

Ctenuchid Moths of
Ceramidia Butler,
Ceramidiodes Hampson, and
the Caca Species Group of
Antichloris Hübner

WILLIAM D. FIELD

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William D. Field

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ABSTRACT

Field, Wililam D. Ctenuchid Moths of *Ceramidia* Butler, *Ceramidiodes* Hampson, and the Caca Species Group of *Antichloris* Hübner. *Smithsonian Contributions to Zoology*, number 198, 45 pages, 105 figures, 1975.—The Neotropical ctenuchid genera *Ceramidia* and *Ceramidiodes* and the Caca species group of the genus *Antichloris* are revised. A key to the genera, species groups, and species based upon habitus and male and female genitalia is provided. The natural history, distribution patterns, and classification are discussed. The species are reviewed regarding their taxonomic history, identity, morphology, and distribution. Photographs of the adults including most of the holotypes of the valid names and their junior synonyms are offered. Drawings of the male and female genitalia are included.

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Contents

	<i>Page</i>
Introduction	1
Natural History	2
Geographical Distribution	5
Key to the Genera and Species Treated in This Paper	6
Classification	7
Genus <i>Ceramidia</i> Butler	7
<i>Ceramidia fumipennis</i> (Walker)	8
<i>Ceramidia phemonoides</i> (Möschler)	10
Genus <i>Ceramidiodes</i> Hampson	11
<i>Ceramidiodes obscurus</i> (Butler), new combination (required change in ending)	11
Genus <i>Antichloris</i> Hübner	13
The Caca Species Group	14
<i>Antichloris viridis</i> Druce, resurrected combination	14
<i>Antichloris caca</i> Hübner, resurrected combination	16
Annotated List of Species Removed from <i>Ceramidia</i> and Transferred to Other Genera	18
<i>Amycles cupreus</i> (Schaus), new combination (required change in ending)	18
<i>Amycles dolosus</i> (Walker), combination sustained (required change in ending)	18
<i>Eriphioides purpurinus</i> (Dognin), new combination (required change in ending)	19
<i>Eriphioides simplex</i> (Rothschild), new combination	19
<i>Antichloris chloroplegia</i> (Druce), new combination	19
<i>Antichloris affinis</i> (Rothschild), new combination	20
<i>Antichloris steinbachi</i> Rothschild, resurrected combination	20
<i>Antichloris metallica</i> Rothschild, resurrected combination	20
<i>Antichloris zernyi</i> (Forster), new combination	20
<i>Antichloris viridisaturata</i> (Rothschild), new combination	21
<i>Antichloris flammea</i> Dognin, resurrected combination	21
<i>Antichloris ornata</i> (Druce), new combination	21
<i>Antichloris pinguis</i> (Zerny), new combination	21
<i>Antichloris bricenoi</i> (Rothschild), new combination	21
<i>Antichloris phaiodes</i> (Dognin), new combination	22
<i>Antichloris painei</i> (Rothschild), new combination	22
<i>Antichloris chalcoviridis</i> (Hampson), new combination	22
<i>Antichloris albipunctata</i> (Lathy), new combination	22
<i>Antichloris scotoptera</i> (Hampson), new combination	22
Literature Cited	23

Ctenuchid Moths of *Ceramidia* Butler, *Ceramidiodes* Hampson, and the Caca Species Group of *Antichloris* Hübner

William D. Field

Introduction

This study was inaugurated primarily to identify one of the more destructive pests of banana in Central America and northern South America. During times of large populations, this pest as a caterpillar feeding upon the leaves of banana plants can so reduce the leaf surface and shorten the leaf life that fruit weight and size are considerably reduced (Harrison, 1959). Upon taking up the task of identifying this species, the author quickly ascertained that many misidentifications were current both in the literature and in the various collections placed at his disposal. Through the years this ctenuchid moth has been identified as *Ceramidia musicola* Cockerell (1910), as *Ceramidia butleri* (Möschler) (Cockle, 1904; Zerny, 1912; Harrison, 1959; Ostmark, 1974), and as *Ceramidia viridis* (Druce) (Cevallos, 1957). The correct name for this species is *Antichloris viridis* Druce, as will be shown later.

As usually happens in any study of, or attempted identification of, species in a group of moths upon which little careful work has been done and upon which a great deal of careless attention has been

lavished, this examination soon enlarged to a review of all of the species that had been originally described in *Ceramidia* Butler or that had been later placed in *Ceramidia*. It extended to a study of species in other closely related genera in order to carefully and accurately define *Ceramidia* and its species and their closest relatives.

An examination of the literature revealed that up to the present time, some 34 species were thought at one time or another to belong to *Ceramidia*. This study first, because of newly discovered synonymy, reduced the number of valid species involved to 24 species and second, because of the resulting redefinition of the genera *Ceramidia*, *Ceramidiodes* Hampson, and *Antichloris* Hübner, reduced the number of species assigned to *Ceramidia* to 2 species, recognized as valid the single species and its genus *Ceramidiodes*, and increased the number of species assigned to *Antichloris* by 17 species. Among the latter is the banana pest, which was responsible for starting this study. In addition, two former *Ceramidia* species were found to belong to *Amycles* Herrich-Schäffer and two were found to belong to *Eriphioides* Kirby.

The scope of this paper is the treatment of the genera *Ceramidia*, *sensu stricto*, and *Ceramidiodes* and the Caca species group of *Antichloris*, where

William D. Field, Department of Entomology, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560.

the banana feeding pest *A. viridis* belongs. The correct generic assignments of 19 former species of *Ceramidia* and several synonyms of a few of these species are given in the annotated list at the end of this paper. The type-specimens of all species have been studied (and most of these are illustrated herein) for habitus and other characters and have been dissected for a study of the male and female genitalia. The genitalia and habitus, as often in studies of Lepidoptera, again proved to show the strongest generic and specific characters.

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I am especially grateful to Mr. Allan Watson of the British Museum (Natural History) for the loan of a great amount of material and for numerous photographs of type-specimens under his care, without which I could not have made this study.

I greatly appreciate the courtesy shown to me by Dr. F. Ederick H. Rindge during my study at the American Museum of Natural History and for the loan of material in his charge. I am especially thankful for the loan of two Möschler types made to me by Dr. H. J. Hannemann of the Zoological Museum of the Humboldt-University of Berlin. For the loan of a Zerny type, I am similarly thankful to Drs. F. Kasy and Richard Imb of the Zoological Collection of the Natural History Museum in Vienna. Mr. Robert Dietz, in the course of borrowing material from Dr. Walter Forster of the Zoological Collection of the Bavarian States, Munich, Germany, for his own study, secured the loan of a type that I needed for study and I thank both of these gentlemen for their cooperation.

I also wish to acknowledge the assistance of Mrs. Vera Milbank, Museum Technician, for bibliographic aid. Mrs. Elsie Froeschner of our staff of professional artists prepared most of the drawings of the male and female genitalia (Figures 75–100) and, after her recent retirement, Mr. Lawrence M. Druckenbrod prepared the remainder (Figures

101–105). Mr. Victor E. Krantz of the Smithsonian Institution photo laboratory made many of the photographs.

Natural History

Ctenuchid moths are day fliers and therefore readily and easily observed in the field; in addition many are heavy bodied and are relatively slow fliers. In spite of this, there is no recorded information concerning dispersal (except that *Antichloris viridis* moths can fly as far as a kilometer or more from their emergence site), mate selection, courtship behavior, or even the time of adult activity (except that adults are active during the daylight hours). Nothing is known about the food plants, the life history, or life habits of the species of *Ceramidia*, *Ceramidiodes*, and of the vast majority of *Antichloris* species.

Fortunately and only because of its economic destructiveness, the life history of *Antichloris viridis* Druce has been described at some length by both M. A. Cevallos (1957, under the name *Ceramidia viridis*) and by James O. Harrison (1959, under the name *Ceramidia butleri*).

FOOD PLANTS.—The only known food plant of *Antichloris viridis* is banana, *Musa sapientum* Linnaeus, and I suspect that *Antichloris caca* also feeds upon this plant. A third species, *Antichloris eriphia* (Fabricius), is known to feed upon banana (see: d'Araujo e Silva, et al., 1968:219; Ostmark, 1974:163). The related *Amycles dolosus* (Walker) of Brazil has also been reported feeding upon banana (Bondar, 1938).

Jan Sepp (1848:145–146, pl. 69) illustrates a larva of *Antichloris eriphia* (under his name *Sesia melanochloros*) feeding upon the underside of the leaf of a species of *Canna* (Cannaceae), which he calls by the name "*Taye Indien au Surinam*." He also states that he has seen this caterpillar feeding upon the leaves of "*Jurca-bessies*" but that he does not know the Latin name of either of these two plants. His illustration (1848, pl. 69) definitely shows a flower stalk and leaves of *Canna*, according to a personal communication from Dr. Lyman B. Smith, Department of Botany, National Museum of Natural History. The plant "*Jurca-bessies*" remains unidentified. Although *A. eriphia* belongs to a different species group, it is possible that *A.*

viridis and other species of *Antichloris* have *Canna* as their endemic host plant.

Banana is thought by almost all botanists who have studied the problem to have been introduced into the New World probably not before 1516, when one clone was taken from the Canary Islands to Hispaniola (Haiti). This was perhaps the first of many separate introductions into the Caribbean and to Central and South America where most of the world bananas are now raised for export. Species of the moth genus *Antichloris* are solely New World species occurring only in Central and South America except for *A. quadricolor* Walker and *A. clementi* Schaus from Jamaica and Cuba, respectively. These last two species are not known to feed upon banana. It is certain that *A. eriphia* expanded its choice of food plant from *Canna* to banana as the latter became available, and it is probable that *A. viridis* did likewise. Interested workers who wish to control the ravages of these ctenuchid banana pests would do well to look for these pests upon *Canna* and perhaps other plants on or near banana plantations.

ADULT.—The moths of *Antichloris viridis* are very active and may often be seen flying in open sunny areas. They fly long distances and if helped by the wind can reach a kilometer or more from their emergence site (Cevallos, 1957). According to Harrison (1959) they are short lived in the laboratory, living for from three to six days. He ascribes this to lack of proper food, because it apparently wasn't until after completion of his laboratory rearings that he observed adults in the field feeding upon the nectar of the blossoms of orange and lemon trees. The adults require only a few minutes after eclosion from the pupa to emerge from their cocoons. They immediately, as do all winged Lepidoptera, climb to a convenient place where they remain still until their wings expand and dry. This process usually takes about an hour or slightly more, after which they are ready and capable of flight.

The males of all *Antichloris* species and of *Ceramidia* and *Cermidiodes* have an eversible gland on the ventral surface of the abdomen between the seventh and eighth segments in front of the genitalia. This gland takes the form of hair pencils that arise from a large bilobed pocket, which can be forcibly extruded. In addition both sexes of *A. viridis* have a slightly retractable area covered with

red scales on the prothorax behind the head. This structure has been responsible for overnaming in this species, separate specific names having been given to specimens with red scales exposed and to specimens with red scales hidden because of this pouchlike process being in the retracted position. I suspect that both this prothoracic pouch and the abdominal eversible glands of the male have great influence upon mate selection and mating; however, no information concerning these types of activity has been recorded for these species. Mating takes place after the adults are about two days old (Cevallos, 1957).

OVIPOSITION.—Eggs are laid singly or in groups of from two to four, sometimes in a line or sometimes in a mass on the undersides of mature young leaves of the food plant. According to Harrison (1959), his laboratory-reared females usually began oviposition on the second or third day after emergence. Not more than 10 eggs were deposited by any single female in the laboratory; however, under normal conditions in the field the female can probably deposit upward of 30 eggs.

THE EGG.—The egg is described by Harrison (1959) as "subglobose, greenish in color, and averages 0.81 mm. in diameter." The egg stage lasts five or six days and about 24 hours before hatching, the egg changes from green to almost transparent milk-white color through which the reddish-brown mandibles of the larva can be seen.

THE LARVA.—It takes the larva about 12 hours or more to eat its way through the eggshell, whereupon it soon begins to eat the remainder of the shell, this taking from four and one-half hours to six hours. Next it begins feeding upon the leaf near where the egg had been attached. This is on the underside of the leaf, where, because of the small size of its mouthparts during the first three instars, it only eats partway through the leaf. Later the larva, when larger, eats completely through the leaf. In the field and upon small potted plants in the laboratory, its existence is entirely spent on the undersurface of the leaf. When reared in petri dishes in the laboratory, it showed no preference for the lower surface of pieces of banana leaves.

In feeding, the larva moves gradually backward and parallel to the small veins, and according to Harrison (1959) it leaves holes as large as three and one-half inches long and one-half inch in width. After each molt and at the beginning of

each successive instar, the larva completely consumes its own exuviae before feeding on the leaf again.

The larva molts five or six times, undergoing six or seven instars. Harrison (1959) reports that 90 percent of the larvae he raised passed through seven instars and 10 percent through only six instars. The duration of the first instar was from two to four days, that of the second through sixth instars was only two to three days each unless the sixth instar was its last before pupation, in which case this instar fed for from four to six days, as does the seventh instar for those larvae that went through a seventh instar before pupating. As would be expected, the last instar consumed more food than the total of all the other instars.

The fully grown larva has a yellow head with a white body that is nearly iridescent and slightly pink with small lateral red spots and is covered by abundant creamy white and long silky hairs, which arise from verrucae. Cevallos (1957) reports that these hairs are urticating, and caused a sharp pain and a rash when they came in contact with his skin.

THE PUPA.—Pupation takes place in the shade of leaves upon which the larvae fed or behind the leaf sheaths on the side of the pseudostem. Some larvae also pupate under the curling and drying tips of older leaves and some pupate on the stalks of the fruit and between the fruit, as is evidenced by numerous records of this moth being taken from banana stalks in ports of entry all over the world where bananas are imported. Mostly from its own hairs and silk, the larva forms a weak and very thin cocoon that is whitish yellow in color. The naked pupa is cocoa colored and measures about 15 mm. In Ecuador, according to Cevallos (1957), the pupal life lasted from 6 to 10 days, while in Costa Rica, according to Harrison (1959), this pupal life was from about 8 to 10 days and for one individual was 16 days (dry environment?).

LONGEVITY.—In Ecuador the whole life cycle takes place during the winter season and lasts about six weeks. There may be as many as three generations of larvae during this season (Cevallos, 1957). In Costa Rica this ctenuchid reproduced throughout the year and in the laboratory, according to Harrison (1963), the egg stage lasts from 5 to 6 days, the larval stage of from six or sometimes seven instars lasts from 16 to 26 days, the pupal

stage may be as short as 6 days (Cevallos, 1957) but normally lasts from 8 to 10 days; however, in one instance (as reported above) it lasted 16 days (Harrison, 1959).

PARASITES.—The thorough observations of James O. Harrison (1963) in Costa Rica are the source of most of the recorded information on the parasites of the egg, larva, and pupa of *A. viridis* (recorded by him under the name *Ceramidia butleri*). He reports that all stages of this species are attacked by natural enemies, which become more noticeable during periods of high host populations. Cevallos (1957) states that in Ecuador the larval and pupal stages of *A. viridis* are so heavily parasitized by other insects and fungus that by the end of the rainy season the population of this host is decimated by about 90 percent, too late, however, to be of help to the banana growers, as the ctenuchid has already done its damage by this time.

In Costa Rica the only known parasite to attack the eggs of *A. viridis* is *Trichogramma minutum* Riley (Hymenoptera: Trichogrammatidae, recorded under the name of its junior synonym, *T. pretiosum* Riley, Harrison, 1959). Harrison states that this parasite often parasitized these eggs and that of 763 eggs collected at Coto, Costa Rica, in the summer of 1959, 51 percent were parasitized. These eggs turn black 24 to 48 hours before the emergence of these tiny wasps.

The larvae are parasitized by a number of Hymenoptera and by one Diptera. The latter, *Achaetoneura aletia* Riley (Diptera: Tachinidae), was the most abundant parasite on this ctenuchid larva in Costa Rica. A braconid, *Meteorus laphygmae* Vierick, is a widespread parasite of *A. viridis* and during November of 1960, 20 percent or more of these larvae collected each month were parasitized by this insect. Two other braconids, *Apanteles* sp., and *Macrocentrus* sp., near *koebelei* Vierick, and an ichneumonid, *Carinodes* sp., have been reared from larvae of *A. viridis*. Dr. Z. Bouček (1962) described and recorded *Elachertus ceramidia* (under the name *Stenomiesius ceramidae*, Hymenoptera: Eulophidae) as a parasite of larvae of *A. viridis* in Ecuador. The same year, the range of this parasite was noted to include larvae of this host in Panama, Costa Rica, and Honduras (Burks, 1962). Harrison (1965) states that it is an important parasite of *A. viridis* in Central America. His observations showed that the adult females of this

parasite were often observed on caterpillars in the field, with as many as eight on a single caterpillar, and that most of them had their ovipositors inserted into the cuticle of the host. With the increase of the parasite population, the caterpillar population rapidly decreased, so that starting on 27 June there were 5.8 caterpillars per banana leaf, with about 43 percent of these parasitized by a maximum of 40 parasites (eggs and larvae) on each caterpillar. By 3 August there were 1.7 caterpillars per leaf, with 90 percent of these parasitized by a maximum of 118 parasites for each caterpillar and by 6 September there remained only 0.5 caterpillars per leaf, with no parasites observed.

Burks (1960) gave a number of records of *Brachymeria comitator* (Walker) (Hymenoptera: Chalcidae) reared from pupae of *A. viridis* in quarantine in the United States and from pupae originating in Mexico and Central America.

It is uncertain whether or not a parasite directly attacks the pupal stage, according to Harrison (1963), but there are two parasites that emerge from pupae of the hosts in Costa Rica. These are this same chalcid mentioned above, *Brachymeria comitator* (Walker) and *Carinodes* sp. (Hymenoptera: Ichneumonidae). The chalcid acted also as a secondary parasite since six pupae of *Achaetoneura aletiae* (Riley) (Diptera: Tachinidae), which had emerged from larvae of *A. viridis*, were themselves victims.

In one area near Coto, Costa Rica (Harrison, 1963), a large percentage of the host ctenuchid were attacked by two species of fungi, one being *Entomophthora* sp. and the other an unidentified species.

Parasites of the adult ctenuchid are unknown.

PREDATORS.—Three spiders, *Thiodina pseustes* Chamberlin and Ive, *Eriophora edax* Blackwall, and *Eustala fuscovittata* Keyserling, and one small lizard (unidentified) have been observed feeding upon small larvae of *A. viridis*. Birds have not been observed attacking either the adult moths or the larvae; however, these larvae with their habit of feeding and resting on the undersides of the leaves are probably not easily observed by birds. There has been only one observation reported which would indicate predators of the adult stage of this ctenuchid moth—the one by Harrison that he has occasionally seen adults entangled in the webs of

the orb-weaving spider, *Gasteracantha cancriformis* (Linnaeus).

MIMICRY.—Forbes (1960:56) and others state that many species of the family Ctenuchidae are mimics, mostly of Hymenoptera. Schrottky (1907) mentions *Ceramidia* as a mimic of Hymenoptera. While this conclusion could be drawn from a superficial examination of *Ceramidia* and *Antichloris* species and relatives because of their narrow fuscous or black wings, one must not forget that black and fuscous are common basic colors in many groups of insects. Certainly the abdomens of these moths with their relatively wide bases, which appear even wider because of the firm attachment of their thoracic tympanic hoods to their basal abdominal segments, do not seem to resemble the abdomens of the majority of wasps. No one has as yet suggested exact models among the wasps for *Antichloris* and *Ceramidia* species. Careful observations in the field might confirm this presumed mimicry and *Antichloris viridis*, because of its frequent large populations over a large geographical area, would be a likely candidate to observe.

Geographical Distribution

The genera *Ceramidia*, *Ceramidiodes*, and *Antichloris* are restricted to the tropical regions of the New World. The genus *Ceramidia* with two species is found over a great part of tropical America from Venezuela and Trinidad east into French Guiana and south through a large part of Brazil, Colombia, Ecuador, Peru, and Bolivia. *Ceramidiodes* with a single species is widely distributed in humid, lowland, tropical Brazil but apparently does not range outside of that country.

Antichloris is a genus of 27 known species that I divide into three species groups: (1) the Quadricolor species group with two species that occur only in Jamaica and Cuba; (2) the Caca species group (the only group of this genus that I am attempting to treat thoroughly in this paper), with two widely spread species that have a combined distribution ranging from Mexico south throughout Central America and over most of the northern half of South America as far as Colombia, Ecuador, and Brazil; and (3) the Eriphia species group with 23 species that range collectively over much of the same general area as the Caca species group and

even farther south through Peru and Bolivia into Argentina.

