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MICROLEPIDOPTERA OF JUAN FERNANDEZ ISLANDS

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Introduction

It has been my privilege and pleasure to study the Microlepidoptera collected in the Juan Fernandez Islands in 1951, 1952, and 1955 by Dr. Guillermo Kuschel, Centro de Investigaciones Zoológicas, University of Chile, Santiago, and to him my thanks are due for this opportunity.

Through the courtesy of Dr. Kuschel I have been permitted to deposit the types of all the new species in the collection of the U.S. National Museum, Smithsonian Institution. Paratypes of some of the species, where series permitted, are also in the Museum, while others are distributed in the Natural History Museum and the University of Chile in Santiago.

My sincere thanks are due Dr. Lars Brundin, Naturhistoriska Riksmuseet, Stockholm, for his generous permission to study Auri-villius' types deposited in that institution. To Mr. John D. Bradley, Department of Entomology, British Museum (Natural History), I am also grateful for his help received on many occasions.

The drawings for this paper were made by Mr. Arthur D. Cushman, staff artist of the Entomology Research Division, U.S. Department of Agriculture; Mrs. Patricia Hogue; Mrs. Caroline Lutz, staff artist, Department of Zoology, Smithsonian Institution; and by myself.

The collections made by Dr. Kuschel are of more than usual interest because they are the first of any size from the islands and are the first to provide any tangible information about possible origins of the fauna.

The first Microlepidopteron to be described from the islands was *Pionea fumipennis* (Warren), (1892); although the type specimens are labeled properly, Warren mistakenly gave the locality as "California." In 1896 Hampson described *Crambus fernandesellus* but it was not until 1922, with the publication of Skottsberg's classic work, that more collections were recorded. In this publication Aurivillius described *Fernandocrambus brunneus*, *F. fuscus*, *F. bäckströmi*, *Juania annulata*, *Eulia robinsoni*, *E. griseiceps*, *E. striolana* and *Crocidosema* (?) *insulana* and recorded the continental *Scoparia ragonotii*. In the same work Meyrick described *Depressaria relegata*, *Apothetoeca synaphrista* and recognized *Endrosis sarcitrella* (recorded as *Endrosis lactella*). Clarke described *Nanodacna ancora* in 1964.

This brought the total number of species known from the islands to 15. In this paper 41 species are described as new to science; 14, previously described, are recorded from the islands for the first time; two species (two families) are recorded but the species are not named; and one species is synonymized, thus bringing the total of known species to 71.

### Species Previously Recorded

<i>Pionea fumipennis</i> (Warren)	<i>Proeulia griseiceps</i> (Aurivillius)
<i>Oeobia ragonotii</i> (Butler)	(= <i>striolana</i> )
<i>Juania annulata</i> Aurivillius	<i>robinsoni</i> (Aurivillius)
<i>Fernandocrambus bäckströmi</i> Aurivillius	<i>Parasuleima insulana</i> (Aurivillius)
<i>fuscus</i> Aurivillius	<i>Martyrhilda relegata</i> (Meyrick)
<i>brunneus</i> Aurivillius	<i>Endrosis sarcitrella</i> (Linnaeus)
<i>Crambus fernandesellus</i> Hampson	<i>Apothetoeca synaphrista</i> Meyrick
	<i>Nanodacna ancora</i> Clarke

### Species Newly Recorded

<i>Elasmodalpus angustellus</i> Blanchard	<i>Bedellia somnulentella</i> (Zeller)
<i>Nomophila noctuella</i> (Denis & Schiffmüller)	<i>Monopis crocicapitella</i> (Clemens)
<i>Platyptilia epidelta</i> Meyrick	<i>Trichophaga tapetzella</i> (Linnaeus)
<i>Stenoptilia partiseca</i> Meyrick	<i>Tinea pelliella</i> Linnaeus
<i>Gnorimoschema operculella</i> (Zeller)	<i>pallescentella</i> Stainton
<i>absoluta</i> (Meyrick)	<i>Lindera tessellatella</i> Blanchard
	<i>Oinophila v-flava</i> (Haworth)
	<i>Plutella maculipennis</i> (Curtis)

## Species Described as New

<i>Juania magnifica</i> 67924	<i>oxyechus</i> 67903
<i>paralozia</i> 67923	<i>Crambus divus</i> 67902
<i>lozia</i> 67922	<i>Loxostege oxalis</i> 67931
<i>glareola</i> 67921	<i>Pyrausta louvinia</i> 67930
<i>imitator</i> 67920	<i>Mnesictena tetragramma</i> 67929
<i>imperfecta</i> 67919	<i>Giorgia crena</i> 67928
<i>chiloma</i> 67918	<i>Scoparia pyraustoides</i> 67927
<i>byssifera</i> 67917	<i>dela</i> 67926
<i>parva</i> 67916	<i>matuta</i> 67925
<i>derelicta</i> 67915	<i>Nesochoris holographa</i> 67932
<i>minima</i> 67914	<i>brachystigma</i> 67933
<i>abbreviata</i> 67913	<i>Gnorimoschema hemilitha</i> 67934
<i>nitidissima</i> 67912	<i>melanolepis</i> 67935
<i>grisea</i> 67911	<i>Echinoglossa trinota</i> 67936
<i>pepita</i> 67910	<i>Pseudarla miranda</i> 67937
<i>zerophylla</i> 67909	<i>Anchimompha melaleuca</i> 67938
<i>Fernandocrambus kuscheli</i> 67908	<i>Nanodacna indiscriminata</i> 67940
<i>truncus</i> 67907	<i>Leuoperna leioptera</i> 67943
<i>fundus</i> 67906	<i>Eudolichura exuta</i> 67942
<i>corvus</i> 67905	<i>Melitonympha telluris</i> 67941
<i>arcus</i> 67904	

These species are assigned to 35 genera of which the following are described as new: *Giorgia*, *Nesochoris*, *Parasuleima*, *Pseudarla*, *Echinoglossa*, *Anchimompha*, *Eudolichura*, and *Leuoperna*. In addition, the genera *Platyptilia*, *Stenoptilia*, *Elasmopalpus*, *Oeobia*, *Nomophila*, *Pyrausta*, *Loxostege*, *Mnesictena*, *Gnorimoschema*, *Bedellia*, *Oinophila*, *Monopis*, *Lindera*, *Trichophaga*, *Tinea*, *Plutella*, *Melitonympha*, *Martyrhilda*, and *Brenthia* are recorded for the first time from these islands.

In the Juan Fernandez Islands there are two categories of Microlepidoptera: (1) those which have found their way there through the agency of man; (2) those which have arrived through the ages by natural means, or those that have evolved from them.

In the first group are the refuse feeders and household pests and the species attached to various plants grown for food. These are: *Lindera tessellatella* Blanchard, *Monopis crocicapitella* (Clemens), *Tinea pallescentella* Stainton, *Tinea pellionella* Linnaeus, and *Trichophaga tapetzella* (Linnaeus), all of which attack woollens and other stored animal products. *Oinophila v-flava* (Haworth), a European species, is reported as feeding on refuse, or fungi on cellar walls. *Endrosia sarcitrella* (Linnaeus), the widely distributed "white-shouldered house moth," attacks everything from wool to stored cereals and dried meat and may be encountered anywhere near human habitation.

It is indeed strange that such cosmopolitan household or stored food-products pests as *Plodia interpunctella* (Hübner), *Ephestia cautella*

(Walker), and *Tineola bisselliella* (Hummel) have not been recovered from these islands. These species are so generally distributed that it seems unlikely the islands have escaped their ravages.

The plant-feeding insect pests are the notorious "potato tuber-worm," *Gnorimoschema operculella* (Zeller); *G. absoluta* (Meyrick), also a pest of potato as well as a pest of tomato; the "diamondback moth," *Plutella maculipennis* (Curtis), which is widely distributed throughout most of the world and feeds on both cultivated and native cruciferous plants; and *Bedellia somnulentella* (Zeller), a pest of sweet potato and allied plants.

Six of these cosmopolitan species are found on more than one of the islands. They are *sarcitrella*, *maculipennis*, *somnulentella*, *tesselatella*, *pellionella*, and *pallescentella*.

The remaining species, or the antecedents from which they have evolved, probably reached the islands by natural means (convection currents, drift, etc.). They are distributed in the following families:

Crambidae	28	Gelechiidae	5
Phycitidae	1	Momphidae	1
Pyraustidae	9	Blastodaenidae	2
Pterophoridae	2	Hyponomeutidae	3
Olethreutidae	1	Glyphipterygidae	1
Tortricidae	4	Psychidae	1
Oecophoridae	1		

Of all the species, including those introduced by commerce, only eight occur on more than one island, and only one occurs on all three. The eight species occurring on two islands are *Giorgia crena*, new species, *Nomophila noctuella* (Denis & Schiffermüller), *Endrosis sarcitrella* (Linnaeus), *Plutella maculipennis* (Curtis), *Bedellia somnulentella* (Zeller), *Lindera tessellatella* Blanchard, *Tinea pallescentella* (Stainton), and *Tinea pellionella* Linnaeus. The one occurring on all three islands is *Oeobia ragonotii* (Butler).

The present record of species of Microlepidoptera indicates 75 percent endemism, perhaps higher than one should expect from islands so close to a continental mass. The mainland fauna is very poorly known, and undoubtedly there are many more species to be discovered in the islands. When extensive collections are made, we may find a considerably larger number of species common to both areas.

The following table gives a complete roster of species and their distribution, when applicable, outside of the islands. A plus sign or notation denotes presence, and a minus denotes absence.

## Distribution of Juan Fernandez Microlepidoptera

	Masa- tierra	Santa Clara	Masa- fuera	Elsewhere
<i>Elasmopalpus angustellus</i>	—	—	+	Chile mainland
<i>Pionea fumipennis</i>	+	—	—	
<i>Lozostege oxalis</i>	+	—	—	
<i>Pyrausta louvinia</i>	+	—	—	
<i>Mnesictena tetragramma</i>	+	—	—	
<i>Giorgia crena</i>	+	—	+	
<i>Nomophila noctuella</i>	+	—	+	Continental Americas, Europe
<i>Oeobia ragonotii</i>	+	+	+	Chile mainland
<i>Scoparia dela</i>	—	—	+	
<i>matuta</i>	—	—	+	
<i>pyraustoides</i>	+	—	—	
<i>Crambus fernandesellus</i>	+	—	—	
<i>divus</i>	+	—	—	
<i>Fernandocrambus fuscus</i>	+	—	—	
<i>ozyechus</i>	+	—	—	
<i>arcus</i>	+	—	—	
<i>truncus</i>	+	—	—	
<i>bäckströmi</i>	+	—	—	
<i>corvus</i>	+	—	—	
<i>fundus</i>	+	—	—	
<i>brunneus</i>	+	—	—	
<i>kuscheli</i>	—	—	+	
<i>Juania annulata</i>	+	—	—	
<i>magnifica</i>	+	—	—	
<i>xerophylla</i>	—	—	+	
<i>pepita</i>	+	—	—	
<i>loxia</i>	+	—	—	
<i>paraloxia</i>	+	—	—	
<i>abbreviata</i>	—	—	+	
<i>grisea</i>	—	—	+	
<i>imitator</i>	—	—	+	
<i>chiloma</i>	+	—	—	
<i>parva</i>	+	—	—	
<i>glareola</i>	+	—	—	
<i>byssifera</i>	+	—	—	
<i>nitidissima</i>	+	—	—	
<i>derelicta</i>	+	—	—	
<i>imperfecta</i>	+	—	—	
<i>minima</i>	+	—	—	
<i>Platyptilia epidelta</i>	+	—	—	Argentina
<i>Stenoptilia partiseeca</i>	—	—	+	Argentina
<i>Parasuleima insulana</i>	+	—	—	
<i>Proeulia robinsoni</i>	+	—	—	
<i>griseiceps</i>	+	—	—	
<i>Nesochoris holographa</i>	+	—	—	
<i>brachystigma</i>	+	—	—	
<i>Martyrhilda relegata</i>	+	—	—	

	Masa- tierra	Santa Clara	Masa- fuera	Elsewhere
<i>Endrosis sarcitrella</i>	+	—	+	Cosmopolitan
<i>Apothetoeca synaphrista</i>	+	—	—	
<i>Gnorimoschema operculella</i>	+	—	—	Cosmopolitan
<i>absoluta</i>	+	—	—	South America
<i>hemilitha</i>	+	—	—	
<i>melanolepis</i>	—	—	+	
<i>Echinoglossa trinota</i>	+	—	—	
<i>Pseudarla miranda</i>	+	—	—	
<i>Anchimompha melaleuca</i>	—	—	+	
<i>Nanodacna ancora</i>	—	—	+	
<i>indiscriminata</i>	+	—	—	
<i>Plutella maculipennis</i>	—	+	+	Cosmopolitan
<i>Melitonympha telluris</i>	+	—	—	
<i>Eudolichura exuta</i>	—	—	+	
<i>Leuroperna leioptera</i>	—	—	+	
<i>Glyphipterygidae</i>	+	—	—	
<i>Psychidae</i>	+	—	—	
<i>Lindera tessellatella</i>	+	+	—	Australia, New Zealand, Mexico, Fiji Ids., Europe, U.S., Chile mainland.
<i>Monopis crocicapitella</i>	+	—	—	Japan, Micronesia, Americas, Europe
<i>Trichophaga tapetzella</i>	—	—	+	Cosmopolitan
<i>Tinea pallescentella</i>	+	+	—	England, Argentina
<i>pellionella</i>	+	—	+	Cosmopolitan
<i>Bedellia somnulentella</i>	+	—	+	Japan, Guam, Americas?
<i>Oinophila v-flava</i>	+	—	—	Europe, California

The origin of the species, except the ten introduced by man, is obscured in antiquity but certainly the points of origin are several. The majority of the species appear to have their affinities with continental American elements but, because of the rather meager knowledge of the mainland forms, it is impossible to estimate the extent to which this occurs. The enormous development of the Crambidae in the islands has no comparable evolution on the mainland. Apparently the antecedent or antecedents of the Crambidae arrived at an early geologic time and found an unusually favorable environment permitting extensive radiation. Without doubt, further exploration will reveal even a greater number of species in this family.

The Crambidae are contained in three genera, *Crambus*, *Fernandocrambus* and *Juania*. Although the three genera are easily separated on superficial characters, the various genitalic types are found in each

genus. If we were to establish the genera on the basis of genitalia, we should have a quite different arrangement of species. It is, therefore, doubtful that the three so-called genera can be maintained but for convenience in this paper I am retaining them.

Five species are found on the South American mainland as well as in the islands. These are: *Elasmopalpus angustellus*, *Nomophila noctuella*, *Oeobia ragonotii*, *Platyptilia epidelta*, and *Stenoptilia partiseca*. It is not likely that any of these were transported by man.

The genus *Scoparia*, with three species, is well represented in the American continental areas although the genus enjoys its greatest development in New Zealand. We can attribute the origin of the Juan Fernandez species to that area. Although I expressed some misgiving in placing the new species *tetragramma* in the New Zealand genus *Mnesictena* (Meyrick), there appears to be little doubt that it belongs there or very close to it. It is also apparent that *Giorgia*, new genus, is derived from a Western ancestral type, and I have indicated that *Giorgia* appears to be related to *Sufetula* Walker, from the Indian Region. Two species of American moths have already been placed in *Sufetula* (*diminutalis* Walker from the West Indies and *philogeolos* Dyar from North America) so the relationship between this genus and *Giorgia* may not be too remote.

The remaining pyraloid genera, *Pionea* Guenée, *Pyrausta* Shrank, *Loxostege* Hübner, and *Nomophila* Hübner undoubtedly owe their presence in the islands to the American mainland.

The Hyponomeutidae, though represented at present by only four species, have an equal number of genera, one more than in the large family Crambidae. This generic differentiation is comparable to that found on the adjacent mainland, where Meyrick recorded nine genera and emphasized the great development of this family in southern South America.

The four species of Tortricidae and the one species of Olethreutidae are endemic, as are the genera to which they belong.\* As previously pointed out, the South American fauna is too imperfectly known to permit establishing a definite relationship between the island and continental forms, but it appears that the tortricid species, at least, have been derived from the mainland elements. The single olethreutid, *Parasuleima insulana* (Aurivillius), is American in origin.

The Oecophoridae and Gelechiidae are American in character (except the introduced *E. sarcitrella* (Linnaeus)) and no real problem of origins arises here. The genus *Martyrhilda* Clarke was described

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\* Since this was written, Obraztsov (1964, Proc. U. S. Nat. Mus., vol. 116, no. 3501, pp. 183-195, pls. 1-9) has recorded nine species from Central Chile belonging to the tortricid genus *Proeulia* Clarke.

from North America, but also occurs in Europe, and probably will be found in Asia as well. The fact that the island species *M. relegata* (Meyrick) is the only one recorded from the South American fauna is a matter of collecting, or lack of it, and undoubtedly other species will be found.\* The gelechiid genera *Apothetoecca* Meyrick and *Pseudarlar*, new genus, are New World types while the genus *Gnorimoschema* Busck is widely distributed throughout most of the world.

### Key to Genera

1. Forewing divided . . . . . 2  
Forewing not divided . . . . . 3
2. Forewing with veins 3, 4, and 5 separate . . . . . **Platyptilia**  
Forewing with veins 3, 4, and 5 stalked . . . . . **Stenoptylia**
3. Hindwing with veins 7 and 8 stalked or united . . . . . 4  
Hindwing with veins 7 and 8 separate . . . . . 15
4. Hindwing with veins 7 and 8 united . . . . . **Georgia**  
Hindwing otherwise . . . . . 5
5. Forewing with vein 7 absent . . . . . **Elasmopalpus**  
Forewing with vein 7 present . . . . . 6
6. Forewing with vein 7 out of the stalk of 8 and 9 . . . . . 7  
Forewing with vein 7 free . . . . . 9
7. Forewing with veins 3 and 4 coincident . . . . . **Juania**  
Forewing with veins 3 and 4 separate . . . . . 8
8. Forewing with veins 4 and 5 short stalked; labial palpus at least three times as long as head . . . . . **Crambus**  
Forewing with veins 4 and 5 connate or closely approximate; labial palpus not three times as long as head . . . . . **Fernandocrambus**
9. Hindwing with veins 4 and 5 stalked . . . . . 10  
Hindwing with veins 4 and 5 otherwise . . . . . 11
10. Harpe with spinous process from ventral edge: signum absent . . . **Scoparia**  
Harpe without such spinous process; signum present . . . . . **Oeobia**
11. Hindwing with veins 4 and 5 closely approximate for about one-third their lengths from base . . . . . 12  
Hindwing with veins 4 and 5 divergent from base . . . . . 13
12. Forewing with veins 3, 4, and 5 about equidistant at base . . . **Nomophila**  
Forewing with vein 3 much farther from 4 than 4 is from 5 . . . **Pyrausta**
13. Frons produced . . . . . **Loxostege**  
Frons smooth, rounded . . . . . 14
14. Hindwing with veins 4 and 5 connate; labial palpus more than twice as long as head . . . . . **Mnesictena**  
Hindwing with veins 4 and 5 closely approximate at base; labial palpus not more than twice as long as head . . . . . **Pionea**

\* In my volume IV on the Meyrick types of Microlepidoptera, I have transferred to this genus five South American species, recorded from Argentina, Colombia, Ecuador, and Peru.



15. Forewing with vein 1c preserved, at least at margin . . . . . 21  
 Forewing with vein 1c absent . . . . . 16
16. Hindwing with cell open . . . . . 17  
 Hindwing with cell closed . . . . . 18
17. Forewing with vein 11 from middle of cell; apex pointed but not appreciably produced . . . . . **Bedellia**  
 Forewing with vein 11 from outer fourth of cell; apex produced . . . **Oinophila**
18. Hindwing with veins 6 and 7 stalked . . . . . 19  
 Hindwing with veins 6 and 7 parallel or nearly so . . . . . 20
19. Hindwing with veins 3 and 4 connate . . . . . **Apothetoecca**  
 Hindwing with veins 3 and 4 separate . . . . . **Pseudarla**
20. Forewing with vein 6 separate and 7 and 8 stalked . . . . . **Gnorimoschema**  
 Forewing with veins 7 and 8 stalked, out of vein 6 . . . . . **Echinoglossa**
21. Forewing with accessory cell . . . . . 22  
 Forewing without accessory cell . . . . . 28
22. Second segment of labial palpus with bristles . . . . . 23  
 Second segment of labial palpus without bristles . . . . . 26
23. Forewing with aereole . . . . . **Monopis**  
 Forewing without aereole . . . . . 24
24. Hindwing with veins 5 and 6 short stalked . . . . . **Lindera**  
 Hindwing otherwise . . . . . 25
25. Hindwing with veins 5, 6, and 7 equidistant . . . . . **Trichophaga**  
 Hindwing with veins 5 and 6 approximate at base . . . . . **Tinea**
26. Forewing with all veins separate . . . . . 27  
 Forewing with veins 7 and 8 stalked . . . . . **Melitonympha**
27. Hindwing with veins 5 and 6 stalked . . . . . **Eudolichura**  
 Hindwing with veins 5 and 6 separate . . . . . **Leuroperna**
28. Hindwing with veins 6 and 7 parallel or nearly so . . . . . 29  
 Hindwing otherwise . . . . . 34
29. Hindwing with veins 5 and 6 stalked . . . . . 30  
 Hindwing otherwise . . . . . 31
30. Forewing with veins 7 and 8 separate . . . . . **Plutella**  
 Forewing with veins 7 and 8 stalked . . . . . **Nanodacna**
31. Basal segment of antenna with pecten . . . . . 32  
 Basal segment of antenna without pecten . . . . . 33
32. Forewing with veins 2 and 3 separate . . . . . **Endrosia**  
 Forewing with veins 2 and 3 stalked . . . . . **Martyrhilda**
33. Labial palpus short, hardly recurved . . . . . **Brenthia**  
 Labial palpus long, recurved . . . . . **Anchimompha**
34. Hindwing with cubital pecten . . . . . **Parasuleima**  
 Hindwing without cubital pecten . . . . . 35
35. Forewing with vein 2 arising from outer two-thirds of cell; 6, 7, and 8 about equidistant at bases . . . . . **Nesochoris**  
 Forewing with vein 2 arising from three-fifths of cell; vein 6 twice as far from 7 as 7 is from 8 . . . . . **Proeulia**

## Family Crambidae

Genus *Crambus* Fabricius

The species of *Crambus* are separated by the following key:

Dark dividing line of forewing short and sharply defined.

*fernandesellus* Hampson

Dark dividing line of forewing long and diffused . . . . . *divus*, new species

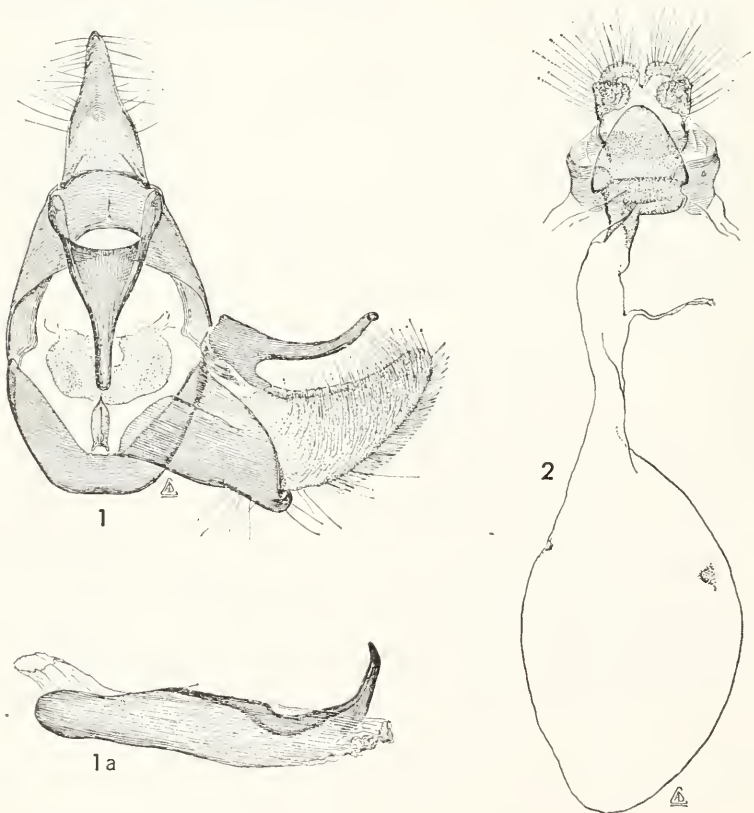
*Crambus fernandesellus* Hampson

## FIGURES 1-2

*Crambus fernandesellus* Hampson, 1896, Proc. Zool. Soc. London, 1895, p. 931.—  
Aurivillius, 1922, in Skottsberg, The natural history of Juan Fernandez and  
Easter Island, vol. 3, pt. 2, p. 263, pl. 2, fig. 9.

Type: British Museum (Natural History).

Type locality: "Juan Fernandez."



FIGURES 1-2.—*Crambus fernandesellus* Hampson: 1, ventral view of male genitalia with left harpe and aedeagus removed; 1a, lateral aspect of aedeagus; 2, ventral view of female genitalia.

Distribution: Masatierra: Plazoleta del Yunque, ♂ (Feb. 20, 1951); Picacho Central, 600 m., ♀ (Feb. 4, 1952).

Both specimens from this collection are larger (30–38 mm.) than the size indicated by Hampson and probably the largest one represents about the maximum that will be found. The hindwings of the female are much lighter than those of the male.

Mr. John D. Bradley has confirmed my identification of the species.

*Crambus divus*, new species

FIGURE 3

Alar expanse 34 mm.

Labial palpus ochereous white with light brownish suffusion on outer side. Antenna ochereous white with narrow, pale brown, longitudinal line ventrally. Head ochereous white with pale brownish suffusion.



FIGURE 3.—*Crambus divus*, new species: ventral view of female genitalia.

Thorax light brown. Ground color of forewing ochereous white; extreme edge of costa narrowly brown. Ground color of forewing ochereous white; extreme edge of costa narrowly brown; wing divided

longitudinally by a dark-brown line which fades gradually toward dorsum; in costal half a few yellowish streaks; at outer end of cell, at each angle, a small brown spot; a similar spot on vein 8, about midway between end of cell and apex, and another on tornus; four ill-defined brownish spots on termen; cilia ochereous white with slight brownish suffusion. Hindwing white with slight yellowish tint; cilia white. Legs ochereous white suffused with brown. Abdomen ochereous white with slight infuscation beneath.

Female genitalia (slide 10669): Ventral lip of ostium twice as long as broad, stout. Posterior half of ductus bursae stout, sclerotized; anterior half membranous; inception of ductus seminalis at junction of the two parts of ductus bursae. Signa the usual two, but one greatly reduced in size.

Type: Masatierra: Alto Pangal, 600 m. (Em., Mar. 24, 1955).

Food plant: *Juania australis* (Mart.) Drude ex. Hook. f. (Palmae).

Described from the unique female type. Both *divus* and *fernandesellus* are similar, and might be mistaken for each other, but the dark dividing line of the forewing is short and sharply defined in *fernandesellus* and long and diffused in *divus*. Although the extreme edge of costa, basally, is dark in *divus*, there is a sharply defined, short black line inside costa on *fernandesellus*. The female genitalia are widely different as will be seen by a comparison of the figures. The ventral lip of the ostium of *fernandesellus* is essentially broadly triangular while that of *divus* is oblong; the ductus bursae of *divus* is sclerotized for half its length while that of *fernandesellus* is wholly membranous.

Of all the species of microlepidoptera collected in the islands, this is the only one that was reared. A note by Dr. Kuschel, accompanying the specimen, states "Larva: Alto Pangal, 600 m., Mar. 5, 1955, en hojas nuevas y cerradas de *Juania australis* (Palmae). Ninfa: Mar. 9, 1955. Imago: Mar. 24, 1955." A second note reads, "La larva hace mucho daño en las hojas nuevas de la 'chonta' (*Juania australis*)."

### Genus *Fernandocrambus* Aurivillius

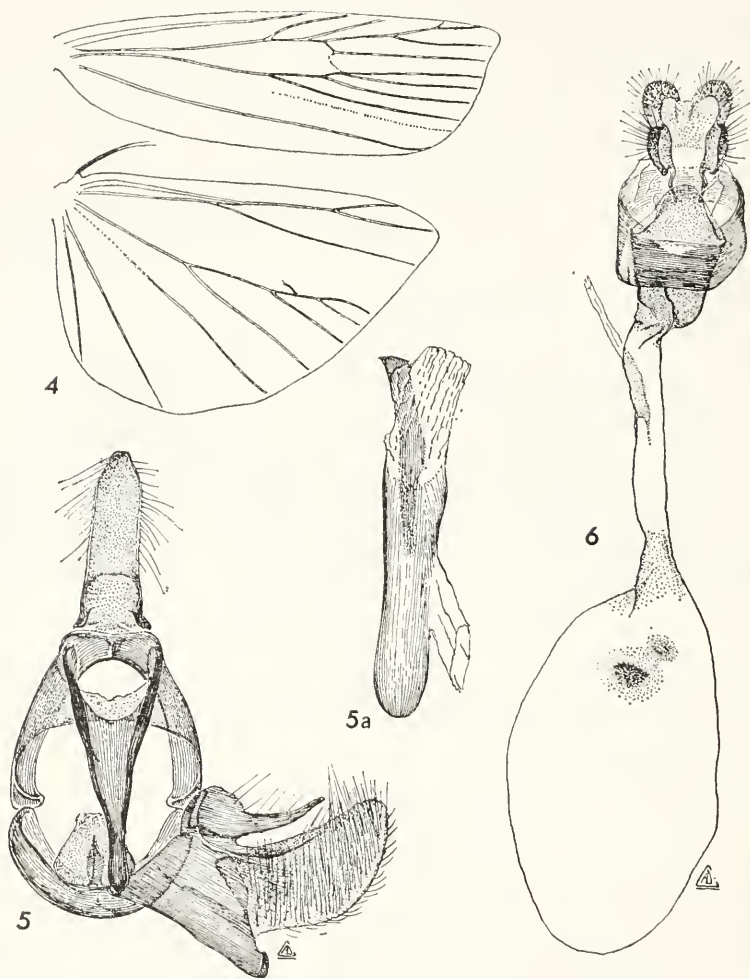
*Fernandocrambus* Aurivillius, 1922, in Skottsberg, The natural history of Juan Fernandez and Easter Island, vol. 3, pt. 2, p. 263.

Type-species: *Fernandocrambus brunneus* Aurivillius, op. cit., p. 264, pl. 11, fig. 12 [hereby designated].

#### Key to the Species of *Fernandocrambus*

1. Labial palpus buff shaded with drab or fuscous. . . . . 2
- Labial palpus otherwise . . . . . 5





FIGURES 4-6.—*Fernandocrambus brunneus* Aurivillius: 4, venation of right wings; 5, ventral view of male genitalia with left harpe and aedeagus removed; 5a, lateral aspect of aedeagus; 6, ventral view of female genitalia.

*Fernandocrambus fuscus* Aurivillius

FIGURE 7

*Fernandocrambus fuscus* Aurivillius, 1922, in Skottsberg, The natural history of Juan Fernandez and Easter Island, vol. 3, pt. 2, p. 264, pl. 11, fig. 13.

Type: Naturhistoriska Riksmuseum, Stockholm.

Type locality: "Masatierra."

Alar expanse 19 mm.

Male genitalia (slide 10633): Projection of sacculus a long hook, foreshortened in figure. Costa strongly arched. Aedeagus armed

with a strong distolateral hook. The male genitalia are figured from the type.

Aurivillius described *fuscus* from a unique male; it is the only specimen known.

