Reports of the Museum of Natural History
University of Wisconsin (Stevens Point)

***REPORTS* 24-30**

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TABLE OF CONTENTS

A MESSAGE FROM THE MUSEUM

This volume includes *Reports* nos. 24-30. A second volume of reports will be issued later in the spring. We are releasing these *Reports* separately since new scientific names needed to be available for forthcoming books at the Oxford University Press and the National Museum of Chile. The museum is pleased to be a part of these pursuits concerning the ongoing issue of biodiversity and its preservation.

The Museum was founded in 1968 with the first *Reports* following soon after. Dr. Robert Searles was the first Museum Director, followed by Dr. Charles A. Long who served from 1969-1982. Early *Reports* concentrated on studies of Wisconsin flora and fauna. Later, the Trustees expanded the program to include all areas of the world. The *Reports* are issued on an occasional basis and include authors from the University of Wisconsin at Stevens Point as well as others. The Museum remains active with its public exhibits and scientific programs. The University of Wisconsin at Stevens Point has long been known for its "Natural Resources Campus". You may have read of the University's recent hosting of Secretary of Interior Bruce Babbitt's conference on the future of the "savannah ecology" (**New York Times**, Science Times, March 2, 1993, pg. C1).

The papers of the present volume, and the others planned for 1993, demonstrate the Museum's continued dedication to research and its interest in an active role in protecting the earth's endangered environments.

Frank D. Bowers Ph.D.
Director 1993-
William LeGrande Ph.D.
Director 1983-1993

A Remarkable New Butterfly Species from Jamaica (Lepidoptera: Lycaenidae), with Notes on Jamaican Endemics and Their Sister Species

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ABSTRACT

A remarkable new species of *Chlorostrymon* Clench (*C. orbis* n. sp.), with a large eyespot dominating an otherwise generally immaculate hindwing under surface, is described from a 1919 collection from Jamaica made by F. W. Jackson. Genitalically, this insect shows structural innovation at the female cervix bursae departing from anything hitherto known in *Chlorostrymon*. Archival documents detail Jackson's work at the probable type locality and additional butterflies collected with the *C. orbis* holotype are found in London's Natural History Museum and the Hope Collections. The occurrence in the Antilles of an extremely divergent *Chlorostrymon* species unsettles historical views of stability in this well-known genus and is of great biogeographical interest. Hitherto, only austral and high Andean members of the genus have shown remarkably divergent wing and structural characters. The possibility that this diminutive butterfly is of highly restricted occurrence, or perhaps extinct, is discussed. Comments are made regarding Jamaican endemics and their mainland sister species. A long-neglected Brazilian sister species of Jamaican endemics *Cyanophrys crethona* Kaye and *C. hartii* Turner and J. Miller is described as *C. roraimiensis*, new species. The phylogenetic positions of five endemic Jamaican hairstreaks, *Chlorostrymon orbis*, *Cyanophrys crethona*, *Cyanophrys hartii*, *Rekoa bourkei* Kaye and *Nesiostrymon shoumatoffi* Comstock and Huntington, are summarized from currently available cladistic data.

INTRODUCTION

Two species of the Theclinae genus *Chlorostrymon* Clench (1961), *C. maesites* (Herrich-Schaeffer) and *C. simaethis* (Drury), have been hitherto recorded in the Antilles. In the following paper we describe a remarkable new species of *Chlorostrymon* (Lycaenidae, Theclinae) from Jamaica, represented by a single specimen found in historical material at The Natural History Museum, London (BMNH[1]). Subsequently, we present evidence supporting our view that this taxon represents a previously overlooked, but important, addition to the genus and to the fauna of the region.

We follow the taxonomic format, terminology, and generic descriptions of integumental and head morphology contained in the revision of *Chlorostrymon* by Johnson (1989a), including abbreviation of the dorsal and ventral forewing and hinding as "DFW, DHW"/ "VFW,VHW", respectively.

TAXONOMIC DESCRIPTION

Chlorostrymon orbis, NEW SPECIES

Figs. 1,3

DIAGNOSIS. Very small (holotype FW alar 8.0 mm.) readily recognized by a large (1.0 mm.) black orbicular mark ("eyespot") submarginad in cell CuA1 of the VHW contrasting otherwise generally unicolorous green ground color. Female genitalia showing an elaborate tripartite and fanlike sclerotized innovation at juncture of cervix bursae and corpus bursae.

DESCRIPTION. ***Male***. Unknown. ***Female***. Head, thorax and abdomen typical of the genus. DFW with baso-medial areas dull blue with violet cast bordered crisply by dull brown costad of the discal cell and indiscrimately fading to dull brown along the apex and submargins of the wing; DHW blue colored as FW from base to near the margin, margin with thin but succinct white line bordered basally by black; no HW tail or produced anal lobe. VFW ground "*Chlorostrymon* green" arching from base across discal cell through radial area of FW, ground caudad of this line black; no evidence of FW band typical of congeners [white marks at left FW in photo are wing damage]; VHW concolorous "*Chlorostrymon* green" except for (i) large (1.0 mm.) black orb submarginad in call CuA1, capped basally and distally with bright crescents of blue-white iridescent scales and (ii) very faint evidence of white postdiscal band, typical of *Chlorostrymon*, appearing as faint white dashes bordered by a few black scales extending across the CuA cells basad of the black orbicular mark; (iii) margin edge, from anal angle through limbal area, marked with rust colored suffusion. Length of forewing: alar 8.0 mm. ***Female Genitalia***. Fig. 3ABC. Ductus bursae generally typical of *Chlorostrymon* (*C. telea*, Fig. 3D), showing a gradually fluted habitus most similar to *C. patagonia*, Fig. 3E); anterior end of ductus bursae (where some Andean and Austral congeners show reduction of the ductus to a purely membranous state) with (i) a slight constriction before juncture with cervix bursae (Fig. 3A,i) and (ii) at cervix bursae an elaborate tripartite sclerotized "corpus bursae hood" (*sensu* Johnson 1990, 1992) (Fig. 3A,ii). The latter is comprised of (i) an elliptic central hood at base of which is a heavily sclerotized orifice for exit of the ductus seminalis (Fig. 3B,i) and (ii) single elongate sclerotized struts on each side of

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[1] **We use this abbreviation consistent with the United Kingdom ("UK") statutory name "British Museum (Natural History)" which, for legal purposes in the UK, has remained unchanged.**

the central hood, and of about length, these structures covering the distal end of the corpus bursae (Fig. 3B, ii); corpus bursae signa occurring as two, robust and inwardly directed spines (Fig. 3C).

TYPE. Holotype female labelled "Jamaica, Blue Mountain Foot-hills, 500 ft., Nov. 1919, F. W. Jackson" (see Discussion), deposited BMNH.

DISTRIBUTION. Known only from the type locality (see Discussion).

ETYMOLOGY. The name refers to the large hindwing orbicular marking ("eyespot") which distinguishes this species.

DISCUSSION

In describing a new species from a unique old specimen it is particularly helpful when a variety of evidence supports the conclusion that the holotype and accompanying data are authentic. Regarding *C. orbis*, evaluation of the holotype label data, location of supportive information concerning the original field collection, consideration of circumstances regarding deposition of the specimen, and attention to aspects of the systematics and distribution of *Chlorostrymon* have proved helpful in this evaluation. The relevant points are reviewed below.

Discovery of the Holotype. While studying uncurated material at BMNH, the senior author (hereafter, "Johnson") noted an extremely odd-looking specimen which, from its external appearance, could have been either a lycaenid or a riodinid. The label data surprisingly showed it to be from a Jamaican collection made in 1919 by F. W. Jackson. The junior author (hereafter, "Smith") was telephoned immediately, since he had been following Jackson's work in Jamaica in the context of a forthcoming regional study of Caribbean butterflies, could comment on the label data and might also know of additional specimens of this butterfly in more recent collections. Frederick W. Jackson collected widely in Jamaica during the first three decades in the century; many of his specimens are housed in the BMNH and a few in the Hope Collections, Oxford, and the archives of the latter contain letters concerning his field work sent by Jackson to E. W. Poulton. Johnson suggested that search of this correspondence could be narrowed to mention of theclines, particularly of *Chlorostrymon*, since despite the unusual black eyespot dominating the hindwing under surface of the novel specimen, its general appearance otherwise suggested this genus as a possible placement.

Dissection at the BMNH showed the genitalic structures of the small female specimen to be indeed typical of *Chlorostrymon*, except for a unique and elaborate tripartite sclerotized structure located at the cervix bursae. Smith reported that correspondence between Jackson and Poulton specifically referred to *Chlorostrymon* specimens collected at the location indicated by the label data. With the authenticity and importance of the specimen having gained some credibility, it was transferred on loan from the BMNH to Oxford for more detailed study.

Holotype Label Data. The specimen label data *per se*— "Blue Mountain Foot-hills, 500 ft., Nov. 1919." (hereafter, the "Blue Mountain data")— initially appear vague and to give little information concerning where the specimen was collected. However, these data have a well-documented history in Jamaican lepidopterology and along with notes in Jackson's correpondence with Poulton, allow us to suggest with some confidence the type locality of *C. orbis*.

W. J. Kaye, in his early (1926) Jamaican faunal list cites the Blue Mountain data, and Jackson's original collections, in adding to his list *C. simaethis*, *C. maesites* (as "*telea*"), *Strymon acis* (Drury) and *Cyanophrys crethona* (Kaye). Brown and Heineman (1972), in their treatment of the "Jamaica and its Butterflies" also cite Jackson's records, but list for each the parish of St. Thomas (at the eastern end of the island), and, for *C. maesites*, the locality "Bath".

Further clues regarding these localities and the butterflies collected there by Jackson are found in letters from Jackson to Poulton. In a letter dated 18 November 1920, Jackson mentioned collecting *Papilio pelaus* Fabricius in the heights of the Blue Mountains and "at Bath St. Thomas...as low as 500 ft." Soon after (22 November 1920), in a letter mainly describing the difficulties of collecting butterflies in competition with insectivorous birds, Jackson included the following passage: "On another occasion I came across a deep watercourse, almost half a mile long, running parallel to the forest, known in India as a nullah. This was bordered by a tall shrub, the bitterbush (*Eupatorium villosum*), the mauve blossoms of which I found be attractive to lycaenids. At first, whilst the blossoms were new, I took good fresh insects, recently emerged from their shellcases. But afterwards the tomfools took possession of the bushes, and latterly the butterflies were either very rare or very wild. I may say that the species collected were amongst others *Chalybs simaethis*, *Chalybs crethona*, *C. telea* and *T. acis*".

Considering this information, it seems to us very probable that the single specimen of the butterfly described here at *C. orbis* was collected in the locality described above, with the other lycaenids bearing the same label information, and that the watercourse was situated in the foothills near Bath. Thomas Turner, who has had wide field experience of the butterflies of Jamaica, has suggested an alternative interpretation of the type locality of *C. orbis*. He has traced Jackson's collecting trips, and notes that Jackson frequently visited the Blue Mountain foothills above Kingston, between June 1919 and March 1920. From the geology, flora and present distribution of butterflies, Turner believes that the Bath locality is unlikely, and that Jackson, in the passage quoted above, was more probably referring to a site near the Hope River, or Cane River, just east of Kingston. He suggests that the "nullah" well matches the Hope River, north of Long Mountain; at times this is quite dry but with fast-moving water in the rainy season, with *Eupatorium* the dominant flowering plant along the banks, with *Cordia* and *Croton* abundant on the nearby slopes of Dallas Mountain. We present the two possibilities, and only the discovery of additional field notes by Jackson, or rediscovery of the butterfly, can add more.

Interestingly, search of the curated collection at the BMNH revealed one *C. simaethis* and two *C. maesites* (Fig. 1d) bearing labels identical to that of the *C. orbis* holotype. The labels suggest that *C. orbis* may have been set with the other lycaenids and perhaps set aside, as an "oddity", from the others recognized by Jackson in his correspondence as *C. telea* (now recognized as *C. maesites maesites*) and *C. simaethis*. We examine this possibilty further below, considering early curatorial practices at the BMNH and how they have affected the current placement of identified versus unidentified specimens at that museum.

***Deposition of the Holotype*.** The drawer containing the holotype of *C. orbis* was found in the miscellaneous Lepidoptera "Accessions" section of the BMNH. "Accessions" are comprised both of new and old material judged too voluminous to integrate into the curated collections in London (such drawers, or boxes, number in the hundreds). Old material in "Accessions" (as organized before about 1970, hereafter "old Accessions") is divided mostly by family, though there are still rather randomly placed drawers of specimens representing mixed families. "Accessions" after about 1970 consist mostly of recently donated collections displayed in an "as is" condition and reflecting the taxonomic organization of the collector-donor.

Of particular interest among old Accessions are entire drawers (or segregations of specimens within drawers) marked "undescribed species". As noted by Johnson and colleagues in describing numerous taxa from this old material (Johnson 1988a, 1989abcd, 1990a, 1991ab, 1992ab; Johnson et al. 1987, 1988, 1989ab, 1992; hereafter, collectively, the "Johnson citations"]), it is uncertain when or by whom these segregations were made. BMNH curators have been unable to identify with certainty any of the handwritten notes that accompany some of these specimens (P. Ackery, C. Smith, D. Vane-Wright,pers.comm. 1992). Johnson, however, recently noted a similarity between some of the notes and labels at the Instituto Miguel Lillo (Tucumán, Argentina, "IML") written by G. E. Tite of the BMNH to K. J. Hayward (IML) in the 1940's. These notes indicate that Tite made extensive comparisons of material sent to him for identification and, as Johnson, Eisele and MacPherson (1990) reported, some unreturned material of Hayward (including paratypes) was discovered in BMNH old Accessions in the 1980's.

The eventual holotype of *C. orbis* was located in a drawer of old Accessions unsorted to family, a drawer bearing a label in its lower right corner reading "undescribed species". It is uncertain to which specimens this label referred. Among Theclinae contained in the drawer were a number of taxa readily identified by current usages but also others of uncertain diagnosis.

Johnson and colleagues have commented extensively (Johnson citations, above) on the location and taxonomic status of various Theclinae and Papilionidae in old BMNH Accessions.Three circumstances therein mentioned concerning butterflies "discovered" in old Accessions pertain to the discovery of the eventual holotype of *C. orbis*. First, it is common for material in old Accessions to bear the same label data as specimens in the main BMNH collection (the Accessions specimens representing both intentionally omitted "duplicates" and unsorted "backlog"). Second, specimens in old Accessions with data duplicating that in the main collection include *both* duplicates of identified taxa *and* specimens which originally could not be identified. Third, many unidentified specimens are segregated in the old Accessions with labels clearly indicating status as "unidentified", "undescribed", "new species", "spec. nov.", and so on. Indeed, Johnson and colleagues note twenty-six new species described from specimens already marked in these latter fashions (Johnson citations, above). Johnson, Eisele and MacPherson (1990) and also Robbins (1987) have also documented that the old Accessions sometimes also contain specimens formerly placed in the main collection, including occasional type specimens. BMNH lepidopterists P. Ackery and R. Vane Wright (pers. com. 1992) attributed this to the removal of material from the main collection during World War II or incompleted incorporation of materials from the old BMNH annex at Tring.

Considering the above, it appears to us quite likely that the eventual holotype of *C. orbis* reached the BMNH with Jackson's other "Blue Mountains" specimens but was relegated in due course to the above-mentioned samples marked "undescribed species" in old Accessions. P. Ackery (pers. com. 1992) notes that among early BMNH workers, only W. J. Kaye and N. D. Riley would have had a sufficiently keen interest in Antillean butterflies to notice the oddly orbed specimen, had they seen it. Apparently, they did not. Indeed, Johnson recollects that he first turned the specimen over not because it suggested any known Antillean taxon but because, from above, resembled specimens of his genus *Aubergina* (1991b). The label data were then consulted when the peculiar under surface markings further complicated a ready identification.

Systematics and Geographic Occurrence of **Chlorostrymon**. As previously noted, two species of *Chlorostrymon*, *C. maesites* and *C. simaethis*, have been recorded widely in the Antilles. In the generic revision, Johnson (1989a) reported *C. simaethis* as occurring generally throughout the Greater and Lesser Antilles, and on the mainland from the southern United States south to La Rioja Province, Argentina. Johnson also supported the view that the Antillean taxon, *C. maesites* (Antilles, Bahamas, Florida Keys), was specifically distinct from the mainland generic type species *C. telea* Hewitson (southwestern United States south to Santa Fe Province, Argentina).

In the 1989 revision, and a subsequent paper on little-known high Andean *Chlorostrymon* (1991a), Johnson noted that the genus had formerly been considered one of the most well-known and "stable" genera of the Neotropical Theclinae (Clench 1961, 1963). This view was altered by associating with the genus four high Andean and austral elements— *C. kuscheli* (Ureta), *C. patagonia* Johnson, *C. chileana* Johnson and *C. larancagua* Johnson. Much as in *C. orbis*, these species, in addition to distinctive external wing characters, showed structural autapomorphies in the female genitalia. All were poorly known, represented by only a few, sporadically collected, specimens.

Overall, Johnson (1989a, fig. 4) noted a widespread geographic correlation between numbers of specimens, sympatry of *Chlorostrymon* species, and the long-term residencies of certain collectors. In accord with the paucity of *Chlorostrymon* samples in numerous collections, Riley (1975) reported both *C. simaethis* and *C. maesites* in the Antilles as extremely local and represented by few historical records. Indeed, as Schwartz (1989) pointed out, neither species was recorded from Hispaniola until 1986. Thus, circumstances concerning the genus *Chlorostrymon* itself underline the possibilitiy that a small species might have remained undetected since its first capture on Jamaica, some seventy years ago.

Systematic and Biogeographic Significance of **C. orbis**. As noted in the Description, the first clue to the generic placement of *C. orbis* occurred in the faint white postdiscal bands in the three cells of the VHW basad of the large black orbicular mark (and, to an extent,the black ground of the forewing ventrum which much resembles *C. maesites*). Three of the four high Andean and austral *Chlorostrymon* species show indistinct or incomplete ventral wing bands, compared with congeners (Johnson 1989a). As noted before, dissection readily confirmed placement of *C. orbis* holotype in the genus, but also marked it as perhaps the most divergent *Chlorostrymon*.

The occurrence of an elaborate corpus bursae hood, though unique, is not without context among congeners. Precisely at this location on the female genitalia, austral species *C. patagonia* and *C. chileana* show an opposite tendency— reduction of the ductus bursae to a completely membranous condition (Johnson, 1989a, fig. 6N,O). In addition, *C. larancagua* of high montane Chile shows constriction of the ductus bursae at this point (like *C. orbis*) but not followed by a corpus bursae hood (Johnson 1991a). One could conclude from this that the corpus bursae hood of *C. orbis* is an autapomorphy.

Based on wing pattern and genitalic characters, *C. orbis* can readily be associated with the "*telea* Subgroup" of the genus (*sensu* Johnson 1989a), a group now containing two widely distributed species (*C. maesites*, *C. telea*) and three regional isolates (*C. patagonia*, *C. larancagua* and *C. orbis*). The sister "*simaethis* Subgroup" shows one widely distributed species (*C. simaethis*) and two regional isolates (*C. chileana*, *C. kuscheli*). The status of each of these taxa as species, based on their divergent wing and structural characters, is further strenghtened by the recent discovery of a high Andean isolate of *C. simaethis* in Argentina exhibiting normal *C. simaethis* genitalia (Johnson 1992b). Widespread homogeneity in the genitalia of this species had hitherto been demonstrated in disjunct montane isolates occurring in Ecuador (Nicolay 1980, Johnson 1989a, 1991a).

It thus appears that species limits in *Chlorostrymon* can be delineated quite reliably and, as a result, location of another distinctive regional congener *in the Antilles* has consequences which must be considered in both a taxonomic and biogeographic context.

Chlorostrymon orbis ***and Jamaican Endemism.*** There has been considerable discussion of Jamaican endemism and the peculiar facies and faunistic relations of certain Jamaican butterflies (Comstock and Huntington 1944,1950, Clench 1963(1965), Brown and Heineman 1972, Scott 1972a, Brown 1978, Miller and Miller 1989, Johnson 1991c, Turner 1992, Turner and Miller 1992). Considering examples cited in the Theclinae alone (see above and Riley 1975), *C. orbis* joins a list of taxa which stand out, amongst their Antillean and mainland congeners, as the most (or at least among the most) peculiar in character. Hitherto, most treatments of unusual Jamaican Theclinae have been limited to short commentary accompanying faunal lists and regional studies (Kaye 1926, Avinoff and Shoumatoff 1946, Barcant 1970, Brown 1970, Scott 1970,Brown and Heineman 1972,Riley 1975, Schwartz 1989) or the few, primarily dispersalist, biogeographic treatments of the Caribbean region (Brown 1978, Scott 1972ab). Only recently have some of the species been subject to cladistic analysis (Johnson and Matusik 1988, Johnson 1991c, Robbins 1991). Significant descriptive work (particularly on morphology) is still required before the majority of Jamaican endemics can be viewed comprehensively in the context of their Antillean and mainland allies. However, a number of elements suggesting phylogenetic and distributional patterns are emerging (Appendix 2).

In cladograms derived from numerical cladistic analyses (PAUP, Swofford) of two trans-Caribbean hairstreak genera and three mainland outgroups, Johnson and Matusik (1988) and Johnson (1991c) showed Jamaican endemic *Nesiostrymon shoumatoffi* (Comstock and Huntington) and southern Hispaniolan endemic *Terra hispaniola* Johnson and Matusik to be the most plesiotypic taxa of their respective clades. Vicariance from a Central American ancestral population was suggested. Robbins (1990) placement of Jamaican endemic *Rekoa bourkei* in a generic cladogram showed it as the sister species of a more widely distributed Mexican congener. Similar affinities have been suggested for a number of Greater Antillean Lepidoptera (Comstock and Huntington 1950, Friedlander 1987) including some montane taxa with more distant sister elements in the Andes (Rawlins 1988, Rindge 1990[2]). All these studies bear on an emerging view of geographic vicariance in the Antillean butterflies (Miller and Miller 1989, Johnson 1988b, Johnson and Descimon 1989, Johnson 1991c) and need to be expanded to include other endemic Antillean Theclinae.

Attention here is inevitably drawn to the endemic Jamaican hairstreak "*Thecla*" *crethona* Kaye. Not only did Jackson apparently collect this poorly known Jamaican endemic along with specimens of *Chlorostrymon maesites*, *simaethis* and *orbis*, the species *crethona* itself has a long history of taxonomic misplacement with *Chlorostrymon* (particularly *C. simaethis*) (Draudt 1919, Comstock and Huntington 1943, Brown and Heineman 1971) (Jackson, *in litt.* to Poulton, placed it in *Chalybs* Hübner). As is now well known, similarity between Kaye's "*Thecla crethona*" and species of *Chlorostymon* is only superficial, based on similarities in the suffusive under surface hindwing bands. "*Thecla*" *crethona* belongs in *Cyanophrys* Clench (1961) (Clench 1963 (1965), Brown and Heineman 1972, Riley 1975, Johnson 1981, Bridges 1988) but the precise position of the species in *Cyanophrys* has always been uncertain because of its unique markings and question concerning its nearest relative (Huntington 1933, Comstock and Hungtington 1943, Brown and Heineman 1972).

Recently, two developments have emerged suggesting a more urgent need to clarify the affinities of *C. crethona.* Turner and J. Miller (1992) have named a newly discovered sympatric sister species of *C. crethona*, *C. hartii.* Meanwhile, however, a long-suspected sister species from the remote Mt. Roraima and Mt. Duida plateaus along Brazil's border with the Guyana Shield has never been formally described (Huntington 1933, Brown and Heineman 1972, Johnson 1981). Because the phylogenetic position of *C. crethona* and *C. hartii* may be part of a species triad with this little known Brazilian entity, we describe the latter herein from material still extant at the AMNH (see Appendices Remarks).

Considering the above, *C. crethona* and its sister species now appear to mirror the cirsumstance of *Chlorostrymon* on Jamaica-- contrasting other islands of the Greater Antilles, Jamaica shows a sympatric sister pair paralleled by a distant outgroup. Johnson (1981, unpublished for nomenclatural purposes) first suggested biogeographic implications in the *C.crethona*/ Mt.Roraima -Mt. Duida disjunction. If the distribution of *C. crethona* were to be seen as unextraordinary and resulting from relatively recent waif dispersal, one would expect its sister species to be a common or widely distributed mainland congener, not a peculiar and distant isolate. Johnson (1981) also suggested that, consistent with his own results

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[2] For citations concerning additional elements of the fauna, see Buskirk 1985 and Johnson 1991c.

on character polarity in the Eumaeini and the views published by Eliot (1973), the Brazilian sister species appeared more primitive in characters than *C. crethona* (Appendices 1,2).

We were unaware of the morphology of *C. hartii* in early drafts of this paper but noted that the above view of character polarity predicted it and *C. crethona* would be shown to be the sister group of the Mt. Roraima/ Mt. Duida isolate. This is indeed borne out by the morphological data in Turner and Miller (1992). Although only a male of *C. hartii*, and a female of *C. roraimiensis*, are known (see *C. roraimiensis* Remarks), the male genitalia habitus of *C. hartii* reflects characters readily interpreted as apomorphic to those of the mainland *Cyanophrys herodotus* and *C. miserabilis* species groups (Eliot 1973 [p. 454-456], Johnson 1981, 1992d [p. 89-90], Johnson and Llorente Bousquets 1992 & Appendices herein). Considering the treatments above, characters of *C. crethona* would be readily construed as the most apomorphic (elongate aedeagus, valvae etc., see Appendices) with the test of relative apomorphy in the female of *C. hartii* (when known) centering on the degree of elongation in the ductus bursae, presence or absence of a terminal antrumal configuration, or any unexpected autapomorphies.

That *C. crethona* and its sympatric congener *C. hartii* represent a relatively apomorphic sister pair is consistent with our characterization of *C. orbis* as a highly autapomorphic sympatric vicariate of *C. maesites*. Since sympatry is generally construed as subsequent to allopatric speciation (see, for instance, Liebherr 1990) the recognition of new sympatric sister Theclinae on Jamaica reinforces a view that has received increased attention as lepidopterists explore geographic vicariance as a possible origin for some Antillean butterflies (Miller and Miller 1989, Johnson 1991c). In considering endemic Jamaican butterflies, a relatively recent, perhaps Miocene emergence of the island (Buskirk 1985 and others listed therein), seems increasingly implausible to lepidopterists because it is questionable whether these endemics and their interrelations could have evolved in the short time following an oft-hypothesized oceanic submergence of the island from the middle Eocene to early middle Miocene (Miller and Miller 1989, Johnson 1981, 1991c).

A geological view more attractive to lepidopterists from a faunistic standpoint is that of Pindell and Dewey (1982), envisaging a much earlier origin for the island, near present southwestern Mexico. That at least mountain peaks of Jamaica have been emergent for a long period appears favored not only by the peculiar endemic butterflies of the island but also by consideration of sister taxa and patterns of local sympatry. In fact, considering the sympatry of the endemic sister species explored in the present study, one wonders whether it should be suggested that at least two emergent peaks may have existed quite separately for some time.

It is noteworthy that Jamaica is not the only Greater Antillean island where faunistic elements suggesting antiquity relative to mainland faunas have been noted among the Theclinae. Johnson and Matusik (1988) and Smith, Miller, Johnson and MacKenzie (1991), for instance, recorded instances in Antillean distributions of the hairstreak genus *Strymon* Hübner where widely distributed species (perhaps of more recent addition to the fauna) overlap those of insular endemics suggesting long-term isolation. In fact, on Mona Island, Puerto Rico, it was the insular endemic which was well established, at times abundant, while the widespread Antillean congener *S. columella* was sought on several visits before finally being recorded from the island (Smith *et al.* 1991).

Reconsidering Jamaican endemism in light of newly discovered *Chlorostrymon orbis* and relatives of *Cyanophrys crethona* prompts mention of some other peculiar Antillean populations in *Chlorostrymon*, one in Jamaica and the other from Dominica in the Lesser Antilles. These have received some note (Clench 1963 (1965), Riley 1975, Johnson 1989a) but little direct emphasis. Comstock and Huntington (1943) pointed out the distinctive characters of *Chlorostrymon simaethis* on Jamaica, naming a new subspecies *jago*. In the generic revision, however, Johnson (1989a) preferred dropping subspecies recognition in Antillean *Chlorostrymon*, noting that character distributions suggested each island might require a subspecific name and that this might be followed *ad absurdum* for the numerous *Chlorostrymon* disjuncts in the South American Andes. Previously, however, Comstock and Huntington (1943) had recognized the population of *Chlorostrymon* in Dominica as *maesites clenchi*. Its allopatry is a methodological problem for the taxonomy of Antillean *Chlorostrymon* but, although we have never seen it suggested in print, informal discussions among lepidopterists often mention that if *clenchi* were a mainland insect it might be considered a species. Johnson (1989a) noted divergence in wing and structural characters of *clenchi* but considered these within a statistical view of species limits in *C. maesites* (Johnson 1989a, fig. 7).

Johnson (1991c) demonstrated a coherent pattern in area cladograms of *Nesiostrymon celida* Lucas subspecies and their Jamaican sister species *N. shoumatoffi* Comstock and Huntington (Appendix 2). Considering this, perhaps the role of subspecies recognition in Antillean *Chlorostrymon* should be reconsidered (or, perhaps, the various allopatric populations simply studied without resort to a panoply of infraspecific names). The matter is not a simple one, however, for as Johnson (1989a) noted, some reported occurrences of the genus in the Antilles are so recent there has been scant opportunity for adequate study of localized characters.

Considering cladistics of *Chlorostrymon* as a whole, a problem arises (with numerical methods) in resolving certain directions of polarity without some *a priori* choices. The apomorphy table for PAUP [Swofford 1985], for instance, cannot meaningfully resolve the direction of polarity when structural innovation at the cervix bursae in females of Andean and austral isolates of the *telea* Subgroup is reduced or absent while elaborate in *C. orbis*. As noted by Johnson (1989a) there are few characters in the relatively similar male morphlogical structures of *Chlorostrymon* species to help resolve this problem. However, considering taxonomic characters of the genus as a whole (Johnson 1989a, 1991a and herein) there is a "common sense" approach to a parsimonious view of characters relations in the group. That is, the simplest way to view the structural characters is to consider elaboration of the cervix bursae in *C. orbis*, as well as the loss of the cervix bursae in Andean and austral endemics, as autapomorphic. With this view, the phylogeny of *Chlorostrymon* is not complex. There is a major disjunction of the *telea* and *simaethis* subgroups (as noted in Johnson 1989a, 1991a) followed by local vicariance of the upland and austral endemics of both complexes (Johnson 1991a) and, based on data of the present study, vicariance of the population becoming *C. orbis* on Jamaica (Appendix 2).

In summary, discovery in Jamaica of sympatric sister pairs in the *telea* Subgroup group of *Chlorostrymon* and in *Cyanoprhys* comes as a surprise to lepidopterists. Along with *Cyanophrys hartii*, *Chlorostrymon orbis* is now a butterfly to watch for in collecting on the island. Further field work may help determine whether *C. orbis* has simply been overlooked or is now possibly extinct. For many years in the West Indies, *C. maesites* and *C. simaethis* have shown themselves to be elusive butterlies, occasionally found in abundance for a short time at one locality but with such flight periods brief and generally unpredictable. Moreover, *C. orbis* may be as inconspicuous on the wings as its relatives. However, search for it in terrain matching Jackson's account might well be rewarded.

Appended Data and Descriptions

Appendix 1. Description of sister species of *Cyanophrys crethona*

Cyanophrys roraimiensis, NEW SPECIES

Figs. 2,3

DIAGNOSIS. Wing pattern differing from *C. crethona* by extreme expanse of HW under surface red-brown, white, and gray terminal suffusions (seen on FW and HW in *roraimiensis*, HW only in *crethona*). HW on *roraimiensis* also with (1) terminal suffusions extending throughout postmedial area (submarginal only to cell M1 in *crethona*) and bordered basally by an additional undulate band of emphatic mottled red-brown, (2) *Thecla*-spot black bordered by red-suffused white slashes extending from cells CuA1 to 2A (thereafter faint in cells M2 and RS). Female genitalia differing radically from *crethona* by short robust habitus (see Description and Remarks).

DESCRIPTION. ***Male.*** Unknown (see Remarks). ***Female.*** Frons brown (see Clench 1944). DFW, DHW margins blackish, broadly slanted across with areas of costa, apex and submargin of FW, across submargin on HW; rest of wing bright iridescent violaceous gray, especially lustrous basally on FW. HW anal lobe bright red-brown, vein CuA2 terminating in long, white-tipped tail (broken off on side shown in Fig. 2). VFW,VHW ground color dark green, posterior of FW light beige to white-suffused, especially near margin. FW with marginal area deep maroon-red, suffused white and gray along to outer edge for about 1 mm. HW traversed by red-brown suffusion from postmedial area to margins (area from margin to submargin emphatically rust-red, basal areas mottled more indiscrimately); postmedial area with meandering suffusive white band, marked succinctly in cells 2A to CuA1 with white slashes basally bordered basally with black and deep maroon, costad only as faint dots in cells M2 and RS. "Thecla-spot" submarginad in cell CuA1 black, anal lobe black with distal edge slightly oblique and with white fringe. FW length: 16.2 mm. (holotype). ***Male Genitalia***: Unknown (see Remarks). ***Female Genitalia***. Fig. 3H. Similar to sister taxa *C. crethona* (Fig. 3G) with swollen antrum at juncture of lamellae and ductus bursae but with ductus bursae/ lamellae habitus robust (ratio of lamellae width to ductus length ["ratio"] = .62, N=1). By contrast similar habitus in *C. crethona* extremely elongate (ratio = .35, N = 5 AMNH,BMNH). Lamella antevaginalis showing prominent ventral plates and with anterior margin not recurvate as in *C. crethona*.

TYPE. Holotype female (Fig.2A), Mt. Roraima, Brazil, "Aradupu 4200'", 26 December 1927, Lee Garnet Day Expedition, deposited AMNH. Huntington further noted in discussion that "Aradupu" is located ten miles southeast of Mt. Roraima and that the ecology is "savannah". Later, Comstock and Huntington (1943) reported an additional male (of similar data) from this expedition and also a male and female pair from the 1928 Tyler Duida Expedition to the Mt. Duida plateau immediately northward in Venezuela mentioned by Huntington (1933) (see Remarks).

REMARKS. ***Specimens***. It is very unfortunate that the Mt. Duida specimens and Mt. Roraima male (Comstock and Huntington 1943) appear to have been stolen from the AMNH some years ago. This occurred when specimens of *C. crethona* were selling on the commercial market for up to $800.00 and the senior author has always suspected the Huntington specimens were marketed as *crethona*. Thus, workers might watch for these specimens (which could be readily identified by the species level differences between the two taxa) and the male would be like the female except much bluer on the upperside. It is worth mentioning since two rare Neotropical butterflies stolen from a European museum were recently located on the commercial market by an alert colleague in Europe. It is particularly unfortunate that the male of *C. roraimiensis* is no longer available for study; its characters are criticial to a full determination of character polarity in the group since *C. hartii* is known only from a single male. Had either Huntington or Comstock described the Brazilian species, or not drawn attention to it, perhaps all the material would still be extant.

Characters. Data summarized in Appendix 2 is based on the assumption that characters in the missing sexes of *C. roraimiensis* and *C. hartii* would be consistent with the pattern seen in *C. crethona* and the ten species-level taxa comprising the two immediate sister clades (*miserabilis* and *herodotus* groups of *Cyanophrys*, Johnson and Llorente Bousquets 1992) in which both sexes are known. Character polarity in these groups is very straightforward (Johnson 1981, Johnson and Llorente Bousquets 1992, consistent with comments by Eliot 1973). Thus, in the *crethona* Group if characters in the known sexes readily are recognizable as relatively primitive (see 1-2 of **Characters** listed below) or relatively derived (3-6 below) in such context, taxa can be placed with some confidence (even though a sex is missing) given what the other characters predict. The known informative characters of the *crethona* Group listed below are resummarized from Johnson (1981) and used in Appendix 2 *Diagrams* consistent with the views of polarity in Johnson (1981), Johnson and Llorente Bousquets (1992) and Eliot (1973).

Characters—

1. Female: robust ductus bursae, *roraimiensis* (Fig. 3H).
2. Female: flush juncture of ductus terminus and lamellae, *roraimiensis* (Fig. 3H).
3. Female: elongate ductus bursae, *crethona* (Fig. 3G).
4. Female: elongate terminal antrum, *crethona* (Fig. 3G).
5. Male: elongate valvae, *crethona/hartii* (Turner and Miller 1992, figs. 6-9).
6. Male: sculptured vinculum, *crethona/hartii* (Turner and Miller 1992, figs. 6-9).
7. Both sexes: undersurface distal wing pattern, *roraimiensis/crethona/hartii* (Fig. 2).

It is possible, of course, that the missing sex might show unexpected structural characters but this has not been the case in any of the twelve known species-level taxa comprising these three species groups. Although character patterns the three groups appear reasonably predictive, it is still possible that the male genital habitus of *C. roraimiensis* might show robust features like the *herodotus* Group (Johnson and Llorente Bousquets 1992, fig. 1B). If so, there would be two possibilities-- (1) the undersurface wing pattern of *C. roraimiensis* is synapomorphic with that of *C. crethona/hartii* (the historical view corroborated by the characters reviewed herein) but the genital characters uninformative; or, (2) the aforementioned undersurface wing pattern is homoplesious *a priori* (no other characters argue for or against it) and *C.*

roraimiensis belongs in the *herodotus* Group. The latter argument is weak unless some other character(s) in the *C. roraimiensis* male would link it clearly to the *herodotus* Group.

We are thus confident that current data support the *roraimiensis*/*crethona*/*hartii* triad.

ETYMOLOGY. Named for the type locality.

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FIGURES

OVERLEAF: PHOTOPLATE I— Adults

Figs. 1-2, arranged as in facing figure caption (p. 14).

OVERLEAF: Genitalic Figures

Fig. 3 (p. 12). ***A-F***, Female genitalia of *C. orbis* and selected congeners. **A,B,C**— *C. orbis*: A, genital habitus, ventral view, features cited in text (i) constriction at juncture with cervix bursae, (ii) juncture to elaborate cervix bursae hood (B); **B**, corpus bursae hood, terminal view, (i) sclerotized orifice, (ii) elongate struts; C, corpus bursae hood, lateral view; signa of corpus bursae portrayed laterally at left of genital habitus. **D**, generic type species *C. telea* (topotype Obidos, Brazil, AMNH), genital habitus, ventral view, (i) contiguous ductus bursae. E, Antillean *C. maesites* (proximate topotype Guantanamo, Cuba, AMNH), views as in D; **F**, austral *C. patagonia* holotype (Mendoza Prov., Argentina, MNHN Paris), genital habitus, ventral view, (i) reduction at cervix bursae to membranous condition (lateral at right) (also seen in *C. chileana*, TL Santiago, Chile).

Dashed horizontal line marked "x" shows relative position of ductus bursae and terminal elements in various congeners (ductus fully sclerotized in *telea* and *maesites*, membranous in *chileana)*; on *orbis* "x" indicates comparative position of the unique innovations at its cervix bursae.

G-H, Female genitalia *C. roraimiensis* and *C. crethona*. G, genital habitus, ventral view (signum at right, lateral) *C. crethona* of Fig. 4; H, *C. roraimiensis* holotype.

OVERLEAF, FACING PAGE: **Diagrams**

Appendix 2 (p. 13). Phylogenetic relations arranged as *Diagrams* (figure box) and subsequent caption, including taxa list and character citations.