In the *Eriphia* species group only two species, *A. eriphia* and *A. chloroplegia*, have broad distributions, *A. eriphia* being found from Venezuela into Trinidad and French Guiana south through Colombia, Ecuador, Peru, and Brazil into northern Argentina and *A. chloroplegia* more or less rang-

ing in the same general area as far south as Peru and Brazil. Twenty-one of the 23 species in this group are at present known only from one or two localities in a single country or sometimes from only a single locality in each of two separate countries. Five of these 21 species are found only in Venezuela, four are found only in Brazil, three each are found in Ecuador and Costa Rica, two separate

Key to the Genera and Species Treated in This Paper

1. Ventral surface of abdomen entirely white from base through most or all of seventh segment (Figures 8, 26); male genitalia with each valva slender, without teeth on ventral margin and with a long, narrow pulvinus from inner face of its base (Figure 77); female genitalia with anterior genital plate heart shaped and with deep pockets opposite the base of this genital plate (Figure 85) *Ceramidiodes obscurus* (Butler)
 Ventral surface of abdomen, male and female genitalia not as described above 2
2. Ventral surface of abdomen with a solid white band along each side of a median band of fuscous (Figures 2, 4, 6, 24); male genitalia with each valva slender, having at least one tooth on ventral margin and lacking both a pulvinus on inner face of base and a subapical fleshy lobe on its outer face (Figures 75, 76); female genitalia with anterior genital plate large and bilobed, cupules absent (Figure 84) *Ceramidia* Butler, 3
 Ventral surface of abdomen fuscous except for a series of three or more separate white spots on basal segments near spiracular line or with basal three segments (1+2, 3, 4) entirely white (Figures 10, 12, 14, 16, 18, 20, 22); male genitalia with each valva broad through basal one-half or more, lacking a pulvinus on inner face at base and with a long fleshy subapical lobe on outer face (Figures 78-82, 92-102); female genitalia with anterior genital plate broad and lipped and with a pair of cupules or lateroventral depressions present
 *Antichloris* Hübner, 4
3. Hind tibiae entirely white in the male (female unknown); male with upper surface of hind wing having white or pale gray color of costal area extending only to the lower margin of cell and outward to the margin above the outer angle (Figures 1, 3); male genitalia with each valva having a single large tooth near middle of ventral margin (Figure 75)
 *Ceramidia fumipennis* (Walker)
 Hind tibiae in both sexes with outer surface fuscous; male with upper surface of hind wing white or pale gray color of costal area extending to below the lower margin of cell and outward to well below the outer angle, nearly to vein Cu_2 (Figure 5); male genitalia with each valva having ventral margin with several large teeth (Figure 76)
 *Ceramidia phemonoides* (Möschler)
4. Ventral surface of abdomen fuscous except for a series of three or more separate white spots on basal segment near spiracular line (Figure 44, 48, 52); male genitalia with valva having a broad triangular-shaped lobe at lower angle (Figures 92-102)
 *Eriphia* species group (not fully treated in this paper)
 Ventral surface of abdomen with basal three segments (1+2, 3, 4) entirely white or with large white spots in the middle of these segments (Figures 10, 12, 28, 30, 32, 34); male genitalia with valva broadly and evenly rounded in this area, lacking triangular lobe described above (Figures 78-82) *Caca* species group, 5
5. Male with lower half of each tympanic hood white and with a small white spot on base of each tegula; female with segment in front of ostium fuscous to blue-black, dark metallic blue or green or bronze green (Figures 28, 30), occasionally dark tan and fuscous in the center (Figure 32); male genitalia with ventral margin of valva rounded and ending in a triangular projection near apical process (Figures 78-80) *Antichloris viridis* (Druce)
 Male with each tympanic hood entirely fuscous and without white spot on base of each tegula; female with segment in front of ostium light tan in color (Figure 34); male genitalia with ventral margin entirely rounded, lacking triangular projection described above
 *Antichloris caca* Hübner

species are found only in Bolivia, and one species each is found in Ecuador and Guatemala. One species is found in both Ecuador and Peru and one species is found in both Ecuador and Bolivia.

I believe that one should not form any general conclusions about the place of origin, area of diversity, and dispersal for the genus *Antichloris* at present because much more collecting and much more study is necessary for those 21 species that have such an apparently limited distribution. Are they really this limited in distribution? A number of these species are still known only from their original type-series. One should not at present draw the conclusion, for example, that because there are five species known to be exclusively endemic to Venezuela and two additional species more broadly ranging but abundantly present there, that Venezuela is the primary area of diversity and dispersal.

Many of these *Antichloris* species of all three species groups seem to prefer the hot, humid lowlands, but others are found at higher elevations ranging up to 2000 meters.

Classification

Ceramidia, *Ceramidiodes*, *Antichloris*, *Amycles* Herrich-Schäffer, and *Eriphioides* Kirby represent five genera in the Ctenuchidae that form a branch of closely related genera, which Hampson (1898: table facing page 22) in his phylogenetic tree shows diverging from *Sciopsyche* Butler. I have found no reasons to alter this concept and in fact believe that these five genera will probably be considered to form a tribe or subtribe within the subfamily Euchromiinae when that subfamily is subdivided.

These five genera have many characters in common, especially in the male and female genitalia. In the males all have a deeply divided uncus that forms two long entirely separate arms, a broad and relatively short and downwardly bent aedeagus, a sturdy sacculus supporting the valvae, and a very similar and peculiarly shaped anellus supporting the aedeagus. *Antichloris*, *Ceramidia*, and *Ceramidiodes* have a pseuduncal lobe in front of each uncus arm; these lobes are shorter than the uncus arms and arise from the tegumen. All of these genera except *Ceramidia* have a soft hairy subapical lobe on the outer side of each valva. Characters for separating these genera were found

mainly in the shape and armature of the valvae and in the female genitalia in the shape of the anterior genital plates, in the position of or presence or absence of cupules for receiving the clasping organ of the male, and in the internal elements of the ductus bursae and bursa copulatrix.

Genus *Ceramidia* Butler

FIGURES 1-6, 23, 24, 75, 76, 84

Ceramidia Butler, 1876:412, 433, pl. 29: fig. 3.—Kirby, 1892: 158 [in part].—Hampson, 1898:27, 395-396 [in part].—Klages, 1906: 548 [in part].—Zerny, 1912:114-115 [in part].—Draudt, [1916]a:113-135 [in part]; [1916]b:113-135 [in part].—Kaye and Lamont, 1927:9 [in part].—Zerny, 1931a:18 [in part]; 1931b:250 [in part].—Hoffman, 1936:446 [in part].—Hagmann, 1938:193 [in part].—Fleming, 1950: 212, 216 [in part].—Bryk, 1953:235.—Fleming, 1959:87, 89, 91, 94.

Passineura.—Kirby, 1892:158 [not Butler; a misidentification].—Hampson, 1898:395 [not Butler].—Zerny, 1912:114 [not Butler].

Type-species: *Euchromia fumipennis* Walker.
Type by original designation.

Ceramidia is restricted here to the species *C. fumipennis* (Walker) and *C. phemonoides* (Möschler). Nineteen species formerly placed in *Ceramidia* are transferred to other genera (see list at end of paper). In habitus this genus is easily distinguished from the related genera *Antichloris* and *Ceramidiodes* by the color pattern of the underside of the abdomen and by characters in the male and female genitalia. In *Ceramidia* the underside of the abdomen has a broad, median fuscous band running from its base through the seventh sternum, with a white band along each side of this fuscous band (Figures 2, 4, 6, 24). In the valva of the male genitalia (Figures 75, 76) this genus lacks the pulvinus found in *Ceramidiodes* (Figure 77) and the subapical fleshy lobe found in *Ceramidiodes* and *Antichloris* (Figures 78-82, 92-102). In the female genitalia (Figure 84) the anterior genital plate is entirely different from those found in *Ceramidiodes* (Figure 85) and *Antichloris* (Figures 86, 87, 89).

Male genitalia (Figures 75, 76) with uncus completely divided, forming two long, entirely separate arms, each semispatulate at tip. Behind each of these arms is a pseuduncus lobe arising from tegumen, these lobes much shorter than the uncus arms. Sacculus in ventral view broad posteriorly, sharply

and suddenly narrowed and greatly projected anteriorly, so that it is about as long as broad or longer. Center of posterior margin of saccus distinctly convex. Aedeagus long and slightly downward curved in lateral view. Valva in lateral view long and relatively slender, with one or more teeth on ventral margin and with apex pointed and sharply curved downward. Valva entirely without the large subapical fleshy lobe found in *Ceramidiodes* and *Antichloris* and lacking the pulvinus found in *Ceramidiodes* on base of inner face.

Female genitalia (Figure 84) with seventh sternum forming a large bilobed anterior genital plate and with a large triangular lobe on each side slightly posterior to this plate. The cupules found posterior to these triangular lobes in *Antichloris* and the deep pockets found at the base of the heart-shaped anterior genital plate in *Ceramidiodes* are absent in *Ceramidia*. Ductus bursae with dorsal surface divided into three sclerotized elements: the posterior element tapering and extending anteriorly almost to the central element and posteriorly forming the two parts of the wing-shaped posterior genital plate; the middle element long and forked on its posterior margin and the anterior element somewhat crescent shaped and lying at the opening of the bursa copulatrix.

MISIDENTIFICATION.—Butler (1876:412–413) described as new the genus *Passineura* with *Pampa fusiformis* Walker as its type-species. Möschler (1878:640) shows that Butler's species was not *P. fusiformis* Walker but a misidentification of that name, and Möschler identifies Butler's species as his (Möschler's) new species, *Antichloris phemonoides*. Kirby (1892:158), ignoring Möschler's statement about this misidentification, uses the generic name *Passineura* for the species *P. fusiformis* (Walker) and *P. phemonoides* (Möschler). Hampson (1898:397) and Zerny (1912:114) agree with Möschler that Butler misidentified *Pampa fusiformis* Walker but list *Passineura* Butler as a synonym of *Ceramidia* Butler.

Article 70 of the *International Code of Zoological Nomenclature* (2nd edition, 1964) on the "Identification of the type-species" [of a genus] states that: "It is to be assumed that an author correctly identifies the nominal species that he . . . designates as the type-species of a new or of an

established genus." In paragraph (a), article 70, zoologists are asked to refer such cases as the above to the International Commission of Zoological Nomenclature so that it can use its plenary powers, if necessary, to settle the issue. Since the question here is of small importance for the moment, being whether *Passineura* Butler is a synonym of *Ceramidia* Butler or of *Hyaleucera* Butler (1875) (where *Pampa fusiformis* Walker now resides), I see no need to appeal to the International Commission of Zoological Nomenclature at the present time, and I treat *Passineura* as a synonym of *Hyaleucera*. The last-named genus has as its type-species *Hyaleucera erythrotelus* (Walker) (= *Glaucopsis erythrotelus* Walker, 1854:147). As long as *H. fusiformis* (Walker) is considered to be congeneric with *H. erythrotelus* then *Passineura* is best treated as a synonym of *Hyaleucera*. If a future reviser decides that these two species are not congeneric then an appeal to the International Commission of Zoological Nomenclature would be both desirable and necessary to allow for the availability of the name *Passineura*.

ETYMOLOGY.—The name *Ceramidia* is a feminine noun derived from the Greek classical word *keramidis* (genitive of *keramis*, a roof-tile, potter's earth, or clay) and from the feminine (diminutive ?) ending *ia*.

Ceramidia fumipennis (Walker)

FIGURES 1–4, 75

Euchromia fumipennis Walker, 1854:241.

Ceramidia fumipennis.—Butler, 1876:412.—Kirby, 1892:158.—Hampson, 1898:395, 396, pl. 14: fig. 26.—Draudt, [1916]a: 134, pl. 20: fig. *h* [5]; [1916]b:134, pl. 20: fig. *h* [5].—Bryk, 1953:235.—Zerny, 1912:115.

Ceramidia cataleuca Butler, 1876:412.—Kirby, 1892:158.—Hampson, 1898:396, 397, pl. 14: fig. 5.—Zerny, 1912:115.—Strand, 1915:26.—Draudt, [1916]a:134, pl. 20: fig. *h* [4]; [1916]b: 134, pl. 20: fig. *h* [4].—Hagmann, 1938:193. [New synonymy.]

Ceramidia fumipennis is easily distinguished from *C. phemonoides* in the male sex in having the pale gray to white area on the costal area of the upper surface of the hindwing never extending below the lower margin of the cell and the outer angle of this wing (Figure 1). On the undersurface of the forewing the pale gray area is smaller

than in *C. phemonoides*, not extending nearly to vein Cu_2 , nor extending as far outward toward the outer margin. In *C. phemonoides* the outer surface of the hind tibia is fuscous; in *C. fumipennis* the hind tibia is entirely white.

MALE (Figures 1-4).—Head with occipital area metallic blue-green, frons with two large white spots, palpi white except for fuscous at the tip, neck with red scales behind eyes. Thorax fuscous and metallic bronze or blue-green, patagia and base of tegulae metallic blue-green. A small red area behind each eye. Forelegs with white on coxae and femora, midlegs and hind legs with white on coxae, femora, tibiae, and tarsi. Each tympanic hood large, bloated, and fuscous and bronze green in color except for white on lower margin near opening. Abdomen above fuscous and bronze or blue-green, ventral surface fuscous and bronze or metallic blue-green with two large white bands below the spiracular line extending nearly to the terminalia.

Wings above fuscous. Forewing with a small metallic blue-green or bronze spot on base opposite base of tegula. Hind wing above with pale gray to white of costal area extending through the cell and not covering the outer angle. Forewing below with a narrow streak of white in middle of costal margin and with an area of pale gray on its base below the cell, extending outward toward outer margin for more than two-thirds of the wing. Hind wing below variable, from nearly entirely fuscous with a small streak of white running from the base through middle of wing to nearly all white or yellowish white except for outer margin and base of costal margin.

Length of forewing, 15-17 mm (average 16 mm).

Male genitalia as illustrated by Figure 75 (drawn from preparation of holotype of *C. cataleuca* Butler, a junior synonym of *C. fumipennis* (Walker)), with valva rather long and slender and having a greatly prolonged, sharply pointed, and downwardly bent apex; with ventral margin having a single large centrally placed, downwardly directed tooth and lacking a similar tooth from costa, thus easily distinguished from *C. phemonoides*.

FEMALE.—Unknown.

TYPE-DATA.—Described from a single male specimen, the holotype (Figures 1, 2) from "Ega, on the Amazon" = Tefte, Amazonas, Brazil, col-

lected by H. W. Bates and in the collection of the British Museum (Natural History).

SYNONYMICAL NOTE.—*Ceramidia cataleuca* Butler, 1872: Type-locality, "E. Peru (Degand)." Described from a single male specimen, the holotype (Figures 3, 4) is in the collection of the British Museum (Natural History). A comparison of the genitalia of this holotype with the holotype of *C. fumipennis* shows them to be nearly identical, thus placing *C. cataleuca* as a junior synonym of the former. This species was thought to be distinct by its describer because of the large amount of pale yellowish white on the underside of the hind wing. The holotype of *C. fumipennis* (Figure 2) shows only a little of this white on costa and in the cell, while the holotype of *C. cataleuca* (Figure 4) shows a great amount of this white. This character is very variable in this species.

ETYMOLOGY.—The name *fumipennis* is an adjective in the nominative singular with a feminine ending and agreeing in gender with the generic name. It has the following gender endings: *is*, masculine; *is*, feminine; *e*, neuter. The name is derived from the Latin words *fumidus* (smoky) and *penna* (wing) and the Latin suffix *is* (having).

DISTRIBUTION.—This species occurs from Manaus, Brazil, on the Amazon River southwest into the low tropical areas of Bolivia and west and north of Manaus into the tropical areas of Peru, Ecuador, and Colombia.

MATERIAL STUDIED.—Sixty-one males were studied from the following localities: BRAZIL: Allianca, below Santo Antônio, Rio Madeira (November, December); Fonte Boa, Amazonas (October); Humayta, Rio Madeira; Igarapè Preto, upper Amazons (August, September); Manaus; Manicorè, Rio Madeira; Rio Tapajos, Amazonas; Rio Ucayala, Amazonas; San Juan, Solimoens; São Paulo de Olivenca (June, July, November, December), Tefte, Amazonas (June, September, October, November); Tonantins, upper Amazons (July). BOLIVIA: Nufflo de Chavez, Esperanza; Province del Saram, Department de Santa Cruz; Reyes Beni; Serjali (October). PERU: Cavallo-Cocho, Amazonas; Pebis Loreto; Perené; Rio Maranon. ECUADOR: Coca, upper Rio Napo; Limoncocha, Rio Napo (240 meters, February, December); Sarayaco. COLOMBIA: Charco San Jose, Vaupes, Rio Guayabero (January).

Ceramidia phemonoides (Möschler)

FIGURES 5, 6, 23, 24, 76, 84

Antichloris phemonoides Möschler, 1878:639-640, 699, pl. 8: fig. 10.

Passinura phemonoides.—Kirby, 1892:158.

Ceramidia phemonoides.—Hampson, 1898:395, 396, 397-398.—Klages, 1906:548.—Rothschild, 1912:153.—Zerny, 1912:115.—Draudt, [1916]a:134, pl. 20: fig. i [1]; [1916]b:134, pl. 20: fig. i [1].—Kaye and Lamont, 1927:9.—Zerny, 1931a:18; 1931b:250.—Hagmann, 1938:193.—Fleming, 1950:212, 216; 1959:92.

Passineura fusiformis.—Butler, 1876:412, 413 [not Walker; a misidentification].

In the male sex *C. phemonoides* differs from *C. fumipennis* in having the pale gray to white area on the costal area of the upper surface of the hind wing extending to well below the cell and to well below the outer angle of this wing (Figure 5). On the undersurface of the forewing the pale gray area is larger than in *C. fumipennis*, extending nearly to vein Cu_2 and extending farther outward toward the outer margin. In *C. fumipennis* the hind tibia is entirely white; in *C. phemonoides* the outer surface of the hind tibia is fuscous.

MALE (Figures 5, 6).—Head and thorax similar to *C. fumipennis* except the metallic color is usually bronze green. Legs with white on coxae and femora of all three pairs, tibiae and tarsi of all legs mainly dark brown and metallic blue-green or bronze green. Tympanic hood of thorax and abdomen as in *C. fumipennis* with large white bands below the spiracular line as in that species.

Wings above fuscous. Forewing with a small metallic bronze green or blue-green spot on base opposite base of tegula. Hind wing above with pale gray and white of costal area extending to well below the cell and completely covering the outer angle and outer margin down to vein Cu_1 . Forewing below as in *C. fumipennis* with a narrow streak of white in middle of costal margin and with an area of pale gray on its base below the cell, extending outward toward outer margin slightly farther than in *C. fumipennis*. Hind wing below with a white band extending from the base of wing outward through the cell and with costal area above this distinctly blue or green.

Length of forewing, 15-17 mm (average 16 mm), exactly the size and variation of *C. fumipennis*.

Male genitalia as illustrated by Figure 76 (drawn

from preparation of lectotype), with valva rather long and slender and having a short, sharply pointed, and downwardly bent apex; with ventral margin having several large downwardly directed teeth and in having a single similar tooth projecting downward from costa, thus differing from *C. fumipennis* in all of these characters.

FEMALE (Figures 23, 24).—Head and thorax similar to the male with the amount of white greatly reduced, especially on the legs, which are fuscous except for a few white scales on coxa of foreleg and femora of hind leg. Thorax with tympanic hood as in the male. Abdomen very similar to the male except white bands are even larger.

Wings above and below fuscous except for a small, short streak of white on base of forewing underneath and for a narrow stripe of white in lower one-half of cell on hind wing. Forewing below lacking the pale gray area found on its base below the cell in the male sex. Hind wing above without the large pale gray area found in upper one-half of wing in the male sex, sometimes area above cell a lighter fuscous color.

Length of forewing, 16 and 18 mm (only two known examples).

Female genitalia as illustrated by Figure 84 (drawn from preparation number 6567) and as described above in the generic description. Since the female of the only other species in *Ceramidia* (*C. fumipennis*) is unknown to me, I cannot offer specific characters for the present species.

TYPE-DATA.—Described from two syntypes from Surinam (sex not stated in the original description). This locality is not specifically mentioned in the original description (Möschler, 1876:639-640), but we know from the title of the author's paper that he was specifically treating the fauna of Surinam. One of the two syntypes was loaned to me for study and I designate it the lectotype (Figures 5, 6); it is a male and a designating lectotype label has been placed on the pin of this specimen.

MISIDENTIFICATION.—As mentioned under this heading in the discussion of the genus *Ceramidia*, Butler, the author of this genus, designated as type of his new genus *Passineura* the species *Pampa fusiformis* Walker. Möschler (1878:640) correctly points out that this is a misidentification and that the species Butler actually had is the species he

(Möschler) describes as *Antichloris phemonoides* = *Ceramidia phemonoides*.

ETYMOLOGY.—The name *phemonoides* is an adjective in the nominative singular with a feminine ending and agreeing in gender with the generic name. It is derived from the Greek word *Phemonon* (the daughter of Apollo) and the Greek suffix *oides* (a likeness of form). It has the same ending in all three genders.

DISTRIBUTION.—This species is found from French Guiana west through Surinam, Guyana, and Trinidad into central Venezuela. Two specimens labeled "Brazil" (if correctly labeled) place this species also in that country, considerably east, however, of the known distribution of *C. fumipennis*.

MATERIAL STUDIED.—Forty-four males and two females were studied from the following localities: FRENCH GUIANA: Cayenne; St. Jean, Maroni (July, August). SURINAM: Aroewawa Creek, Maroewijne Valley (February). GUYANA: Ida Sabina, Rio Berbrice (March, April). TRINIDAD. VENEZUELA: Caura Valley (May, June); Corosita, Caura Valley; La Union, Caura Valley (September, October). BRAZIL: Rio Tapajos; State of Minas Geraes.

Genus *Ceramidiodes* Hampson

FIGURES 7, 8, 25, 26, 77, 85

Ceramidia Butler, 1877:40, pl. 16: fig. 5.—Kirby, 1892:158 [in part].—Hampson, 1898:395, 396 [in part].—Zerny, 1912:115 [in part].—Rothschild, 1912:153 [in part].—Draudt, [1916]a:133 [in part]; [1916]b:133 [in part].

Ceramidiodes Hampson, 1914:255, fig. 36.—Draudt, 1917a:207; 1917b:207.

Type-species: *Ceramidia mathani* Rothschild, a junior synonym of *Ceramidiodes obscurus* (Butler), new combination. Type by original designation and by reason of being the sole included species.

Ceramidiodes contains the single species *C. obscurus* (Butler) and differs from both *Antichloris* and *Ceramidia* in habitus and by characters in the male and female genitalia. In *Ceramidiodes* (Figures 8, 26) almost all the sterna of the abdomen are white; the male genitalia has each valva slender, without teeth on the ventral margin, and has a long narrow pulvinus on inner face of its base; the female genitalia has a heart-shaped an-

terior genital plate with deep pockets opposite the base of this plate.