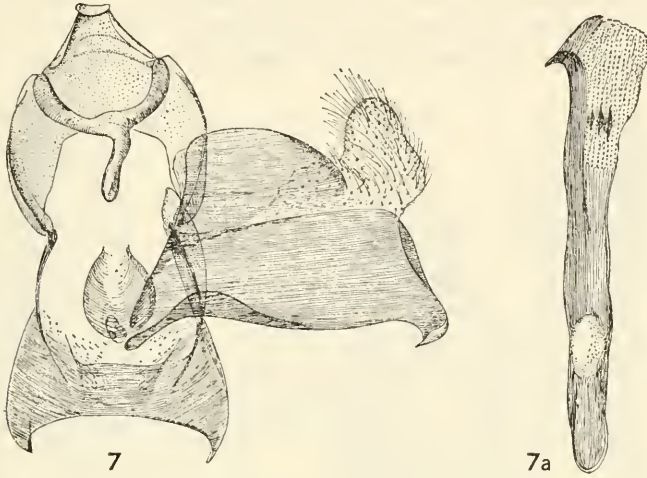


FIGURE 7.—*Fernandocrambus fuscus* Aurivillius: 7, ventral view of male genitalia with left harpe and aedeagus removed; 7a, aedeagus.

*Fernandocrambus oxyechus*, new species

FIGURES 8-9

Alar expanse 14-18 mm.

Labial palpus grayish fuscous outwardly, grayish buff inwardly. Antenna grayish fuscous with brassy hue basally. Head fuscous, paler posteriorly. Thorax and ground color of forewing fuscous, the latter with a brassy hue; extreme edge of costa, from basal fourth to near apex, pale buff; this color expanded in some specimens to form an ill-defined spot at apical fifth; in some strongly marked specimens a faint, dark line extends outwardly from apical fifth of costa to about vein 6, then inwardly straight to tornus; at end of cell a dark spot, absent or nearly so in some examples; cilia grayish fuscous. Hindwing grayish fuscous; cilia concolorous. Legs buff strongly overlaid with fuscous. Abdomen fuscous above, beneath grayish buff; posterior tip buff.

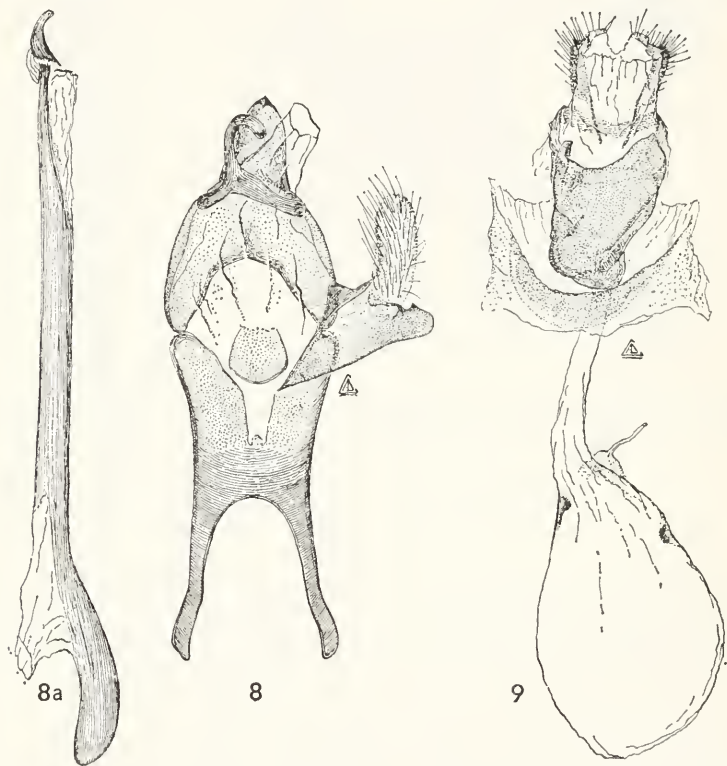
Male genitalia (slide 10365): Vinculum longer than tegumen and uncus combined. Gnathos sharply curved. Costa of harpe short, without marginal projection; cucullus narrow and abruptly turned caudad.

Female genitalia (slide 10255): Ventral lip of ostium greatly dilated, shovel shaped. Signa two sclerotized, scobinate plates.

Type: Masatierra: Bahía Cumberland (Feb. 15, 1951).

Described from the type male and 21 male and female paratypes as follows: Masatierra: Bahía Cumberland, 12 ♂♂, 9 ♀♀ (February and March dates, 1951).

The male genitalia place this species nearest to *arcus* from which it is distinguished by the very long vinculum. The female, however, suggests a closer relationship with *truncus*.



FIGURES 8-9.—*Fernandocrambus oxyechus*, new species: 8, ventral view of male genitalia with left harpe and aedeagus removed; 8a, lateral aspect of aedeagus; 9, ventral view of female genitalia.

*Fernandocrambus arcus*, new species

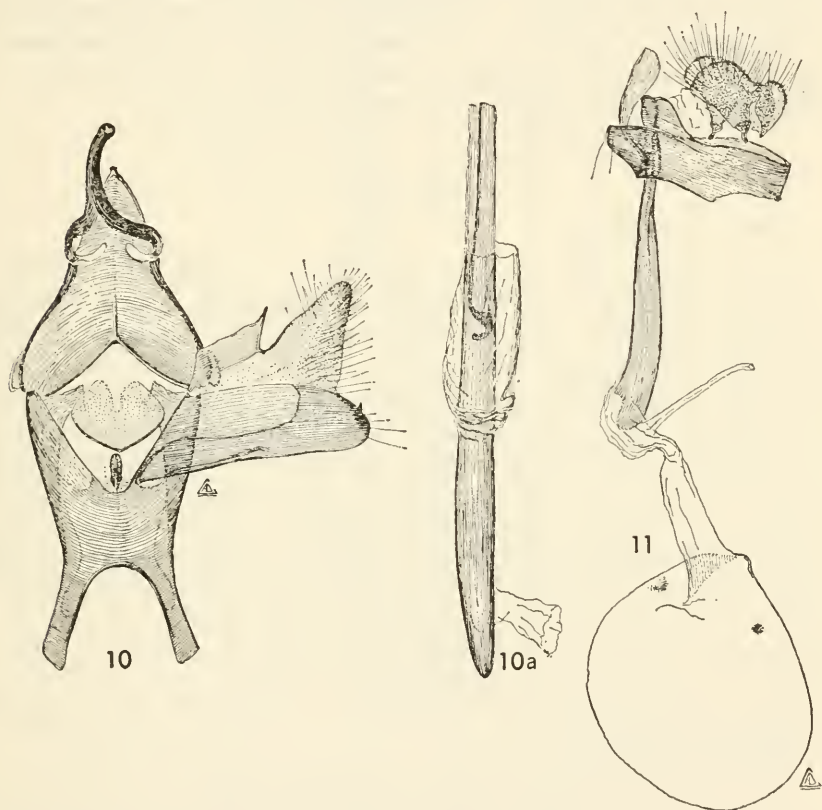
FIGURES 10-11

Alar expanse 20-27 mm.

Labial palpus dark gray, the scales cinereous tipped. Antenna gray except base which is fuscous; scape tipped with cinereous above. Head and thorax dark gray with the scales cinereous tipped; face fuscous; tegula tipped with cinereous. Forewing ground color gray-



ish; base of costa broadly fuscous shading to lighter at middle; on middle of costa an ill-defined fuscous spot followed at three-fourths by a similar one; from the latter a curved, transverse line of fuscous spots terminates in a moderately large fuscous spot before tornus; near middle of tornus a fuscous spot; at end of cell an oval patch of cinereous scales narrowly edged with fuscous; along termen a series of seven fuscous spots; surface of wing overlaid with cinereous scales,



FIGURES 10-11.—*Fernandocrambus arcus*, new species: 10, ventral view of male genitalia with left harpe and aedeagus removed; 10a, aedeagus; 11, lateral aspect of female genitalia.

particularly along dorsum and the outer part of fold; cilia gray with a narrow, median, buff line. Hindwing grayish buff narrowly edged with fuscous; from base of wing a narrow, triangular patch of grayish fuscous expanding toward outer edge; cilia grayish buff with a subbasal grayish band. Legs grayish buff strongly overlaid with fuscous. Abdomen grayish buff with scattered fuscous scales beneath.

Male genitalia (slide 10144): Sacculus greatly enlarged and with a stout thorn at the distal end; costa short with acute point before

cucullus; aedeagus long, slender; vesica armed with a single hooklike cornutus.

Female genitalia (slide 10145): Ductus bursae sclerotized in posterior three-fifths. Ventral lip of ostium long, slender, spoon shaped. Ductus seminalis as indicated in figure.

Type: Masatierra: Bahía Cumberland (Jan. 3, 1952).

Described from the type male and 37 male and female paratypes, all from the same locality. December and January to March dates.

Superficially, *arcus* is similar to *fuscus* but it is a much larger insect. The strong, curved process of the sacculus and the stout hook of the aedeagus of *fuscus* immediately separate it from *arcus*.

*Fernandocrambus corvus*, new species

FIGURE 12

Alar expanse 26 mm.

Labial palpus buff, irrorate with sordid whitish and fuscous. Antenna fuscous with buff annulations. Head buff above, shading to fuscous on frons. Thorax and ground color of forewing grayish buff; thorax and tegula fuscous anteriorly; base of costa and a line along fold to basal third, fuscous; from costa, slightly beyond middle, an indistinct fuscous line curves to about two-thirds distance across wing; from apical fourth of costa a fuscous line extends obliquely and outwardly to vein 6, then angles inwardly straight to tornus; on dorsum, between the two transverse lines, a conspicuous blackish-fuscous dash; along termen, at the ends of the veins, a series of small fuscous spots; entire surface of wing sparsely irrorate with fuscous; cilia grayish buff. Hindwing shining pale ochereous white; from costa to vein 2, an ill-defined, outwardly curved lunate line; cilia ochereous white. Legs buff, somewhat shaded with fuscous; tarsi shaded with blackish fuscous on outer surface. Abdomen pale buff above, suffused with fuscous beneath.

Female genitalia (slide 10648): Ovipositor lobes edged with a row of strong setae. Ventral lip of ostium produced as a long, slender, straplike process. Slightly more than posterior half of ductus bursae sclerotized; inception of ductus seminalis at junction of sclerotized portion of membranous anterior part of ductus bursae.

Type: Masatierra (no definite locality or date).

Described from the unique female type, in slightly damaged condition. The genitalia of *corvus* are very similar to those of *arcus* but exhibit several substantial differences. The setae along the distal edges of the ovipositor lobes are coarse and stout in *corvus*, not so much so in *arcus*; the posterior edge of the genital plate of *corvus* is straight but that of *arcus* is concave; the sclerite anterior to the ostium is nearly twice as large in *corvus* as it is in *arcus*. In general, the

female genitalia of *corvus* are larger and more robust than in *arcus* although the two species are the same size.



FIGURE 12.—*Fernandocrambus corvus*, new species: ventral view of female genitalia.

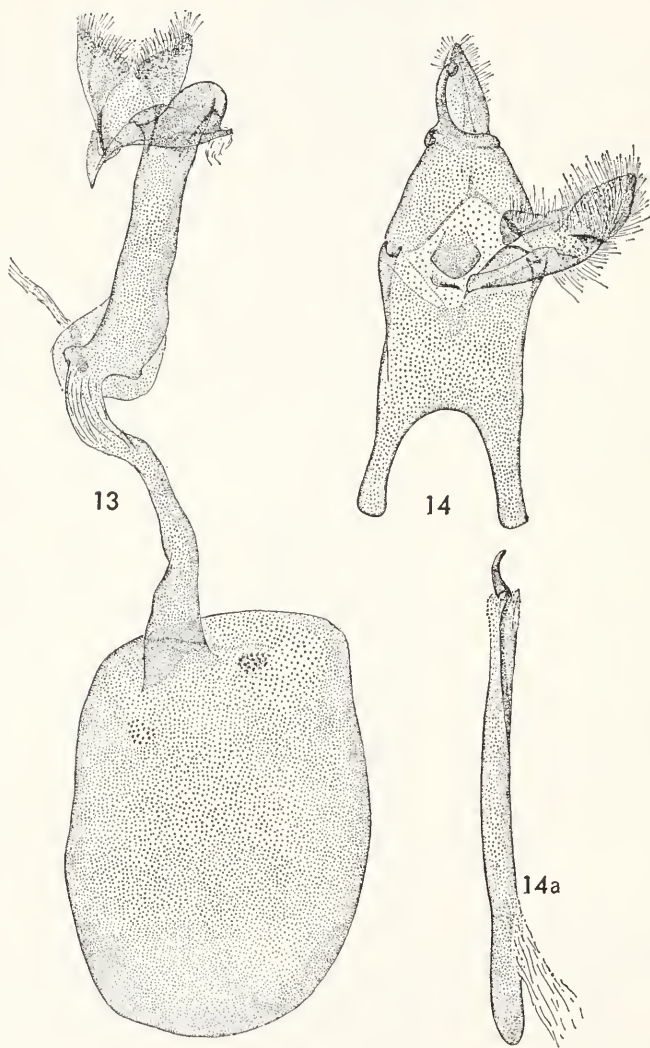
*Fernandocrambus fundus*, new species

FIGURES 13-14

Alar expanse 15-17 mm.

Labial palpus buff; second segment drab on outer side; third segment almost wholly drab. Antenna drab, except brownish-drab scape. Head brownish drab. Thorax and ground color of forewing fuscous (one specimen with considerable buff on tegula and thorax); from base to end of cell, following fold, a median, longitudinal, buff streak (in one specimen the streak is continued to termen as buff mottling through the ground color); at end of cell, between median streak and costa, a blackish-fuscous shade; along termen an ill-defined series of small blackish-fuscous spots; extreme costa, before apex, suffused

ocherous buff; cilia grayish fuscous. Hindwing grayish fuscous; cilia paler with a dark basal band (in one specimen the cilia are sordid white with the contrasting dark band). Legs buff overlaid with grayish fuscous. Abdomen grayish fuscous, ocherous white beneath, caudally.



FIGURES 13-14.—*Fernandocrambus fundus*, new species: 13, ventral view of female genitalia; 14, ventral view of male genitalia with left harpe and aedeagus removed; 14a, aedeagus.

Male genitalia (slide 10596): Harpe rather narrow; costa very short, straight, sclerotized; cucullus large, at least half the total length of harpe, pointed; sacculus short, broad, terminating in a sharply

pointed triangle. Anellus an oval plate. Gnathos slightly longer than uncus. Uncus moderately broad, pointed. Anterior margin of vinculum with deep, U-shaped excavation. Aedeagus long, slender, armed with a stout, curved spine.

Female genitalia (slide 10258): Ostium broad, ventral lip asymmetrical, short, strongly sclerotized, posterior edge rounded. Posterior half of ductus bursae sclerotized. Inception of ductus seminalis at anterior end of sclerotized part of ductus bursae.

Type: Masatierra: Plazoleta del Yunque, 200 m. (Mar. 3, 1955).

Described from the male type, three male and one female paratypes, all from the type locality, dated (Dec. 28, 1954, Jan. 9, 1952, Mar. 3, 1955).

This is a variable species, no two being exactly alike. The median streak may, or may not, be well defined, in some examples being obscured by the ground color. One specimen exhibits considerable reddish-brown scaling in the dorsal area and all show differences in the intensity of color of the cilia of the hindwings.

The affinities of *fundus* clearly appear to be with *oxyechus* and *arcus*. From *oxyechus* the males of *fundus* can be distinguished by the shallower excavation of the vinculum, the broad, fleshy cucullus, pointed, triangular process of sacculus and the straighter gnathos; from the males of *arcus* by the absence of a costal process of harpe and the absence of a tooth on the terminal process of sacculus. The females of *fundus* can be distinguished from those of both *oxyechus* and *arcus* by the short, asymmetrical ventral lip of ostium.

*Fernandocrambus truncus*, new species

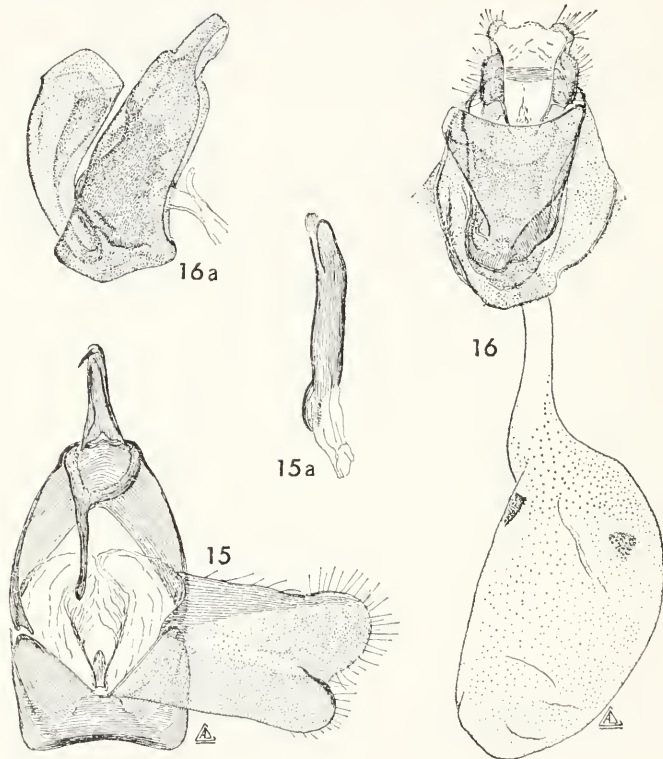
FIGURES 15-16

Alar expanse 14-19 mm.

Labial palpus grayish fuscous outwardly; basal segment and entire innerside ochereous white. Head brownish, face fuscous. Antenna grayish fuscous with ill-defined paler annulations. Thorax and ground color of forewing grayish fuscous; tegula ochereous white; an ochereous-white median streak extends from base of forewing to end of cell, or sometimes nearly to termen, somewhat broader distally than basally and sometimes crossed in outer third by two ill-defined, oblique, grayish-fuscous bars; extreme edge of costa at outer three-fourths ochereous white; cilia slightly paler than ground color. Hindwing gray, deepening to grayish fuscous outwardly; cilia sordid ochereous white with a broad grayish-fuscous basal band. Legs ochereous white suffused and overlaid with grayish fuscous. Abdomen grayish fuscous, somewhat paler beneath and tipped ochereous white. Entire upper surface of insect with shining, brassy hue.

Male genitalia (slide 10174): The parallel-edged harpe, lacking the dorsal and ventral processes, distinguishes this species from other members of the genus. The broad, truncate vinculum is not found elsewhere in the known species of this genus.

Female genitalia (slides 10175, 10176): The extreme development of the sclerotized covering of the ostium, common in crambids, is unusual and easily distinguishes females of *truncus* from other species, except *oxyechus*.



FIGURES 15-16.—*Fernandocrambus truncus*, new species: 15, ventral view of male genitalia with left harpe and aedeagus removed; 15a, aedeagus; 16, ventral view of female genitalia; 16a, lateral view of genital plate and ostium showing posterior part of ductus bursae and inception of ductus seminalis.

Type: Masatierra: Bahía Cumberland (Feb. 15, 1951).

Described from the male type and 8 male and 10 female paratypes as follows: Masatierra: Bahía Cumberland, 8 ♂♂, 9 ♀♀ (January, February, and March dates, 1951-1955); Plazoleta del Yunque, 200 m., ♀ (Dec. 28, 1954).

Similar to *bäckströmi* but averaging a little smaller and with a

much darker ground color and more sharply contrasted pale, longitudinal streak of forewing.

*Fernandocrambus bäckströmi* Aurivillius

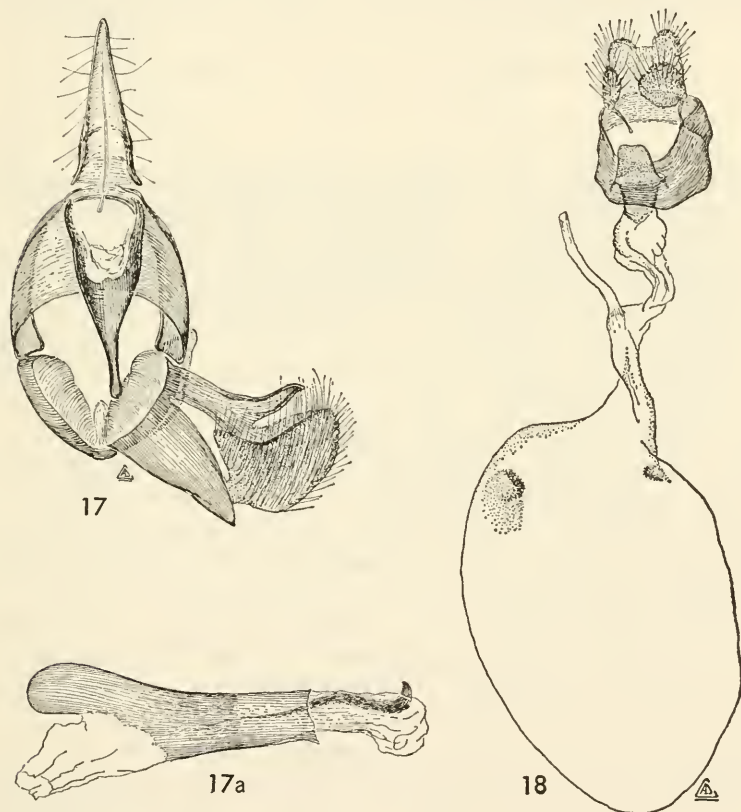
FIGURES 17-18

*Fernandocrambus bäckströmi* Aurivillius, 1922 in Skottsberg, The natural history of Juan Fernandez and Easter Island, vol. 3, pt. 2, p. 264, pl. 11, fig. 12.

Type: Naturhistoriska Riksmuseum, Stockholm.

Type locality: "Masatierra."

Distribution: Masatierra: Bahía Cumberland 15 ♂♂, 34 ♀♀ (January to March dates); Alto Inglés, 600 m. ♀ (Feb. 6, 1952); Miradero del



FIGURES 17-18.—*Fernandocrambus bäckströmi* Aurivillius: 17, ventral view of male genitalia with left harpe and aedeagus removed; 17a, aedeagus; 18, ventral view of female genitalia.

Selkirk, 580 m. 2 ♂♂ (Feb. 15, 1951); Plazoleta del Yunque, 200 m., 3 ♂♂ (Feb. 20, 1951); Salsipuedes, 400 m., ♀ (Mar. 5, 1951); Villagra, ♂ (Feb. 22, 1951); 2 ♀♀ (Feb. 21-22, 1951).

In his description of this species Aurivillius included specimens from Masafuera but all the Masafuera specimens belong to the closely similar new species, *kuscheli*, which follows.

I have examined eight slides of the genitalia of this species, including the type, and all agree. The male genitalia are figured from a specimen from Plazoleta del Yunque (slide 10146), and the female from a specimen from Bahía Cumberland (slide 10148).

The series from Bahía Cumberland contains one specimen with an unusual amount of white scaling on forewing, so that the specimen is grayish in aspect, but the genitalia place it here.

In the Naturhistoriska Riksmuseum, Stockholm, there is a female of this species labeled "Masafuera." It appears that the Stockholm specimen was mislabelled because *bäckströmi* is confined to Masatierra.

*Fernandocrambus kuscheli*, new species

FIGURES 19-20

Alar expanse 14-22 mm.

Labial palpus drab, paler above and inwardly. Antenna drab, somewhat lighter basally and darker apically. Head buff. Thorax and forewing drab; basal fourth of costa darker; from base of wing to end of cell a grayish-buff longitudinal streak broader at end of cell than at base; at the end of cell a few scattered fuscous scales; around termen an ill-defined series of small fuscous spots; cilia light drab with a few darker scales mixed. Hindwing grayish fuscous, cilia grayish buff with a dark subbasal line. Legs grayish buff overlaid with drab. Abdomen grayish fuscous above, grayish buff beneath.

Male genitalia (slide 10598 [type], 10599): Similar to *bäckströmi* but easily distinguished from it by the shape of the armature of the aedeagus. In *bäckströmi* there is a strong, curved apical hook but in *kuscheli* this takes the form of a barb, rather than a hook, with a strong spine directed basad.

Female genitalia (slide 10641): The only significant difference between the female genitalia of *bäckströmi* and *kuscheli* lies in the shape of the ventral lip of the ostium. In *bäckströmi* this is subrectangular in outline but in *kuscheli* it is broad basally and triangular.

Type: Masafuera: La Correspondencia, 1150 m. (Jan. 28, 1955).

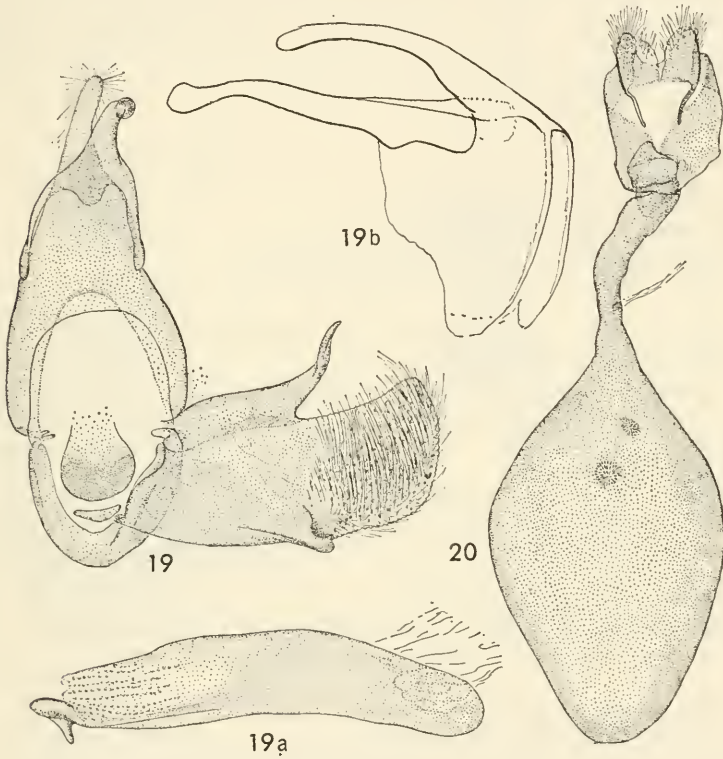
Described from the type male and 61 male and female paratypes as follows: Masafuera: Inocentes Bajos, 1000 m., 7 ♂♂, 2 ♀♀ (Jan. 27, 1952); La Correspondencia, 1150 m. 13 ♂♂, 23 ♀♀ (Jan. 25 to Feb. 21, 1955); Quebrada de la Calavera, ♀ (Jan. 15, 1952); Quebrada de las Casas 7 ♂♂, 5 ♀♀ (Jan. 16-19, 1952, Feb. 21, 1955); Quebrada de las Vacas, ♀ (Jan. 17, 1952).

Superficially *kuscheli* is indistinguishable from *bäckströmi*, particularly when the specimens are worn, but the females of the latter



average larger than those of the former. The genitalia leave no doubt about the identities of the two and each is endemic on its own island.

One male labelled only "Masafuera" is in the collection of the Naturhistoriska Riksmuseum, Stockholm.



FIGURES 19-20.—*Fernandocrambus kuscheli*, new species: 19, ventral view of male genitalia with left harpe and aedeagus removed; 19a, aedeagus; 19b, lateral outline of uncus and gnathos; 20, ventral view of female genitalia.

**Genus *Juania* Aurivillius**

*Juania* Aurivillius, 1922, in Skottsberg, The natural history of Juan Fernandez and Easter Island, vol. 3, pt. 2, p. 264.

Type-species: *Juania annulata* Aurivillius, op. cit., p. 265, pl. 11, fig. 15 [by monotypy].

**Key to the Species of *Juania***

- 1. Alar expanse 17 mm. or more . . . . . 2
- Alar expanse 16 mm. or less . . . . . 5
- 2. Alar expanse less than 25 mm . . . . . 3
- Alar expanse more than 25 mm . . . . . **magnifica**, new species

3. Forewing with at least two transverse lines but without conspicuous longitudinal streak . . . . . 4  
Forewing without transverse lines; longitudinal streak well defined. *imperfecta*, new species
4. Labial palpus white marked with dark gray; forewing without trace of yellowish coloring . . . . . *xerophylla*, new species  
Labial palpus otherwise; forewing with varying amounts of yellowish coloring . . . . . *annulata* Aurivillius
5. Labial palpus ground color white or whitish . . . . . 10  
Labial palpus otherwise . . . . . 6
6. Alar expanse 12 mm. or less . . . . . 7  
Alar expanse 14 mm., a distinct, slender, buff, longitudinal line from base of forewing to termen . . . . . *byssifera*, new species
7. Forewing with longitudinal streak . . . . . 8  
Forewing without longitudinal streak . . . . . *derelieta*, new species
8. Longitudinal streak of forewing uninterrupted . . . . . 9  
Longitudinal streak of forewing interrupted twice by bars of ground color. *imitator*, new species
9. Forewing with apical cilia pale and confluent with longitudinal streak; brassy hue of forewing absent . . . . . *glareola*, new species  
Forewing with apical cilia pale but not confluent with longitudinal streak; brassy hue of forewing present . . . . . *chiloma*, new species
10. Hindwing sordid white . . . . . *abbreviata*, new species  
Hindwing otherwise . . . . . 11
11. Alar expanse 12 mm. or more . . . . . 12  
Alar expanse 10 mm. or less . . . . . *parva*, new species
12. Forewing with white-centered, black or blackish-fuscous spot at end of cell . . . . . 13  
Forewing otherwise . . . . . 14
13. Alar expanse 14-16 mm., forewing with black, transverse line from costal third to middorsum preceded by dense sordid white scaling. *grisea*, new species  
Alar expanse 12 mm., forewing with transverse band indicated by three ill-defined blackish-fuscous spots . . . . . *minima*, new species
14. Forewing with whitish patch in basal fifth . . . . . 15  
Forewing without such patch . . . . . 16
15. Forewing with large, ovate, light spot in central area . *paraloxia*, new species  
Forewing without such light spot . . . . . *loxia*, new species
16. Forewing with brassy hue . . . . . *nitidissima*, new species  
Forewing without brassy hue . . . . . *pepita*, new species

### *Juania annulata* Aurivillius

#### FIGURES 21-22

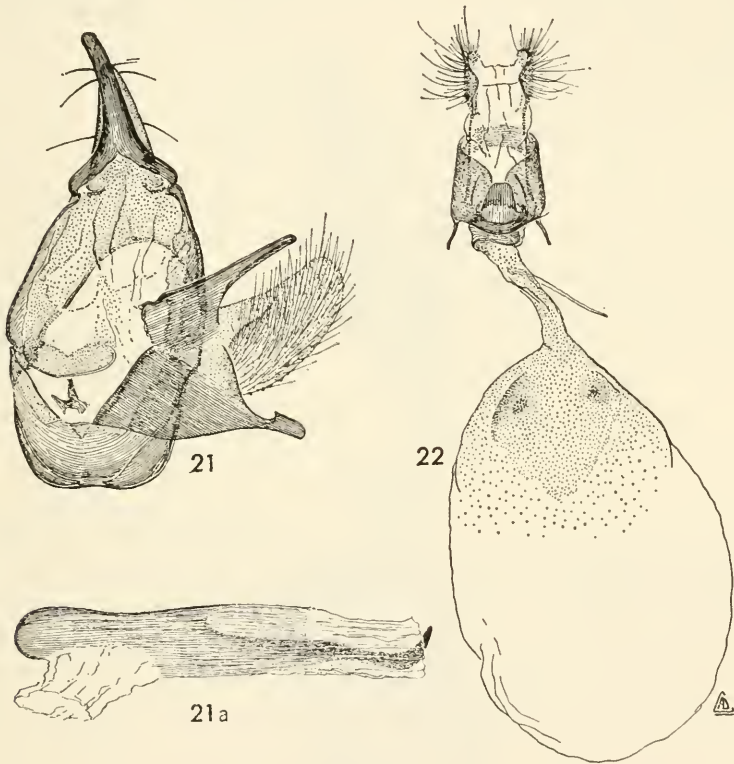
*Juania annulata* Aurivillius, 1922, in Skottsberg, The natural history of Juan Fernandez and Easter Island, vol. 3, pt. 2, p. 265, pl. 11, fig. 15.

Type locality: "Masatierra."

Lectotype: ♀, Masatierra, "Bäckström, mars" (slide 10634). A small white label bears the inscription "*Juania annulata* Aur." The specimen with the above information is hereby designated lectotype and is deposited in the Naturhistoriska Riksmuseum, Stockholm.