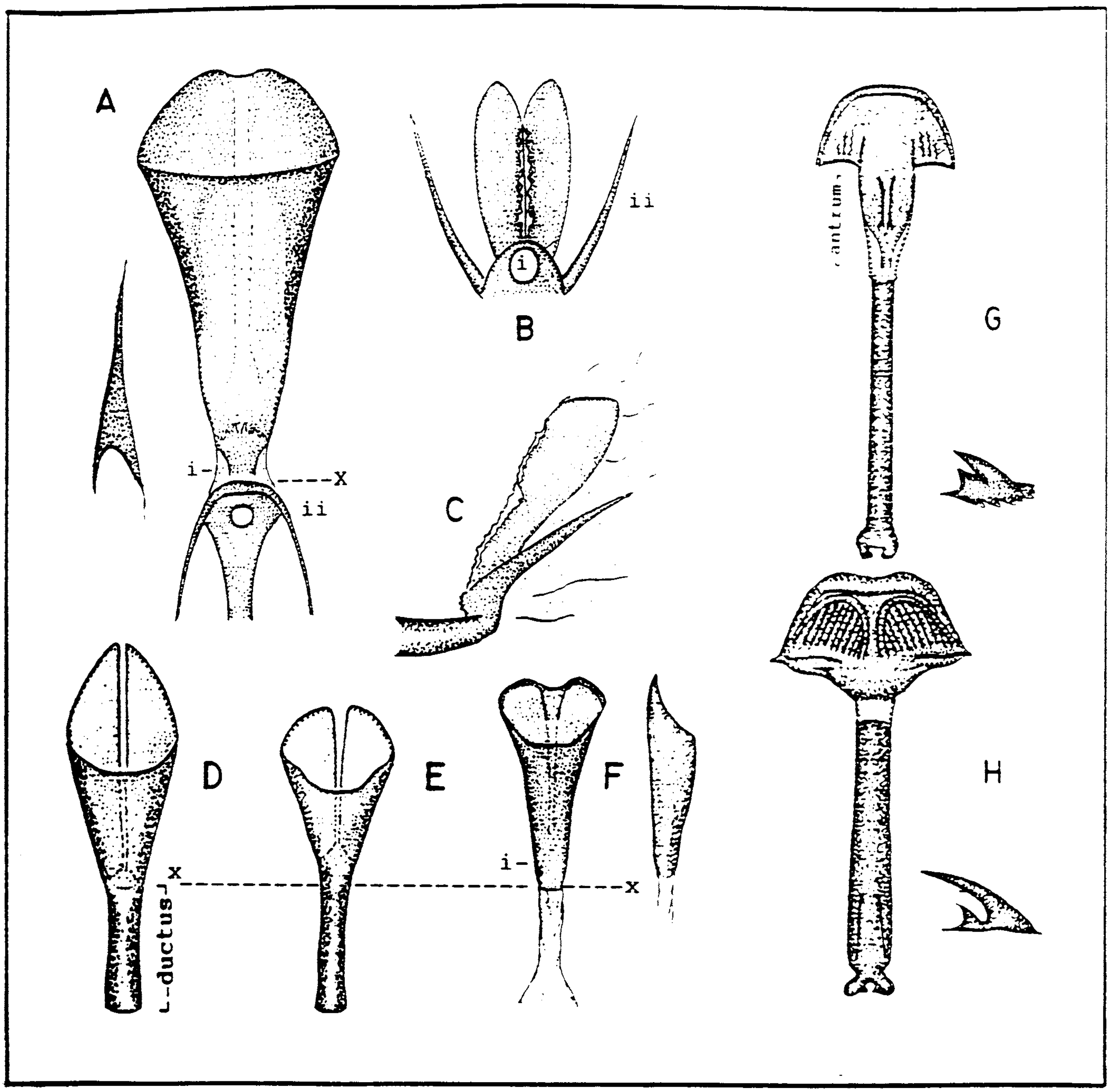
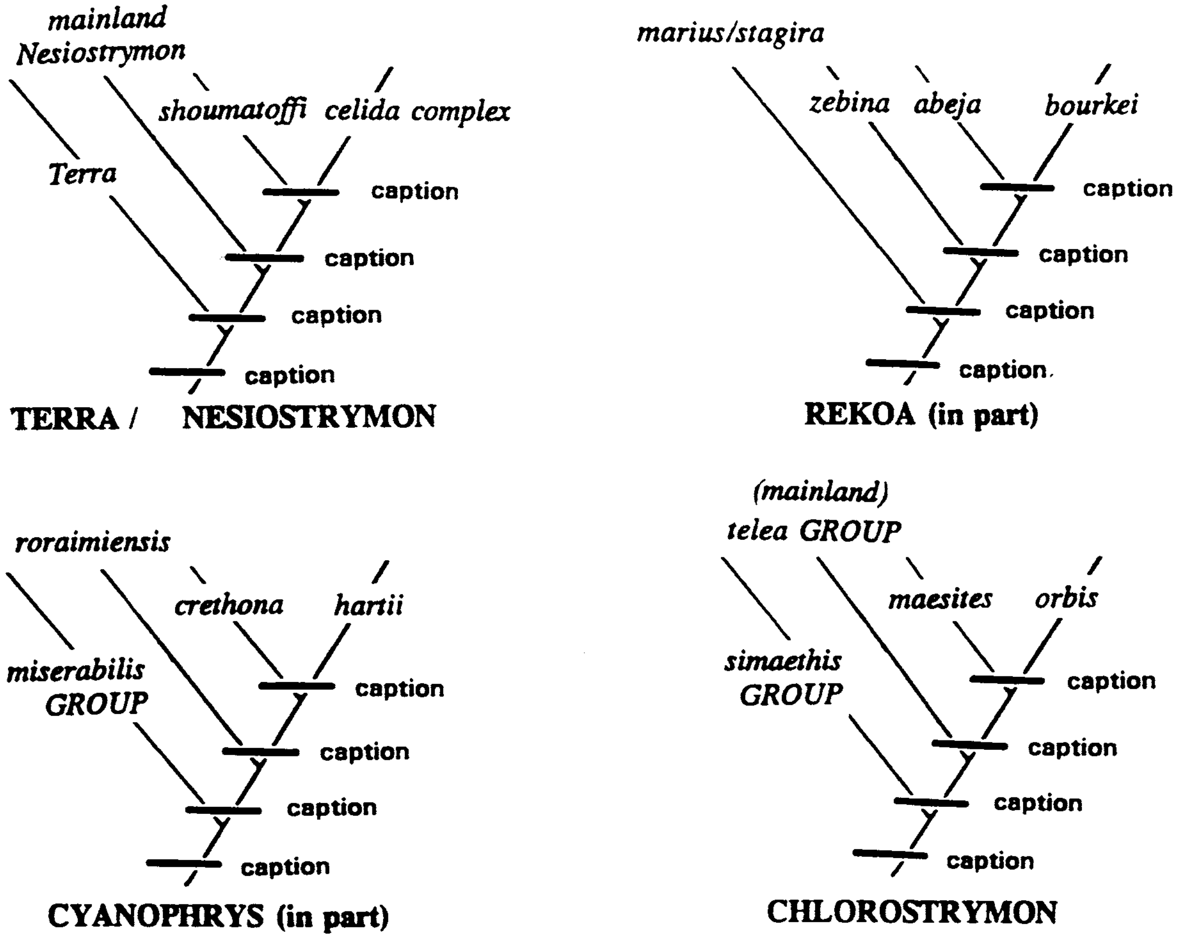


Figure 3



APPENDIX 2 *Diagrams*

APPENDIX 2

Phylogenetic Placements and Geographic Distributions of Various Endemic Jamaican Theclinae and Their Congeners.

Nesiostrymon shoumatoffi (Jamaica) and congeners (from Johnson 1991c): *celida* complex, Cuba, Hispaniola, Puerto Rico; *Nesiostrymon* congeners, mainland; *Terra*, south Hispaniola and mainland.

Rekoa bourkei (Jamaica) and congeners (after Robbins 1991): south Hispaniola (*R. abeja*) disjunction added, unique characters of *R. abeja* compared to *R. bourkei* (i) VHW postmedial band detached from Thecla spot, (ii) habitus of ductus bursae/antrum "robust" (ratio of posterior element to anterior element 1.50 for *abeja* when unity for *bourkei* [posterior measure from base of antrum to base of lamellae postvaginalis, anterior and posterior measure not including intervening transparent area of ductus]).

Cyanophrys crethona, *C. hartii* (both Jamaica) and *C. roraimiensis* (Brazil isolate): based on characters enumerated in *roraimiensis* **Remarks**.

Chlorostrymon based on data summarized and cited herein: *orbis* (Jamaica), *maesites* (Antilles), *telea* Group (mainland), *simaethis* Group (mainland and Antilles).

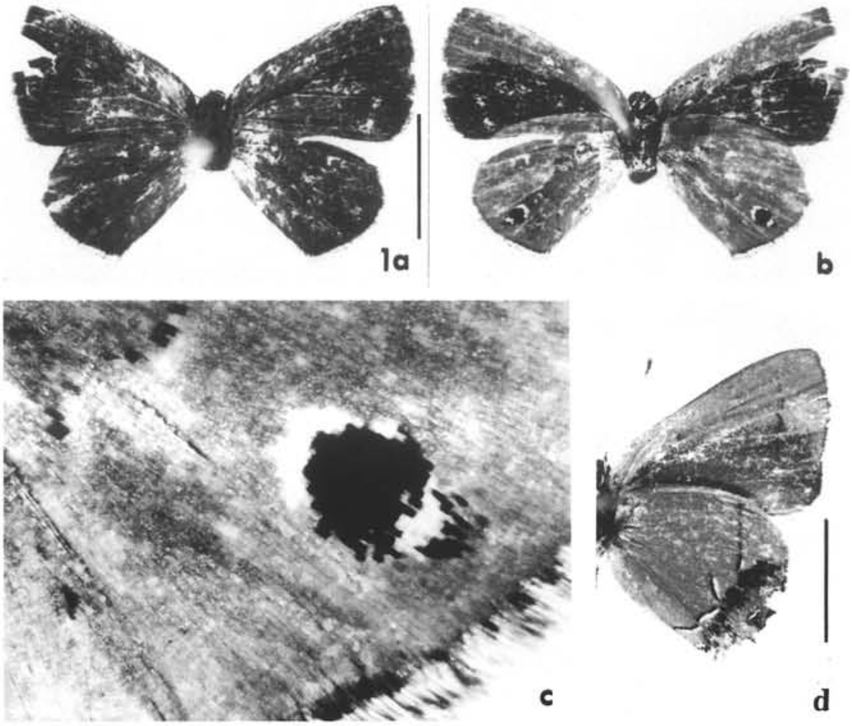
Figures 1-2

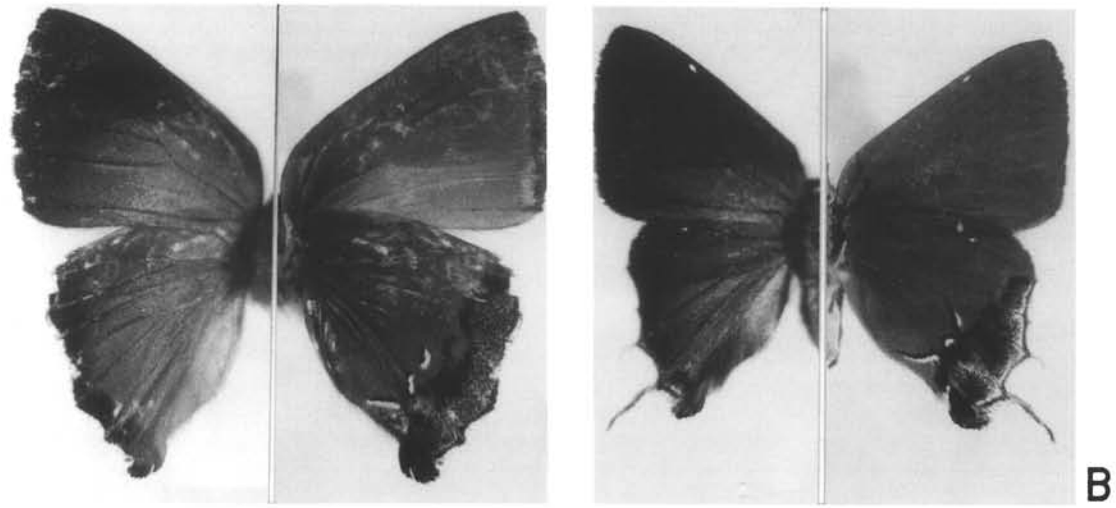
Adults of *Chlorostrymon* and *Cyanophrys* (a, dorsal surface; b, ventral surface).

Fig. 1. a,b *Chlorostrymon orbis*, holotype; c, enlargement of HW eyespot;
c, *Chlorostrymon maesites* from *orbis* type locality.

Fig. 2. Left, *Cyanophrys roraimiensis*, holotype (a,b).
Right, *Cyanophrys crethona*, Trelawny, Jamaica (AMNH) (a,b).

Photoplate I





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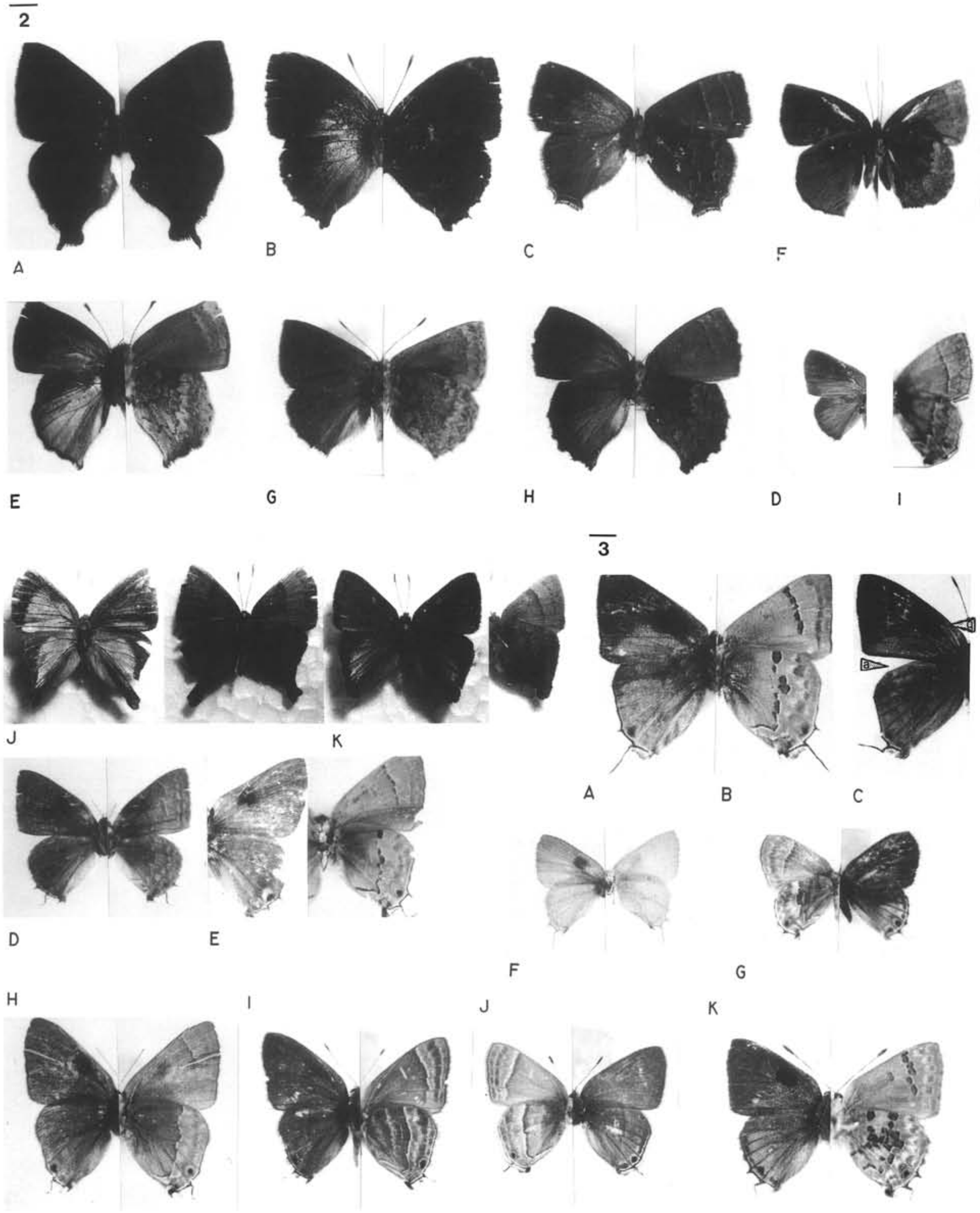

Elfin Butterflies from the Adams/Bernard Expeditions to Colombia and Venezuela (Lepidoptera, Lycaenidae, Theclinae)

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NO. 25

ABSTRACT

Three new species of eumaeine "elfin" butterflies, *Thecloxurina pantanosa*, *Lamasa calisto* and *Arases vanewrighti*, are described from specimens collected by the Adams/Bernard Expeditions to Colombia and Venezuela, 1971-1979. Additional collection records are given for elfins *Rhamma mirma* (Hewitson), *R. comstocki* Johnson, *R. adunca* (Hewitson) and *Shapiroana shapiroi* Johnson. The poorly known *Rhamma* "*hybla* species group" is discussed from additional Adams/Bernard material and a new species from Peru, *R. cassidyi*, described. In addition, a new Colombian species of *Arases*, *A. spectaculorum*, is described from historical material at the Natural History Museum (London) and contrasted to the more well-known Central American congeners.

INTRODUCTION

Recently, specimens from the Adams/Bernard expeditions to Colombia and Venezuela (1970-1982, Appendix I) became available for study at the Natural History Museum, London (BMNH[1]). Comparison of this material to taxa described in a recent monograph of "elfin-like" hairstreak butterflies in the Andes Mountains (Johnson 1992) indicated the presence of several new species, along with new records for several other poorly known high Andean taxa.

This paper will describe three new elfin butterflies from the Adams/Bernard expeditions and document new records for four other species. In addition, two other new elfins from the Andes will also be described. These taxa, though obtained from sources other than the Adams/Bernard expeditions, are directly relevant to the material collected by Adams, Bernard and their colleagues. Taxonomic order and terminology follows Johnson (1992).

Previously, Pronophiline Satyrid butterflies from the Adams/Bernard expeditions have been described in a number of papers by Adams and Bernard (1977, 1979, 1981) and Adams (1986). Additional hairstreak butterflies from the expeditions are being recorded and/or described by Johnson (1993 in press) and Johnson and Kroenlein (1993 in press) elsewhere in this volume.

COLLECTIONS

Elfin butterflies treated herein were obtained during four of the expeditions conducted by the junior author in the mountains of Colombia, between 1971 and 1979. On the first three, he was accompanied by Mr. G. I. Bernard: from 28th June to 20th September 1971, and from 24th June to 10th September 1972, in the Sierra Nevada de Santa Marta, and from the 13th June until 31st August 1977 in parts of the Eastern Cordillera. The fourth expedition, in the company of Mr. P. J. Hardy, covered areas in all three of the main Colombian Cordilleras (Western, Central and Eastern); it took place between 23rd July and 31st August 1979.

Selective but comprehensive collections of butterflies were undertaken, between sea-level and 4000 m., with the emphasis shifting from 1972 onwards to the higher altitudes and to the family Satyridae. Taxonomic results on the tribe Pronophilini (Satyridae) in the several regions appeared as follows: Sierra Nevada de Santa Marta (Adams and Bernard 1977), Serrania de Valledupar (Adams and Bernard 1979), the three main Cordilleras of Colombia (Adams 1986), the Venezuelan Cordillera de Merida (Adams and Bernard 1981). A biogeographical and theoretical paper on the pronophiline speciation patterns was published by Adams in 1985. Specimens brought back from these expeditions are the property of the BMNH.

NEW SPECIES

GENUS *THECLOXURINA* Johnson 1992: 5.
"*loxurina* Species Group" (Johnson 1992: 6).
browni "Subgroup 1" (Johnson 1992: 6).

Thecloxurina pantanosa, NEW SPECIES

Photoplate II,2A; Fig. 1A.

DIAGNOSIS. ***Wings.*** Similar only to sister species *Thecloxurina browni* Johnson (1992) in showing scalloped edges to the elements comprising the VFW, VHW "triangulate pattern" (*sensu* Johnson 1992: 5, fig. 1). Differing from all congeners by the completely rich dark brown DFW,DHW ground (congeners showing either blue, orange, or mottled combinations of these).

Female genitalia. Exhibits the greatly sculptured ductus bursae typifying the species group but differing from *T. browni* in the relative position of sculptured elements— ductus bursae dominating the ventral habitus

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[1] We use this abbreviation consistent with the United Kingdom ("UK") statutory name "British Museum (Natural History)" which, for legal purposes in the UK, has remained unchanged.

for some two thirds of its length (see Genitalia below).

DESCRIPTION. ***Male.*** Unknown. ***Female.*** DFW,DHW rich dark brown throughout, highlighted only by vivid orange along marginal fringe, across the "anal tail", and in a triangulate patch marginad in cell CuA1. VFW,VHW rich warm brown distad of medial areas, chocolate brown basad; FW with submarginal line of chocolate blotches across entire wing contrasting warmer distal brown, medial area with darkened brown band crossing wing bordered basally by darker chocolate brown band broken a black dash in the discal cell; HW dominated by jagged blackish brown medial band framing chocolate brown basal disc, distally with a line of closely aligned brown blotches across the postmedial area and with margin outlined blackish brown. FW length: 16.5 mm. (holotype). ***Female Genitalia.*** Fig. 1A. Some two thirds of ventral length (e.g. including dorsally inclined length) dominated by tapered ductus bursae arched anteriorly toward ovate cervix bursae and terminating posteriorly in a sculptured antrum and paired, rather pointed, lamellae separated by a prominent central fissure. Ratio of ductus bursae/ antrum and lamella 9/3/4 compared to 6/6/7 in *T. browni*. Greatly contrasting latter species (Johnson 1992, fig. 4) cervix bursae hood (*sensu* Johnson 1990, 1992) prominent and ovate, corpus bursae robust and inwardly serrate.

TYPE. Holotype female (Plate II, 2A), COLOMBIA, Dept. de Cauca, between Leticia and Purace km. 131, 2850 m., eastern slope of Central Cordillera, 9 August 1979, leg. M. Adams and G. Bernard specimen #M79 407, deposited BMNH.

DISTRIBUTION. ***Spatial.*** Known only from type locality (see Remarks), ***Temporal.*** Known only from type data.

REMARKS. Adams and Bernard noted in field records that two individuals of this species were seen and that it occurred in uppermost forest with a very boggy floor. This is reminiscent of habitat attributed to *T. browni* ("upper limit of humid forest" in "rainy season", Johnson 1992). *T. eiselei* Johnson, the other group member, is from hot humid upland forest (Jujuy Prov., Argentina). In the collecting experience of the senior author, these habitats contrast dryer forest margin associated with pan-Andean *T. loxurina* Felder and Felder, at least as observed in the Parque Nacional Callilegua of Jujuy Prov., Argentina.

ETYMOLOGY. "*Pantanosa*" is Spanish for "boggy" referring to the habitat of this insect.

GENUS *LAMASA* Johnson 1992: 183.

Previously including two species *L. calesia* (Hewitson) and *L. robbinsi* Johnson

Lamasa calisto, NEW SPECIES

Photoplate II,2B; Fig. 1C.

DIAGNOSIS. ***Wings.*** Very typical of genus on DFW,DHW (wings blackish distally, coursely iridescent blue-green basally) but differing greatly on VFW,VHW—habitus dominated by suffusive white dashes (particularly basocostal on the HW) over mottled black and brown ground color (oddly suggestive of the Satyridae genus *Calisto*). This new species completely lacks the recticulate blue-white marks of type species *L. calesia* (Hewitson) and the lush gold-brown markings of *L. robbinsi* Johnson.

Male genitalia. Differs from all congeners by distinctive modification of eighth tergite to a subcordate incised posterions cavity (the "*sipc*" *sensu* Johnson 1991 a,b) with terminally protruding dorsal lobe (see Remarks). Otherwise, genitalia most like *L. calesia* but lacking the prominent distal "winglike" lobes on the valvae which characterize this species.

DESCRIPTION. ***Male.*** DFW,DHW blackish brown from margin to medial areas, there meeting well-defined, but coursely grained, blue-green iridescence extending to the wing bases. FW with slightly noticable elliptic black scent brand abutting apex of discal cell. VFW,VHW with ground comprised of patches of mottled black and deep brown, contrasting areas of lighter brown. FW marked with suffusive white dash along FW cell-end and apex, HW with prominent white occurring as basocostal streak, and a lighter medial dash in cell CuA1 followed by light whitish suffusion extending from cell CuAl to the anal margin. Submargins marked by alternating patches of darker and lighter brown ground, most notably blackish at costa and at the area of the *Thecla*-spot (see Remarks). FW length: 15.5 mm. (holotype), 15.0, 15.5 mm. (paratypes). ***Female.*** Unknown. ***Male Genitalia.*** Fig. 1C.

TYPE. Holotype male (Plate II, 2B), COLOMBIA, northern Colombia, Sierra Nevada de Santa Marta, upper Tombachucua Valley, 2700 m., 21 July 1971, leg. M. J. Adams & G. I. Bernard, specimen #609 deposited BMNH. *Paratypes.* BMNH: two males with same data as primary type (see Remarks).

DISTRIBUTION. ***Spatial.*** Known only from type locality (see Remarks): ***Temporal.*** Known only from type data.

REMARKS. Field notes indicated the specimens were obtained as the collectors climbed from Tromba (2300 m.) to the upper Cambirumeina Valley (nr. 4000 m.) in sparse and open forest on a dry slope. The treeline in the area was not well defined and, at 2700 m., forest was still present but sparse and open. Cambirumeina lies between the heads of the Trombachucua and the Mamancana valleys. In both the Trombachucua and the Meoguachucua valleys, whose confluence is at Sogrome, there were extensive tracts of quite dry, montane cloud-forest, largely (but not entirely) distant from the tracks forged by the Ica tribe of indigenous Amerindians.

ETYMOLOGY. Noun in apposition referring to the remarkable resemblace of the ventral surfaces to species of Antillean *Calisto* (Satyridae).

GENUS *ARASES* Johnson 1992: 196.

With the descriptions herein, it appears the genus may now be divided into respective "blue" and "brown" species Groups (see Remarks under *A. spectaculorum*).

Arases vanewrighti, NEW SPECIES

Photoplate II,2C; Fig. 1D.

DIAGNOSIS. ***Wings.*** Unusual for genus, resembling congeners solely by jagged brown medial HW band and orange orbs extending from anal lobe to cell CuA1.

Similar to South American congener *A. colombiana* Johnson (1992) in showing only a short HW spike at vein CuA2. Differing from all congeners on DFW,DHW by unique patches of bright blue iridescence on the basal FW and, on VFW/VHW boldly contrasted brown and white-edged bands over contrasting light beige ground. White scallop-shaped markings framing the submargins further distinguish the species and resemble only those of quite unrelated Theclinae (*Orcya* Johnson, or diverse species of the *Thecla* "*orcynia* Group" of Draudt, 1919).

Female genitalia. Distinctive in showing only the posterior element of usual female generic genital habitus, thus appearring like an enlarged version of the posterior element of the type species *Arases clenchi* Johnson 1992 (Mexico, replaced *Thecla sesara* Godman & Salvin [homonym]). Congeners show paired posterior and anterior ductus bursae elements joined by a flexible neck (see Remarks).

DESCRIPTION. ***Male.*** Unknown. ***Female.*** FW divided between dark fuscous in its distal half and bright blue-green iridescence in basal half, contrasting the HW on which the fuscous ground shows only slight basal suffusion of blue-green. HW with darker, blackish, marginal line basad of short taillike spike at vein CuA2 and rather pointed anal lobe. VFW,VHW with beige ground, marked on FW by bold and straight brown postmedial band extending from costa to cell CuA2, outlined distally with white and paralleled by an equally distinct, wavy, white submarginal band. HW with jagged blackish brown medial band (similar in overall configuration to congeners, Johnson 1992, figs. 191P-S) but edged distally with bright white and paralleled at the submargin and the margin with white scallop-like markings and with deep orange lunules marginad in cells CuA1 and CuA2. FW length: 14.5 mm. (holotype). ***Female Genitalia.*** Fig. 1D.

TYPE. Holotype female, COLOMBIA, Dept. de Cauca, between Leticia and Purace, between km. 127 and 143, eastern slope of Central Cordillera, 3150 m., 10 August 1979, leg. M. Adams and G. Bernard specimen #M79 451, deposited BMNH.

DISTRIBUTION. ***Spatial.*** Known only from type locality (see Remarks) ***Temporal.*** Known only from type data.

REMARKS. Remarks under *Thecloxurina pantanosa* pertain with the *A. vanewrighti* holotype noted in field records as being the only representative seen on that day and collected along a roadside; paramo began at 3300 m., nearby and the habitat was scrubland bordering low, uppermost forest. Remarks under *Arases spectaculorum* also pertain regarding superficial VHW similarities of some Arases species and the common Mexican thecline "*Thecla*" *denarius* Butler and Druce.

ETYMOLOGY. Patronym for Dick Vane-Wright (BMNH), whose encouragement and friendship the junior author has valued for many years.

NEW COLLECTION RECORDS

GENUS *RHAMMA* Johnson 1992: 45.

"*arria* Species Group" (Johnson 1992: 48)

"*mirma* Subgroup" (Johnson 1992: 50)

This is a monotypic species group; the single member shows, among other characters, remarkable lack of upper surface structural color.

Rhamma mirma **(Hewitson)**
Photoplate II,2D.

Diagnosis/Description: Johnson 1992: 50.

COLLECTION DATA. (1) A female from COLOMBIA, Rio Meoquachucua, 1900 m., 28 August 1972, leg. M. Adams and G. Bernard specimen #2145, FW 12.5 mm., deposited BMNH; (2) A female from COLOMBIA, east above San Pedro de la Sierra, 2300 m., northwestern Sierra Nevada de Santa Marta, 5 August 1972, leg. M. Adams and G. Bernard specimen without specific #, FW 12.0 mm., deposited BMNH.

REMARKS. This species is well recorded from eastern Colombia and Venezuela (Johnson 1992). Field notes on specimen #2145 are similar to those of #609 (*Lamasa calisto*) "...extensive track of quite dry, montane cloud-forest.... Both were obtained in sparse and open forest... #2145 by the riverside". Field notes on the San Pedro de la Sierra female indicate that, at collecting locality, lush blankets of rain and cloud-forests abounded, with much higher rainfall than in the south and east of the range. This collecting site was an exposed ridge, bare of forest along the very top, but grassy and damp.

"*tyrrius* Subgroup" (Johnson 1992: 57).

This is a speciose assemblage of *Rhamma* species generally characterized by very bright upper surface structural color. Previously, the species below has been well-represented only in old Colombian material located at the AMNH.

Rhamma comstocki **Johnson**
Photoplate II,2E.

Diagnosis/Description: Johnson 1992: 137.

COLLECTION DATA. A male from COLOMBIA, above Manaure, 3150 m. Serrania de Valledupar (northernmost extension of the Colombian Eastern Cordillera on the border between Colombia and Venezuela), 28 August 1977, leg. M. Adams and G. Bernard, specimen #1048, FW 11.0 mm., deposited BMNH.

REMARKS. Field notes note the collection site as a finger of elfin cloud-forest (rich in bamboos) extending up a gully into a moor-like 'paramo' at the tree line, regularly immersed in cloud. At the site brief moments of sunshine brought out several butterflies, mostly satyrids and small hesperiids. Although *R. comstocki* is known from several Colombia localities (Johnson 1992), it would be of great interest to collect more elfins at the above-noted Manaure locality. Despite its proximity to the Sierra Nevada de Santa Marta (which it overlooks across the Cesar Valley) and its connection to the more southerly parts of the Eastern Cordillera, the Serrania de Valledupar has a high rate of endemism in its high altitude satyrid fauna. Only 10 of its 35 species of Pronophilini occur in the Santa Marta range (Adams and Bernard 1979).

"*hybla* Species Group" (Johnson 1992: 142).

Members of this species group are among the least known of Andean elfins. The species reported below was previously known from only a single Fassl specimen remaining at the Paris museum (see Remarks below).

Rhamma adunca **(Hewitson)**
Photoplate II,2F, Fig. 1B.

Diagnosis/Description: Johnson 1992: 143.

COLLECTION DATA. A male from COLOMBIA, Dept. de Valle, above Pichinde above Cali ("Monte Socorro"), 20 August 1979, leg. M. Adams and G. Bernard specimen #M79 704, FW 13.5 mm., deposited BMNH (see Remarks).

REMARKS. Collection by Adams and Bernard of a pristine male (Plate II,2F) of this species is fortuitous. Except for a sole male collected by Fassl, and remaining in the Paris Museum, the species has been noted only from the Fassl types used by Draudt and of uncertain deposition (see Johnson 1992, pp. 14-15). Characteristics of the male genitalia of the Adams/Bernard specimen (Fig. 1B) closely match those of the Paris male (Johnson 1992: fig. 59).

The Adams/Bernard collection locality is noted as along the eastern slope of the Colombian Central Cordillera, near Cali, by disused gold mines of "Monte Socorro". Here, a barely visited footpath extended through dense cloud forest to the watershed ridge at 3200 m. where overgrown openings (apparently man-made) were interspersed. Field records indicate only a few Theclinae were captured in these openings but that "M79/704" was represented by three to five individuals.

Constrasting entries above, a rather full treatment of the Adams/Bernard *R. adunca* specimen has been given here because of the rarity of the group and the subsequent description of an additional group member from Peru (see *R. cassidyi* below).

GENUS *SHAPIROANA* Johnson 1992: 148.

The type species of this high Andean genus was described from the Sierra Nevada de Santa Marta and the Adams/Bernard expeditions provide additional examples.

Shapiroana shapiroi Johnson
Photoplate II,2G.

Diagnosis/Description: Johnson 1992: 149.

COLLECTION DATA. A male from COLOMBIA, Cambirumeina, Sierra Nevada de Santa Marta, 3950 m., 24 August 1978, leg. M. Adams and G. Bernard specimen #2063, FW 12.5 mm., deposited BMNH.

REMARKS. Field notes indicate that this specimens was obtained after a night of snow in rocky terrain with short, tussocky turf, the other butterfly collected being the high Andean pierid *Reliquia santamarta* Ackery. Cambirumeina lies between the heads of the Trombachucua and the Mamancana valleys. The junior author recalls other specimens of *S. shapiroi* being captured during the Adams/Bernard expeditions. The species is so colorful it is hard not to notice, particularly at the extremely high altitudes that characterize the species. However, additional specimens were not located by the senior author among the material presently available for study at the BMNH.

ADDITIONAL TAXONOMIC DESCRIPTIONS

Alan Cassidy (Maidenhead, U.K.) called to our attention a specimen of uncertain identity collected by him at the peak of Huayana-Pichu in Peru. This specimen was intriguing because its large size and brilliant uppersurface resembled the bright females characterizing *Paralustrus* Johnson (1992: 153) though the undersurface was typical of *Rhamma*. It is apparent now, after further study of the "hybla Species Group" required by descriptions immediately above, that Cassidy's specimen (a female) represents a new *hybla* Group member, the first from south of Ecuador. It is described below. Previously, only a single female has been known from the "*hybla* Group".

***Rhamma cassidyi*,**
NEW SPECIES
Photoplate II,2H; Fig. 2A.

DIAGNOSIS. ***Wings***. Peculiarly marked— on the DFW,FHW appearing like a female *Paralustrus* (e.g. large, 14.5 mm., lacking androconia, FW and HW equally brilliant iridescent blue-green from base to submargins contrasting well defined fuscous borders and prominently rounded anal lobe). However, belying this diagnosis by VFW,VHW resembling *Rhamma* species, particularly large, ventrally concentrically mottled species of the "*hybla* Group" (see Remarks).

Female genitalia. Superior plate dominated by promient paired terminal teeth with a greatly serrate intervening margin (see Remarks).

DESCRIPTION. ***Male***. Unknown (see Remarks). ***Female***. DFW,DHW with bright iridescent blue-green ground from wing base distad to well-defined fuscous apices and submargins; fuscous anal lobe prominent and rounded. VFW,VHW with green-hued brownish ground, greatly overlaid by many concentric and jagged rust-red pattern elements— on FW dashed gray-brown along margin, white at apex and along postmedial line from costa to cell CuA2, black dash in cell; HW mottled rust-red along margin, inwardly lined with two concentric bands of rust-colored scallops covering the submarginal area; basal disc gray-brown with slight greenish hue, marked with jagged rust-red outer border and, inwardly, pale rust-red undulate lines through the cell and postbasally. Length of FW: 14.5 mm. (holotype).

Female Genitalia. Fig. 2A. Superior plate rather pentagonal with two robust teeth flanking the central fissure, each with shorter basal teeth occurring along the intervening margin (see Remarks). Cervix bursae hood robust with bilobate elements quite ovate and heavily sclerotized.

TYPE. Holotype female, PERU, Cuzco Department, peak of Huayana-Pichu, 2650m., leg. Alan Cassidy, 14 November 1989, between 1000-1300 hrs., deposited AMNH.

DISTRIBUTION. ***Spatial***. Known only from type locality. ***Temporal***. Known only from the type data.

REMARKS. Concerning the type locality, we quote from notes by A. Cassidy (in litt. to Johnson 1992). "The pinnacle of Huayana-Pichu forms a stunning backdrop to the fabled ruins of Macchu-Pichu in the Cuzco region of southeastern Peru. The peak may be reached on foot via a...precipitous path leading from the main archaeological site. The summit is rocky, with some low flowering plants and bushy shrubs. Its dramatic topography...and relative inaccessibility combine to make [it]...a memorable collecting site...there was continual hill-topping activity from a wide variety of insects. My ability to collect specimens was frustratingly limited by the difficulty of moving around the rocks without disappearing over the edge! However, occasionally a small butterfly would alight on plants close enough to reach."

The female genitalia (the first illustrated for the species group) show particularly outstanding serrate elements along the entire inner margin between the paired distal teeth of the superior plate. This is particularly interesting since a widely opened terminus lined by multiple teeth and spines is typical of *Paralustrus* females. Johnson (1992) did not speculate about phylogenetic affinities of the various species groups of *Rhamma*. However, it appears noteworthy now that members of the *hybla* Group are also reminiscent of *Paralustrus* both in their large size and bright structural colors in both males and females. Possibly, the *hybla* Group belongs along the stem base of *Rhamma* closely proximate that of *Paralustrus*. Johnson (1992) considered *Pontirama*, *Rhamma*, *Shapiroana* and *Paralustrus* as forming a monophyletic group.

ETYMOLOGY. Named for Alan Cassidy, avid collector of hairstreaks. Mr. Cassidy has discovered five new species from Sulawesi and Brunei (variously described by him or in press by Japanese colleagues). Mr. Cassidy may well owe his courage on Huayana-Pichu to his being, among other things, an acrobatic pilot.

Old BMNH material examined in 1992 by the senior author included a lavishly marked undescribed species of *Arases* from Venezuela. It is important to describe this species since (1) the genus is dominated by Central American representatives and (2) the species comprises the second known "brown" congener.

Arases spectaculorum,
NEW SPECIES

Photoplate II,2I, Fig. 2B.

DIAGNOSIS. ***Wings***. Similar to brown DFW,DHW Mexican species *A. aurantiaca* Johnson 1992 but differing on the VHW by more extensive orange striping across the submargin and with unique orange basal banding inside the jagged medial stripe.

Because of these marks the species must be distinguished from non-congener "*Thecla*" *denarius* Butler and Druce (=*guzanta* Schaus) which in no way resembles *Arases* species in the genitalia (see Remarks).

Male genitalia. Distinctive in showing more elongate and thickly tapered valvae than in congeners and a more sweepingly parabolic vincular ventrum.

DESCRIPTION. ***Male***. DFW,DHW completely brown. VFW,VHW ground tawny, FW with thin straight orange postmedial band, costa to cell CuA1; HW with brilliant orange basal band paralleling thinner jagged black band typical of genus; submargin with additional orange band crossing each cell and particularly bright at the *Thecla*-spot, dominating the coloration of limbal area. FW length: 13.0 mm. (holotype). ***Female***. Unknown. ***Male Genitalia***. Fig. 2B. Dorsum of vinculum with short brush organs extending to labides; vincular ventrum broadly parabolic with elliptic saccus; valvae robust compared to congeners with caudal extensions thickly tapered well beyond vincular angle below the falces.

TYPE. Holotype male, "VENEZUELA" (rest undecipherable except, perhaps, "Chonti[a?]"), Rothschild Bequest, deposited BMNH (see Remarks).

DISTRIBUTION. ***Spatial***. Now known only from type locality (see Remarks). ***Temporal***. Unknown.

REMARKS. The type specimen was located in unincorporated BMNH "Old Accessions" in a segregation marked "undescribed species". It is the third known South American congener and the second known "brown" member. With the description of *A. spectaculorum*, the genus appears to be divisible into two species groups— one blue on VFW,VHW and one brown. The brown *Arases* species require distinction from the superficially similar VHW patterns of "*Thecla*" *guzanta* Schaus and "*T.*" *denarius* Butler and Druce (which differ completely in genitalia from *Arases* [see Johnson, in press herein]). This new *Arases* extends the primarily Central American distribution of the genus southeastward almost to the Guyana Shield.

As noted by Johnson (1992) species of *Arases* are apparently seldom collected. Clench (who first coined the group's acronym from *Thecla sesara*) had very few specimens, mostly supplied to him by Wind and Escalante as hairstreaks they could not identify. John Shuey (Battelle Environmental Center, Michigan, *in litt.*) reported two specimens of *A. clenchi* from Belize and I suspect finding additional Colombian records of *Arases* as there is a wider South American circulation of recent publications.

J. Salazar (Cali, Colombia) reported both *Pons magnifica* Johnson and *P. vittata* Johnson from his collection after publication of Johnson (1992).

ETYMOLOGY. An arbitrary euphonious combination referring to the "spectacular" VHW coloration of this species.

Acknowledgments

The authors thank Dick Vane-Wright, Phil Ackery and Campbell Smith (BMNH) for their kindnesses and encouragement. Anthony Bedford Russell FRES (Porton, U.K.) called our attention to Alan Cassidy's hairstreak collection and Alan Cassidy (Maidenhead, U.K.) donated the type *Rhamma cassidyi* for study. Arthur Shapiro (University of California, Davis) made helpful comments on the draft manuscript and Julián A. Salazar E. (Cali, Colombia) on photographs and notes concerning these new species.

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APPENDIX I

The Adams/Bernard Expeditions 1971-1986

1971, M. J. Adams and G. I. Bernard, 28 June- 20 Sept., Sierra Nevada de Santa Marta, Colombia.

1972, M. J. Adams and G. I. Bernard, 24 June - 10 Sept., Sierra Nevada de Santa Marta, Colombia.

1974/75, M. J. Adams and G. I. Bernard, 22 Dec.- 31 July. Santa Marta, Serrania de Valledupar, Colombia/Venezuela border; Cordillera de Merida, Venezuela; Cordillera de la Costa, Venezuela.

1977, M. J. Adams and G. I. Bernard, 13 June- 31 August, Cordillera de Merida; J. Adams, Sierra de Valledupar; Colombian Eastern Cordillera, Cocuy, Guasca, Arcabuco (Departments of Bogota and Cundinamarca).

1979, M. J. Adams and P. Hardy, 23 July - 31 August, Cundinamarca; Colombian Central Cordillera, Tolima, Huila, Cauca; Colombian Western Cordillera, Monte Socorro (Valle).

1982, M. J. Adams, 23 July- 26 August, Cundinimarca, Cauca, Huila, Colombia.

1985, M. J. Adams and partly with G.I. Bernard, Bolivia.

1986, M. J. and J. Adams, Ecuador.

Photoplate II, Figure Captions for *Section 2*, A-I

Adults of Andean Elfin Butterflies (left, dorsal surface; right, ventral surface).

Fig. A. *Thecloxurina pantanosa*, holotype female.

Fig. B. *Lamasa calisto*, holotype male.

Fig. C. *Arases vanewrighti*, holotype female.

Fig. D. *Rhamma mirma*, female, Rio Meoquachucua, Colombia, leg. Adams & Bernard, BMNH.

Fig. E. *Rhamma comstocki*, male, near Manaure, Colombia, leg. Adams & Bernard, BMNH.

Fig. F. *Rhamma adunca*, male, near Pichinde, Colombia, leg. Adams & Bernard, BMNH.

Fig. G. *Shapiroana shapiroi*, male, Cambirumeina, Colombia, leg. Adams & Bernard, BMNH.

Fig. H. *Rhamma cassidyi*, holotype male.

Fig. I. *Arases spectaculorum*, holotype male.

Fig. J. *Pons magnifica*, male, J. Salazar Collection, Cali, Colombia.