Male genitalia (Figure 77) with uncus completely divided, forming two long, entirely separate arms, each spatulate at tip. Behind each uncal arm is a shorter pseuduncus, lobelike and arising from tegumen. Saccus in ventral view somewhat broader than long, not suddenly narrowed as it is in *Ceramidia* and only slightly projected posteriorly. Center of posterior margin of saccus straight to slightly concave. Aedeagus short and evenly and strongly bent downward near middle. Valva long and slender in lateral view, without teeth on ventral margin but with a single short, rounded lobe from just before its middle. Apical one-half or more of valve slender, long, and inwardly curved, with a short fleshy and hairy lobe on outer face just before apex. Valva with a long narrow pulvinus, projecting inwardly from inner face at base.

Female genitalia (Figure 85) with a large, bulging heart-shaped anterior genital plate, with deep pockets on each side at its origin, and with a small triangular lobe on each side along posterior margin of seventh sternum. The cupules or lateroventral depressions found above these lobes in *Antichloris* are absent in *Ceramidiodes*, their probable holding or grasping action being taken over by the pockets described above. The posterior genital plate found in related genera is absent and the ductus bursae is large and weakly sclerotized.

ETYMOLOGY.—The name *Ceramidiodes* is a masculine noun derived from the genus name *Ceramidia* and the Greek adjectival suffix *oides* (like). This ending is specifically assigned the masculine gender as one of the examples given under Article 30 (a) ii of the *International Code of Zoological Nomenclature* (1961 and 1964).

Ceramidiodes obscurus (Butler), new combination

(required change in ending)

FIGURES 7, 8, 25, 26, 77, 85

Ceramidia obscura Butler, 1877:x, 40, pl. 16: fig. 5.—Kirby, 1892:158.—Hampson, 1898:395, 396.—Zerny, 1912:115.—Draudt, [1916]a:133, pl. 20: fig. g [2]; [1916]b:133, pl. 20: fig. g [2].

Ceramidia mathani Rothschild, 1912:153.—Draudt, [1916]a:133; [1916]b:133. [New synonymy.]

Ceramidiodes mathani.—Hampson, 1914:255, fig. 36.—Draudt, 1917a:207; 1917b:207.

Ceramidiodes obscurus being the sole species in the genus is of course easily distinguished from *Ceramidia* and *Antichloris* by the generic characters given in the key and in the description above. *Ceramidia phemonoides* and *Ceramidia fumipennis*, the species it most closely resembles in habitus, are easily distinguished from it by having the ventral surface of the abdomen divided through the middle by a median band of fuscous.

MALE (Figures 7, 8).—Head with occipital area dark fuscous with a metallic blue-green sheen, frons nearly entirely white. Palpi dark fuscous with white on outer surface of basal segment, neck with an eversible shallow pocket covered with red scales opposite each eye. Thorax fuscous with tegula lightly scaled with metallic blue-green on base and patagia heavily scaled with this color. Legs fuscous except for the white coxae of all three pairs of legs. Each tympanic hood large and entirely fuscous in color. Abdomen above fuscous with bronze green sheen and with ventral surface white from the base through most of seventh segment.

Wings above fuscous. Forewing with bronze green along base of costa and along each side of base of anal vein. Hind wing above with silvery white of costal area extensive, extending from costal margin clear through the cell and to the outer margin except for a small amount of fuscous on outer margin opposite end of cell. Forewing below fuscous in color with a narrow streak of androconial scales through the middle one-third of costal margin and with pale gray or white on base covering one-half or more of wing and with a bronze green sheen on subapical part of wing. Hind wing below fuscous with metallic bronze green sheen on base, sometimes with a large white area below cell and between there and hind margin of wing.

Length of forewing, 16.5–17 mm (average 16.90 mm).

Male genitalia as illustrated by Figure 77 (drawn from preparation of the lectotype of *C. mathani*, a junior synonym of *C. obscurus* and since this is the sole included species in *Ceramidiodes*, the characters are as described above in the generic description.

FEMALE (Figures 25, 26).—Head and thorax similar to the male except frons has two metallic green spots and the tympanic hood is entirely fus-

cous. Ventral surface of abdomen as in the male is entirely white from the base through the seventh segment.

Wings above fuscous with overlying bronze sheen and with light color of costal area of hind wing found in the male greatly reduced in this sex. Forewing below almost entirely bronze green with a large submarginal brownish area and lacking the white androconial scales found along the middle of the costal margin in the male. Hind wing below fuscous with an overall bronze green sheen.

Length of forewing 17 mm.

Female genitalia as illustrated by Figure 85 (drawn from preparation of holotype of *C. obscurus*) with characters as given in the generic description and key.

TYPE-DATA.—Described from a single specimen, the holotype (Figures 25, 26). The sex of this specimen was not indicated in the original description but upon examination was shown to be a female. Described from "Forest near Sobral, Rio Purus . . . (J. W. H. Trail)" [Brazil]. Holotype in the collection of the British Museum (Natural History).

SYNONYMICAL NOTES.—*Ceramidia mathani* Rothschild, 1912: Type-locality, "Teffe, Amazons . . . (M. de Mathan)." Described from two male syntypes, to one of which an appropriate lectotype label has been pinned. This specimen also bears the holograph label "*Ceramidia mathani* Type Rothschild." and is the specimen here illustrated as the male of *C. obscurus* (Figures 7, 8). The great similarity in habitus of the abdomen of the male lectotype of *C. mathani* to the abdomen of the female holotype of *C. obscurus* is the reason the former is treated here as a junior synonym of the latter.

ETYMOLOGY.—The name *obscurus* (dark and obscure) is a Latin adjective in the nominative singular, agreeing in gender with the generic name. It has the following gender endings: *us*, masculine; *a*, feminine; *um*, neuter.

DISTRIBUTION.—This species is known only from several widely separated localities in Brazil.

MATERIAL STUDIED.—Five male and one female specimens are the only specimens I have had for study. They are from Manicoré, Rio Madeira; St. Catherine; São Paulo; Teffé.

Genus *Antichloris* Hübner

FIGURES 9-22, 27-34, 43-74, 78-82, 86, 87, 92-102, 104, 105

Antichloris Hübner, 1818:9, 24.—Butler, 1876:413, 433, pl. 29: fig. 5.—Möschler, 1878:639-640.—Druce, 1884:68.—Kirby, 1892:158-159.—Dognin, 1894:72, 82, pl. 8: fig. 2.—Hampson, 1898:399-401.—Klages, 1906:548-549.—Rothschild, 1912:154-155.—Zerny, 1912:116.—Draudt, [1916]a:136-137; [1916]b: 136-137.—Kaye and Lamont, 1927:9.—Hambleton and Forbes, 1935:219.—Hemming, 1937:154.

Illipula Walker, 1854:237.—Druce, 1883:380.—Kirby, 1892: 157.—Hampson, 1898:399 [as a synonym of *Antichloris*].—Zerny, 1912:116 [as a synonym of *Antichloris*].

Copaena Herrich-Schäffer, 1855: cover, pl. [40]: fig. 260. [New synonymy.]

Eriphia Herrich-Schäffer, 1856:16, 17.—Hampson, 1898:399 [as a synonym of *Antichloris*].—Zerny, 1912:116 [as a synonym of *Antichloris*].

Ceramidia.—Dognin, 1891:clv [in part]; 1894:72, 82 [in part]; Hampson, 1898:395-398 [in part]; 1901:172 [in part].—Druce, 1905:462.—Dognin, 1912:122.—Rothschild, 1912:152, 153 [in part].—Zerny, 1912:115 [in part].—Hampson, 1914: 240, 248-253 [in part]; 1915, pl. 13.—Draudt, [1916]a:134, 135, pl. 20 [in part]; [1916]b:134, 135, pl. 20 [in part]; 1917a:207 [in part]; 1917b:207 [in part]; [1919]a, pls. 28, 29 [in part]; [1919]b, pls. 28, 29 [in part].—Zerny, 1931a:18, 27 [in part].—Fleming, 1950:212, 216.—Forster, 1950:62.—Beebe and Fleming, 1951:246.

Type-species: *Zygaena eriphia* Fabricius. Type by subsequent designation by Kirby, 1892. Hübner included in this genus *A. eriphia* (Fabricius), his new species *A. phemone* (later synonymized by Butler to *A. eriphia*) (1876:413), and *A. caca*.

In habitus *Antichloris* is easily distinguished from the related genera *Ceramidia* and *Ceramidiodes* by the color pattern of the abdominal sterna and by characters in the male and female genitalia. In *Antichloris* only the basal sterna of the abdominal segments are entirely white (Figures 8, 10, 12), with at least large white spots in the middle of these sterna (Figures 28, 30, 32, 34) (the *Caca* species group), or this area is fuscous and there are several pairs of white spots on the basal segments near the spiracular lines (the *Eriphia* species group).

Male genitalia (Figures 78-82, 92-102) with uncus completely divided, forming two long entirely separate arms, each spatulate at tip. Behind each uncal arm is a shorter pseuduncus arising from tegumen. Saccus in ventral view about as broad as long, not projected as far posteriorly as in *Ceramidia*, and with posterior margin nearly straight, sometimes slightly concave and sometimes

slightly convex. Aedeagus short and evenly and strongly bent near middle with a long, single dorsal needle-like projection from posterior end. Valva not at all slender, broad through basal one-half or more, and base with a rounded outer margin (*Caca* group) or with this margin produced forming a broad lower posterior angle (*Eriphia* group). Valva with a long apical finger-like projection greatly curved downward or inward and with a long fleshy and hairy lobe on outer face just before apex. Valva lacking the pulvinus found in *Ceramidiodes*.

Female genitalia (Figures 86, 87, 89, 104, 105) with anterior genital plate formed into a broad, bulging lipped lobe, with a large triangular lobe on each side along posterior margin of seventh sternum and with a shallow cupule or lateroventral depression just dorsal of each of these lobes. Posterior genital plate absent. Ductus bursae near ostium bursae forming two subtriangular plates, one dorsal and the other ventral. Ductus bursae either not sclerotized at all (except as described above), sometimes weakly sclerotized, and sometimes with a large sclerotized element along its dorsal surface for its entire length.

SYNONYMICAL NOTES.—*Illipula* Walker was erected for *Sesia melanochloros* Sepp, the sole included species. *Sesia melanochloros* is a synonym of *Antichloris eriphia* (Fabricius) and *Illipula* is therefore a junior synonym of the older name *Antichloris*, as was pointed out by Hampson (1898: 399).

The name *Copaena* Herrich-Schäffer first appeared in 1855 with the sole included species *Copaena scapularis* Herrich-Schäffer, which is therefore the type of the genus. *Copaena scapularis* is a junior synonym of *Antichloris eriphia* and thus *Copaena* is a junior synonym of *Antichloris*.

Eriphia Herrich-Schäffer, with its type-species *Antichloris eriphia* (Hübner), designated by Hampson (1898:399), is also a junior synonym of *Antichloris*. In addition it is preoccupied by the name *Eriphia* Latreille (1817) in the Crustacea.

ETYMOLOGY.—The name *Antichloris* is a feminine noun derived from the Greek classical prefix *anti* (against or opposed to) and from the Greek personal female name *Chloris* (especially the goddess of flowers).

Except for the treatment of the *Caca* species group (below), the generic description given

above, and the list of 15 species herein transferred from the genus *Ceramidia* to the Eriphia species group, it is beyond the scope of the present paper to further treat the latter group.

The Caca Species Group

This group contains the two species *Antichloris viridis* Druce and *Antichloris caca* Hübner. In habitus they are distinguished easily from the species of the Eriphia species group in having the sterna of the basal three abdominal segments (1+2, 3, 4) entirely white or with large white spots in the middle of these sterna. They are further distinguished from that group by characters in the valvae of the male genitalia as given in the key and as pointed out above in the generic description.

Antichloris viridis Druce, resurrected combination

FIGURES 9-16, 27-32, 78-80, 86

- Antichloris viridis* Druce, 1884:68, pl. 7: fig. 25.—Kirby, 1892: 159.—Hampson, 1898:396 [as a synonym of *Ceramidia butleri* (Möschler)].—Druce, 1900:xiii.
- Ceramidia viridis*.—Cockerell, 1910:61.—Zerny, 1912:115; 1931a:18.—Cevallos, 1957:13-14.—Harrison, 1950:251.—Tilden, 1968:187.—Ostmark, 1974:163.
- Ceramidia butleri viridis*.—Draudt, [1916]a:133, pl. 20: fig. g [4]; Draudt, [1916]b:133, pl. 20: fig. g [4].—Zerny, 1931b:250.
- Antichloris eriphia*.—Druce, 1884:68 [not Fabricius].—Hampson, 1898:396 [in synonymy of *Ceramidia butleri*].—Draudt, [1916]a:133; [1916]b:133.—Zerny, 1931b:250.
- Ceramidia eriphia* [sic].—Zerny, 1912:114 [a misspelling of the Druce misidentification].
- Ceramidia butleri*.—Hampson, 1898:396, fig. 200 [not Möschler; in part].—Cockle, 1904:202.—Zerny, 1912:114 [in part].—Hampson, 1914:246 [in part].—Draudt, [1916]a:133, pl. 20: fig. g [3] [in part]; [1916]b:133, pl. 20: fig. g [3] [in part].—Zerny, 1931a:18; 1931b:250 [in part].—Harrison, 1959:331-354, figs. 1-5.—Ostmark, 1974:163.
- Ceramidia musicola* Cockerell, 1910:60-61.—Zerny, 1912:115.—Draudt, [1916]a:135; [1916]b:135.—Ostmark, 1974:163 [as a synonym of *Ceramidia butleri* (Möschler)]. [New synonymy.]
- Ceramidia butleri* form *musicola*.—Hampson, 1914:246.—Draudt, 1917a:207; 1917b:207.
- Ceramidia cyanopasta* Dognin, 1911:10.—Zerny, 1912:115.—Hampson, 1914:246-247; 1915: pl. 13: fig. 9.—Draudt, [1916]a:134; [1916]b:134; 1917a:207; 1917b:207; [1919]a, pl. 28: fig. k [10]; [1919]b, pl. 28: fig. k [10] [New synonymy.]
- Ceramidia scintillocollaris* Rothschild, 1912:152.—Hampson, 1914:247; 1915, pl. 13: fig. 12.—Draudt, [1916]a:134; [1916]b:

- 134; 1917a:207; 1917b:207; [1919]a, pl. 28: fig. m [4]; [1919]b, pl. 28: fig. m [4]. [New synonymy.]
- Ceramidia underwoodi* Rothschild, 1912:152.—Hampson, 1914:247; 1915, pl. 13: fig. 10.—Draudt, [1916]a:135; [1916]b:135; 1917a:207; 1917b:207; [1919]a, pl. 28: fig. m [7]; [1919]b, pl. 28: fig. m [7]. [New synonymy.]
- Ceramidia butleri* forma *caerulescens* Draudt, 1917a:207; 1917b:207.—Zerny, 1931b:250 [in synonymy of *Ceramidia butleri*].
- Ceramidia butleri* ab. *importata* Strand, 1920:225; 1927:50.—Zerny, 1931b:250 [in synonymy of *Ceramidia butleri*].

Antichloris viridis is distinguishable from *A. caca* in the male sex by having the lower half of each tympanic hood white and in having a small white spot on base of each tegula. In *A. caca* the tympanic hoods and tegulae are entirely fuscous. In the female of *A. viridis* the ventral surface of the segment in front of the ostium varies from fuscous to blue-black, dark metallic blue, or metallic green to bronze green. A few specimens have this segment tan except for a darker central area. In the single female specimen of *A. caca* available to me for study, this entire segment ventrally is light tan in color.

MALE (Figures 9-16).—Head with occipital area dark fuscous, sometimes metallic blue or green, frons similar, and often but not always with a large central white spot. Palpi dark fuscous, neck with an eversible but shallow pocket, covered with red scales opposite each eye. Thorax with tegulae and patagia fuscous and metallic bronze, green, or blue and each tegula with a small white spot on base. Legs entirely fuscous and blue or green except for coxae of forelegs, which are white. Each tympanic hood large and fuscous in color except for lower half, which is white. Abdomen above fuscous with dark blue, bronze, or blue-green sheen. Ventral surface of abdomen similar except for a large white band extending through segments 1+2, 3, 4, this white covering entire ventral surface of these segments except on segment 4, where it is often rounded or tapered caudally.

Wings above fuscous, often entirely so, but also often with forewings covered from base to middle or beyond with a sheen of metallic blue, green, or bronze green. Hind wing above with about three-fourths length of wing on costal area and to middle of cell pale silvery gray and with a very faint streak of white along vein defining bottom of cell. Forewing below fuscous with a narrow streak of white androconial scales through middle one-third

of costal margin, with pale gray on its base covering basal one-half or more, and with a metallic blue or green sheen immediately above this gray area. Hind wing below fuscous with metallic blue or green sheen on base.

Length of forewing, 14–19 mm (average 16.55 mm).

Male genitalia as illustrated by Figures 78 (drawn from preparation of holotype of the junior synonym *C. cyanopasta*), 79 (drawn from preparation of holotype of the junior synonym *C. musicola*), and 80 (drawn from preparation of holotype of *A. viridis*), with valve having a large, downwardly bent costal arm and with a weakly sclerotized lobe from near middle of the dorsal surface of this arm; with a broad and caudally directed sacculus ending in a dorsally directed obtuse projection.

FEMALE (Figures 27–32).—Head and thorax similar to the male except that the white color is absent from the occipital area of the head and from the tegula and reduced or absent on the coxae of forelegs. This white is also greatly reduced on the ventral surface of the basal abdominal segments. The ventral surface of the segment in front of the ostium varies from fuscous to blue black, dark metallic blue, or metallic green or bronze green. In a few specimens this segment is dark tan and darker in the central area.

Wings above similar to the male, with light color on costal area of hind wing more reduced in size and darker. Forewing below without the white androconial scales found along the middle of the costal margin in the male and with base of this wing much darker than in that sex.

Length of forewing, 14.50–20 mm (average 18.53 mm).

Female genitalia as illustrated by Figure 86 (drawn from holotype of the junior synonym *C. underwoodi*) not distinctly different from *A. caca*.

TYPE-DATA.—Described from a single male specimen, the holotype (Figures 9, 10) from “Panama, Volcan de Chiriqui (Champion),” in the collection of the British Museum (Natural History).

SYNONYMICAL NOTES.—*Ceramidia musicola* Cockerell, 1910: Type-locality, “Among bananas at Boulder, Colorado, doubtless imported from Central America.” Described from a single male specimen, the holotype (Figures 13, 14), in the collection of the National Museum of Natural History. This

specimen bears the red type label “Type No. 33493.” The genitalia of this holotype (Figure 79) shows it to be a junior synonym of *A. viridis*.

Ceramidia cyanopasta Dognin, 1911: Type-locality, “Merida, Venezuela.” Described from several pairs, now in the collection of the National Museum of Natural History. One of these specimens is labeled “Type ♂” and another is labeled “Type ♀.” Since Dognin did not include a type-specimen designation in his original description, I designate as the lectotype (Figures 11, 12) the specimen he labeled “Type ♂,” and have placed an appropriate lectotype label upon its pin. This specimen also bears the red type label “Type No. 30790.” A comparison of the genitalia of this lectotype (Figure 78) with the holotype of *A. viridis* shows them to be the same species, thus placing *C. cyanopasta* as a junior synonym of the former.

Ceramidia underwoodi Rothschild, 1912: Type-locality, “Costa Rica (Underwood).” Described from a single specimen, the holotype, in the collection of the British Museum (Natural History). This specimen (Figures 31, 32), described by Rothschild as a male, upon dissection proved to be a female. It is a junior synonym of *A. viridis*.

Ceramidia scintillocollaris Rothschild, 1914: Type-locality, “San Ramon, Rio Wanks, Nicaragua . . . (M. G. Palmer).” Described from a single male, the holotype (Figures 15, 16), in the collection of the British Museum (Natural History). The genitalia of this holotype show it to be another junior synonym of *A. viridis*.

Ceramidia butleri forma *caerulescens* Draudt, 1917: One of the additions to the *International Code of Zoological Nomenclature* adopted at Monaco in 1972 was that the use of the term “form” by an author before 1961 is “to be interpreted as denoting subspecific rank” (Article 45 (e) (i)). This form name is therefore available as a trinomen. It was described as a form with blue instead of green coloring on the forewings and on the anterior body. This character is quite within the normal individual variation of the species, and I consider the name *Ceramidia butleri caerulescens* to be a junior synonym of *A. viridis*. No type-locality was given by Draudt in the original description, and the holotype is presumed to have been destroyed along with the rest of the Draudt collection in Darmstadt, Germany, during the second World War.

Ceramidia butleri ab. *importata* Strand, 1920: This name proposed as an aberration, I consider to be a name excluded from zoological nomenclature (*International Code of Zoological Nomenclature*: Article 1; Article 45 (d) (iii) and glossary, definition of the term infrasubspecific.)

ETYMOLOGY.—The name *viridis* (green) is a Latin adjective in the nominative singular, agreeing in gender with the generic name. It has the following gender endings: *is*, masculine; *is*, feminine; *e*, neuter.

DISTRIBUTION.—This species occurs from Ecuador, Colombia, and Venezuela northward through Central America into Mexico. As it is a common pest upon bananas, this species occurs and can be expected to occur wherever the plant is grown in this large area. It is not known to occur in the Guianas or in the Antilles.

Individuals of this species turn up in localities outside their normal distribution at ports of entry, markets, and even in grocery stores, probably wherever Central American bananas are imported. I have seen adults (and cocoons) taken from bunches of bananas from many places in the United States (Alachua County, Florida; Baltimore, Maryland; Boston, Massachusetts; Boulder, Colorado; Champagne, Illinois; Granville, Ohio; Laredo, Texas; Lincoln, Rhode Island; Riverside, California; Sanford, North Carolina; San Francisco, California; Seattle, Washington, and Wilmington, Delaware), Canada (Kaslo and Victoria, British Columbia), England (Lincolnshire, Manchester and Sussex), and Germany (Hamburg).

