)

Borolia

Xylomyges

Alysia (not a synonym of Hyssia)

Monostola (not a synonym of Nephelodes)

Characas (syn. - Tholera)

Haderonia

Epineuronia (syn. - Neuronia, not a synonym of Characas)

Perigrapha

Eurypsycha (not a synonym of Borolia)

Cardepia

Dianthoecia (not a synonym of Mamestra)

Sideridis (not a synonym of Heliophila)

Ichneutica (not a synonym of Heliophila).

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Acknowledgements

This article could not have been written without the aid of the many persons who contributed either their time, their suggestions, or material for study. Those who so generously contributed material have already been mentioned elsewhere. Credit is also due the entomological staff of the Massachusetts Agricultural College and particularly to Dr. Henry T. Fernald who so unselfishly gave his time to the reading of the article while it was still in the manuscript form. His corrections and suggestions were decidedly helpful. He also allowed the writer free access to his very complete entomological library. This privilege placed at the writer's disposal many scarce volumes which it would otherwise have been difficult to procure.

A word of thanks is due Miss Kate Houser for the care with which she typed this article and for the time she spent in its preparation.

Last but not least the writer owes a debt of gratitude to his wife. Her interest in the work and her willingness to lend assistance wherever possible, played no small part in bringing this article to its completion.