Fig. K. *Pons vittata*, male, J. Salazar Collection, Cali, Colombia.

Figure 1

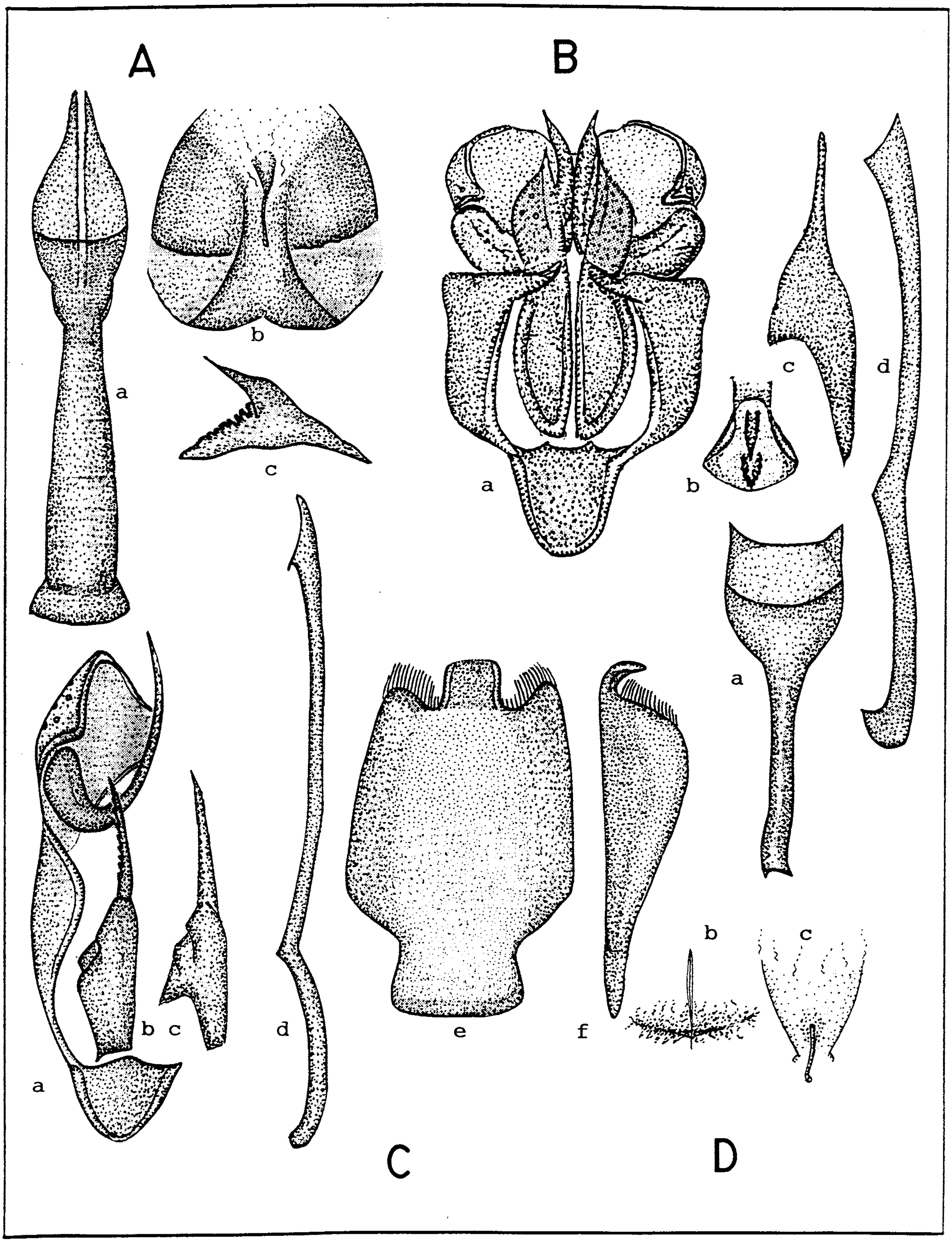
Genitalia of Andean Elfin Butterflies from Adams/Bernard Expeditions

A. *Thecloxurina pantanosa*, holotype female: a, genitalia, ventral view; b, corpus bursae hood, terminal view (ductus seminalis emanating as thin tube); c, signum, lateral view.

B. *Rhamma adunca*, male of Photoplate II,2F: a, genitalia with aedeagus removed, ventral view; b, aedeagus terminus, dorsal view; c, valve, lateral view; d, aedeagus, lateral view.

C. *Lamasa calisto*, holotype male: a, genitalia with aedeagus removed, ventral view; b, valve "bilobed area" showing lack of lateral winglike flaps typifying *L. calesia*; d, aedeagus, lateral view; e, *sipc* dorsal plate, terminus placed upward; f, same, lateral view.

D. *Arases vanewrighti*, holotype female: a, genitalia, ventral view; b, signum, view from outside corpus bursae wall; c, corpus bursae hood (ductus seminalis emanating as thin tube).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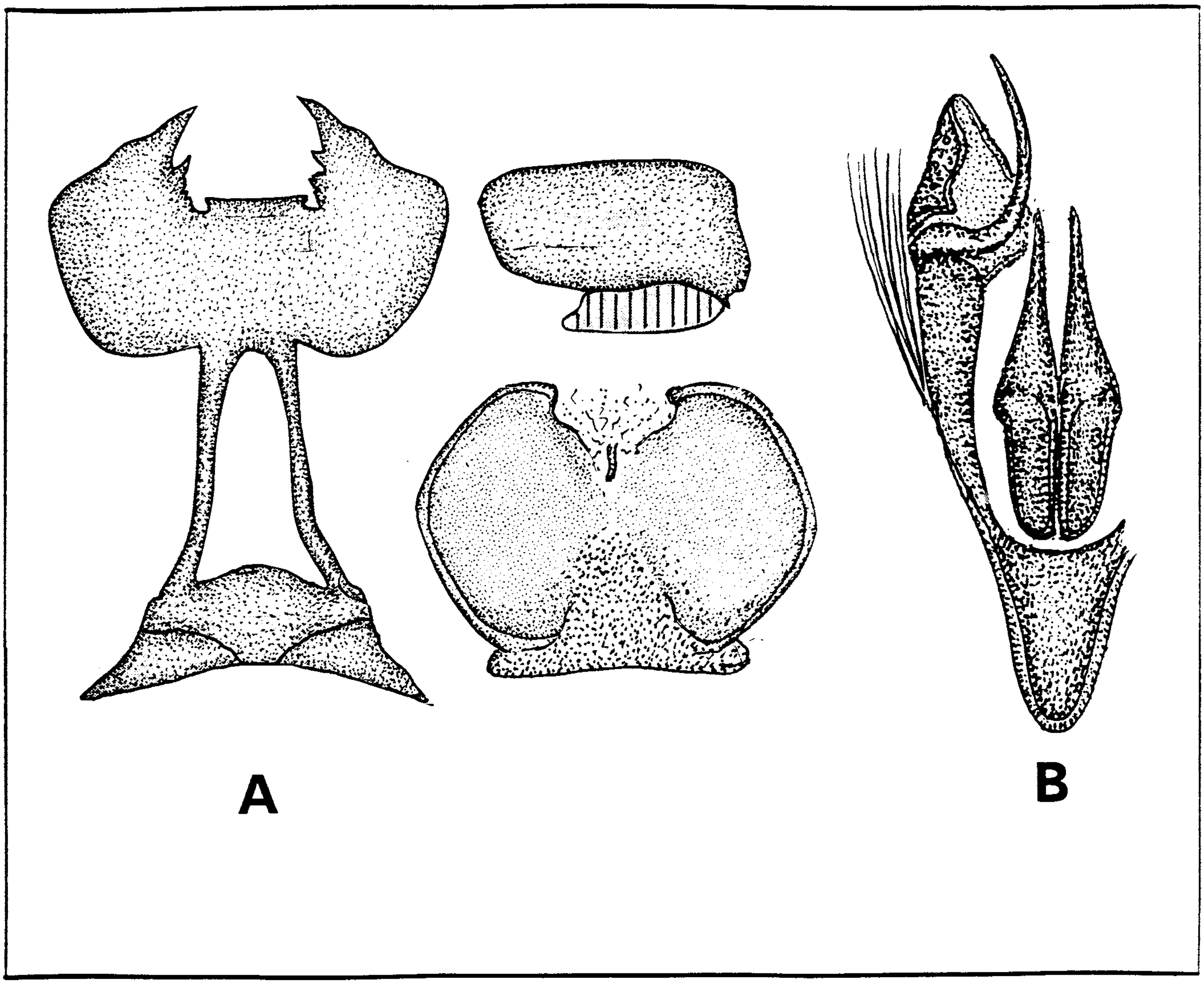

Figure 2. Genitalia and Tergal Morphology of Additional New Elfin Species.

A. Female genitalia, *Rhamma cassidyi*, holotype. Left, ventral view of genital plate, including widely bifurcate and toothed superior plate (top), ridged ductus bursae and cervix bursae ventrum (bottom). Right, above, lateral view of terminal tergite *sipc* with ventral element hatched as in Johnson 1992; below, terminal view of cervix bursae hood.

B. Male genitalia, *Arases spectaculorum*, holotype. Genitalia in ventral view, aedeagus removed, showing left bilateral side of vincular arc and saccus enclosing the paired valvae. Lines at left indicating proximate position of dorsal brush organs.

New Species, Statuses and Combinations in Northern South American *Strymon* (Lepidoptera, Lycaenidae, Theclinae)

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ABSTRACT

Five outstanding species of *Strymon* Hübner from Colombia and Venezuela, undescribed and in the collection of the Natural History Museum (London) for many years, are named *Strymon glorissima*, *S. campbelli*, *S. daplissus*, *S. trunctogen* and *S. ochraceous*, respectively, supported by English and Spanish texts. Search of comparative recent material in Colombian collections has yielded no other examples. Type material for seven other northern South American species of *Strymon*, some with scant association with the genus hitherto, is also reviewed. New combinations include *S. legota* (Hewitson), *S. lemnos* (Druce) and *S. lucena* (Hewitson), all of which are represented by holotype specimens; lectotypes are designated for *S. oreala* (Hewitson) and *S. bebrycia* (Hewitson); type genitalia are figured for these, *S. canitus* (Druce) and *S. daraba* (Hewitson). *Strymon daraba* is distinguished from *S. yojoa* (Reakirt) and other congeners with which it has been historical confused, including a species of similar name, *S. davara* (Hewitson). *Strymon daraba* is homogeneous in character over a wide Andean distribution extending into northern Chile; however, nomenclatural confusion has led to generally ignorance of the taxon.

A *Strymon* "*oreala* Species Group" is distinguished, including a cluster of taxa differing both from "typical" *Strymon* (type species *melinus* Hübner and relatives) and the "*basalides* Group" discussed previously in studies of southern South American *Strymon*.

RESUMEN

Cinco nuevo especies estan nombrado de viejo material unico en el Natural History Museum (London): *Strymon glorissima*, *S. campbelli*, *S. daplissus*, *S. trunctogen* y *S. ochraceous*. Tipos illustrado (aparato genital) para *S. bebrycia* (Hewitson), *S. canitus* (Druce), *S. daraba* (Hewitson), *S. legota* (Hewitson), *S. lemnos* (Druce), *S. lucena* (Hewitson), y *S. oreala* (Hewitson). Nuevas combinationes estan establisado para *S. legota* (Hewitson), *S. lemnos* (Druce) and *S. lucena* (Hewitson)

INTRODUCTION

For many years several outstanding species of the genus *Strymon* Hübner contained in collections of the Natural History Museum (London) (BMNH[1]) have remained undescribed. In 1990, the senior author and colleagues published a lengthy study of *Strymon* in southern South America (Argentina and Chile, including Patagonia) treating many poorly known species and adding thirteen new species (Johnson, Eisele and MacPherson, 1990). In 1992, the BMNH Eumaeini collection was recurated according to various recent revisionary studies and one of the groups rearranged was *Strymon*. It was apparent that there had been no movement by other workers to formally treat the remaining BMNH northern South American *Strymon* species. Therefore, we do so in the present study, along with review of several other taxa of the "*Thecla*" grade (Bridges 1988) whose membership in *Strymon* needs to be formalized. Various type specimen genitalia are illustrated and two new lectotypes designated. The work completes naming of *Strymon* species incorporated in the BMNH general collection and formalizes a nomenclature for most of northern South American *Strymon*. Still remaining are many samples from farflung and little known areas of the Amazon Basin and Andean region. For example, elsewhere in the present volume (Johnson and Kroenlein, in press) three new *Strymon* species from Brazil and Ecuador are described, including one from old Gagarin material at the Milwaukee Public Museum and one from the 1954 Cambridge University Amazon Expedition (now available in the BMNH supplemental collections). Contrasting the species named herein, these new Brazilian and Ecuadorian *Strymon* are near "look-alikes" of taxa of other eumaeine genera and thus important in understanding supralimital characters in the genus.

Species Groups of *Strymon*

The most familiar group of *Strymon* includes species historically associated with the type species *melinus* Hübner. A tentative *Strymon* "*melinus* Group" (named arbitrarily from the generotype[2]) can be denoted as species whose (i) females show a wide spiral in the anterior of the ductus bursae (see Johnson, Eisele and MacPherson 1990) and (ii) males show an asymmetrical ventral vinculum with saccus displaced (usually "left") from center. Males of these speciess also exhibit (i) a relatively short aedeagus (length exceeding rest of genitalia by circa .25-.30 or less,

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[1] We use this abbreviation consistent with the United Kingdom ("UK") statutory name "British Museum (Natural History)" which, for legal purposes in the UK, has remained unchanged.

[2] When this group is studied, characters of a species other than *melinus* might appear most illustrative and this species chosen as titular.

with latter length mostly assumed by the caecum) with an undulate terminus and (ii) generally elliptic valvae (in the ventral view) with contours seldom broken by sclerotinal sculpturing.

Johnson, Eisele and MacPherson (1990) distinguished a "*basalides* Group" of *Strymon*. The females of this group lack a spiral in the genital ductus bursae and show instead a ventral declination before juncture to the corpus bursae. Males in this group show more robust traits than those of the "*melinus* Group" but still retain a habitus generally angulate and assymetric in ventral traits. Species of the "*basalides* Group", contrasting a preponderance of very simple medial orange to reddish hindwing bands in the "*melinus* Group", show a tendency toward more expansive bands accompanied by large red or orange orbicular marks in submedial areas. Members of both these "*melinus*" and "*basalides*" groups are generally small to medium sized (FW alar expanses 12.5 - 15.0 mm.).

Another group of *Strymon* can be readily distinguished and associated by colloquial usage with the large and familiar species *Strymon oreala* (Hewitson). This "*oreala* Group" contains members which are relatively large (FW alar 14.5 - 17.5 mm.) and show profuse medial and submedial patterns on the hindwing consisting of gray, gray-brown, orange or red. In these elements particularly, orbs and lunules are circumferenced by pronounced white halos and auroras. Males of these species show symmetrical vincular and saccal structures, a diminutive parabolic saccus and frequent sculpturing along the valvae and aedeagus. Females show a reduced spiral in the ductus bursae (more like an offset arch) differing from both the rounded spiral the "*melinus* Group" and the simple ventral "dip" of the "*basalides* Group". Since most of the *Strymon* described herein belong to the "*oreala* Group", we designate groupings below and fix a lectotype for *S. oreala*.

Format. We follow the general terminology for *Strymon* published by Johnson, Eisele and MacPherson (1990) using DFW,DHW and VFW,VHW for dorsal fore- and hindwings, ventral fore- and hindwings, respectively, "FW length" referring to forewing alar expanse. Diagnoses are in English and Spanish. Combinations are considered new if not included in Bridges (1988) or any subsequent literature (the most voluminous revision of Bridges' *Strymon* list being that of Johnson, Eisele and MacPherson 1990 for southern South American *Strymon*).

Group 1 Descriptions

"*oreala* Group"

For species herein, ventrum of vinculum robust and "more ovate" ("elliptic", "parabolic" *sensu* Johnson, Eisele and MacPherson 1990); saccus parabolic and symmetrical.

Fondo de vinculum robusto y ovalado; saccus ovalado y simétrico.

NEW SPECIES

Strymon glorissima, NEW SPECIES

Photoplate II,3AB, Fig. 1AB.

DIAGNOSIS. *Wings*. Much larger than most *Strymon* species (FW 17.5-18.0 mm.), FW expanse equalling or exceeding that of only the larger congeners *S. oreala*, *S. amphyporphyra*, etc. (see Johnson et al. 1990); male marked by silvery blue on baso-medial on FW and across entire wing contrasting large (3.5 mm.) suffusive black FW brands; female bluish white over same areas; both sexes with prominent black spot marginad in cell CuA1 of HW alongside elongate HW tail. VFW with gray ground cross on FW and HW by respective postmedial and medial bands comprised of lunulate orange elements greatly displaced distally in cells M1 and M2 of the HW.

Alas; de grantamaño (FW 17.5 - 18.0 mm.) y coloreado. Detalles: DFW,DHW macho azul plateado brillante mas abajo de FW y por encima totalmate HW; grande (3.5 mm.) negro mancha (zona) sobre FW; hembra blanco azulado por encima con areas iguales. Ambos sexos con grandes manchas negras en HW celula CuA1 junto a coloa alargadas. VFW,VHW fondo gris, FW con banda postmedial de color naranja; HW con banda medial de manchas ovaladas grandes de color naranja, desordenado lateralmente en HW celulas M1 y M2.

Male genitalia. Exhibiting steeply sloped and elongate valvae caudal extensions and an elongate, rather straight, aedeagus terminus.

Female genitalia. Showing severely sculptured lateral margins along the ductus bursae.

Apartado genital: *Macho*: valvae muy largar y estrecha; vinculum lateralmente robusto; aedeagus centralmente undulado. *Hembra*: margenes lateral de ductus bursae fuertemente marcados.

DESCRIPTION. *Male*. DFW,DHW ground silvery blue (baso-medial on FW, across entire HW), rest of wings fuscous. Each FW with large (3.5) suffusive black brand; HW with prominent black spot marginal in cell CuA1 between an elongate tail at vein CuA2 and a shorter tail at vein CuA1, fringe brightly white. VFW,VHW ground light gray mottled in submarginal areas by darker gray; FW with postmedial band of lunulate orange elements, costa to cell CuA1, each element outlined distally with black, then white. VHW repeating similar band in medial area but spots fully surrounded by black and white and with orange spots in cell M1 and M2 greatly displaced from plane of remaining band and replaced by band by small black spots. Band from cell M3 to anal margin generally continuous. Limbal area showing margin of cell CuA1 with bright orange Thecla-spot and a second orange blotch appearing at base of the anal lobe. FW length: 17.5 mm. (holotype). ***Female***. DFW,DHW grounds bluish white over the same areas silvery blue in male; FW without brands, HW with bright white fringe. VFW,VHW similar to males but with the HW displaced spots at M1 and M2 not replaced by medial black spots. FW length: 18.0 mm. (allotype). ***Male Morphology and Genitalia***. Fig. 1A. Vincular dorsum with brush organs abutting and extending along labides. Genitalia with vincular ventrum typical of species group— vinculum ovate to elliptic, extending to short parabolic saccus; valvae elongate with shouldered bilobed areas some one-third the length of elongate and thin caudal extensions. Aedeagus elongate (exceeding length of rest of genitalia by over one-third), caecum comprising less than one-third aedeagus length with aedeagus shaft undulate only in anterior one-third, then extending straight to a slightly inclined tip; two cornuti typical of the genus. ***Female Genitalia***. Fig. 1B. Ductus bursae greatly scupltured along its lateral margins, constricted centrally and proximate a prominent hoodlike cervix bursae. Lamellae with terminal margins greatly constricted to pronglike lobes separated by a prominent central fissure (not seen in lateral view). Signa simple flat sclerotized plates.

TYPES. Holotype male, allotype female (Photoplate II,3AB), COLOMBIA, "Bogota", allotype also noted as "1898 Collection"; deposited BMNH.

DISTRIBUTION. ***Spatial***. Known only from the type locality. ***Temporal***. Unknown.

REMARKS. *Strymon glorissima* is either the largest species of *Strymon*, or at least equals or exceeds some specimens of *S. oreala* and the large chaco dwelling Argentine species *S. amphyporphyra* Johnson, Eisele and MacPherson. Constrasting *S. glorissima*, both *S. amphyporphyra* and *S. oreala* have been collected recently in northern Argentina.

Regarding *S. glorrisima* and all other species described herein, the junior author searched his own collection, that of the Manizales (Colombia) Museum and the collections of Dr. Ernesto W. Schmidt-Mumm (Bogotá, Colombia) and Luis M. Constantino (Cali, Colombia). Since these workers have collected avidly in Colombia in recent years, the dates of collection of these BMNH specimens may figure prominently in their uniqueness. Johnson (1992) and Johnson, Miller and Herrera (1992) have recorded other Colombian Theclinae known only from old specimens.

ETYMOLOGY. Arbitrary euphonious combination meaning "glorious", referring to the size and beauty of this species.

Strymon campbelli,
NEW SPECIES

Photoplate II,3C, Fig. 1C.

DIAGNOSIS. ***Wings***. Differing from all congeners by angulate FW with reduced outer margin (see below) contrasting angulate HW (formed by sharp outer angle and nearly straight outer margin). Large (FW 16.0 - 16.5 mm.) dorsal ground gray-sheened, not blue, DFW with elongate (5 mm.) suffusive brands of irregular shape, contrasting generally elliptic brands of congeners. Ventral grounds dark smokey gray crossed by dull FW postmedial and HW medial bands far less outstanding than typical of *Strymon* (see below).

Alas. Grande (FW 16.5 mm.) FW,HW angulosa con DFW zonas androconiales de rara forma (5.0 mm). Detalles: FW, HW angulosa; FW margen muy estrecho. FW negro androconial zona forma irregular y angulosa. DFW,DHW color gris; VFW,VHW fondo color gris ahumado con muy borrojo, color de naranja fino, bandas sobre FW y HW.

Male genitalia. Valvae with ventral shape showing distinctive "three-step" declination to terminus.

Aparato genital: ***Macho***: valvae terminando en tres partes notsolemente aguzadas.

DESCRIPTION. ***Male***. FW angulate, outer margin only some .70 that of inner margin, causing great contrast to broad HW; HW also angulate along outer margin with margin straight from costa to vein CuA1. DFW, DHW with ground gray-sheened in respective baso-medial and baso-submarginal areas (without distinctive bluish cast of many congeners) and not much contrasting the distal fuscous ground. FW with elongate (5 mm.) hemirectangular suffusive black brands, appearing very odd in shape compared to congeners; HW with elongate tail at vein CuA2 and black spot in cell CuA1 margin. VFW, VHW ground dark smokey gray, suffused even darker basally and submarginally; FW crossed by dull orange band (costa to cell M3); HW crossed by similarly dull band, lunulate from costa to cell M3, more continuous from there to anal margin. Margin of HW cell CuA1 with dull orange Thecla-spot and a second orange blotch appearing at base of anal lobe. FW length: 16.5 mm. (holotype), 16.0 mm. (paratype). ***Female***. Unknown. ***Male Morphology and Genitalia***. Fig. 1C. Vincular dorsum with brush organs abutting and extending along labides. Genitalia with vincular ventrum typical of species group— vinculum elliptic with a posterior shoulder and robust anterior juncture to widely parabolic and symmetrical saccus; valvae distinctive with "three-step" caudal extension extending from a roundly shouldered bilobed area. Aedeagus straight to only somewhat bowed in its posterior three-fifths, caecum bowed and somewhat displaced in the anterior two-fifths, two cornuti as typical of genus.

TYPE. Holotype male (Photoplate II,3C), COLOMBIA, "Bogota", Crowley Bequest, 1901; paratype male, same data; both deposited BMNH (see Remarks).

DISTRIBUTION. ***Spatial***. Known only from type locality. ***Temporal***. Unknown.

REMARKS. Remarks under *S. glorissima* pertain. In addition, the type data notes the Crowley Bequest. Crowley specimens from "Bogota" have figured prominently in samples containing old and unique material (see Johnson 1992 and Johnson, in press). It is fortuitous that the Crowley Bequest contained two specimens of *S. campbelli*. This, along with the male/female pair of *S. glorissima* lends credence to the authenticity of these old specimens.

ETYMOLOGY. Patronym for Campbell Smith (BMNH). Mr. Smith has been extremely gracious in overseeing curatorial work by the senior author at the BMNH in recent years (not a small task considering the unidentified condition of many Theclinae and the "far-flung" despositions of such specimens in London's vast collections). It is safe to say that work on BMNH supplemental collections has only reached a midpoint (see, for instance, Johnson and Adams, in press and Bálint, in press).

***Strymon daplissus*, NEW SPECIES**

Photoplate II,3D, Fig. 1D.

DIAGNOSIS. ***Wings***. A small (FW 12.0 mm.) dull species marked on the FW only by rather round black brand contrasting gray-brown ground; VFW,VHW appearing quite mottled because of smokey gray ground marked only by dull continuous FW postmedial and HW medial orange bands and white intercellular marks in the submargins; notably on HW, the orange medial and white submarginal bands abut submarginally in cell CuA2.

Alas. Pequeño (FW 14.5 mm) con VFW, VHW de apariencia abigarrado. Detalles: DFW, DHW borrojo gris-moreno, con una zona androconial negra redondeada notable. VFW,VHW gris abigarrado, FW con emotado postmedial band, HW continua banda color de naranja acompañada con marcas blancas en cellua del sub-margen.

Male genitalia. Brush organs prominent; vinculum very elliptic, extending to broad parabolic saccus; valvae with bilobes and caudal extensions of about equal length, latter distinctively incised along the inner margin (see Remarks).

Aparato genital: ***Macho***: valvae corta y con dientes a lo largo del margen interno.

DESCRIPTION. ***Male***. DFW,DHW ground brownish-gray except for very slight hue of blue white along the anal margin. FW with small (2 mm.) rather ovate brand. VFW,VHW ground color dark smokey gray with contrasting bands dull, making VFW,VHW appear quite mottled and requiring close discernment of pattern elements. Latter include FW with dull continuous red-orange postmedial band from costa to cell CuA1, HW with medial band crossing medial area, intersecting submarginal area in cell CuA1 and then W-shaped near anal margin; paralleling the dull oranges bands on each wing are submarginal white spots or blothces in each cell (these nearly abutting the orange band of the HW in cell CuA1). Margin at HW cell CuA1 with dull orange Thecla-spot; a second orange blotch occurs at base of anal lobe. FW length: 12.0 mm. (holotype). ***Female***. Unknown. ***Male Genitalia***. Fig. 1D. Vincular dorsum with brush organs abutting and extending along labides. Genitalia rather novel— vinculum elliptic and rather distended toward widely parabolic symmetrical saccus. Valvae with prominent hemispherical bilobes terminating in short steeply tapered caudal extensions, latter finely serrate along the inner margins (see Remarks). Aedeagus elongate, exceeding rest of genitalia by some two-fifths, caecum bowed and comprising about one-fourth aedeagal length, rest of shaft nearly straight until slight dorsal inclination at terminus; two cornuti as typical of genus.

TYPES. Holotype male (Photoplate II,3D), VENEZUELA, "Venezuela", Crowley Bequest, 1901, deposited BMNH (see Remarks).

DISTRIBUTION. *Spatial.* Known only from the generalized type locality. *Temporal.* Unknown.

REMARKS. Remarks under *S. glorissima* pertain. In addition it is of interest that although the generalized data on the type indicate "Venezuela" the specimen (as with *S. campbelli*) derives from the Crowley Bequest. A few other *Strymon* species have been noted with finely serrate inner valval margins, in each case thought to be an autapomorphy (see *S. rhaptos* Johnson, Eisele and MacPherson 1990 and, in an Andean lineage of the wider *Strymon* grade, *Eiseliana ollantaitamba* Johnson, Miller and Herrera 1992).

ETYMOLOGY. An arbitrary euphonious combination referring to "dappled" color and pattern of the VFW,VHW.

Strymon trunctogen, NEW SPECIES

Photoplate II,3E; Fig. 1E.

DIAGNOSIS. *Wings*. Of moderate size (FW 15.5 mm.) with DFW,DHW appearing much like species of the familiar "blue" *Strymon arola* Hewitson-*megarus* Godart complex of the "*basalides* Group" (e.g. blackish DFW,DHW ground flecked and streaked with dark blue iridescence occurring basally and across the distal cell interspaces; DFW with dark ovate brands). However, on VFW,VHW differing completely from these species— HW crossed by wide, rather straight, band of brown dashed elements contrasting a large black orb at cell SC+R1 and with a bright yellow Thecla-spot and adjoining yellow dash at the anal angle.

Alas. Medida mediana (FW 15.5 mm.), alas azul por encima, pero con bandas rectas morena inferiormente. Detalles: DFW,DHW con amplio azul (como en muchas *Strymon*) pero, contrastando todos estos, VHW nostrando bastante rectas banda de rayas morenas, mancha negra grande en celula SC+R1, y mancha grande amarilla a lo largo de margen de celula CuAl.

Male genitalia. Brush organs prominent; valvae with bilobes parabolic, tapering to thin elongate caudal extensions showing a prominently sclerotized keel about two-thirds the distance to the terminus (see Remarks); aedeagus robust and truncate.

Aparato genital: *Macho*: valvae con arista oscurecida en el ultimo tercio de su largura; aedeagus may corto.

DESCRIPTION. *Male*. DFW,DHW ground dark blackish brown, flecked with azure blue basad on FW and in intercellular streaks distad of the medial area of HW. FW with ovate (3.0 mm.) black brands, HW with margin edged by dashed blue-white line, an elongate tail at vein CuA2 and shorter tail at vein CuA1; VFW,VHW ground light gray-white, FW with brown postmedial band, costa to cell CuA1, formed by dashlike elements outlined distally with brownish black and white; HW with large (1 mm.) black orb in cell SC+R1 followed by wide band of brown dashed elements (thinly surrounded by black and white) extending rather straight across the wing and then angled from cell CuA2 to the anal margin; prominent Thecla-spot and mark at base of anal lobe bright yellow. FW length: 15.5 mm. (holotype). *Female*. Unknown. *Male Genitalia*. Fig. 1E. Vincular dorsum with very prominent brush organs abutting and extending along labides. Genitalia with vincular ventrum robust and elliptic extending to robust, symmetric and widely parabolic saccus. Valvae with bilobes parabolic, tapering to thin elongate caudal extensions marked by a prominently sclerotized keel about two-thirds the distance to the terminus. Aedeagus markedly robust for genus with the shaft very wide and tubular. Aedeagus length exceeding rest of genitalia by about two-fifths, robust caecum comprising nearly one-third of aedeagal length. Aedeagus terminus opening rather widely, without usual inclined and/or flared "nozzle" typical of genus; instead, two cornuti appearing within membranous material at the end of a rather "gaping" terminus.

TYPES. Holotype male (Photoplate II,3E), COLOMBIA, "Bogota", Rothschild Bequest, 1931, deposited BMNH.

DISTRIBUTION. *Spatial*. Known only from the generalized type locality. *Temporal*. Unknown.

REMARKS. This is an odd species because, if viewed only from the dorsum, it would be overlooked as a member of the farflung *Strymon arola* complex, an unrevised assemblage in *Strymon* containing the divergent *S. arola* (if judged by its distinctive type) and a number of populations which appear to have incorrectly assumed this name in common usage. Johnson, Eisele and MacPherson (1990) distinguished *S. megarus* in this complex after locating the Godart types in Paris. The under surface of

Figures 1-2

Fig. 1, Genitalia of New Species of *Strymon*

Format: males with genitalia shown in ventral view, aedeagus removed and placed at immediate right along with lateral view of genital valve; female with genitalia shown in lateral view from terminal lamellae (above) to beginning of corpus bursae (below).

A. *Strymon glorissima*, holotype male (BMNH).

B. *Strymon glorissima*, allotype female (BMNH).

C. *Strymon campbelli*, holotype male (BMNH).

D. *Strymon daplissus*, holotype male (BMNH).

E. *Strymon trunctogen*, holotype male (BMNH).

F. *Strymon ochraceous*, holotype male (BMNH).

Fig. 2, Genitalia of Other Species of *Strymon*

Format: males with genitalia shown in ventral view, aedeagus removed and placed at immediate right along with lateral view of genital valve; female with genitalia shown in lateral view from terminal lamellae (above) to beginning of corpus bursae (below).

A. *Strymon oreala*, lectotype male (BMNH).

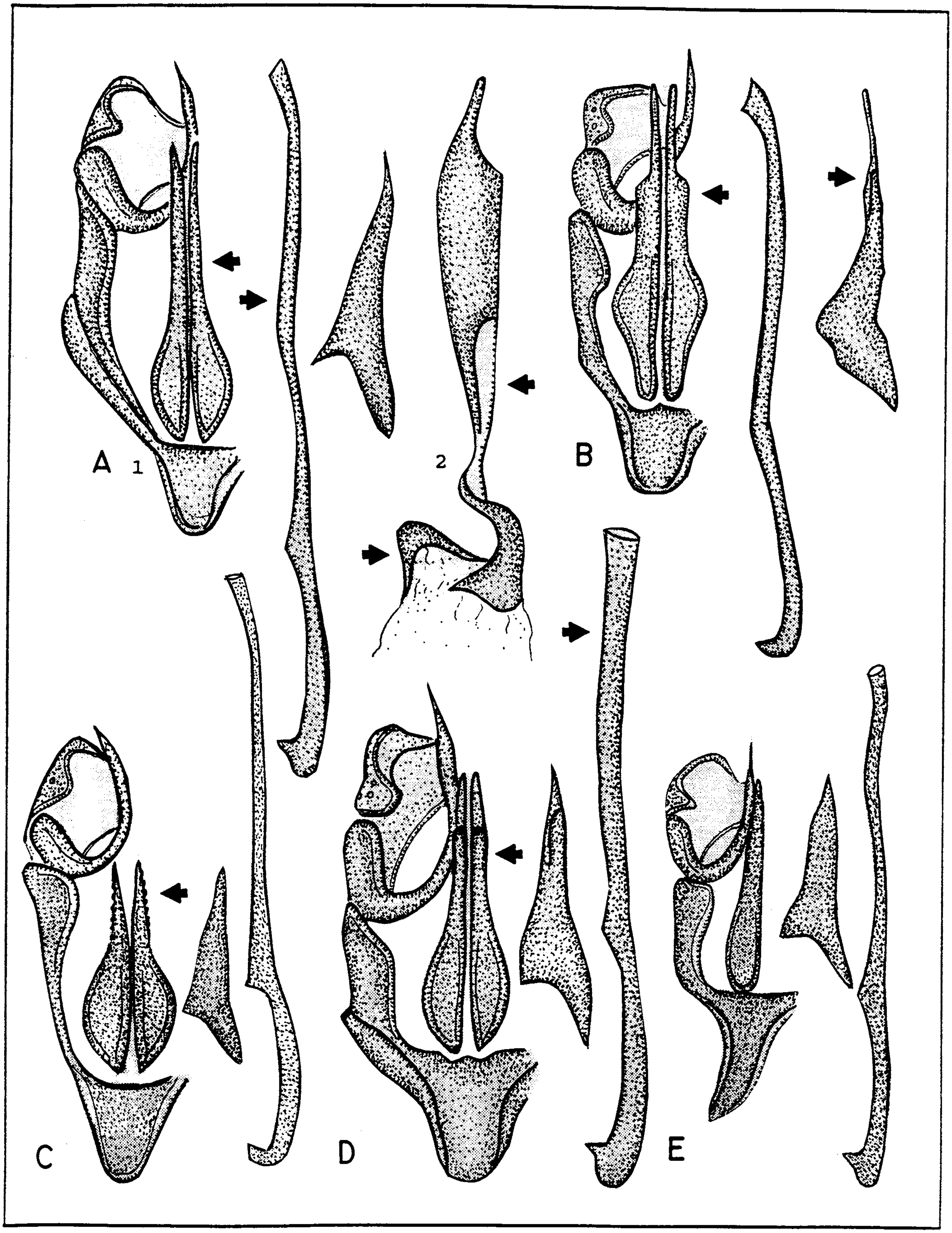
B. *Strymon bebrycia*, lectotype female (BMNH).

C. *Strymon canitus*, holotype male (BMNH).

D. *Strymon legota*, holotype male (BMNH).

E. *Strymon lemnos*, holotype male (BMNH).

F. *Strymon lucena*, holotype male (BMNH).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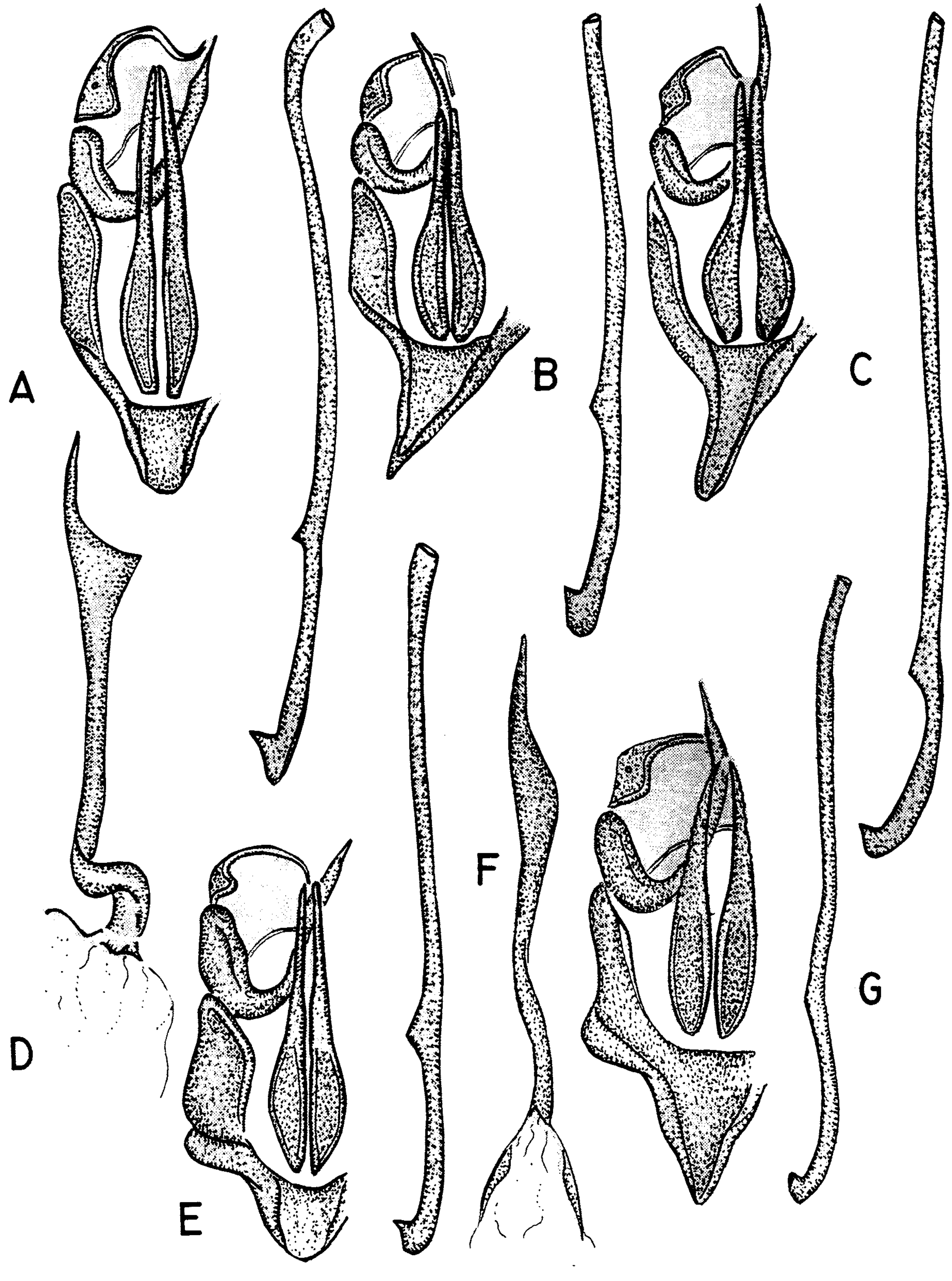
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S. trunctogen departs from anything in the "*arola*" assemblage and thus it appears early BMNH workers were correct in segregating the type of *S. trunctogen* as a "sp. nov.".

ETYMOLOGY. Modified from Latin roots *trunctus* (truncate) and *togae* (garment denoting a male) and referring the outstanding appearance of male morphology in this species, particularly the truncate aedeagus.

Group 2 Description

"*melinus* Group"

For species herein, ventrum of vinculum more angulate, extending to asymmetrical saccus (usually displaced "left of center").

Fondo de vinculum anguloso; saccus agudo y asimétrico.

Strymon ochraceus, NEW SPECIES

Figs. Photoplate II,3F; Fig. 1F.

DIAGNOSIS. ***Wings***. Small size (FW 10.0 mm.) with dorsal color ochre; FW showing large (1.3 mm.) ovate blackish brands, HW elongate (3.0 mm.) CuA2 tail contrasting shorter (1.0 mm.) CuA1 tail. VFW,VHW ochre, FW with vague and thin orange postmedial band; HW with faint but suffusive orange band comprised of rectangulate elements lined with black and white, wide (.75 mm.) in cells M1 and M2.

Alas; pequeño (FW 10.0 mm.) y leonado. Detalles: DFW,DHW leonado con gran zona androconial negra. VFW,VHW leonado, FW con banda delgada postmedial naranja, HW con banda ancha de manchas naranjadas con forma cuadrangular, cada uno perfilado con negro y blanco.

Male genitalia. Vinculum diminutive; valvae comparatively robust and ventrally elliptic.

Aparato genital: *Macho*: valvae robusto a lo largo de su largura terminal.

DESCRIPTION. ***Male***. DFW,DHW ground ochre, otherwise marked only by large (1.3 mm.) brownish black ovate FW brands and some darker brown suffusion around FW apex and HW submargin; HW with elongate (3.0 mm.) tail at vein CuA2, short (1.0 mm.) tail at CuA1. VFW,VHW ground ochre; FW with vague postmedial line of orange dashes from costa to cell CuA1, HW with wider orange medial band comprised of wide rectangulate elements encircled with white and black, elements in cells M1 and M2 particularly wide (.75 mm.). Limbal area with dull orange Thecla-spot and slight orange mark at base of anal. FW length: 10.0 mm. (holotype). ***Female***. Unknown. ***Male Morphology and Genitalia***. Fig. 1F. Dorsum of vinculum with short brush organs abutting and extending along labides. Genitalia unremarkable as typical of species of the "melinus Group". Vinculum diminutive and angulate, extending to asymmetrical saccus comparatively longer and thinner than many group members (see Johnson, Eisele and MacPherson 1990). Aedeagus short, length exceeding rest of genitalia by only about the caedum length and greatly undulate in the terminal one-half.