Distribution: Masatierra: Bahía Cumberland, 3 ♂♂, 6 ♀♀ (Feb. 15 to Mar. 3, 1951; Dec. 27, 1954 to Mar. 10, 1955); Plazoleta del Yunque, 200–220 m., 8 ♂♂, ♀ (Jan. 2, 1952, Dec. 28, 1954, Mar. 3, 1955); Villagra, 2 ♂♂ (Feb. 21, 1951).

Aurivillius described this species from two female specimens but he failed to designate a type. When the two were examined recently, one lacked the abdomen; the one with the abdomen was selected as the lectotype.



FIGURES 21–22.—*Jvania annulata* Aurivillius: 21, ventral view of male genitalia with left harpe and aedeagus removed; 21a, aedeagus; 22, ventral view of female genitalia.

There is considerable variation in the intensity of the markings of *annulata* and the size varies from 17 to 21 mm. The original figure of the wings is an excellent representation of the average specimen, and the genitalia leave no doubt about the identity of the variable examples. The male genitalia are figured from a specimen from Villagra (slide 10260) and the female genitalia from a specimen from Bahía Cumberland (slide 10259).

*Juania xerophylla*, new species

## FIGURE 23

Alar expanse 17–18 mm.

Labial palpus white; second segment largely overlaid with dark gray on outer surface with a few scattered white scales mixed; third segment almost wholly dark gray. Antenna and head blackish fuscous, the latter with a few white scales posteriorly. Thorax white beneath, blackish fuscous above; posterior edge of collar, tip of tegula and posterior tip of thorax white. Ground color of forewing cinereous, more or less overlaid with fuscous, and dark markings blackish

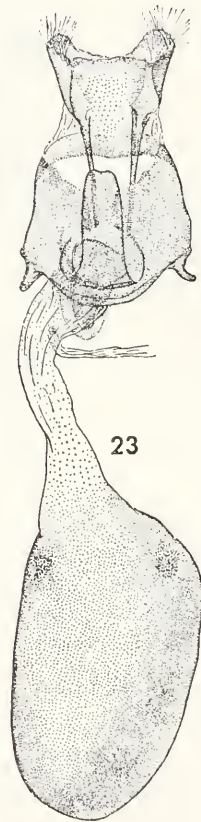


FIGURE 23.—*Juania xerophylla*, new species: ventral view of female genitalia.

fuscous; basal fifth blackish fuscous, the color extended narrowly nearly to middorsum; from basal third of costa, to slightly beyond middle of dorsum, an outwardly oblique, blackish-fuscous transverse line, wider on costa and in cell; from apical fourth of costa an irregular, narrow, blackish-fuscous transverse line extends to tornus; at the end of cell, between the two transverse lines, a white-centered blackish-

fuscous dot; cilia grayish with fuscous and white scales mixed. Hindwing pale grayish basally, shading to fuscous terminally; cilia sordid whitish with a fuscous basal line. Legs fuscous, banded and irrorate with white. Abdomen blackish fuscous.

Female genitalia (slide 10659): Genital plate very strongly sclerotized. Ventral lip of ostium straplike, somewhat narrower distally than proximally. Ductus bursae membranous except posteriorly where it is somewhat sclerotized. Inception of ductus seminalis at about posterior fourth of ductus bursae.

Type: Masafuera: La Correspondencia, 1150 m. (Jan. 25, 1955).

Described from the type female and two female paratypes from the same locality (Jan. 28, 1955; Jan. 3, 1955). One of the paratypes from which the species is figured, is somewhat darker than the type because of the more extensive development of the dark markings.

In pattern this species is similar to *annulata* and, like it, is variable; but *xerophylla* is a smaller moth and exhibits none of the yellowish coloring encountered so often in *annulata*. In genitalia *xerophylla* adheres to the usual type but the area around the ostium is more strongly sclerotized than in most species. The ventral lip of the ostium is much longer in *xerophylla* than in *annulata* as can be seen by a comparison of the figures.

#### *Juania pepita*, new species

##### FIGURE 24

Alar expanse 12–14 mm.

Labial palpus white; second segment overlaid with grayish fuscous on outer surface; third segment almost wholly grayish fuscous but with some white remaining on inner surface. Antenna and head grayish fuscous, the latter with a few scattered white scales on frons and posteriorly. Thorax white beneath, grayish fuscous above. Ground color of forewing cinereous but the whole wing almost entirely overlaid with grayish fuscous; markings obscure; base of wing grayish fuscous; from basal third of costa an outwardly oblique, transverse, grayish-fuscous line extends to middorsum, the line broadening out in middle of cell, forming a lobe in dorsal half of wing to apical third; from apical third of costa a slender, outwardly oblique line slants to about vein 5 where the end of the line widens to form a small subquadrate lobe; between the end of this mark and the preceding transverse line is a small grayish-centered grayish-fuscous spot; cilia cinereous with considerable infuscation. Hindwing light grayish fuscous; cilia concolorous with a somewhat darker basal line. Legs cinereous overlaid and banded with grayish fuscous. Abdomen grayish fuscous with some cinereous scaling beneath.

Female genitalia (slides 10366 and 10661): Area surrounding ostium membranous. Ventral lip of ostium spatulate, about half as long as ductus bursae. Ductus bursae sclerotized in posterior half. Inception of ductus seminalis at middle of ductus bursae.

Type: Masatierra: Villagra (Feb. 22, 1951).

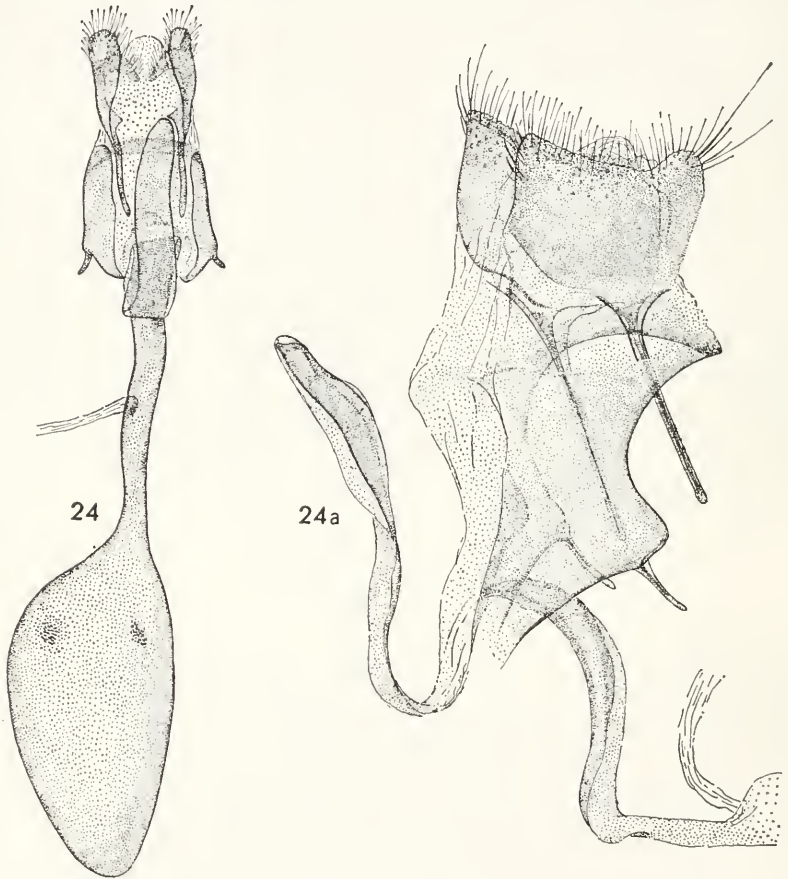


FIGURE 24.—*Juania pepita*, new species: 24, ventral view of female genitalia; 24a, lateral aspect of posterior structures of female genitalia, enlarged.

Described from the type female and four female paratypes, as follows: Masatierra: Villagra, 3 ♀♀ (Feb. 22, 1951); Bahía Cumberland, ♀ (Mar. 10, 1951).

The specimens of this species are not in good condition but, taken together, it is possible to give an accurate description. Because of the considerable infuscation, the pattern is much obscured in some specimens, this type of variability being the rule rather than the exception, in this genus. All of the species of the group to which

*pepita* belongs are similarly colored, for the most part, but *pepita* is probably nearest to *xerophylla*. The two can be distinguished easily by examination and comparison of the genitalia. The membranous area surrounding the ostium and the usually long lower lip of ostium of *pepita*, contrasted with the strongly sclerotized genital plate and much shorter lower lip of ostium of *xerophylla*, serve to separate the two.

*Juania grisea*, new species

FIGURES 25-26

Alar expanse 14-16 mm.

Labial palpus sordid white; second segment overlaid with blackish fuscous on outer side and also apically on inner side; third segment almost wholly blackish fuscous. Head blackish fuscous, somewhat iridescent; antenna slightly lighter than head, dull. Thorax blackish fuscous; posterior edge of collar and tip of tegula with a few large, sordid-white scales. Forewing ground color blackish fuscous; basal area black; from costal third a black, irregular, outwardly oblique, transverse line extends to middorsum, is preceded by a rather dense sordid-white scaling and followed by a white-centered black spot at end of cell; at apical fourth a very irregular, black, transverse line extends to tornus and is both preceded and followed by sordid-white scaling, particularly in terminal area; on termen a series of three or four small black dots; cilia fuscous with a few white scales mixed; on underside a sometimes conspicuous black spot, preceded and followed by light scaling from which arises a transverse fuscous band. Hindwing grayish fuscous, paler basally; cilia lighter than terminal area but with a dark basal line; underside marked with an outer fuscous band which is always preceded, and sometimes followed, by light scaling. Legs grayish fuscous irrorate and narrowly banded with sordid white. Abdomen grayish fuscous above, sordid white beneath.

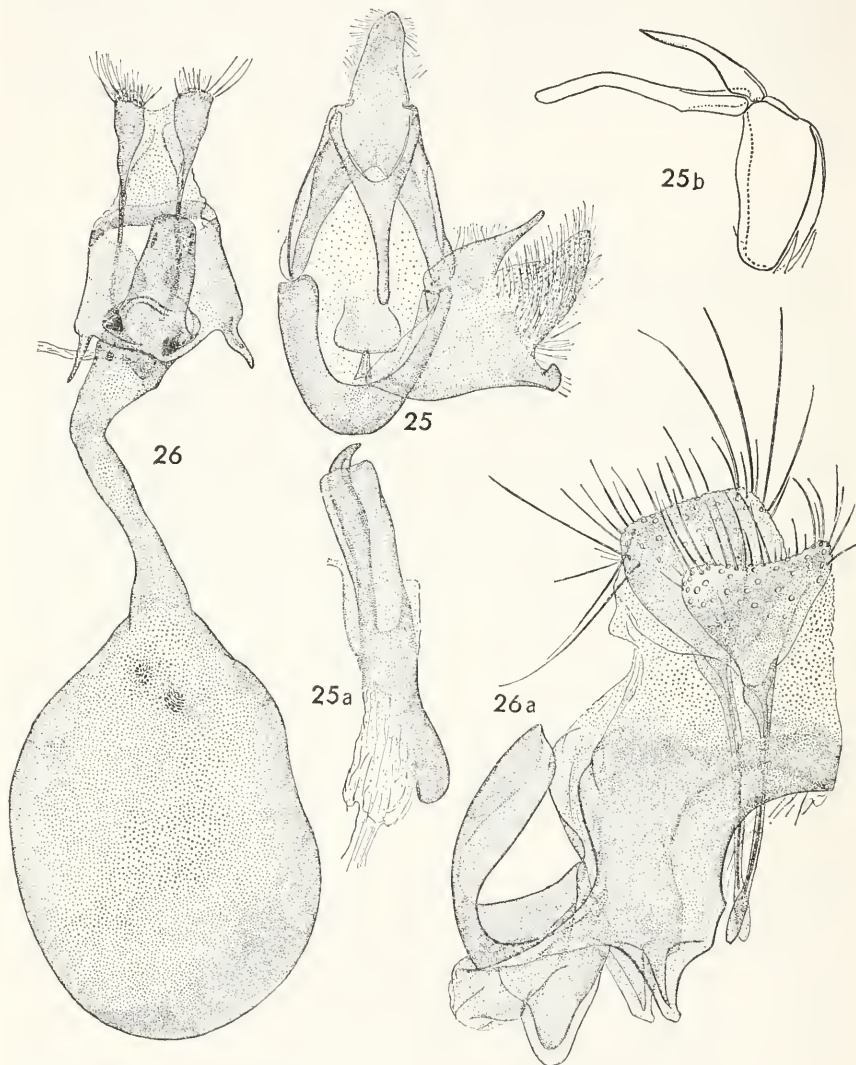
Male genitalia (slides 10707, 10246, 10693): Gnathos less than twice the length of uncus. Costal process of harpe digitate, curved. Cucullus triangular, pointed. Sacculus with ventral edge nearly straight. Aedeagus armed with a long, strong hook.

Female genitalia (slides 10660, 10247, 10248, 10694): Ostium rather large, periphery strongly sclerotized; lip of ostium stout, broad, tapering slightly posteriorly, truncate. Ductus bursae membranous except for short area before ostium and with strongly sclerotized, small, conical evagination dorsally before ostium. Inception of ductus seminalis at about posterior third.

Type: Masafuera: Cordón del Barril, 1200 m. (Feb. 17, 1955).

Described from the female type, 10 female and 5 male paratypes as follows: Masafuera: Cordón del Barril, 1200 m., 3 ♀♀, ♂ (Feb. 17,

1955); Quebrada de las Casas, 7 ♀♀, 3 ♂♂ (Jan. 16–19, 1952; Jan. 22, 1955), Quebrada de las Vacas, ♂ (Jan. 17, 1951).



FIGURES 25–26.—*Juania grisea*, new species: 25, ventral view of male genitalia with left harpe and aedeagus removed; 25a, aedeagus; 25b, lateral outline of tegumen, uncus and gnathos; 26, ventral view of female genitalia; 26a, lateral aspect of posterior portion of female genitalia.

This is a very variable species and it is difficult to find an “average” specimen to serve as type. In selecting the type I chose a female, found in copula with one of the male paratypes, with markings approximately between the extremes. Two of the female paratypes have



very strongly marked white areas between the dark basal area and first transverse line. Actually, the white scaling is so dense that the light areas appear as oblique white bands. In one specimen, also, the white scales are mixed with ochereous but only one shows this feature. In other paratypes the white scaling is almost nonexistent and even the dark markings are obscured. On the underside several variations of the dark markings, usually preceded and followed by light scaling, are found. These consist of breaks in the transverse bands, complete replacement of the light terminal areas, with fuscous shading into the lines with the consequent reduction of the transverse line of forewing to an obscured costal spot. Despite all these variations, a series of 10 male and female slides leaves only one conclusion to be drawn—that these represent one species only.

In genitalia, *grisea* is nearest *abbreviata* from which it differs as described under the latter species.

*Juania nitidissima*, new species

FIGURE 27

Alar expanse 13 mm.

Labial palpus creamy white; second segment dark gray on outer side except ventrally; third segment wholly overlaid with dark gray. Antenna grayish fuscous. Head, thorax, and ground color of forewing grayish fuscous with brassy hue; tegula somewhat lighter than center of thorax; in cell and along termen fuscous shading but no distinct, well-defined dark markings; cilia gray with a narrow, dark, basal line. Hindwing grayish fuscous, slightly lighter basally; cilia grayish fuscous with darker basal line. Legs gray, hindtibia and tarsi paler. Abdomen gray, paler beneath.

Female genitalia (slide 10703): Ventral lip of ostium very short, broad, strongly sclerotized. Posterior half of ductus bursae broad, flattened, strongly sclerotized, preceded by a short, lightly ribbed, narrower part which gives rise to the ductus seminalis from about middle.

Type: Masatierra: Cerro Alto, 600 m. (Feb. 1, 1952).

Described from the unique female type. This smooth-winged, virtually unmarked, species might easily be confused with a rubbed or worn specimen of *grisea*, but the genitalia of the two are widely different and enable ready identification. The long, stout, ventral lip of the ostium of *grisea* immediately distinguishes it from *nitidissima*. The dull, brassy luster of *nitidissima* is also a feature that distinguishes it from *grisea*.

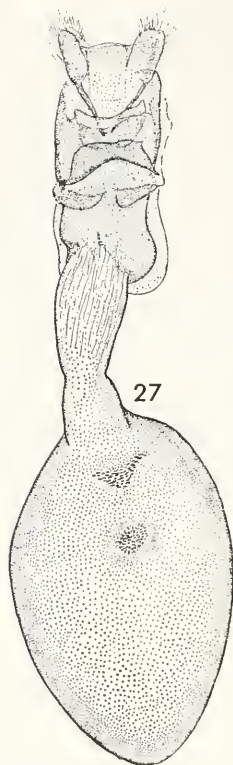


FIGURE 27.—*Juania nitidissima*, new species: ventral view of female genitalia.

*Juania abbreviata*, new species

FIGURE 28

Alar expanse 14 mm.

Labial palpus with basal segment white, second and third segments blackish fuscous. Antenna, head, thorax, and ground color of forewing blackish fuscous; antenna with slightly paler annulations; head with slight purplish cast; thorax with white scaling, particularly posteriorly and at tip of tegula; forewing with considerable white scaling; base of forewing black; from basal third of costa to slightly beyond middle of dorsum, an irregular, oblique, transverse black line preceded by white scales; from apical third of costa to tornus an irregular, angulate, transverse black line; cilia grayish fuscous with a few scattered white scales mixed; underside of forewing washed with white and with an outwardly curved, fuscous band slightly beyond apical third. Hindwing sordid white; termen broadly edged with fuscous, interrupted near inner edge by a fine line of ground color; cilia grayish fuscous, white tipped, with a dark subbasal line;

underside with a narrow, fuscous subterminal band. Legs blackish fuscous; tibiae and tarsi white tipped. Abdomen grayish fuscous, with sparse sordid-white scaling beneath; posterior tip ochreous white.

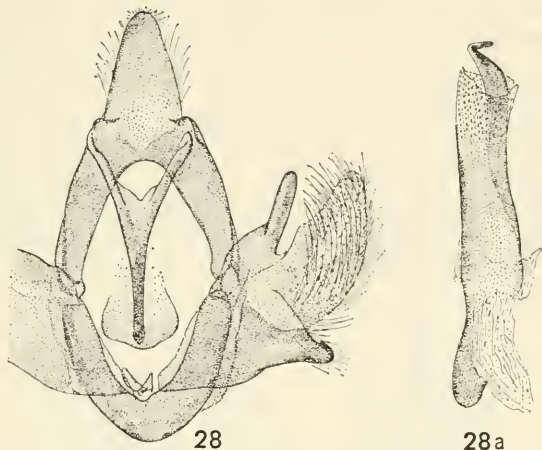


FIGURE 28.—*Juania abbreviata*, new species: 28, ventral view of male genitalia with left harpe and aedeagus removed; 28a, aedeagus.

Male genitalia (slide 10689): Typical of the group but with a stout, overall appearance. Gnathos more than twice the length of uncus. Costal process of harpe fingerlike, apex rounded. Sacculus strongly sclerotized, broad, ventral edge emarginate. Aedeagus armed with a long, slender hook.

Type: Masafuera: La Correspondencia, 1300 m. (Jan. 20, 1952).

Described from the unique male type. The white hindwings, with the contrasting fuscous terminal band, distinguish *abbreviata* from all the other similar small species of *Juania*. In male genitalia it is nearest *grisea* but can be distinguished from it by the longer, parallel-sided cucullus, broader sacculus, and the more slender hook of the aedeagus.

#### *Juania minima*, new species

FIGURE 29

Alar expanse 12 mm.

Labial palpus white; second segment grayish fuscous on outer side except base and ventrally; terminal segment grayish fuscous except basally and ventrally. Antenna grayish fuscous with a small blackish spot above on each segment. Head fuscous, frons pale grayish. Thorax fuscous with faint iridescence; tegula and posterior end of thorax with pale grayish scales mixed. Forewing

ground color grayish fuscous; sparse, scattered, white scales over surface particularly in apical third; basal third of forewing diffused blackish fuscous, followed by an oblique paler band of ground color; beyond this, from basal third of costa to middorsum, an indistinct, outwardly oblique band indicated by three, diffuse, ill-defined blackish-fuscous spots; at the end of cell a blackish-fuscous, white-centered spot connected with a large lobe of blackish fuscous extending toward dorsum; at apical fourth, in costal half of wing, a blackish-fuscous spot; cilia grayish fuscous with a few darker scales mixed. Hindwing grayish fuscous, somewhat darker toward termen; cilia grayish fuscous with a darker basal band. Legs grayish fuscous with scattered white and grayish scales mixed; tibiae and tarsi whitish annulated. Abdomen grayish fuscous, paler beneath.

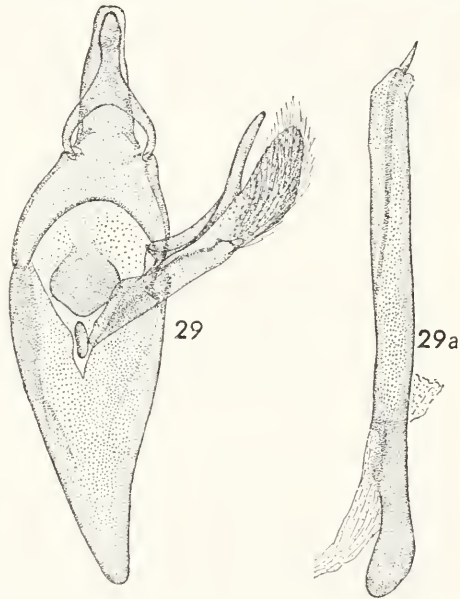


FIGURE 29.—*Juania minima*, new species: 29, ventral view of male genitalia with left harpe and aedeagus removed; 29a, aedeagus.

Male genitalia (slide 10697): Costal process of harpe long, slender, slightly curved, digitate; sacculus produced as a short, strong point. Uncus narrow, truncate. Gnathos slightly longer than uncus, distal end slightly dilated. Vinculum elongate, longer than uncus and tegumen combined. Aedeagus long, slender, armed with a slender, slightly curved process.

Type: Masatierra: Plazoleta del Yunque (Feb. 12, 1951).

Described from the unique male type. This is one of the "gray" species, gray in superficial appearance because of the combination

of the component colors and markings. The genitalia of *minima*, because of the development of the vinculum, easily separate it from the other species. It is probably more closely related to *grisea* than to any of the other species. In addition to the differences in the vincula of the two species, *minima* can be separated from *grisea* by the unusually long aedeagus with its long, slender, pointed process.

*Juania derelicta*, new species

FIGURE 30

Alar expanse 11 mm.

Labial palpus buff; second and third segments suffused grayish fuscous on outer side. Head, thorax, and ground color of forewing

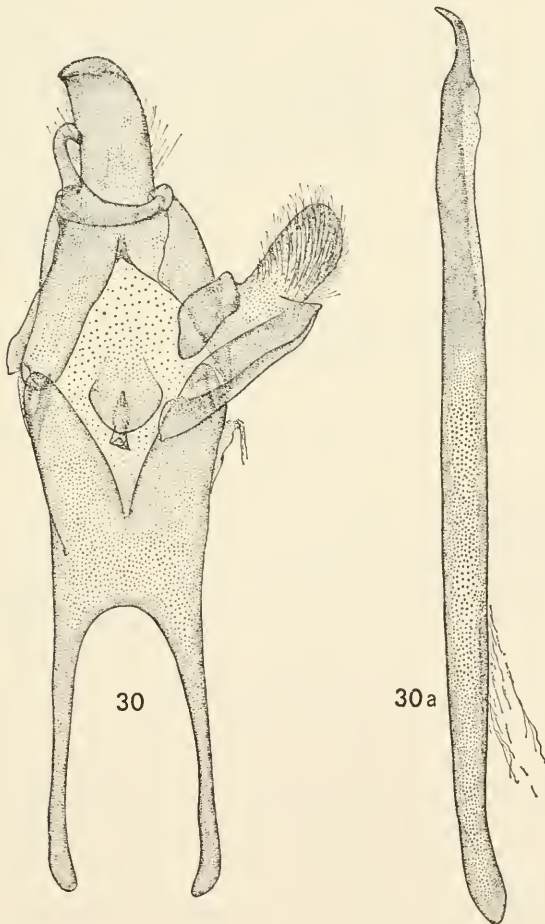


FIGURE 30.—*Juania derelicta*, new species: 30, ventral view of male genitalia with left harpe and aedeagus removed; 30a, aedeagus.

grayish fuscous, the forewing with a slight coppery luster; posterior tip of tegula and posterior end of thorax somewhat lighter than ground color; extreme costal edge of forewing, between middle and apical fourth, buff; a spot of pale color on termen; cilia grayish. Hindwing grayish fuscous; cilia a shade lighter with a dark basal band. Legs grayish with slight luster; distal ends of tibiae with ill-defined, buff annulations. Abdomen grayish fuscous, somewhat lighter beneath; posterior tip pale gray.

Male genitalia (slide 10708): Harpe broad; costa short, strongly sclerotized, distal end abruptly truncated; cucullus a fleshy, parallel-sided lobe; sacculus elongate, strongly sclerotized, terminating in a broadly triangular process. Anellus a broad crescent. Gnathos curved, asymmetrical, about as long as uncus. Uncus long, wide, curved ventrad. Vinculum longer than uncus and tegumen combined; anterior edge cleft for slightly more than half the entire length. Aedeagus long and slender, terminating in a gently curved hook.

Type: Masatierra: El Camote, 600 m. (Dec. 28, 1954).

Described from the unique type male. The type is not in good condition and better material may necessitate altering the description. The genitalia, however, are so striking and distinct that it will not be difficult to determine additional material when it comes to hand. A parallel development of the vinculum is seen in *Fernandocrambus oxyechus* but that of *derelecta* is even more exaggerated.

This species belongs in the *chiloma-glareola* group but the vinculum alone will separate *derelecta* from the other two.

#### *Juania parva*, new species

#### FIGURE 31

Alar expanse 9 mm.

Labial palpus white; second segment on outer side, and all third segment except extreme tip, dark mouse gray. Antenna, head, thorax, and ground color of forewing blackish fuscous; face sordid white; thorax with considerable sordid-white scaling mixed; basal patch of forewing black, outer edge oblique from costa to dorsum; dorsal half of wing overlaid with sordid white interrupted by irregular, black, transverse lines; in costal half of wing a few scattered sordid-white scales; cilia light grayish fuscous, mixed with white, and with a white spot just below apex and one on midtermen. Hindwing drab, somewhat darker toward outer margin; cilia grayish mixed with whitish apically and banded with grayish fuscous. Abdomen gray, posterior tip ochreous white.

Male genitalia (slide 10706): Ventral edge of sacculus thickened; distal end terminating in a large, strongly sclerotized hook. Costa of harpe short, triangular. Cucullus small, slender, weak. Anellus

a long pear-shaped plate. Vinculum terminating in two widely separated, blunt points. Gnathos asymmetrical, curved. Uncus short, rectangular, posterior edge excavated. Aedeagus robust, armed with a lateroterminal pair of teeth.

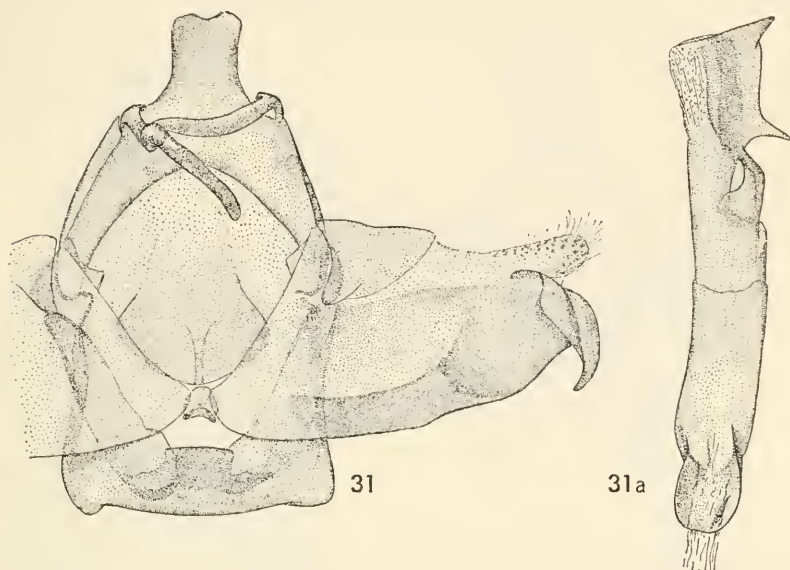


FIGURE 31.—*Juania parva*, new species: 31, ventral view of male genitalia with left harpe and aedeagus removed; 31a, aedeagus.

Type: Masatierra: El Pangal, 350 m. (Feb. 18, 1951).

Described from the unique male type. This is the smallest of the known species of *Juania* and appears to be most nearly related to *chiloma*. It differs from that species by the paired teeth of the aedeagus, the very slender, weak cucullus and the long, strong terminal hook of sacculus; also, *parva* lacks any suggestion of the buff longitudinal area of forewing of *chiloma*.

*Juania byssifera*, new species

FIGURE 32

Alar expanse 14 mm.

Labial palpus buff; second and third segments light drab on outer side. Antenna drab except some buff scaling toward base; scape buff. Head light ochraceous buff, slightly darker posteriorly. Thorax and forewing grayish fuscous; from base of forewing to termen a slender, buff, longitudinal line; extreme costal edge narrowly yellowish; ground color somewhat mottled but, except for longitudinal line, forewing without distinct markings; cilia grayish fuscous except

apical cilia and spot at end of pale line, buff. Hindwing drab gray; cilia concolorous except for darker basal band. Legs buff overlaid and suffused with drab. Abdomen drab above, paler beneath; posterior tip ochreous white.

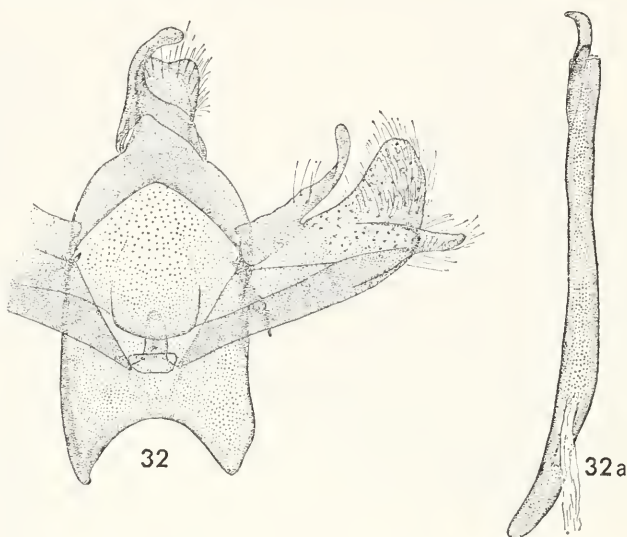


FIGURE 32.—*Juania byssifera*, new species: 32, ventral view of male genitalia with left harpe and aedeagus removed; 32a, aedeagus.

Male genitalia (slide 10709): Costa of harpe terminating in long curved process; cucullus broadly triangular, fleshy; sacculus elongate, triangular, terminating in nearly straight, digitate, sclerotized process. Anterior edge of vinculum deeply excavated. Gnathos stout, curved, asymmetrical, less than twice as long as uncus. Uncus broader posteriorly than basally. Aedeagus moderately long, slender, armed with terminal hook.

Type: Masatierra: El Camote, 600 m. (Jan. 9, 1955).

Described from the unique male type. The clear-cut uninterrupted, longitudinal stripe at once separates *byssifera* from other members of the genus. The genitalia of *byssifera* place it with those species having a vinculum with deeply excavated anterior edge and it is probably nearest *chiloma*. It is separated from *chiloma* by the costal process of harpe, slender extension of sacculus and the longer, more slender aedeagus.