MATERIAL STUDIED.—Two hundred males and 106 females were studied from the following localities: ECUADOR: Balzapamba, Province of Bolivar (February); Barranca Chico (September); Buenvecino (September); Loja; Macas; Mantalvo (September); Tenguel. COLOMBIA: Andagoya, Rio Condoto, Choco; Cacagualito; Caldas (June); Juntas, Department of Cauca; Rio Dagua; Santa Marta; Turbo (September). VENEZUELA: El Cienego, State of Trujillo (March); Mérida, State of Mérida. PANAMA: Armvelles (August); Bocadelton (January); Bugaba; Changuinola (June, July, October); El Valle (January); Lino. PANAMA CANAL ZONE: Balboa (November); Las Casadas (September); Tabernilla. COSTA RICA: Banana River (March); Coto (June, August); Esparta; Juan Vinas; La Florida (March);

Limon (February); Palmar (April, August, October); Peralta, Avangerez (October); Port Limon (January, February); Santa Clara District, Province of Limon; Tres Rios (January); Tuis (February). HONDURAS: La Lima (January, September, October, December); San Pedro Sula. GUATEMALA: Cayuga (February, May, September); Champerico; Esquintla; Olas de Maka; Department of Sololá (September); Quirigua (February, March, May, July); San Cristobal (September); San Sebastián, Department of Retalhuleu). MEXICO: Camacho, State of Puebla; Tampico (April).

Antichloris caca Hübner, resurrected combination

FIGURES 17–22, 33, 34, 81, 82, 87

- Hübner [1809]–[1813], pl. [23]: figs. 133, 134 [illustrations without a name].
Antichloris caca Hübner, 1818:24 [above illustrations referred to and species named and described].—Butler, 1876:413.—Möschler, 1878: 640.—Kirby, 1892:159.—Druce, 1884:86.
Ceramidia caca.—Hampson, 1898:395, 396–397.—Zerny, 1912: 115.—Draudt, [1916]a:134, pl. 20: fig. *h* [1]; [1916]b:134, pl. 20: fig. *h* [1].—Zerny, 1931a:18.—Hoffman, 1936:446.
Eriphia butleri Möschler, 1878:640–641, 699, pl. 8: fig. 12. [New synonymy.]
Eriphioides butleri.—Kirby, 1892:159.
Ceramidia butleri.—Hampson, 1898:395, 396, fig. 200.—Zerny, 1912:114.—Hampson, 1914:246.—Draudt, [1916]a:133, 135, pl. 20: fig. *g* [3]; [1916]b:133, 135, pl. 20: fig. *g* [3]; 1917a: 207; 1917b:207.—Zerny, 1931b:250.—Hagmann, 1938:193.
Ceramidia caurensis Klages, 1906:549.—Cockerell, 1910:61.—Zerny, 1912:115.—Hampson, 1914:246.—Draudt, [1916]a: 134, pl. 20: fig. *g* [5]; [1916]b:134, pl. 20: fig. *g* [5]; 1917a: 207; 1917b:207. [New synonymy.]
Ceramidia klagesi Rothschild, 1912:151–152.—Draudt, [1916]a: 135; [1916]b:135; 1917a:207; 1917b:207; [1919]a, pl. 28: fig. *m* [9]; [1919]b, pl. 28: fig. *m* [9]. [New synonymy.]
Ceramidia clagesi.—Hampson, 1914:247–248 [an invalid emendation]; 1915, pl. 13: fig. 12.

Antichloris caca is distinguished from *A. viridis* in the male sex by having each thoracic tympanic hood entirely fuscous and in lacking the small white spot found on base of each tegula. As mentioned above under the description of *A. viridis*, the female of *A. caca* (according to the single female specimen available to me for study) differs only by having the entire ventral surface of the segment in front of the ostium light tan in color.

MALE (Figures 17–22).—Head with frons dark fuscous, metallic blue or green, and entirely lack-

ing the large centrally placed white spot often found in *A. viridis*. Palpi dark fuscous, neck with an eversible, shallow pocket, covered with red scales opposite each eye. Thorax with tegulae and patagia fuscous and metallic blue, green, or bronze, with the white spot found on base of each tegula in *A. viridis* lacking in this species. Legs entirely fuscous and blue or green except for coxae of forelegs, which are white. Each tympanic hood large and entirely fuscous in color. Abdomen above fuscous with dark green, bronze, or blue-green sheen. Ventral surface of abdomen similarly colored except for a large white band extending through segments 1+2, 3, and 4, this white covering entire ventral surface of these segments.

Wings above fuscous, with a faint allover sheen of blue or green, and lacking the bright sheen of metallic blue, green, or bronze sometimes found in the basal one-half or more of the forewings of *A. viridis*. Hind wing above, as in *A. viridis*, with about three-fourths length of wing on costal area extending to middle of cell pale silvery gray and with a faint white streak along vein defining bottom of the cell. Wings below quite similar to those of *A. viridis* with forewing below fuscous, with a narrow streak of androconial scales through the middle one-third of costal margin, with pale gray or white on its base covering basal one-half or more, and with a metallic green or blue sheen immediately above this gray area. Hind wing below fuscous with metallic blue or green sheen on base.

Length of forewing, 14–20 mm (average 18.64 mm).

Male genitalia as illustrated by Figures 81 (drawn from preparation of holotype of *Ceramidia caurensis*, a junior synonym of *A. caca*) and 82 (drawn from preparation of holotype of the junior synonym *Eriphia butleri*), with valva similar to that of *A. viridis*, differing in having the large sacculus broadly rounded and lacking the dorsally directed obtuse projection.

FEMALE (Figures 33, 34).—Head and thorax similar to the male except that the white is greatly reduced on the coxae of the forelegs. This white is also greatly reduced on the ventral surface of the basal abdominal segments. The ventral surface of the segment in front of the ostium is entirely light tan in color.

Wings above similar to the male with light area on costal margin of hind wing greatly reduced in

size. Forewing below without the white androconial scales found along the middle of the costal margin in the male and with base of this wing much darker than in the male.

Length of forewing, 19 mm (from the single available specimen).

Female genitalia as illustrated by Figure 87 (drawn from preparation number 6569) not distinctly different from *A. viridis*.

TYPE-DATA.—Described from the male sex (number of specimens not stated in the original description but apparently described from a single specimen which served as the model for the original colored illustrations, "aus Brasilien. Vom Herrn Grafen von Hoffmannsegg erlangt." Holotype not in the collection of the Naturhistorisches Museum, Vienna, where the Hübner types were quite early deposited (Horn and Kahle, 1935:119) and probably destroyed by fire in 1848. Because of the quite adequate original colored figures, I see no need to designate a neotype.

SYNONYMICAL NOTES.—*Antichloris caca* Hübner, 1818: The illustrations of this species (Hübner [1809]–[1813]:pl. [23]: figs. 133, 134), issued without a name being applied until Hübner's text appeared (Hübner, 1818:24), show the three characters (each tegula lacking small white basal spot, each thoracic tympanal hood entirely fuscous, and basal abdominal segments entirely white underneath) that specifically show the name *A. caca* to be the senior synonym of this species. This identification is further borne out by the type-locality, Brazil, which is within the range of the species here being discussed and outside of the range of *A. viridis*, the only other species with which it could possibly be confused.

Eriphia butleri Möschler, 1878: Type-locality, "aus dem Innern" [Surinam (from the title of the paper by Möschler)] = from the interior of Surinam. Described from a single male specimen, the holotype (Figures 19, 20). The white basal segments of the abdomen underneath in this holotype, the lack of the small basal white spot on each tegula, and the entirely dark fuscous color of the tympanal hood, as well as the genitalia of the holotype (Figure 82), show it to be a junior synonym of *Antichloris caca*.

Ceramidia caurensis Klages, 1906: Type-locality, "Suapure, Venezuela." Described from the male sex with the number of specimens not indicated

in the original description. The E. A. Klages collection, now in the National Museum of Natural History, contains two syntypes of this species, both with the red type label, "Type No. 8426." I select as the lectotype (Figures 21, 22) the specimen bearing the holograph label, "*Ceramidia caurensis* mihi E. A. Klages." An appropriate lectotype label has been pinned to this specimen. Its thoracic and abdominal coloration and genitalia (Figure 81) show it to be a junior synonym of *Antichloris caca*.

Ceramidia klagesi Rothschild, 1912: Type-locality, "Aroewarwa Creek, Maroewym Valley, Surinam . . . :S. M. Klages)." Described from four males, now in the collection of the British Museum (Natural History). One of these specimens was dissected for my study by Alan Watson. It bears a type label and the holograph label: "*Ceramidia klagesi* Type Rothsch." I designate this specimen as the lectotype (Figures 17, 18) and an appropriate label has been pinned to this specimen. A study of its genitalia shows it to be a junior synonym of *Antichloris caca*.

Ceramidia clagesi: Hampson (1914) thought it was best to emend the spelling of the name "*klagesi*" to "*clagesi*." The original spelling is cor-

rect (see Article II (b) (i), *International Code of Zoological Nomenclature*), and Hampson's spelling is an incorrect subsequent spelling without standing in nomenclature (see Article 19, *International Code of Zoological Nomenclature*).

ETYMOLOGY.—The name *caca* is a feminine personal noun in the nominative singular in apposition to the generic name. In Greek mythology it is the name of the sister of Cacus (a giant of immense physical strength) and daughter of Vulcan.

DISTRIBUTION.—This species occurs from central Venezuela (state of Bolivar) east through the Guianas and in several widely separated localities in Brazil.

MATERIAL STUDIED.—Thirty-eight males and one female were studied from the following localities: VENEZUELA: Caura Valley; Corosito, Caura Valley (May, June); La Union, Caura River (May, September, October); La Vuelta, Caura River (May, June); Suapure, Caura River. GUYANA: Confluence of Oronoque and New Rivers. SURINAM: Aroewarwa Creek, Maroewijne Valley (February). FRENCH GUIANA: Cayenne; Nouveau Chantier; St. Jean Maroni. BRAZIL: Cuyaba, Matto Grosso; Pará (January); Teffé (September).

Annotated List of Species Removed from *Ceramidia* and Transferred to Other Genera

Amycles cupreus (Schaus), new combination

(required change in ending)

FIGURES 35, 36, 83, 90

Ceramidia cuprea Schaus, 1901:42-43.—Zerny, 1912:115.—Hampson, 1914:251; 1915, pl. 13: fig. 22.—Draudt, [1916]a: 134, pl. 20: fig. h [3]; [1916]b:134, pl. 20: fig. h [3].

TYPE-DATA.—Described from a single male specimen, the holotype (Figures 35, 36, 83) from "Coatepec, Mexico" type number 10769 in the collection of the National Museum of Natural History.

REMARKS.—The genitalia of the holotype (Figure 83) show that this species has been incorrectly placed in the genus *Ceramidia*. It belongs to the genus *Amycles* Herrich-Schäffer. The genus name *Amycles* has to be regarded as a masculine noun since its ending *es* is unequivocally mascu-

line in gender. The species name has to be spelled with the *us* ending in order to agree in gender with *Amycles*.

Amycles dolosus (Walker), combination sustained

(required change in ending)

FIGURES 37, 38, 103

Euchromia dolosa Walker, 1854:238-239.

Illipula dolosa.—Butler, 1876:410.—Kirby, 1892:157.

Amycles dolosa.—Hampson, 1898:398, 399, pl. 14: fig. 6.—Klages, 1906:548.—Zerny, 1912:116.—Draudt, [1916]a:136, pl. 20: fig. i [6]; [1916]b:136, pl. 20: fig. i [6].—Travassos, 1940:291.—d'Araujo e Silva, 1968:219.

Ceramidia dolosa.—Hampson, 1914:249.—Draudt, 1917a:207; 1917b:207.

Ceramidida [sic] *dolosa*.—Bondar, 1938:22.

TYPE-DATA.—Described from a single female specimen (mistakenly stated to be a male in the

original description), the holotype (Figures 37, 38, 103) from "Pernambucco," Brazil, in the collection of the British Museum (Natural History).

REMARKS.—The genitalia of the holotype (Figure 103) show that Hampson incorrectly placed this species in *Ceramidia* in 1914 and that he was correct in 1898 in placing it in *Amycles* Herrich-Schäffer. As stated above and for the reason given there, the genus *Amycles* has to be regarded as a masculine noun. The species name has to be spelled with the *us* ending in order to agree in gender with *Amycles*.

***Eriphioides purpurinus* (Dognin), new combination**
(required change in ending)

FIGURES 39, 40, 88

Ceramidia purpurina Dognin, 1923:1-2.

TYPE-DATA.—Described from a single female specimen, the holotype (Figures 39, 40, 88) from "Villavincencio, Colombie (Frere Apollinaire-Marie)," type number 30762, in the collection of the National Museum of Natural History.

REMARKS.—The genitalia of the holotype (Figure 88) show that this species belongs to the genus *Eriphioides* Kirby. The genus name *Eriphioides* has to be regarded as a masculine noun since its ending *es* is unequivocally masculine in gender. The species name has to be spelled with the *us* ending in order to agree in gender with *Eriphioides*.

***Eriphioides simplex* (Rothschild), new combination**

FIGURES 41, 42, 91

Ceramidia simplex Rothschild, 1912:152.—Hampson, 1914: 248-249; 1915: pl. 13: fig. 15.—Draudt, [1916]a:135; [1916]b: 135; 1917a:207; 1917b:207; [1919]a, pl. 28: fig. *m* [8]; [1919]b, pl. 28: fig. *m* [8].—Dognin, 1923:2.

TYPE-DATA.—Described from two specimens, one of each sex, now in the collection of the British Museum (Natural History). Rothschild designated the male specimen as the type (= holotype) in the original description. The type-locality is "Cachabé, Western Ecuador (low country), January 1897."

REMARKS.—The genitalia of the holotype (Figure 91) show that this species belongs to *Eriphioides* Kirby, not to *Ceramidia* Butler.

***Antichloris chloroplegia* (Druce), new combination**

FIGURES 43, 44, 47, 48, 92

Ceramidia chloroplegia Druce, 1905:462.—Zerny, 1912:115.—Hampson, 1914:251; 1915, pl. 13: fig. 23.—Draudt [1916]a: 135, pl. 20: fig. *i* [3]; [1916]b:135, pl. 20: fig. *i* [3]; 1917a:207; 1917b:207.—Fleming, 1950:212, 216.

Antichloris nigrolineata Rothschild, 1912:154.—Hampson, 1914:251 [as a synonym of *Ceramidia chloroplegia*].—Draudt, [1916]a:136, pl. 20: fig. *k* [5]; [1916]b:136, pl. 20, fig. *k* [5]; 1917a:207; 1917b:207.

Antichloris intensa Rothschild, 1912:154.—Draudt, [1916]a: 136; [1916]b:136. [New synonymy.]

Ceramidia intensa.—Hampson, 1914:252; 1915, pl. 13: fig. 25.—Draudt, 1917a:207; 1917b:207; [1919]a, pl. 28: fig. *n* [9]; [1919]b, pl. 28: fig. *n* [9].

TYPE-DATA.—*Ceramidia chloroplegia* Druce was described from a single male specimen, the holotype (Figures 43, 44), from "Venezuela, Carosita, Caura Valley (T. M. Klages, Mus. Druce)," now in the collection of the British Museum (Natural History).

Antichloris nigrolineata Rothschild was described from 35 males, one of which was designated the type (= holotype) in the original description and which is now in the collection of the British Museum (Natural History). The type-locality and data are "La Union, Caura River, March 1902."

Antichloris intensa Rothschild was described from four males (= syntypes), none of which were designated as a type in the original description. These specimens are now in the collection of the British Museum (Natural History). I designate as the lectotype the specimen labeled "type" in this collection. An appropriate label has been placed upon this specimen. The type-locality and data are "Aroewarwa Creek, Maroewym Valley, Surinam, February 1905 (S. M. Klages)."

REMARKS.—The genitalia of the holotype of *Ceramidia chloroplegia* show that it belongs to the genus *Antichloris* Hübner, the *Eriphia* species group. A study of the male genitalia of the lectotype of *Antichloris intensa* (Figure 92) shows this species to be a synonym of *Antichloris chloroplegia*. I have accepted the synonymy of Hampson (1914) in placing *Antichloris nigrolineata* as a junior synonym of *Antichloris chloroplegia*.

***Antichloris affinis* (Rothschild), new combination**

FIGURES 45, 46, 49, 50, 93

Ceramidia affinis Rothschild, 1912:153.—Hampson, 1914:251–252; 1915, pl. 13: fig. 24.—Draudt, [1916]a:135; [1916]b:135; 1917a:207; 1917b:207; [1919]a, pl. 28: fig. n [6]; [1919]b, pl. 28: fig. n [6].

Antichloris atrinervis Rothschild, 1912:155.—Draudt, [1916]a:136; [1916]b:136. [New synonymy.]

Ceramidia atrinervis.—Hampson, 1914:252; 1915, pl. 13: fig. 26.—Draudt, 1917a:207; 1917b:207; [1919]a, pl. 29: fig. a [2]; [1919]b, pl. 29: fig. a [2].

TYPE-DATA.—*Ceramidia affinis* Rothschild was described from a single male specimen, the holotype (Figures 45, 46), from "Teffé, Amazons, September 1907 (M. de Mathan)," now in the collection of the British Museum (Natural History).

Antichloris atrinervis Rothschild was described from four males (= syntypes), none of which were designated as a type in the original description. These specimens are now in the collection of the British Museum (Natural History). The type-locality and data are "Teffé, Amazons, October 1907 (M. de Mathan)." I designate as the lectotype (Figures 49, 50) the specimen labeled "type" in that collection.

REMARKS.—The genitalia of the holotype of *Ceramidia affinis* (Figure 93) show that it belongs to the genus *Antichloris* Hübner, the Eriphia species group. A study of the male genitalia of the lectotype of *Antichloris atrinervis* shows this species to be a synonym of *Antichloris affinis*.

***Antichloris steinbachi* Rothschild, resurrected combination**

FIGURES 51, 52, 94

Antichloris atrinervis steinbachi Rothschild, 1912:155.—Draudt, 1916a:136; [1916]b:136.

Ceramidia steinbachi.—Hampson, 1914:252–253; 1915, pl. 13: fig. 27.—Draudt, 1917a:207; 1917b:207; [1919]a, pl. 29: fig. a [3]; [1919]b, pl. 29: fig. a [3].

TYPE-DATA.—This species was described from two male specimens, one of which was designated the type (= holotype) in the original description. The type-locality and data are "Buenavista, East Bolivia, 750 metres, August 1906–April 1907." This specimen is now in the collection of the British Museum (Natural History).

REMARKS.—This species originally described as a

subspecies was elevated to specific rank by Hampson (1914) and incorrectly placed in the genus *Ceramidia*. The male genitalia of the holotype show it to belong to the genus in which Rothschild originally placed it, *Antichloris* Hübner. It belongs to the Eriphia species group.

***Antichloris metallica* Rothschild, resurrected combination**

FIGURES 53, 54, 55, 56, 95

Eriphioides viridis Lathy, 1899:118 [preoccupied].—Zerny, 1912:114.—Draudt, 1916a:132; 1916b:132. [New synonymy.]

Ceramidia viridis.—Hampson, 1914:250; 1915, pl. 13: fig. 21.—Draudt, 1917a:207; 1917b:207; [1919]a, pl. 28: fig. n [5]; [1919]b, pl. 28: fig. n [5].

Antichloris metallica Rothschild, 1912:155.—Draudt, [1916]a:136; [1916]b:136.

Ceramidia metallica.—Hampson, 1914:250–251; 1915, pl. 21: fig. 32.—Draudt, 1917a:207; 1917b:207; [1919]a, pl. 28: fig. n [8]; [1919]b, pl. 28: fig. n [8].

TYPE-DATA.—*Eriphioides viridis* Lathy was described from a single male specimen, the holotype, from "Ecuador," now in the collection of the British Museum (Natural History).

Antichloris metallica Rothschild was described from two males and two females (= syntypes) from "Paramba, Ecuador, April 1897, and November–December 1898, dry season (W. Rosenberg)," now in the collection of the British Museum (Natural History). I have selected one of the two males as the lectotype (Figures 53, 54, 95) and an appropriate label has been placed on the pin with this specimen.

REMARKS.—A comparison of the genitalia of the holotype male of *Eriphioides viridis* with the genitalia of the lectotype of *Antichloris metallica* (Figure 95) shows that they are synonyms of a single species belonging to the Eriphia species group of the genus *Antichloris* Hübner. *Antichloris viridis* (Lathy), 1899, is the oldest name for this species; however, it is a homonym of *Antichloris viridis* Druce, 1884, a species of the Caca species group.

***Antichloris zernyi* (Forster), new combination**

FIGURES 57, 58, 96

Ceramidia zernyi [sic] Forster, 1950:62, pl. 1: fig. 9.—Beebe and Fleming, 1951:246.

Ceramidia zernyi Forster, 1950:67.

TYPE-DATA.—Described from the holotype (Figures 57, 58), which is stated to be a male in the original description but which is a female, from "Maracay VIII 36," Venezuela and in the Zoological Collection of the Bavarian State Museum, Munich, Germany.

REMARKS.—The genitalia of the holotype female and of a male topotype (Figure 96) show this species to belong to the Eriphia species group of *Antichloris* Hübner. This species was named after Dr. H. Zerny as is stated in the original description. Since the spelling of this name is given as *C. zernyi*, both on one of the pages in the original description (p. 67) and on the name label of the holotype, I accept this spelling as correct and attribute the spelling *C. zerny* as being a typographical error.

***Antichloris viridisaturata* (Rothschild),
new combination**

FIGURES 59, 60, 97

Ceramidia viridisaturata Rothschild, 1912:153.—Hampson, 1914:249; 1915, pl. 13: fig. 16.—Draudt, [1916]a:135; [1916]b:135; 1917a:207; 1917b:207; [1919]a, pl. 28: fig. *m* [6]; [1919]b, pl. 28: fig. *m* [6].—Hoffmann, 1933:214.