TYPES. VENEZUELA, Cuidad Bolivar, 28 September 1898, leg. S. Kluges, deposited BMNH.

DISTRIBUTION. ***Spatial***. Known only from the type locality. ***Temporal***. Unknown.

REMARKS. Departing from all the species described above, which were marked "sp. nov." in the BMNH general collection this species hails from a drawer marked "undescribed species" in the BMNH "old Accessions" (see Johnson and Smith, in press). This drawer also contained the holotype of *Chlorostrymon orbis* Johnson and Smith (in press) and numerous other interesting Theclinae. The species stands out by its odd color and pattern, requiring dissection to distinguish it with certainty from such other eumaenine groups as *Ministrymon* and *Electrostrymon*. The specimen lacked one wing at the time of its discovery; the early date is of great interest considering absence of the species in recent samples.

ETYMOLOGY. An arbitrary euphonious usage denoting the ochre wing color.

Review of Type Specimens of Other Northern South American *Strymon*

Study of *Strymon* specimens at the BMNH and other museums has indicated a large number of specimens haphazardly identified according to a few names long in common usage within *Strymon*. Meanwhile, type specimens of certain "*Thecla*" species belonging in *Strymon* have long been ignored even though their facies are key to the proper identification many these long museum series. Therefore, to facilitate recognition of these species, we formalize their relationship with *Strymon* below and provide the information necessary for their identification.

Strymon lemnos (Druce)
NEW COMBINATION

Fig. 2E

Thecla lemnos Hewitson 1890, Ent. mon. Mag. 26: 152.

DIAGNOSIS. Closest to *S. serapio* Godman and Salvin, but with DHW much brighter silvery blue particularly covering the entire medial cell areas. VHW with postmedial line lineal and irregular contrasting the continuous bold tripartite black, red and white of *S. serapio*.

Morphology: Fig. 2E. Male Genitalia.

TYPE. Holotype BMNH labelled "type" "ex. coll. Hamilton Druce 1909", "T. Lemnos type H. H. Druce Ent. Mo. Mag. 1890". #1023, "Interior of Colombia J. Carder", "J. J. Joicey Coll. BM. 1929-435."

DISTRIBUTION. By present data confined to Colombian tropical forest localities.

Strymon legota (Hewitson)
NEW COMBINATION

Figs. 2D

Thecla legota Hewitson 1863-1878 [1877], Ill. diurn. Lep. Lycaenidae (1): 205, (2), pl. 81, f. 676, 677.

DIAGNOSIS. A small species (11.0 - 12.5 mm.), otherwise very superficially reminiscent of *S. lucena* Hewitson (see below) or *S. canitus*, but differing by patchy appearance of VFW blotchlike markings (more lineal on other two species) which are much like those restricted costa on HW across the postbasal, medial and postmedial areas (fully covering wings postmedial in *S. canitus*, basal to postmedial on *S. lucena*).

Morphology: Fig. 2D. Male Genitalia.

TYPE. Holotype male, BMNH "Thecla legota. 1." "Thecla Type legota Hew", "Bolivia, Hewitson Coll. 79.69." B.M. Type No. Rh. 1027.

REMARKS. This is one of two species not associated formally with *Strymon* before and distinctive in its small size and restriction of patchy markings far costad on the VHW.

Strymon lucena (Hewitson)
NEW COMBINATION

Fig. 2F, Photoplate II,K.

Thecla lucena Hewitson 1868, Descr. new spec. Lycaenidae, p. 26.

DIAGNOSIS. A moderate sized species (13.5-14.5 mm.) with upper surface marked by bold square FW brand and blue iridescence much like the familiar "blue" *Strymon arola* Hewitson- *megarus* Godart Group (see Johnson, Eisele and MacPherson 1991 fig. 6CE) noted above and *S. trunctogen* herein described. However, much like *S. trunctogen* differs from this group by it brown-spotted VHW, *S. lucena* differs by showing the bold gray-brown patches of the *S. oreala* Group. This species is less like *S. oreala* with which it has been much confused (see Remarks).

Morphology: Fig. 2F. Male Genitalia.

TYPE. Holotype male, BMNH labelled "Hewitson Coll. 79-69. Thecla lucena 1. Venezuela".

DISTRIBUTION. Principally Venezuela and Colombia.

REMARKS. This species has been historically confused with *S. oreala* (see Draudt 1919). It differs from *S. oreala* in the same manner as the very small specie *S. legota*.

Strymon oreala (Hewitson)
DESIGNATION OF LECTOTYPE

Fig. 2A. Photographs, Johnson, Eisele and MacPherson 1990: fig. 5EF.

Thecla oreala Hewitson 1868, Descr. new spec. Lycaenidae, p. 27.

Strymon oreala: Johnson, Eisele and MacPherson 1990:

DIAGNOSIS. Other than *S. glorissima* described herein perhaps the largest *Strymon*. Distinguished from other species with bold patterns of gray to brown patches on the VHW by the regularized size of all the blotches on the HW as they occur across the postmedial and postbasal areas. Comparatively, *S. lucena* (and much smaller *S. legota* show restriction of the large patches costad in both postbasal and postmedial areas).

Morphology: Fig. 2A. Male genitalia.

TYPES. Lectotype designated here, a male *oreala* labelled "Type", "Bahia, Brazil", "male" "Bahia", "oreala" Godman-Salvin Coll. 1911-93. B.M. Type. No. Rh. 1024 distinguished five other apparent syntypes (see Johnson, Eisele and MacPherson 1990, each hereafter considered as paralectotypes consistent with practice at the BMNH.

DISTRIBUTION. Colombia south along Andean perimeter to northern Argentina. First modern specimens from northern Argentina collected in 1991 by the AMNH expedition in the Cumbres San Javier, Tucumán Province.

Strymon bebrycia (Hewitson)

Fig. 2B, Photoplate II,H.

DESIGNATION OF LECTOTYPE

Thecla bebrycia Hewitson 1868, Descr. new spec. Lycaenidae, p. 13.

Strymon bebrycia: Bridges 1988: II.100.

DIAGNOSIS. Moderately large (13.5 - 14.5 mm.) and gray-brown on DFW,DHW; VHW with lineal postmedial band framing somewhat darker gray-brown ground color in the basal disc. This has confused the species with members of the *S. daraba* complex (see below) and also with *S. yojoa* Reakirt (see Remarks). *S. daraba* differs, among other characters, by it trailing a thin white line through and inside the basal disc. Another *Strymon* species, *S. beroea* also has such a secondary postbasal line but differs by it other bold white to light gray HW markings (compare figs. II,H,J and G).

Morphology: Fig. 2B. Male Genitalia.

TYPES. Lectotype designated here, a BMNH male labelled "Hewitson Coll. 79-69., bebrycia 1" Mexico" "Thecla bebrycia 1.", "type" and "B.M. Type No. Rh. 1020". This appears to be the only specimen of the Hewitson syntypes locatable at the BMNH and is the one that has borne the BMNH staff no. label.

DISTRIBUTION. Central America south to northern Colombia (few specimens).

REMARKS. As is typical of *Strymon*, because of the lack of literature attention has focused on the more common species. Thus, though *S. bebrycia* differs more from *S. daraba* and other congeners that are gray-brown beneath with rather lineal elements, it has been cited the most in misidentifications.

Strymon canitus (H. H. Druce)

DESIGNATION OF LECTOTYPE

Fig. 2C. Photographs: Johnson, Eisele and MacPherson, fig. 7CD

Thecla canitus H. H. Druce 1907, Proc. Zool Soc. London 1907(3): 604, pl. 36, f. 8.

Strymon canitus: Johnson, Eisele and MacPherson 1990: 11.

DIAGNOSIS. Historically confused with *S. crossoea* (see Johnson, Eisele and MacPherson 1990) but stands out by the crisp distinctive DHW limbal silvery blue and, on the VFW,VHW the succinct band crisp lunulate gray-brown lunules. These contrast the suffusive mottled elements of *S. crossoea* (generally brown on DHW). *S. canitus* cannot be confused with *S. oreala* because of size (*S. canitus* 10.0 - 14.5 mm.) and the many more lunulate VHW markings on *S. oreala* (which are bolding strewn in the postbasal and medial areas and pervade the submargins as well).

Morphology: Fig. 2C. Male genitalia.

TYPES. Lectotype designated here, a BMNH male labelled "canitus" "Type" "Paraguay" "ex. coll. H. Druce", "J. J. Joicey Coll. BM. 1929-435." "canitus [male] "TYPE H. H. Druce" and "B. M. Type No. Rh. 1026. The female syntype (of similar labelling) is hereafter considered a paralectotype.

Strymon beroea (Hewitson)

STATUS CONFIRMED (see Remarks).

Fig. 3A, Photoplate II,G.

Strymon beroea Hewitson 1868, Descr. new spec. Lycaenidae, p. 14.

Strymon yojoa Reakirt (not *yojoa* Reakirt [1867], Proc. Acad. Nat. Sci. Phila. 18: 339, synonymy, of authors, in error)

Strymon beroea (Hewitson): Bridges 1988: II.100.

DIAGNOSIS. A small species appearing to be a Mexican/Central American sister of *S. daraba* but contrasting the latter species, generally smaller (11.0 mm. - 13.4 mm.) and with bolder white markings inside and out of the lineal medial band. Confused through Mexico with *Strymon yojoa* Reakirt which shows a lineal medial band but not the extra pattern elements of *S. beroea* and *S. daraba*.

Morphology. Fig. 3A; genitalia of type typical of the "*melinus* Group" facies.

TYPE. Holotype male, BMNH, labelled "Hewitson Coll. 79-69., baroea 1" Mexico" "Thecla bebrycia 1.", "type".

REMARKS. This species and *S. daraba* appear to form a sister pair. There are few specimens, which may account for the confusion with *S. yojoa*. Bridges 1988 was the first author to depart from others (among them Comstock and Huntington 1958-1964 [1959] and Draudt 1919) in listing *beroea* as distinct.

Strymon daraba **(Hewitson)**
STATUS CONFIRMED (see Remarks).
Fig. Photoplate II,I&J
Thecla daraba Hewitson 1863-1878 [1877], Ill. diurn. Lep. Lycaenidae (1): 105, (2), pl. 36, f. 89.
Strymon yojoa Reakirt (not *yojoa* Reakirt [1867], Proc. Acad. Nat. Sci. Phila. 18: 339, synonymy, of authors, in error)
Strymon daraba: Bridges 1988: II.100

DIAGNOSIS. Relatively large (13.5-15.0 mm.) dull gray-brown on DFW,DHW; VFW,VHW with gray to beige ground marked with lineal pattern—postmedial line of VFW, VHW with lineal medial band framing darker basal disc and showing a second, submedial band trailing across the wing. Distal areas sometimes with light aurorate elements but less so than on *S. beroea*. Historically confused with *S. yojoa* (see Remarks under *S. beroea*) and also with *S. davara* Hewitson, a quite different looking species with a similarly spelled name (see Remarks below).

Morphology: Fig. 3B; similar to *S. beroea* and typical of the "melinus Group" noted herein.

TYPE. Type male, BMNH, labelled "Hewitson Coll. 79-69. Thecla daraba 1. Amazon".

REMARKS. This species is fairly frequent in collections but many are misplaced. The BMNH has paid little attention to this species and it has been located with a number of other *Strymon* species and, in fact, one species which must be described in another genus (see Johnson and Kroenlein, in press a). When assembled, specimens illlustrate the "west coast xerophytic distribution" typifying South America, *e.g.* western Ecuador south to Arica, Chile along the dry coastal plains. The species appears to have been overlooked in Chile because of the similarity of the name to *davara* Hewitson (of which a southern subspecies *joannisi* Dufrane is well known in Chilean butterfly lists, Ureta 1964). The senior author began to suspect this when preparing lists of Chilean taxa with J. Herrera and L. Peña. Both gentlemen consistently deleted *daraba* from the lists and wrote in *davara* (even though this species already appeared elsewhere in the list). Specimens of Chilean *S. daraba* have since been supplied for figuring in the forthcoming Chilean butterfly book.

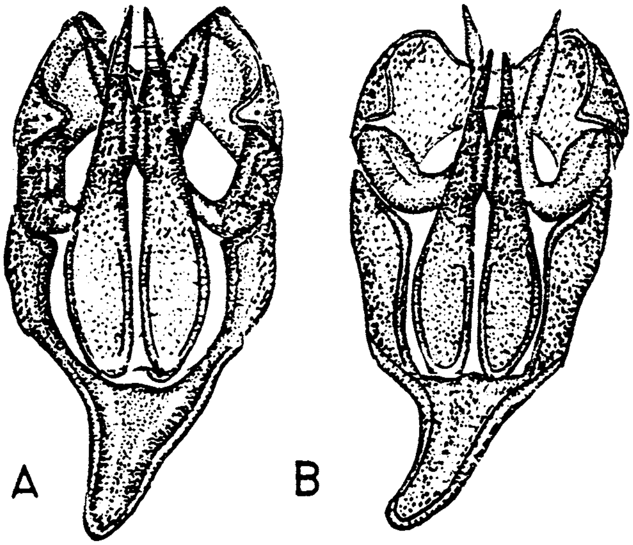

FIGURE 3.

LOCALITIES REPRESENTED. ECUADOR. Balzapamba, LaChima, Guayaguil (BMNH). CHILE. "Chili", ex. Walker Coll. (Photoplate II,J). PERU. Callao, Chanchapoya, BMNH (Photoplate II,I); Callao (Hope Collections, Oxford).

DISCUSSION

With this paper, and Johnson, Eisele and MacPherson (1990), forty-three species of *Strymon* have been treated and figured in a modern review or revisionary format. There are yet many other species to be investigated and described with regard to *Strymon*. The group is so large as to require careful local and regional work as one part of the ongoing attempt to treat the Neotropical members of this vast genus. Johnson, Miller and Herrera (1992) recently published on high Andean lineages of the larger *Strymon* grade. Johnson and Kroenlein (in press b) and Johnson (in press) are treating several new species of *Strymon* that are spectacular but either represented by few specimens or historically confused with other groups because of a "look-alike" phenomenon. As noted by Johnson, Eisele and MacPherson (1990) the overall morphological ground plan of *Strymon* is so simple that it is easily recognized. However, this simple ground plan may also add to the difficulty is separating Neotropical versus Holarctic lineages of the group. It is our hope that this paper will stimulate further interest in the northern South American *Strymon*. As noted heretofore, some of the spectacular taxa had remained undescribed and noted only as "sp. nov." at the BMNH. Some species, like *S. glorissima* and *S. campbelli*, are so outstanding they require little comparison. Others, like *S. daplissus* and *S. ochraceous* are diminutive and invite great interest regarding future discoveries concerning them. As we have noted, no additional representatives of the new species described herein appear in the largest contemporary Colombian collections. This leads us to wonder whether their habitats have suffered a fate leading to extreme restriction or extinction. However, it is possible that with their descriptions now in the literature, workers will be stimulated and eventually "rediscover" them.

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PHOTOGRAPHIC FIGURES

See **Photoplate II**, Section 3.

Figs. A,B. ***Strymon glorissima***, ♂D,V; ♀ larger and silvery blue where ♂ is darker blue.

Fig. C. ***Strymon campbelli***, ♂D, pointers indicate distinctive wing shape and FW brand, V smokey gray with only semblance of orange HW band typifying *Strymon*.

Fig. D. ***Strymon daplissus***, ♂D,V.

Fig. E. Left, usual brown D-surface of *Strymon* species which resemble V-surface of *S. trunctogen*. Right, V-surface ***Strymon trunctogen***, spots brown; D-surface blue as on *S. lucena* (Fig. K.).

Fig. F. ***Strymon ochraceous***, ♂D,V.

Fig. G. ***Strymon beroea*** (Presidio, Mexico, AMNH).

Fig. H. ***Strymon bebrycia*** (Presidio, Mexico, AMNH).

Fig. I. ***Strymon daraba*** (Callao, Peru, BMNH).

Fig. J. ***Strymon daraba*** ("Chili", Chile, BMNH).

Fig. K. ***Strymon lucena*** (Bogota, Colombia, BMNH).

New Species of *Pseudolucia* Nabokov from Chile and Patagonia (Lepidoptera: Lycaenidae, Polyommatinae)

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ABSTRACT

Species of *Pseudolucia* Nabokov from austral Neotropical regions are reviewed to resolve confusion between the few available historical names and numerous new species collected in recent years. Confusion resulted because two kinds of ventral wing patterns ("V-shaped" and "spotted") occur across three general structural types (characterized in the present work from female genitalia as "bifurcate", "winged" and "tubular"). Since only subtle wing pattern differences are sometimes concordant with these structural groups, old names have been haphazardly applied.

The paper characterizes *P. collina* (Philippi), *P. plumbea* (Butler), *P. chilensis* (Blanchard) and *P. sibylla* (Kirby), names long associated with the genus (the last used tentatively pending first reviser opinion being published elsewhere by the senior author). Also characterized are *P. andina* (Bartlett-Calvert) and *P. oligocyanea* (Ureta) as new combinations.

Eleven new species are described. Six are well-represented in collections but, hitherto, have been either unrecognized or misidentified (*P. zembla*, *P. hazeorum*, *P. clarea*, *P. vera*, *P. annamaria* and *P. charlotte*). One new species is very distinctive in wing habitus but known from only two specimens (*P. kinbote*); another is described as a species but is an isolated taxon possibly reducable to subspecies status in future work (*P. lanin*). Three new species are added to the poorly known "*sibylla* Group". The first is *P. penai* (historially misidentified as "*sibylla*" or "*sybilla*"), the others isolated species (one captured during the 1992 "desert bloom" in Atacama, *P. aureliana*, one from a few old specimens marked Cerro Aconcagua, *P. aconcagua*).

The problem of superficial "look-alike" species is examined-- bifurcate female genitalia characterize only *P. collina*, while a near look-alike in wing pattern (*P. zembla*) shows the winged genitalia typifying *P. plumbea* and various other congeners; a near look-alike of *P. andina* is actually *P. plumbea* (when compared to its type) though this species *does* share winged genitalia with a suite of previously undescribed species which have been mistaken for it; a near look-alike of non-congener "*Itylos*" *pelorias* Weymer also occurs (*P. kinbote*). Homoplasy in wing pattern thus appears rampant in the genus.

Treatment of morphological structures centers on traditional characters of the male valvae and new data from the female genitalia. Further revisionary work will focus attention on concordant characters of the male aedeagus and genital ring.

INTRODUCTION

The taxonomy of *Pseudolucia* Nabokov species in Chile and austral Neotropical regions has been confused by a large number of undescribed entities and few available names. Consequently, Chilean workers have noted numerous distinctive taxa but have been uncertain about how to apply historical names (J. Herrera, L. Peña in litt.). Descimon (1986) noted the nearly complete lack of knowledge about these high Andean and austral "blue butterflies" outside the broad application of a few historical names— *collina* Philippi, *plumbea* Butler, *sibylla* Kirby [sometimes as "*sybilla* Draudt"], *chilensis* Blanchard and *andina* Bartlett-Calvert. Of these, only the latter two large and spotted species have been identified with consistency by southern South American workers and curators.

We have recently begun revising the Neotropical Polyommatinae (Bálint and Johnson 1993; Bálint in press). We plan to fully revise *Pseudolucia* in a forthcoming publication including all the Neotropical taxa and study of additional morphological features. However, to facilitate the use of new names in forthcoming publications by Chilean workers, and spare the eventuality of voluminous descriptive work accompanying revisionary studies, we describe the outstanding new species of *Pseudolucia* from Chile and Patagonia below.

Identification of Pseudolucia *Taxa*. For several reasons, the identification of *Pseudolucia* species is very straightforward. Although there are two familiar undersurface wing patterns ("V-shaped" and "spotted"), these do not correlate with the major structural types comprising the genus. Rather, "spotted" and "V-shaped" species occur in each of the several structural categories. Therefore, since the structural habitus of each species group is readily observable in the simplest dissections, one can easily verify identifications by "cross-checking" distinctive wing characters against diagnostic genitalic features. To summarize, there are the three major structural configurations of the female genitalia: (1) widely bifurcate genital terminalia ("*bifurcate*" type [bifurcation being dorsal/ventral, not lateral] (♀♀ fig. A), (2) wing-shaped terminalia in which wide, flaplike, extensions flank a thin central tube (herein the "*winged*" type) (♀♀ figs. B-G,K,L) and (3) simple tubelike terminalia lacking additional components (herein the "*tubular*" type)(♀♀ figs. H,I). Accordingly, when viewing a specimen with "V-shaped" (or "spotted") ventral hindwing pattern, if one is unsure of the reliability of minor wing details, a single dissection will reveal which of the female genital types is represented and thus confirm the species identification.

Traditional characters of the male valvae also show utility, though they appear more uniform when seen without detailed interspecific comparison. In the valvae, overall lateral shape appears diagnostic along with the habitus of the terminal "hooklike" rostellum. These characters of the male valvae and aedeagus, noted first by Nabokov (1945), also readily corroborate the various *Pseudolucia* species when some attention is given to overall valval shape and rostellum character. However, such differences are more easily recognized when observed over long series. Divergent valval shape can be noted particularly in *P. andina*, a taxon Nabokov did not include in the genus. Yet, a near look-alike of *P. andina* (*P. plumbea*) shows valvae quite normal for the genus. The frequency of "look-alike" species in *Pseudolucia*, belied by characters of both male and female genitalia, suggests that wing pattern homoplasy typifies the genus and has been the major source of confusion in historical identifications. In the present paper, we illustrate characters of the male valvae and female genital terminalia. Revisionary study of *Pseudolucia* will expand this treatment to more characters, including those of the aedeagus and genital ring.

Recognition of new species in Chile has been aided further by Luis Peña's widespread recent fieldwork documenting sympatry and synchrony in a number of new and historical taxa. These series, and others obtained by the 1992 American Museum of Natural History (AMNH) expedition to Chile, clarify what might otherwise appear puzzling from the smaller historical samples at many museums, many which lack specific locality data. Johnson, Miller and Herrera (1992), in a study of poorly known Chilean hairstreak butterflies (*Eiseliana* and *Heoda*), also buttressed small old samples with recent material and were able to document groups of sympatric sister taxa.

***Species Groups of* Pseudolucia.** Southern South American *Pseudolucia* can be divided into five Species Groups based on structural characters. However, since superficial wing pattern is still the most generally used method for local and field identification, we present below the arrangement of *Pseudolucia* taxa that would be apparent from generalized wing characters. We then compare this list to groups based on structural characters. In the first list we use the name "*plumbea*" consistent with its historical common usage (although this usage does not fit the type specimen). Without this initial approach, there could be no historical framework for discussion since, in fact, nearly all specimens historically identified as "*plumbea*" have proved to be undescribed entities.

Workers may be startled by the number of new taxa described herein. Considering this, it must be reemphasized that six of the new species are as well represented in collections as the various "historical" taxa. Some (like *P. zembla*) are more so. New taxa derive from the frequency of previous misidentification, inattention to types and lack of morphological study. Five other taxa described are either very distinctive and poorly known or derive from rather unique collecting localities. None are represented by single specimens. It should be stressed, however, that in clusters like the *sybilla* Group only further collecting can hope to facilitate a full understanding of the relationships of some farflung components.

In a seminal study such as the present one, it has appeared most advisable to describe all the distinctive new entities, no matter how recently discovered (thus, to "error", if at all, on the side of detail). In doing so we have comforted ourselves with certain facts not available to former workers— for instance, all of the most recently added taxa are more well represented in our samples than "true" examples such historical taxa as "*plumbea*", "*sybilla*" and "*oligocyanea*". With this in mind, *Pseudolucia* is perhaps a fine example of how reluctance to take on the task of naming new entities has forced workers into a less desirable alternative, haphazardly applying the few available names.

1. *Superficial Wing Resemblance Groupings*

(Figs. 1-6)

* is a near "look-alike" of another, not closely related, species

** looks much like a sister species except for an outstanding divergent wing character

\+ betrays a resemblance to certain sister taxa in occassional specimens (apparently due to degree of environmental pattern suppression)

\- shows distinctive VHW pattern but is structurally indicated as not belonging to the group one might guess by closest wing pattern association

-- historically mistaken for a "well-known" species but actually undescribed

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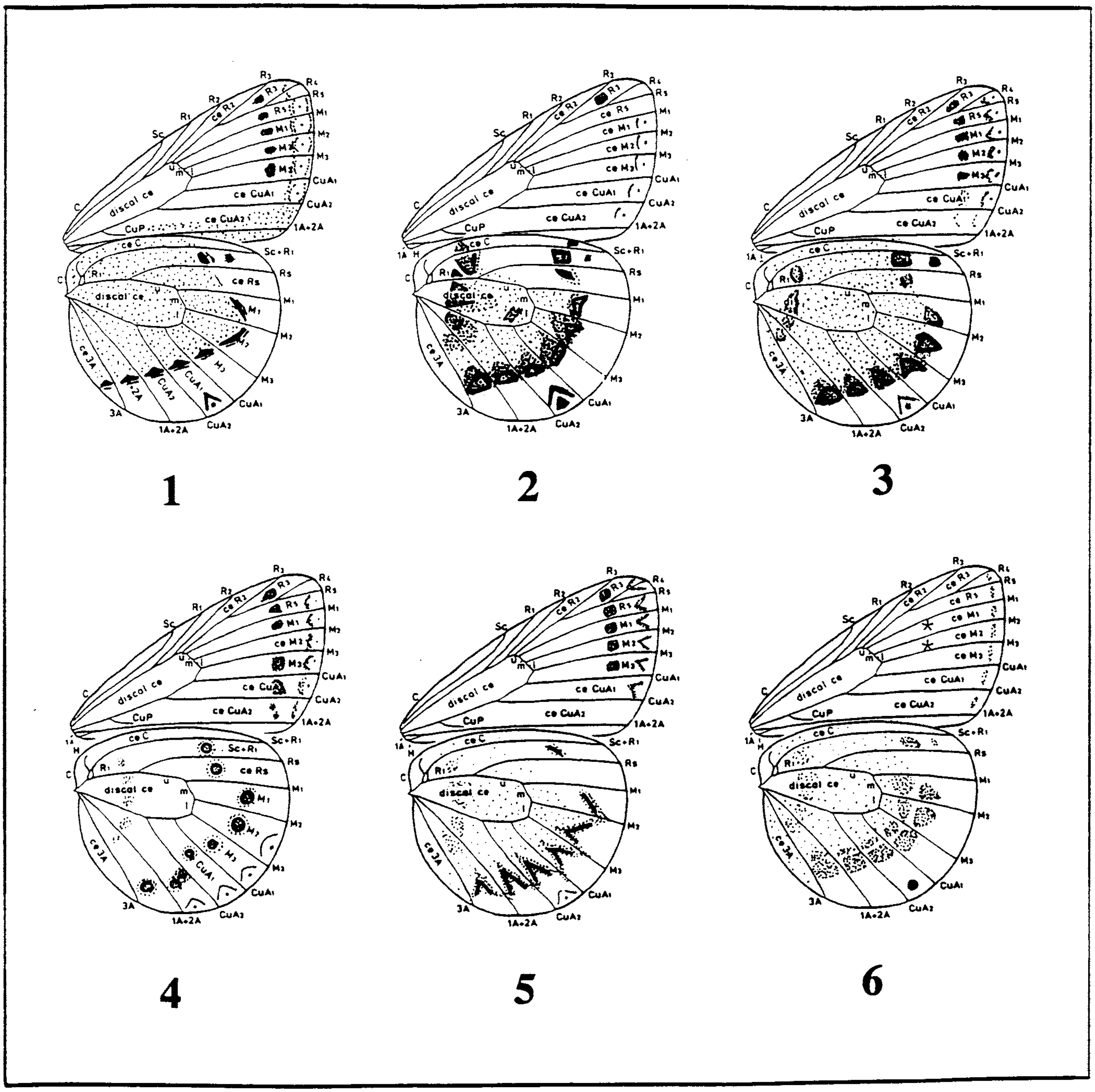
COLLINA-like **GROUP** (VHW with concise, comparatively lineal, blackish V-shape pattern, Fig. 1):
Pseudolucia collina (Philippi)
Pseudolucia zembla new species (*****)



Figs. 1-6. Superficial Wing Pattern Groupings in high Andean and Austral *Pseudolucia*.

1. "*collina*-like": includes *P. collina* and look-alike *P. zembla* (structurally belonging in *plumbea* Group). HW V-shape concise and appearing quite lineal relative to congeners (facies approached in *P. lanin*, see below).

2,3. "*plumbea*-like": includes *P. annamaria* and relatives (Fig. 2) (except *P. zembla*). HW with larger ruptive elements in medial band, repeated somewhat lighter in basal area. However, HW is similar in two members of *chilensis* Group (*P. charlotte* and, to an extent, *P. lanin*) (Fig. 3) which resemble their sister *P. chilensis* only on the FW.

4. ***chilensis***: unique, the other two structural members of the *chilensis* Group have HW similar to *P. plumbea* and relatives (above, 2,3). The HW is spotted across medial band; FW spotted across postmedial area.

5. "*andina*-like": includes *P. andina* and look-alike *P. plumbea* (though structurally a member of the *plumbea* Group). The HW medial elements are greatly incised and crescent-like.

6. "*sibylla*-like": includes *P. sibylla* and relatives. HW pattern is obsolescent and patchlike with submarginal mark at CuA1 lunulate; FW (noted only as **, above) varies from spotted to obsolescent, depending on the species.

Another congener, *P. kinbote*, is so divergent the HW pattern resembles a noncongener, "*Itylos*" *pelorias*.

Wing Resemblance Groupings, continued...

"*PLUMBEA*"-like GROUP (VHW with large ruptive patches of black or brown forming the medial band, Figs. 2,3):

VHW ruptive elements prominent along medial band and in basal areas; VFW usually not fully spotted across postmedial area (Fig. 2):

Pseudolucia annamaria new species (--)
Pseudolucia hazeorum new species (**)
Pseudolucia clarea new species
Pseudolucia vera new species (+)(-)

VHW ruptive elements more limited to "bottom" of medial band; VFW fully spotted across postmedial area (Fig. 3):

Pseudolucia charlotte new species (-)
Pseudolucia lanin new species (-)

***SIBYLLA*-like GROUP** (VHW with pattern unobtrusive, generally comprised of various mottled patches in some way forming a medial band, Fig. 6):

Pseudolucia sibylla (Kirby)
Pseudolucia oligocyanea (Ureta)
Pseudolucia penai new species (--)
Pseudolucia aureliana new species
Pseudolucia aconcagua new species

***CHILENSIS* GROUP** (VHW with spotted medial pattern; VFW fully spotted across postmedial area, Fig. 4):

Pseudolucia chilensis (Blanchard)

***ANDINA*-like GROUP** (VHW with jagged crescent like elements forming the medial band, Fig. 5):

Pseudolucia andina (Bartlett-Calvert)
Pseudolucia plumbea (Butler) (*)

One species, *P. kinbote*, is so divergently marked as to appear like noncongener "*Itylos*" *pelorias* (see below).

2. *Groupings Based on Structural Characters*

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bolded parenthetical notations as above, except for:

(++) most resembles a noncongener but the female is unknown; therefore, placed below based on apparent modification of the divergent wing pattern from that of *P. chilensis*.

***COLLINA* GROUP** (female genital terminus bifurcate, fig. ♀A):

Pseudolucia collina (Philippi)

***PLUMBEA* GROUP** (female genital terminus winged, figs. ♀B [*collina* look-alike *P. zembla*] - G):

Pseudolucia plumbea (Butler) (*)
Pseudolucia zembla new species (*)
Pseudolucia hazeorum new species (**)
Pseudolucia clarea new species
Pseudolucia annamaria new species (--)

***SIBYLLA* GROUP** (male genitalia with extremely robust and/or hooked valval rostellum; females poorly known but suggesting close affinity to *plumbea* Group immediately above, figs. ♂M-Q,♀KL):

Pseudolucia sibylla (Kirby)
Pseudolucia oligocyanea (Ureta)
Pseudolucia penai new species (--)
Pseudolucia aureliana new species
Pseudolucia aconcagua new species

***CHILENSIS* GROUP** (female genital terminus tubular, figs. ♀F [*collina*-like *P. vera*] and H-I):

Pseudolucia chilensis (Blanchard)
Pseudolucia charlotte new species (-)
Pseudolucia lanin new species (-)
Pseudolucia vera new species (+)(-)
Pseudolucia kinbote new species (++)

***ANDINA* GROUP** (male genitalia lacking hooklike valval rostellum, fig. ♂L):

Pseudolucia andina (Bartlett-Calvert)

TAXONOMIC DESCRIPTIONS

Terminology follows Nabokov (1945), using DFW,DHW and VFW,VHW for dorsal fore- and hindwings, ventral fore- and hindwings, respectively. Photographs are keyed to glossy photoplates interspersed in volume, line drawings to captioned figures within this number. Label data conforms to most recent provincial system for Chile (Rand McNally & Company 1992). Consistent with recent revisionary work (Bálint and Johnson 1993; Bálint in press), most new names are derived from characters in Nabokov's life or fictional writings.

COLLINA GROUP—

Female genital terminalia bifurcate.

Pseudolucia collina **(Philippi),**
Photoplate VII: A(♂),B(♀); Figs. 1 and ♂♀A.
Lycaena collina Phillipi 1859.

DIAGNOSIS. *Wings*. Differing from most congeners by the quite lineal appearance of elements comprising the V-shaped VHW pattern (Fig. 1). Contrasting congener below, V-shaped band less lineal, comprised of more mottled blackish to dark brown spots contrasting mottled and/or grizzled tawny basal ground colors. V-shaped band extending only to the edge of postmedian area (congener below with the V encroaching submargin), offset by two to three prominent black to brownish spots costad and/or marginad in cells Sc+Rl and /or RS. DFW,DHW blue with thin black marginal line, HW with barely perceptable (or no) CuA1 eyespot; wing fringe (contrasting congener below) usually emphatically checkered.

Female Morphology showing terminal tergite with short robust ventral apodeme, genitalia with sclerotized terminalia prominently bifurcate (see below). ***Male Morphology*** with genital valvae laterally narrow and elongate and terminal rostellum upturned above Baird's angulation (see ♂ Figs. P,Q) and showing a mild ventrally-directed hook.

DESCRIPTION. ***Male***. DFW,DHW ground azure with thin black marginal border, DHW without (or with barely notable) black eyespot at cell CuA1. VFW ground yellow to orange framed by submarginal tan to brown borders and with usually emphatic postmedial band of five black to brownish spots; VFW ground yellow-white to beige with "V"-shaped band comprised of closely aligned emphatic blackish to dark brown elements occurring quite lineally compared to the ruptive or spotted band elements in other congeners. V-shaped band extending to edge of postmedian area and offset by two to three prominent black to brownish spots costal and/or marginal in cells Sc+Rl and/or RS; submargin of cell CuA1 with black or dark brown eyespot of various prominence (but seldom reflected on the DHW). FW length: 8.0 mm. - 10.5 mm. (n=10). ***Female***. Similar to male on VFW, VHW but DFW marked buff yellow to orangish within wide submarginal brown to fuscous borders; DHW completely fuscous to brown and seldom reflecting an eyespot submarginal in cell CuA1. FW length: 8.0 mm.-10.5 mm. (n=4). ***Male Tergal Morphology and Genitalia***. Fig. ♂A. *Sipc* lacking. Genitalia with valvae shape elongate and elliptic, less undulate along surfaces than most congeners; terminal rostellum mildly recurvate with a ventrally-directed hook, height of recurvation equal to or only slightly exceeding height of Baird's angulation. ***Female Tergal Morphology and Genitalia***. Fig. ♀A. *Sipc* with eighth tergite laterally robust, showing short robust ventrally-directed apodeme of triangulate shape. Genitalia with sclerotized terminalia widely bifurcate, appearing "C" -shaped in the lateral view, with dorsal lobe dominant and enclosing tubular elements typical of genus (A,b), ventral element less prominent (A,a).

TYPE. See Bálint in press.

DISTRIBUTION. *Spatial*: widely represented in Chilean material, from Coquimbo Reg. south to Bío Bío Reg. and at altitudes from 2000 - 4000 m. *Temporal*: dates on specimens range from November to January.

REMARKS. The situation of *P. collina* typifies previous confusion concerning austral *Pseudolucia*. A near look-alike species (described below) is also widely distributed and lacks the distinctive bifurcate genitalia typifying *collina* females. Subsequent revisionary work will emphasize additional characters of the male, including elements of the genital ring (uncus, tegumen, saccus) and the aedeagus. When one has looked at many specimens most *P. collina* stand out immediately by the more ruptive and shorter "V" on the VHW and by the DFW,DHW being almost always greatly checkered and lacking a CuA1 spot on the DHW.

P. collina is indicated as sympatric with its look-alike *P. zembla*, along with *P. hazerorum* and *P. clarea* described subsequently, at localities labelled Vicuña, Elqui and Alcohuaz, Vicuña.

MATERIAL EXAMINED. Specimens with generalized data: CHILE. Chile, ex. Comstock Coll. 1♀ (AMNH); Chile, leg. E. P. Reed 1♂ (AMNH). Specimens with specific data: CHILE. Reg. Coquimbo, Elqui, Vicuña, leg. G. Castillo, 2 November 1991, 4♂♂, 1♀ (AMNH); Reg. Coquimbo, Alcohuaz, Vicuña, October

(AMNH); Reg. Coquimbo, Alcohuaz, Vicuña, October 1990, leg. G. Castillo, 2♂♂ (BMNH); Reg. Bío Bío, Nũble, Las Truncas, Cordillera Chillán, October 1981, leg. L. Peña 2♂♂ (FMNH); Reg. Bío Bío, Nũble, Las Trancas, Chillán, 16 December 1976, leg. S. Ocars, 1♂ (FMNH); Reg. Bío Bío, Nũble, Las Cabras, Chillán, 10-25 January 1954, 1♂ (FMNH); Reg. Valparaíso, Valparaíso, 3 November 1935, 1♂,1♀ (AMNH); Reg. Coquimbo, Vicuña, Alcohuaz, October 1990, leg. G. Castillo, 1♂, 1♀ (AME); Reg. Coquimbo, Vicuña, Alcohuaz, October 1990, leg. G. Castillo, 1♂ (CMNH).

Pseudolucia zembla,
NEW SPECIES

Photoplate VII: C(♂),D(♀); Figs. 1 and ♂♀B.

DIAGNOSIS. *Wings.* VHW "V"-shaped band (Fig. 1), in contrast to *P. collina*, extending almost completely to the wing margin and comprised of more continuous elements angled from cell M1 to the anal margin and offset by a single black spot costad in cell SC+R1 (much like in the much larger [FW 10.5-12.0 mm.] species *P. andina*).

Female Morphology with terminal tergite laterally robust and with dorsally- and ventrally-directed processes, latter angulate; genitalia with sclerotized terminalia elongate and "winged", latter elements, however, very narrow compared to congeners. ***Male Morphology*** showing the genital valvae steeply sloped in the posterior and very produced at Baird's angulation (resultant height of curvate terminal rostellum thus amounting to less than the latter measure).

DESCRIPTION. ***Male.*** DFW,DHW ground lustrous azure with thin black marginal border, DHW with notable black eyespot at cell CuA1. VFW ground gray-white to beige, FW with area basad of submargin orange, submargin with arc of five black spots, margin yellow-gray. VHW with "V"-shaped band comprised of rather concisely aligned blackish to dark brown spots contrasting gray ground and extending to the submarginal area, offset usually by a single black to brownish spot costal in cell Sc+Rl; submargin of cell CuA1 with prominent black or dark brown eyespot (seldom reflected on the DHW). FW length: 9.0 - 10.5 mm. (n=10). ***Female.*** Similar to male on VFW, VHW but DFW broadly yellow to orange inside a well defined brown submarginal and apical border, DHW brown often invaded by suffusive yellow or orange. FW length: 8.5 - 10.5 mm. (n=10). ***Male Tergal Morphology and Genitalia.*** Fig. ♂B. *Sipc* lacking. Genitalia with valvae shape hemielliptical and with anterior end steeply sloped, contrasting great production at Baird's angulation; height of curvate terminal rostellum consequently significantly less than this latter measure. ***Female Tergal Morphology and Genitalia.*** Fig. ♀B. *Sipc* showing robust eighth tergite with dorsal and ventral anteriorly directed processes, latter angulate in shape. Genitalia showing "winged" habitus of "plumbea Group" but with elongate and thin terminal elements, on which the lateral expanse of the wings is very slight.

TYPES. Holotype male (FW 8.0 mm.), allotype female (FW 8.5 mm.), CHILE, Reg. Bío Bío, Nũble, 9 km. N. Los Trancas, 15 January 1967, leg. L. Strange, deposited UMCE. ***Paratypes.*** **HNHM:** 1♂, 1♀, CHILE, Reg. Bío Bío, Nũble, 3 km. N. Las Trancas, 4000 m., 15 January 1967, leg. L. Strange. **IML:** 1♂,2♀♀, CHILE, Reg. Bío Bío, Nũble, 3 km. N. Las Trancas, 4000 m., 15 January 1967, leg. L. Strange; 1♀, CHILE, Reg. Maule, Curicó, 6 km. N. Los Quenes, 2300 m., 1 April 1967. **FMNH:** 1♂,1♀, CHILE, Reg. Maule, Malleco, 4300 m., 25 January 1967, leg. L. Peña (divergent upland population, see Remarks); 1♂, CHILE, Reg. Santiago, Carretones, Cordillera Santiago, 31 December 1950, leg. L. Peña. **AMNH:** 11♂♂, 2♀♀, CHILE, Valparaíso Reg., Valparaíso, January 1936, leg. E. P. Reed; 7♂♂, 1♀, CHILE, Reg. Coquimbo, Elqui, Vicuña, November 1991, leg. L. Peña; 1♂, CHILE, Reg. Coquimbo, Elqui, February 1990, leg. Castillo; 1♂, CHILE, Reg. Coquimbo, Elqui, Quanaqueros, November 1989, leg. L. Peña; 1♂, 1♀; CHILE, Reg. Coquimbo, Elqui, La Higuera, November 1991, leg. L. Peña; 2♂, CHILE, Reg. Coquimbo, Tongoy, January, leg. P. Mazry. **UMCE:** 1♂ CHILE, Reg. Coqumibo, Elqui, La Higuera, November 1991, leg. L. Peña. **BMNH:** 2♂♂,2♀♀ CHILE, Reg. Coquimbo, Elqui, La Higuera, November 1991, leg. L. Peña. **CMNH:** 1♂,1♀, CHILE, Reg. Coquimbo, Elqui, La Higuera, November 1991, leg. L. Peña. **LPC:** 1♂,1♀, CHILE, Reg. Coquimbo, Elqui, La Higuera, November 1991, leg. L. Peña. **UMCE:** 1♂ CHILE, Reg. Coquimbo, Elqui, La Higuera, November 1991, leg. L. Peña; 1♂, CHILE, Reg. Araucania, Pichinahuel, Cordillera Nahuelbuta, 28-31 January 1958, leg. J. Herrera G., 1♂, Reg. Araucania, Pichinauel, 10-20 January 1959, leg. J. Herrera G. **AME:** 1♂, CHILE, Choapa, Los Vilos, 18 November 1991, leg. L. Peña; 1♂, CHILE, Reg. Araucania, Pichinauel, 10-20 January 1959, leg. J. Herrera G.