*Juania chiloma*, new species

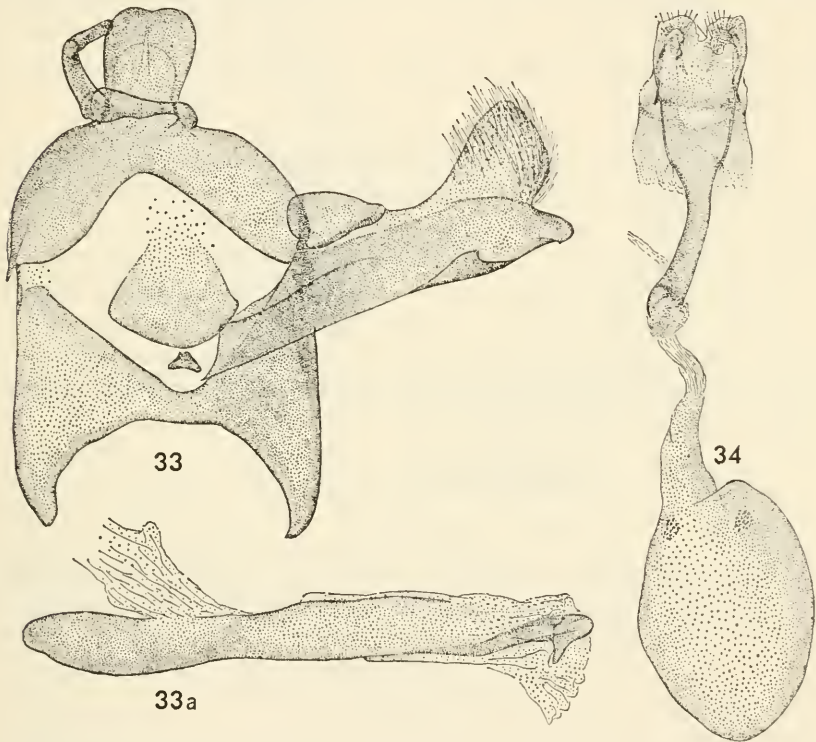
FIGURES 33-34

Alar expanse 9-12 mm.

Labial palpus pale buff; second and terminal segments shaded with grayish fuscous on outer side. Head pale buff with slight



infuscation posteriorly. Antenna pale buff shaded with grayish fuscous above and distally. Thorax buff, strongly suffused with grayish fuscous. Forewing ground color buff; from base of costa to middle an elongate fuscous shade broadening toward outer end and extending across wing to fold; basal third of wing, dorsally, fuscous, this area not connected with the costal shade and the two with a longitudinal streak of ground color between; apical third of wing strongly shaded with fuscous but with a narrow band of ground



FIGURES 33-34.—*Juania chiloma*, new species: 33, ventral view of male genitalia with left harpe and aedeagus removed; 33a, aedeagus; 34, ventral view of female genitalia.

color along termen; between the basal and apical dark areas the ground color is suffused grayish fuscous; cilia buff at apex; pale grayish fuscous, with a basal fuscous band, along termen and tornus; entire wing with slight brassy hue. Hindwing grayish fuscous; cilia a shade lighter with a dark subbasal band. Legs buff, lightly suffused with grayish fuscous; tarsi broadly banded with fuscous. Abdomen grayish fuscous; somewhat paler beneath; posterior tip suffused buff.

Male genitalia (slide 10699): Costa strongly sclerotized basally and without any process. Sacculus long and broad with curved,

bluntly pointed terminal process and with ventral edge curled slightly before the terminal process. Gnathos extremely asymmetrical, the long, curved distal process arising on left side. Uncus short, broad, rounded, posterior edge slightly indented. Vinculum very broad, anterior edge deeply excavated. Aedeagus slightly bent and armed with a short, stout terminal thorn.

Female genitalia (slide 10700): Ventral lip of ostium excessively developed, dilated posteriorly and posterior edge excavated (variable). Posterior two-fifths of ductus bursae very strongly sclerotized, round in cross section, remainder of ductus bursae membranous. Inception of ductus seminalis slightly anterior to sclerotized part of ductus bursae.

Type: Masatierra: Villagra (Feb. 22, 1951).

Described from the type female, one male paratype (same data as type) and one male and three female paratypes as follows: Masatierra: Cerro Alto, 600 m., 2 ♀♀ (Feb. 1, 1952); Picacho Central, 600 m., ♀ (Feb. 4, 1952); Quebrada la Laura, ♂ (Mar. 1, 1951).

In type of male genitalia reminiscent of *Fernandocrambus fuscus*. In general appearance *chiloma* is more like *imitator* than any of the other species of this genus. From *imitator*, this species can be separated easily by the absence of a costal process of the harpe and the enormous development of the ventral lip of the ostium.

#### *Juania imperfecta*, new species

FIGURE 35

Alar expanse 18 mm. (estimated; apices of both forewings missing).

Labial palpus clay color; first and second segments buff on inner side. Antenna grayish fuscous, with scattered clay-colored scales; scape clay color. Head, thorax, and ground color of forewing clay color; posterior tip of tegula and posterior end of thorax slightly lighter than ground color; from base of wing to end of cell a yellowish buff, longitudinal streak broadens and darkens, merging with the ground color toward termen; from the longitudinal streak to costa wing shaded dark brown, this color fading toward apex; cilia (at tornus) gray. Hindwing gray; cilia pale gray with a dark basal band. Legs buff, strongly overlaid and suffused with grayish fuscous. Abdomen grayish fuscous, paler beneath.

Male genitalia (slide 10649): Harpe moderately broad; costa short, strongly sclerotized, arched; cucullus triangular with broad base; sacculus wide, strongly sclerotized, cupped, bluntly rounded, apex curved ventrad. Anellus a broad, lightly sclerotized plate. Gnathos symmetrical, terminating in a short point. Uncus broad basally, pointed, about two-thirds the length of gnathos. Vinculum

narrowed anteriorly, terminating in two curved points. Aedeagus straight, armed with short, sharp, apical hook.

Type: Masatierra: El Camote, 600 m. (Mar. 17, 1951).

Described from the unique male type.

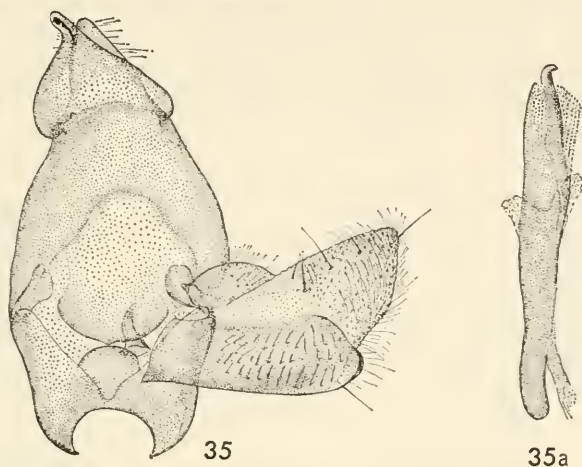


FIGURE 35.—*Juania imperfecta*, new species: 35, ventral view of male genitalia with left harpe and aedeagus removed; 35a, aedeagus.

Despite the damage to the forewings the species is so distinct it merits description. This species also falls in the *chiloma* group but can be distinguished from the others primarily by its symmetrical gnathos. In pattern *imperfecta* somewhat resembles *byssifera*, but *imperfecta* is a larger insect and the median longitudinal streak does not retain its linear form all the way to termen as in *byssifera*.

***Juania imitator*, new species**

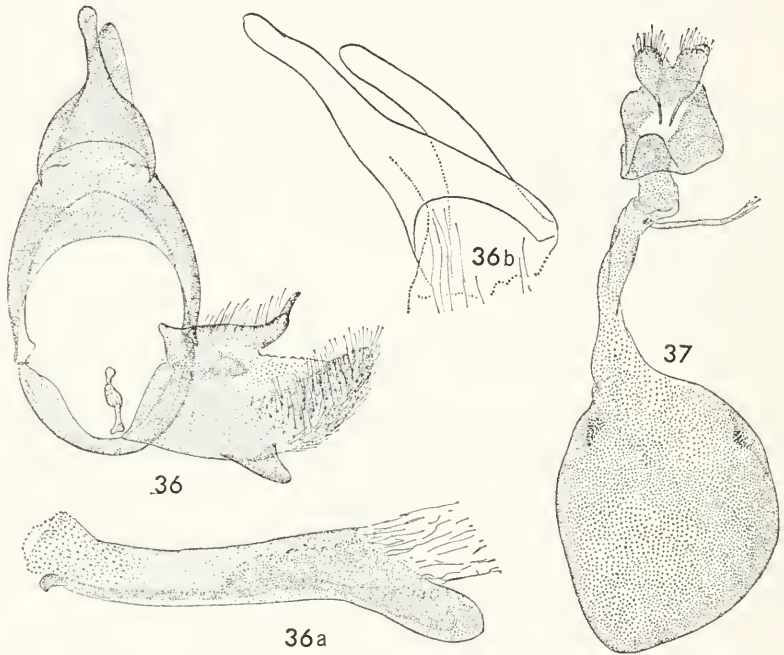
FIGURES 36-37

Alar expanse 11-12 mm.

Labial palpus ivory; second and third segments suffused olive drab on outer side. Antenna olive drab. Head light ochraceous buff except olive-drab frons. Thorax olive drab with light ochraceous buff mixed, the latter, in some specimens, to the almost total exclusion of the darker color. Forewing olive drab; from base to termen a central, longitudinal, pale ochraceous-buff line interrupted at slightly beyond middle, and again before termen, by bars of the ground color; the subterminal bar extended obliquely to apical third of costa and to tornus; the entire wing surface brassy hued; cilia light olive drab. Hindwing light grayish fuscous, darker toward termen and apex; cilia lighter with a dark basal band. Legs pale buff suffused with fuscous. Abdomen olive drab above, paler beneath.

Male genitalia (slides 10695, 10698): Costal arm of harpe curved, sharply pointed; apex of cucullus rounded; terminal process of sacculus short, bluntly pointed. Uncus narrow. Gnathos less than twice the length of uncus. Aedeagus armed with a short, stout hook.

Female genitalia (slide 10696): Genital plate strongly sclerotized, narrowed at ostium. Ventral lip of ostium short, evenly rounded. Ductus bursae sclerotized for short distance before ostium. Inception of ductus seminalis at junction of membranous and sclerotized parts of ductus bursae.



FIGURES 36-37.—*Juania imitator*, new species: 36, ventral view of male genitalia with left harpe and aedeagus removed; 36a, aedeagus; 36b, ventrolateral outline of uncus and gnathos; 37, ventral view of female genitalia.

Type: Masafuera: Quebrada de las Casas (Jan. 16, 1952).

Described from the type male, 5 ♂♂ and one ♂ paratypes all from the same locality with same date.

Superficially *imitator* resembles a small *Crambus* and, indeed, if it were not for the venation, one would place it there. At a casual glance *imitator* might be mistaken for *chiloma* from which it is easily distinguished by the longitudinal, interrupted pale streak of forewing which the latter lacks. In genitalia *imitator* can be distinguished from *chiloma* by the presence of a costal process the latter lacks and by the absence of widely separated points of vinculum. The enormous

ventral lip of ostium of *chiloma*, absent in *imitator*, distinguishes the two at once.

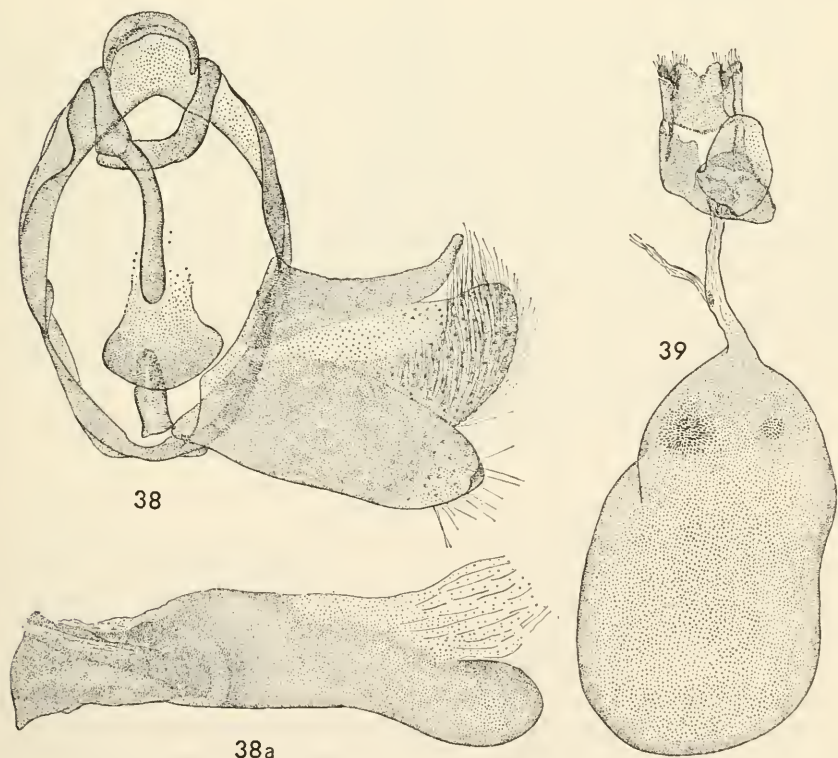
With the type series, but not as part of it, I associate a female from Masafuera, Quebrada de la Calavera (Jan. 15, 1952). This specimen measures 14 mm. in alar expanse and shows slight differences in the size and shape of the ventral lip of ostium, which is narrower and proportionately longer than in typical *imitator*; but the markings are the same and more material, including males, is needed to prove or disprove the correctness of the association.

*Juania glareola*, new species

FIGURES 38-39

Alar expanse 9.5-11 mm.

Labial palpus buff; second segment overlaid with grayish fuscous on outer side except ventrally; third segment almost wholly grayish fuscous. Antenna grayish fuscous. Head, thorax, and ground color



FIGURES 38-39.—*Juania glareola*, new species: 38, ventral view of male genitalia with left harpe and aedeagus removed; 38a, aedeagus; 39, ventral view of female genitalia.

of forewing drab mixed with gray; forewing with indistinct pale longitudinal streak from base to slightly below apex; dorsum and apex shaded with fuscous; apical cilia whitish and confluent with pale longitudinal streak, remainder light grayish fuscous. Hindwing grayish fuscous, paler basally; cilia grayish with darker basal band. Legs drab; tarsi with indistinct pale annulations. Abdomen grayish fuscous, somewhat lighter beneath.

Male genitalia (slide 10710): Harpe broad; costa with short, flattened terminal process; cucullus subtriangular, outer edge strongly curved; sacculus broad, heavily sclerotized and terminating in a broad, bluntly pointed, short process. Gnathos asymmetrical, twisted, more than twice the length of uncus. Uncus almost as wide as long, apex rounded. Aedeagus stout with apical, beaked process.

Female genitalia (slide 10702): Ostium transverse, oval, periphery strongly sclerotized; ventral lip of ostium about as broad as long and posterior edge rounded. Ductus bursae membranous. Inception of ductus seminalis slightly posterior to junction of ductus bursae and bursa copulatrix.

Type: Masatierra: Salsipuedes, 400 m. (Mar. 5, 1951).

Described from the type male and one female paratype with same data. A nondescript insect with scarcely any distinctive superficial features. The longitudinal pale streak is ill defined (more clearly so in the worn female) and best indicated by the whitish terminal spot. The male genitalia suggest a close relationship to *chiloma*. In both species the uncus is very short and the gnathos is asymmetrical and distorted but *glareola* can be distinguished from *chiloma* by the presence of a costal process on harpe, a broader, bluntly pointed sacculus, and the beaked apex of the aedeagus. The females do not exhibit this close relationship. The enormous ventral lip of the ostium of *chiloma* and the strongly sclerotized posterior section of ductus bursae immediately separate *chiloma* from *glareola*.

#### *Juania loxia*, new species

#### FIGURE 40

Alar expanse 15 mm.

Labial palpus sordid white; second segment overlaid with grayish fuscous on outer side; terminal segment wholly grayish fuscous. Antenna and head blackish fuscous, the latter with some light scaling on crown. Thorax and ground color of forewing blackish fuscous; posterior edge of collar, distal end of tegula and posterior end of thorax sordid white; costal edge of forewing grayish; at basal fifth, beginning inside costa, an outwardly oblique, rectangular sordid-white patch extends to dorsum; on dorsum, inside light patch, a light-brown

spot; from apical sixth of costa an irregular, sordid-white line, parallel to termen, extends to tornus; between this light line and termen, in dorsal half, some light-brown shading; cilia gray; underside of costa with a pronounced white spot. Hindwing light fuscous; cilia concolorous but with a grayish cast and with a dark subbasal line. Legs grayish fuscous with white bands at ends of tibiae and tarsi. Abdomen grayish fuscous.

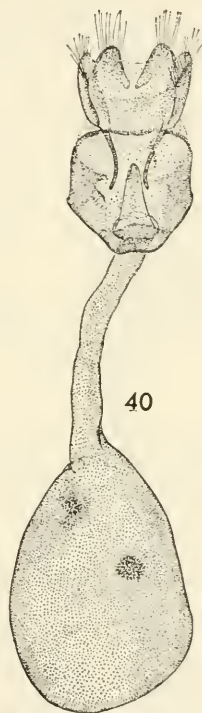


FIGURE 40.—*Juania loxia*, new species: ventral view of female genitalia.

Female genitalia (slide 10662): Area posterior to ostium membranous; ventral lip of ostium narrowly triangular and weakly sclerotized. Anterior apophyses absent. Ductus bursae membranous. Inception of ductus seminalis in posterior third of ductus bursae.

Type: Masatierra: Picacho Central, 600 m. (Feb. 4, 1952).

Described from the unique type female. The coloring of this species is striking because the dark, contrasting ground color is set off by the light basal area and subterminal line forming, roughly, a conspicuous triangle. In genitalia *loxia* is nearest *paraloxia* as indicated by the ventral lip of the ostium and the absence of the anterior apophyses.

*Juania paraloxia*, new species

FIGURE 41

Alar expanse 14 mm.

Labial palpus white; second segment with slight grayish-fuscous shading distally on outer side; third segment almost wholly grayish fuscous. Antenna grayish fuscous except for a white line ventrally in basal half. Thorax fuscous; tegula and collar grayish fuscous with white scaling along edges; posterior end of thorax whitish. Forewing ground color fuscous, interrupted by an outwardly oblique

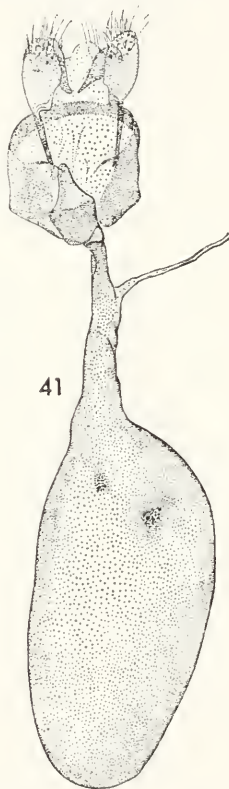


FIGURE 41.—*Juania paraloxia*, new species: ventral view of female genitalia.

whitish patch from inside costa at basal fifth to dorsum; a subterminal, oblique whitish line from apical sixth of costa to tornus and a large whitish ovate spot between the other two white markings; some light-brown shading, between subterminal light line and termen, followed by three ill-defined pale areas before cilia; cilia gray; underside with an elongate white, preapical spot on costa. Hindwing grayish fuscous; cilia concolorous with darker basal line. Legs light grayish



fuscous with pale annulations at ends of tibiae and tarsi. Abdomen grayish fuscous with whitish scaling beneath.

Female genitalia (slide 10384): Genital plate broad; area posterior to ostium membranous. Ventral lip of ostium narrowly triangular but broadened abruptly at base; weakly sclerotized. Anterior apophyses absent. Ductus bursae membranous except extreme posterior portion. Inception of ductus seminalis slightly before posterior third.

Type: Masatierra: El Camote, 600 m. (Mar. 17, 1951).

Described from the unique female type. The type specimen lacks the right forewing and is otherwise in only fair condition but is a striking insect closely related to *loxia*. The chief point of external difference between *paraloxia* and *loxia* is the presence of the large ovate light spot in the central area of the forewing of the former and absence in the latter. The genital plate of *paraloxia* is broader than that of *loxia* and the ventral lip of ostium is much more slender in *loxia* than in *paraloxia*.

*Juania magnifica*, new species

FIGURE 42

Alar expanse 40–43 mm.

Labial palpus white; basal segment with a pale grayish-fuscous spot outwardly; second segment with longitudinal, oblique, grayish-fuscous band from base, dorsally, to apex ventrally; third segment suffused grayish fuscous. Antenna, scape white with fuscous spot dorsally, remainder sordid whitish suffused grayish fuscous. Head white suffused grayish fuscous anteriorly and laterally. Thorax and ground color of forewing white, the former with pale grayish-fuscous mottling; extreme base of costa narrowly blackish fuscous; from slightly before middle of costa, inwardly along vein 12, then outwardly to middle of dorsum, an irregular fuscous transverse line; from costa, at apical fourth, an outwardly oblique fuscous, broken line extends to vein 6, then continues to tornus nearly parallel to termen; between the two transverse lines a white diamond-shaped spot narrowly edged with fuscous; termen marked with six blackish-fuscous spots at the ends of the veins; remainder of wing irregularly irrorate or lightly suffused with grayish fuscous, paler basally; cilia paler than wing, apical cilia white. Legs white, suffused and spotted with fuscous; markings of hindleg confined to grayish-fuscous tarsal spots. Abdomen grayish fuscous above, paler beneath.

Female genitalia (slide 10383): The unusually large spatulate process, arising on the ventroanterior edge of the ostium and extending almost to the tip of the ovipositor, is an extreme development of similar processes found in other species of Crambidae.

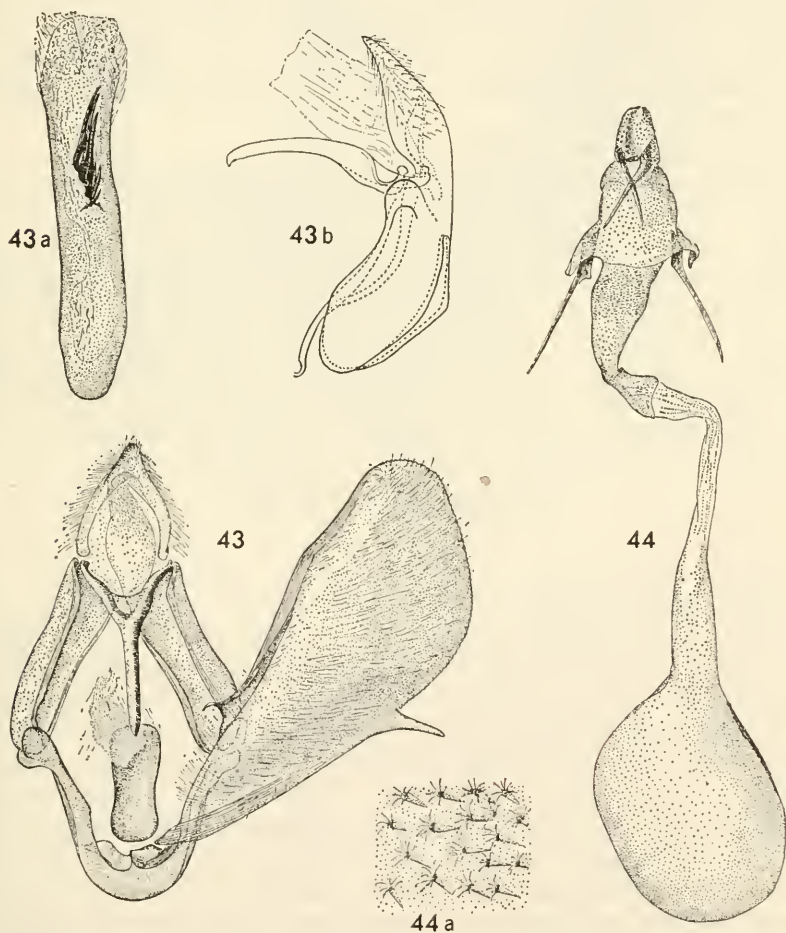


*Scoparia matuta*, new species

FIGURES 43-44

Alar expanse ♂, 28-31 mm., ♀, 26 mm.

Labial palpus white; outer side of second segment buffy brown with dark spot near base. Head white, mixed with pale brown; face almost wholly buffy brown. Antenna light brown with fuscous spots above. Thorax and ground color of forewing buffy brown; tegula fuscous on basal, inner half; metathorax with some white scaling; at apical fourth an irregular white line outwardly oblique to vein 6, then inwardly oblique to dorsum before tornus; the white line is preceded



FIGURES 43-44.—*Scoparia matuta*, new species: 43, ventral view of male genitalia with left harpe and aedeagus removed; 43a, aedeagus; 43b, lateral outline of tegumen, uncus and gnathos; 44, ventral view of female genitalia; 44a, detail of wall of bursa copulatrix.

by fuscous shading; surface of forewing irregularly marked with fuscous and white streaks; around termen a series of slender fuscous dashes along veins; cilia pale buffy brown mixed with fuscous and white scales. Hindwing pale yellowish gray shaded with fuscous along outer margin; cilia pale grayish with whitish median, and grayish-fuscous basal lines. Legs white overlaid and shaded with buffy brown and pale brown. Abdomen pale pearly gray with fuscous shading laterally and slight fuscous irroration ventrally.

Male genitalia (slide 10640): The vesica is armed with three long slightly curved cornuti at the base of which is a cluster of small fine ones.

Female genitalia (slide 10674): The female genitalia are somewhat atypical, the signum consisting of a very slender sclerotized ridge with some sclerotization around it, rather than a scobinate patch or a few spines. Ductus bursae sclerotized in posterior third, flattened and broad at ostium.

Type: Masafuera: La Correspondencia, 1150 m.

Described from the male type, 11 male and one female paratypes all from the type locality. (Jan. 18, 1955 to Feb. 15, 1955.)

The female of this species, although marked similarly, is strikingly different from the males in general appearance. It is not only smaller than the males but the wings are much narrower with the costal and dorsal margins nearly parallel. The apices of both fore- and hindwings are produced and acutely pointed and the terminal margins are concave. This sort of dimorphism is not uncommon in insular areas but this is the only example I know from these islands.

*Scoparia dela*, new species

FIGURE 45

Alar expanse 22 mm.

Labial palpus sordid white; second segment strongly overlaid with fuscous on outer side and with pale brownish on lower half of inner surface; third segment ground color almost wholly obscured by pale brownish suffusion. Head white mixed with pale brownish scales; antenna with scape whitish, remainder pale brown with whitish scales at ends of segments. Thorax and ground color of forewing sordid white; tegula with fuscous base and with pale yellowish scales mixed with the white ground posteriorly; extreme edge of costa, from base to two-fifths, blackish fuscous; from base of costa to fold an outwardly oblique blackish-fuscous bar; from basal two-fifths of costa an outwardly oblique, transverse, blackish-fuscous line extends to dorsum; from this line two spurs of similar color extend into cell and

along lower edge of cell to vein 2; on costa, slightly beyond middle and well before apex, two blackish-fuscous spots; at end of cell a large, bilobed spot of same color; around termen, between veins, a series of short, blackish-fuscous dashes; entire surface of wing covered with scattered blackish-fuscous scales; cilia white spotted with fuscous. Hindwing shining yellowish white suffused with pale fuscous and with an ill-defined, subterminal fuscous band; cilia whitish with slight infuscation. Legs whitish overlaid and banded with fuscous. Abdomen sordid whitish somewhat infuscated.

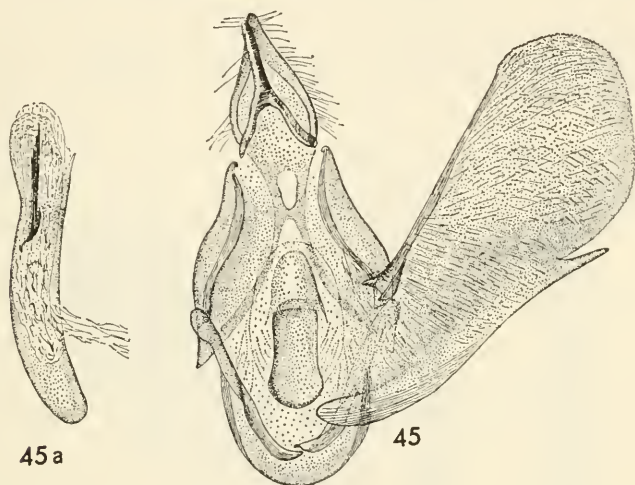


FIGURE 45.—*Scoparia dela*, new species: 45, ventral view of male genitalia with left harpe and aedeagus removed; 45a, aedeagus.

Male genitalia (slide 10679): Vesica armed with a group of four long, slender cornuti arising from a common base, and a single, weak cornutus dorsal to the group. Gnathos slender, about as long as uncus.

Type: Masafuera: La Correspondencia, 1150 m. (Jan. 28, 1955).

Described from the unique type male. A distinct species resembling North American forms. The genitalia are typical. *S. dela* can be distinguished from *matuta* and *pyraustoides*, besides by the coloration and markings, by the short gnathos which is equal in length to the uncus. In the other two species the gnathos is appreciably longer than the uncus. This species is further distinguished from *pyraustoides* by the presence of cornuti which *pyraustoides* lacks; from *matuta* by the absence of the cluster of small, weak cornuti at the base of the group of larger ones.

*Scoparia pyraustoides*, new species

FIGURE 46

Alar expanse 25–28 mm.

Labial palpus light cinnamon buff, outer side overlaid with fuscous. Head and antenna light cinnamon buff, the latter with tiny fuscous spots at the ends of the segments. Thorax and ground color of forewing light cinnamon buff; tegula fuscous at base and thorax with some dark suffusion; costa with extreme base fuscous and with some dark suffusion about middle; from basal quarter of costa to basal third of dorsum an irregular, indistinct, outwardly oblique fuscous line followed by a fuscous spot in cell; at outer end of cell a large, quadrate fuscous blotch; from outer fourth of costa an indistinct, fuscous, transverse line outwardly oblique to vein 6, thence inwardly

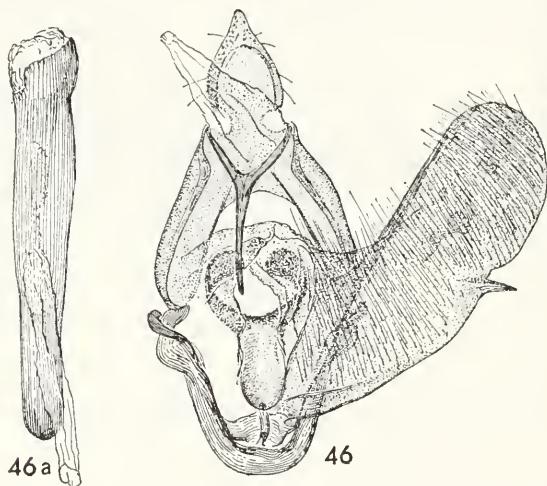


FIGURE 46.—*Scoparia pyraustoides*, new species: 46, ventral view of male genitalia with left harpe and aedeagus removed; 46a, aedeagus.

oblique to dorsum slightly before tornus; this transverse line accentuated where it crosses veins; between the outer transverse line and termen some dark suffusion; cilia cinnamon buff with a narrow fuscous basal line. Hindwing ochereous white, shading to cinnamon buff at apex and around margin; cilia cinnamon buff with scattered fuscous scales mixed. Legs whitish ochereous; femora and tibiae overlaid, and tarsi spotted, with fuscous. Abdomen whitish ochereous, somewhat darker beneath, and with a ventrolateral line of fuscous spots.

Male genitalia (slide 10398): Vesica without cornuti (at least in type).

Type: Masatierra: El Yunque, 515 m. (Feb. 10, 1952).

Described from the male type and two male paratypes as follows: Type male and one male paratype with same data; one male paratype, Masatierra: Alto Francés, 500 m. (Jan. 16, 1955).

Superficially this species looks like a typical pyraustid. Apparently *pyraustoides* is nearest *matuta* from which it can be distinguished by the absence of cornuti.

## Subfamily Pyraustinae

### Genus *Oeobia* Hübner

#### *Oeobia ragonotii* (Butler), new combination

FIGURES 47-48

*Mella ragonotii* Butler, 1883, Trans. Ent. Soc. London, 1883, p. 59.