TYPE-DATA.—Described from a single male specimen, the holotype (Figures 59, 60, 97) from "probably Province of Rio," now in the collection of the British Museum (Natural History).

REMARKS.—The genitalia of the holotype show it to belong to the Eriphia species group of the genus *Antichloris* Hübner.

***Antichloris flammea* Dognin,
resurrected combination**

FIGURES 61, 62, 89, 98

Antichloris flammea Dognin, 1891:clv; 1894:72, 82, pl. 8: fig. 2.
Ceramidia flammea.—Hampson, 1898:396, 398.—Zerny, 1912:115.—Draudt, [1916]a:135, pl. 20: fig. *i* [2]; [1916]b:135, pl. 20: fig. *i* [2].

TYPE-DATA.—Described from a single female specimen, the holotype (Figures 61, 62, 89) from "environs de Loja, 1890," Ecuador, type number 30761 in the collection of the National Museum of Natural History.

REMARKS.—The genitalia of the holotype (Fig-

ure 89) and of a compared male specimen (Figure 98) show that Hampson incorrectly placed this species in *Ceramidia*. It belongs to the Eriphia species group of the genus *Antichloris* Hübner.

***Antichloris ornata* (Druce), new combination**

FIGURES 63, 64, 104

Illipula ornata Druce, 1883:380.—Kirby, 1892:157.
Ceramidia ornata.—Hampson, 1898:395, 397, pl. 14: fig. 16.—Zerny, 1912:115.—Draudt, [1916]a:134, pl. 20: fig. *h* [2]; [1916]b:134, pl. 20: fig. *h* [2].

TYPE-DATA.—Described from a single female (sex not stated in the original description) specimen, the holotype, (Figures 63, 64, 104) from "Ecuador, Intaj (Buckley)," in the collection of the British Museum (Natural History).

REMARKS.—The genitalia of the holotype (Figure 104) and of compared male specimens show that this species belongs to the Eriphia species group of the genus *Antichloris* Hübner.

***Antichloris pinguis* (Zerny), new combination**

Ceramidia pinguis Zerny, 1931a:18, 27, pl. 1: fig. 30.

TYPE-DATA.—Described from a single male specimen, the holotype from "Bolivien, Coroico (1400 m) (Fassl)," in the Zoological Collection of the Natural History Museum, Vienna.

REMARKS.—The genitalia of the holotype show that this species belongs to the Eriphia species group of the genus *Antichloris* Hübner.

***Antichloris bricenoi* (Rothschild), new combination**

FIGURES 65, 66, 99

Ceramidia bricenoi Rothschild, 1912:152.—Hampson, 1914:248; 1915, pl. 13: fig. 13.—Draudt, [1916]a:134; [1916]b:134; 1917a:207; 1917b:207; [1919]a, pl. 28: fig. *m* [5]; [1919]b, pl. 28: fig. *m* [5].

TYPE-DATA.—Described from a single male specimen, the holotype (Figures 65, 66, 99) from "Montan, Sierra de Merida, Venezuela, 3000 metres, July 20, 1898 (Briceño coll.)," in the collection of the British Museum (Natural History).

REMARKS.—The genitalia of the holotype show that this species belongs to the Eriphia species group of the genus *Antichloris* Hübner.

***Antichloris phaiodes* (Dognin), new combination**

FIGURES 73, 74, 100

Ceramidia phaiodes Dognin, 1912:122.—Hampson, 1914:240; 1915, pl. 13: fig. 20.—Draudt, [1916]a:134; [1916]b:134; 1917a:207; 1917b:207; [1919]a, pl. 29: fig. a [8]; [1919]b, pl. 29: fig. a [8].

TYPE-DATA.—Described from a single male specimen, the holotype (Figures 73, 74, 100) from "Cañon del Tolima, Colombia (2,000 metres); un ♂ pris par Fassl en octobre 1909," type number 30792 in the collection of the National Museum of Natural History.

REMARKS.—The genitalia of the holotype show that this species belongs to the *Eriphia* species group of the genus *Antichloris* Hübner.

***Antichloris painei* (Rothschild), new combination**

FIGURES 67, 68, 102

Ceramidia painei Rothschild, 1912:152.—Hampson, 1914:248; 1915, pl. 13: fig. 14.—Draudt, [1916]a:134; [1916]b: 134; 1917a:207; 1917b: 207; [1919]a, pl. 28: fig. m [3]; [1919]b, pl. 28: fig. m [3].

TYPE-DATA.—Described from several (number not stated in the original description) males from "Corinto, Cauca, May–July 1906 (Paine and Brinkley)," in the collection of the British Museum (Natural History). I select as the lectotype the syntype figured here (Figures 67, 68, 102). An appropriate label has been placed upon the pin with this specimen.

REMARKS.—The genitalia of this lectotype (Figure 102) show that this species belongs to the *Eriphia* species group of the genus *Antichloris* Hübner.

***Antichloris chalcoviridis* (Hampson),
new combination**

Ceramidia chalcoviridis Hampson, 1901:172; 1914:249; 1915, pl. 13: fig. 18.

Ceramidia chalcoviridis.—Zerny, 1912:115; Draudt, [1916]a:135; [1916]b:135; 1917a:207, 1917b:207; [1919]a, pl. 29: fig. a [1]; [1919]b, pl. 29: fig. a [1].

TYPE-DATA.—Described from a single male specimen, the holotype from "Brazil, Minas Geraes (Birchall)." Hampson says that type of this species is in the "Mus. Oxon," which would be the Hope

Department of the Oxford Museum. Dr. Ernest Taylor of that museum has made a thorough search for this type and has not been able to locate it.

REMARKS.—Hampson's published illustration of the type-specimen (1915, pl. 13: fig. 18), taken together with his statement "abdomen . . . with sub-lateral white faciae except on terminal segments," seem to indicate that this species belongs to the *Eriphia* species group of the genus *Antichloris* Hübner. I have seen no specimens that I would identify with his name. It differs from all described species in the genus on the upper surface of the hind wing in having the light area of the costal margin extending into the upper half of the cell and with the costal margin outlined with black.

***Antichloris albipunctata* (Lathy), new combination**

FIGURES 71, 72, 101

Eriphioides albipunctata Lathy, 1899:119.—Zerny, 1912:114.—Draudt, [1916]a:133, pl. 20: fig. g [1]; [1916]b:133, pl. 20: fig. g [1].

Ceramidia albipunctata.—Hampson, 1914:250; 1915, pl. 13: fig. 19.—Draudt, 1917a:207; 1917b:207.

TYPE-DATA.—Described from two male specimens now in the collection of the British Museum (Natural History). Lathy designated one of these as the type (= holotype) (Figures 71, 72, 101) in the original description. The type-locality is "Ecuador, Balsapamba."

REMARKS.—The genitalia of this holotype (Figure 101) show that this species belongs to the *Eriphia* species group of the genus *Antichloris* Hübner and not to *Eriphioides* Kirby.

***Antichloris scotoptera* (Hampson),
new combination**

FIGURES 69, 70, 105

Amycles klagesi Rothschild, 1912:154 [preoccupied].—Hampson, 1914:249.—Draudt, [1916]a:156; [1916]b:156.

Ceramidia scotoptera Hampson, 1914:249; 1915, pl. 13: fig. 17.—Draudt, 1917a:207; 1917b:207; [1919]a, pl. 28: fig. n [7]; [1919]b, pl. 28: fig. n [7].

TYPE-DATA.—*Amycles klagesi* was described from two male and one female specimens from "San Esteban, Venezuela, June and July 1909 (type)," "S. M.

Klages," and one male from "La Vuelta, Caura River, June, 1903," "S. M. Klages." Rothschild indicated that one of the three San Esteban specimens was the type (= holotype), and this turns out to be the female specimen (Figures 69, 70, 105) in the collection of the British Museum (Natural History). As shown below, *Ceramidia scotoptera* was proposed as a substitute name, and the holotype of *Amycles klagesi* is also the holotype of the former name.

REMARKS.—Rothschild (1912) described in the same paper the two species *Ceramidia klagesi* (p. 151) and *Amycles klagesi* (p. 154). Hampson (1914: 247, 249), referring both of these species to the

genus *Ceramidia* and therefore making the latter a secondary homonym, recognized the problem of homonymy and proposed the name *Ceramidia scotoptera* as a substitute name for Rothschild's *Amycles klagesi*. In this paper Rothschild's two names are both transferred to the genus *Antichloris* so that the problem of homonymy still remains. *Ceramidia klagesi* Rothschild (1912:151) is listed in the present work as a synonym of *Antichloris caca* Hübner (p. 16). The name *Antichloris scotoptera* is the correct name for the present species, as is shown by a study of the genitalia of the holotype (Figure 105). This species belongs to the Eriphia species group.

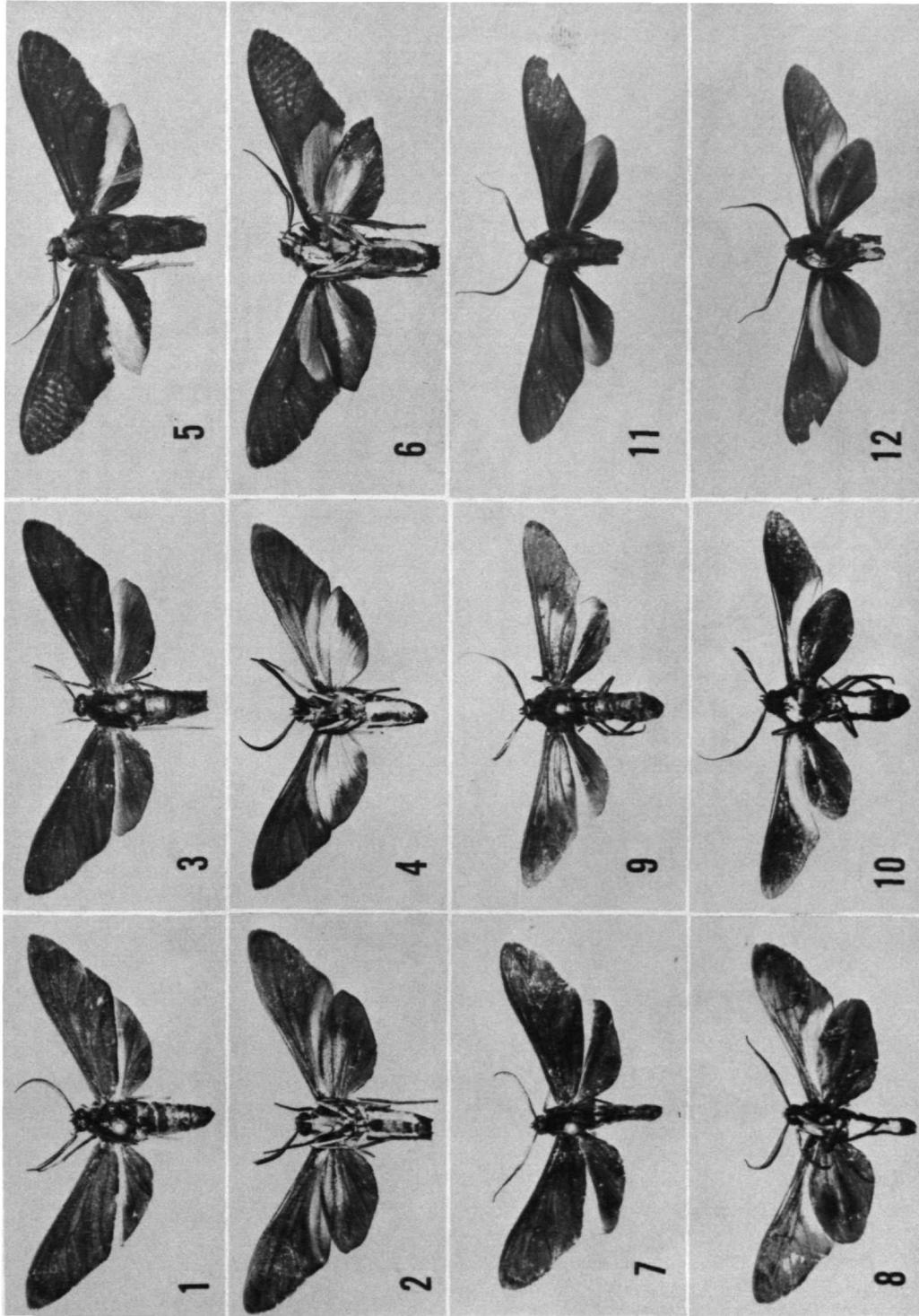
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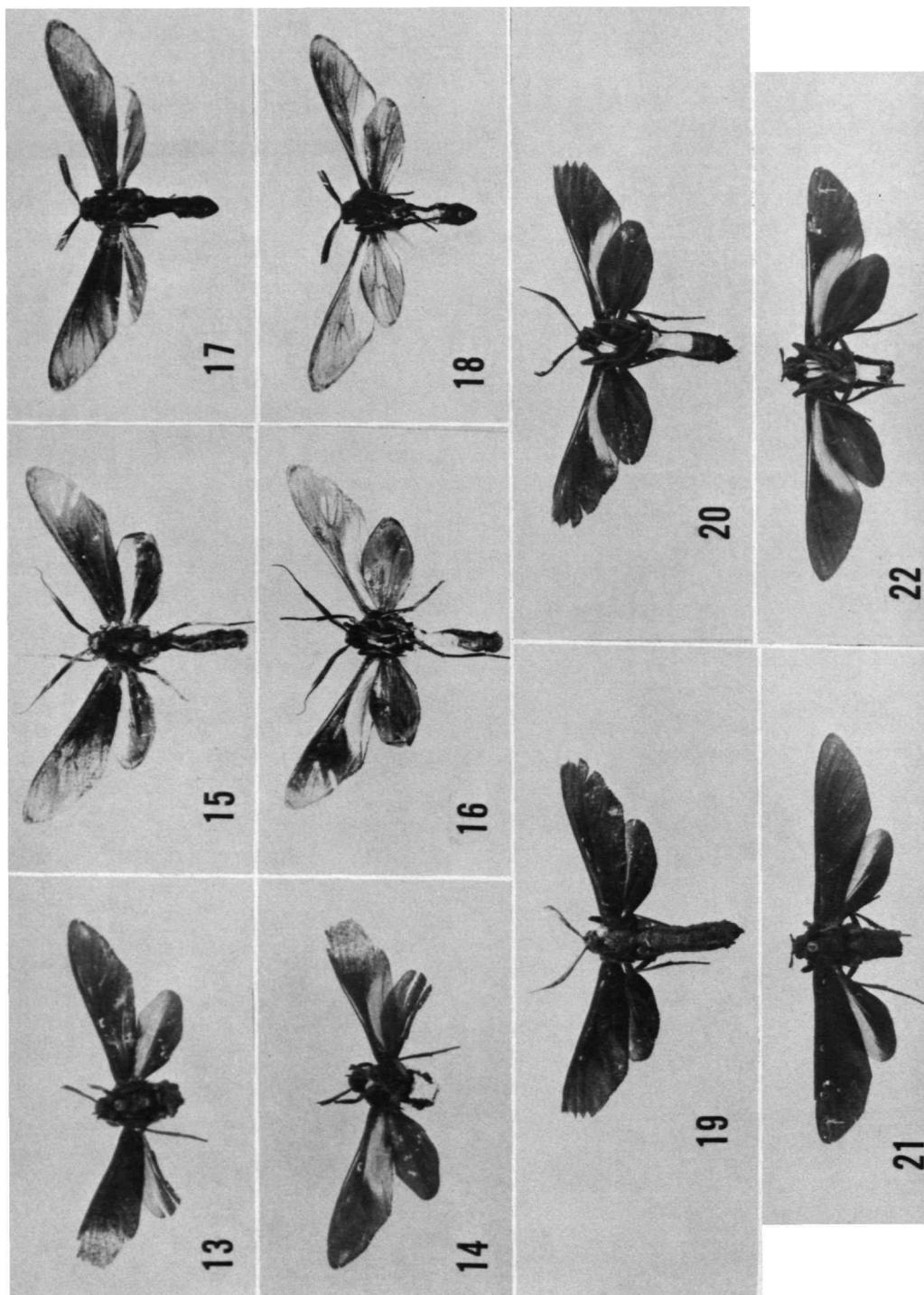
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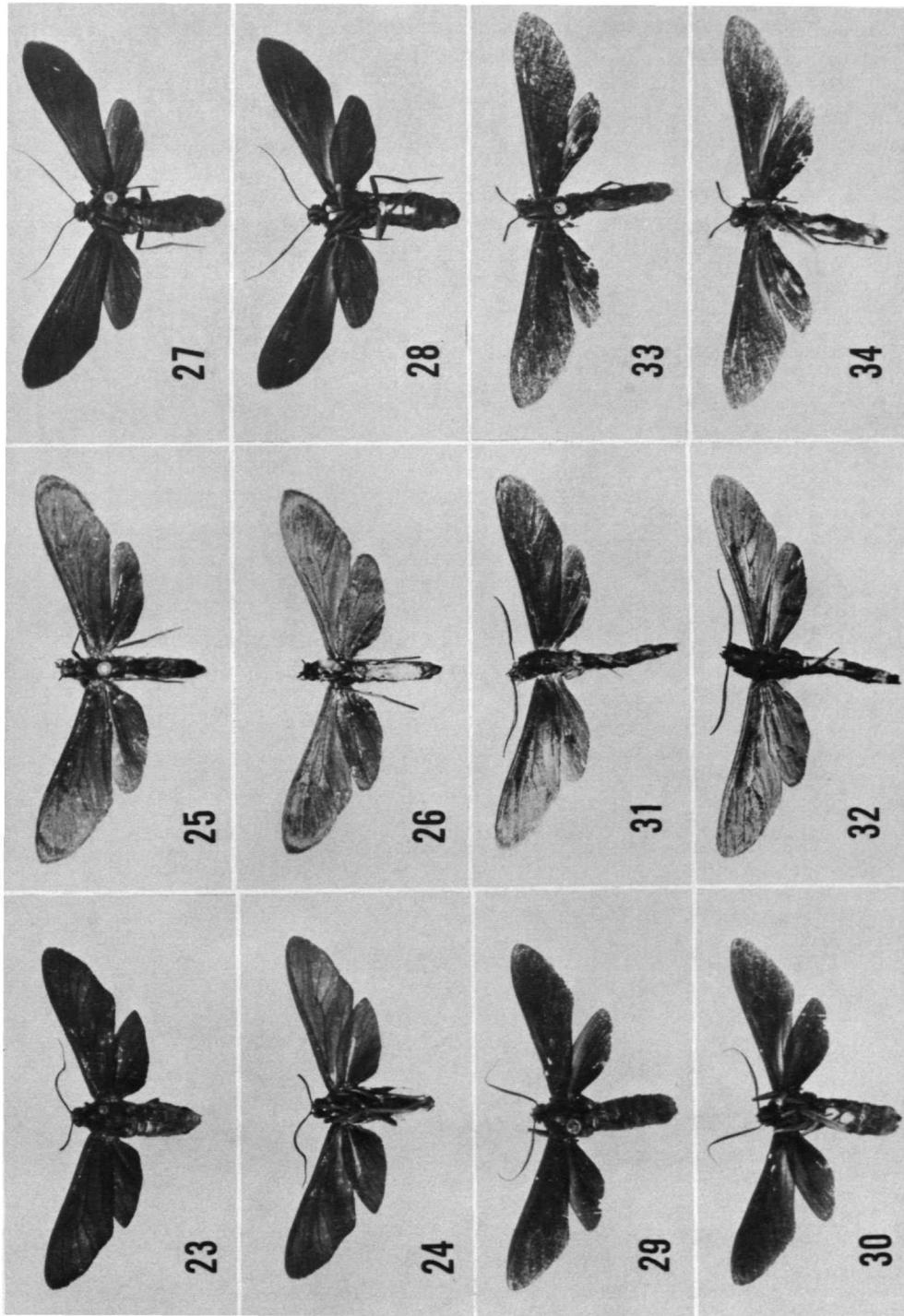
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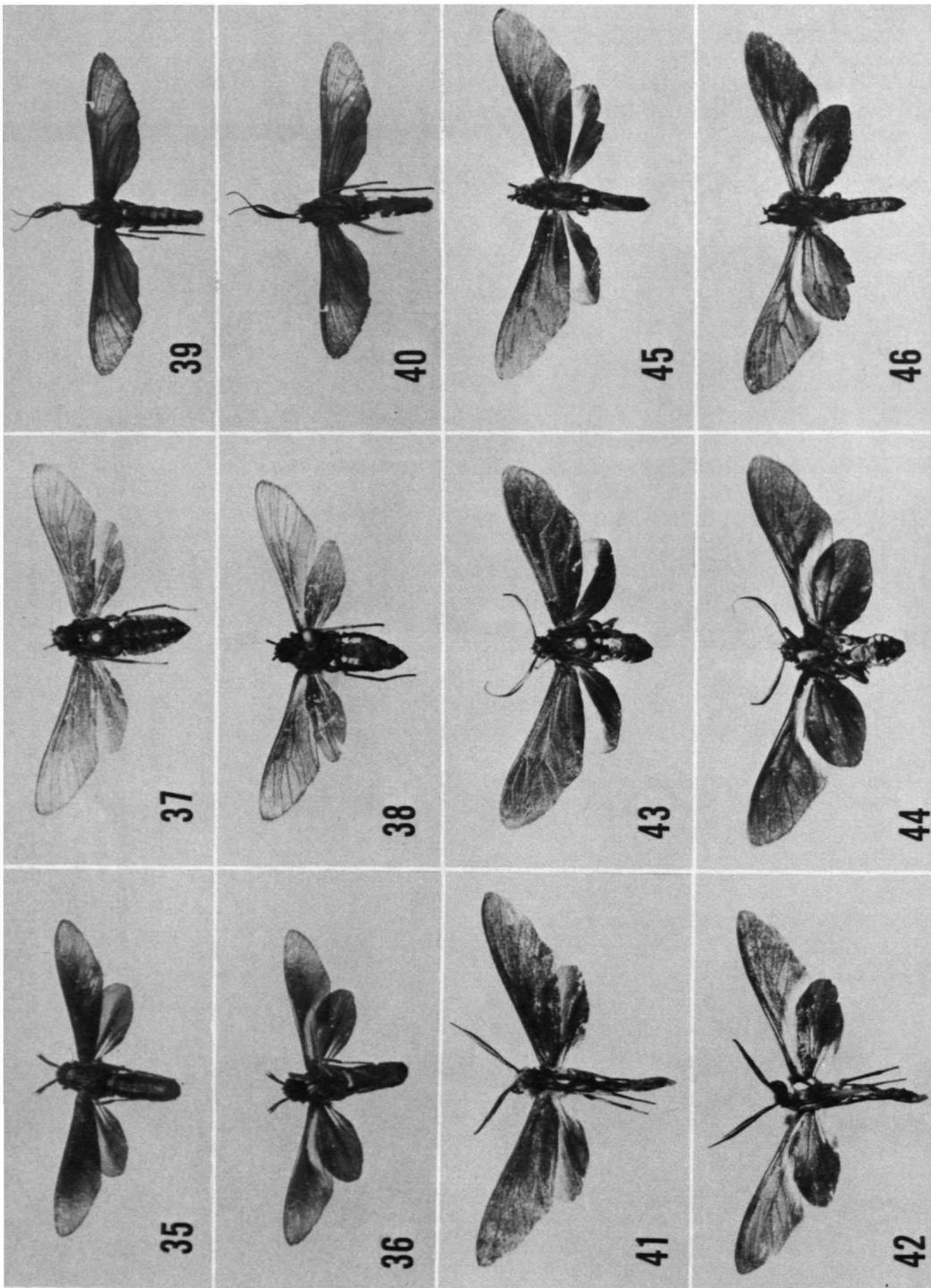
FIGURES 1-12.—Male habitus figures (about $\times 1\frac{1}{2}$): 1-4, *Ceramidia fumipennis* (1, 2, holotype; 3, 4, holotype of junior synonym *C. catalaeca*); 5, 6, *Ceramidia phemonoides* (lectotype); 7, 8, *Ceramidiodes obscurus* (lectotype of junior synonym *C. mathani*); 9-12, *Antichloris viridis* (9, 10, holotype; 11, 12, lectotype of junior synonym *C. cyanopasta*). (Odd-numbered figures = upper surfaces; even-numbered figures = undersurfaces.)