DISTRIBUTION. *Spatial*: currently known from numerous localities from Coquimbo Reg. southward to Bío Bío Reg. in CHILE and including altitudes from 2000 - 4300 m. *Temporal*: dates on specimens range from November to April.

surprise, since the wing characters have always confused it with *P. collina*. Technically, and hereafter in revisionary work, *P. zembla* will be placed in the "*plumbea* Species Group". However, we chose to describe it subsequent to *P. collina* because of the confusing similarity in the V-shaped VHW patterns. *P. zembla* is indicated as sympatric with its look-alike *P. collina*, along with newly described *P. hazerorum* and *P. clarea* (see below) at localities labelled Vicuña, Elqui and Alcohuaz, Vicuña.

ETYMOLOGY. Named for the mythical kingdom "Zembla" claimed to have been ruled by Nabokov's character Kinbote in the novel *Pale Fire*.

PLUMBEA GROUP—

Female genitalia "winged" (as noted heretofore, by structural character containing also *P. zembla* the look-alike of *P. collina* described immediately above).

Pseudolucia plumbea (Butler),

Photoplate VII: E(♂),F(♀); Figs. 5 and ♂♀G.

Scolitantides plumbea Butler 1881.

DIAGNOSIS. *Wings*. Historically confused with much more common new species *P. annamaria* described below. VFW,VHW (based on the type, see Remarks) a very near look-alike of *P. andina* (jagged and grizzled lunulate postmedian band, Fig. 5, though more ruptive as in Figs. 2-3) but DFW, DHW in males dull blue contrasting brightly checkered fringe and females bluer still with a succint orange FW patch. Greatly contrasting *P. andina* when dissected as noted immediately below.

Female Morphology with terminal tergite robust and very stout triangulate anterior apodeme; genitalia with sclerotized terminalia also robust, winglike processes tapered anteriorly some four-fifths of terminus length. ***Male Morphology*** with valvae elliptic and relatively robust compared to other group members, terminal rostellum very hooked, with arch of hook (contrasting *P. annamaria*) not exceeding height of Baird's angulation.

DESCRIPTION. ***Male***. DFW,DHW ground lustrous blue, often silvery, with black marginal line and greatly checkered fringe. VFW centrally yellowish to beige, postmedial area spotted (more emphatically toward costa), submargin dark beige to brown; VHW ground mottled yellow to gray, medial band comprised of greatly incised brown and tawny ruptive elements (more like *P. andina* than traditional idea of "*plumbea*", see Remarks), elements most prominent along the bottom of the "V"-shaped habitus, if surmized as such. Limbal area mottled yellow and gray with emphatic brown CuA1 spot. FW length: 10.5 mm. (n=1, see Remarks). ***Female***. Similar to male on VFW,VHW; DFW,DHW mottled blue and brown, FW with distinctive suffusive orange medial patch. FW length: 10.5 mm. (n=1, see Remarks). ***Male Tergal Morphology and Genitalia***. Figs. ♂G. *Sipc* lacking. Genitalia with valvae shape elliptic, more robust than immediate congeners, terminal rostellum elongately hooked, arch of hook not exceeding Baird's angulation. ***Female Tergal Morphology and Genitalia***. Fig. ♀G. *Sipc* with eighth tergite laterally robust and with stout triangulate anteriorly-directed apodeme. Genitalia with sclerotized terminalia robust, somewhat parallelogram-shaped in lateral aspect, dorsal/ventral aspect with winglike elements tapered posterior along some four-fifths of the terminus length.

TYPES. See Bálint in press.

DISTRIBUTION. *Spatial*: probably more widely distributed than indicated here due to the problem of misidentification. Specimens matching the type currently known from the Reg. Bío Bío, CHILE, in the Cordillera Chillán. *Temporal*: currently known only from December collection data of specimens we have studied.

REMARKS. As noted heretofore, the name *plumbea* has been widely misused to refer to the new species *P. annamaria* described below. With reference to the type, *P. plumbea* is properly associated with the facies of a small number of distinctive specimens in our samples originally thought by us to represent a little-known new species. This situation typifies the problems of common usage which have plagued these butterflies and appears to have resulted from a paucity of material and lack of ready access to type specimens. Thus, there is a long history of traditional identification regarding *P. plumbea* which appears now to be incorrect.

MATERIAL EXAMINED. CHILE. 1♂,1♀, Reg. Bío Bío, La Cabras, Cordillera Chillán, 20 December 1954, leg. L. Peña (UMCE); 2♂♂, Reg. Bío Bío, La Cabras, Cordillera Chillán, 10-23 December 1954, leg. L. Peña (AMNH).

Pseudolucia annamaria,
NEW SPECIES

Photoplate VII: G(♂),H(♀); Figs. 2 and ♂♀C.

DIAGNOSIS. *Wings*. Historically confused with the name *plumbea* Butler. Diagnosed by a VHW spotted postmedial band comprised of irregularly shaped black to brown "patchlike" elements extending from the HW costa to anal margin and offset by a full (or nearly full) band across the HW postbasal area (Fig. 2). These facies, along with bright azure blue dorsum and checkered wing fringe, mark this familiar but historically misidentified species.

Confusable also with the new species *P. hazeorum* described below. The latter differs most obviously by a wide (2 mm.) dark DFW,DHW submarginal band and VHW with basal areas very dark and medial patches bordered by bright white postdiscal marked in cells CuA1, M3 and M2 and around the CuA1 eyespot.

Female Morphology showing terminal tergite with very elongate anterior apodeme, genitalia with the sclerotized terminalia narrow and elongate in the lateral view, wings robust in the dorsal/ventral view. *Male Morphology* with genital valvae elongate and undulate across the dorsum, rostellum robust with arch of hook exceeding maximal height of valve (Baird's angulation obscured by dorsal undulation).

DESCRIPTION. *Male.* DFW ground lustrous blue to silvery blue, margins with fringes greatly checkered, DHW with prominent black eyespot in submargin at cell CuA1. VFW medially yellow to orangish, spotted across the postmedial area (especially emphatic toward the costa);VHW with the medial band comprised of irregularly shaped black to brown ruptive and patchlike elements extending from the costa to anal margin and offset by a full to nearly full band across the postbasal area (if considered as comprising a crude V-shape, emphasis of the dark color and prominent pattern occurs mostly along the bottom angle of the V [discal cell to anal margin]. Limbal area mottled gray and yellowish, with prominent black to dark brown eyespot in cell CuA1. FW length: 9.5 - 10.5 mm. (n=10). *Female.* Similar to male on VFW,VHW, DFW,DHW differing by being generally browner with with more pronounced and expansive orange across the medial area. FW length: 10.0 - 11.0 mm. (n=10). *Male Tergal Morphology and Genitalia.* Fig. ♂C. *Sipc* lacking. Genitalia with valvae shape elongate and ellipic, dorsal margin undulate and obscuring Baird's angulation; terminal rostellum robust and with mild ventrally-directed curve, height approaching but not exceeding maximum lateral valvae width. *Female Tergal Morphology and Genitalia.* Fig. ♀C. *Sipc* showing lateral eighth tergite with elongate anteriorly-directed apodeme equalling about one-third tergite length. Genitalia with sclerotized terminalia very narrow in the lateral view (tube length some six-times maximal width), in the dorsal/ventral view breadth of each winglike element about equal to width of central tube.

TYPES. Holotype male (FW 10.0 mm.), CHILE, Reg. Coquimbo, Elqui, Alcohuaz, 19 October 1991, leg. G. Castillo, allotype female (FW 10.0 mm.), Reg. Coquimbo, Elqui, SE Vicuña, 2 November 1991, leg. G. Castillo, deposited UMCE. ***Paratypes.*** **HNHM:** 3♂♂,1♀ CHILE, Reg. Coquimbo, Elqui, S. Vicuña, 3 November 1991, leg. G. Castillo; 1♂, CHILE, Reg. Coquimbo, 24 mi. S. Vicuña, 24 October 1992, leg. C. Snyder, AMNH Expedition. **FMNH:** 2♀♀, CHILE, Reg. Bío Bío/Maule, Fdo. Malcho, Cordillera Parral, February 1958, leg. M. Rivera; 1♀, CHILE, Reg. Bío Bío, Lagunillas, 7 October 1964, leg. L. Peña; 1♂, CHILE, Reg. Coquimbo, Hda. Illapel, 22 October 1958, leg. L. Peña; 1♂, CHILE, Reg. Santiago, Yurgotorio, Cordillera Santiago, 23 December 1950, leg. L. Peña. **AMNH:** 3♂♂, CHILE, same data as holotype but October 1990. **BMNH:** 1♂, CHILE, Coquimbo Reg., Elqui, June 1989, leg. G. Castillo; 1♂; CHILE, Coquimbo Reg.,Monte Grande, 27 October 1992, leg. C. Snyder, AMNH Expedition. **CMNH:** 1♂, CHILE, Coquimbo Reg., Elqui, June 1989, leg. G. Castillo. **AME:** 1♂, CHILE, Coquimbo, Reg., Elqui, June 1989, leg. G. Castillo.

DISTRIBUTION. *Spatial*: currently known from numerous Chilean localities, from the Coquimbo Reg. in the north to the Cordillera Parral (Maule/Bío Bío southward. *Temporal*: dates on specimens range from October to June.

REMARKS. This species is indicated as sympatric with its black banded sister species described below as *P. hazeorum*, and the distinctive burnished bronze new species *P. clarea* (of subsequent entry) at localities labelled Vicuña, Elqui and Alcohuaz, Vicuña. At these locations the species also co-occurs with the two look-alikes of the *collina*-like group, *P. collina* and *P. zembla*.

ETYMOLOGY. Named for the wife of the senior author, Anna Maria.

Pseudolucia hazeorum,
NEW SPECIES

Photoplate VII: I(♂),J(♀); Figs. 2 and ♂♀D.

DIAGNOSIS. *Wings.* DFW,DHW with wide (2 mm.) bold grizzled black bands; VHW much like *P. annamaria* but with HW band vague and replaced instead by prominent white chevrons distally in the submarginal areas contrasting black marginal spots at cell CuA1 and at the anal margin.

Female Morphology showing rather oblongate eighth tergite with an elongate, swollen-based, anterior apodeme; genitalia with terminalia extremely diminutive compared to those of *P. plumbea* and *P. annamaria*, comprised of a robust central tube flanked by short winglike elements (breadth not exceeding that of the tube diameter). ***Male Morphology*** with genital valvae elongate like *P. annamaria* but very tapered in the posterior with arch of robust terminal rostellum exceeding height of Baird's angulation.

DESCRIPTION. ***Male.*** DFW,DHW ground lustrous indigo, both wings with wide (2 mm.) bold grizzled black bands. VHW with patched pattern, compared to *P. annamaria*, HW band vague and replaced instead by prominent white chevrons occurring distally in the submarginal areas and contrasting black marginal spots at cell CuA1 and at the anal margin; submargin of cell CuA1 with prominent black to brownish eyespot. FW length: 9.5 - 11.0 mm. (n=5). ***Female.*** Similar to male on VFW,VHW; DFW,DHW completely brown except for suffusion or streaks of orange across the FW medial area. FW length: 10.0 - 11.5 mm. (n=3). ***Male Tergal Morphology and Genitalia.*** Fig. ♂D. *Sipc* lacking. Genitalia with valvae shape dominated by robust terminal rostellum; valval shape slim and elliptic with dorsum undulate and anterior end steeply tapered. ***Female Tergal Morphology and Genitalia.*** Fig. ♀D. *Sipc* showing laterally robust and rather oblongate eighth tergite with an elongate anteriorly-directed apodeme about one-third tergite length and swollen at its base. Genitalia with sclerotized terminalia extremely diminutive compared to congeners, comprised of small winged elements each not exceeding the diameter of the terminalia's central tube. Latter very robust, tube length only about four times maximal width.

TYPES. Holotype male (FW 10.5 mm.), allotype female (FW 9.5 mm.), CHILE, Reg. Bío Bío/ Maule, Malco, Cordillera Parral, January 1958, leg. M. Rivera, deposited UMCE. ***Paratypes.*** **HNHM:** 1♂,1♀, CHILE, same data as the primary types. **BMNH:** 1♂, CHILE, Reg. Bío Bío, Ñuble, Los Trancas, 15 December 1976, leg. L. Peña. **FMNH:** 1♂, CHILE, Reg. Bío Bío, Ñuble, Las Cabras, 1 - 20 October 1973, leg. J. MacArthur. **AMNH:** 1♂,1♀, CHILE, same data as the primary types; 1♂, CHILE, Reg. Coquimbo, Vicuña, Alcohuaz, October 1990, leg. G. Castillo; 1♂, CHILE, Reg. Coquimbo, Vicuña, October 1990, leg. G. Castillo.

DISTRIBUTION. *Spatial*: currently known from several localities in the Coquimbo Reg., Chile, southward to Bío Bío, with its specimens (and those of other species with similar data) indicating altitudes of 2000 - 4000 m. *Temporal*: dates on known specimens include October to January.

REMARKS. Characters of this species are very homogeneous across a wide range, setting it apart both from *P. plumbea* and *P. annamaria*. In addition, *P. hazeorum* is indicated as sympatric with several congeners— with *P. plumbea* and the distinctive burnished bronze new species *P. clarea* (subsequent entry) at localities labelled Vicuña, Elqui and Alcohuaz, Vicuña; with *P. zembla* at the Elqui locales and also Los Trancas, Ñuble. *P. hazeorum* has been misidentified by Chilean workers heretofore as *grata* Köhler (J. Herrera, L. Peña, in litt. to junior author).

ETYMOLOGY. A double meaning, the denotative of "haze" referring to the dark wing bands characterizing the species, but signifying also Nabokov's characters of the Haze family in *Lolita*-- the infamous Lolita and her mother Charlotte.

Pseudolucia clarea,
NEW SPECIES

Photoplate VII: K(♂),L(♀); Figs. 2 and ♂♀E.

DIAGNOSIS. ***Wings.*** DFW,DHW, contrasting the blue iridescence common to the genus, colored instead burnished bronze, mottled elegantly with blue on the HW; VHW grounds distinctly unicolorous tawny to orange contrasted by succinct lunulate black spots comprising the HW band and offset by large and succinct spots costad in cell Sc+R1, in the cell CuA1 margin, and at the anal angle. Overall pattern consequently appearing less spotted than congeners and confined to two large patches— one medially from the margin to cell M1, the other crossing the postbasal area.

Female Morphology showing lateral shape of eighth tergite rather parallelogramatic and with anteriorly-directed apodeme very robust and triangulate; genital terminalia with central tube extremely elongate (length equalling five times maximal diameter, seven times midpoint diameter) but with winglike elements very slight in expanse. ***Male Morphology*** with genital valvae very odd— lateral shape extremely slender with slight arch at midlength and greatly tapered anterior; terminal rostellum extremely upturned and terminally hooked, arch much exceeding Baird's angulation.

DESCRIPTION. ***Male.*** DFW,DHW ground burnished bronze, mottled with blue on the HW in an elegant fashion. VFW,VHW grounds distinctly unicolorous tawny to orange, greatly contrasted by succinct black lunules comprising the HW band; spots from margin to cell M1 coalesced into an expansive deep brownish-black patch,

MORPHOLOGICAL FEATURES

Males, A-Q (facing page and overleaf); Females, A-K (overleaf and following page).

Male valvae (historically used) appear rather uniform when seen *en masse* (A-Q), although at individual species level overall lateral shape is generally characteristic along with characters of the heavily sclerotized terminalia. The species and species group differences become very apparent in the corresponding females (A-K), the genus showing three very different configurations-- "bifurcate", "winged" and "tubular". In "sibylla Group" (where females are poorly known) wing pattern is divergent. Subsequent revisionary work will integrate characters of the male genital ring and aedeagus.

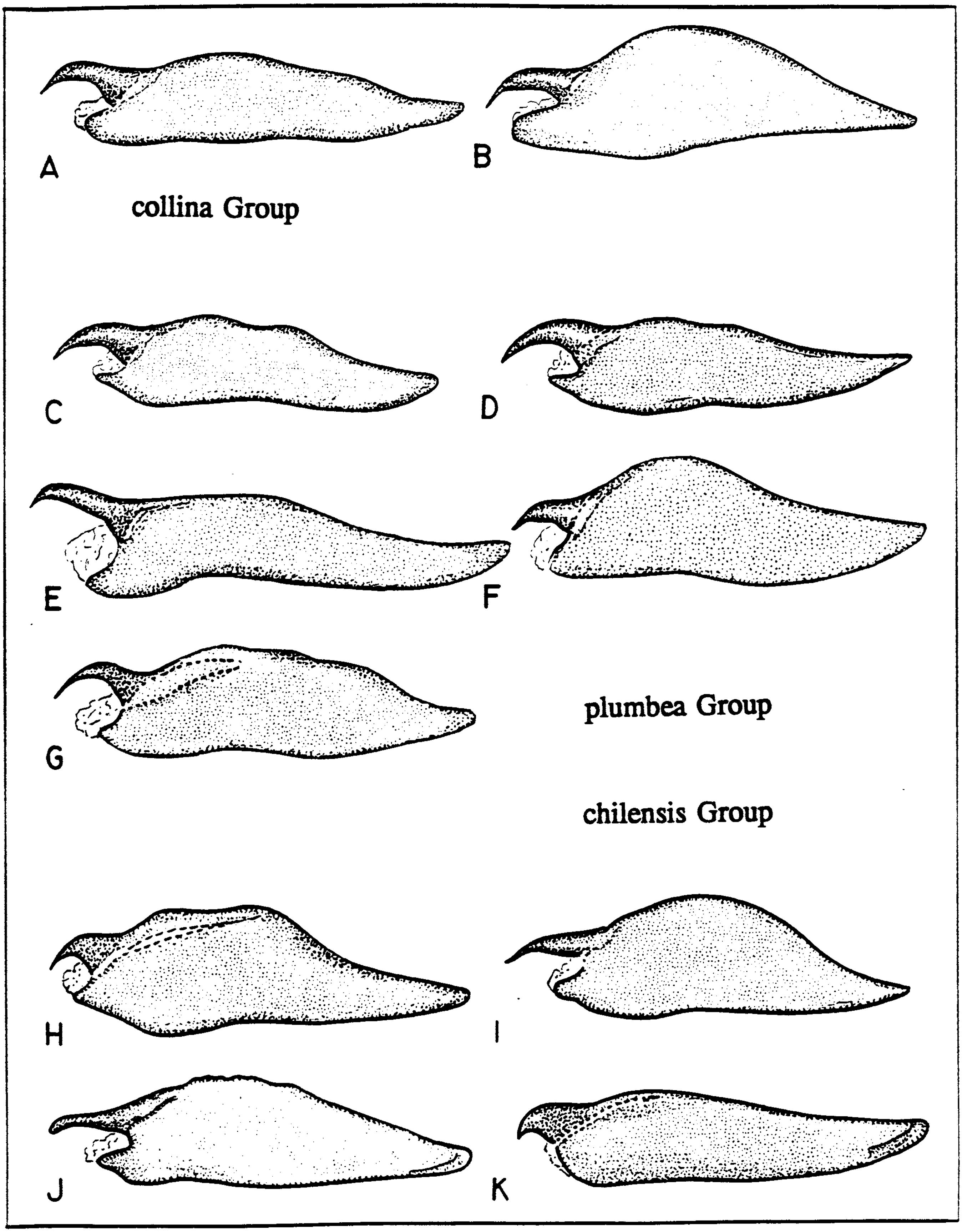
Species are grouped by Species Groups shown in **bold** with "collina Group" shown ambiguously *P. zembla* strongly resembles *P. collina* in the wings but structurally is clearly a member of the "plumbea Group" [see text and females B-G]) and "true" *P. plumbea* (often misidentified as common new species *P. annamaria*) placed next to the "chilensis Group" by genitalia. Numerous specimens with label data "Vicuña, Elqui" [Rio Elqui], Coquimbo, Chile are figured because many *Pseudolucia* species are indicated as sympatric in this area.

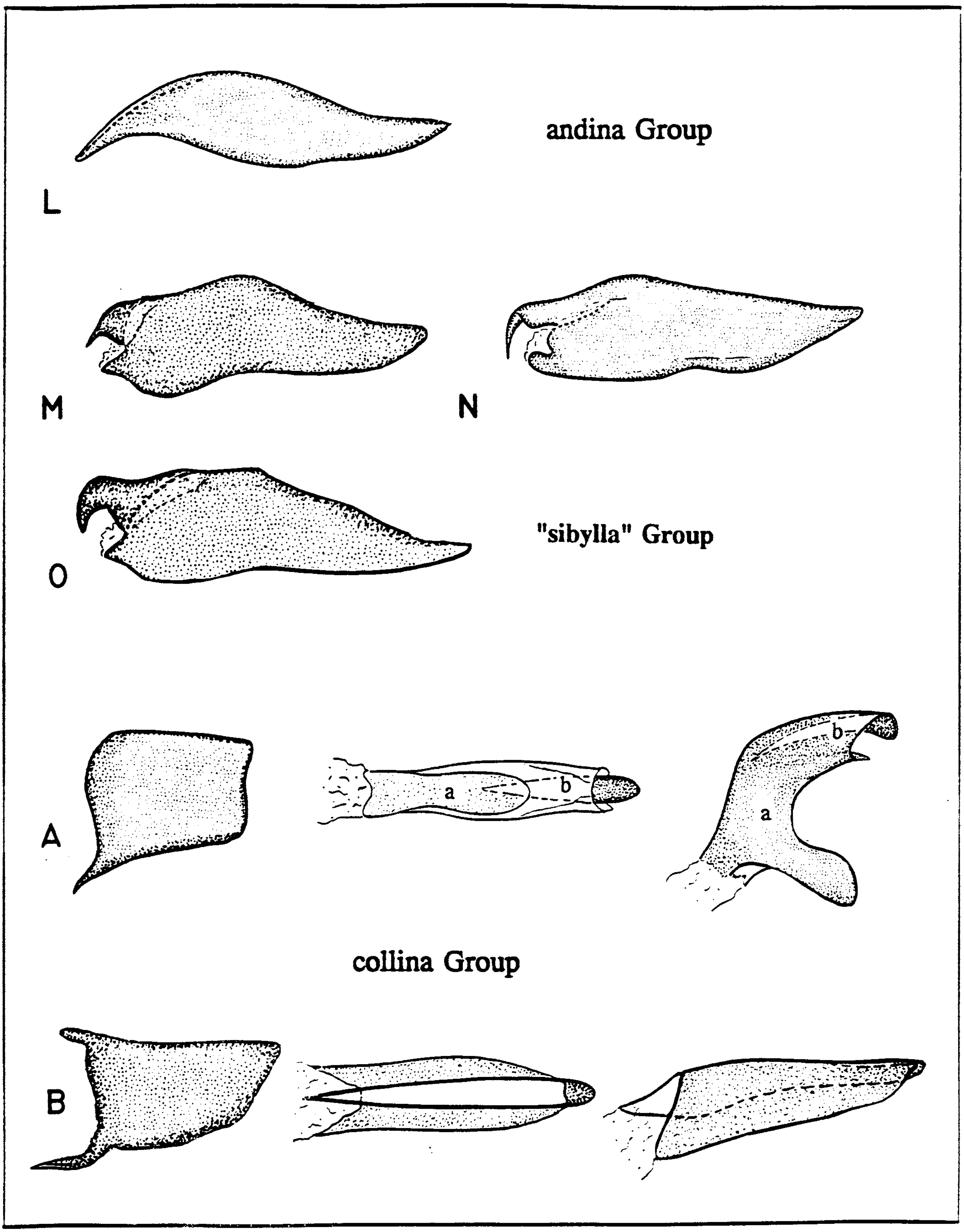
Figs. A-Q, Valvae of Males, Lateral View, Terminus Left

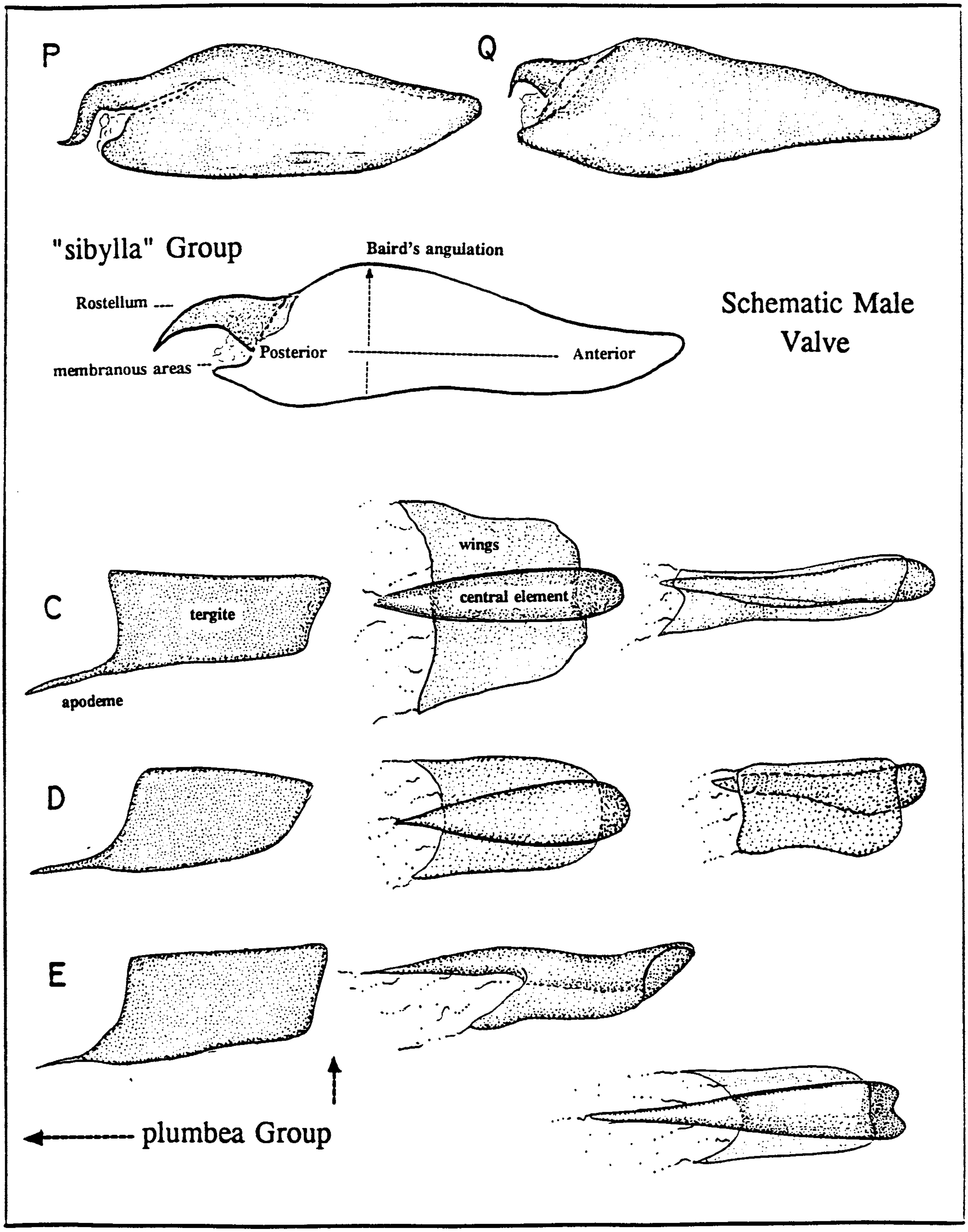
A. *Pseudolucia collina*, CHILE, Vicuña, Elqui (AMNH).
B. *Pseudolucia zembla*, holotype male (UMCE).
C. *Pseudolucia annamaria*, holotype male (UMCE).
D. *Pseudolucia hazeorum*, holotype male (UMCE).
E. *Pseudolucia clarea*, holotype male (UMCE).
F. *Pseudolucia vera*, holotype male (UMCE).
G. *Pseudolucia plumbea*, CHILE, Vicuña, Elqui (AMNH).
H. *Pseudolucia chilensis*, CHILE, Vicuña, Elqui (AMNH).
I. *Pseudolucia charlotte*, holotype male (IML).
J. *Pseudolucia lanin*, holotype male (IML).
K. *Pseudolucia kinbote*, holotype male (UMCE).
L. *Pseudolucia andina*, CHILE, Vicuña, Elqui (AMNH).
M. *Pseudolucia "sibylla"*, CHILE, La Laguna, Elqui (FMNH).
N. *Pseudolucia oligocyanea*, paratype male (FMNH).
O. *Pseudolucia penai*, holotype male (UMCE).
P. *Pseudolucia aureliana*, holotype male (AMNH).
Q. *Pseudolucia aconcagua*, holotype male (AMNH).

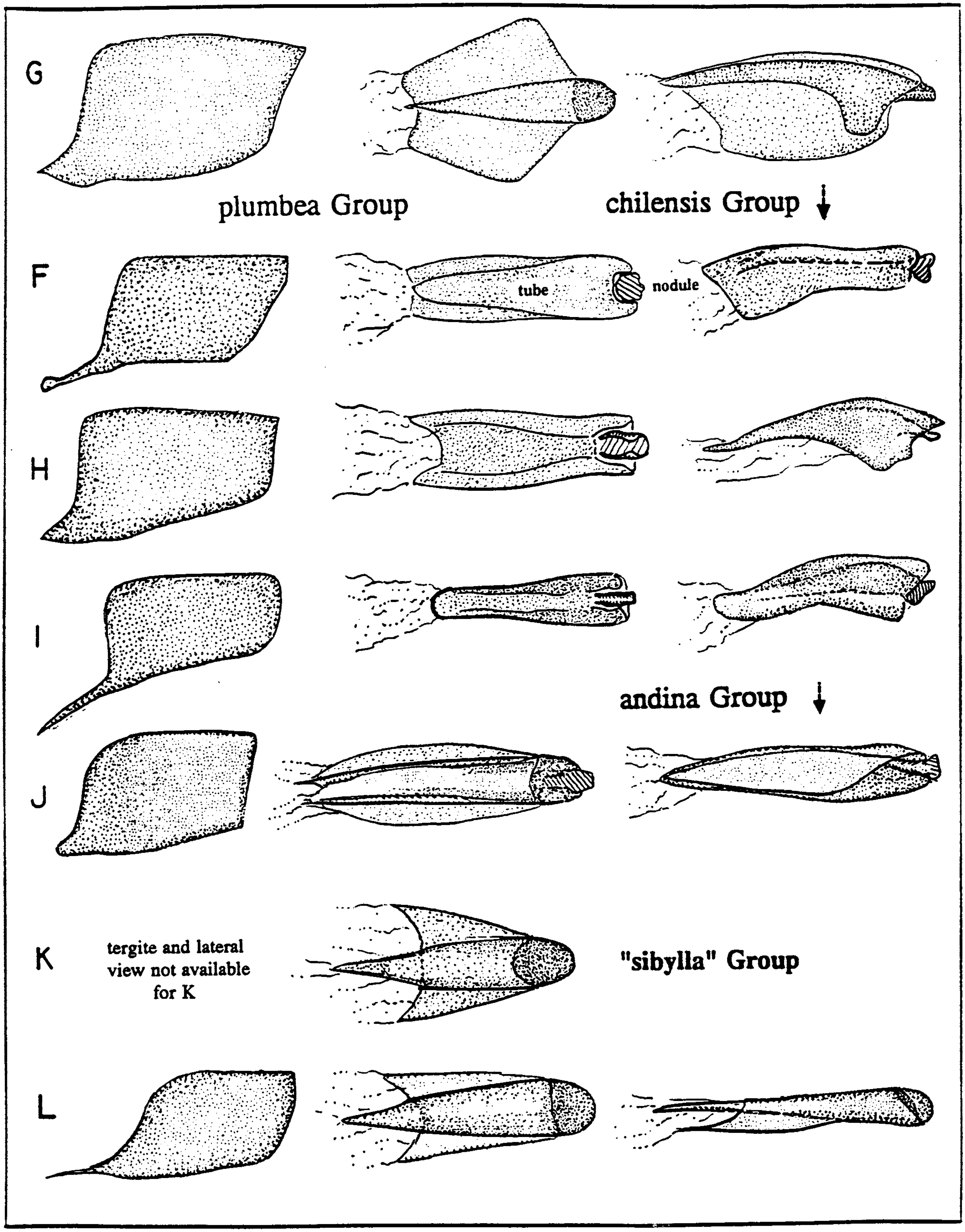
Figs. A-K, Tergal and Genital Features of Females, left (lateral view, terminal tergite, anterior apodemes placed left), middle (sclerotized genital terminalia, dorsal view, terminus right), right (same, lateral view, terminus right).

A. *Pseudolucia collina*, CHILE, Vicuña, Elqui (AMNH).
B. *Pseudolucia zembla*, allotype female (UMCE).
C. *Pseudolucia annamaria*, allotype female (UMCE).
D. *Pseudolucia hazeorum*, allotype female (UMCE).
E. *Pseudolucia clarea*, allotype female (UMCE).
F. *Pseudolucia vera*, allotype female (UMCE).
G. *Pseudolucia plumbea*, CHILE, Vicuña, Elqui (AMNH).
H. *Pseudolucia chilensis*, CHILE, Vicuña, Elqui (AMNH).
I. *Pseudolucia charlotte*, allotype female (IML).
J. *Pseudolucia andina*, CHILE, Vicuña, Elqui (AMNH).
K. *Pseudolucia aureliana*, allotype female (AMNH).
L. *Pseudolucia aconcagua*, allotype female (FMNH).


A
B
collina Group
C
D
E
F
G
plumbea Group
chilensis Group
H
I
J
K


andina Group
L
M
N
O
"sibylla" Group
A
a
b
a
b
collina Group
B


P
Q
"sibylla" Group
Baird's angulation
Rostellum
membranous areas
Posterior
Anterior
Schematic Male Valve
C
tergite
apodeme
wings
central element
D
E
plumbea Group


G
plumbea Group
chilensis Group ↓
F
tube
nodule
H
I
andina Group ↓
J
K
tergite and lateral view not available for K
"sibylla" Group
L

this patch paralleled by equally expansive succinct spots costad in cell Sc+R1, along the margin in cell CuA1 and at the anal angle (these together appearing more like one, unusual looking, solid postbasal patch). Submargin of cell CuA1 with prominent brown eyespot. FW length: 8.5 mm., 10.5 mm. (n=2). ***Female.*** Similar to male on VFW,VHW; DFW,DHW departing from most congeners by appearing much like male, burnished with mixtures of bronze, orange and blue. FW length: 10.0, 10.5 mm. (n=2). ***Male Tergal Morphology and Genitalia.*** Fig. ♂E. *Sipc* lacking. Genitalia with valvae shape peculiarly elongate and slender; Baird's angulation arched with posterior greatly tapered, anterior somewhat ventrally curvate; terminal rostellum elongate, upturned and hooklike, arch exceeding height of Baird's angulation. ***Female Tergal Morphology and Genitalia.*** Fig. ♀E. *Sipc* with eighth tergite laterally of parallelogramatic shape and with elongate anteriorly-directed apodeme (length approaching one-half tergite length) robust and triangulate at juncture with tergite. Genitalia with sclerotized terminalia showing elongate central tube (length some six times diameter at midpoint) flanked by extremely diminutive winglike elements (length about one-half that of tube; width expansive from tube only about one-half its diameter measure).

TYPES. Holotype male (FW 8.5 mm.), allotype female (FW 10.0 mm.), CHILE, Reg. Coquimbo, SE Vicuña, Elqui, 2 November 1991, leg. G. Castillo, deposited UMCE. *Paratypes*. **LPC**: 1♂, CHILE, Reg. Coquimbo, Vicuña, Alcohuaz, October 1990 leg. G. Castillo. **AMNH**: 1♀, CHILE, Reg. Coquimbo, Elqui, Vicuña, Oct. 1990, leg. L. Peña.

DISTRIBUTION. *Spatial*: currently known from small samples taken in Coquimbo Reg., Chile. *Temporal*: known only from October and early November.

REMARKS. This very elegant species is indicated as sympatric with *P. annamaria* and its dark-banded sister *P. hazeorum* at localities labelled Vicuña, Elqui and Alcohuaz, Vicuña in October and November. Here also occur *P. collina* and *P. zembla*. Of all the taxa recently collected by Peña, *P. clarea* appears the least common and may have been located due to ample desert rainfalls occurring in northern Chile in recent years (see Remarks under *P. aureliana*). Peña, in his shipment to us, noted of *P. clarea* that "more specimens were taken".

ETYMOLOGY. Named for "Clare Quilty", the rival of Lolita's paramour "Humbert" in Nabokov's novel **Lolita**.

Pseudolucia vera,
NEW SPECIES

Photoplate VII: M(♂),N(♀); Fig. ♂♀F.

DIAGNOSIS. *Wings*. Extremely small (FW 5.5 - 9.5 mm.) placed here with the "*plumbea* Group" for initial identification purposes, though structurally allied with the "*chilensis* Group". Both sexes with VHW tending to immaculate with rather random occurence of medial marks occasionally betraying a V-shaped appearance in some specimens. Male DFW,DHW bright silvery blue; female with broad orange area from FW base to medial area.

Female Morphology showing sclerotized genital terminalia belying the wings and resembling the tubular habitus of the *chilensis* Group; terminal tergite parallelogramatic with elongate, somewhat club-ended, anterior apodeme. ***Male Morphology*** with genital valvae showing greatly produced Baird's angulation, terminal rostellum consequently occurring quite at mid-line of valve's posterior margin.

DESCRIPTION. ***Male.*** DFW,DHW wingshape oblongate and thin, ground color bronze with thin blackish margins; VFW dull orangish with suffusive brown submargins, VHW grizzled brown, betraying only a slight pattern in some specimens— elements of a V-shaped band varying from vague and linulate to disjunctive (limited mostly to the costa and cell M1 and/or M2). FW length: 5.5, 7.5 mm. (n=2). ***Female.*** Similar to male on VFW, VHW; DFW,DHW grizzled brown except for slight suffusion of orange through FW medial area. FW length: 6.0 - 9.0 mm. (n=8). ***Male Tergal Morphology and Genitalia.*** Fig. ♂F. *Sipc* lacking. Genitalia with valvae shape greatly produced at Baird's angulation followed by severe anterior taper; terminally hooked rostellum reaching only about one-half height of Baird's angulation. ***Female Tergal Morphology and Genitalia.*** Fig. ♀F. *Sipc* with eighth tergite laterally of parallelogramatic shape and with elongate, club-ended, anteriorly-directed apodeme (length equalling one-half that of tergite base). Genitalia with sclerotized terminalia typical of *chilensis* Group— comprised of simple tubular element (in this species swollen at anterior) terminating with a sclerotized nodule.

TYPES. Holotype male, allotype female (both FW 7.5 mm.), CHILE, Reg. [La] Araucania, Malleco, Malacahuello, 27 November 1990, leg. L. Peña, deposited UMCE. *Paratypes*. **HMNH**: 1♂,1♀, CHILE, same data as primary types. **AMNH**: 3♀♀, CHILE, Bío Bío/ Araucania Regs., Lonquimay, 27 November 1990, leg. L. Peña. **BMNH**: 2♀♀, CHILE, same data as primary types but 26 January 1991, leg. L. Peña. **LPC**: 1♂,1♀, CHILE, Bío Bío/Araucania Regs., vc. Lonquimay, 22 November 1990, leg. L. Peña.

DISTRIBUTION. *Spatial*: currently known from small series from Reg. Araucania and Reg. Bío Bío, Chile, principally from Malacahuello and the vicinity of Volcán Lonquimay. *Temporal*: dates on specimens range from November to January.

REMARKS. This species is exemplary of polyommatine diversity in Chile-- if considered by wing characters alone, the entity might be considered a high altitude form of either *P. collina* or *P. zembla* (bifurcate and winged female genitalia respectively). Upon dissection, however, *P. vera* shows the simple tubular genitalia typifying *P. chilensis* and relatives.

ETYMOLOGY. Named for Nabokov's wife, Vera, to whom all of his books are dedicated.

CHILENSIS GROUP—

Female genitalia "tubular" (as noted heretofore, by structural character containing also *P. vera*, the small species described immediately above).

Pseudolucia chilensis (Blanchard)

Photoplate VII: O(♂),P(♀); Figs. 4 and ♂♀H.
Lycaena chilensis Blanchard 1852.

DIAGNOSIS. ***Wings***. Unmistakable due to the spotted habitus of the VFW,VHW (Fig. 4) in which each cell in the medial/postmedial area of the VHW is marked with a crisp white-haloed black lunule over orange FW ground and yellow to tan HW ground. Male DFW,DHW dusted silvery blue over light brown ground; female orange throughout FW medial area; both sexes submargins' marked throughout with thin orange dashes.

Female Morphology showing eighth tergite laterally robust and with thick and stout anterior process; genitalia with sclerotized terminalia robust and tubular, tapering somewhat in dorsal/ventral view to a terminal nodule. ***Male Morphology*** with genital valvae greatly produced in the posterior, steeply sloped to the anterior; terminal rostellum short and stout, arch well below Baird's angulation.