*Scoparia ragonoti* (Butler), Hampson, 1897, Trans. Ent. Soc. London, 1897, p. 233.

*Scoparia ragonoti* (Butler), Aurivillius, 1922, in Skottsberg, The natural history of Juan Fernandez and Easter Island, vol. 3, pt. 2, p. 265.

Alar expanse 19-25 mm.

Male genitalia (slide 10262): Vesica armed with a single, small cornutus.

Female genitalia (slide 10264): Signa consisting of a diamond-shaped plate and a curved, spined plate at the junction of the ductus bursae and bursa copulatrix.

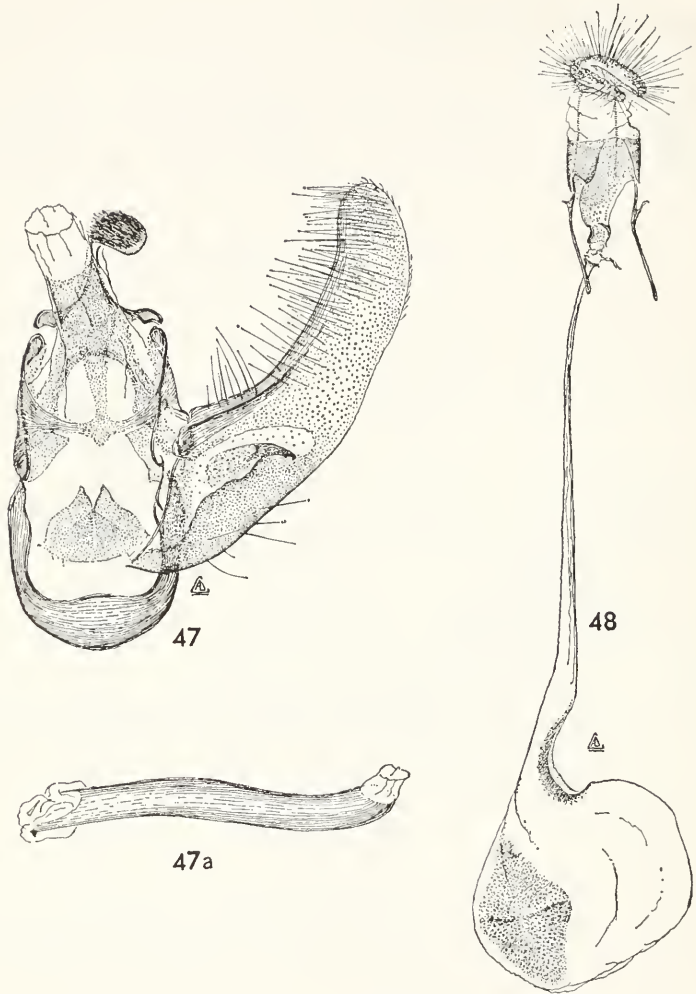
Type: British Museum (Natural History).

Type locality: Valparaiso, Chile.

Distribution: Masatierra: Bahía Cumberland ♂, 6 ♀♀ (Mar. 4, 1951, Jan. 3-4, 1952, Jan. 14, 1955); Plazoleta del Yunque, ♂, 2 ♀♀ (Jan. 2-3, 1952, Feb. 20, 1951); Masafuera: Quebrada de las Casas, 4 ♂♂, 2 ♀♀ (Jan. 14-19, 1952, Feb. 21, 1955); Santa Clara: El Corral, 3 ♂♂, 3 ♀♀ (Jan. 6, 1952).

This is one of the few species found widespread in the islands. It is a mainland form, described from Valparaiso, and is probably more widely distributed than present records indicate.

Certainly *ragonotii* is misplaced in *Scoparia* and I am, therefore, transferring it out of that genus. In placing it in *Oeobia* I do so with some misgiving but the species is not a scopariine; it is a pyraustine, hence this present assignment. The fact remains, however, that the venation does not agree with most species assigned to *Oeobia* but the male genitalia indicate that *ragonotii* belongs in this general group. The female genitalia are atypical for the genus. In general appearance *ragonotii* is strikingly similar to *Oeobia crambialis* (Grote) though it is a smaller insect.



FIGURES 47-48.—*Oecobia ragonotii* (Butler): 47, ventral view of male genitalia with left harpe and aedeagus removed; 47a, aedeagus; 48, ventral view of female genitalia.

### *Giorgia*, new genus

Type-species: *Giorgia crena*, new species.

Antenna fasciculate and finely ciliate in male, filiform in female. Labial palpus upturned; second segment roughened in front; third segment one-half length of second, cylindrical, smooth. Maxillary palpus dilated with scales. Head roughened posteriorly; frons rounded. Forewing smooth, moderately narrow, 12 veins; vein 2 from well before angle; 3, 4, and 5 about equidistant at base, divergent; 6 nearly twice as far from 7 as 7 is from 8; 7 to costa; 8 and 9 long



stalked, approximate to 10, from upper angle of cell; 11 short, from near angle of cell. Hindwing without pecten on median vein; with 7 veins; 2 remote; 3 well before angle; 4 and 5 approximate; 7 and 8 united; 6 approximate and joined to 7 and 8 by short crossvein. Both fore- and hindwings with termen emarginate below apex. Inner and outer tibial spurs of about equal length.

Male genitalia with simple harpe. Gnathos and uncus present. Anellus well developed. Vesica armed.

Female genitalia with signum present, anterior.

In Hampson's key (1898) this genus runs to *Sufetula* Walker and, in fact, resembles it superficially. In *Sufetula*, however, veins 7 and 8 of forewing both go to termen while in *Giorgia* both go to costa. In the hindwing of *Giorgia* veins 7 and 8 are coincident but in *Sufetula* they are stalked.

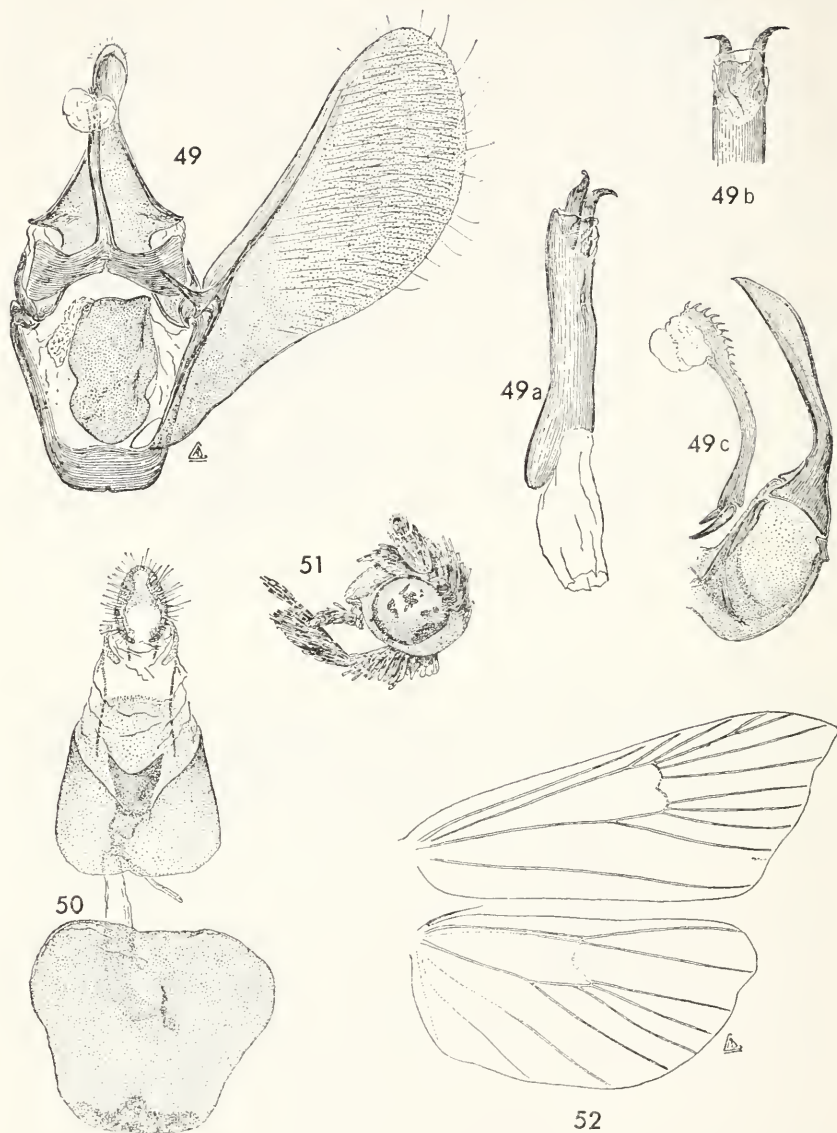
In placing this rather singular genus in the Pyraustinae, I do so with some misgiving. The gnathos suggests placement elsewhere but, perhaps, the genus goes as well here as elsewhere. At best the genus is aberrant.

*Giorgia crena*, new species

FIGURES 49-52

Alar expanse 9-13 mm.

Labial palpus cartridge buff except second segment fuscous on outer surface and third segment wholly fuscous. Antenna grayish, cilia silvery, a spot of black scales at end of each segment. Head pale gray; face cartridge buff. Thorax and ground color of forewing cream buff, the ground color largely obscured by dark markings; thorax finely and closely irrorate with fuscous; basal sixth of forewing fuscous, the ground color showing through faintly; basal patch followed by a band of ground color irrorate with fuscous; beyond this a broad, outwardly oblique, fuscous blotch extending to middle of wing and joined to a narrower, inwardly oblique sayal brown spot, the latter joined to a narrow, irrorate fuscous area extending to dorsum; beyond the above band of dark color a broad band of ground color crossed by two irregular, slender, fuscous transverse lines, each broadened on costa and dorsum; from apical third of costa, to tornus, a broad, dark band consisting of a fuscous blotch on costa and a similar one above tornus; between the two fuscous blotches, and joined to them, a sayal brown spot containing two longitudinal fuscous streaks; on tornus a narrow fuscous streak with a sayal brown spot between it and the fuscous blotch above tornus; between this bicolored, dark, transverse fascia and termen, cream buff, shading to grayish fuscous on termen; cilia cream buff with grayish-fuscous spots at apex, midtermen and tornus; underside drab, with a broad,



FIGURES 49-52.—*Giorgia crena*, new genus and new species: 49, ventral view of male genitalia with left harpe and aedeagus removed; 49a, aedeagus; 49b, terminal armature of aedeagus; 49c, lateral aspect of tegumen, uncus and gnathos; 50, ventral view of female genitalia; 51, lateral aspect of head to show palpus; 52, venation of right wings.

fuscous subterminal band preceded on costa by a cream-buff spot. Hindwing drab crossed by four indistinct, suffused, fuscous bands, alternating with cream buff, in dorsal half of wing, the outer band represented by a conspicuous fuscous blotch; cilia cream buff with conspicuous fuscous basal band at apex and along termen; underside with three well-defined grayish-fuscous bands. Legs grayish fuscous except buff outer side of first femur and narrow, suffused, annulations on all tarsi. Abdomen fuscous with narrow, pale, grayish annulations; first three or four segments white beneath; on third segment, dorsally a conspicuous buff spot; anal tuft buff.

Male genitalia (slides 10245, 10363): Harpe simple, narrow at base and widened toward cucullus. Uncus as long as gnathos, dilated toward apex and sharply pointed; gnathos slender, slightly curved and armed with a series of sawlike teeth on posterior edge. Anellus an elongate sclerotized plate, slightly convex ventrally. Aedeagus short, stout, armed with two strong hooks. Vinculum a narrow band.

Female genitalia (slides 10249, 10364): Ostium moderately broad, posterior edge concave. Ductus bursae membranous except for a short distance before ostium. Inception of ductus seminalis at junction of membranous and sclerotized parts of ductus bursae. Bursa copulatrix, pear shaped, broader posteriorly than anteriorly; signum a four-pointed, scobinate plate (in one example the ventral point, nearest observer, is produced more than a third the length of bursa copulatrix).

Type: Masafuera: Inocentes Bajos, 1000 m. (Jan. 27, 1952).

Food plant: *Diksonia berteriana* (Colla) Hooker.

Described from the type male and 30 ♂♂ and 6 ♀♀ paratypes as follows: Masafuera: La Correspondencia, 1300 m., 2 ♂♂ (Jan. 21, 1952); Inocentes Bajos, 1000 m., 13 ♂♂ (Jan. 27, 1952); Quebrada de la Calavera, 350 m., 8 ♂♂ (Jan. 15, 1952, Jan. 23, 1955); Quebrada de las Casas, ♂, ♀ (Jan. 19, 1952); Quebrada de las Vacas, ♂ (Jan. 17, 1952). Masatierra: Bahía Cumberland, 5 ♂♂, 5 ♀♀ (Feb. 15–Mar. 4, 1951, Mar. 18, 1955).

As indicated elsewhere in this paper, there are very few of the species that are represented on more than one of the islands of this group. In the case of *crena*, however, there can be no doubt about the identity of the populations found on Masatierra and Masafuera. The examples from Masafuera all, apparently, from relatively high altitudes, show a constancy of coloration not found in the Masatierra specimens. The latter, all from the one locality at low altitude, exhibit considerable variation among themselves and all are different from the Masafuera group. In addition to the brown spots indicated in the description, there is a spot of similar color at the end of cell of

forewing in all of the Bahía Cumberland examples: one specimen has the forewing almost entirely sayal brown with fuscous prominent on only the basal half of costa, the apex and in the terminal area. Four of the females show no trace of the pale median band, the entire area being fuscous; in one male the dorsal half of the light transverse band has been similarly replaced with fuscous.

The proportion of sexes is also a matter of interest. In the sample from Masafuera the males outnumber the females by 25 to 1 but in the Masatierra series the sexes are evenly divided. It appears that the date of sampling is a factor here. The Masafuera specimens were taken in January but all of those from Masatierra were caught from mid-February to mid-March.

### Genus *Mnesictena* Meyrick

#### *Mnesictena tetragramma*, new species

FIGURE 53

Alar expanse 17–18 mm.

Labial palpus cream buff beneath; second segment brick red above the cream-buff lower part; third segment black with a few brick-red scales mixed. Antenna blackish fuscous with a few scattered pale scales in outer half. Head brick red with tawny scales posteriorly. Thorax brick red anteriorly, the remainder blackish fuscous with

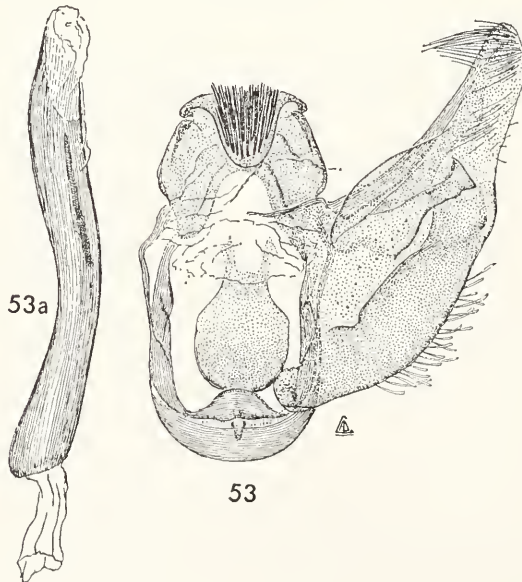


FIGURE 53.—*Mnesictena tetragramma*, new species: 53, ventral view of male genitalia with left harpe and aedeagus removed; 53a, aedeagus.

tawny scales posteriorly; tegula mixed with tawny and reddish scales posteriorly. Forewing fuscous, strongly overlaid with ferruginous; at two-fifths of costa a straight, transverse, ill-defined, fuscous line extends to dorsum at basal third; from apical sixth of costa a transverse, ill-defined line extends to vein 2 as a gently curved arc, along vein 2 to cell, then diagonally to vein 1c, outwardly on 1c, then straight to dorsum at outer two-thirds; in cell, in a straight line, three small white dots preceded and followed by blackish-fuscous scales; on outer half of costa four ochereous-tawny spots alternating with suffused shades of blackish fuscous; on termen seven tiny, ill-defined blackish-fuscous dots; cilia fuscous basally shading to ochereous tawny mixed with cream buff; underside overlaid ferruginous outwardly; costal spots accentuated; a conspicuous black spot at end of cell. Hindwing grayish fuscous; on discocellulars, at bases of veins 6 and 8, a black spot preceded by a whitish area of wing; from apical fourth of costa, paralleling termen, an irregular blackish-fuscous line extends to anal veins; cilia grayish fuscous basally shading to ochereous tawny mixed with cream buff; dark markings of upper surface repeated and accentuated on under surface. Legs ochereous buff overlaid with brick red and suffused basally with fuscous; spurs grayish fuscous. Abdomen grayish fuscous above, buff beneath.

Male genitalia (slide 10399): Harpe broad at base, cucullus tapering, narrow, bluntly pointed; sacculus strongly sclerotized but simple; clasper dilated distally and truncate. Anellus roughly elongate oval, constricted posteriorly. Uncus broad basally, bluntly pointed; posterior surface clothed with long, strong setae. Vinculum U-shaped, narrow. Aedeagus moderately stout, curved; vesica armed with a single long, slender cornutus.

Type: Masatierra: El Yunque, 915 m. (Feb. 10, 1952).

Described from the type male and one male paratype with same data.

In placing this species in the New Zealand genus *Mnesictena*, I do so with reservation. At any rate, *tetragramma* does not belong in any of the described South American genera and, except for having a longer labial palpus, agrees in all respects with Meyrick's genus. This species looks like a smaller and less well-marked example of *Pionea fumipennis* but is, of course, easily distinguished from it.

### Genus *Pionea* Guenée

#### *Pionea fumipennis* (Warren)

FIGURES 54-55

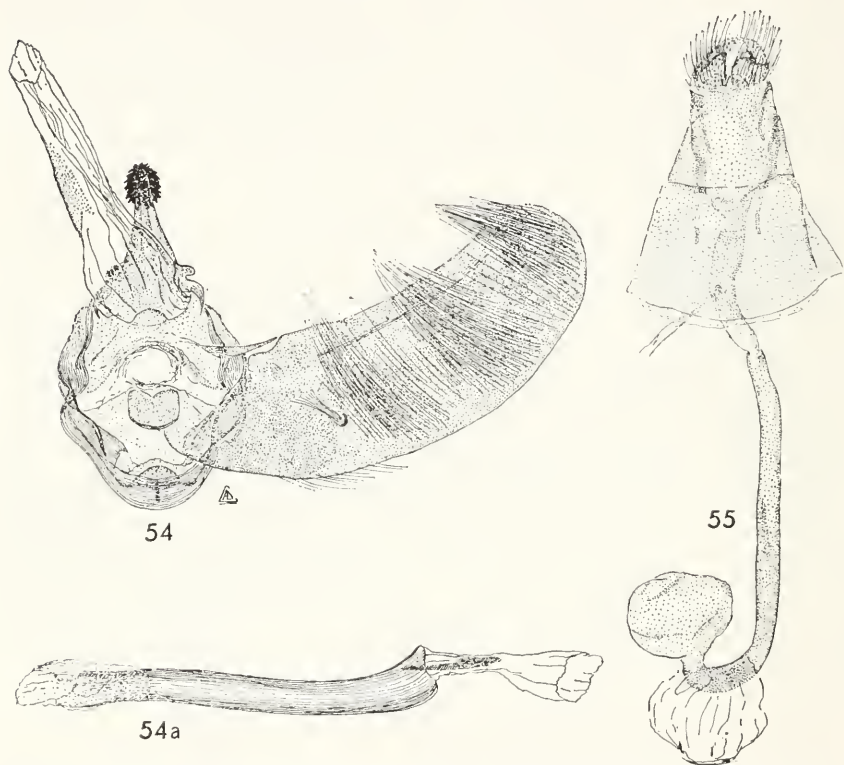
*Ebulea fumipennis* Warren, 1892, Ann. Mag. Nat. Hist., ser. 6, vol. 9, p. 392—Hampson, 1899, Proc. Zool. Soc. London, 1899, p. 249.—Aurivillius, 1922,

in Skottsberg, *The natural history of Juan Fernandez and Easter Island*, vol. 3, pt. 2, p. 266, pl. 11, fig. 16.

Type: British Museum (Natural History).

Type locality: "Juan Fernandez."

Distribution: Masatierra: Villagra ♂ (Feb. 21, 1951); Plazoleta del Yunque, 220 m. ♂ (Jan. 9, 1952); ♂, 8 ♀♀ (Mar. 3, 1955).



FIGURES 54-55.—*Pionea fumipennis* (Warren): 54, ventral view of male genitalia with left harpe and aedeagus removed; 54a, aedeagus; 55, ventral view of female genitalia.

When Warren described this species he gave the type locality as California. Aurivillius, in Skottsberg, listed the species from Masatierra but questioned his identification because of Warren's locality. I have examined Warren's types in the British Museum (Natural History) and have also seen Skottsberg's specimens. There is no question of the identity of the two lots and certainly the material presently at hand is the same. Mr. W. H. T. Tams has written me as follows: "The two specimens of *Pionea fumipennis* (Warren) are certainly labeled 'Juan Fernandez 84-72.' I have looked up the register and find that they were presented by Commander J. J. Walker, R.N., together with 670 other Lepidoptera, 'many rare,' from such

places as Chile, Straits of Magellan, etc., which means that they were caught by J. J. Walker himself. Obviously, Warren's *statement in print is a slip.*" The California record, therefore, is in error and the species should be dropped from our North American lists because the specific identity of the Juan Fernandez material is a certainty.

In this species there is a marked sexual dimorphism characterized by a contrasting pattern in the male and obscure pattern and somber coloring in the female. The conspicuous pale costal spot of the male forewing, repeated on the underside, is obscured and scarcely discernible in the female. On the underside of the female forewing, however, this spot is nearly as pronounced as in the male. The forewing of the female is light brown above, overlaid with vinaceous scales. The ill-defined fuscous markings of the forewing consist of two subcostal spots preceding and following the pale costal spot; a transverse line at one-third, another subterminally, and a patch of scales at the base of wing dorsally.

In all probability *fumipennis* will have to be transferred out of *Pionea* but that must be left to the revisers of the pyraloids. For the present I am leaving the species in *Pionea*. The male and female genitalia are figured from specimens from Masatierra, slides, ♂, 10400 and ♀, 10638.

### Genus *Pyrausta* Schrank

#### *Pyrausta louvinia*, new species

FIGURE 56

Alar expanse 18 mm.

Labial palpus white beneath; second and third segments grayish fuscous mixed with pale reddish scales. Antenna grayish fuscous with neutral red scales on scape. Head, thorax, and ground color of forewing neutral red; head with fuscous and gray scales mixed, particularly posteriorly; metathorax with mixed fuscous and pale gray; extreme costa of forewing pale tawny mixed with fuscous basally; from basal fourth of costa a fine, ill-defined black line outwardly oblique to cell, then, at right angles, inwardly oblique to basal fourth of dorsum; remainder of forewing covered with sparse, fine black scales; tornus with suffused blackish shade; cilia grayish fuscous, paler apically and irrorate with reddish scales; underside fuscous with a narrow tawny shade along costa. Hindwing fuscous, paler basally; cilia grayish fuscous, paler apically and mixed with light tawny. Legs grayish fuscous; foreleg overlaid with fuscous on outer side; mid- and hindlegs suffused grayish. Abdomen fuscous with scattered brassy scales on first three segments dorsally; re-

mainder of segments narrowly edged with grayish; first three segments cinereous beneath.

Male genitalia (slide 10402): Clasper a blunt, sclerotized process, directed toward base of harpe; cucullus broadly rounded. Anellus a transverse, rectangular plate, articulated at each posterolateral

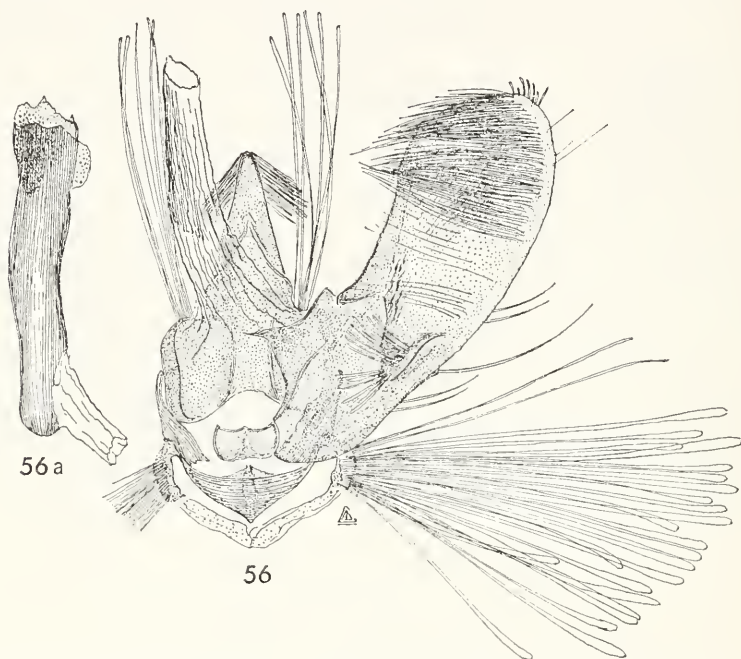


FIGURE 56.—*Pyrausta louvinia*, new species: 56, ventral view of male genitalia with left harpe and aedeagus removed; 56a, aedeagus.

corner with a slender arm of the transtilla. Uncus an elongated triangle. Vinculum narrow with scale-tuft membrane attached. Aedeagus stout, slightly bent; vesica armed with a cluster of fine cornuti.

Type: Masatierra: Miradero de Selkirk, 550 m. (Feb. 15, 1951). Described from the unique male type. Similar in coloring to the Mexican *P. volupialis* Grote, but darker, and lacking the light transverse line of the forewing of that species.

### Genus *Loxostege* Hübner

#### *Loxostege oxalis*, new species

#### FIGURE 57

Alar expanse 26 mm.

Labial palpus ochraceous buff; second and third segments with a few red-brown scales. Antenna, head, and thorax ochraceous buff,



head a little lighter posteriorly; anterior part of thorax and tegula with faint brown suffusion. Ground color of forewing shining ochraceous buff suffused over entire surface with tawny; at slightly before middle of wing, starting at cell, an inwardly oblique, ochraceous-tawny, transverse line extends almost to dorsum at basal two-fifths;

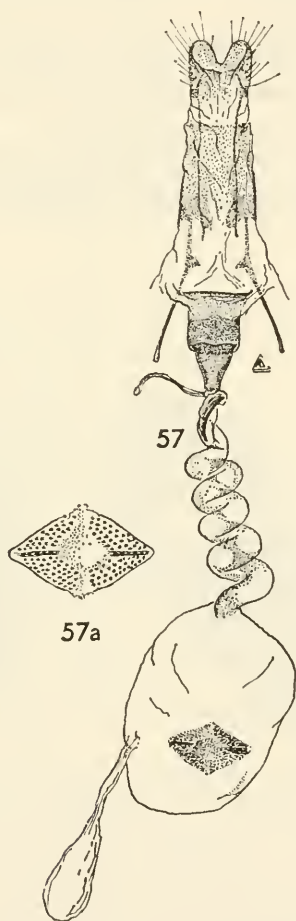


FIGURE 57.—*Loxostege oxalis*, new species: 57, ventral view of female genitalia; 57a, detail of signum.

across end of cell a narrow, short, ochraceous-tawny line; termen narrowly edged with brown; cilia brownish. Hindwing ochraceous white with a few small ochraceous-tawny spots on termen; cilia ochraceous white. Legs ochraceous buff with slight tawny suffusion. Abdomen light ochraceous buff.

Female genitalia (slide 10426): Ostium broad, slitlike. Posterior third of ductus bursae sclerotized, remainder membranous, coiled.

Inception of ductus seminalis well before ostium. Signum a large, diamond-shaped, dentate plate.

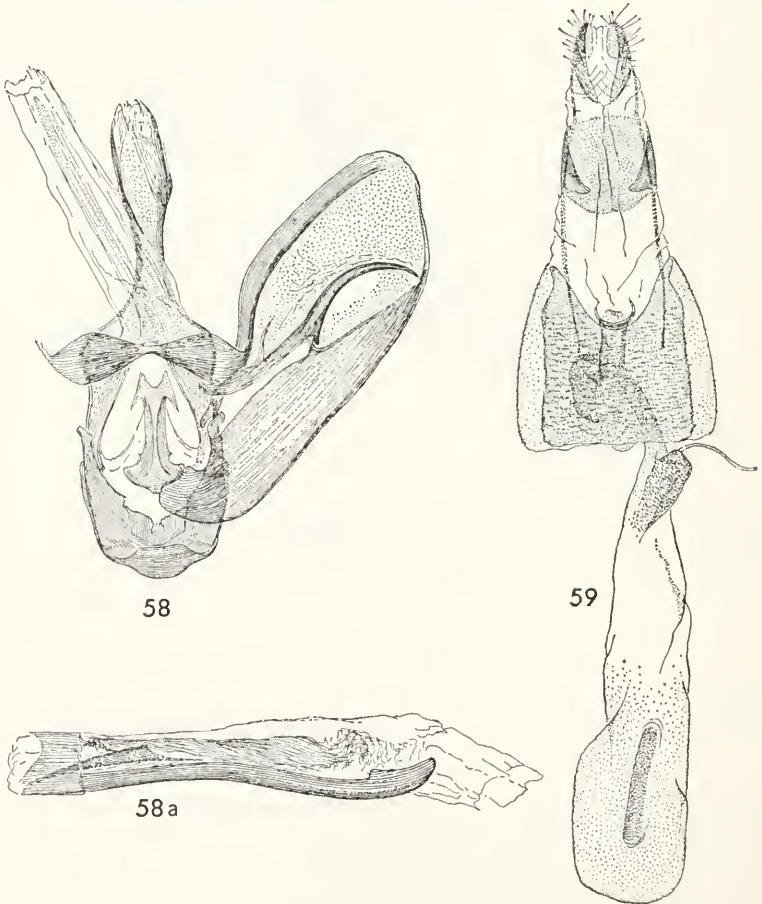
Type: Masatierra: Bahía Cumberland (Mar. 4, 1951). Described from the unique type female. There is no described species with which *oxalis* can be properly compared because the fauna of the area is too imperfectly known.

### Genus *Nomophila* Hübner

#### *Nomophila noctuella* (Denis and Schiffermüller)

FIGURES 58-59

*Phalaena Tinea noctuella* Denis and Schiffermüller, 1775, *Ankündigung eines systematischen Werkes von den Schmetterlingen der Wienergegend*, p. 136.



FIGURES 58-59.—*Nomophila noctuella* (Denis and Schiffermüller): 58, ventral view of male genitalia with left harpe and aedeagus removed; 58a, aedeagus; 59, ventral view of female genitalia.

Distribution: Masatierra: Bahía Cumberland ♂, 17 ♀♀ (December to March dates); Plazoleta del Yunque ♂, 2 ♀♀ (Jan. 2, 1952); Masafuera: Quebrada de la Calavera ♂, 2 ♀♀ (Jan. 15, 1952); Quebrada de las Casas, 5 ♀♀ (Jan. 16, 1952, Feb. 20, 1955).

This is an immigrant species which is nearly cosmopolitan in distribution. Wherever it is found, it is generally common in grassy areas.

## Family Phycitidae

### Genus *Elasmopalpus* Blanchard

#### *Elasmopalpus angustellus* Blanchard

FIGURES 60-61

*Elasmopalpus angustellus* Blanchard, 1852, in Gay, Historia física y política de Chile. Zoología, vol. 7, p. 105, Lepidoptera, pl. 7, fig. 14.

*Elasmopalpus lignosellus* Heinrich, 1956 (in part) not Zeller, U.S. Nat. Mus. Bull. 207, p. 173, figs. 33, 417, 906.

Type: Muséum National d'Histoire Naturelle, Paris.

Type locality: Concepción, Chile.