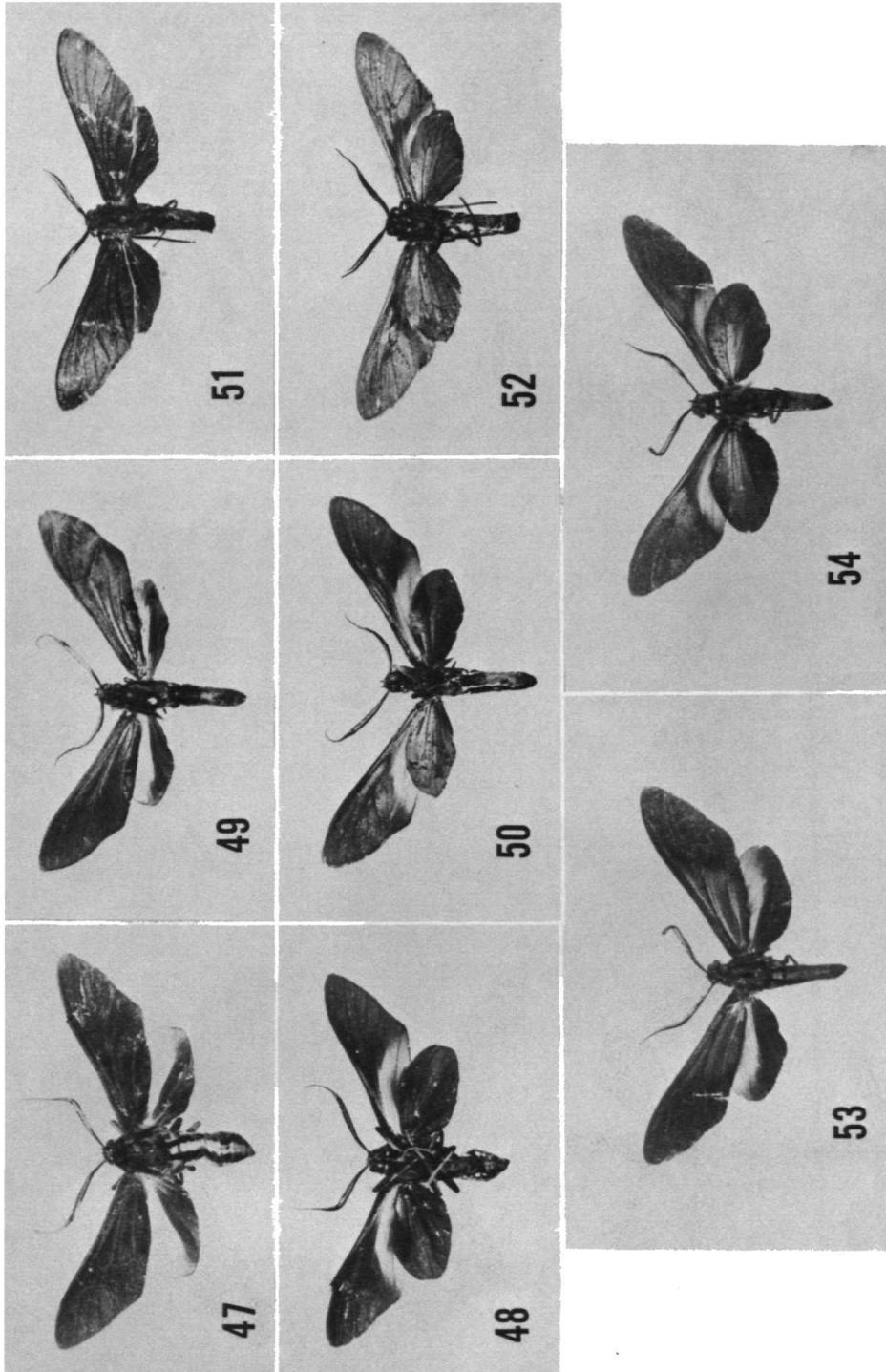
FIGURES 13-22.—Male habitus figures (about $\times 1\frac{1}{2}$): 13-16, *Antichloris viridis* (13, 14, holotype of junior synonym *C. musicola*; 15, 16, holotype of junior synonym *C. scintillocollaris*); 17-22, *Antichloris caca* (17, 18, lectotype of junior synonym *C. klagesi*; 19, 20, holotype of junior synonym *E. butleri*; 21, 22, lectotype of junior synonym *C. caurensis*). (Odd-numbered figures = upper surfaces; even-numbered figures = undersurfaces.)



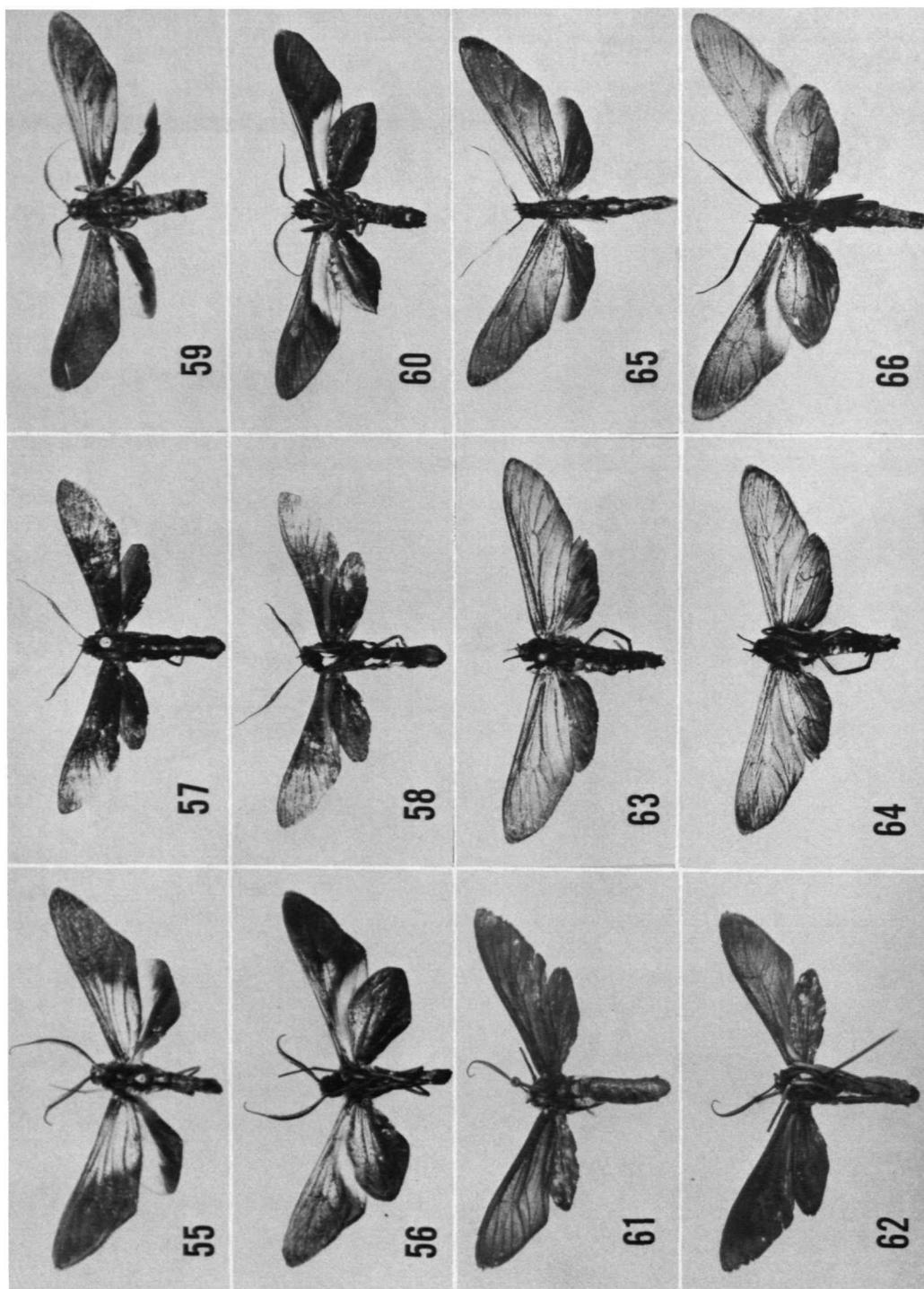
FIGURES 23-34.—Female habitus figures (about $\times 1\frac{1}{2}$): 23, 24, *Ceramidia phemonoides* (Caña Valley, Venezuela); 25, 26, *Ceramidiodes obscurus* (holotype); 27-32, *Antichloris viridis* (27, 28, El Cienego, Trujillo, Venezuela; 29, 30, La Lima, Honduras; 31, 32, holotype of junior synonym *C. underwoodi*); 33, 34, *Antichloris caca* (Nouveau Chantier, French Guiana). (Odd-numbered figures = upper surfaces; even-numbered figures = undersurfaces.)



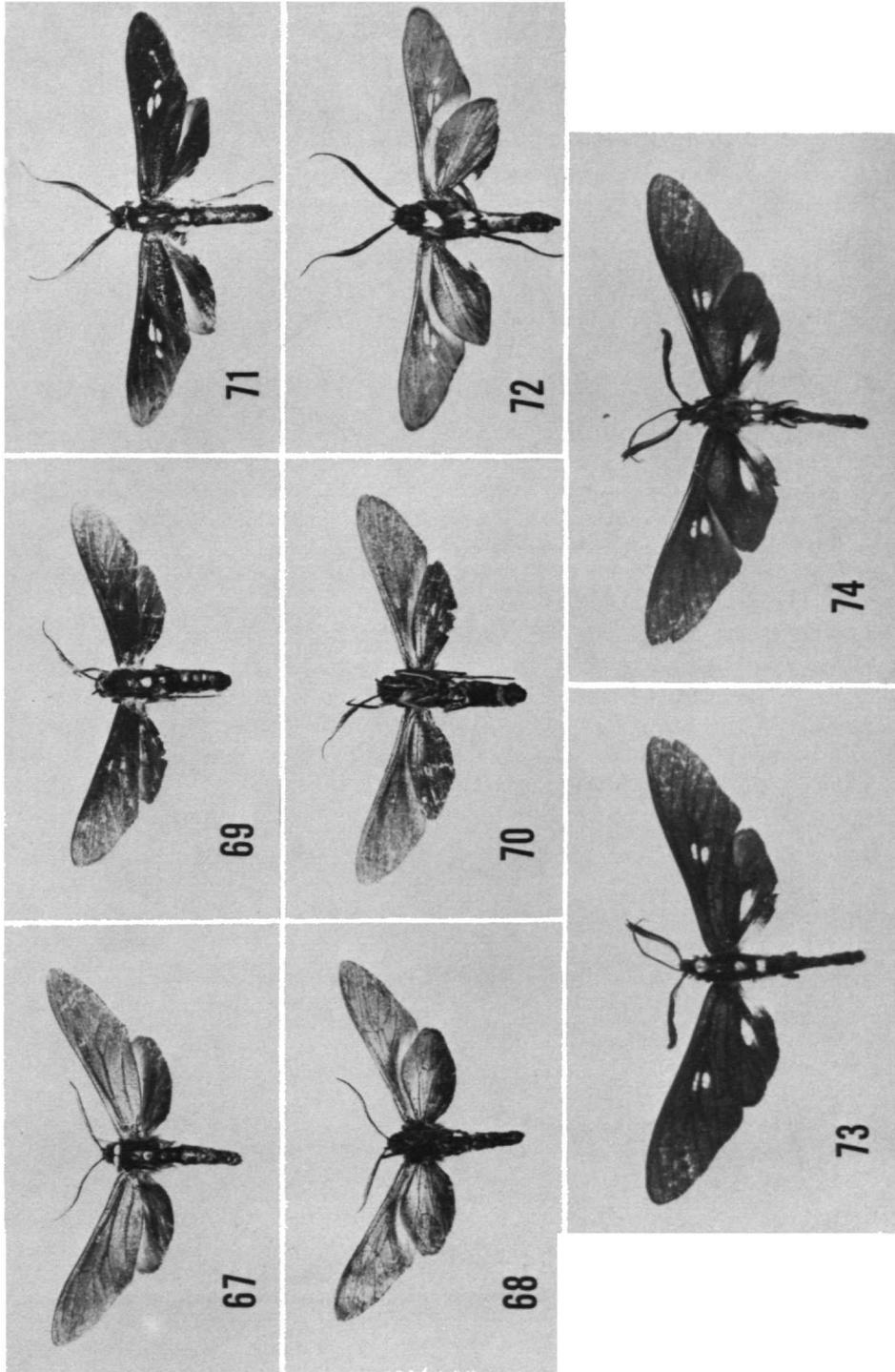
FIGURES 35-46.—Habitus figures (about $\times 1\frac{1}{2}$): 35, 36, *Amycles cupreus* (holotype, δ); 37, 38, *Amycles dolosus* (holotype, δ); 39, 40, *Eriphioides purpurinus* (holotype, δ); 41, 42, *Eriphioides simplex* (holotype, δ); 43, 44, *Antichloris chloroplegia* (holotype, δ); 45, 46, *Antichloris affinis* (holotype, δ). (Odd-numbered figures = upper surfaces; even-numbered figures = undersurfaces.)



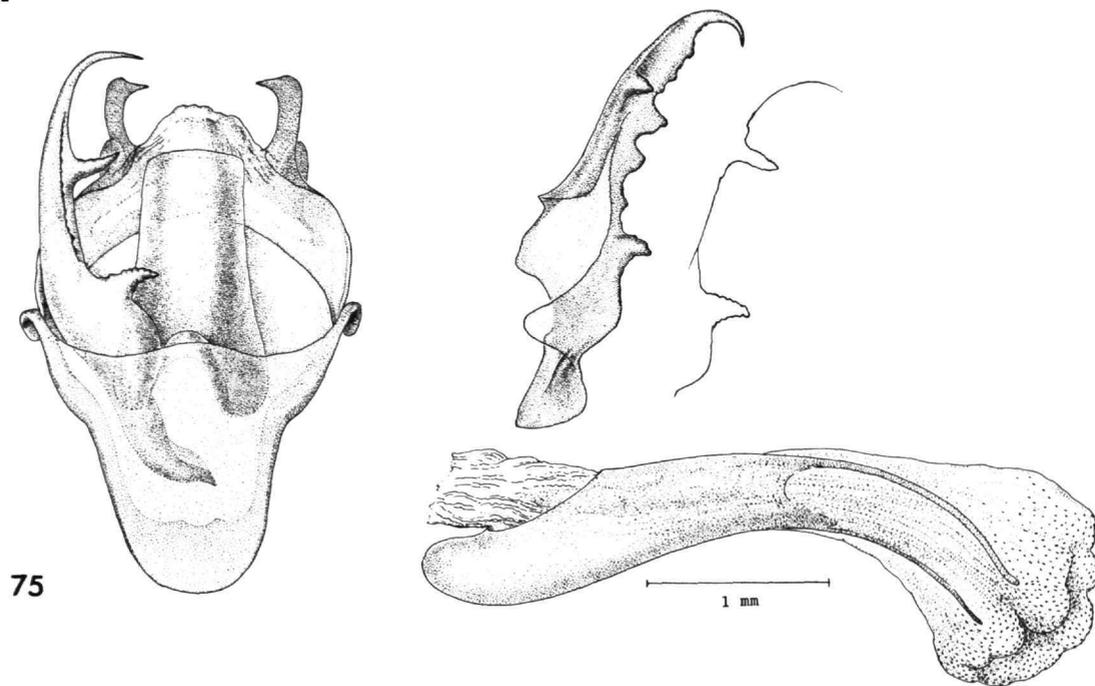
FIGURES 47-54.—Habitus figures (about $\times 1\frac{1}{2}$): 47, 48, *Antichloris chloroplegia* (lectotype, δ , of the junior synonym *A. intensa*); 49, 50, *Antichloris affinis* (lectotype, δ , of the junior synonym *A. atrinervis*); 51, 52, *Antichloris steinbachi* (paratype, δ , Province Sara, Department Santa Cruz de la Sierra, Bolivia); 53, 54, *Antichloris metallica* (lectotype, δ). (Odd-numbered figures = upper surfaces; even-numbered figures = undersurfaces.)



FIGURES 55-66.—Habitus figures (about $\times 1\frac{1}{2}$): 55, 56, *Antichloris metallica* (holotype, δ), of the preoccupied name *E. viridis*; 57, 58, *Antichloris zernyi* (holotype, δ); 59, 60, *Antichloris viridisaturata* (holotype, δ); 61, 62, *Antichloris flammea* (holotype, δ); 63, 64, *Antichloris ornata* (holotype, δ); 65, 66, *Antichloris briceoi* (holotype, δ). (Odd-numbered figures = upper surfaces; even-numbered figures = undersurfaces.)

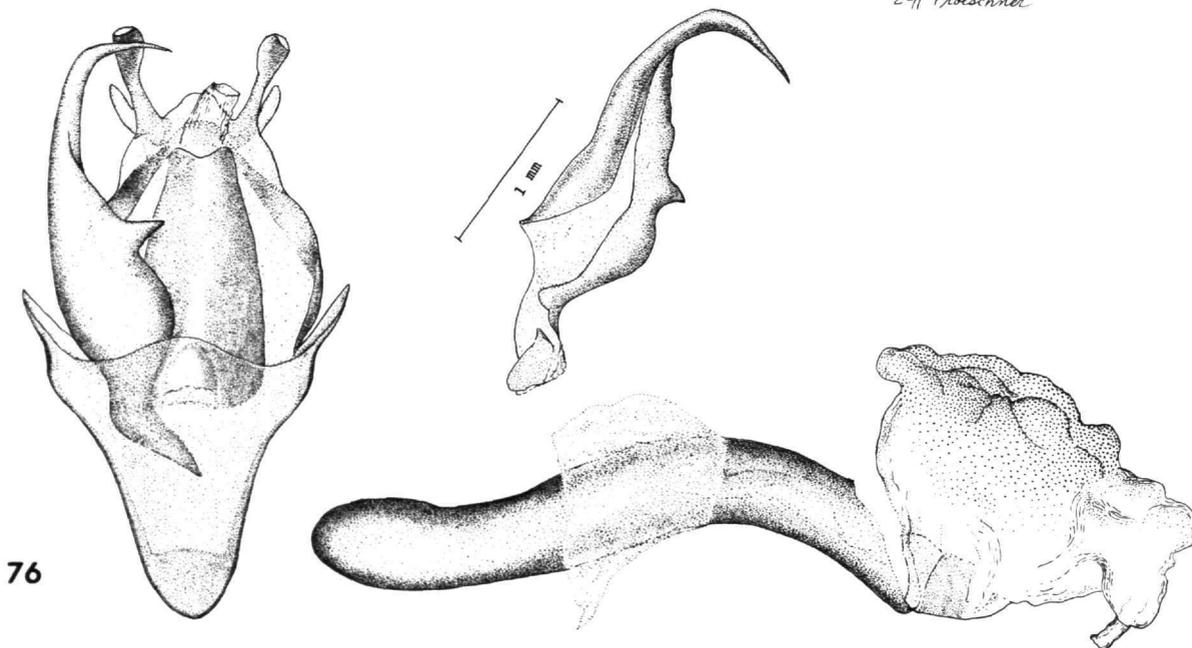


FIGURES 67-74.—Habitus figures (about $\times 1\frac{1}{2}$): 67, 68, *Antichloris painei* (lectotype, δ); 69, 70, *Antichloris scotoptera* (lectotype, δ); 71, 72, *Antichloris albipunctata* (holotype, δ); 73, 74, *Antichloris phaiodes* (holotype, δ). (Odd-numbered figures = upper surfaces; even-numbered figures = undersurfaces.)