DESCRIPTION. ***Male***. DFW,DHW ground showing silvery-blue dusting over brown ground, both wings with orange dashes along submargin and usually checkered. VFW centrally orange, marginally yellow to tan, postmedial area with band of brown to black blotches or lunules paralleled by chevrons of lighter ground; VHW ground yellow to tan, medial/ postmedial area crossed by band of crisp white-haloed black lunules, paralleled in the postbasal area by small black spots and in submargins by chevrons of lighter yellow ground surrounding darker marks in the margin of each cell. FW length: 10.0 - 12.0 mm. (n=10). ***Female***. Similar to male on VFW,VHW; DFW,DHW with FW marked by suffussive orange throughout medial area; HW often with orange streaked or suffused through postmedial area. FW length: 10.0 - 12.5 mm. (n=10). ***Male Tergal Morphology and Genitalia***. Fig. ♂H. *Sipc* lacking. Genitalia with valvae shape greatly produced in the posterior, steeply inclined in the anterior; terminal rostellum short, stout and hooked, arch not exceeding height of Baird's angulation. ***Female Tergal Morphology and Genitalia***. Fig. ♀H. *Sipc* showing eighth tergite laterally robust, anterior marked with a stout process; genitalia with sclerotized terminalia comprised of a robust tube slightly tapered at the posterior to a nodule-like terminus; lateral aspect terminally robust with a steep taper to the anterior.

TYPES. See Balint in press.

DISTRIBUTION. *Spatial*: currently known from numerous localities in Chile, from Tarapacá and Atacama in the north to Valparaíso in the south. *Temporal*: dates on specimens range from September to July.

REMARKS. This is one of the few austral *Pseudolucia* without a history of misidentification. The only surprise is that other congeners, showing very different wing patterns, share the tubular female genitalia which characterize this species. In the Material Examined below, since *P. chilensis* is a relatively common species, we have not divided recent material among additional institutions.

MATERIAL EXAMINED. Specimens with generalized data: CHILE. "Chili", ex. Hy. Edwards Coll., 2♂♂ (AMNH); Chile, leg. E. P. Reed, 1♀ (AMNH). Specimens with specific data: CHILE. Reg. Valparaíso, Valparaíso, leg. E. P. Reed, 5♂♂, 1♀ (AMNH); Reg. Coquimbo, Aguada Coquimbo, September 1917, leg. T. Halliman, 2♂♂,1♀ (AMNH); Reg. Coquimbo, Tofo, September 30, 1917, leg. T. Halliman, 1♂ (AMNH); Reg. Santiago, Aculeo, 20 October 1964, leg. Peña, 1♂, 3♀♀ (FMNH); Reg. Maule, Cordillera Talca, vic. del Flaco, 29 November 1957, leg. Peña, 1♀ (FMNH); Reg. Coquimbo, Hda. Illapel, 11 November 1954, leg. Peña, 1♀ (FMNH); Reg. Valparaíso, Curauma, 1 September 1967, leg. Peña, 1♀ (FMNH); Reg. Coquimbo, Elqui, La Higuera, leg. Peña 1♀ (FMNH); Reg. Coquimbo, Las "Bra.", 24 March 1957, leg. Peña 1♀ (FMNH); El Canelo, Jantiabo, 8 July 1957, leg. Peña 1♀ (FMNH); Reg. Coquimbo, Peñameicana con Camino, 23 October 1957, leg. Peña, 1♂ (FMNH); Reg. Coquimbo, Quebrada el Tigre, Zapalla, 14 December 1991, leg. Peña, 1♂

(AMNH); Reg. Atacama, Bahia Inglesa, Caldera, October 1991, leg. Peña, 1♂,1♀ (AMNH); Reg. Atacama, 60 km. S. Copiapó, November 1991, leg. Peña, 1♂ (AMNH); Reg. Atacama, Copiapó, Chanarillo, 15 January 1992, leg. Peña, 2♂♂ (AMNH); Reg. Coquimbo, El Tigre, Zapallar, 4 December 1991, leg. Peña, 2♀♀ (AMNH); Reg. Coquimbo, Elqui, November 19890, leg. Castillo, 1♀ (AMNH); Reg. Coquimbo, Tongoy, 4 February 1984, leg. Peña, 1♀ (AMNH); Reg. Atacama, Copiapó, 26 October 1963, leg. Peña, 1♂,♀ (AMNH); Reg. Coquimbo, Elqui, November 1991, leg. Peña, 2♂♂,2♀♀ (AMNH); Reg. Tarapacá, Arica, Azapa, 10 Jaunary 1986, leg. Peña 1♂,1♀ (AMNH).

Pseudolucia charlotte,
NEW SPECIES

Photoplate VII: Q(♂),R(♀); Figs. 1,3 and ♂♀I.

DIAGNOSIS. *Wings.* An outstanding-looking species linked to this group by structural characters but in the wings showing the V-shaped VHW band common to other congeners (though generally more ruptive [Fig. 3] compared to *P. collina* and *P. zembla* [Fig. 1]). DFW, DHW blue in males with burst of elegant orange across FW medial area; female brown but with similar burst of FW orange. VFW ground gray, crossed by lineal black V-shaped band comprised of small ruptive black and brown elements, angling costad at vein M2.

Female Morphology showing termimal tergite with extremely elongate anterior apodeme (length exceeding one-half length of tergite ventrum); genitalia with sclerotized terminalia typical of species group but with tubular element produced at the posterior around the terminal nodule. *Male Morphology* with genital valvae greatly produced at Baird's angulation, anterior with comparatively short anterior taper; terminal rostellum elongate and not greatly hooked, arch only some one-half height of Baird's angulation.

DESCRIPTION. *Male.* DFW,DHW ground lustrous azure grizzled with silvery blue, FW with extremely pretty "burst" of orange suffusion across the medial area and no CuA1 eyespot appearing on HW; fringe checkered. VFW ground orange marked by brown along the submargin with with the postmedial area spotted as typical of the species group; VHW with V-shaped pattern of ruptive brown elements, particularly dark along the distal base of the V and with HW basad of V suffused very brown throughout. FW length: 9.5, 10.0 mm. (n=2). *Female.* Similar to male on VFW,VHW; DFW,DHW very brown with mottled orange suffused and/or streaked through both the FW and HW. FW length: 9.5, 10.0 mm. (n=2). *Male Tergal Morphology and Genitalia.* Fig. ♂I. *Sipc* lacking. Genitalia with valvae shape greatly produced at Baird's angulation, anterior consequently of a diminutive tapered length; terminal rostellum elongate and hooked mostly at tip, arch only some one-half height of Baird's angulation. *Female Tergal Morphology and Genitalia.* Fig. ♀I. *Sipc* showing eighth tergite with extremely elongate anterior apodeme (length exceding one-half length of tergite ventrum); genitalia with sclerotized terminalia typical of species group but with tubular element produced at the posterior surrounding the terminal nodule.

TYPES. Holotype male, ARGENTINA, Prov. Mendoza, Valle de las Lenas, 3 December 1989, leg. A. M. Shapiro, deposited AMNH; allotype female, ARGENTINA, Neuquén Prov., Pucará, deposited IML. *Paratypes.* LPC: ARGENTINA, 1♂,1♀, same data as allotype types. IML: ARGENTINA, 1♂, same data as allotype. AMNH: ARGENTINA, 1♂,1♀, same data as allotype. HMNH: ARGENTINA, 2♂♂,1♂f, Patagonia, Pucará (Neuquén), 8-20 December 1952, leg. S. Schajovskei.

DISTRIBUTION. *Spatial:* currently known only from Mendoza and Neuquén provinces in the Patagonian region of Argentina. *Temporal:* currently known only from December.

REMARKS. This species further attests the diversity of *Pseudolucia*— if not studied by the genitalia the entity might well be overlooked as "*collina*" because of the V-shaped wing habitus. However, the female genitalia are tubular, as typical of the *chilensis* Group. *Pseudolucia charlotte* is perhaps closely related to the population described below as *P. lanin* but further specimens (including both sexes) are needed to confirm this. As noted below, *P. lanin* might also be related, or a subspecies of, *P. patago* (Mabille)(see Bálint in press).

ETYMOLOGY. Named for "Charlotte Haze", Lolita's mother in Nabokov's novel Lolita.

Pseudolucia lanin,
NEW SPECIES (see Remarks)

Photoplate VII: S(♂); Fig. 1,3 and ♂J.

DIAGNOSIS. *Wings.* Known only from a single male with flecked blue DFW,DHW and lacking the FW orange flush that would superficially suggest affinity to either *P. charlotte* and *P. patago* (see Bálint in press) of Patagonia. Genitalia with distinctive habitus not suggesting either of above species— rather, with an elongate, club-ended rostellum, and valvae gently sloped to the anterior. (Tentatively described here pending availability of females to place the entity with certainty in some species group).

Male Morphology with genital valvae differing from *P. charlotte* by an elongate rostellum showing a somewhat club-ended terminus (quite unique for genus); dorsal margins of valvae depressed compared to *P. charlotte* and somewhat undulate across Baird's angulation.

DESCRIPTION. *Male*. DFW,DHW flecked azure blue throughout (FW lacking any suffusion of orange in known specimen); wing margins checkered. VFW medially orange, submarginally brown with postmedial area crossed by browish black spots typical of the *chilensis* Group. HW with thin V-shaped band formed by small ruptive gray-brown spots with proximate basal area suffused brownish gray, reminiscent of *P. charlotte*. Limbal area basically patternless but with slight hint of brown submarginal spot at CuA1. FW length: 7.5 mm. (holotype). ***Male Tergal Morphology and Genitalia***. Fig. ♂J. *Sipc* lacking. Genitalia with valvae shape elongate, tapered in the anterior and minutely undulate at the area of Baird's angulation; terminal rostellum elongated and club-ended, only slightly hooked (if at all) at the terminus.

TYPE. Holotype male (FW 7.5 mm.), CHILE, Reg. Valdivia, Lago Hermosa, Parque Nacional Lanín, November 1949, leg. Schajovskei; deposited IML.

DISTRIBUTION. *Spatial*: currently known only from the type locality (see Remarks) which is the southernmost occurrence known for the genus in Chile. *Temporal*: currently known only from type data.

REMARKS. This population could be questioned as subspecific of either *P. charlotte* or *P. patago*. However, caution is necessary because of the preponderance of "surprises" in *Pseudolucia* female genitalia. The male genitalia of the single Lanin specimen appear quite distinctive for the genus; this may suggest an even more extreme female habitus (as typical of dimorphism in congeners). In addition, the type locality in Chile is farther south than any other comparable member of the species groups showing the V-shaped VHW pattern. Parque Nacional Lanin borders the Patagonian region; however, there are no conclusive objective criteria at this time to warrant the placement of the Lanin specimen with either of the known V-marked Patagonian taxa. Parque Nacional Lanin is located directly west of Argentina's Patagonian Parque Nacional Nahuel Huapí and represents the southernmost occurrence of any *Pseudolucia* in Chile except for widely distributed *P. andina* (which has been caught as far south as Aysén).

ETYMOLOGY. Noun, in apposition, referring to the type locality.

Pseudolucia kinbote, NEW SPECIES

Photoplate VII: T(♂); Fig. ♂K.

DIAGNOSIS. *Wings*. VHW with elements of postmedial band coalesced by surrounding brown halos and auroras so as to resemble a noncongeneric high Andean blue, "*Itylos*" *pelorias* Weymer (see Remarks). Contrasting other *Pseudolucia*, elements forming the "botton" and "angle" of the VHW V are suffused into pronounced triangulate markings. DFW,DHW brown with a greatly checkered fringe.

Male Morphology with genital valvae peculiar for group— showing gradual posterior taper and short, stout, and finely hooked terminal rostellum.

DESCRIPTION. *Male*. DFW,DFW ground mostly brown with only slight suffusion of blue flecks; fringe checkered. VFW centrally tawny, submarginally darker and with a postmedial row of small brown spots; VHW with pattern comprised of the elements generally typifying the ruptive V-shape of *P. plumbea* and *P. annamaria* but with surrounding brown halos and auroras interconnected so as to resemble angulate, jagged markings typifying noncongener "*Itylos*" *pelorias*. This resemblance results from (1) heavy brown suffusion from the anal margin to the band elements in cell CuA1 (forming a triangulate anal mark like *pelorias*); (2) suffusion connecting cell M2 and M3 elements of the bands (forming a discal chevron-like mark resembling *pelorias*). Limbal area generally immaculate except for intercellular white suffusion; only faint trace of brown mark at cell CuAl. FW length: 9.5 mm. (holotype), 9.5 mm. (paratype). ***Male Tergal Morphology and Genitalia***. Fig. ♂K. *Sipc* lacking. Genitalia with valvae peculiar for group— terminal rostellum robust and stoutly hooked with height of arch about equal to Baird's angulation; consequent lateral shape of valve appearing generally tapered to the anterior from just behind behind the rostellum base.

TYPES. Holotype male, CHILE, Coquimbo Reg., Hda. Illapel, 2500-2900 m., 11 November 1954, leg. Peña, deposited FMNH. ***Paratype***. AMNH: 1♂, CHILE, Coquimbo Reg., Guampulla, 2 November 1957, L. Peña.

DISTRIBUTION. *Spatial*: currently known only from the type locality. *Temporal*: currently known only from the November type data.

REMARKS. This species was found during a synoptic dissection of all Chilean polyommatines assembled by us. By superficial characters it would have been placed with the *pelorias* Group historically associated with "*Itylos*". However, the genitalia are typical of *Pseudolucia* and study of the peculiar ventral pattern shows the pattern elements to be those of *Pseudolucia* interwoven by peculiar intercellular suffusion.

ETYMOLOGY. Named for Nabokov's mad professor "Kinbote" in **Pale Fire**.

ANDINA GROUP—

Male genitalia with valvae tapered to "fleshy" blunt end, terminus lacking hooked rostellum.

Pseudolucia andina (Barlett-Calvert) NEW COMBINATION

Photoplate VII: U(♂),V(♀); Figs. 5 and ♂♀J.
Scolitantides andina Bartlett-Calvert 1894.

DIAGNOSIS. *Wings*. A large species (FW to 13.5 mm.) easily recognized by overall brownish DFW,DHW (sometimes orangish brown or finely grizzled blue); VHW with jagged brown crescents comprising the VHW V-shaped band (Fig. 5). Confusable only with some smaller *P. plumbea* specimens in which ruptive elements approach the more jagged habitus typifying *P. andina*.

Female Morphology showing robust eighth tergite with thickened short anterior lobe; genitalia with sclerotized terminalia reminiscent of elements in the *plumbea* Group— showing central ellipsoid structure but lacking prominent lateral wings and with a thickened nodule terminad somewhat as in the *chilensis* Group. ***Male Morphology*** showing genitalia with distinctive valvae— lacking the hooked terminal rostellum of other congeners and instead showing a "fleshy" terminal lobe tapering to a blunt end.

DESCRIPTION. *Male*. DFW,DHW ground ranging from beige brown to darker brown or brown finely grizzled with light blue overscaling (some males with orange FW suffusion easily mistaken as females); fringe checkered. VFW ground generally tawny to beige, postmedial area marked emphatically with dark spots from cell CuA1 to the costa, each paralleled by brown submarginal crescents; VHW ground tawny to beige, marked with jagged brown chevrons comprising a medial V-like band (in fashion much more jagged than congeners). Postbasal intercellular spaces marked rather randomly with suffusive lunules (varying with individual specimens); limbal area with some suffusive white, often coalesced into chevrons; marginal cell CuA1 marked with brown chevron enclosing a brown spot. FW length: 11.0 -13.5 mm. (n=10). ***Female***. Contrasting congeners, confusingly similar to male on DFW,DHW; VFW,VHW similar to male. FW length: 11.0 -13.5 mm. (n=10). ***Male Tergal Morphology and Genitalia***. Fig. ♂J. *Sipc* lacking. Genitalia with valvae shape unique for genus, lacking terminal rostellum and showing instead a "fleshy" tapered anterior terminating in a blunt and slightly down-turned end. ***Female Tergal Morphology and Genitalia***. Fig. ♀J. *Sipc* showing robust eighth tergite with stout anteriorly-directed process. Genitalia with sclerotized terminalia typified by a sclerotized elliptic tube (resembling the central element of the *plumbea* Group) but showing a thickened terminal nodule and little evidence of any lateral wings.

TYPES. See Bálint in press. The type is unknown and Nabokov (1945) was apparently unable to secure specimens of this rather common species for his 1945 work.

DISTRIBUTION. *Spatial*: known from many localities in Chile (from Coquimbo in the north to Aysén in the south) and, in Argentina, from Neuquén Province in Patagonia. *Temporal*: dates on specimens examined by us range from October to November.

REMARKS. This species is more widespread than any other congener but appears to be most common in the collections of local workers. The species is easily recognized and confusable only with a few larger and heavily marked individuals of *P. plumbea*. Material Examined listed below would be much more extensive if we had considered this species worthy of a concerted effort in assembling material. Consistent with these circumstances, we also made no effort to distribute material to additional institutions. The majority of specimens studied appear to be males, with sexing of this species difficult because of the range of DFW,DHW blue and/or orange suffusions occurring in both genders.

MATERIAL EXAMINED. ARGENTINA. Prov. Neuquén, San Martin de los Andes, 1946, leg. Hayward and Willink, 3♂♂ (IML). CHILE. Reg. Maule, Talca, Anto Viche, 21-24 November 1964, leg. Peña, 2♂♂,2♀♀ (FMNH); Reg. Maule, Talca, Cordillera Talca, El Radal, 900-1000 m., 20-30 November 1957, leg. Peña, 2♂ (FMNH); Reg. Aysén, Chico, 24-31 December 1960, leg. Peña, 1♂,1♀ (FMNH); Reg. Santiago, Lagunillas, 7 October 1964, leg. Peña 5♂♂ (FMNH); Reg. Coquimbo, Guampulla, 2 November 1957, leg. Peña, 3♂♂ (FMNH); Reg. Santiago, Laguna Lagunillas, 7 October 1964, leg. Peña, 2♂♂ (FMNH).

SIBYLLA GROUP—

Male genitalia with produced valve terminus showing stoutly hooked rostellum; female genitalia (in view individuals known) indicating "winged" habitus similar to *plumbea* Group; VHW pattern distinctly "patchy".

Pseudolucia sybilla (Kirby)
Photoplate VII: W(♂); Figs. 6 and ♀O.
[Pseudolucia] sybilla Kirby 1871 (replacement name for *Lycaena endymion* Blanchard 1852, see Remarks) = "*sibylla* Draudt" [1921] of authors (misspelling, see Remarks).

DIAGNOSIS. *Wings*. Historically confused with several previously undescribed species treated subsequently but, from the type, DFW,DHW bright silvery blue with a wide (.5mm.) white submarginal bands inside the black marginal line typifying other group members; HW submargin with black dots from CuA2 to M3. VHW pattern showing a patchwork of hazy brown oblongate elements over tawny ground (Fig. 6).

Male Morphology with genital valvae very distinctive, marked by greatly robust terminus contrasting tapered anterior and a robust rostellum with severe, ventrally-declined, hook.

DESCRIPTION. *Male*. DFW,DHW ground lustrous azure bordered marginally first with the bright white submarginal line and then a black marginal line; fringes checkered. VFW centrally ochre, marginally darker brown, postmedial area lined with complete band of brown spots paralleled by lighter aurora-like markings in the ground color near the submargins; VHW band comprised of dark gray-brown blotches outlined by white, particularly dark from cell 1A+2A to Ml and with a darker offset spot extending into the discal cell. Limbal area mottled slightly ochre and gray, submargin of cell CuA1 with emphatic blackish brown spot. FW length: 9.5 mm. (2♂♂ LPC). ***Male Tergal Morphology and Genitalia***. Fig. ♂O. *Sipc* lacking. Genitalia with valvae produced in the posterior and greatly tapered in the anterior; terminal rostellum a stout hook with height slightly exceeding that of Baird's angulation. ***Female Genitalia and Tergal Morphology***. Unknown to us.

TYPES. See Bálint in press.

DISTRIBUTION. *Spatial*: represented in our material by a two males from Chile, Reg. Coquimbo, vicinity of Elqui. *Temporal*: known in Chile only from November.

REMARKS. "True" *sibylla* has been previously misidentified by many Chilean workers as the more common species described below as *P. penai*. In addition, the 1992 AMNH Expedition to Chile secured another new species in the species group (described below as *P. aureliana*) and FMNH material included specimens from Cerro Aconcagua indicating a third. Our diagnosis of *sibylla* here is based on the type (e.g. *endymion* Blanchard at the MNHN Paris, *sybilla* being the replacement name offered by Kirby which we construe as valid) (Photoplate VII,W and Bálint in press). Consistent with Bridges (1988) we do not consider the Draudt (1919) misspelling of *sibylla* as representing either a valid description or available name. Thus, we make new names for additional members of the *sibylla* Group.

MATERIAL EXAMINED. CHILE, Reg. Coquimbo Reg., Banos del Toro, 3200-4000 mt., 7 January 1966, leg. L. Peña, 1♂ (LPC); same data, 1♂ (HMNH).

Pseudolucia oligocyanea (Ureta),
NEW COMBINATION
Photoplate VII: X(♂), Figs. 6 and ♂N.
Itylos endymion oligocyanea Ureta 1956.

DIAGNOSIS. *Wings*. DFW,DHW very dark gray-brown compared to congeners, fringe finely checkered, CuA1 HW spot emphatic; VHW with concise brown patchlike markings over yellowish ground extending across wing in an oblique pattern directed closely to the margin and costa (Fig. 6); limbal area with bright spots (some appearing metallic) along the margin.

Male Morphology with genital valvae very robust, particularly in the posterior and with terminal rostellum elongate and greatly hooked.

DESCRIPTION. *Male*. DFW,DHW ground gray brown throughout, fringes finely checkered. VFW ground dark brown, postmedial area crossed only by a slightly darker row of spots. VHW ground lighter yellow-brown, crossed from anal margin to near the HW margin and costa, with a line of concise dark brown spots offset by small spots in cell Sc+R1 (Fig. 6). Postbasal area with very finely-suffused brown spots; limbal area with fine spots often appearing metallic at their centers; CuA1 marginal spot emphatic. FW length: 9.5 - 10.5 mm. (four paratypes). ***Male Genitalia and Tergal Morphology***. Fig. ♂N. *Sipc* lacking. Genitalia with valvae shape genital valvae very robust, particularly in the posterior and still even more upturned at Baird's angulation; anterior of valvae tapered; terminal rostellum elongate and greatly hooked ventrad compared to congeners. ***Female Genitalia and Tergal Morphology***. Unknown to us.

TYPES. The primary types appear lost due to fire loss in 1973 when Chilean political violence resulted in the destruction of collections at the University of Chile (Santiago) (J. Herrera, in litt. to Johnson). Four paratypes were available from the FMNH and were examined by us; they are labelled CHILE, "Tumbre Cord. de Antofag.[asta], 2 X [October] 1955, L. Peña Coll.", "PARATYPUS", "Itylos endymion olygocyanea n. ssp. det. E. Ureta R.".

DISTRIBUTION. *Spatial*: currently known to us from the FMNH Antofagasta, Chile, paratypes. *Temporal*: known only from the October type data.

REMARKS. This species has long been associated with "*Itylos*" because material had not been available for study (Ureta 1973, J. Herrera, L. Peña, in litt. to Johnson). The genitalia are typical of *Pseudolucia*, however, and VFW,VHW pattern clearly exemplary of the *sybilla* Group.

MATERIAL EXAMINED. Four paratypes labelled as noted above (FMNH).

***Pseudolucia penai*,**
NEW SPECIES

Photoplate VII: Y(♂); Figs. 6 and ♂M.

DIAGNOSIS. ***Wings***. DFW,DHW lustrous blue as in *P. sybilla* but with a thin black marginal line and little, if any, evidence of DHW spots at CuA1 or along the limbal area. VHW with spots typical of *sybilla* Group (Fig. 6)— concise brown spots greatly contrasting yellow ground and often extending basally into the discal and postbasal areas.

Male Morphology with genital valvae robust in the posterior and greatly tapered in the anterior; terminus dominated by a greatly produced rostellum and mentum.

DESCRIPTION. ***Male***. DFW,DHW ground lustrous blue with fine black marginal line; HW with little, if any, evidence of spot(s) marginad at CuA1 or in the limbal area. VFW ground orange medially, brown toward the submargins; postmedial area crossed by dark brown spots especially emphatic nearer the costa; VHW ground yellowish with an oblique line of dark brown spots extending across the wing to the costa, offset by smaller spots in Sc+R1 region and, in a much lighter hue, strewn across postbasal area. Spotted elements near discal area often extending basally into discal cell and postbasal area. FW length: 7.5 mm. (holotype, paratype). ***Male Tergal Morphology and Genitalia***. Fig. ♂M. Genitalia with valvae robust in the posterior and greatly tapered in the anterior, terminus dominated by a greatly produced rostellum and mentum, former greatly hooked. ***Female Tergal Morphology and Genitalia***. Unknown to us.

TYPES. Holotype male (FW 7.5 mm.), CHILE, Reg. Coquimbo, Rio La Laguna, Elqui, 8-9 November 1992, leg. L. Peña, deposited UMCE. ***Paratype***. AMNH: 1♂, same data as primary type.

DISTRIBUTION. *Spatial*: currently known only from the type data. *Temporal*: currently known only from November.

REMARKS. This species has been collected more often in Chile than "true" *sybilla* and often identified as the latter (J. Herrera, L. Peña, in litt. to Johnson). Identities have been clarified by reference to the *sybilla* type (e.g. *endymion* Blanchard at the MNHN, *sybilla* being the replacement name offered by Kirby, which we construe as valid).

ETYMOLOGY. No study of Chilean "blues" would be complete without naming a species for Mr. Luis Peña who has collected the vast bulk of specimens used in the present study.

***Pseudolucia aureliana*,**
NEW SPECIES

Photoplate VII: Z(♂)Z1(♀); Figs. 6 and ♂P♀K.

DIAGNOSIS. ***Wings***. Wing shape wide and round. DFW,DHW ground deep lustrous blue with wide brown FW border on both sexes (see Remarks). VHW with pattern typical of species group (Fig. 6).

Female Morphology showing robust but simple eighth tergite; genitalia with winged sclerotized habitus like that of *plumbea* Group (see Remarks), in dorsal/ventral aspect wide and relatively robust, laterally elongate and strongly pointed. ***Male Morphology*** showing valvae strongly produced in the posterior; uncus of genital ring cupola-like, strong and pointed (not horseshoe-shaped as in the rest of Group, see Remarks); valvae with terminal rostellum greatly hooked.

DESCRIPTION. ***Male***. DFW,DHW ground deep lustrous blue, white and black marginal lines well defined, fringes prominently checkered; DFW with very wide brown postmedian border; VFW ground brownish orange in medial and submarginal areas, gray along costa and anal margins; discoidal line suffusive orange, postmedial area crossed by elongate brown spots; submargins mottled gray over whitish ground; VHW ground grayish brown with wing crossed by full set of elongate darkened patches (Fig. 6); basal ground gray with prominent dark spots, the lowest extending to the anal margin; discoidal line brown, postdiscal lunules in a typical polyommatine arrangement and colored blackish brown; submarginal area rather devoid of pattern except for light aurora-like marks over lighter ground. FW length: 9.0 mm. (holotype). ***Female***. DFW,DHW similar to male; VFW,VHW also similar to male but with a shorter outer margin giving a slightly different wing shape. FW length: 9.0 mm. (allotype), 10.0 mm. (paratype). ***Male Tergal Morphology and Genitalia***. Fig. ♂P. *Sipc* lacking. Genitalia with valvae shape robust, terminal rostellum long and strongly hooked, uncus bulbous and cupola-like. ***Female Tergal Morphology and Genitalia***. Fig. ♀K. *Sipc* showing eighth tergite laterally very robust but with a simple apodeme. Genitalia with sclerotized terminalia of "winged" habitus, central tubular element relatively long (length about five times diameter at widest point), bulbous and robust at the posterior, pointed at the anterior and flanked by diminutive winged elements (length about two-thirds that of tube).

TYPES. Holotype male, allotype female, CHILE, Atacama Reg., Huasco, 9 km. S. of Orodel Inca (in denuded desert wash, see Remarks), 4 November 1992, 1600 hr., leg. Calvin Snyder, 1992-1993 AMNH Expedition, deposited AMNH. ***Paratype***. HMNH: 1♂, same data as primary types.

DISTRIBUTION. *Spatial*: currently known only from Huasco Province in the southern Atacama Region of central Chile. *Temporal*: currently known only from the type data.

REMARKS. This species and the one described below require additional comment concerning the *sybilla* Group and the diversity of polyommatines in austral South America.

Initially, we had not seen females of the *sybilla* Group until those of these new species were located. The similar dorsal appearance of both males and females in this group is remarkable and paralleled in the genus only by *P. andina* and *P. clarea*. While female genitalia appear much like the "winged" habitus of the *plumbea* Group, the lack of strong dimorphism and the fact that male valvae are quite distinctive make the *sybilla* assemblage one worthy of separate note. The three new species add further wing pattern diversity to the group, with species differing greatly in the expression of ventral forewing spots (Fig. 6).

According to Calvin Snyder, the collector of *P. aureliana*, this species was taken in desert nearly denude of vegetation (not even Cactaceae) where, after rain, widely scattered stands of "sagelike" shrubs (about 18 inches high) were sporadically blooming along gravelly seasonal washes. Types were collected on shrubs covering an area some 30' x 20' with no other such vegetated area in sight at that locale. The AMNH group stopped at this site to collect foraging bees.

A lesson apparent in the poorly known *sybilla* Group is that no austral polyommatine with even minor differences in wing pattern should be overlooked by a cursory identification (see Discussion).

ETYMOLOGY. Named from Nabokov's short story "The Aurelian" in which a devoted butterfly collector is unable to fulfill his dream of journeying to the tropics.

Pseudolucia aconcagua, NEW SPECIES

Photoplate VII: Z2(♂)Z3(♀); Figs. 6 and ♂Q♀L.

DIAGNOSIS. *Wings*. Male DFW,DHW lustrous "grainy" azure blue strewn over brown, female brown. Both sexes with margins uncheckered and with prominent black CuA1 spot on DHW,VHW. Submargins of male with thin yellowish DFW,DHW band (reminiscent only of the white band seen in *P. sybilla*). VHW of both sexes showing, in addition to succinct markings extending from 1A+2A to M1, equally emphatic marks invading the entire discoidal area of cells CuA1 to 1A+2A; postmedial area covered by prominent white auroras.

Female Morphology showing a robust but simple eighth tergite; genitalia with winged habitus like the *plumbea* Group (see Remarks), terminalia with central elliptical element and winglike flaps both robust. *Male Morphology* showing valvae greatly produced in the posterior, generating a nearly entire anterior slope devoid of Baird's angulation; terminal rostellum sharply hooked.

DESCRIPTION. ***Male***. DFW,DHW ground with grainy lustrous blue strewn heavily over brown, black marginal line not emphatic but submargin with notable thin yellowish line; fringes not checkered. VFW ground brownish orange in medial area, darker gray in submargins and marked only with extremely faint spots across the wing; VHW ground much obscured by gray-brown grizzling but evident pattern including succinct brown elliptic orbs extending on HW from cell 1A+2A to M1 (as typical of *sybilla* Group, Fig. 6). Differing from other members by discoidal pattern of orbs of equal intensity extending from CuA1 to 1A+2A and in the postmedial area marked by prominent white auroras. Limbal area showing emphatic black orb at CuA1 typical of Group. FW length: 9.0 mm. (holotype). ***Female***. DFW,DHW brown; VFW,VHW similar to male except for postmedial area of HW, which (in known specimen) lacks prominence of the white highlights. FW length: 9.5 mm. (allotype). ***Male Tergal Morphology and Genitalia***. Fig. ♂P. *Sipc* lacking. Genitalia with valvae shape robust, terminal rostellum long and strongly hooked, uncus bulbous and cupola-like. ***Female Tergal Morphology and Genitalia***. Fig. ♀K. *Sipc* showing eighth tergite laterally very robust but with a simple apodeme. Genitalia with sclerotized terminalia of winged habitus, central tubular element relatively long (length about five times diameter at widest point) and bulbous and robust at the posterior, pointed at the anterior and flanked by diminutive winged elements (lenfth about two-thirds that of tube).

TYPES. Holotype male, allotype female, ARGENTINA, Prov. Mendoza, Parque Pral. Aconcagua, between Laguna Horcones and El Durazno, ca. 8400', 30 November 1989, A. M. Shapiro, deposited AMNH. ***Paratypes***. ARGENTINA, all Prov. Mendoza, Parque Pral. Aconcagua as follows, 4♂♂, vic. Confluencia, below Lower Horcones Glacier 11000-12000', 15 December 1989 leg. A. M. Shapiro, AMNH; 2♂♂, same data HMNH; 1♂ same data, BMNH; 1♂, same data, University of California at Davis (UCD); Cerro de los Fosiles, nr. Las Leñas, ca. 9600', 3♂♂ UCD. CHILE. Valparaíso Reg., Cerro Aconcagua, E from Valle Piuquenes, 24-25 November 1958, leg. G. Barria, 1♂,1♀, FMNH.

DISTRIBUTION. *Spatial*: known from specimens on both flanks of Cerro Aconcagua. *Temporal*: currently known only from November and December.

REMARKS. Remarks under *P. aureliana* and in Discussion below pertain.

ETYMOLOGY. Noun, in apposition, used to signify the region of Cerro Aconcagua.

DISCUSSION

In this paper we have documented a number of "look-alike" species occurring across a constellation of three major configurations of the female genitalia in austral and high Andean *Pseudolucia*. These conditions are corroborated by additional characters of the male genitalia and wing characters supported by good series of males and females in nearly every case. This diversity has surprised us and explained, to a great extent, the previous confusion regarding identification of these taxa in South America.

The characters of look-alike species such as *P. collina* and *P. zembla*, *P. andina* and "true" *P. plumbea*, *P. vera* and other *collina*-like taxa, and diversity in the formerly little-known *P. sybilla* Group strongly suggest that collection of any odd-looking austral or high Andean polyommatine specimen should be followed by morphological study. Many surprises still are possible. Attesting this, Calvin Snyder (AMNH), collector of *P. aureliana*, reported that nearly all lycaenids taken on the 1992-1993 AMNH Expedition were collected "second-hand"— always in lesser priority to other insect groups (indeed with some frustration to collectors at locales where interesting Lepidoptera were observed). If such cursory collecting conditions produced a new *sybilla* Group member (indeed one not previously seen by either Peña or Herrera), much may still be expected in austral polyommatine diversity.

These new species also indicate the biogeographic significance of Chile (especially the regions of Antofagasta, Atacama and Coquimbo). Although recognized previously for the occurrence of the traditional austral "blues" (*P. andina*, *P. collina*, *P. chilensis*, *P. plumbea* and *P. sibylla*) more recent studies have resulted in the description of a spate of new Theclinae taxa (Johnson, Eisele and MacPherson 1988, 1990; Johnson and Miller 1991, Johnson 1992, Johnson and Miller 1992, Johnson, Miller and Herrera 1992). Now, in study of the Polyommatinae, we see similar diversity (herein, and Bálint and Johnson in press). This diversity somewhat contradicts the general notion of many lepidopterists (see, e.g. Heppner 1993: 301) that desert regions, like those of Chile, illustrate low species diversities. It appears that Lycaenidae differ from generally more vagile butterflies (Nymphalidae, Pieridae, Papilionidae, etc.) in showing peculiarly high species diversities in isolated areas, distribution extremes of certain botanic communities, and areas prone to complex microniche structures. Johnson, Eisele and MacPherson (1988, 1990) and Johnson (in press) have demonstrated high endemism and diversity in Theclinae from disjunctive montane tropical forest regions of northern Argentina when, historically, such areas have generally been ignored in studies of South American "tropical refugia" based on larger butterflies like the Nymphalidae (see, for instance, Brown 1977 and citations therein). However, such high diversities as indicated herein for austral polyommatines (or elsewhere for southern tropical forest disjuncts in the Theclinae) do not appear unusual when compared to remarkable patterns noted in the Satyridae (e.g. *Calisto* in the Caribbean [Schwartz 1989] or pronophiline satryids in the areas of the high Andes which have received thorough study (Adams and Bernard 1977, 1979, 1981; Adams 1986). Satyrid butterfly species, like some lycaenids, are often noted for their restriction to localized biomes.

Some biogeographic generalities, like ideas characterizing species diversities or indicator regions, tend to gain "authority by repetition", even after new data suggests evidence to the contrary. Considering the polyommatine lycaenids, central Chile appears to be one of the richest territories of the southern temperate region in lycaenid species, comparable only with the species richness of central Asia, where the Palaearctic polyommatines show their greatest diversity (Bálint 1992).

Deposition Abbreviations

Above depositions include AME (Allyn Museum, Florida Museum of Natural History), AMNH (American Museum of Natural History), BMNH (Natural History Museum, London), CMNH (Carnegie Museum of Natural History), FMNH (Field Museum of Natural History), HMNH (Hungarian Museum of Natural History), LPC (Luis Peña Collection), UCD (University of California, Davis), UMCE (Entomological Institute, Universidad Metropolitana de Ciencias de la Educación, Santiago, Chile).

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PHOTOGRAPHIC FIGURES

Due to binding as one volume, **Photoplate VII** cited herein is placed as **Photoplate V** at the end of the volume and the following figures included.

Pseudolucia collina: A(♂),B(♀).

Pseudolucia zembla: C(♂),D(♀).

Pseudolucia plumbea: E(♂).

Pseudolucia annamaria: G(♂),H(♀).

Pseudolucia hazeorum: I(♂),J(♀).

Pseudolucia clarea: K(♂),L(♀).

Pseudolucia vera: M(♂),N(♀).

Pseudolucia chilensis: O(♂),P(♀).

Pseudolucia charlotte: Q(♂),R(♀).

Pseudolucia lanin: S(♂).

Pseudolucia kinbote: T(♂).

Pseudolucia andina: U(♂),V(♀).

Pseudolucia sybilla: not shown*.

Pseudolucia oligocyanea: not shown*.

Pseudolucia penai: Y(♂).

Pseudolucia aureliana: Z(♂)

Pseudolucia aconcagua: ZZ(♂)

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*specimens on foreign loan at time of preparation.

Notes Added at Proof:

Mr. Luis Peña noted in a letter regarding final draft of this ms. that, contrary to written label data, the type locality of *P. lanin* is on the eastern side of the Cordillera de los Andes and therefore in Argentina. Also, the specimens of *P. zembla* noted as "4300m." are also a mislabelling and the altitude of collection was 600m., consistent with the other types.

A New Genus of Thecline-like Polyommatinae from the Andean Region of South America (Lepidoptera: Lycaenidae, Polyommatinae)

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ABSTRACT

A new generic name, *Polytheclus*, is made available, derived from revisionary work in press and requiring distinction from *Nabokovia* Hemming (= *Pseudothecla* Nabokov) by workers in Chile. *Polytheclus* contains new type species *P. cincinnatus* and *P. sylphis* (Draudt) both poorly known species from high montane Peru. Though long considered congeneric with *Nabokovia* based on superficial similarities, morphological study indicates drastic differences and argues against a common phylogenetic origin. Revisionary results suggest independent lowland Neotropical origins for both groups.

INTRODUCTION

In a recent revisionary study the authors Bálint and Johnson 1993) have analyzed the systematic position and taxonomic compositon of Thecline-like taxa (e.g. *Nabokovia* Hemming, 1961 = *Pseudothecla* Nabokov, 1945 and its relatives). Unfortunately, because of the progress on the Chilean butterfly guide (Luis Peña, in litt), there is need to make some nomenclatorial distinctions between *Nabokovia* and members of the *sylphis* group at this time.

MATERIALS AND METHODS

We refer to the revisionary study (Bálint and Johnson 1993). Accordingly, terms herein follow Scott (1990), Nabokov (1944) and Mattoni (1989); nomenclatural sources are Hemming (1967) and Bridges (1988). Synonymies and combinations are considered as "new" if not contained in the latter mentioned two works (and supercede, as the case may be, usages in Bálint and Johnson 1993). Abbreviations used in the descriptive texts include forewing (FW), hindwing (HW), wings' dorsum (DW), wings' ventrum (VW), forewing dorsum (DFW), hindwing dorsum (DHW), forewing ventrum (VFW), hindwing ventrum (VHW).

TAXONOMY

Nabokovia Hemming, 1960

Revised Bálint and Johnson 1993.

Summary. Described originally by monotypy as *Pseudothecla* Nabokov (1945), including note of *Thecla excisicosta* Dyar (1913) as a probable synonym of *faga* (but with no confirmation).

Bálint and Johnson confirm the heterogenity of the Neotropical taxa of "*Scolitantides*" *sensu* Draudt (1921)already pointed out by Nabokov (1945). Draudt included *faga* and a new species, *Scolitantides sylphis* Draudt, in *Scolitantides* (Hübner, 1819; type species the Palaearctic *Lycaena orion* Pallas, 1771). Nabobov moved these from *Scolitantides* into either *Pseudothecla* or another new genus, *Pseudolucia*, noting (Nabokov 1945: 11, footnote 1) that Draudt's *Scolitantides sylphis* might be congeneric with *faga* but that he had been unable to confirm this.

Hemming (1960) introduced the name *Nabokovia* as a replacement name for *Pseudothecla*, which was a homonym of *Pseudothecla* Strand 1910 (type *Thecla lunulata* Erschoff 1874) (Hemming 1967).

Type species. *Thecla faga* Dognin 1895, by original designation (Hemming, 1960).

SYNOPSIS OF SPECIES.

Nabokovia faga **(Dognin, 1893)**

(= *Thecla excisicosta* Dyar, 1913, syn. n.)

Nabokovia **n. sp.** Bálint and Johnson, 1993.

FACIES.

Body. Eyes smooth, palpy hairy, body normal polyommatine. **Wing venation**. FW with veins 11 and 12 free. **Wing shape**. FW with straight costal margin, pointed apex, outer margin wide and straight, inner margin slightly concave; tornus pointed. HW anal margin straight and long, anal angle well marked, apex almost pointed, vein 1A+2A tailed. **Pattern**. Normal brown polyommatine on DW and VFW forewing, but modified on VHW. Sexes similar. DW brown with very narrow black margin. Fringes checkered (Mattoni 1989, type 8). HW tailed with few marginal black spots. VFW with suffused postmedian area appearing darker than median area. RHW with suffusive white band and few small iridescent marginal scales. Median area not polyommatine.