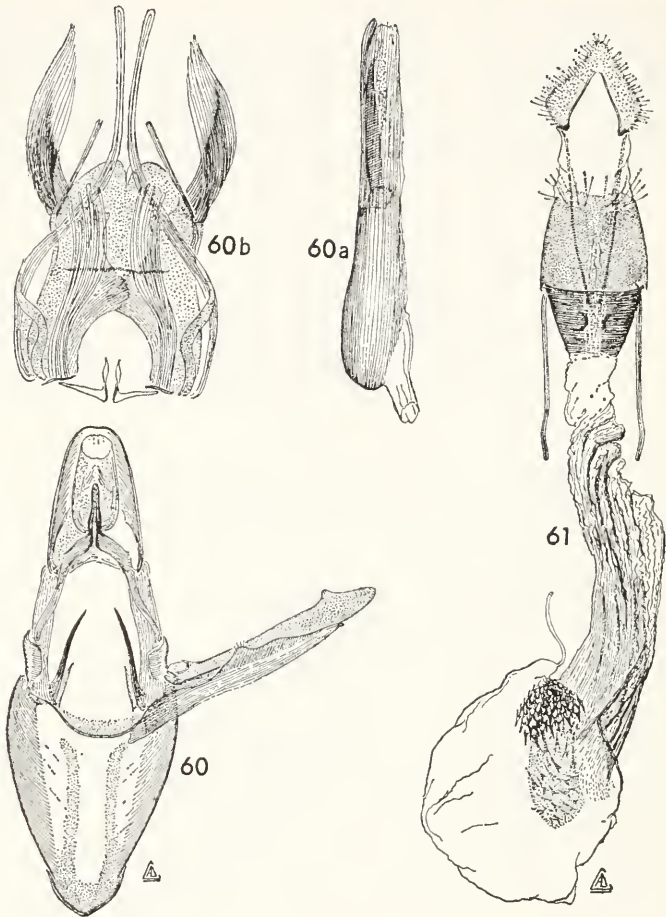
Distribution: Masafuera: Quebrada de las Casas, 3 ♂♂, ♀ (Jan. 16, 1952).

My thanks are due Mr. P. Viette, Muséum National d'Histoire Naturelle, Paris, who has examined Gay's type in that Institution, and compared the genitalia with my drawing. He writes as follows:

"I have examined the ♂ type specimen of *Elasmopalpus angustellus* Blanchard, from Chile. Your drawings correspond exactly with the genitalia of the type specimen in Paris Museum.—Slide P. Viette N:3544."

Although *angustellus* has been considered a synonym of *lignosellus* by various authors, there are abundant points of distinction. In the male genitalia there is a strong projection from the costa, slightly before cucullus, which is absent in *lignosellus*. The lateral arms of the anellus of *angustellus* are slender and only slightly curved, not strongly sclerotized, curved, pointed horns as in *lignosellus*. The single cornutus is thick, strongly sclerotized and nearly half the length of the aedeagus in *angustellus* but appreciably shorter and more slender in *lignosellus*. The ductus bursae of the female is broad and strongly sclerotized for over three-quarters of its length in *angustellus* and the spines of the two opposing sclerotized signa are stouter than in *lignosellus*.

For the above reasons I am removing *angustellus* from the synonymy of *lignosellus*. The specific name *E. angustellus* must be confined to the Chilean examples since all other specimens examined from



FIGURES 60-61.—*Elasmopalpus angustellus* Blanchard: 60, ventral view of male genitalia with left harpe and aedeagus removed; 60a, aedeagus; 60b, compound tufts of eighth abdominal segment; 61, ventral view of female genitalia.

Brazil, Argentina, Mexico, and North America are correctly assigned to *lignosellus*.

### Family Pterophoridae

### Genus *Stenoptilia* Hübner

#### *Stenoptilia partiseca* Meyrick

#### FIGURES 62-63

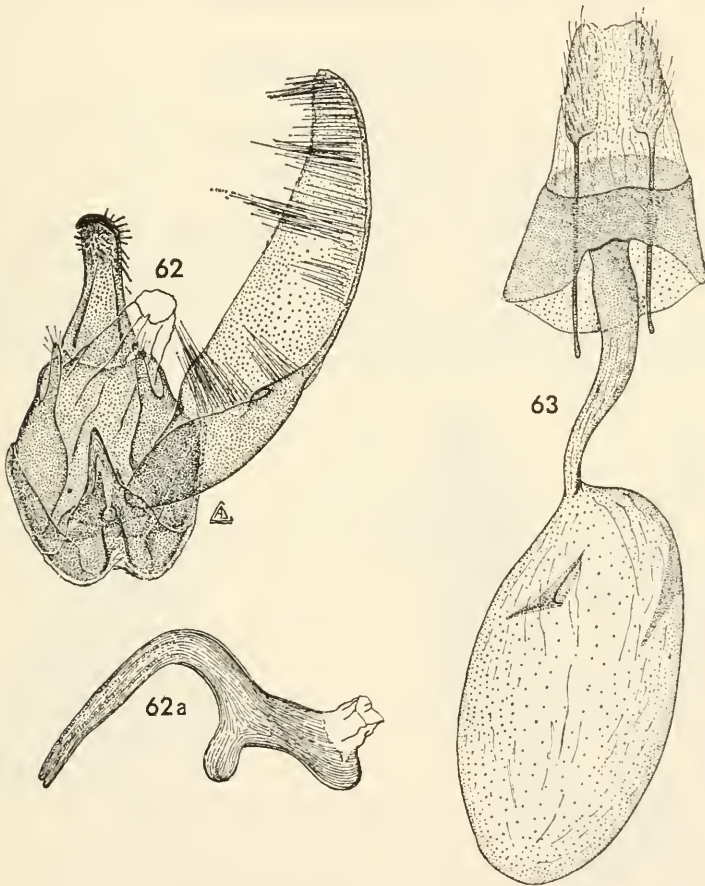
*Stenoptilia partiseca* Meyrick, 1931, Anales del museo nacional de historia natural, Buenos Aires, vol. 36, p. 380.

Type: British Museum (Natural History).

Type locality: Argentina, Mendoza Province, Mendoza.

Distribution: Masafuera: Quebrada de las Casas, ♂ (Jan. 25, 1952); ♀ (Jan. 22, 1955).

There is some doubt about the identity of the Juan Fernandez specimens despite the fact that the female genitalia compare quite favorably with those of the type. Mr. John D. Bradley, of the British Museum, kindly compared the Juan Fernandez specimens



FIGURES 62-63.—*Stenoptilia partiseca* Meyrick: 62, ventral view of male genitalia with left harpe and aedeagus removed; 62a, aedeagus; 63, ventral view of female genitalia.

with Meyrick's type and his remarks are as follows: "We have only the type, a female from Argentina. The coloration of the type is very much whiter than in your specimens, also there seems to be a very slight difference in the ostium. I hazard, as best one can from looking at a couple of females only, that these differences are not

specific, and I think it will be reasonable to put your specimens down as *partiseca*."

In choosing to accept this name, I assume complete responsibility if in error. Variability in certain plume moths is not uncommon, and the slight differences in the ostia of the two specimens examined are probably not important. When more material is gathered from both the mainland and the islands, the matter can be settled.

### Genus *Platyptilia* Hübner

#### *Platyptilia epidelta* Meyrick

FIGURES 64-65

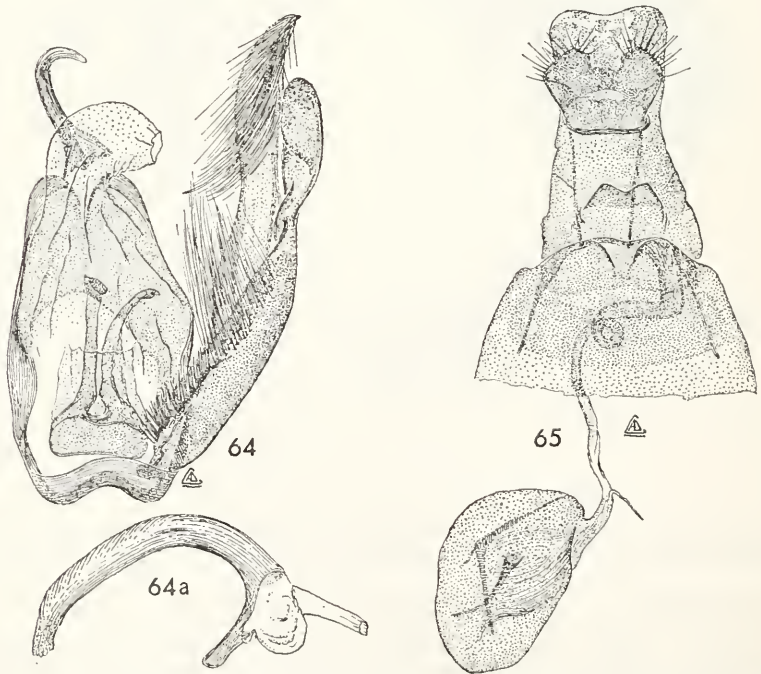
*Platyptilia epidelta* Meyrick, 1907, Trans. Ent. Soc. London, 1907, p. 486.

Type: British Museum (Natural History).

Type locality: Argentina: Paraná.

Distribution: Masatierra: Bahía Cumberland, 9 ♀♀ (Feb. 10-Mar. 20, 1951; Dec. 23-27, 1954; Mar. 18, 1955; Feb. 8, 1952).

My thanks are due Mr. John D. Bradley of the British Museum for examining specimens and comparing them with Meyrick's type. Mr. Bradley writes (*in litt.*) "There are slight differences in the valva



FIGURES 64-65.—*Platyptilia epidelta* Meyrick: 64, ventral view of male genitalia with left harpe and aedeagus removed; 64a, aedeagus; 65, ventral view of female genitalia.

of the male between your specimen and one of Meyrick's syntypes, but I attribute this to variation within the species. This species may be a synonym of *sematodactyla* Berg. . . . There is no authentic material in the B. M. for comparison but B. Fletcher had determined several specimens (without abdomens) from Argentina which appear superficially identical with your specimens."

Apparently *epidelta* is widespread, and perhaps carried in commerce, but only extensive collecting will determine the limits of distribution.

## Family Tortricidae

### Genus *Proeulia* Clarke

*Proeulia* Clarke, 1962, Proc. Biol. Soc. Washington, vol. 75, p. 293.

The species of *Proeulia* are separated by the following key:

Alar expanse 24–28 mm.; vesica with several long and one short, straight cornuti; signum with one small conical thorn. . . . . *robinsoni* Aurivillius  
 Alar expanse 15–20 mm.; vesica armed with two or more long, slightly curved cornuti and one short, strongly curved cornutus; signum with long, projecting spine. . . . . *griseiceps* Aurivillius

#### *Proeulia robinsoni* (Aurivillius)

##### FIGURES 66–69

*Eulia robinsoni* Aurivillius, 1922, in Skottsberg, The natural history of Juan Fernandez and Easter Island, vol. 3, pt. 2, p. 266, pl. 11, fig. 17.

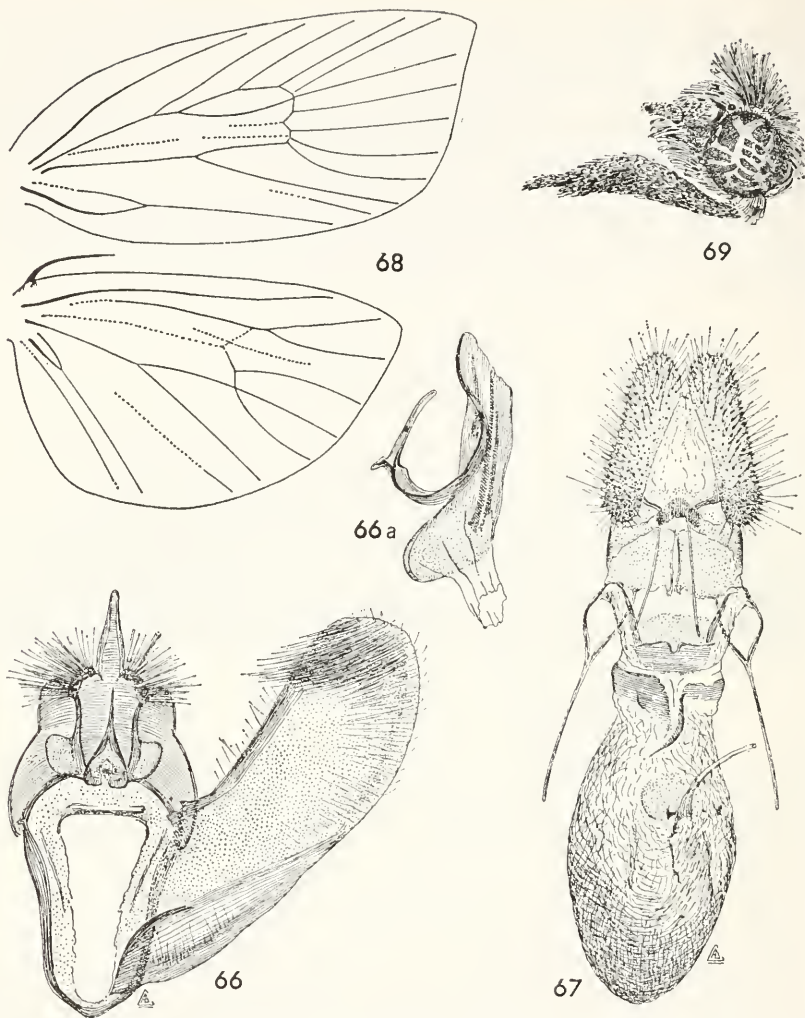
*Proeulia robinsoni* (Aurivillius), Clarke, 1962, Proc. Biol. Soc. Washington, vol. 75, p. 294.

Type: Naturhistoriska Riksmuseum, Stockholm.

Type locality: "Masatierra."

Distribution: Masatierra: Bahía Cumberland 3 ♀♀ (Feb. 15, 1951); Plazoleta del Yunque 2 ♂♂, 3 ♀♀ (Jan. 2, 1952); 2 ♂♂, 6 ♀♀ (Dec. 28, 1954).

This is the largest of the tortricids represented in the collections from the Juan Fernandez Islands and because of its large size is easily distinguished from the other species. It resembles Butler's *Dichelia exusta* but Mr. Bradley of the British Museum, who has compared a specimen of *robinsoni* with Butler's type, states "Somewhat similar to *exusta* Butler superficially, but in my opinion definitely not that species and I am unable to identify it from the B. M. collection." The type of Butler's species lacks the abdomen. The male and female genitalia of *robinsoni* are figured from slides 10179 and 10180 respectively. The wing is figured from the male 10179. This species appears to be confined to Masatierra.



FIGURES 66-69.—*Proeulia robinsoni* (Aurivillius): 66, ventral view of male genitalia with left harpe, anellus and aedeagus removed; 66a, lateral aspect of aedeagus and anellus; 67, ventral view of female genitalia; 68, venation of right wings; 69, lateral aspect of head to show palpus.

*Proeulia griseiceps* (Aurivillius)

FIGURES 70-71

*Eulia griseiceps* Aurivillius, 1922, in Skottsberg, The natural history of Juan Fernandez and Easter Island, vol. 3, pt. 2, p. 267, pl. 11, fig. 18.

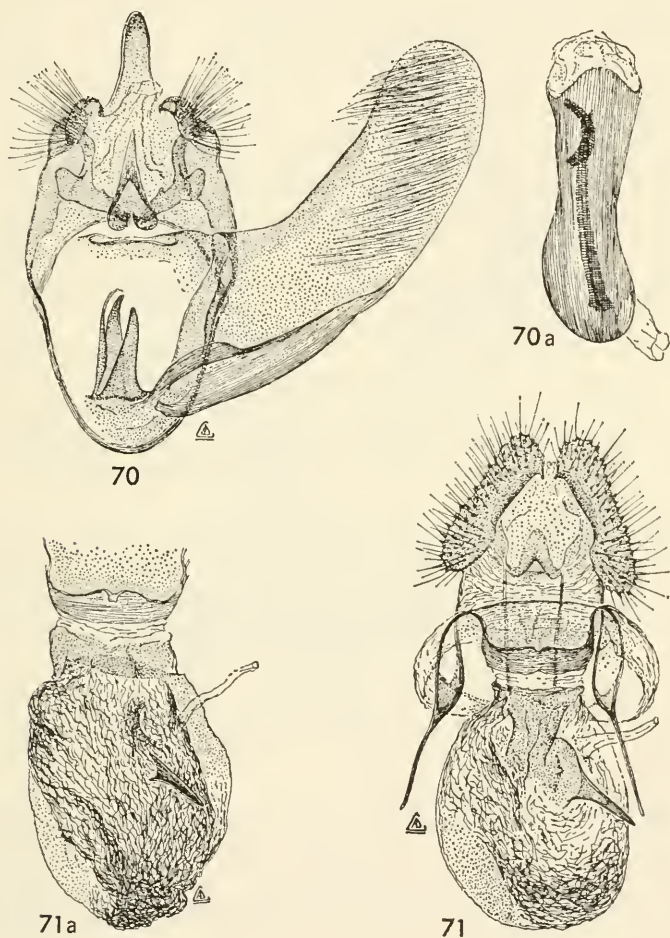
*Proeulia griseiceps* (Aurivillius), Clarke, 1962, Proc. Biol. Soc. Washington, vol. 75, p. 294.

*Eulia striolana* Aurivillius, 1922, in Skottsberg, The natural history of Juan Fernandez and Easter Island, vol. 3, pt. 2, p. 267, pl. 11, fig. 19 (new synonymy).



Types: Naturhistoriska Riksmuseum, Stockholm.

Distribution: Masatierra: Alto Francés, 450 m., ♂ (Jan. 16, 1955); El Camote, 600 m., ♂ (Jan. 9, 1955); Plazoleta del Yunque, 200 m., 9 ♂♂, 3 ♀♀ (March–December 1951–1955); Quebrada la Laura, ♂, ♀ (Mar. 1, 1951); Salsipuedes, ♀ (Mar. 5, 1955).



FIGURES 70–71.—*Proeulia griseiceps* (Aurivillius): 70, ventral view of male genitalia with left harpe and aedeagus removed; 70a, aedeagus; 71, ventral view of female genitalia; 71a, bursa copulatrix to show variation in signum.

It is not surprising that Aurivillius described *griseiceps* as two species, and undoubtedly his other two segregates, no. 26 and no. 27, belong here. An examination of the genitalia of the two type females,

however, removes any doubt about their identity. Had Aurivillius made dissections, he would have seen that he had examples of one extremely variable species. As a matter of fact, there are almost as many color forms as there are specimens but the genitalia are remarkably constant.

Male genitalia figured from a specimen from Plazoleta del Yunque (slide 10181). Female genitalia figured from specimens from Quebrada la Laura (slides 10182, 10367).

### *Nesochoris*, new genus

Type-species: *Nesochoris holographa*, new species.

Antenna ciliate in male (female unknown). Labial palpus porrect, about one-fourth longer than head; third segment less than one-third the length of second, slightly drooping. Head somewhat roughened. Forewing smooth, termen oblique, slightly concave between veins 4 and 7; 12 veins, all veins separate; 1c strongly preserved at margin; 2 from outer two-thirds of cell; 3, 4, and 5 separate and about equidistant at bases; 6, 7, 8 separate and about equidistant at bases, 7 to termen well below apex; 11 from slightly before middle of cell; upper internal vein from between veins 10 and 11. Hindwing with 8 veins; 2 from well before end of cell; 3 and 4 connate; 5 approximate to 4; 6 and 7 short stalked.

Male genitalia: Harpe simple, short, broadly attached, gnathos and uncus present; socii obsolete; transtilla indicated by membrane only; anellus a simple plate; vesica armed with weak, slender cornuti.

*Nesochoris* and *Proeulia* are very similar in outward appearance but the male genitalia separate them easily. *Proeulia* exhibits strongly developed socii and transtilla and strongly fused gnathos. In *Nesochoris*, however, the socii are indicated by only a few weak setae, the transtilla is practically nonexistent and the lateral and central elements of the gnathos are separate.

The species of *Nesochoris* are separated by the following key:

- Alar expanse more than 20 mm., forewing covered with small spots and short transverse dashes of ferruginous scales . . . . . ***holographa***, new species  
 Alar expanse less than 15 mm., forewing covered with scattered brick-red scales and costa with eight small fuscous spots . . . . . ***brachystigma***, new species

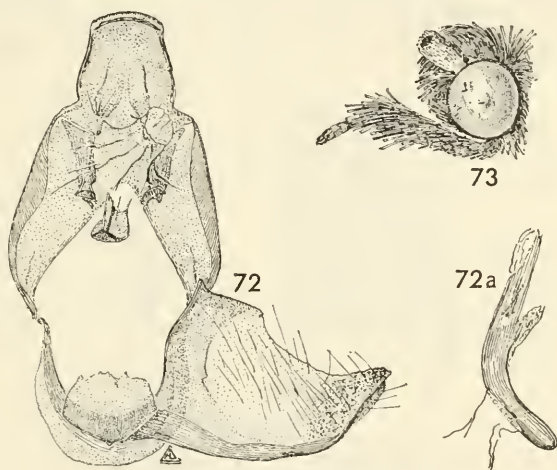
### *Nesochoris holographa*, new species

#### FIGURES 72-73

Alar expanse 22 mm.

Labial palpus pale clay color outwardly mixed with ferruginous; third segment fuscous tipped. Antenna clay color; scape ferruginous dorsally; remainder of segments ferruginous apically; antennal cilia-

tions slightly more than one. Head clay color suffused with grayish; face with a transverse band of ferruginous and a spot of similar color between antennae anteriorly. Palpus and head with slight purplish iridescence. Thorax and ground color of forewing grayish, the former mixed with ferruginous scales, the entire surface of the latter covered with short transverse dashes and small spots of the same color; on costal two-fifths, two narrowly separated, gray oblique lines delimiting a narrow, obscure, irregular, outwardly oblique transverse band, the termination of which is indicated by a ferruginous spot on dorsum well before tornus; on dorsum, at basal fourth, an obscure, moderately large, ferruginous spot; cilia clay color with a dark basal line of mixed gray and ferruginous scales; forewing, especially dark markings with



FIGURES 72-73.—*Nesochoris holographa*, new species: 72, ventral view of male genitalia with left harpe and aedeagus removed; 72a, lateral aspect of aedeagus; 73, lateral aspect of head to show palpus.

purplish iridescence and forewing and hindwing with considerable reddish-brown mottling on undersides. Hindwing light reddish brown, paler basally; cilia ferruginous apically, gradually becoming ochreous white at anal angle and all with a dark gray subbasal line. Legs ochreous white suffused and shaded with fuscous and ferruginous; foretarsi fuscous with pale annulations. Abdomen ochreous white; below irrorate with fuscous and ferruginous and with slight purplish iridescence.

Male genitalia (slide 10368): In addition to the larger size of the genitalia of *holographa*, they differ from *brachystigma* by the sharp angle formed between the uncus and posterior margin of the tegumen. In *brachystigma* the lateral edges of the uncus are confluent with the posterior edge of the tegumen.

Type: Masatierra: Plazoleta del Yunque, 200 m. (Feb. 9, 1952).  
Described from the unique male type.

*Nesochoris brachystigma*, new species

FIGURE 74

Alar expanse 14 mm.

Labial palpus white; second segment brick red outwardly, suffused fuscous apically; third segment almost wholly fuscous. Antenna, scape buff with fuscous above; remainder fuscous with paler annulations; antennal ciliations slightly over one. Head olive buff suffused with fuscous anteriorly and with some brick-red scales laterally. Thorax gray mixed with dull ochereous and with some brick-red scales posteriorly. Forewing ground color gray; from basal fourth of costa an outwardly oblique transverse fascia extends to middle of dorsum,

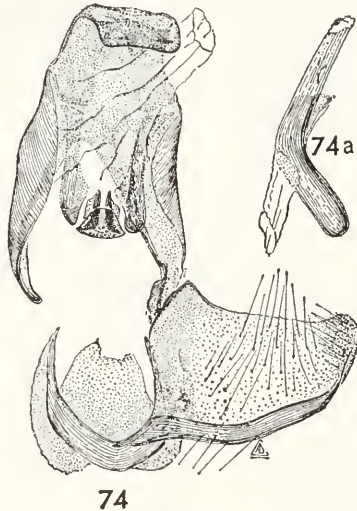


FIGURE 74.—*Nesochoris brachystigma*, new species: 74, ventral view of male genitalia with left harpe and aedeagus removed; 74a, lateral aspect of aedeagus.

the fascia nearly twice as wide at dorsum as on costa and bordered by brick-red transverse lines; the light fascia is suffused gray; costa with eight small fuscous spots, and in apical fourth of wing some indistinct mottling of the same color; entire surface of wing with scattered brick-red scales; cilia olive buff mixed with brick-red ochereous. Hindwing fuscous, somewhat paler basally; cilia paler with a fuscous subbasal line. Legs olive buff; foreleg heavily overlaid with brick red, tarsi fuscous with pale annulations. Abdomen grayish fuscous, somewhat paler ventroanteriorly; anal tuft pale, grayish.

Male genitalia (slide 10369): Aside from size, there is little to distinguish the genitalia of *brachystigma* from those of *holographa*.

Type: Masatierra: El Rabanal, 350 m. (Feb. 27, 1951).

Described from the unique type male.

## Family Olethreutidae

### *Parasuleima*, new genus

Type-species: *Crociosema* (?) *insulana* Aurivillius.

Antenna finely and shortly pubescent. Labial palpus correct, about twice as long as head; third segment two-thirds the length of second and obscured by long, projecting scales of second segment. Head rough. Forewing smooth, narrow; termen concave between veins 3 and 6; 12 veins; 2 from slightly beyond middle of cell; 3, 4, and 5 approximate at base; 7 and 8 separate; 11 from well before middle of cell; upper internal vein from between 10 and 11. Hindwing with 7 veins; 2 from well before angle; 3 and 4 united; 5 approximate at base; 6 and 7 closely approximate for short distance beyond base.

Female genitalia with signa.

This genus is similar to the North American *Suleima* Heinrich but differs from it by having 12 veins in the forewing, and a longer, more slender palpus. The Indian genus *Agriophanes* Meyrick possesses the same venation as *Parasuleima* but is a broadwinged type without a markedly concave termen in the forewing.

Two specimens of *insulana* have very short branches of veins 3 and 4 of the hindwing, but only on one side in each specimen.

I have not seen a male but according to Aurivillius' description, he could find neither costal fold nor hair pencil.

### *Parasuleima insulana* (Aurivillius), new combination

FIGURES 75-77

*Crociosema* (?) *insulana* Aurivillius, 1922, in Skottsberg, The natural history of Juan Fernandez and Easter Islands, vol. 3, pt. 2, p. 267, pl. 11, fig. 20.

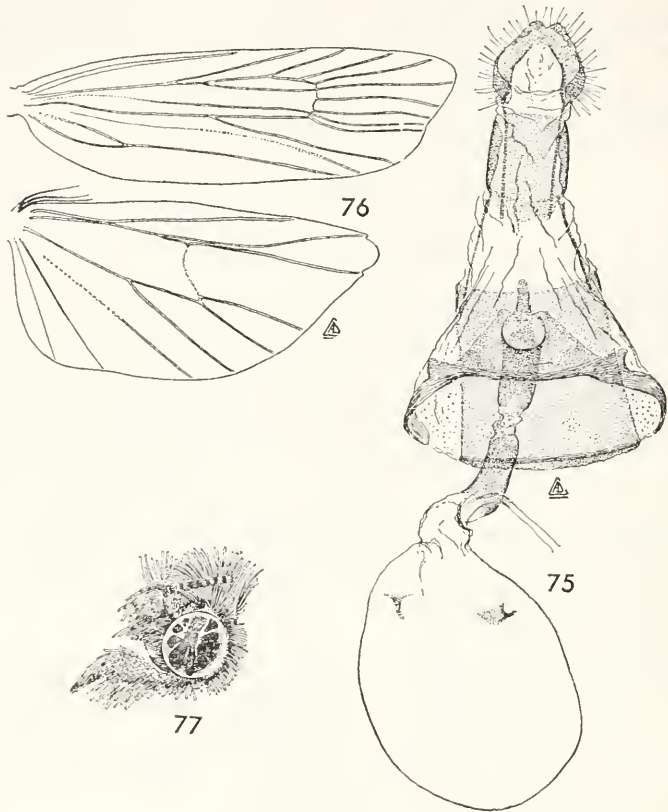
Type: Naturhistoriska Riksmuseum, Stockholm.

Type locality: "Masatierra."

Distribution: Masatierra: Bahía Cumberland, 10 ♀♀ (Mar. 8, 1951; Jan. 1 to Feb. 4, 1955).

Female genitalia figured from slide 10186.

It appears this species is confined to the island of Masatierra, none having been taken elsewhere on the several expeditions.



FIGURES 75-77.—*Parasuleima insulana* (Aurivillius): 75, ventral view of female genitalia; 76, venation of right wings; 77, lateral aspect of head to show palpus.

## Family Oecophoridae

### Genus *Martyrhilda* Clarke

#### *Martyrhilda relegata* (Meyrick), new combination

FIGURES 78-79

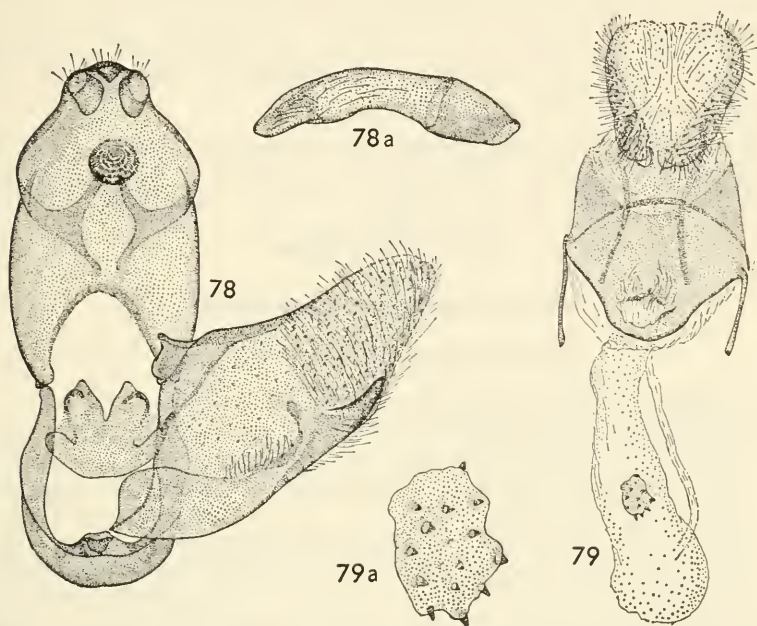
*Depressaria relegata* Meyrick, 1922, in Skottsberg, The natural history of Juan Fernandez and Easter Island, vol. 3, pt. 2, p. 268.

Alar expanse 18-21 mm.

Male genitalia (slide 10587): Harpe broad basally; cucullus rather narrow, bluntly pointed; clasper with transverse arm reduced, extending less than half the width of harpe; longitudinal arm more than twice the length of transverse arm, compressed distally. Uncus small, sharply pointed. Socii naked flaps. Gnathos a small, rounded, spined knob. Anellus a strongly sclerotized plate with basal-lateral

lobes and deeply cleft posterior edge. Vinculum simple, rounded. Aedeagus, stout, slightly bent, pointed, unarmed.

Female genitalia (slide 10586): Typical of the genus. Genital plate broad, with anterior edge strongly convex. Ostium roughly



FIGURES 78-79.—*Martyrhilda relegata* (Meyrick): 78, ventral view of male genitalia with left harpe and aedeagus removed; 78a, aedeagus; 79, ventral view of female genitalia; 79a, detail of signum.

diamond shaped. Inception of ductus seminalis slightly before ostium. Ductus bursae not well distinguished from bursa copulatrix. Signum a subrectangular, dentate plate.

Type: Naturhistoriska Riksmuseum, Stockholm.

Type locality: "Masatierra."

Although described in *Depressaria*, this species must be referred to *Martyrhilda* on the stalked veins 2 and 3 of forewing and structure of the genitalia. There are no specimens of *relegata* in the material at hand, but it was described from 11 specimens indicating that it must be relatively common.