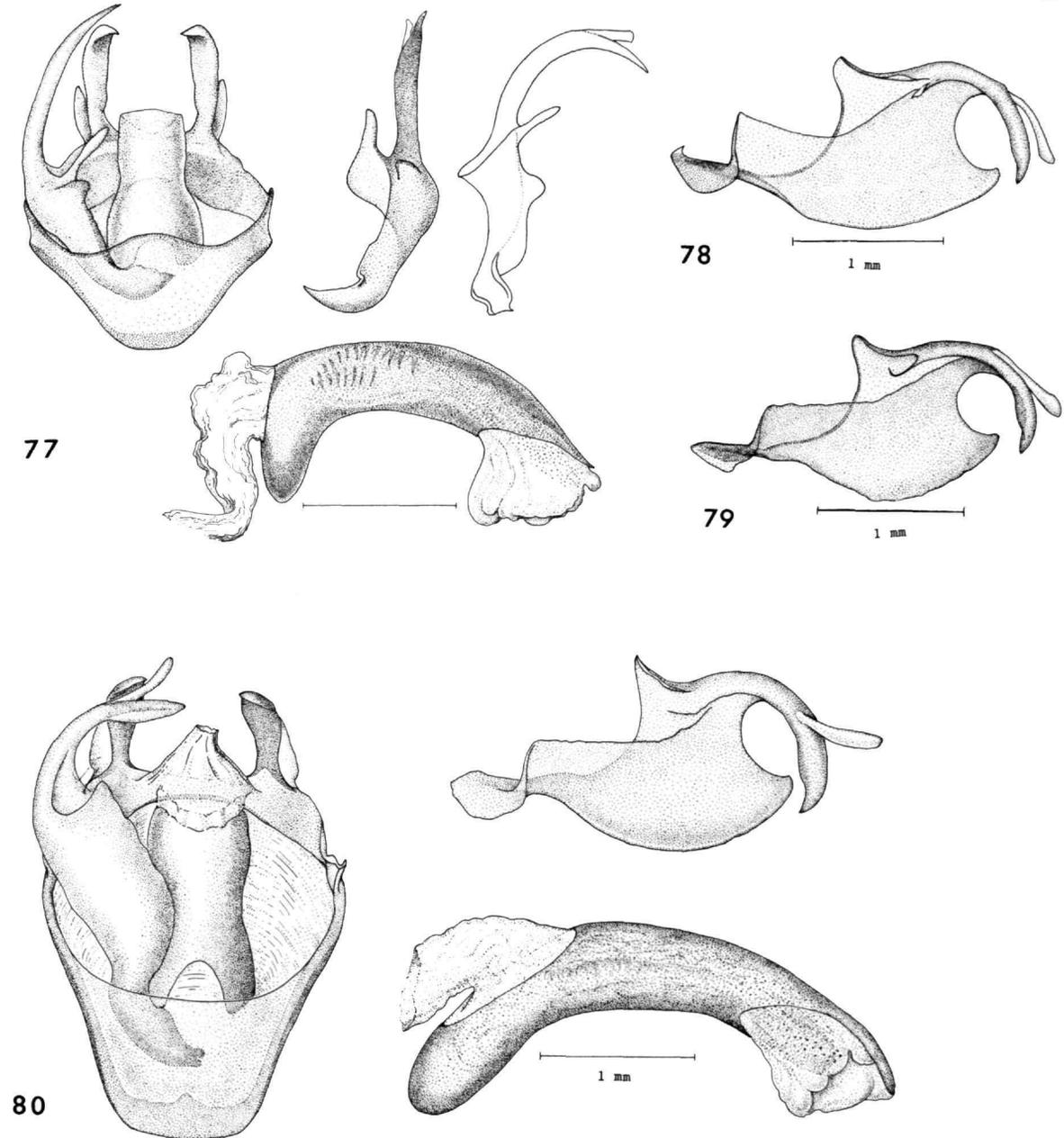
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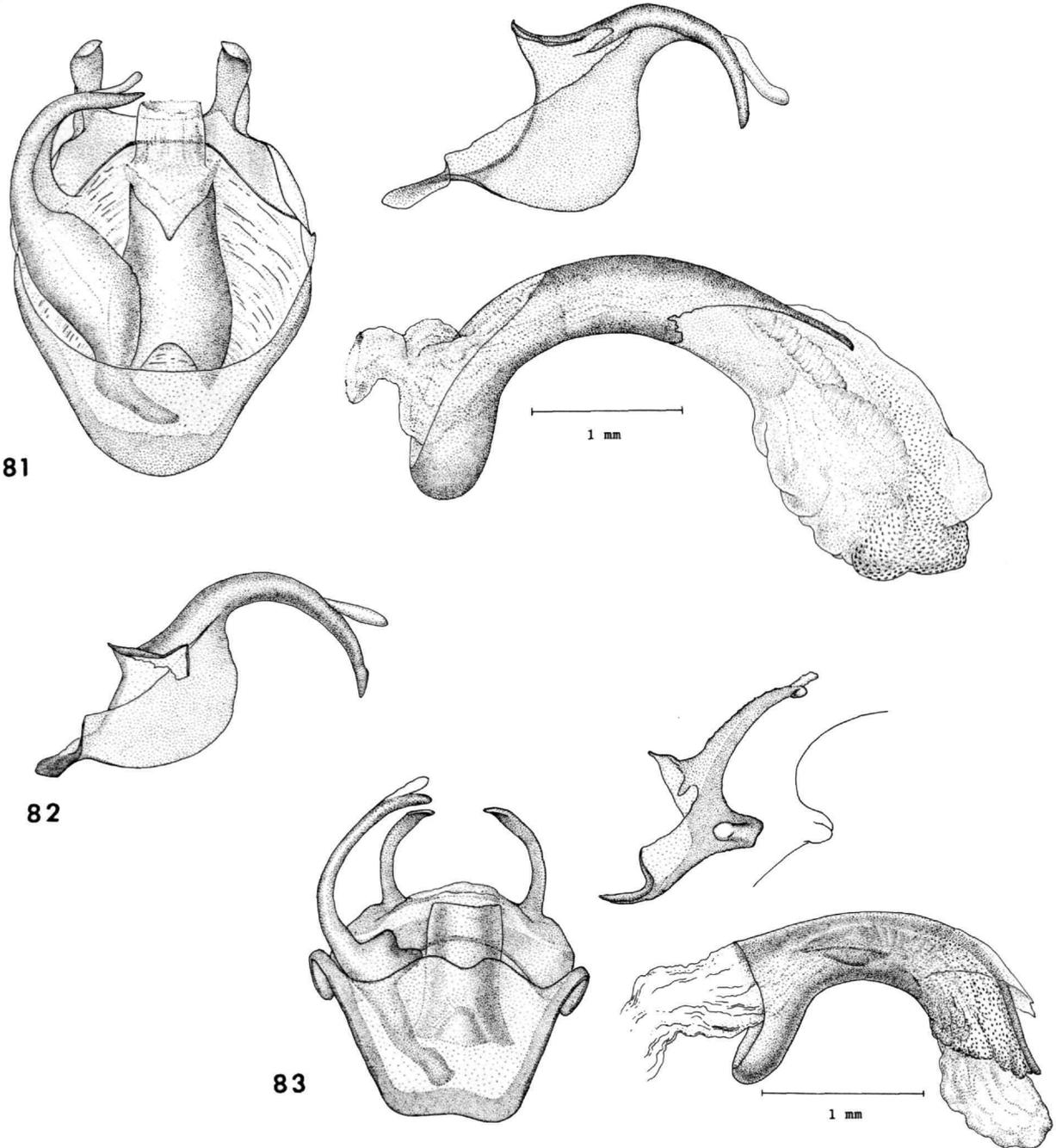


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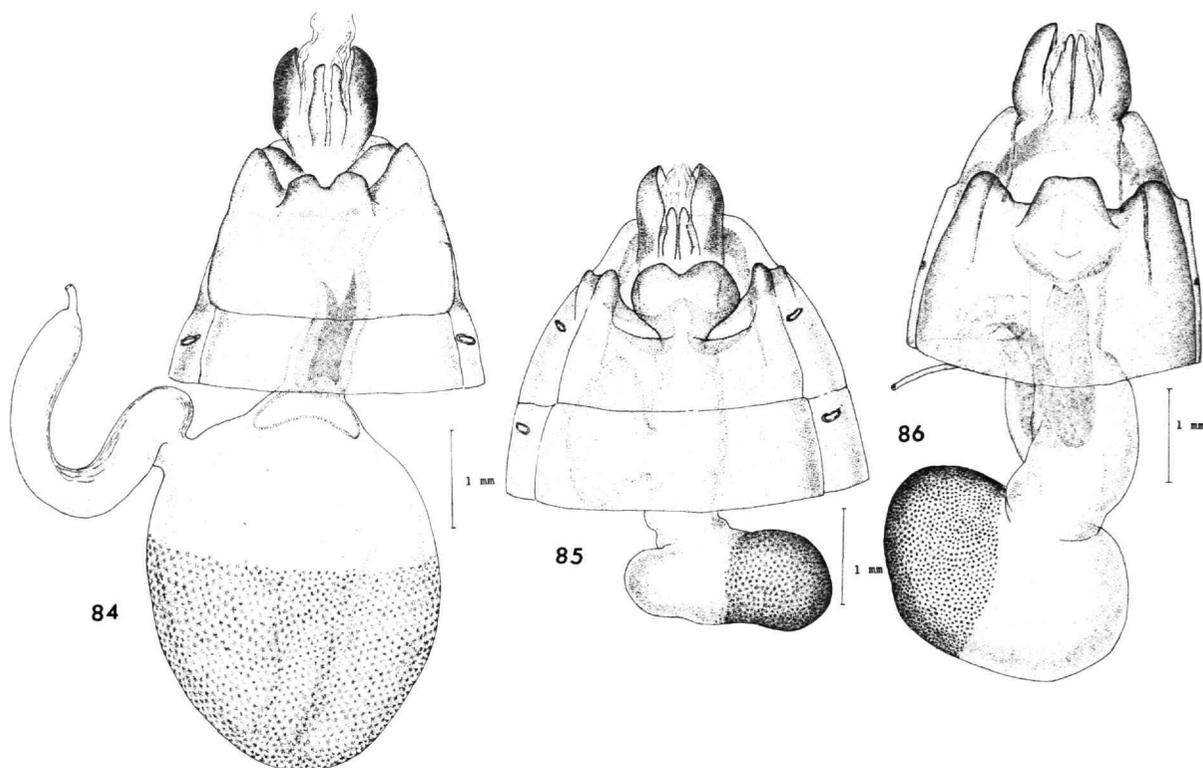
FIGURES 75, 76.—Male genitalia consisting of ventral view (on the left side of each figure), lateral view of inner face of right valva, an outline drawing of this valva in tilted position (Figure 75), and the aedeagus in lateral view: 75, *Ceramidia fumipennis* (drawn from holotype of junior synonym *C. cataluca*); 76, *Ceramidia pemonoides* (drawn from lectotype).



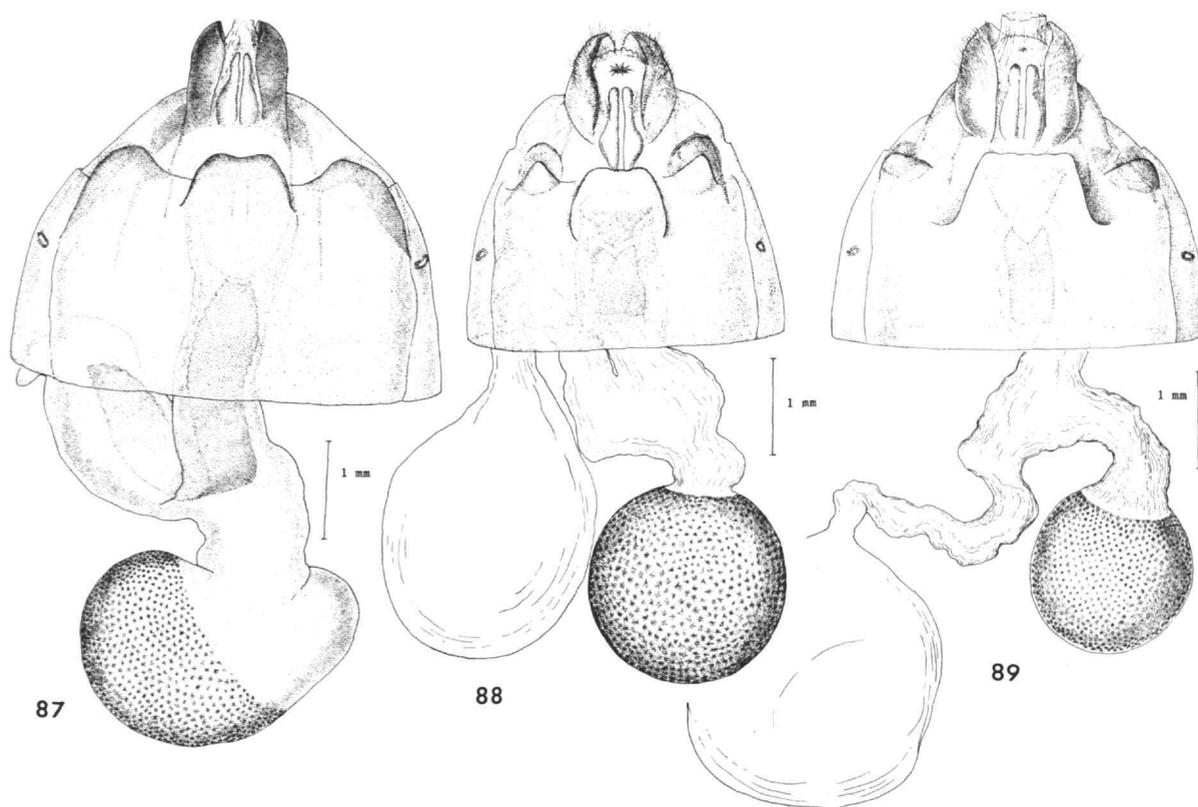
FIGURES 77-80.—Male genitalia consisting of ventral view (on the left side of each figure), lateral view of inner face of right valva, and the aedeagus in lateral view: 77, *Ceramidiodes obscurus* (drawn from holotype of junior synonym *C. mathani*); 78, *Antichloris viridis* (right valva of lectotype of junior synonym *C. cyanopasta*); 79, *Antichloris viridis* (right valva of holotype of junior synonym *C. musicola*); 80, *Antichloris viridis* (drawn from holotype).



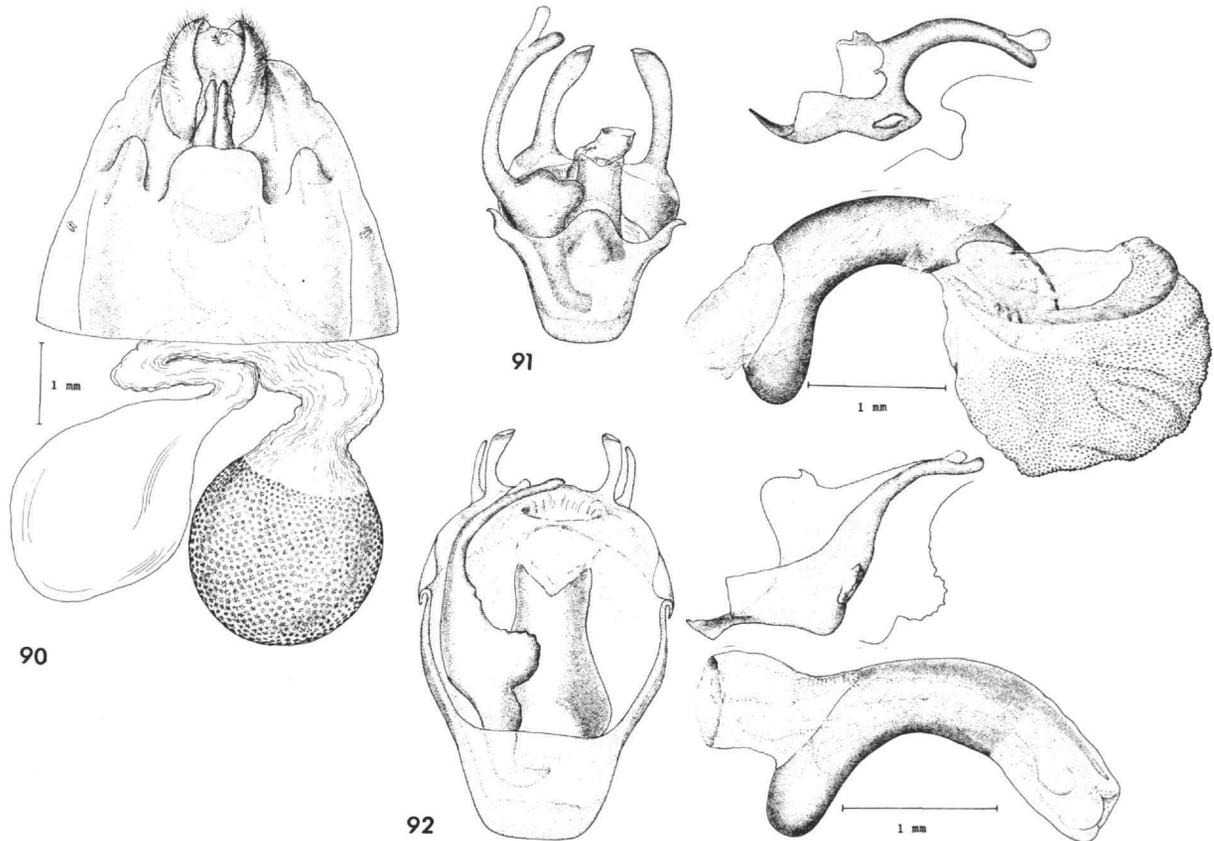
FIGURES 81-83.—Male genitalia consisting of ventral aspect (on the left side of each figure), lateral view of inner face of right valva, and the aedeagus in lateral view: 81, *Antichloris caca* (drawn from lectotype of junior synonym *C. caurensis*); 82, *Antichloris caca* (right valva slightly turned to the right; drawn from holotype of junior synonym *E. butleri*); 83, *Amycles cupreus* (drawn from holotype).



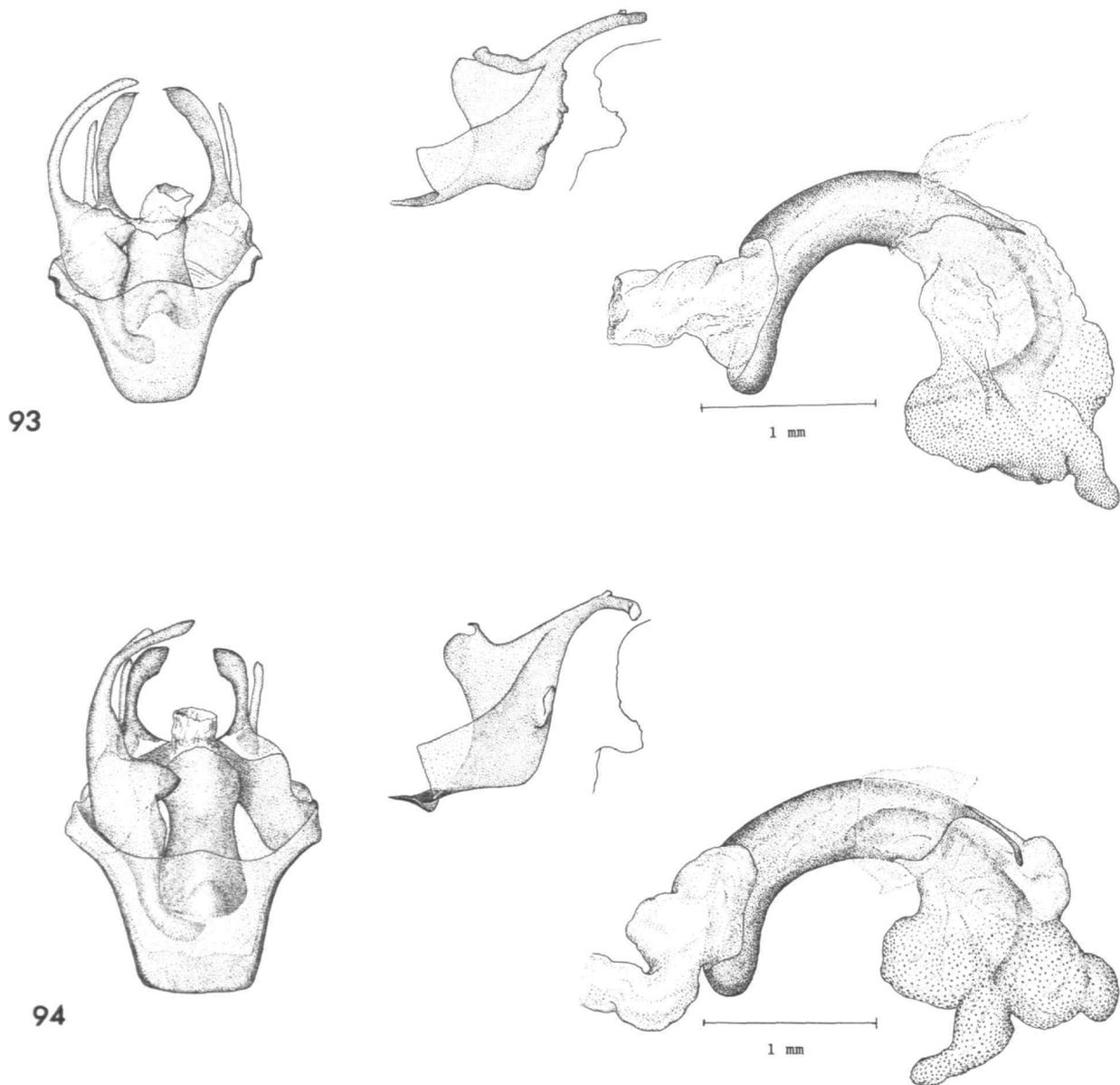
FIGURES 84-86.—Ventral aspect of seventh and eighth abdominal segments and ovipositors, showing female genitalia consisting of genital plates, ostium bursae, ductus bursae, and bursa copulatrix: 84, *Ceramidia phemonoides* (drawn from preparation number 6567); 85, *Ceramidioides obscurus* (drawn from holotype); 86, *Antichloris viridis* (drawn from holotype of junior synonym *C. underwoodi*).