Male genitalia. Uncus more or less digitate and directed caudad; gnathos long and slender, tegumen normal polyommatine with appendix angular (suspensorium *sensu* Eliot, 1973); juxta with thick branches, curved conspicuously; valva wide and relatively short with narrow but long rostellum; aedeagus with remarkable sclerotized alulae.

Female genitalia. Comprised of a membranous saclike corpus bursae (*sensu* Klots 1970) constricting caudally to a terminal sclerotized element, latter being simple and tubelike and opening ventrally along approximately the terminal two-thirds of its length. Sclerotized terminal structures do not lend well to terminology for polyommatine female genitalia used by Nabokov (1945: 53) in that differentially sclerotized terminal regions, respectively "henia" and "fibula" *sensu* Nabokov, are not readily recognizable.

Distribution. Oreal biome of the Andes, north from Peru (Dept. Arequipa) to Chile (Tarapaca Prov.).

Polytheclus Bálint and Johnson, NEW GENUS

Photoplate IIIA,13,14.

Summary. Draudt [1921] described *Scolitantides sylphis* using "*Scolitantides*" most likely after Butler (1881) who arranged two Neotropical polyommatine species with orange suffusion on their DFW into *Scolitantides*. This character was presumed as the common feature of all the *Scolitantides sensu* Draudt taxa. Nabokov (1945), however, was unable to revise the status of *S. sylphis* because he lacked samples; however, he mentioned that the taxon should be examined as a possible member of *Pseudothecla*. Bridges (1988) listed *faga* as the single *Nabokovia* species and placed the taxon *sylphis* immediately after *Nabokovia* with a question mark. Lamas & Pérez (1983) listed *sylphis* along with *Nabokovia faga excisicosta* (most probably following Nabokov's note).

Type Species. *Polytheclus cincinnatus* Bálint & Johnson, new species, subsequent entry.

SYNOPSIS OF SPECIES

***Polytheclus cincinnatus* Bálint & Johnson, n. sp.**
***Polytheclus sylphis* (Draudt, [1921]), new. comb.**

FACIES

Body. Eyes smooth, palpy hairy, body normal polyommatine. **Wing venation**. FW with veins 11 and 12 free. **Wing shape**. FW with slight convex costal margin, apex slightly pointed, outer margin convex, inner margin straight, tornus angular. HW anal margin very straight, anal angle pointed, apex rounded, vein 1A+2A tailed. **Pattern**. Normal blue polyommatine on DW and VFW, but modified on VHW. DFW blue with discoidal line, black and white submarginal markings. DHW similar, no discoidal line, but tailed. Fringes white (type 5). RFW with strong postmedian spots and submarginal markings. RHW with suffused basal and discoidal spots; postdiscal spots brown creating a stippled stripe.

Male genitalia. With pointed but strong uncus, strongly curved gnathos, rostellum and tegumen well developed, valva wide and robust with large rostellum. Aedoeagus with large sagum. Juxta absent

Female. Unknown.

Distribution. Only known from Peru.

Etymology. Gender is considered masculine. The name suggests the peculiar facies of this genus— very close to polyommatine lycaenids in the structure of the genitalia (*Polyommatus* - *Poly*), but superficially resembling the hairstreak lycaenids (*Thecla* - *Theclus*, of common usage).

Polytheclus cincinnatus. Bálint and Johnson, NEW SPECIES

Photoplate IIIA,13. Genitalia, see Bálint 1993, fig. 91.

DIAGNOSIS. Comparable only to *P. sylphis* from E. Peru, but without orange postmedian suffusion on DW. DFW postmedian black spots absent. Markings more developed on RW. Male genitalia differing from *P. sylphis* by large rostellum of valva.

Description. Superficially resembling a hairstreak. Forewing length: 12.0 mm. (Holotype), 11.0 mm. (Paratype). Body typical of *Polyommatus* (Eliot 1973, Higgins 1976). Eyes black, depilous. FW shining violescent blue with well marked black discoidal line and white and black straight submarginal line in each cell. Margin bordered by a distinct light blue and a stronger black line. DHW similar but without discoidal line, submarginal lunules cap formed. HW with short tail. DFW with light brown discoidal and postmedian spots, submarginal spots larger and black. DHW ash gray with indistinct markings. Postmedian spots produced and closely adjacent. Small distinct black spot with iridescent scales in cell CuA2.

Male genitalia. With robust but pointed uncus and strongly curved gnathos; tegumen usual polyommatine with appendix angularis; valva wide and robust with convex costa and strongly developed rostellum; anal part with a sclerotized formation; aedeagus with well visible alulae and strongly developed gnathos. Juxta absent.

Female. Unknown.

Distribution. Peru, west of the Andes.

TYPES. Holotype. Male, labelled "Chosica, W. Peru, 2000' (A. M. Moss).", "Pupa, No.", "Rothschild Bequest, B. M. 1939—I.", "Holotype, Polytheclus cincinnatus, det. Zs. Bálint, Budapest, 1992. I.", "Slide BM — 17543"; Paratype, male, same data as holotype (exception: Slide BM — 17344). The type specimens are deposited in the butterfly collection of NHML (drawer 29A—927).

Slides. Brit. Mus. No. 17543, 17544 (NHML).

Biology. According to Lamas & Pérez (1983) the species inhabits the same biotope as *N. faga*, but also occur at a higher elevation.

The behaviour of adults is similar to that of *N. faga*. The larval hostplant and nectar sources of imagines are unknown.

Etymology. Gender masculine, "Cincinnatus" being the character-"invitee" in Nabokov's **Invitation to a Beheading**; also referring, by denotation to the "curled" (Marchant and Charles 1956) appearance of the emphatic and closely adjacent spots of the hindwing underside.

Polytheclus sylphis Draudt, [1921],
NEW COMBINATION
Photoplate IIIA,14.

DIAGNOSIS. Comparable only to *P. cincinnatus* from W. Peru, but DW with orange postmedian suffusion. DFW with postmedian black spots. Markings pale on RW. Male genitalia differing from *P. sylphis* by smaller rostellum of valva and less pointed uncus.

Description. DFW lighter shining violescent blue with well marked black discoidal line and white and black straight submarginal line in each cell. Postmedian spots well marked. Margin bordered by a distinct light blue and a stronger black line. Both wings with postmedian orange suffusion. DHW similar but without discoidal line, submarginal lunules capped. HW with short tail. DFW with light brown discoidal and postamedian spots, submarginal spots larger and black. DHW ash grey with indistinct markings. Postmedian spots suffusive and quite disjunct. Small distinct black spot with iridescent scales in cell CuA2.

Male genitalia. Similar to that of *cincinnatus* with robust but less pointed uncus and strongly curved but more slender gnathos; tegumen usual polyommatine with appendix angularis; valva wide and more robust with waved and strongly convex costa and less developed rostellum; aedeagus with well visible alulae and strongly developed sagum. Juxta absent.

Female. Unknown.

Distribution. Currently known only from E. Peru: Cuzco (type locality), Tarma.

TYPE. Not examined, only recently discover in the Senckenberg Museum in Frankfurt am Main (Germany) by Dr. Gerardo Lamas).

Biology. Unknown.

MATERIAL EXAMINED. 1 male labelled "Tarma, Peru (Hoffman)", and "Rothschild Bequest, B. M. 1939—I." (NHML).

Slide. Brit. Mus. No. 17543 (NHML).

Etymology. Assumed by us as from "Sylph" - an imaginary being inhabiting the air (Marchant and Charles 1956).

DISCUSSION

Polytheclus cincinnatus is easily distinguished from its sister, *P. sylphis*, by superficial characters. These include— **dorsal**: The postmedian area of *sylphis* is orange on both of the wings. The hindwing has a row of postmedian spots. The submarginal black-capped spots are stronger, the white elements weaker; **ventral**: FW discoidal spot of sylphis is suffused while on *cincinnatus* it is emphatic. The postmedian spots of *sylphis* are small, black-colored and wavy but in *cincinnatus* large, brown, and in different arrangement across the wing. The markings of the hindwing are strongly suffused on *sylphis*, while on *cincinnatus* these are more produced and closely adjacent. The line of postmedian spots are broken in sylphis but in *cincinnatus* nearly continuous. The black spot in cell CuA2 is missing in *sylphis*. The FW outer margin on sylphis is straight with a break at CuA2, while that of *cincinnatus* is more or less convex. The HW inner margin of *sylphis* is undulate while that of *cincinnatus* is straight.

We could locate only a single collection date for this newly described entity, the one mentioned by Lamas & Pérez (1983). These authors identified *P. cincinnatus* as *Nabokovia sylphis* giving a good figure of a male specimen collected in Parque Nacional Huascarán (Ancash). Dr. Lamas wrote to the first author that he had regarded *P. cincinnatus* as *N. sylphis* before he found the type specimen of *sylphis* in Germany (Lima, February 17, 1992, pers. comm.).

In spite of the fact that the general genitalic structure of *N. faga* and its Coquimban sister species are polyommatine-like, they are rather strange and do not fit well in the omnibus *Polyommatus*-section *sensu* Eliot (1973). This has recently been treated in detail by Bálint and Johnson 1993. Their results indicate it is still uncertain whether *Nabokovia* and *Polytheclus* are actual phylogenetic sister groups or whether they have evolved with a convergent wing pattern from very different polyommatine ancestors. These questions can probably be resolved when enough taxa of the Neotropical Realm have been enumerated to allow reliable numerical cladistic studies.

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A Catalogue of Polyommatine Lycaenidae (Lepidoptera) of the Xeromontane Oreal Biome in the Neotropics As Represented in European Collections

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ABSTRACT

The paper provides new taxonomic and biogeographic data based on Neotropical polyommatine lycaenids deposited in various European museums. Historical material is surveyed and entities requiring names described. Materials are listed according to an updated nomenclature derived from recent taxonomic work by the author and colleagues, including various new combinations. Also listed are voucher depositions for taxa recently described.

The following taxa are included, listed below for synonymic purposes and denoting changes of status, new combinations and new species.

Itylos speciosa (Staudinger, 1894), new combination
Itylos titicaca (Weymer, 1890), new combination
Itylos luzhin Bálint, new species
Itylos pnin Bálint, new species

Hemiargus ramon (Dognin, 1887)
Hemiargus hanno (Stoll, 1790)
Hemiargus bogotana (Draudt, [1921]), new status

Echinargus isola (Reakirt, [1867])
Echinargus huntingtoni Rindge and Comstock, 1953
Echinargus martha (Dognin, 1887)

Pseudolucia chilensis (Blanchard, 1852)
Pseudolucia parana Bálint, new name, new combination
Pseudolucia collina (Philippi, 1859)
Pseudolucia sibylla (Kirby, 1871), confirmed status [following Ureta, 1964]
Pseudolucia patago (Mabille, 1889), new combination, revised status
Pseudolucia charlotte Bálint and Johnson, 1993a
Pseudolucia plumbea (Butler, 1881)
Pseudolucia grata (Köhler, 1934), new status
Pseudolucia sirin Bálint, new species
Pseudolucia andina (Barlett-Calvert, 1894)
Pseudolucia oligocyanea (Ureta, 1956) [combination following Bálint and Johnson 1993a]
Pseudolucia zembla Bálint and Johnson, 1993a
Pseudolucia annamaria Bálint and Johnson, 1993a
Pseudolucia hazeorum Bálint and Johnson, 1993a
Pseudolucia clarea Bálint and Johnson, 1993a
Pseudolucia vera Bálint and Johnson, 1993a
Pseudolucia lanin Bálint and Johnson, 1993a
Pseudolucia kinbote Bálint and Johnson, 1993a
Pseudolucia penai Bálint and Johnson, 1993a
Pseudolucia aureliana Bálint and Johnson, 1993a
Pseudolucia aconcagua Bálint and Johnson, 1993a

Paralycaeides shade Bálint, new species
Paralycaeides inconspicua (Draudt, [1921])
Paralycaeides vapa (Staudinger, 1894), new combination
Paralycaeides oreopola (Hayward, 1949), new combination

MADELEINEA Bálint, NEW GENUS
Madeleinea lolita Bálint, new species
Madeleinea moza (Staudinger, 1894), new combination
Madeleinea ruberrothei (Weeks, 1902) new combination
Madeleinea koa (Druce, 1896), new combination
Madeleinea ludicra (Weymer, 1890), new combination
Madeleinea pacis (Draudt, [1921]), new combination
Madeleinea pelorias (Weymer, 1890), new combination
Madeleinea mashenka Bálint, new species

Polytheclus Bálint and Johnson, 1993b
Polytheclus sylphis (Draudt, [1921])
Polytheclus cincinnatus Bálint and Johnson, 1993b
Nabokovia faga (Dognin, 1893)
Nabokovia n. sp. Bálint and Johnson, 1993b

Lectotype designations are made for the following taxa:

Cupido moza Staudinger, 1894
Cupido speciosa Staudinger, 1894
Cupido vapa Staudinger, 1894
Lycaena koa Druce, 1896
Lycaena chilensis Blanchard, 1852
Lycaena lyrnessa Hewitson, 1874
Lycaena martha Dognin, 1887
Lycaena plumbea Butler, 1881
Lycaena sibylla Kirby, 1871
Lycaena ramon Dognin, 1887
Polyommatus atahualpa Wallengreen, 1860

Biogeographic data is reviewed based on these new taxonomic changes.

INTRODUCTION

Nabokov (1945) was the first, and at the same time the last, lepidopterist to review the polyommatine lycaenids *sensu stricto* (*e.g.* lycaenid butterflies of the "Polyommatus section" *sensu* Eliot 1973) of the Neotropical Realm. Nabokov's paper became the cornerstone of modern knowledge concerning polyommatine butterflies occurring in Latin America. Subsequently, only a few short papers were published concerning Neotropical polyommatine lycaenids, most of them descriptions of new taxa (see Bridges 1988 and Johnson and Matusik 1992, Schwartz and Johnson 1992).

Because there were no attempts after Nabokov to make a comprehensive study of Neotropical "Plebejinae", the recent catalogue by Bridges (1988), presently the most important taxonomic source for the lepidopterists involved in the study of lycaenid butterflies, could not correct mistakes made by either Nabokov or his predecessors.

Very few specimens served as the basis for Nabokov's studies (Table 1). This scanty material was enough for Nabokov to recognize main lineages in the polyommatines of South America but on the species level he had few opportunities to elaborate.

In the summer of 1991, interested in the phylogeny of the world's polyommatines, I initiated a study of Neotropical polyommatine materials at the Natural History Museum, London (BMNH[1]), completing this work in August of 1992. The BMNH collections have historical importance because they include, along with many type specimens, numerous lycaenid specimens and series from classical and recent field sources in the Andean region (*e.g.* Butler 1881, Godman and Salvin 1891, Staudinger 1892, Elwes 1903, Adams 1973, etc.). To supplement the BMNH samples I was also able to examine the collections of Neotropical polyommatines in the Muséum National d'Histoire Naturelle (Paris) (MHNP), Naturhistorisches Museum (Vienna) (NHW) and Hungarian Natural History Museum (Budapest) (HNHM) and obtain by mail material from the Zoologisk Museum (Copenhagen) (ZMK). Other institutions (see "Abbreviations" under Methods) made selective material available. However, these collections are relatively small compared to some large recently collected series made available to me from various South American sources through the American Museum of Natural History (AMNH). Consequently, since it is important to balance the synoptic material at museums in the "Old" and "New" worlds, I also report here European depositions of voucher material for new polyommatines recently described by me and Kurt Johnson (AMNH). This also serves to provide a complete list of binomens in the Abstract, since this will probably be used by many workers as a synonymic list until pending revisionary studies are completed. It can be noted that historical material of Neotropical polyommatines might be considered "not rich" since, if compared to the amounts of material of other Neotropical butterfly groups, the balance is quite conspicuous and the polyommatines represented by a very low percentage. However, the old material, once elaborated, and the results given by new materials are numerous enough to facilitate what amounts to "a new step" in the knowledge of Neotropical polyommatines.

Numerous factors contributed to the former paucity of material in high Andean and austral polyommatines. Up to very recent times, most collecting expeditions to South America have emphasized the huge and diverse faunas of the lowland Neotropical regions. Exceptions occur in comparatively recent years. Following on the upland fieldwork of generalists like F. M. Brown and J. C. Pallister (see Johnson 1992), we now have materials from the Adams/Bernard and Carnegie Expeditions (see Adams 1977, Johnson 1990, Johnson and Adams, in press), many specimens from the work of A. M. Shapiro (see Johnson, Miller and Herrera 1992) and voluminous specimens of austral workers like L. Peña and J. Herrera which, though long in existence, have only recently become available for study to North American and European workers. One can expect this tendency for concentration on the South American tropical faunas to continue, due to the urgency surrounding the many threatened tropical rain forests (Emmel and Austin 1990). However, it appears there is now an adequate amount of high Andean and austral material available for first revisionary study.

The worldwide phenomenon of destruction of the biosphere by the noosphere (*sensu* Teilhard 1955), easily observed in Central America (Stuart and Fairbanks 1992) and the upper Amazonian tropics (cf. Brown 1984, Emmel 1989, 1991; Emmel and Austin 1990), is also apparent in Patagonia and Tierra del Fuego (Elwes 1903: 266-268; Shapiro 1991: 52). Large tracts of virgin land are greatly reduced for agricultural or pasturage activities, drastically affecting the original biotas (Norgaard 1988, Risser 1988).

In the Palaearctic Realm, several polyommatine lycaenids have successfully invaded the western hemisphere due to human activities in early historical periods

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[1] I use this abbreviation consistent with the United Kingdom ("UK") statutory name "British Museum (Natural History)" which, for legal purposes in the UK, has remained unchanged.

Notations in footnote 1 of the March 29, 1993 text, citing papers in press by Bálint and Johnson, are updated herein in Literature Cited.

following the last glacial epoch. Most of the Central Asian and Mediterranean virgin forests were cut, alleviating ecologic barriers for some members of the oreal biota. Now this phenomenon can also be recognized in the neotropics. Some of the oreal butterflies have already extended their distributions and occupy newly emerged secondary habitats in the Neotropical Realm. This has created new taxonomic intricacies not easily interpreted by traditional taxonomic methods (cf. Shapiro 1991: 156-164, 168-169 and 189-190).

The polyommatine lycaenids, with their remarkable myrmecophyly, are also among the best bioindicators of the oreal biosystem (cf. Fiedler 1991: 130-132). Their biologies and relationships thus merit principal taxonomic study. If we compare the taxonomy of the polyommatine lycaenids in the Neotropical oreal biota with those of the pierids (*e.g.* Descimon 1986, Shapiro 1991), satyrids (Descimon 1986) or even the "elfin"-like or other hairstreaks (Johnson 1990, 1992, Johnson et al. 1992) we can see that, hitherto in this equation, their taxonomy, systematics, biogeography, evolutionary progress and biology have been an almost virtual unknown. Reflecting this, Descimon (1986) could devote only a few discussion sentences to the high Andean "blues", marking them as one of the poorest known elements of the upland South American fauna.

Because of revisionary studies being undertaken concerning the Latin American polyommatine fauna (initiated with Bálint and Johnson 1992), the present paper can have a more limited aim. It will provide an initial taxonomic framework and descriptions usable for the subsequent studies. However, by providing a rather immediate "second step" to the work of Nabokov (1945), I may inspire lepidopterists involved in the exploration of the Neotropical oreal biota to pay much more attention to the highly interesting phenomenon of the polyommatine lycaenids in the New World tropics.

MATERIALS AND METHODS

Study Group and Study Area. Study concentrated on Neotropical polyommatine lycaenid butterflies represented at aforementioned depositories. I use the term "polyommatine" to denote representatives of the "Polyommatus section" *sensu* Eliot (1973: 449 - 450) and thus do not include members of some other groups (e.g. "polyommatines" *sensu lato* of tribe Polyommatini Swainson *sensu* Eliot 1973: 443-450, *e.g.* the "Leptotes"-, "Zizula"- and "Brephidium"-sections of Eliot. The latter also occur in the Neotropical oreal biota. So genera represented and discussed here are as follows: *Itylos* (= *Parachilades*), *Polytheclus*, *Nabokovia*, *Pseudolucia*, *Paralycaeides* and *Madeleinea* (new genus).

I do not discuss the polyommatine fauna of the tropical boreal biome (rainforests) as well as the polyommatine fauna of the Caribbean Islands is not elaborated. Accordingly, several taxa of the *Hemiargus* Hübner lineage (belonging to the genera *Cyclargus* Nabokov, *Hemiargus* and *Echinargus* Nabokov) distributed in the Caribbean region and having large diversity (cf. Johnson and Matusik 1992) are omitted, as also is Caribbean endemic and monotypic genus *Pseudochrysops* Nabokov. As Johnson and Matusik (1992) pointed out, Nabokov's Caribbean taxonomy appears highly "split" when viewed only within the region. However, as they note, Nabokov's nomenclature preserves monophyly while some butterfly fieldguides (Riley 1975) returned to a paraphyletic usage of *Hemiargus*. *Leptotes* Scudder also shows interesting endemism in the Caribbean region (Johnson and Matusik 1988).

The following territories are included by this study (cf. Descimon 1986: table 20-3; table 2): Sierra Nevada de Santa Marta, Cordillera de Mérida, Colombian Cordilleras, Ecquadorian Andes, northern Peru to Abra de Porculla and south to Callejón de Huaylas, central Peru from Cordilleras Negra and Blanca to left side of Rio Apurímac, southern Peru, Andean region of Bolivia, Andean region of Argentina, northern and central Chile, Patagonia and southern Chile, northern Tierra del Fuego, southern Tierra del Fuego.

Collections. The BMNH elaborated material is housed in eight drawers of the main lycaenid collection. Their exact location is cabinet 29A, drawers 922-928. Neotropical polyommatine lycaenids were also found in a small number amongst the uninvestigated material of the BMNH compiled by Dr. Kurt Johnson in May of 1992 for my purpose. These butterflies were incorporated to the main collection in spite of the specimens found in the Adams' bequest. All dissected material can be found in within the collections where the specimens are deposited.

The MNHP material was found in the "supplemental collection" (Johnson 1991: 143). The very few NMW specimens and the single *Pseudolucia collina* pair of the HNHM were incorporated in the main collection (drawer 1031, drawer 109/48, respectively). The borrowed ZMK material was compiled from the main collection by the Curator.

Some type specimens were also investigated from loans. These included material from the MHNP, NRS and MNHU and will be recurated by their staff upon return.

Methods. While there is no satisfactory phylogenetic analysis of the Neotropical polyommatines, the discussed genera are listed closely to the sequence given by Nabokov (1945) with additions integrated into his overall framework. Only *Nabokovia* and *Polythecllus*, the thecline-like genera, were put at the end of the catalogue.

After main entries for each taxon, I give the current name of each, then refer to their status in the works of Nabokov (1945) and Bridges (1988) and, finally, new combinations and statuses. Label data is fully cited (collecting site, times and collector, etc. as read by me), the origins of specimens abbreviated but previous determination labels omitted. Specimens of unsure determination are marked "[?]". Short taxonomic, nomenclatoric or biogeographic notes follow after the Material Examined.

Several type specimens were located in the BMNH. Some of these had been designated "Holotype" by previous curatorial staff at the BMNH when some types were segregated in the "type collection" (cabinet number 5.2) at the time of World War II (P. Ackery, pers. comm.). However, as has been documented previously (see Johnson 1992 and other citations noted therein) some of these specimens are syntypes (many with no indication of the number of original type specimens and without correct holotype designations). Other syntypes were found in the main collection and these were sorted and integrated with the others above regarding selection as lectotypes or paralectotypes, as the case might be. In the cases of lectotype specimens, full label data are presented herein. Lectotype designations are also made from some other institutions. The polyommatine syntypes of Blanchard were located in a special drawer under the care of the Curator at MNHP (see Johnson 1991: 143).

Many genitalic dissections were made from the specimens at the BMNH. The slides with numbers beginning at "17" were dissected by Dr. Prof. Emilio Balletto (Torino, Italy), who has been pursuing a worldwide study of polyommatine lycaenids. Slides bearing numbers beginning with "19" were made by me. Prof. Balletto separated the various genitalic organs in his dissections (fig. 91) following the tradition of Stempffer (1937 and 1967); I followed Fernandez-Rubio (1976) and left parts of the entire genitalic organ intact (e.g. fig. 92, etc.). When the genitalia is figured based on slides of Prof. Balletto, I have reconstructed the original components from photographs of the slide and enlarged by these by electronic copying. The copied figure of the reconstructed genitalic organ was then traced with ink for the publication and for appropriate measurements. The genitalia slides made by me were either photographed or drawn under the binocular microscope.

The descriptions of the new taxa are presented in a traditional mode, based primarily on external morphological characters, particularly of the male genitalia. Regarding external and genitalic terminology I follow Bálint and Johnson (1993a,b,c). Consistent with work by these latter authors, names of the new taxa mostly originate from Nabokov's literary works (see Bálint and Johnson 1993) with a some exceptions (see e.g. *Madeleinea* suggested by Gerardo Lamas).

For nearly all taxa treated with full entries, male genitalic structures are figured. This appeared advisable both to avoid confusion and as a usable introduction to future elaborations of South American polyommatine lycaenids.

Geographic distributions of the discussed taxa are summarized in a table (Table 2), which follows Descimon's (1986, table 20-3) model. This is not a detailed analysis of the oreal patterns; however it does provide new information on distributions which would otherwise be lacking.

Preliminary Notes on the Ventral Wing Pattern in Neotropical Polyommatinae

The VHW pattern of South American polyommatines includes, according to Nabokov (1945: 45-46), two main types: catochrysopoid and ityloid. This division is not satisfactory from several points of view because some transitional and unique phenomena also exist. Nonetheless I follow Nabokov's treatment for practical reasons in the descriptive sections. Nabokov did not give any explanation or characterization of his two main pattern types; therefore, I describe them according the VHW as follows:

catochrysopoid (fig.1) — ground color unicolorous white or grayish; discoidal spot very characteristic; postbasal and postmedian spots fully developed and distinct; submarginal area patterned by aurora with cusps; anal spot in cell CuA2 often with strong metallic scales; marginal spots and markings present.

Examples: genera *Cyclargus* Nabokov, *Hemiargus* Nabokov, *Echinargus* Nabokov (partim), *Pseudolucia* Nabokov (partim).

ityloid (fig.2) — ground various and not unicolorous with prominent white and dark submedian and postmedian areas; postbasal and postmedian spots confused; submarginal and marginal markings suffused; anal spot in cell CuA2 small or missing.

Examples: genera *Itylos* Draudt (=*Parachilades* Nabokov), *Echinargus* Nabokov (partim), *Paralycaeides* Nabokov, *Madeleinea* gen. n.

The genera *Pseudolucia* and *Echinargus* erected by Nabokov occur in both groups, but the majority of their taxa belong to the ityloid complex. The VHW patterns of *Nabokovia* and a new genus of two thecline-like South American genera (Bálint and Johnson 1993a) represent a slightly different type, closer to the ityloid one. Nabokov failed to mention this variation in connection with the VHW pattern.

Abbreviations

Abbreviations used in text entries and Material Examined are listed below. For clarity, in the case of BMNH materials, specific designations are noted of bequests and supplemental collections placed outside the general collection

AB — Adams' Bequest, B.M. 1912-399.
ADC — M. Adams Coll., B.M. 1987-320.
AMNH — American Museum of Natural History, New York, USA.
BBC — Ex Coll. Bethune-Baker, B.M. 1927-360.
BC — 67.20., Ex. Coll. Ed. Brabant, 1920.
BMNH — Natural History Museun, London, United Kingdom.
CA — C. Allen, Brit. Mus. 1924-408.
CB — Crowly Bequest, 1901-85.
DC — 32.21., ex Coll. Dognin 1921.
EC — Elwes Coll., Brit. Mus. 1937-707.
FC — Fruhstorfer Coll., B.M. 1933-131.
GBC — G.T.B.-Baker Coll., Brit. Mus. 1927-360.
GSC — Godman-Salvin, Coll. 1909-28.
HDC — ex coll. Hamilton Druce, 1919.
HEC — Heeley Coll., B.M. 1950-239.
HNHM — Hungarian Natural History Museum, Budapest, Hungary.
JB — Joicey Bequest, Brit. Mus. 1934-120.
MHNP — Museum d'Histoire Naturelle, Paris, France.
MNHU — Museum für Naturkunde der Humboldt-Universität, Berlin, Germany.
NMNH — Natural Museum of Natural History, Smithsonian Institution, USA.
NMW — Naturhistorisches Museum, Wien. Austria.
NRS — Naturhistoriska Riksmuseet, Stockholm, Sweden.
OC — ex Obertür Coll., Brit. Mus. 1927-3.
PE — L.E. Peña, B.M. 1963-664.
RB — Rothschild Bequest, Brit. Mus. 1939-I.
SC — Swinhoe Coll., Brit. Mus. 1926-239.
SMF — Senckenberg Museum, Frankfurt am Main, Germany.
UNMSM — Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima, Peru.
UWSPMNH — University of Wisconsin (Stevens Point) Museum of Natural History
ZMK — Zoologisk Museum, Kobenhavn, Denmark.

Abbreviations for certain descriptive elements or geographic regions include:

DFW — dorsal surface of forewing.
DHW — dorsal surface of hindwing.
f — female
fs — females
FW — forewing.
HW — hindwing.
m — male
ms — males
TypeL. — Type Locality.
SNSME, A & B. — Sierra Nevada de Santa Marta Expedition, M. J. Adams & G. I. Bernard.
VFW — ventral surface of forewing.
VHW — ventral surface of hindwing.

ACKNOWLEDGEMENTS

Dr. Kurt Johnson (AMNH) encouraged me to prepare this paper and he and Kevin Coogan, UWSPMNH technician, kindly edited the English text. Johnson also provided interesting, recently collected, Neotropical polyommatines for elaboration and support for publication expenses from the AMNH Theclid Research Fund (Dr. F. H. Rindge, Supervisor). Staff of the Butterfly Section of the BMNH, especially Messrs P. R. Ackery, C. R. Smith and R. I. Vane-Wright, permitted use of the vast BMNH collections and helpfully assisted on my visits. The Huckstep family (London) provided hospitality for me and my family while I was in London. Dr. J. Pierre (MHNP) and his staff were similarly generous during my stays in Paris. Pursuant to my requests I have recevied type specimens or materials from the following Curators: Dr. B. Gustafsson (NRS), Dr. O. Karsholt (ZMK), Dr. M. Lödl (NMW), Dr. W. Mey (MNHU) and Dr. R. R. Robbins (NMNH). My correspondence with Dr. G. Lamas (Lima, Peru) was very fruitful and he has passed on certain unpublished information concerning the Peruvian

lycaenids, polyommatine types and etymologies which were very useful. My professor, Dr. Z. Varga (Debrecen, Hungary) made numerous very helpful suggestions regarding biogeography, especially concerning the xeromontane phenomena in Lepidoptera. My supervisor, Dr. A. M. Vojnits (HNHM) has always supported my research and was the photographer of specimens and several of the genitalia slides figured in this paper. The borthers of the Taizé community (Cluny, France), with their reconciled view and their personal support, have always inspired my work. My thanks are due to all of them. My wife, Anna, accompanied me during my museum visits and fieldtrips and gave me important support. I could not have completed this work without her help.

CATALOGUE

ITYLOS Draudt, [1921]

Figures. 4-20.

Synopsis. This genus proved rather diverse after the elaboration of all materials. They are the smallest polyommatine lycaenids of the region, with a characteristic aedeagus and valval shape.

Detailed generic description. Nabokov 1945: 6-10 (as *Parachilades*).

Note. The type species of *Itylos* was designated by Hemming as *Cupido speciosa* Staudinger, 1894. Later Nabokov (1945) designated *Cupido moza* Staudinger, 1894, as type species of *Itylos*, which is invalid (Hemming 1967: 236-237). Accordingly, the taxon *Parachilades* erected by Nabokov (type species: *Lycaena titicaca*) is a synonym of *Itylos* Draudt, [1921].

As the literature cited below shows, the genus is not monotypic; rather, several *Itylos* entities exist. This was already mentioned by Johnson (1992a), who reported an undescribed "*Parachilades*" species collected above Taff, Abra Inferniello (Tucuman, Argentina) in scrub steppe. This taxon is being described by Johnson and me in forthcoming revisionary work.

Itylos speciosa (Staudinger, 1894)

Parachilades titicaca - Nabokov 1945: 6.
Parachilades titicaca - Bridges 1988: I. 350; II. 81.
Itylos speciosa - Descimon 1986, table 20-3.
Parachilades titicaca speciosa - Bridges 1988: I. 326, II. 81.

Figures. 9-18.

Type material examined. LECTOTYPE of *Cupido speciosa* (Figs. 9, 10), male, designated here: "Malaga, Bolivia, 4-5000, M. Garlepp '91.; Speciosa Stgr.; Origin.; Zool. Mus. Berlin; Syntype; Lectotypus, *Cupido speciosa*, des: Zs. Bálint, 1992.XII.2., Budapest". Deposited in MNHU.

Material examined. BMNH: 2ms: Galera Pass, Dpt. Junin, 4800 m., II.'00. (Simons), snowy season; RB. 1m: Vilcan., Peru, Garl.; Pérou, Prov. Cuzco, Vilcanota, 3000m, ex Garlepp Stgr. 1899; OC. 1m: Aréquipa, Pérou; DC; JB. 3ms: Bolivia, Staud.; RB. 1m: Mareapata, E. Peru, 10.800 ft., (Ockenden); RB. 1m: Cusco to Mareapata, 14000, Simons; RB. 1m: Cuzco, 4000m, BC; BBC. 6ms 2fs: Cuzco, Peru, 4000 ft; AB. 1m: Peru: Capachica, Alt. 12,500 ft, 19.IX.1937., G.I.Crawford; Brit.Mus. 1937-707. 5ms: Peru: Puno, Alt. 13,000 ft, 26.IX.1937., G.I.Crawford; Brit.Mus. 1937-707. 1m: Puno, Peru; SC. 1f: Peru; Capachica, Alt. 12.500 ft, 22.IX.1937., G.I.Crawford.; 1f: Peru; JB. [?] 1m: Peru: Ancash Prov., Quebrada Honda Base Camp, 1400'(!), 24. VI.1979, Gibby & Barrett, B.M. 1979-354. [?] 1m: Peru: Ancash Prov., Quebrada Honda Base Camp, 1400'(!), 9. VII.1979, Gibby & Barrett, B.M. 1979-354. 3ms: Puno, Lac de Titicaca, Pérou; CD; JB. 3ms: Boliv., Titicaca, Guaqui, V., coll W. Schnure; BC. 1m: Yungas, Bolivia, collection Rosenberg; JB. 1m: Bolivia, Garlepp; HDC; JB. 1m 1f: Malaga, Garl.; GSC. 3fs: Choquecomate, Bol., 66°W-16,5°S, 5000 m, Simons; in snowy paramo, 30. VII.01.; RB. 1m: Choquecamate, Bol. 66°W-16,5°S, 5000 m, (Simons), dry season; RB. 1f: Bolivia, Garlepp; RB. 1m: Sarata-Town, High Bolivia, Sir Martin Conway, 99-136. 1m: High Bolivia, Sir Martin Conway, 99-136, Umapusa, 19. Sept. 1m: Lopaz, Hewitson Coll., 79-69. 2ms 1f: Huallatami, Bolivie; OC; JB. 1m: Huallatami, Bolivia, 14-18000 ft, Garlepp; GSC.

Slides. Brit. Mus. Nos. 17555, 17565, 17566, 17567, 17568, 17571, 17572, 19122, 19121, 19169 (ms); 17571 (f).

NMW: 1m 1f: Stgr., '03, Bolivia. 1m: Malaga, Garl.; Origin; 692.; Stgr., '03, Bolivia.

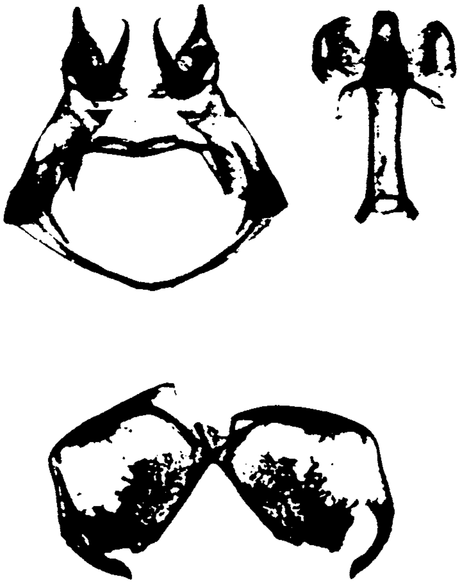
Note. Nabokov suggested that the taxa *titicaca* and *speciosa* were most probably conspecific (Nabokov 1945: 6). There are several specimens from the type localities of both taxa in the material elaborated which are identical. Staudinger knew *titicaca* only from the description and Weymer's figure (Weymer 1890:122-123, Taf IV, fig. 6; reconstructed here as fig. 212); he wrote about his *speciosa*: "Diese schöne Art scheint auf der Oberseite der etwas kleineren Lyc. titicaca Weym. vom Titicaca-See sehr ähnlich zu sein, die Unterseite der Htfl. is aber ganz verschieden." (Staudinger 1894: 78). The VHW pattern of "*speciosa*" is rather variable (see figs.) but the VHW

MORPHOLOGICAL FIGURES

Figures 91-123. Male genitalia of some Neotropical polyommatine species. Photos (91-102) were reproduced by high contrast offset of photo matted plates; reduction to page size irregularized original standardization of scale. Drawings (104-123) were reproduced by standard offset of inked drawings; scale lines are noted.

Fig. 91. Genus Bálint and Johnson, in press (1993), species Bálint and Johnson, in press (1993), holotype, BMNH No. 17544.

Fig. 92. *Madeleinea koa*, BMNH No. 19116.
Fig. 93. *Nabokovia faga*, BMNH No. 19106.
Fig. 94. *Itylos speciosa*, BMNH No. 19122.
Fig. 95. *Hemiargus hanno*, HNHM gen. prep. No. 183 (Bálint).
Fig. 96. *Hemiargus ceraunus*, HNHM gen. prep. No. 253 (Bálint).
Fig. 97. *Pseudolucia parana*, BMNH No. 19110.
Fig. 98. *Pseudolucia parana*, BMNH No. 19111.
Fig. 99. *Pseudolucia collina*, BMNH No. 19115.
Fig. 100. *Pseudolucia andina*, BMNH No. 19116.
Fig. 101. *Madeleinea moza*, BMNH No. 19112.
Fig. 102. *Madeleinea ludicra*, BMNH No. 19119.
Fig. 103. Handwritten note by V. Nabokov.
Fig. 104. *Itylos speciosa*, BMNH No. 19169.
Fig. 105. *Itylos pnin*, BMNH No. 19164.
Fig. 106. *Itylos luzhin*, BMNH No. 19170.
Fig. 107. *Hemiargus bogotana*, BMNH No. 19162.
Fig. 108. *Echinargus martha*, BMNH No. 19172.
Fig. 109. *Paralycaeides vapa*, BMNH No. 19160.
Fig. 110. *Paralycaeides shade*, holotype, MHNP, gen. prep. No. 326 (Bálint).
Fig. 111. *Paralycaeides inconspicua*, BMNH No. 19154.
Fig. 112. *Pseudolucia sirin*, holotype, BMNH No. 17552.
Fig. 113. *Pseudolucia plumbea*, BMNH No. 17554.
Fig. 114. *Pseudolucia grata*, BMNH No. 19167.
Fig. 115. *Madeleinea lolita*, holotype, BMNH No. 19173.
Fig. 116. *Madeleinea ludicra*, BMNH No. 17561.
Fig. 117. *Madeleinea pelorias*, BMNH No. 17558.
Fig. 118. *Madeleinea* sp.? (Aroza), BMNH No. 19151.
Fig. 119. *Madeleinea koa*, BMNH No. 19152.
Fig. 120. *Madeleinea pacis*, BMNH No. 19153.
Fig. 121. *Madeleinea ludicra*, BMNH No. 19158.
Fig. 122. *Madeleinea* sp.? (Guaqui), BMNH No. 19168.
Fig. 123. *Madeleinea ludicra*, BMNH No. 19158.