### Genus *Endrosis* Hübner

#### *Endrosis sarcitrella* (Linnaeus)

*Phalaena tineae sarcitrella* Linnaeus, 1758, *Systema naturae*, ed. 10, p. 536.

Distribution: Masafuera: Quebrada de las Casas, 2 ♀♀ (Jan. 17-24, 1952); 2 ♀♀ (Feb. 1, 20, 1955); Masatierra: Bahía Cumberland

5 ♂♂, 5 ♀♀ (Feb. 15–Mar. 10, 1951; Feb. 3, 1952; Mar. 3, 13, 1955); Plazoleta del Yunque, 200 m., ♂ (Feb. 20, 1951).

Previously recorded by Meyrick from Masafuera from a single specimen. It may be expected around almost any human habitation.

This species has previously appeared in American lists as *Endrosis lactella* (Denis and Schiffermüller), and was recorded by Meyrick as such. The latter is a synonym, and this present combination is in accordance with contemporary usage.

For an extended bibliography on this species, up to 1940, see Clarke, J. F. G., 1941, Proc. U.S. Nat. Mus., vol. 90, pp. 264–266.

## Family Gelechiidae

### Genus *Gnorimoschema* Busck

#### Key to the Species of *Gnorimoschema*

1. Third segment of labial palpus with two distinct dark annuli . . . . . 2  
Third segment of labial palpus otherwise . . . . . 3
2. Forewing with conspicuous pale area between two dark blotches in center of wing; male with strong black sex-scaling on underside of fore- and hindwings and upper side of latter . . . . . *melanolepis*, new species  
Forewing without conspicuous pale area; markings consisting of fine streaks, three fuscous discal spots and scattered whitish scales; male without sex-scaling . . . . . *absoluta* (Meyrick)
3. Third segment of labial palpus with black spot at base anteriorly; forewing clay colored shaded grayish toward costa . . . . . *hemilitha*, new species  
Third segment of labial palpus without black spot at base anteriorly; forewing grayish toward costa, darker dorsally but never clay colored.  
*operculella* (Zeller)

#### *Gnorimoschema absoluta* (Meyrick), new combination

##### FIGURE 80

*Phthorimaea absoluta* Meyrick, 1917, Trans. Ent. Soc. London, 1917, p. 44.

Food plants: *Solanum tuberosum* L. (potato); *Lycopersicon esculentum* (L.) Mill. (tomato).

Distribution: Masatierra: Bahía Cumberland, 8 ♀♀ (Feb. 14–Mar. 20, 1951; Mar. 12–18, 1955).

Meyrick described this species from a unique male from Huancayo, Peru. In the U.S. National Museum there is a series, bred from potato and tomato, from Chile, Peru and Venezuela. As a pest of potato and tomato we can expect to find *absoluta* rather generally distributed because it is undoubtedly carried in commerce.

The female genitalia have not previously been figured.





FIGURE 80.—*Gnorimoschema absoluta* (Meyrick): ventral view of female genitalia.

*Gnorimoschema hemilitha*, new species

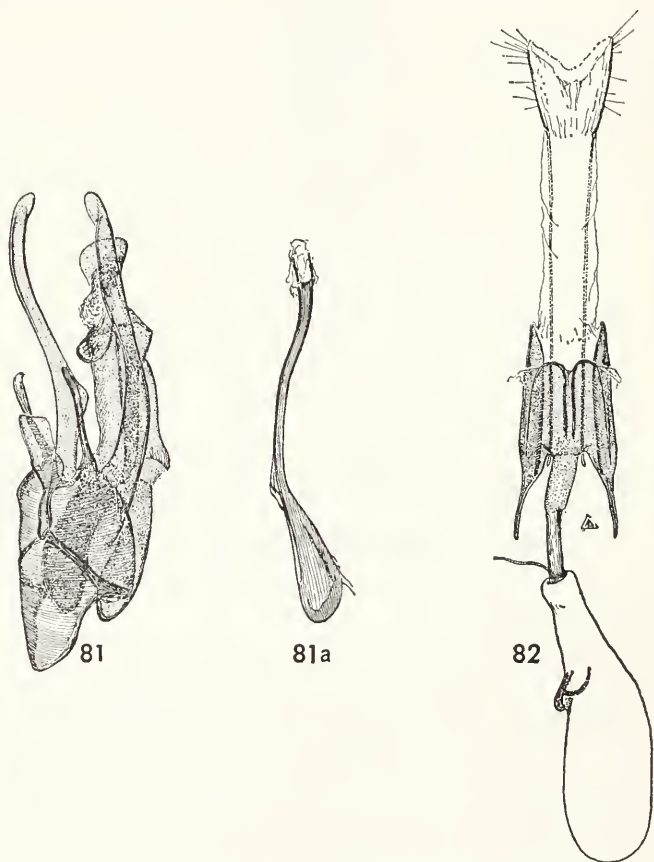
FIGURES 81-82

Alar expanse 9-11 mm.

Labial palpus sordid white; second segment with white-tipped, dark gray scales in brush and on outer side; third segment with a black spot at base anteriorly and a broad black subterminal annulus. Antenna dark gray with a whitish spot on each segment beneath. Head light grayish olive except dark gray, white-tipped scales around eye. Thorax and ground color of forewing clay color; thorax with some grayish suffusion in some specimens; costal half suffused grayish, irrorate with many white-tipped, dark gray scales; two clouded areas in center of wing; discal stigmata three, dark gray, one at one-third in cell, one in fold slightly beyond first and one at end of cell; cilia pale grayish, mixed with white-tipped, dark gray scales. Hindwing light grayish fuscous; cilia paler. Fore- and midlegs gray irrorate with sordid white; tarsi sordid white annulated; hindleg gray overlaid with sordid white on inner side; tarsi annulated with sordid white beneath.

Male genitalia (slide 10403): Dorsal element of harpe as long as tegumen and uncus combined, abruptly broadened basally, scarcely

dilated distally; ventral element less than one-third the length of dorsal element, curved, compressed and dilated distally, terminating in a short, recurved sharp point. Uncus narrowed posterior to middle, flared distally. Uncus spoon shaped. Vinculum narrowly rounded anteriorly, and with moderately long projection posteriorly. Aedeagus about as long as uncus and tegumen combined, curved, slender, dilated proximally.



FIGURES 81-82.—*Gnrimoschema hemilita*, new species: 81, oblique view of male genitalia with aedeagus removed; 81a, aedeagus; 82, ventral view of female genitalia.

Female genitalia (slide 10404): Ductus bursae about one-half the length of bursa copulatrix, sharply constricted at bursa; inception of ductus seminalis at junction of ductus bursae and bursa copulatrix. Signum a strong, but rather slender hook. Ostium slitlike.

Type: Masatierra: Bahía Cumberland, ♂ (Feb. 17, 1951).

Described from the type male, three male and six female paratypes, all from Bahía Cumberland (January to March dates, 1951-1955).

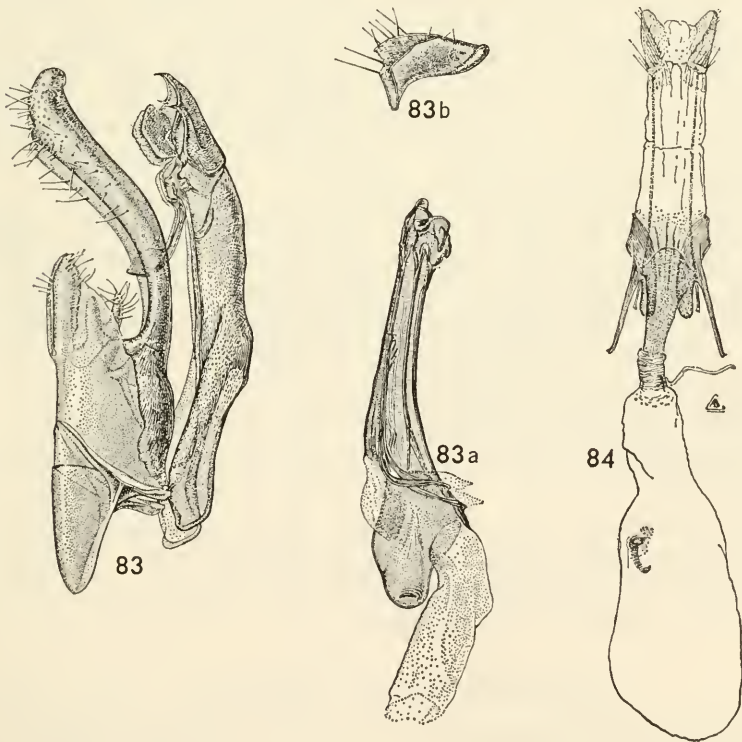
In general appearance *hemilitha* is similar to *altisona* Meyrick, but the head, thorax, and ground color of forewing are lighter. In *altisona* the harpe does not exceed the uncus, as in *hemilitha*, and the aedeagus is short, stout, and greatly dilated in basal half. The female of *altisona* is not known, so no comparison of the genitalia can be made.

*Gnorimoschema melanolepis*, new species

FIGURES 83-84

Alar expanse 11-13 mm.

Labial palpus cinereous, irrorate with dark gray; second segment grayish fuscous at base; third segment with broad, black basal and supramedial annuli. Antenna cinereous with blackish-fuscous annulations; basal segment blackish fuscous. Head cinereous, the scales narrowly whitish tipped. Thorax fuscous with a few paler scales mixed; tegula cinereous with a few scattered fuscous scales. Forewing cinereous, irrorate and suffused with grayish fuscous; at base of



FIGURES 83-84.—*Gnorimoschema melanolepis*, new species: 83, lateral aspect of male genitalia with aedeagus removed; 83a, lateral aspect of aedeagus; 83b, ventral view of apical portion of dorsal arm of harpe; 84, ventral view of female genitalia.

wing, in fold, a small fuscous spot and slightly beyond, costad, a similar mark; at basal third, in cell, a conspicuous fuscous blotch extending obliquely and outwardly to slightly beyond fold; a similarly colored, subquadrate blotch extends from middle of wing, in cell, to fold; area between the two large dark blotches, and beyond the outer one, conspicuously paler, less irrorate with fuscous than rest of wing and with scattered ocherous scales; cilia pale grayish fuscous. Hindwing pearly gray in male, gray in female; cilia pale grayish fuscous. In the male the undersides of both fore- and hindwings are clothed with heavy, black sex-scaling; upper side of male hindwing with black sex-scaling along costa and inner margin and also with conspicuous whitish-ocherous hair pencil from upper surface of costa. Foreleg cinereous, femur and tibia shaded with fuscous on outer side; tarsi fuscous annulated, mid- and hindlegs cinereous, irrorate and shaded with fuscous. Abdomen grayish fuscous above, sordid white beneath; anal segment ocherous white.

Male genitalia (slide 10751): Dorsal element of harpe about as long as tegumen, curved ventrad, gradually thickening to near distal end, then sharply curved inwardly, terminating in a sharp point; ventral element small, papillate. Gnathos spoon shaped, broadly expanded distally. Uncus short, pointed posteriorly. Vinculum produced posteriorly with edge deeply incised, anterior margin rounded. Aedeagus about as long as tegumen, slightly curved, stout, distal end slightly dilated, proximally bulbous.

Female genitalia (slides 10410, 10752): Ostium broad. Ductus bursae less than half the length of bursa copulatrix, narrowly funnel shaped, sclerotized except for short membranous section before middle; ductus seminalis from junction of ductus bursae and bursa copulatrix; signum a strong, slightly curved, thornlike process arising from a slender, elongate, sclerotized base.

Type: Masafuera: Quebrada de las Casas (Jan. 22, 1955).

Described from the type male and one female paratype, both with identical data.

The conspicuous, black sex-scaling, plus the hair pencil from the hindwing at once distinguish the male from other species. The female, however, is distinguished chiefly by the pale area between the two large dark blotches of the forewing.

#### *Gnorimoschema operculella* (Zeller)

*Gelechia* (?*Bryotropha*) *operculella* Zeller, 1873, Verh. K. Zool-Bot. Gesell. Wien, vol. 23: p. 262, fig. 17.

Distribution: Masatierra: Bahía Cumberland, 3 ♀♀ (Mar. 4-12, 1955).

Another widely distributed pest, the notorious "potato tuber-worm," may be expected wherever potatoes are shipped commercially.

*Echinoglossa*, new genus

Type-species: *Echinoglossa trinota*, new species.

Antenna simple in female, finely serrate in male, nearly as long as forewing, basal segment without pecten. Labial palpus upturned; second segment somewhat roughened beneath with brush expanded apically; third segment about as long as second, smooth, acute. Head smooth, ocellus small, posterior; tongue well developed, thickly scaled basally. Hind tibia slightly roughened above with long, slender scales. Forewing smooth, apex greatly produced, attenuated; 12 veins; 2 remote from 3; 4 and 5 stalked, about as far from 3 as 3 is from 2; 6 from upper angle of cell, connate with 9, to termen; 7 and 8 stalked out of 6; 9, 10, and 11 about equidistant. Hindwing with 8 veins; 2 distant from 3; 3 and 4 connate; 5 curved, well separated from 4; 6 and 7 parallel; crossvein between 7 and 8 present near base.

Male genitalia typically gelechiid. Dorsal and ventral elements of harpe present. Gnathos present. Aedeagus unarmed.

Female genitalia with well-developed signum.

In the large family Gelechiidae relatively few genera have veins 4 and 5 stalked in the forewing as in this new genus *Echinoglossa*. Of the genera with this character that I have examined, *Agathactis*, *Alsodryas*, *Dissoptila*, *Eristhenodes*, *Molopostola*, *Synactias*, and *Tholerostola* all are South American. The Indian *Ischnophenax* and African *Epenteris* approach the South American genera by having connate veins 4 and 5 but apparently the stalked condition of these veins is largely an American development.

*Echinoglossa* is perhaps most nearly related to *Dissoptila* but in the latter genus, vein 6 of forewing is separate from the stalked veins 7 and 8 and the apex is not produced as in the former. Also, in the hindwing, veins 4 and 5 are connate in *Dissoptila*, separate in *Echinoglossa*.

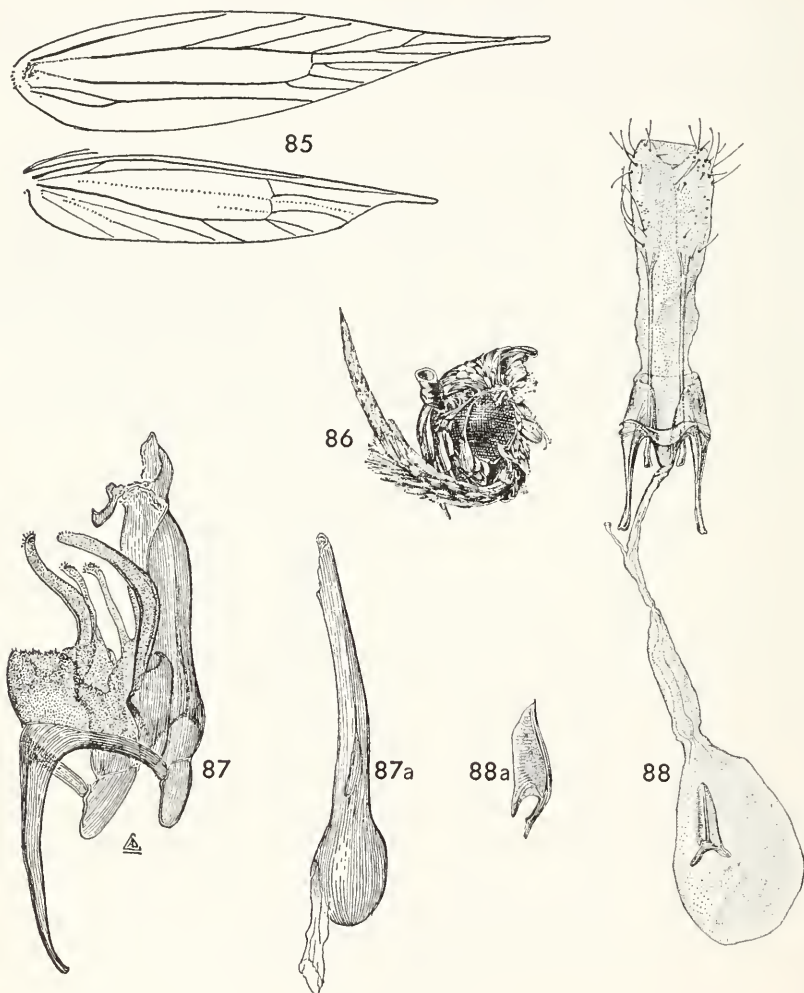
*Echinoglossa trinota*, new species

FIGURES 85-88

Alar expanse 9-10 mm.

Labial palpus sordid white; second segment shaded with dark gray in apical half; third segment with a dark gray, anterior, longitudinal line. Antenna dark gray with paler annulations. Head, thorax, and ground color of forewing cinereous; head and thorax with slight infuscation; base of costa narrowly fuscous; stigmata

three, fuscous, one in fold at two-fifths, one on costal edge of cell at one-third, and one at end of cell; on outer third of costa, around apex and along termen a series of ill-defined small fuscous spots; apical third of wing with scattered ocherous scales; cilia cinereous. Hindwing gray; cilia grayish fuscous. Legs cinereous shaded with fuscous. Abdomen dark gray above, cinereous beneath.



FIGURES 85-88.—*Echinoglossa trinota*, new species: 85, wing venation; 86, lateral aspect of head to show palpus; 87, oblique view of male genitalia with aedeagus removed; 87a, aedeagus; 88, ventral view of female genitalia; 88a, lateral aspect of signum to show longitudinal keel-like ridge.

Male genitalia (slide 10448): Dorsal element of harpe about half as long as tegumen, curved; ventral element slender, digitate. Vin-

culum produced into a long point anteriorly, posterior edge roughened. Gnathos a small hook. Uncus comparatively weak, hood shaped. Aedeagus as long as tegumen and uncus combined, slightly curved, bulbous basally.

Female genitalia (slides 10444, 10756): Ostium moderately broad, slitlike. Ductus bursae sclerotized posteriorly. Signum a well-developed triangular plate with a high central longitudinal ridge.

### Genus *Apothetoeca* Meyrick

*Apothetoeca* Meyrick, 1922, in Skottsberg, The natural history of Juan Fernandez and Easter Island, vol. 3, pt. 2, p. 268.

Type-species: *Apothetoeca synaphrista* Meyrick, *ibid.*, p. 269 [by monotypy].

### *Apothetoeca synaphrista* Meyrick

FIGURES 89-90

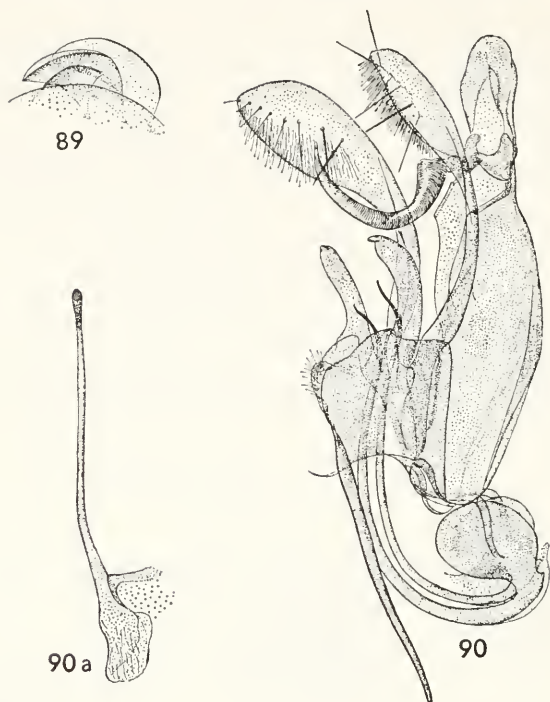
*Apothetoeca synaphrista* Meyrick, 1922, in Skottsberg, The natural history of Juan Fernandez and Easter Island, vol. 3, pt. 2, p. 269.

Male genitalia: Dorsal arm of harpe long, curved but not exceeding uncus; distal end strongly dilated and clothed with large, broad scales; ventral arm of harpe stout with a somewhat hooked point. Uncus rather narrow, thickened, bluntly pointed. Gnathos long, curved, beaklike. Vinculum narrowly produced anteriorly, as long as tegumen. Anellus arising as a paired bulbous process and produced into a pair of slender recurved branches. Aedeagus slender, nearly straight, greatly enlarged basally.

Type: Naturhistoriska Riksmuseum, Stockholm.

Type locality: "Masatierra."

There are no specimens of this species in the present collection, and it is known only from the type. In my key I have brought *Apothetoeca* out in the same couplet with *Pseudarla*, and the character used to separate it from *Pseudarla* is the connate condition of veins 3 and 4 of the hindwing. On the intersegmental membrane of *Apothetoeca*, between the 8th abdominal segment and the genitalia, there are numerous large, conspicuous, bulbous scales. These are readily deciduous and must be treated carefully to prevent their removal. From each side of the 8th segment there is a long hair pencil. All of these secondary characters, together with the peculiar scale thickening of the antenna mentioned by Meyrick, are undoubtedly confined to the male. The genitalia of the male are characteristically gelechiid and, in general form, are similar to *Gelechia*. The aedeagus of *Apothetoeca* is extremely slender and arises anterior to the tegumen between two long, curved arms of the anellus.



FIGURES 89-90.—*Apolitoeca synaphrista* Meyrick: 89, modified scales of dorsal arm of harpe; 90, oblique view of male genitalia with aedeagus removed; 90a, aedeagus.

### *Pseudarla*, new genus

Type-species: *Pseudarla miranda*, new species.

Antenna nearly as long as forewing, thickened in male (female unknown); basal segment with pecten. Labial palpus recurved; second segment long, moderately slender, slightly roughened beneath; third segment nearly as long as second, slender, acute. Head smooth, ocellus small, posterior; tongue well developed. Hind tibia clothed with moderately long scales above. Forewing smooth, apex pointed, termen strongly oblique; 12 veins; 2 remote from 3; 3 from slightly before angle of cell; 3, 4, and 5 nearly equidistant at bases; 7 and 8 stalked, 7 to costa. Hindwing with 8 veins; 2 distant from 3; 3 from well before angle of cell; 6 and 7 long stalked.

Male genitalia with uncus clothed with long hairlike setae. Aedeagus unarmed. Gnathos well developed.

*Pseudarla* is similar to *Arla* Clarke and *Lita* Treitschke and all possess unusually long antennae. On the uncus in all three genera the posterior surface is densely clothed with long hairlike scales. *Pseudarla* can be distinguished from both *Arla* and *Lita* by the stalked veins



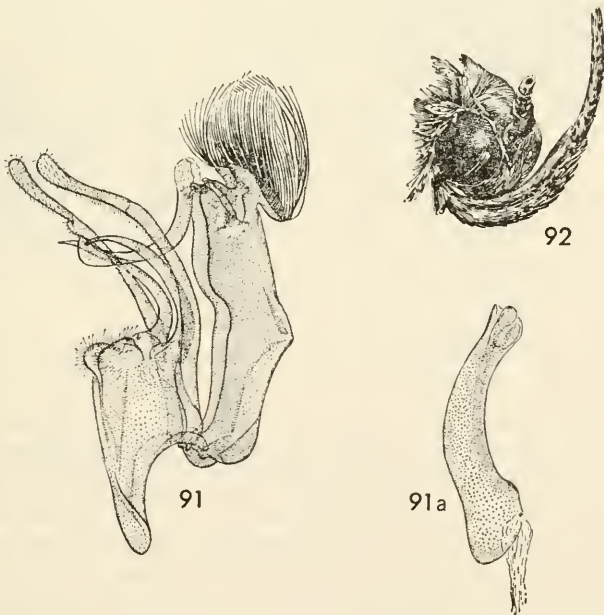
6 and 7 of the hindwing, and the presence of antennal pecten. Veins 6 and 7 of the hindwing are separate and nearly parallel in both *Lita* and *Arla*. *Pseudarla* can be further distinguished from *Arla* by the aedeagus which is unarmed in the former and armed in the latter. The uncus of *Pseudarla* is reduced posteriorly and extends anteriorly over the tegumen, but in *Lita* the uncus is narrowly hood shaped.

*Pseudarla miranda*, new species

FIGURES 91-92

Alar expanse 23 mm.

Labial palpus buff; second segment suffused with fuscous on outer side, third segment almost wholly overlaid with fuscous. Antenna brownish buff with narrow fuscous annulations. Head, thorax, and ground color of forewing avellaneous; face, head somewhat lustrous; costa lightly suffused with fuscous to outer two-thirds from which point an outwardly oblique, transverse, fuscous band extends to vein 6, thence inwardly to tornus; a blotch on dorsum at one-third and three discal spots, fuscous; inner and outer discal spots small, ill defined, central one larger and more distinct; in fold, beyond basal discal spot, a slender fuscous dash extends beneath central discal spot; costa, beyond transverse band, with three fuscous bars, these con-



FIGURES 91-92.—*Pseudarla miranda*, new species: 91, lateral aspect of male genitalia with aedeagus removed; 91a, aedeagus; 92, lateral view of head to show palpus.

fluent with apical fuscous shading; cilia avellaneous, speckled with fuscous. Hindwing brownish buff with some fuscous suffusion; cilia brownish buff with a darker subbasal line. Fore- and midlegs fuscous with buff annulations; hindleg buff suffused with fuscous. Abdomen pale buff with fuscous suffusion above and indistinct row of fuscous spots laterally beneath.

Male genitalia (slide 10591): Dorsal element of harpe twice as long as ventral element, slender, slightly dilated distally; ventral element slender, pointed. Gnathos a strong hook, straightened somewhat and compressed distally. Uncus produced anteriorly, densely clothed with hairlike setae. Vinculum somewhat produced anteriorly, rounded; posterior edge fleshy, clothed with fine setae. Aedeagus stout, curved, nearly as long as tegumen, unarmed.

Type: Masatierra: Bahía Cumberland (Jan. 7, 1955).

Described from the unique male type.

## Family Momphidae

### *Anchimompha*, new genus

Type-species: *Anchimompha melaleuca*, new species.

Antenna about half the length of forewing, somewhat compressed, sparsely ciliate; basal segment without pecten. Labial palpus slightly recurved; second and third segments about equal in length; second segment roughened beneath; third segment acute. Head smooth, ocellus absent; tongue well developed. Hind tibia clothed above with stiff hairlike scales. Forewing smooth, lanceolate, apex long pointed; 11 veins; 1c strongly preserved at margin; 2, 3, 4 well separated; 4 and 5 approximate; 7 and 8 coincident; 6 and 7+8 weakly stalked; 9 approximate to stalk of 6 and 7+8; 11 from beyond middle of cell. Hindwing linear-lanceolate, with 8 veins; 2 remote from 3; 3, 4, 5 about equidistant; 6 and 7 parallel. Abdominal tergites spined.

Female genitalia normal for family, with two signa.

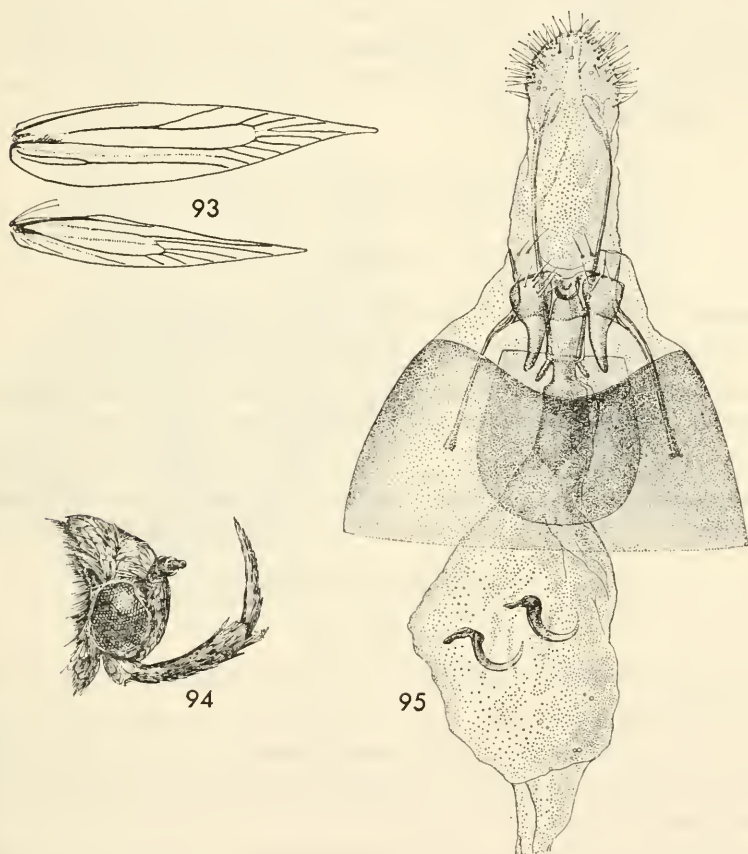
*Anchimompha* is closely related to *Mompha* as indicated by the female genitalia, but differs from it by the coincident veins 7 and 8 and sharply pointed apex of the forewing. Both genera have vein 1c present in the forewing and the venation of the hindwings is almost identical. Although *Anchimompha* exhibits no antennal pecten as found in *Mompha* the fact remains that a pecten may be reduced to one scale and is easily lost. Fresh specimens might show this character, but in the specimen at hand there is no evidence of a pecten. In my key this genus separates on the alternative "basal segment of antenna without pecten," but because of the fugitive nature of this character it must be used with caution.

*Anchimompha melaleuca*, new species

FIGURES 93-95

Alar expanse 14 mm.

Labial palpus ocherous white; second segment suffused with fuscous; distal half of third segment suffused with fuscous. Antenna black. Head ocherous white suffused with fuscous, especially on vertex and face. Thorax blackish fuscous except paler laterally; tegula ocherous white. Forewing black except outer half of costa narrowly ocherous



FIGURES 93-95.—*Anchimompha melaleuca*, new species: 93, venation of wings; 94, lateral aspect of head to show palpus; 95, ventral view of female genitalia.

white; also, from fold to dorsum ocherous white, this pale color extending along cell and vein 6 to margin; cilia grayish fuscous. Hindwing grayish fuscous; cilia concolorous except they are paler at base. Fore- and midlegs blackish fuscous except tarsi showing some ocherous white. Hindleg ocherous white with some infuscation; tibia with

strong fuscous suffusion on outer side at distal end. Abdomen fuscous above, ochreous white with slight infuscation beneath.

Female genitalia (slide 10758): Ostium membranous preceded by a strongly sclerotized portion of the ductus bursae. Inception of ductus seminalis very large and bursa copulatrix sclerotized posterolaterally to opening. Signa two, strongly sclerotized, sickle shaped.

Type: Masafuera: Quebrada de las Casas (Feb. 7, 1955).

Described from the unique female type.

A note attached to the type bears the following inscription in Dr. Kuschel's hand: "on *Megalachna fernandeziana*" but there is no indication whether the species was found resting on the plant or reared from a larva feeding on it.

## Family Blastodacnidae

### Genus *Nanodacna* Clarke

*Nanodacna* Clarke, 1964, Proc. Biol. Soc. Washington, vol. 77, p. 125.

The species of *Nanodacna* are separated by the following key:

Forewing with outer edge of basal patch outwardly oblique from costa to dorsum; cucullus greatly produced and recurved; signa two triangular plates.

*ancora* Clarke

Forewing sometimes with basal patch but if so outer edge inwardly oblique, wing with purplish sheen; cucullus truncate; signa two elongate, lightly sclerotized areas with narrow transverse ridge . . . *indiscriminata*, new species

### *Nanodacna ancora* Clarke

#### FIGURES 96-99

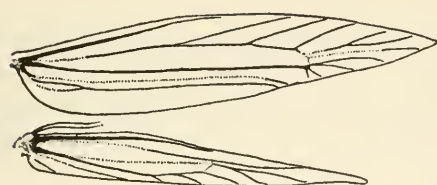
*Nanodacna ancora* Clarke, 1964, Proc. Biol. Soc. Washington, vol. 77, p. 126.