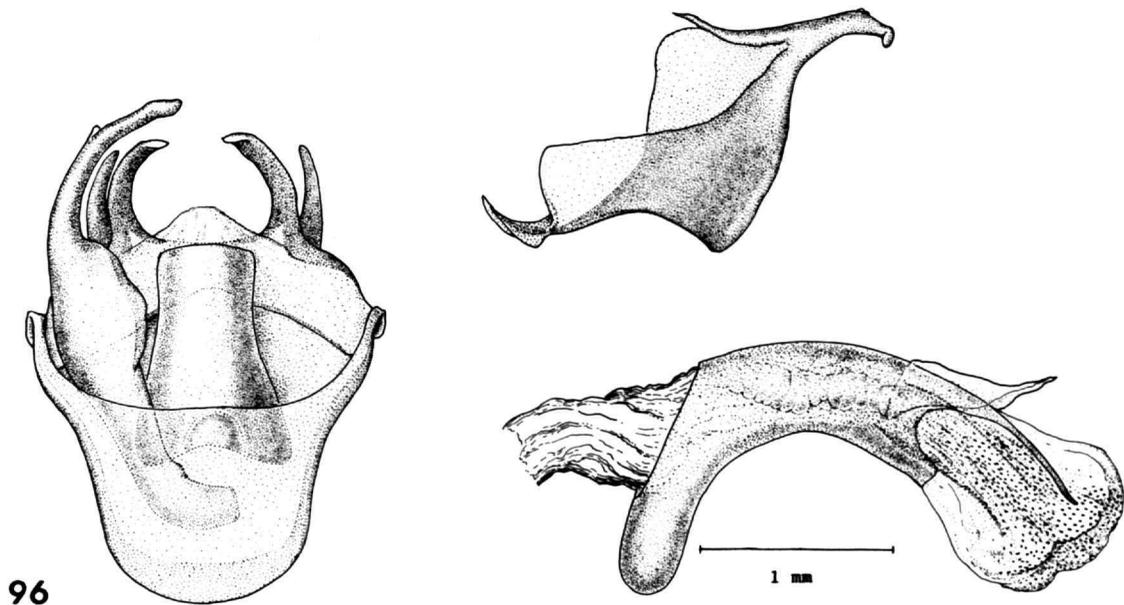
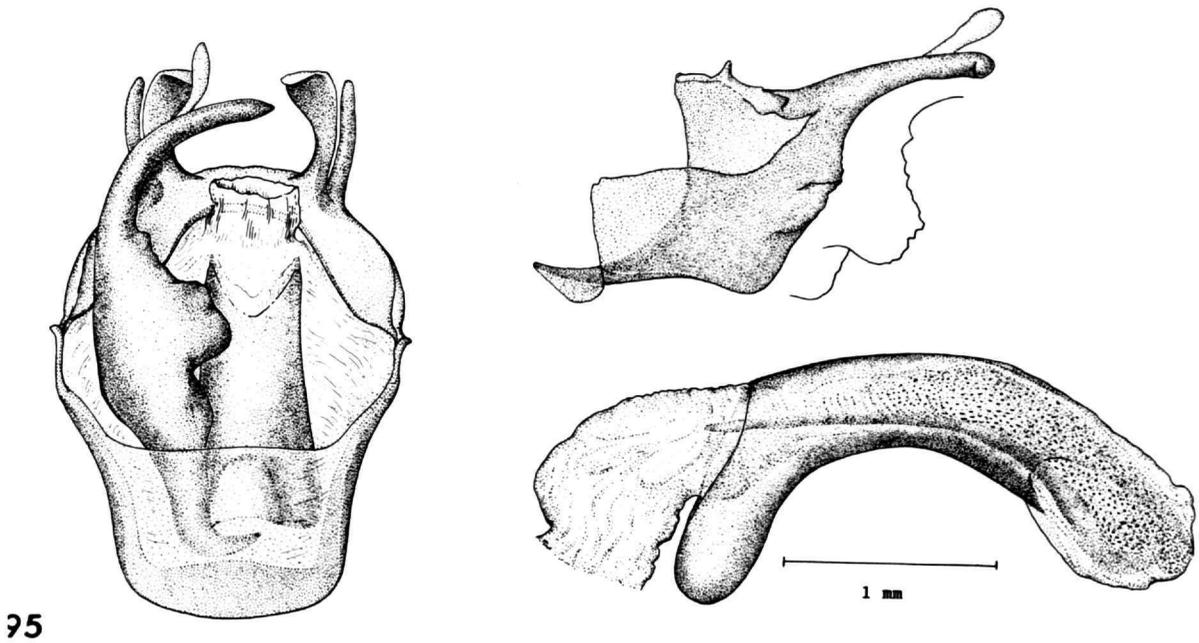
FIGURES 87-89.—Ventral aspect of seventh and eighth abdominal segments and ovipositors, showing female genitalia consisting of genital plates, ostium bursae, ductus bursae, and bursa copulatrix: 87, *Antichloris caca* (drawn from preparation number 6569); 88, *Eriphioides purpurinus* (drawn from holotype); 89, *Antichloris flammea* (drawn from holotype).



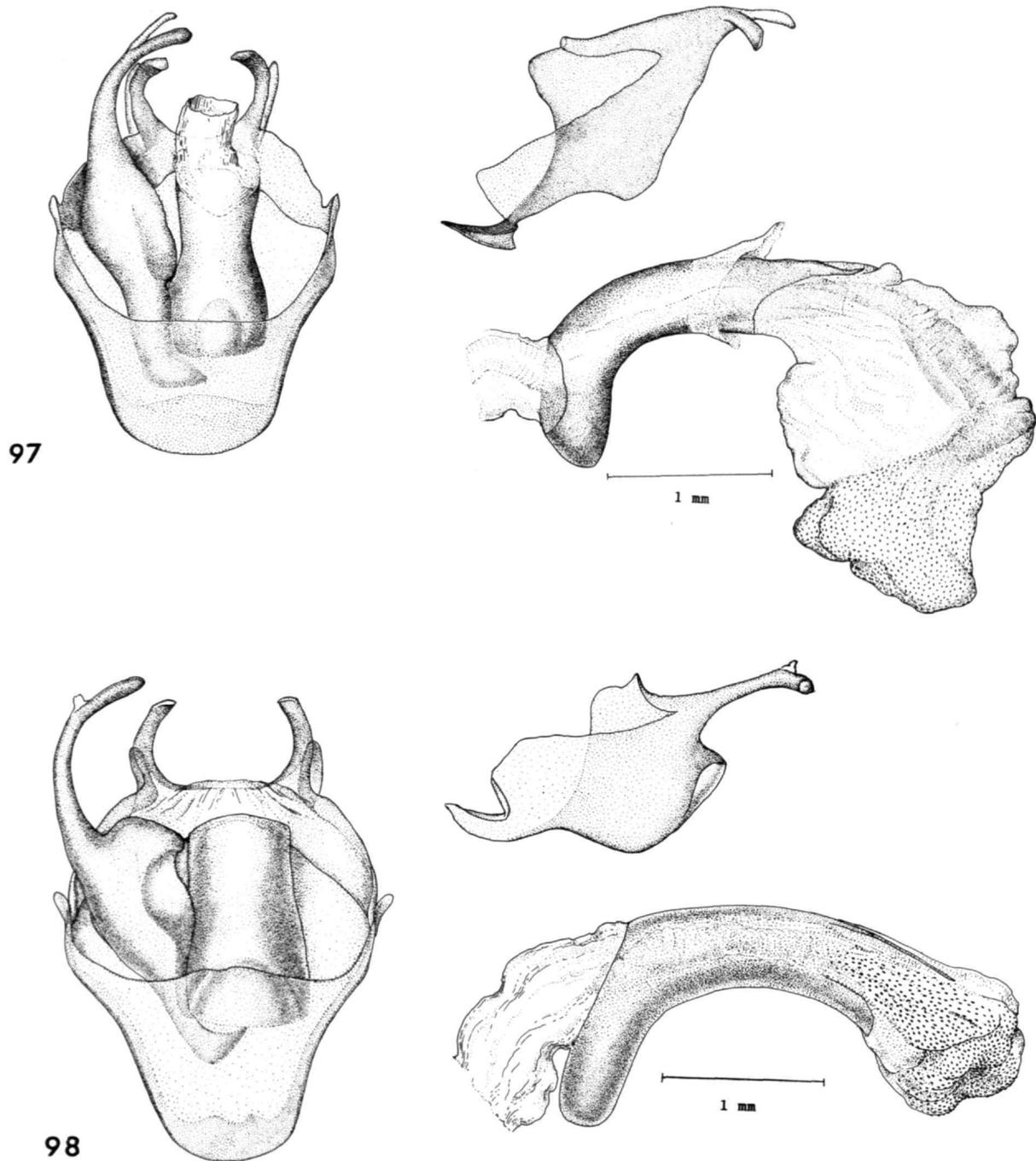
FIGURES 90-92.—Ventral aspect of seventh and eighth abdominal segments and ovipositors, showing female genitalia consisting of genital plates, ostium bursae, ductus bursae, and bursa copulatrix, and male genitalia consisting of ventral aspect (on the left side of each figure), lateral view of inner face of right valva, and the aedeagus in lateral view: 90, *Amycles cupreus* (drawn from preparation number 6515); 91, *Eriphioides simplex* (drawn from holotype); 92, *Antichloris chloroplegia* (drawn from lectotype of junior synonym *C. intensa*).



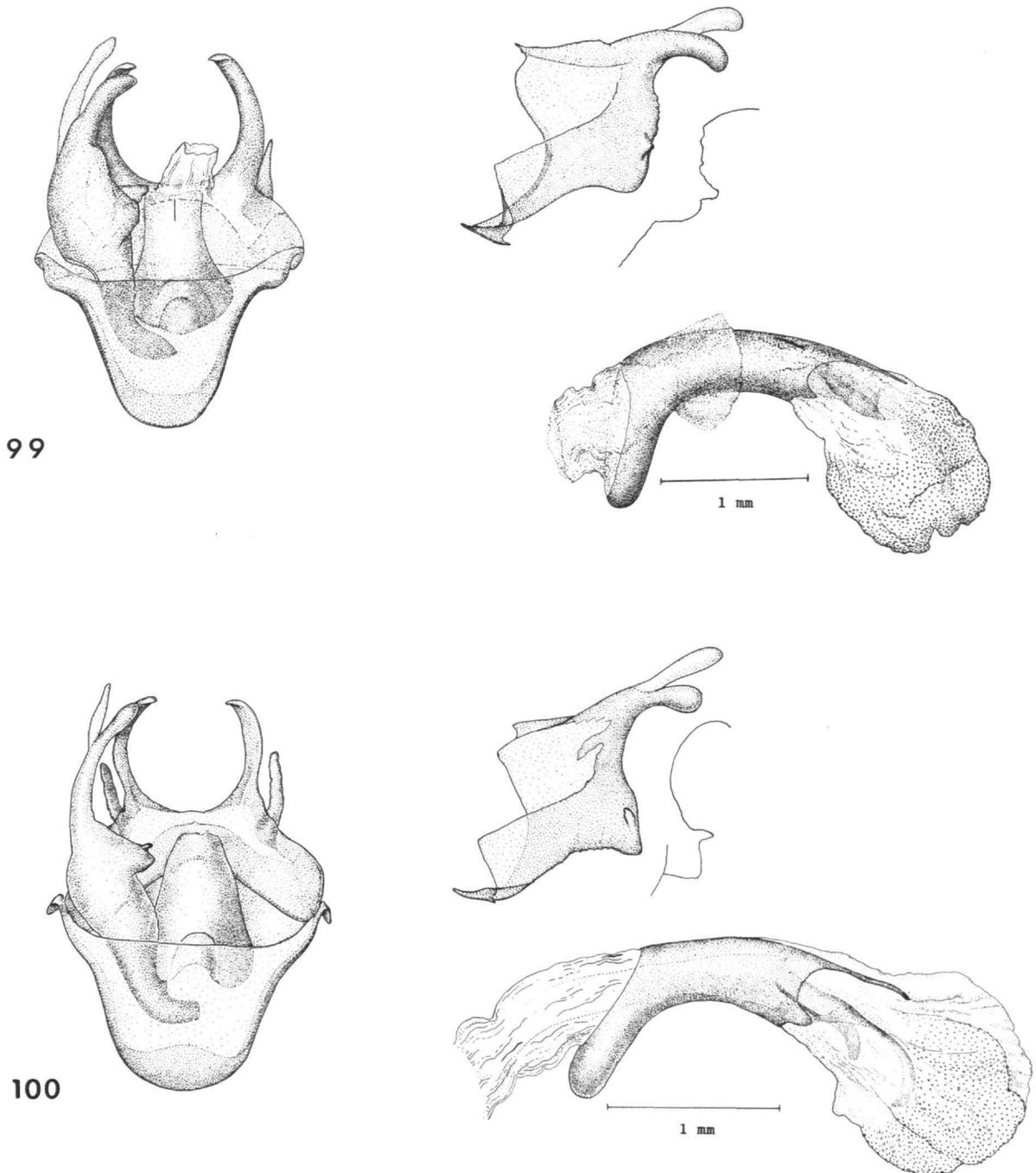
FIGURES 93, 94.—Male genitalia consisting of ventral aspect (on the left side of each figure), lateral view of inner face of right valva, and the aedeagus in lateral view: 93, *Antichloris affinis* (drawn from the holotype); 94, *Antichloris steinbachi* (drawn from the paratype).



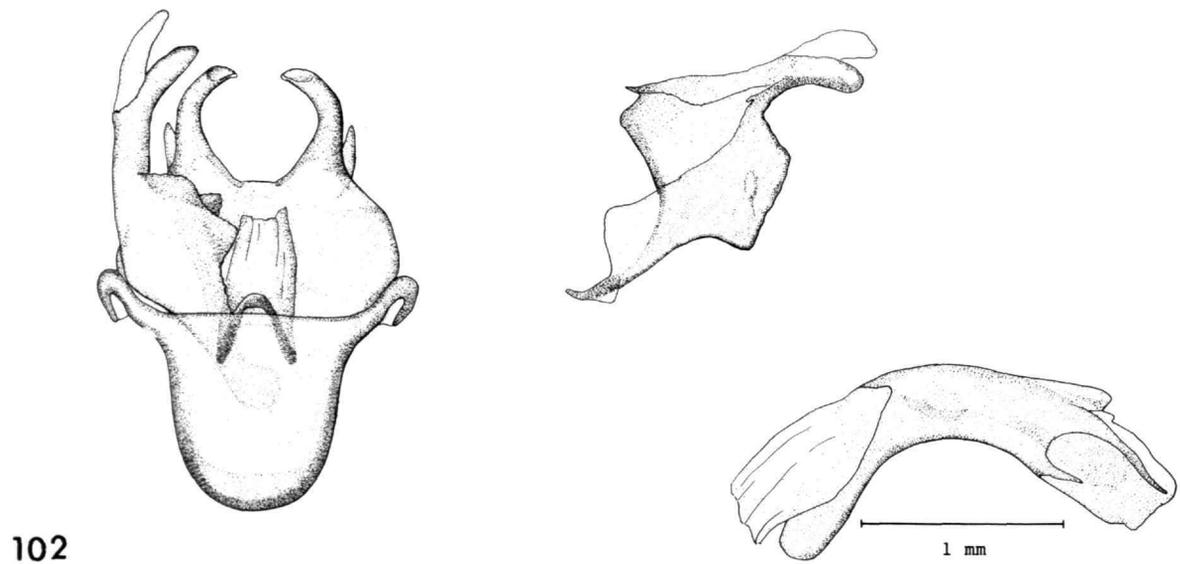
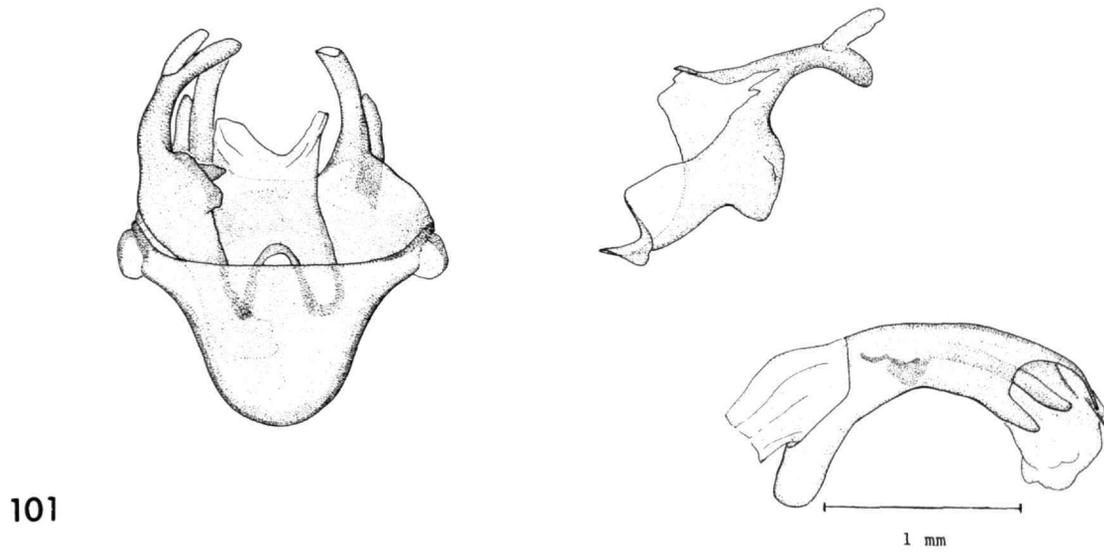
FIGURES 95, 96.—Male genitalia consisting of ventral aspect (on the left side of each figure), lateral view of inner face of right valva, and the aedeagus in lateral view. 95, *Antichloris metallica* (drawn from the lectotype); 96, *Antichloris zernyi* (drawn from preparation number 6512).



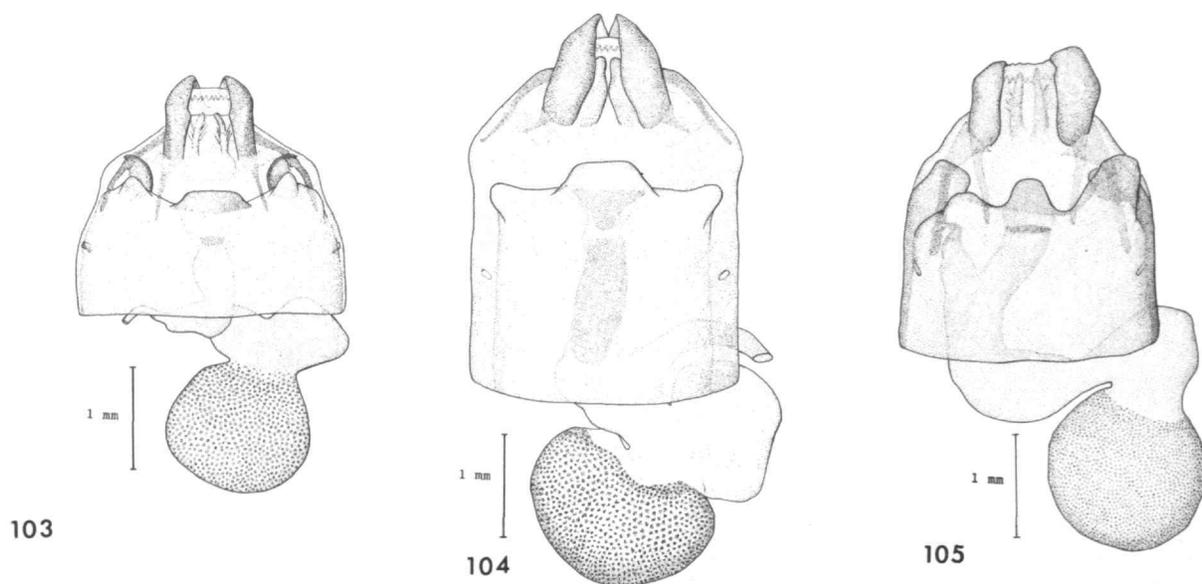
FIGURES 97, 98.—Male genitalia consisting of ventral aspect (on the left side of each figure), lateral view of inner face of right valva, and the aedeagus in lateral view: 97, *Antichloris viridisaturata* (drawn from holotype); 98, *Antichloris flammea* (drawn from preparation number 6511).



FIGURES 99, 100.—Male genitalia consisting of ventral aspect (on the left side of each figure), lateral view of inner face of right valva, and the aedeagus in lateral view. 99, *Antichloris bricenoi* (drawn from holotype); 100, *Antichloris phaiodes* (drawn from holotype).



FIGURES 101, 102.—Male genitalia consisting of ventral aspect (on the left side of each figure), lateral view of inner face of right valva, and the aedeagus in lateral view. 101, *Antichloris albipunctata* (drawn from holotype); 102, *Antichloris painei* (drawn from lectotype).



FIGURES 103-105.—Ventral aspect of seventh and eighth abdominal segment and ovipositors, showing female genitalia consisting of genital plates, ostium bursae, ductus bursae, and bursa copulatrix: 103, *Amycles dolosus* (drawn from holotype); 104, *Antichloris ornata* (drawn from holotype); 105, *Antichloris scotoptera* (drawn from holotype).

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