For completeness' sake I am including the distribution of this species. Masafuera: ♂♀, La Correspondencia, 1150 m. (Jan. 28, 1955); ♂, 3 ♀♀, Quebrada de las Vacas (Jan. 17, 1952); ♀, Quebrada de las Casas (Jan. 17, 1952).

This species differs from the other included species of the genus in several characters but those included in the key distinguish the two most easily.

Since the description of the species, and while still in Chile, the type was destroyed by museum pests. Accordingly, I have selected another specimen, with the same data, as a neotype.

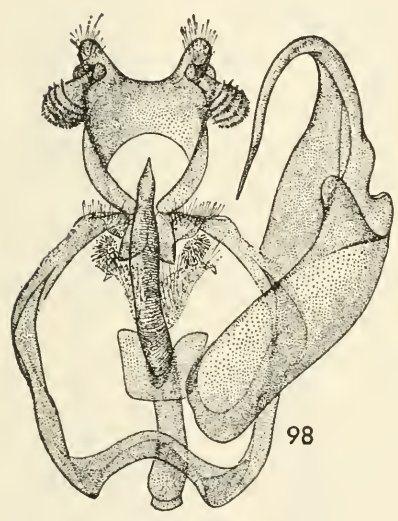
Neotype: Masafuera: ♀, La Correspondencia, 1150 m. (Jan. 28, 1955) (slide 10734) (USNM 67939).



96



97



98



99

FIGURES 96-99.—*Nanodacna ancora*, new species: 96, wing venation; 97, lateral aspect of head showing palpus; 98, ventral view of male genitalia with aedeagus *in situ*; 99, ventral view of female genitalia.

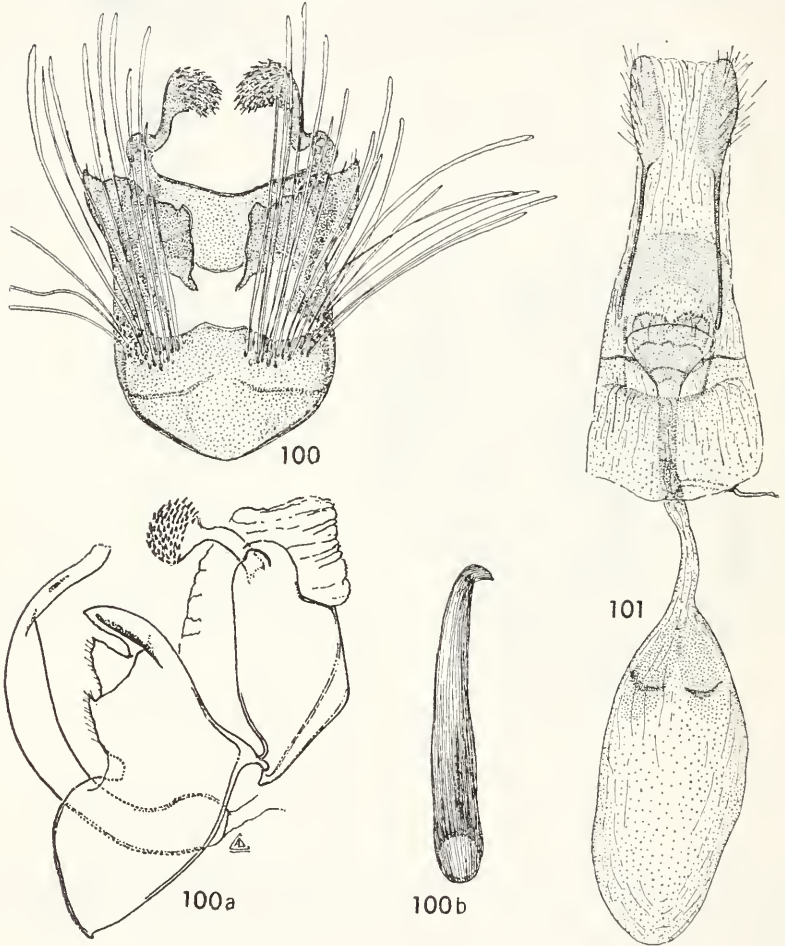
***Nanodacna indiscriminata*, new species**

FIGURES 100-101

Alar expanse 8-13 mm.

Labial palpus creamy white; second segment shaded with fuscous on outer side and distally on inner side; third segment shaded with fuscous on outer side. Antenna fuscous; scape narrowly edged with

creamy white apically. Head variable, gray to grayish fuscous with brassy sheen; face creamy white. Thorax buff to purplish fuscous, when light colored then darker posteriorly; tegula buff to light brown. Forewing (of the type) ground color buff; base of costa narrowly purplish fuscous; from basal sixth of costa to beyond middle a purplish-



FIGURES 100-101.—*Nanodacna indiscriminata*, new species: 100, ventral view of male genitalia with aedeagus removed; 100a, outline drawing of male genitalia in lateral aspect; 100b, aedeagus; 101, ventral view of female genitalia.

fuscous shade extends to dorsum and base of wing, except base is buff costad of fold; slightly beyond basal fourth, in the purplish-fuscous shade, a buff-edged, light brown, oblique oval spot extends almost to costa; also, within the dark shade several longitudinal brown streaks interrupt the solid color; outer half of wing streaked with buff, light brown and purplish fuscous; cilia grayish fuscous. Hind-

wing brassy grayish; cilia grayish fuscous. Legs buff; fore- and mid-legs shaded on outer sides with purplish fuscous; posterior leg shaded on outer side with grayish fuscous. Abdomen shining grayish fuscous above, buff beneath; anal tuft grayish to buff.

Male genitalia (slides 10411, 10445, 10447, 10735, 10760): Harpe broad with bluntly pointed cucullus. Sacculus produced as a bluntly pointed, short process. Vinculum rounded with a group of long, slender scales from each side. Anellus very lightly sclerotized and poorly defined. Aedeagus curved, distally flattened. Gnathos consisting of two long processes dilated and spined distally.

Female genitalia (slides 10722, 10736, 10737, 10757, 10759): Ventral lip of ostium broadly expanded, posterior edge finely serrate. Inception of ductus seminalis from a median sclerotized portion of the ductus bursae. Signa two elongate, lightly sclerotized areas with transverse ridge.

Type: Masatierra: Piedra Agujereada (Mar. 12, 1955).

Described from the type female, ten male and eight female paratypes as follows: 2 ♂♂, 2 ♀♀, Alto Francés, 500 m. (Mar. 2, 1951); ♂, Cerro Alto, 600 m. (Feb. 1, 1952); ♂, El Pangal, 350 m. (Feb. 18, 1951); 2 ♂♂, 4 ♀♀, La Mona, 400–475 m. (Feb. 16, 1951, Jan. 30, 1955); 2 ♂♂, 2 ♀♀, Plazoleta del Yunque, 200 m. (Feb. 9, 1952); 2 ♂♂, Salsipuedes, 400 m. (Mar. 5, 1951).

A female has been selected as type because it is in good condition and is, perhaps, more nearly representative of the average for the species. At best, *indiscriminata* is extremely variable, ranging from a nearly immaculate brownish shade to specimens with the basal two-thirds of the forewing purplish fuscous and the outer third buff or light brown with a few, scattered dark scales. One female has a tawny forewing with a broadly triangular purplish-fuscous area occupying the costal two-thirds except for the base and apex.

The two species of this genus are similar in appearance but each is endemic on its own island and is easily distinguished by genitalic characters.

## Family Hyponomeutidae

### Genus *Plutella* Schrank

#### *Plutella maculipennis* (Curtis)

*Cerostoma maculipennis* Curtis, 1832, British entomology, vol. 6 (Lepidoptera 2), pl. 420 (expl. p. 2).

Distribution: Santa Clara: El Corral, ♂, 2 ♀♀ (Jan. 6, 1952); Masafuera: Quebrada de las Casas, ♂, ♀ (Jan. 19, 1952).

A common pest of cruciferous plants rather generally distributed throughout most of the world.

### Genus *Melitonympha* Meyrick

*Melitonympha* Meyrick, 1927, Exotic Microlepidoptera, vol. 3, p. 360.

Type-species: *Melitonympha heteraula* Meyrick, *ibid.* [by monotypy].

#### *Melitonympha cockerella* (Busck)

*Abebaea cockerella* Busck, 1903, Journ. New York Ent. Soc., vol. 11, p. 54.

*Melitonympha heteraula* Meyrick, 1927, Exotic Microlepidoptera, vol. 3, p. 360.

—Clarke, 1965, Catalogue of the type specimens of Microlepidoptera in the British Museum (Natural History) described by Edward Meyrick, vol. 5, p. 347, pl. 172, figs. 1-1c.

*Melitonympha* is, perhaps, most nearly related to the two South American mainland genera *Chalconympha* Meyrick and *Thalassonympha* Meyrick, but also shows a relationship to the more widely distributed *Cerostoma*. The three genera *Melitonympha*, *Chalconympha*, and *Thalassonympha* all have in common stalked veins 7 and 8 of the forewing but in *Cerostoma* these veins are separate. *Melitonympha*, *Chalconympha* and *Cerostoma* have veins 6 and 7 of hindwing stalked but in *Thalassonympha* these veins are well separated and nearly parallel. In both *Melitonympha* and *Chalconympha* the maxillary palpi are well developed but in *Thalassonympha* they are obsolete. All three possess a well-developed antennal pecten.

The male genitalia are normal for the family. Socii and gnathos present and well developed.

Perhaps the presence of this North American genus in the Juan Fernandez Islands may be surprising but I have already demonstrated the presence of *Martyrhilda* (Oecophoridae), another genus described from North America, on Masatierra (plus five species in this genus on the South American mainland). At this time I have on hand an additional undescribed species of *Melitonympha* from Chile and this genus may be much more widespread than presently indicated.

#### *Melitonympha telluris*, new species

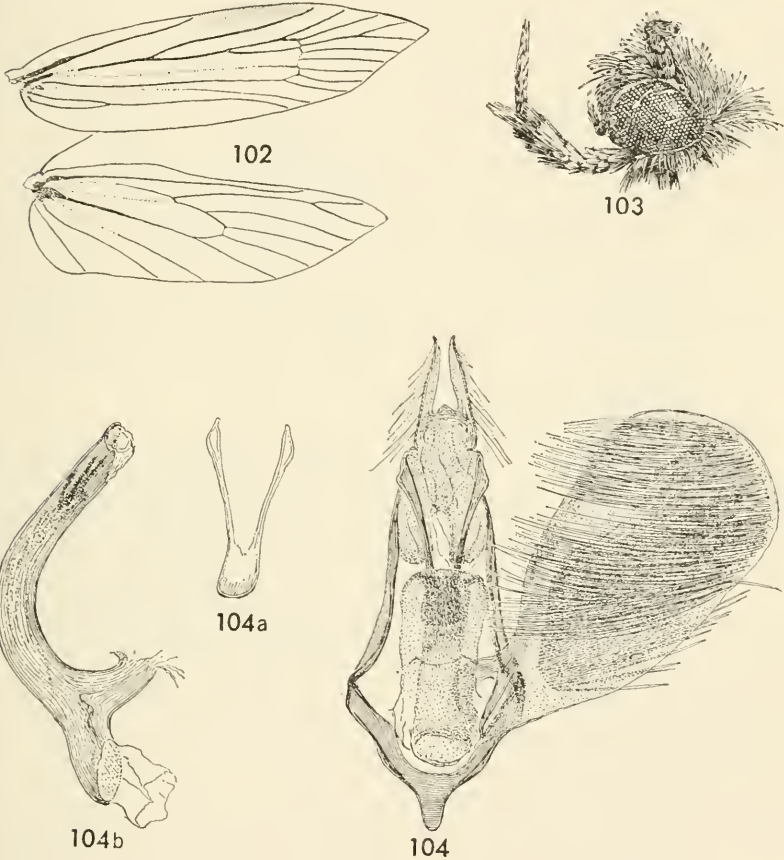
FIGURES 102-104

Alar expanse 16 mm.

Labial palpus ochereous white; second segment with brownish suffusion on outer side. Antenna brownish with narrow, shining ochereous-white annulations. Head ochereous white with mixture of a few brownish scales. Thorax and ground color of forewing ochereous white; thorax and basal half of tegula shaded with pale argillaceous; forewing irregularly blotched and shaded with argillaceous; veins in costal half of wing indistinctly indicated by ill-defined,



longitudinal, brownish streaks; basal half of dorsum narrowly fuscous; at end of cell, between veins 3 and 5 a fuscous spot; entire surface of wing sparsely and irregularly irrorate with fuscous; cilia ochreous white. Hindwing sordid white shading to pale gray apically; cilia sordid white. Legs ochreous white; foreleg shaded with fuscous on outer side. Abdomen grayish above, ochreous white beneath.



FIGURES 102-104.—*Melitonympha telluris*, new species: 102, venation of wings. 103, lateral aspect of head showing palpus; 104, ventral view of male genitalia with left harpe and aedeagus removed; 104a, ventral view of gnathos; 104b, lateral aspect of aedeagus.

Male genitalia (slide 10442): Harpe simple, very broad; cucullus rounded. Vinculum rather narrow; saccus short, bluntly pointed. Gnathos spoon shaped apically. Socii slender, digitate. Aedeagus strongly curved with dorsobasal protuberance for entrance of vesica; vesicia armed with three prominent cornuti.

Type: Masatierra: Alto Inglés, 600 m. (Feb. 6, 1952).

Described from the unique type male. This species has no known near relatives.

*Eudolichura*, new genus

Type-species: *Eudolichura exuta*, new species, by monotypy and present designation.

Antenna slightly more than half the length of forewing, simple (male not known); scape without pecten. Labial palpus only slightly curved, more than three times as long as head; second and third segments about equal in length and both somewhat roughened beneath but second segment without any brush. Head roughened with dense scales above; ocellus present, very small, posterior; tongue well developed; maxillary palpus moderate, slender, ascending. Hindtibia moderately stout, smooth dorsally, roughened beneath. Forewing with 12 veins, all veins separate; 2 well before angle of cell, three times as far from 3 as 3 is from 4; other veins well separated; accessory cell present. Hindwing with 8 veins; 2 remote from 3; 3 and 4 well separated; 5 and 6 stalked; 6 and 7 nearly parallel; hair pencil present on base of wing.

Female genitalia without signum.

*Eudolichura* appears to have its affinities with the New Zealand genera *Orthenches* Meyrick and *Protosynaema* Meyrick. *Eudolichura* can be distinguished from *Orthenches* by the rough-scaled head, absence of antennal pecten and the stalked condition of veins 5 and 6 of the hindwing. The only significant differences between *Eudolichura* and *Protosynaema* are the stalking of veins 5 and 6 of the hindwing of *Eudolichura*, absent in *Protosynaema*, and the presence of a dense clothing of scales on the basal portion of the antenna of *Protosynaema*, absent in *Eudolichura*. The most nearly allied South American genus appears to be *Calliathla* Meyrick, described from Lake Nahuel Huapi, Territory Río Negro, Argentina. This genus exhibits the same venation as *Eudolichura* (5 and 6 of hindwing stalked; not separate as characterized by Meyrick), but differs from it by the presence of a well-developed antennal pecten, approximate veins 9 and 10 of forewing and the very oblique discocellulars of hindwing. *Calliathla* is also a much narrower winged genus.

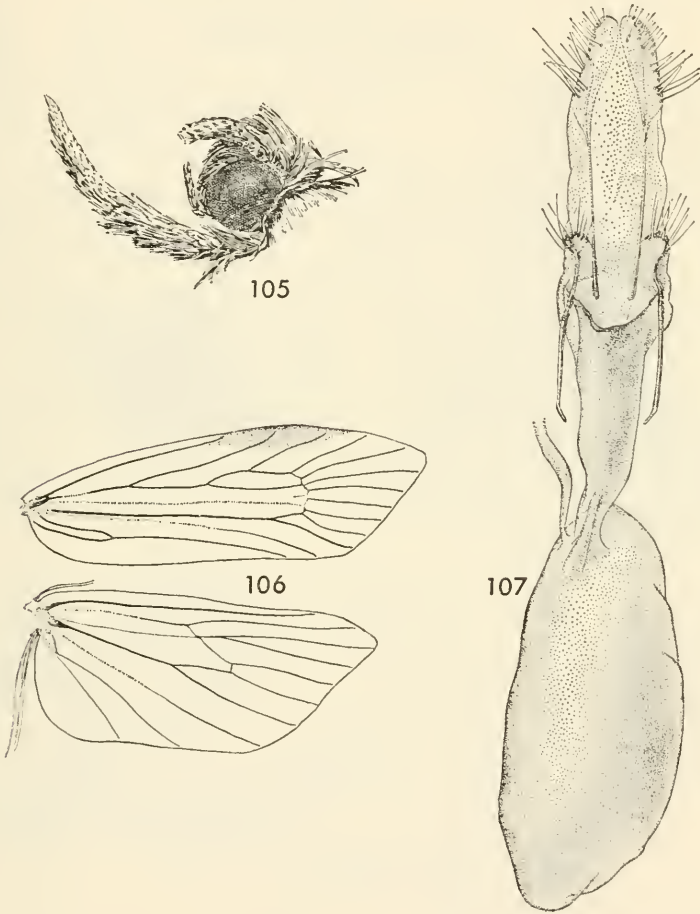
*Eudolichura exuta*, new species

FIGURES 105-107

Alar expanse 19 mm.

Labial palpus buff; second segment shaded with brown on outer side. Antenna fuscous with pale annulations; scape and head pale ochraceous tawny. Thorax brown; tegula buff tipped. Forewing brown becoming lighter toward costa; extreme base of costa narrowly

fuscous; along costa to apex a series of small, ill-defined brownish spots; dorsum buff infuscated toward edge, the buff forming an undulating line at junction with the ground color; at end of cell, at base of vein 8, a few blackish scales; between the end of cell and apex a subrectangular buff blotch containing a few scattered brownish scales; on tornus a few brown spots; area inside termen narrowly



FIGURES 105-107.—*Eudolichura exuta*, new species: 105, lateral aspect of head to show palpus; 106, venation of wings; 107, ventral view of female genitalia.

and indistinctly buff; cilia alternating buff and brown groups forming ill-defined spots. Hindwing buff, shading to brownish apically; cilia buff. Legs buff, shaded with ochraceous tawny; tarsi broadly banded with fuscous. Abdomen buff, lightly suffused with fuscous; anal tuft dull ochereous; seventh sternite with pronounced callosity.

Female genitalia (slide 10764): Ostium broad, with narrowly

sclerotized edge. Ductus bursae wholly membranous; inception of ductus seminalis at posterior edge of bursa copulatrix.

Type: Masafuera: La Correspondencia, 1200 m. (Feb. 16, 1955).

Described from the unique female type. Although generically distinct, *exuta* bears a strong superficial resemblance to *Leuoperna leioptera* but the latter is much darker in coloration.

### *Leuoperna*, new genus

Type-species: *Leuoperna leioptera*, new species, by monotypy and present designation.

Antenna slightly more than half the length of forewing, serrate, thickened in male; scape with pronounced scale-flap. Labial palpus curved, ascending, second segment about two-thirds the length of third, with conspicuous ventroanterior triangular brush; third segment slender, acute. Head roughened by erect scales on crown; face smooth but bordered laterally by elongate scales. Maxillary palpus well developed, slender, porrect. Hindtibia slender, smooth. Forewing with 12 veins, all separate; 2 distant from 3; 3 and 4 approximate; 6, 7, 8, and 9 about equidistant; 11 from before middle of cell. Hindwing with 8 veins; 2 remote from 3; 3 and 4 connate; 5 nearer to 6 than to 4; 6 and 7 subparallel; hair pencil present at base of wing.

Male genitalia without uncus or gnathos. Ventrolateral hair pencil present.

Female genitalia without signum.

In general appearance *Leuoperna* is similar to *Eudolichura*, described herein, and to *Plutella* Schrank. *Leuoperna* differs from *Eudolichura* by the presence of a pronounced scale-flap on scape, porrect maxillary palpus, connate veins 3 and 4 and separate veins 5 and 6 of hindwing. From *Plutella* the genus *Leuoperna* can be distinguished by the presence of a well-developed accessory cell in forewing, connate veins 3 and 4 and separate veins 5 and 6 of hindwing.

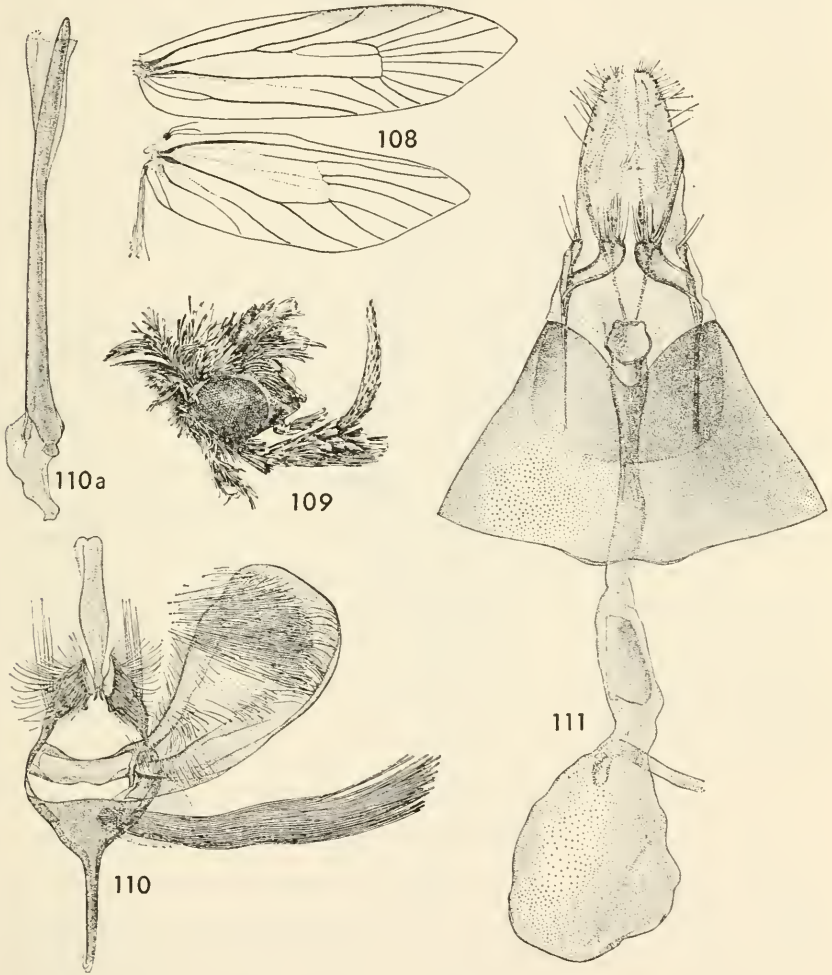
### *Leuoperna leioptera*, new species

FIGURES 108-111

Alar expanse 20-22 mm.

Labial palpus ivory white; second segment shaded with grayish fuscous on outer side; third segment shaded with grayish fuscous anteriorly and on outer side. Antenna with scape fuscous, remainder becoming lighter to middle then, progressively, 3-4 segments blackish followed by 3 ivory white, 6 blackish, 2 ivory white, 3 blackish, ivory white and terminal 5 grayish fuscous. Head grayish to fuscous; crown ivory white to buff. Thorax buff with a blackish-fuscous, longitudinal stripe on each side; tegula fuscous mixed with a few

buff scales, the whole with a violaceous sheen. Ground color of forewing tawny olive infuscated with grayish toward costa and dorsum; extreme costa buff; a double row of small spots paralleling costa, blackish fuscous, these spots partly edged with white scales; at middle of costa a somewhat larger spot extends almost to cell;



FIGURES 108-111.—*Leuroperna leioptera*, new species: 108, venation of wings; 109, lateral aspect of head showing palpus; 110, ventral view of male genitalia with left harpe and aedeagus removed; 110a, aedeagus; 111, ventral view of female genitalia.

from apex, around termen and along dorsum a series of blackish-fuscous spots diminishing in size from apex to basal fourth of dorsum; the apical and two terminal spots each with a cluster of white scales; base of forewing blackish fuscous, this color continued as an undulating

shade obliquely curved to near dorsum, thence to near center of cell, curved again toward dorsum and continued around to end of cell and outwardly along vein 6; this undulating shade is lightened somewhat outwardly by the ground color; the dark shade edged with white scales for part of its length; the dark ternal area separated from the dark median color by a curved, buff line, the latter with some scattered white scales; on fold, at about two-fifths, a double, blackish-fuscous spot, the parts separated by white scales; cilia grayish fuscous mixed with whitish and buff scales. Hindwing gray with brassy sheen; cilia grayish fuscous, except at apex, buff, with darker subbasal band. Legs buff; fore- and midlegs broadly banded with blackish fuscous; hindleg tibia gray outwardly; tarsi broadly banded with blackish fuscous. Abdomen grayish fuscous; dorsally, first three segments mostly buff and succeeding segments edged with buff dorsally; ventral longitudinal stripe and anal tuft dull ochereous.

Male genitalia (slide 10763): Harpe ample, triangular, broadened apically, simple. Vinculum broadened ventrally; saccus slender, about half as long as harpe. Socii large flaps heavily clothed with long hairlike setae. Aedeagus slender, slightly curved, pointed, unarmed.

Female genitalia (slide 10762): Ostium round, funnicular, sclerotized, tapering into ductus bursae. Ductus bursae with an elongate sclerotized area adjacent to bursa copulatrix. Inception of ductus seminalis from posterior edge of bursa copulatrix.

Type: Masafuera: La Correspondencia, 1150 m. (Jan. 28, 1955).

Described from the type male and three female paratypes all with the same data.

All of the specimens have one or the other pair of wings damaged apically but are otherwise in good condition.

## Family Glyphipterygidae

### Genus *Brenthia* Clemens

In this collection there is a single female specimen belonging to this family. The specimen is worn, possesses part of one labial palpus and is not in sufficiently good condition to warrant description. The specimen measures 9.5 mm. in alar expanse and probably belongs to the genus *Brenthia*.

The locality is: Masatierra: Cerro Alto, 600 m. (Feb. 1, 1952).

## Family Psychidae

### PLATE 1

Of this family there is a single representative which, at this time, cannot be assigned to genus or species.



Bag of unknown species of Psychidae.





To the outside of the case, small pieces of twigs and the thick leaves of the food plant are attached. These fragments are distributed unevenly over the surface in an attractive manner, the grayish-white pieces of leaves contrasting with the darker body of the bag.

The single specimen was collected on: Masatierra: Alto Pangal, 450 m. (Feb. 8, 1952).

Food plant: *Pernettya rigida* (Bert.) DC.

## Family Tineidae

### Genus *Monopis* Hübner

#### *Monopis crocicapitella* (Clemens)

*Tinea crocicapitella* Clemens, 1860, Proc. Acad. Nat. Sci. Philadelphia, 1859, p. 258.

Distribution: Masatierra: Bahía Cumberland, 3 ♂♂ (Feb. 17, 1951, Mar. 6, 1955, Mar. 10, 1955).

Another common, widely distributed insect which we can expect to find in almost any human habitation. Since it also attacks fur of dead animals, and other animal matter in the wild state, its distribution is practically unlimited.

### Genus *Trichophaga* Ragonot

#### *Trichophaga tapetzella* (Linnaeus)

*Phalaena Tinea tapetzella* Linnaeus, 1758, Systema naturae, ed. 10, p. 536.

Distribution: Masafuera: Quebrada de las Vacas, ♀ (Jan. 17, 1952).

The single female recorded above is the only specimen I have seen from the islands.

### Genus *Lindera* Blanchard

#### *Lindera tessellatella* Blanchard

*Lindera tessellatella* Blanchard, 1852, in Gay, Historia fisica y politica de Chile, Zoologia, vol. 7, p. 106.

Type: Museum National d'Histoire Naturelle, Paris.

Type locality: Las Cordilleras de Elqui, Chile.

Distribution: Masatierra: Bahía Cumberland, ♂, 6 ♀♀ (February to March dates 1951, 1955); Masafuera: Quebrada de las Casas, 2 ♂♂, ♀ (Jan. 23 to Feb. 19, 1955; female marked "en habitación").

Although the species was described from Chile it is now recorded from such widely separated places as California, Montana, Mexico, Fiji Islands, Australia, and New Zealand.

## Genus *Tinea* Linnaeus

### *Tinea pallescentella* Stainton

*Tinea pallescentella* Stainton, 1851, A supplementary catalogue of the British Tineidae and Pterophoridae, p. 2.

*Tinea stimulatix* Meyrick, 1931, Anales del museo nacional de historia natural, Buenos Aires, vol. 36, p. 413 (new synonymy).

*Tinea horosema* Meyrick, 1931, Anales del museo nacional de historia natural, Buenos Aires, vol. 36, p. 413 (new synonymy).

Types: British Museum (Natural History).

Type localities: England (*pallescentella*); Argentina, Territory Río Negro, Bariloche (*stimulatix*); Argentina, Territory Río Negro, Lake Nahuel Huapi (*horosema*).

Distribution: Masatierra: Villagra, ♂ (Feb. 22, 1951): Santa Clara: El Corral, 2 ♀♀ (Jan. 6, 1952).

In view of the rather large proportion of microlepidoptera introduced into these islands, it is not surprising to find *pallescentella* among their number.

As indicated in the synonymy, the species has already been recorded from the South American continent under two different names: *stimulatix* and *horosema*. No doubt the apparent variability of this species led Meyrick astray, but if he had considered the possibility of the specimens having been collected at some lodging, other than in the native state of the little-known Río Negro area, he would have recognized this rather widely distributed species.

Mr. Bradley, of the British Museum, has kindly examined this material and has confirmed my identification of *pallescentella*. His remarks are as follows: "No. 10440, 10441, 10765 are *Tinea pallescentella*. It seems to me that *T. horosema* Meyr. (♀) and *T. stimulatix* Meyr. (♂) are no more than *pallescentella*. The superficial differences are no help as *pallescentella* varies. The genitalia differences are slight and I think due to individual variation. For example, the internal sclerotization in the aedeagus is small and could be expected to vary. The depth of the medial incision of the ostial plate does seem more variable than might be expected (assuming that it is variation in one species). It is impossible to be quite certain without looking at more specimens but I think I can safely say that your material belongs to *pallescentella* and that *horosema* and *stimulatix* may prove to be no more than *pallescentella*."

## Family Oinophilidae

Genus *Oinophila* Stephens*Oinophila v-flava* (Haworth)

*Gracillaria v-flava* Haworth, 1811, Lepidoptera Britannica, pt. 4, p. 530.

Distribution: Masatierra: Bahía Cumberland, 4 ♂♂, 4 ♀♀ (Feb. 17, 1951 to Mar. 13, 1955); La Mona, 400 m., ♂, ♀ (Feb. 16, 1951).

Usually the larva of this species is recorded in Europe as feeding on fungi in cellars and on molds on the corks of wine bottles. There is one specimen in this present collection marked "Grutas de las Patriotas" which suggests conformation with European habits of this insect but in Western United States the species has been recorded from *Baccharis*.

*Tinea pellionella* Linnaeus

*Phalaena Tinea pellionella* Linnaeus, 1758, Systema naturae, ed. 10, 536.

Distribution: Masatierra: Bahía Cumberland, ♂ (Feb. 3, 1952). Masafuera: Quebrada de las Casas, ♂ (Jan. 16, 1952).

In recording this species I do so with some misgivings. Although we should expect to find *pellionella* in these islands, along with species with similar habits, these specimens are not exact matches for what we generally consider to be normal *pellionella*. On the other hand, the series at the U.S. National Museum and at the British Museum, show considerable variation for this variable species. Certainly the two examples before me do not approach in character any other known form and they do not warrant description as a distinct taxon.

## Family Lyonetiidae

Genus *Bedellia* Stainton*Bedellia somnulentella* (Zeller)

*Lyonetia somnulentella* Zeller, 1847, Isis von Oken, vol. 12, p. 894.

Distribution: Masatierra: Bahía Cumberland, 6 ♂♂, 4 ♀♀ (Jan. 7 to Mar. 14, 1951-1955). Masafuera: Quebrada de las Vacas, ♀ (Jan. 17, 1952).

This common and widespread pest of sweet potato and other allied plants is another of the species carried and distributed through commerce. Its presence in the Juan Fernandez Islands was to be expected.