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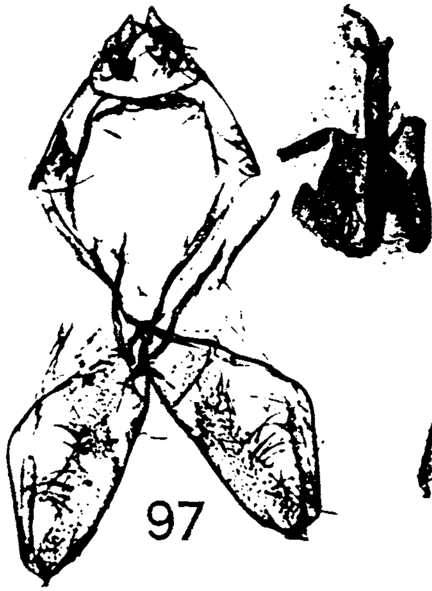
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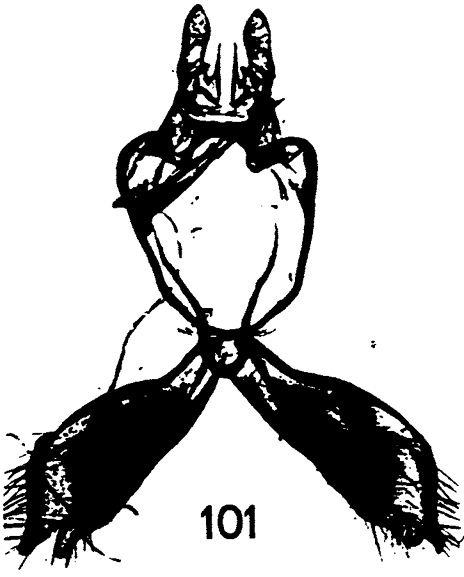
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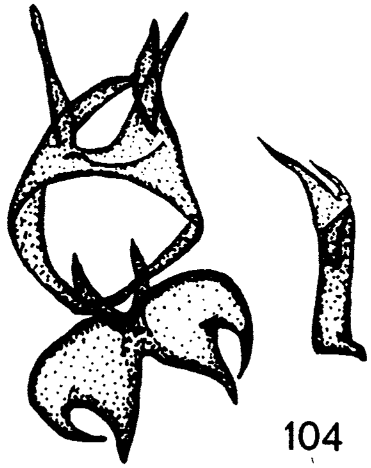
102

marka has proved to be a third species of Echinargus, beautifully intermediate in genitalia between isola and the Trinidad sp.
V. N. I. 1946

103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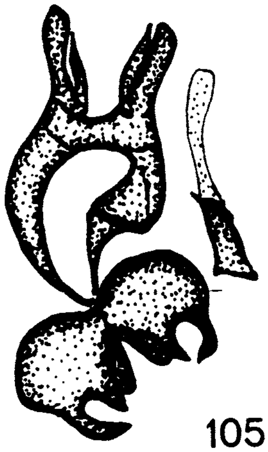
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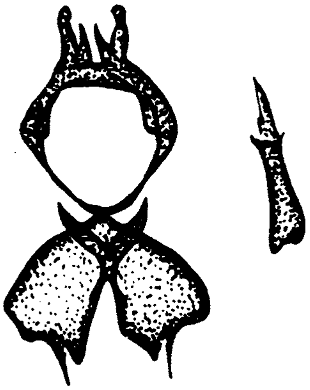
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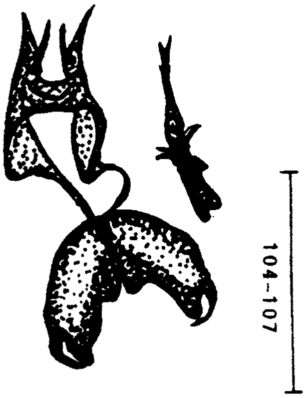

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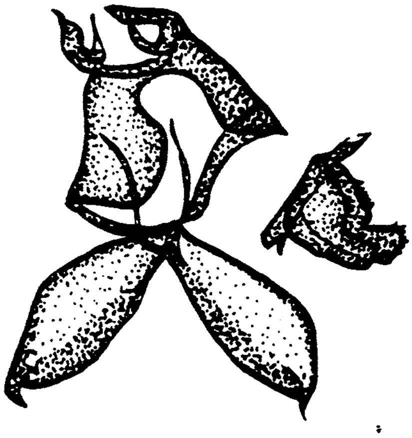
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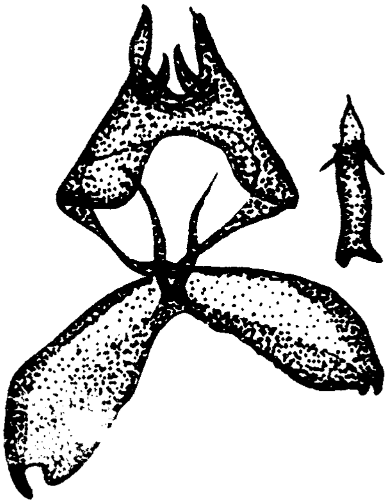
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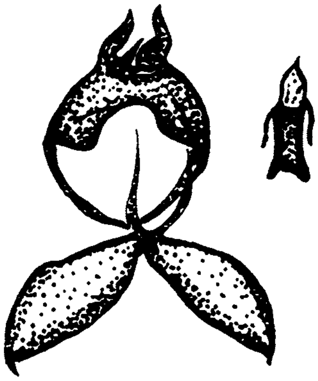
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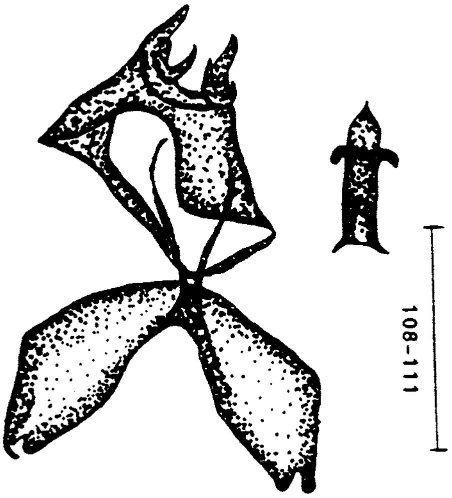

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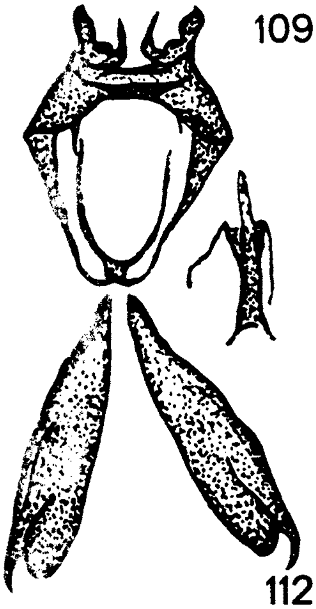
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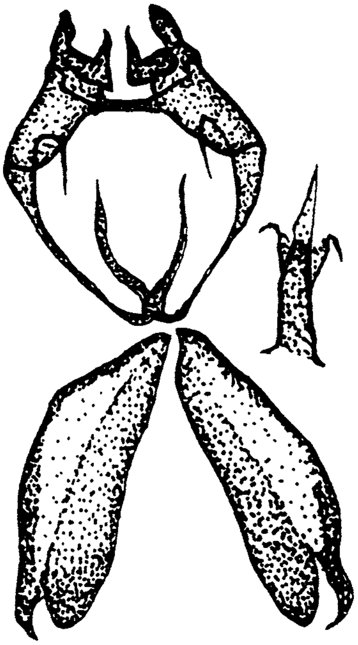

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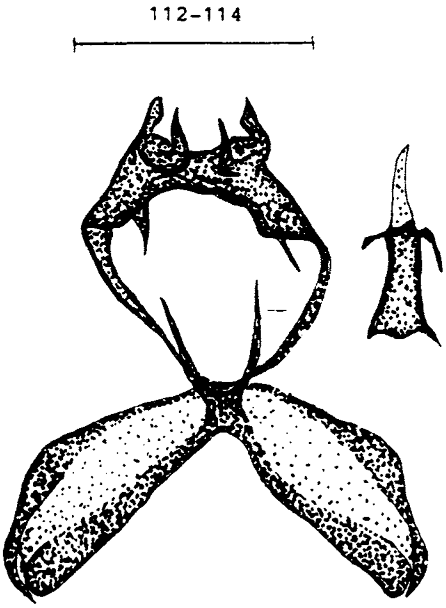

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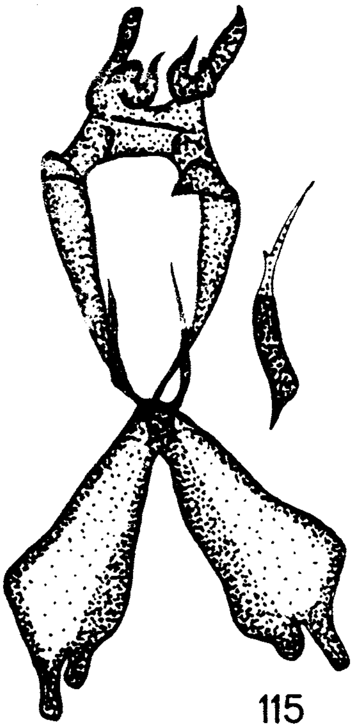

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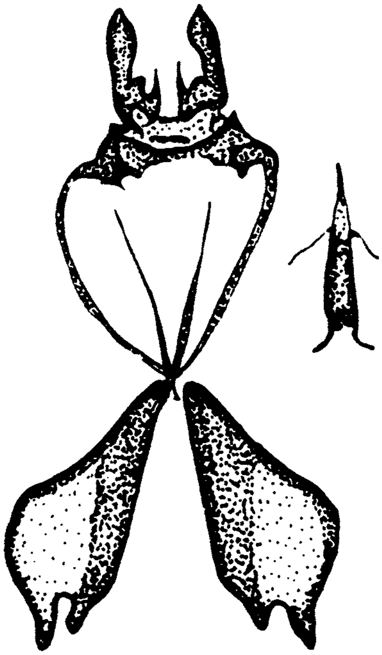

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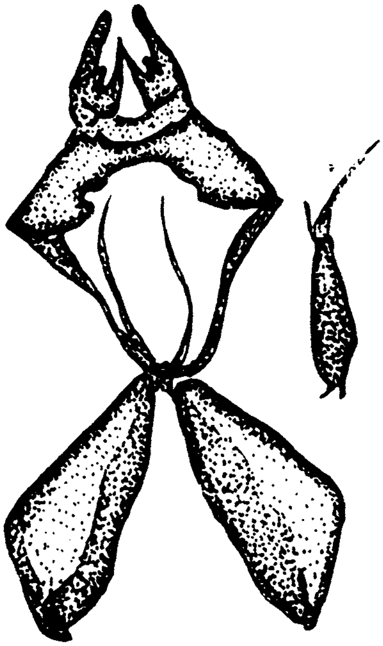

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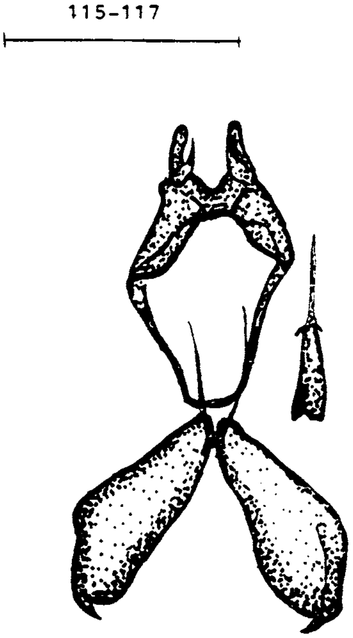

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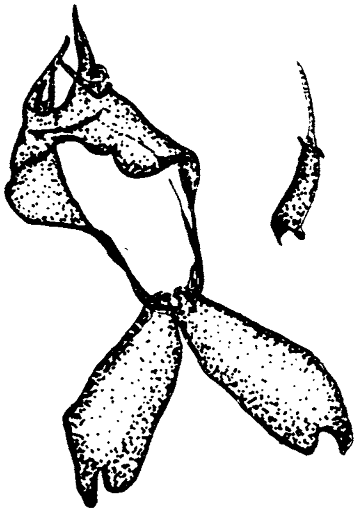

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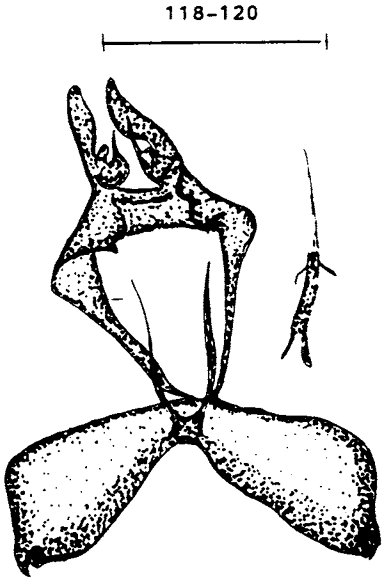

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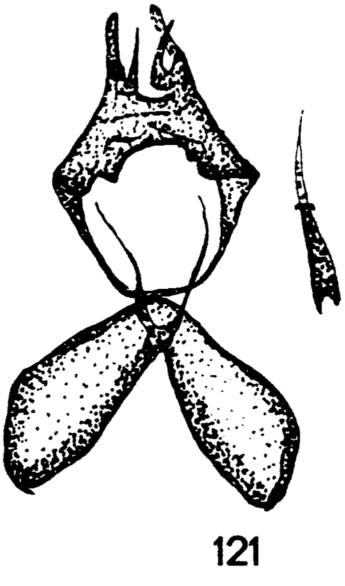

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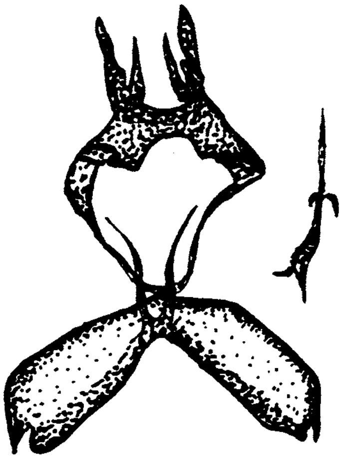

122

123

type falls out from all the limits of the known *speciosa* VHW variation patterns; futhermore the illustrated wing shape of *titicaca* is conspicuously different from that of *speciosa*.

Descimon listed *Itylos speciosa* and *Parachilades titicaca* on one of his tables (Descimon 1986, 20. 3). I leave these two taxa with their status according to Descimon, because the type of *titicaca* has still not been investigated. Further, Kurt Johnson called to my attention specimens studied by Nabokov which bore Nabokov's handwritten labels. There was, among all the *titicaca* labelled by Nabokov, one specimen he labelled *speciosa*. Curiously, he had not dissected this latter specimen. Comparison of the genitalia show the terminal processes of the valvae quite different and suggest that Nabokov's decision concerning conspecificity was not based on morphological work (as might be inferred from his study) but rather from a cursory comparison of the wings and reference only to material he attributed to *titicaca*. Accordingly, I present here a new combination: *Itylos titicaca* (Weymer, 1890), NEW COMBINATION.

Another interesting aspect concerning *speciosa* is that Nabokov also suggested the existence of *titicaca* populations with complete ventral forewing polyommatine maculation (Nabokov 1945: 10). In the material examined there are two males of *Itylos titicaca*, relatively recently captured, with this feature (figs. 11-12). The specimens show some further characters (*e.g.*, a wider wingshape and a slightly different VHW ityloid pattern, although off the same ground plan), separable from the Peruvian and Bolivian populations of *speciosa*. The genitalia appear quite close but at present there is not enough material to satisfactorily resolve this problem and it must be taken up in the revisionary work in progress. Interestingly, this butterfly was not mentioned by Lamas and Pérez (1983), who elaborated the Rhopalocera fauna of National Park Huascarán, where the two mentioned specimens were collected in 1979.

Itylos luzhin Bálint
NEW SPECIES

Figures. 3-4,106.

Diagnosis. Unique, no similar congener; FW shape extended with pointed apex; male genitalia with robust uncus, smaller gnathos and *Nabokovia*-like valvae; aedeagus small compared to *speciosa*.

Description. ***Male***. FW length of Holotype 8.0 mm; ***Paratypes***: 8.0 and 8.5 mm. DFW and DHW ground dark blue with wide, suffused black margin; FW discoidal patch visible; veins black; fringes unicolorous dirty brown; VFW ground colour light brown with indistinct, hardly visible polyommatine markings; basal, costal, submarginal area and veins ash grey; VHW ground colour ash grey with indistinct ityloid pattern; submarginal area ligther. Male genitalia (fig. 105) with strong, bulbous uncus and slender but claw-shaped gnathos; tegumen relatively small with long and narrow vinculum; no appendix angularis; juxta strong with pointed arms; valval shape with large Bayard's angulation at costa and very narrow but long, strongly dentated rostellum; valval anal part rounded; aedeagus with small sheathing.

Female. Unknown.

Types. HOLOTYPE, male (fig. 3): "Paramo, Careques, Peru, 3600-4000 m, 30.XI.99., dry seas. (Simons); Rothschild Bequest, B.M. 1939-I.; Holotypus, Itylos luzhin, det. Zs. Bálint, VIII. 1992., London". Paratypes, 2 males (fig. 4), with the same data. Deposited in BMNH (drawer 29A-928).

Slides. Brit. Mus. Nos. 17569 (Holotype); 17570, 19170 (Paratypes).

TypeL. Peru, Careques.

Distribution. Known only from the type locality, Peru.

Etymology. Gender considered feminine; named for the chess monomaniac in Nabokov's novel "The Defense".

Itylos pnin Bálint
NEW SPECIES

Figure. 5, 104.

Diagnosis. Unique, no similar congener; FW shape elongate with rounded outer margin; male genitalia with long and bulbous uncus, strong gnathos and valvae resembling a new sister genus of *Nabokovia* (Bálint and Johnson 1993b).

Description. ***Male***. FW length of Holotype 8.0 mm; DFW and DHW ground luminous blue with relatively wide, suffused black margin; FW discoidal patch not visible; veins well visible; fringes checkered; VFW ground colour luminous, very light greyish brown with indistinct, hardly visible polyommatine markings; basal and costal area shaded; VHW ground colour brownish grey with ityloid pattern; basal spots and postmedian spots relatively rectangular, pseudovitta present in postmedian ce CUA2-CeM3. Submarginal area darker. Male genitalia (fig. 104). Uncus and gnathos strong, larger than in *luzhin*; tegumen and vinculum larger; juxta stronger with wide and rounded arms; valval shape resembling a species being described by Bálint and Johnson (1993b) (fig. 91) but smaller, but with shorter and strongly curved rostellum and strongly pointed anal part; aedeagus with relatively short penis and slightly larger sheathing.

Female. Unknown.

Types. HOLOTYPE, male (fig. 51): "Lima to Chosica (A. M. Moss); Rothschild Bequest, B.M. 1939 -I.; Holotypus, Itylos pnin, det. Zs. Bálint, XI. 1992., Budapest". Deposited in BMNH (drawer 29A-928).

Slide. Brit. Mus. No. 19164.

TypeL. Peru, between Lima and Chosica.

Distribution. Known only from the type locality, W Peru.

Etymology. Gender feminine; named for the Russian emigre professor in Nabokov's novel **Pnin**.

HEMIARGUS Hübner, [1818]

Figures. 17-24,95-96,107.

Synopsis. The genus is represented by three superficially similar and closely related taxa in the target fauna; structurally all of the species well defined (cf. Nabokov 1945, pl.4). The genus has a large diversity in the Caribbean region (cf. Johnson and Matusik 1992) and several mainland congeners.

Detailed generic description. Nabokov 1945: 20-22.

Note. Nabokov's (1945) taxonomic results concerning the *Hemiargus- Cyclargus- Echinargus- Pseudochrysops* polyòmmatine lineage were omitted by Riley (1975) and Bridges (1988) as noted by Johnson and Matusik (1992: 4) who queried the monophyly of the mentioned genera.

I follow Johnson and Matusik (1992), listing all the *Hemiargus* related genera in original sense of Nabokov (1945). Detailed study of the whole Caribbean polyommatine fauna is necessary to decide the proper taxonomic status and relationships of the four lycaenid genera in question. However, it is apparent that Riley's (1975: 111) view was based on a misunderstanding of the homology indicated by Nabokov's illustrations (e.g. *Hemiargus* shares details of the valvae terminus with *Echinargus- Pseudochrysops*, not *Cyclargus*). It is also possible that since *Hemiargus* and *Cyclargus* taxa are more generally similar in the wings (*Echinargus- Pseudochrysops* show autapomorphies) Riley did not understand phylogenetic monophyly. The problem becomes apparent if one tries to prepare a discussion of genitalic features in Riley's omnibus "*Hemiargus*"— terms cannot be applied uniformly because the same structures are not shared.

Hemiargus ramon (Dognin, 1887)

Hemiargus ramon - Nabokov 1945: 26;

Hemiargus ceraunus ramon - Bridges 1988: I. 298, II. 45.

Figures. 17-18.

Type material examined. LECTOTYPE, male, designated here: "Loja, Equateur, février 86; Lycaena ramon Dog. type qui servi a la description, a la figure; 32.21. Ex coll. Dognin 1921; Lectotypus, Lycaena ramon Dog., des. Zs. Bálint, 1992. VIII., London." PARALECTOTYPES, 1m: Loja, Equateur; "a servi a la description de l'espéce"; DC; JB. 1m: Environes de Loja Equateur, 1886, Abbé Gaujon; "a servi a la description de l'espéce"; DC; JB. Deposited in BMNH (drawer 29A-926).

Material examined. 1m 1f: Environs de Loja, Equateur, 1883; DC; JB. 1m: El Monje pres la Loja, Equateur, 1893; DC; JB. 3ms: Loja, Equateur; DC; JB. 1m: Environs de Loja, Equateur, 1899; DC; JB. 1m: Zamora, Ecuador, 3-4000 Ft, O.T. Bason; RB. 3ms: Zamora, Equateur, VII.'86; DC; JB. 2ms: Guaquaquil, Ecquador; RB. 3ms 1f: Paramba, 3500, III.'97, dry season, Rosenberg; RB. 1m: Cuenca, Ecuador, Bates Coll.; GSC. 1m: Cuenca, Ecuador, Bates Coll.; RB. 1m: Ecuador; RB. 1m: W. Ecuador, Huigra, 22.II.1913., 3000 m, A. Hall.; JB. 4ms 1f: Pisco, Peru, W. Hoffmanns; RB. 2ms: Ayabaca Mountains, N.Peru, A.E. & F. Pratt, 1912; JB. 2ms 3fs: Lima to Chosica, A.M. Moss; RB. 2ms: Chosica, Peru, 2800 ft, 17.III.1912, H.O. Forbes; RB. 11ms: W. Slopes of Andes, N. Peru, 4000 ft, VI.1912., Pratt; JB.1m: Pérou, Tarapoto, V-VIII.1886, M. de Mathan; OC. 4ms: River Tabaconas, N. Peru, 6000 ft, A.E. 1 F. Pratt, 1912.; JB. 1m: Elen, Peru, 20m, X.'99., dry season, Simons; RB. 1m: Pérou, Dépt. Amazonas, Chachapoyas, M. de Mathan, 1889; OC. 2ms 3fs: Peru: Bocapan, XI.1928., H.F. Slattery, B.M. 192-305. 1m: Huaylas, Peru, 2500m, 8.XII.'99., wet country, Simons; RB.

Slides. Brit. Mus. Nos. 17552 (m); 17551 (f),

Note. Bridges (1988: II.45.) suggests that *ramon* is a *ceraunus* subspecies. However, Nabokov (1945: 26-27) gave a very precise diagnosis distinguishing *ceraunus*, *hanno* and *ramon*. Futhermore, *hanno* and *ramon* appear to be sympatric in Ecuador.

Hemiargus hanno (Stoll, 1790)

Hemiargus hanno - Nabokov 1945: 24; Bridges 1988: I. 152; II. 45.

Figures. 19-22,95.

Material examined. 3ms: Cusillemi, Bolivia, V. 1899; HDC. 1m: Bolivia, GS. 2ms: Bolivia; OC. 2ms:

Cochabamba, Bolivie, Germain; OC. 2ms 3fs: Cali, Colombia, IX-XII.'94., V. Rosenberg; RB. 1m: Bogota, 89-154. 1m: R. Dagna, Colombia, W. Rosenberg; RB. 1m: Colombia, Mrs. Vaughan, B.M. 1935-278. 1m: Santa Rita, Cauca R., Paine & Brinkley; RB. 3ms: Torne, Cauca, 1-15.II.'07, Paine & Brinkley; RB. 1m: Torne, Cauca, II.'07., Paine & Brinkley; RB. 3ms: Nelle Grenade, Cauca funtas, M. de Mathan, Jan. 1897-1898; OC. 1m: Colombia (Cauca), Distrito de Pereira, Roman M. Valencia, 1885; OC.3ms: Nouv Grenade de Bogotà à Buenaventura, Dr. O. Thieme, 14.XII.'77 âu 22.II.'78. 1m: Colon., Colombia, Hoffman; RB. 1m 1f: Colombia, Magdelana Valley, El Banco; CA. 1m: R. Dagna, Colombia, W. Rosenberg; RB. 1f: Colombia, Magdelana Valley, Barranquilla to El Banco, VI-VII.1924; CA. 3ms 1f: Popayan, Colombia, 1895; DC; JB. 1m: Popayan, Colombia, IV.-VI. 1898, W. Goodfellow; RB. 2ms: Interior of Colombia, Wheeler; GSC. 1m: Bogota; RB. 3ms: Loja, Ecquador, XII.1893, P. Dognin.; JB. 2ms: Environs de Loja; DC; JB. 2ms: Environs de Loja, Equateur, 1892; DC; JB. 1m: Atánquez, 440, 16.IX.1971, 750 metres; SNSME, A & B. 1m: Atánquez, 1402, 16.IX.1971, 850 metres; SNSME, A&B. 1m: North Colombia: 11; SNSME, A & B. 1m: North Colombia: 464; SNSME, A&B. 1m: North Colombia: 774; SNSME, A&B. 1m: North Colombia: 864; SNSME, A & B. 1m: North Colombia: 1241; SNSME, A & B. 1m: Pueblo Bello, 832, 29.VII.1971, 1100 metres; SNSME, A & B. 1m: Pueblo Bello,839, 29.VII.1971, 1100 metres; SNSME, A & B. 3ms 1f: Santa Marta, 29.VI.1971, sl. metres; SNSME, A & B. 2ms: Santa Marta, 29.VI.1971, sl. metres; SNSME, A & B.1m 1f: Maracámaque, 1782, 14. VII. 1971, 1400 metres; SNSME, A & B. 3ms: Venezuela, Cordillera de Merida, N. of Merida, Rio Alberragos, 1900-2050 m, 31.VII.1977, M. J. Adams & G. I. Bernard. 1m: Venezuea, Cordillera de Merida, N. of Merida, La Pueblita, 1450-1550m, 6.VIII.1977, M. J. Adams & G. I. Bernard. 1m: Venezuela, Cordillera de Merida, N. of Merida, La Pueblita, 1450-1550m, 7.VIII.1977, M. J. Adams & G. I. Bernard.

Slide. Brit. Mus. No. 19162 (m).

Note. According to the material examined this taxon seems to be the single polyommatine occurring in the Venezulean Andes.

***Hemiargus bogotana* (Draudt, [1921])**
NEW STATUS, GOOD SPECIES

Hemiargus hanno bogotana - Bridges 1988: I. 55, II. 45.

Figures. 23-24,107.

Diagnosis. Close to ***hanno*** but the following characters separate ***bogotana***: FW shape longer; male DFW dusty blue; female DFW unicolorous brown; VW pattern with suffused white elements and smaller spots; male genitalia with thinner and more elongate valvae; keel of processus inferior with right angle (figs. 95,96,107).

Material examined. 1m: Chapinero, 15. III.'97., Dr. Brüger; RB. 1m: Zipaquira to Pacho, Colombia, 2700-1800, 19-28.III.'97, Dr. Brüger; RB. 1m: Bogota to Coachi,2800-1700m, I.'97, dry season, Dr. Brüger; RB. 2ms: Bogota, Colombia, ex Staudinger; GSC. 1m: Interior of Colombia, Wheeler; GSC. 5ms: Puente de Boyacâ, 2750 m, 23.VII.1977., Colombia, Depto. de Cundinamarca, M. J. Adams & G.I. Bernard. 1f: West below Arabuco, 2250 m, 24.VII.1977., Colombia, Depto. de Boyacâ, M. J. Adams & G.I. Bernard. 1m: Colombia, Depto. de Cundinamarca, SW of Bogota, Alto San Miguel, 2750-2850 m, 23.VII.1982.; ADC. 1m: Colombia, Depto. de Cundinamarca, NW of Bogota, bet. Facatativa/Villeta, 2400 m, 16.VII.1982; ADC. 1m: Colombia, Depto. de Tolima, S. above Cajamarca, 2800 m, 23.VII.1979; ADC. 1m: Colombia, Depto. de Tolima, NW above Ibaque (above Juntas), 1950 m, 28.VIII.1979; ADC.

Note. Although this taxon seems to be the paramo sister species of ***hanno***, their close relationship needs to be analyzed. In the region of Bogota these taxa are probably sympatric but perhaps may be allochronic.

ECHINARGUS Nabokov, 1945

Figures. 25-30,108.

Synopsis. The genus is represented in the high Andean region by two species. They can be easily separated according to their morphology and genitalic structures from all the known polyommatines of the region, as well as from each other.

Original generic description. Nabokov 1945: 27-28.

Note. The third species of the genus (*E. isola* Reakirt, [1867]) is widely distributed in the southern part of North America and reported as a migratory species (cf. Ferris and Brown 1980: 210). Most probably undiscovered representatives also exist in the continental Central American and insular Caribbean regions.

***Echinargus huntingtoni* Rindge and Comstock, 1953**

Echinargus n. sp. - Nabokov 1945: 29.

Hemiargus (Echinargus) huntingtoni - Bridges 1988:I. 161, II. 45.

Figures. 25-28.

Material examined. 1 m: North Colombia: 278; SNSME, A & B. 1m: North Colombia: 392; SN SME, A & B. 1m: North Colombia: 1240; SNSME, A & B. 1m: North Colombia: 1247; SNSME, A&B. 1m: North Colombia: 1248; SNSME, A & B. 1f: North Colombia: 370; SNSME, A & B. 1f: Atánquez, 1374, 15.IX.1975, 850 metres; SNSME, A & B. 1f: Atánquez, 1376, 15. IX. 1975, 850 metres; SNSME, A & B. 1f: Atánquez, 1381, 15.IX.1975, 850 metres; SNSME, A & B. 1m: Atánquez, 1397, 16.IX.1975, 750 metres; SNSME, A & B. 2fs: Rió Los Clavos, 914, 2.VIII.1971, 350 metres; SNSME, A & B. 1m: Rió Los Clavos, 998, 4.VIII. 1971, 450 metres; SNSME, A & B. 1m: Pueblo Bello, 887, 30.VII.1971, 1100 metres; SNSME, A & B.

Slides. Brit. Mus. Nos. 17535, 17536, 19161, 19163 (ms).

Note. The specimens are identical with the topotype material of *E. huntingtoni* (figs. 27-28). Further studies must be carried out clarifying the status of the *huntingtoni* populations living in Colombia with other closely related taxa (e.g. *continentalis* Clench 1965).

Echinargus martha Dognin, 1887

Echinargus martha - Lamas and Pérez 1983: 36.

Itylos martha - Bridges 1988: I. 215, II. 51.

Figures. 29-30,108.

Type material examined. LECTOTYPE, male, designated here: "Environs de Loja, Equateur, 1886; Lycaena sp. par nomini (Stgr.); a servi a la description d l'espéce; 32.21. Ex coll. Dognin 1921; Lectotypus, Lycaena martha Dog., des. Zs. Bálint, 1992. VIII. 17., London.". PARALECTOTYPES. 3ms: Loja, Equateur, février '86, "a servi a là description de l'espéce; DC; JB. All depisoted in BMNH (drawer 29A-922).

Material examined. 1m: Lima, Peru, A.M. Moss; RB. 7ms: River Tabaconas, N. Peru, 6000 ft, A.E. & F. Pratt, 1912; JB. 1m: Balzapamba, Prov. de Bolivar, M. de Mathan, III.-IV.1894; OC. 1m: Loja, Equateur, 1893; DC; JB. 2ms: El Monje prés Loja, Equateur, 1893; DC; JB. 1m: Environs de Loja, Equateur, 1891; DC; JB. 1m: Environs de Loja, Equateur, 1892; DC; JB. 1f: Sures, Peru, 2500 m, dry country, Simons,; RB. 1m: Equateur; JB. 1m: Prov. Huanco, W. Hoffmans.

Slides. Brit. Mus. No. 17528, 17529, 19172.

Note. Nabokov could not examine the taxon *martha* when he erected *Echinargus*. He presumed that the taxon in question was a form of *koa* "with strongly developed ornamentation of the catochrypsopoid type" (Nabokov 1945: 39).

Amongst the very rich reprint collection of the Butterfly Collection at BMNH there can be found all the published papers of Nabokov bound in one volume. On the above-cited page the following note can be found written by Nabokov himself (fig. 103): "*martha* has proved to be a third species of *Echinargus*, beautifully intermediate in genitalia between *isola* and the Trinidad sp., V.N., I. 1946" (cf. fig. 108).

Hence, Lamas and Pérez (1983: p. 36, fig 36.) correctly placed the taxon in *Echinargus*.

PSEUDOLUCIA Nabokov, 1945

Figures. 31-56, 97-100, 112-114.

Synopsis. Taxonomically a rather complicated genus, represented by several taxa groups in the target fauna and spatially the most widely distributed. Data exist north from the Yucatan Peninsula (must be confirmed) and south to Patagonia, west from the highest Andes and east to the Mountains of Paranapiacaba, Brazil. The development of the sagum is very variable, although indicative in the taxa groups. For the genus, the gnathos and uncus structure (described by Nabokov) are aptly definitive. Some groups are sexually dimorphic with ityloid VHW pattern. Both sexes in representatives of the *chilensis*-group are brown with catochrysopoid VHW pattern.

Original generic description. Nabokov 1945: 32 -33.

Note. The genus contained only two taxa in Nabokov's (1945) original work. The study of the BMNH material increased significantly the number of the species. Work by me and Kurt Johnson (Bálint and Johnson 1993a) on voluminous material provided mostly by Luis Peña added a surprising number of very distinctive and well-represented species to the Chilean and Patagonian faunas. I list herein the voucher material deposited from this study in the museum collections consulted here.

The variously developed presence of a strongly sclerotized structure on the penis (sagum according to Nabokov; cf. vallum penis according to Draudt 1950, figs 20-22. in Noctuids) distinguishes well the taxa groups. In some cases it is very weakly sclerotized; in other cases the sagum is strong and dentated. *Pseudolucia* can be divided into five rather distinct polytypic clades which are arranged here according to the development of the sagum: *chilensis*-, *andina*-, *collina*-, *plumbea*-, and "*endymion*" (*sibylla*)--groups of taxa.

Studying new *Pseudolucia* materials superficially close to *plumbea* recently taken in Chile by Peña and other material received from ZMK and AMNH for elaboration convincingly indicates the apparent diversity of this group must be taken seriously. Not only are many new taxa outstanding in wing character and corroborated by structural characters (particularly in the female genitalia), label data indicate that entities are sympatric and synchronic (Bálint and Johnson, 1993a). This situation recalls the very complex taxonomy of the central Paleearctic *Agrodiaetus* (s.str.) and *Polyommatus* (s.str.) polyommatine groups. These groups have apparently shown rapid evolutionary development, with many taxa highly specialized for various xeromontane biomes (*sensu* Varga 1975). The biogeographic explanation of these groups' diversity is rather difficult. On the one hand the groups are very ancient; yet, on the other, there has been an intensive human influence on their contemporary distributions in the Palaearctic Realm.

Other than the noted xeromontane ecology associated with the group, there has been no detailed published study concerning the biology of this genus. I could find only one label reference as well— that an *andina* pupa was found under a stone. It is possible that Shapiro's mentioned data, concerning myrmecophyly and larval host plant preference (see below the note of genus *Madeleinea*), refers not to *Itylos sensu* Nabokov, but to *Pseudolucia*.

Pseudolucià chilensis **(Blanchard, 1852)**

Pseudolucia chilensis - Nabokov 1945: 33.

Pseudolucia chilensis - Bridges 1988: I. 78; II. 92.

Pseudolucia chilensis - Bálint and Johnson 1993a: 16.

Synonym, *Polyommatus atahualpa* Wallengren 1860: 37.

Figures. 31-32,56,125.

Type material examined. LECTOTYPE of *Lycaena chilensis* (fig. 125), female, designated here: "Museum Paris, Chili, Gay, 1843"; LECTOTYPE of *Polyommatus atahualpa* Wall. (fig. 56), male, designated here: "Valparaíso; Polyommatus atahualpa Wallengr; Naturhistoriska Riksmuseet, Stockholm, Loan no 567/92; Lectotypus, Polyommatus atahualpa, des. by Zs. Bálint, Budapest, Oct. 1992", deposited in NRS.

Material examined. BMNH: 3m 3f: Penco, Concepcion, Chile; RB. 1m 2fs: Chili, Edmonds; GSC. 1m: Coll. Kaden; GSC. 2ms: Chili; CB. 1m: Chili, E.C. Reed; GSC. 2ms 1f: Chile, B. de Canquenas, 18.12.'01., H.J. Elwes; EC. 1m: Chile, M. Ber., Zell. Coll. 1884. 1m 2fs: CB. 3ms 2fs: JB. 2ms 1f: Chili, HDC. 1m: Penco, Chili; SC. 1m 1f: Valparaíso, 82-17. 1m: Chili, Walker; HDC; JB. 4ms: Chili, Reed; JB. 11ms 7fs: Central Chili, 1883-1885, H.B. James; JB. 2ms: Chili, esc. coll. James 1883-85; JB. 2ms: Penco, IX-04, collection Rosenberg; JB. 4ms: HDC; JB. 2ms: Chile; BBC. 2ms: Lota, Chili, 1.04 (Goodfellow); RB. 4ms 2fs: Chili, ex Museo Dris Boisduval; OC. 1m: Chile: Santiago, 1924-1929, F.C. Platts, B.M. 1935-544. 1m 1f: Ramcaquas, Chili; RB. 1m: Chili, W.B. Calvert; RB. 1m 1f: Chili; RB. 2ms: Chili, Felder Coll; RB. 1m: Chili, Edmonds; HDC; JB. 1m 1f: HEC. 1m 1f: Chile, Talcuna, 15.X. 1958., PE. 1m: Chile: El Coigual, Cord. Curicó, 8-9.II.1961., PE. 3ms: Chile: Coquimbo, Caren Illapel, 13-14.XI.1963., PE. 2fs: Chili, 80.27. 1f: Chili, GSC. 1f: Valdivia, Chile, Ex Staudinger; GSC. 1f: EC. 1f: Chile, Caquenes, Dec. 1902., H.J. Elwes; EC. 1f: Chili; HDC; JB. 1f: Los Andes, Chile, 67.20; BC; BBC.

Slides. Brit. Mus. Nos. 19108, 19109 (ms).

MHNP: 1m 1f: Chili, Viña del Mar, 10.1885. 1f: Viña del Mar, Chili, 12.1885, J. Piqout; Coll. E. Boullet. 1m 1f: 1918, Ex coll. C. Ward, coll. R. Calichon. 1m 1f: Chili, Valparaíso, R. Martin, 1923. 1f: Chili, C.-E. Porter. 1f: Chili, 1853.

Note. According to the available materials this is the most widely distributed polyommatine in Chile. The highly interesting data from Brazil and Honduras (Brazil. 1f: Brazil, HC. 1m: Brazil; JB. Honduras. 1f: Honduras, San Pedro Sula, Erick Witthugel; OC.) found in BMNH need further confirmations. These data seem to be very important for explaining the biogeographic history of *Pseudolucia*.

Pseudolucia parana **Bálint**

NEW NAME, NEW COMBINATION

Replacement name for *Lycaena griqua* Schaus, 1902 (see Bridges 1988: I. 149.).

Figures. 33-34,97,98.

Type material examined. SYNTYPE, male: Castro, Parana, Ex dono W. Schaus; 1901-192., Lycaena griqua Schs., Received as Lycaena griqua, Schs. from Schaus, F.A.H; Syntypus, Lycaena griqua Schs., des. Zs. Balint, 1992. VIII. 17., London; Pseudolucia parana, det. Zs. Bálint, 1992. VIII. 17., London. Deposited in BMNH. 29A-927. Further syntypes must be preserved in NMNH (Bridges 1988).

Material examined. 5ms 1f: Castro, Parana, Jan 97. (E.D. Jones); RB. 8ms 1f: Castro, Parana, E.D. Jones; HDC; JB.

Slides. Brit. Mus. Nos. 19110, 19111 (ms).

Note. The taxon does not occur in the Andean region, but I list this entity here because it is not only very interesting but a very close relative of *P. chilensis* showing an ancient polyommatine (= catochrysopoid) HW pattern and strongly developed sagum (cf. Nabokov 1945: 44-46). This entity has a confused history, recognized as distinctive by some but with no satisfactory formal effort to attach a new name to the available syntype. Someone at the BMNH (perhaps Dr. Balletto?) marked the specimens as "sp. n.". It is undoubtedly distinctive; I could identify the entity readily from the single syntype specimen available or the description of it provided by Schaus (who also did not formalize a holotype [Schaus 1902: 407]).

Bridges noted the unsolved status of the taxon from a nomenclatoric point of view. However, I do not follow the suggestion of Nabokov (1945:35, footnote 1) that a redescription is needed if a holotype is to be designated. The entity is unambiguous; I provide the figures of both of the sexes and male genitalic structures of *parana* (figs. 97, 98).

***Pseudolucia collina* (Philippi, 1859)**

Pseudolucia collina - Nabokov 1945: 34.
Pseudolucia collina - Bridges 1988: I. 85; II. 92.
Pseudolucia collina — Bálint and Johnson 1993a: 5.
Synonym, *Lycaena lyrnessa* Hewitson 1874: 107.

Figures. 35-37, 99.

Type material examined. LECTOTYPE of Lycaena lyrnessa Hewitson, 1874, male, designated here: "Lectotype, male, Chili, Hewitson Coll. 79-69., Lycaena lyrnessa; Chili? lyrnessa; Lecotypus, Lycaena lyrnessa, det. Zs: Bálint, 1992. VIII. 18., London.", deposited in BMNH (drawer 29A-927).

Material examined. BMNH: 1m 1f: Chillán, 82-17. 1m 1f: Chile, Punehue, 3000 ft, 26. Jan. 1902, H.J. Elwes; EC. 2ms: Chile, Loleo Pass, 8000, 25. Jan. 1902, H.J. Elwes; EC. 2ms 5fs: Chile, B. de Chillán, 6000 ft, 24.12.'01., H.J. Elwes; EC; JB. 2ms: Chili; CB. 3ms: Chili, Edmonds; EC; JB. 1f: Chili, Edmonds; GSC. 18ms 1f: Central Chili, 1883 -85, H.B. James; JB. 1m: HEC. 2ms 1f: Chili; JB. 2ms: Chili, Edmonds; HDC; JB. 1m: Chili, W.B. Calvert. 3ms: Chile, Germain, coll. Felder. 1m: Chili; OC. 1m: Chili, Eurylas Boisd; Ex Museo Boisduval; OC. 1f: Chile, B. de Chillán, 5000 ft, 22.12.'01., H.J. Elwes; EC; JB.

Slides. Brit. Mus. No. 17545, 19114, 19115 (ms); 17546 (f).

HNHM: 1m 1f: Chile, Concepc., 30.11.1907, P. Herbst.

Slide. gen. prep. No. Bálint. 233 (m).

Note. Widely distributed in Chile, and besides *P. chilensis*, the most well represented south American polyommatine lycaenid in the old museum materials. Nabokov (1945: 34-35) gave a detailed characterization of this taxon in spite the fact that only two specimens were available for him (Table 1.).

Nabokov (1945: 32) listed (with question mark) *Lycaena endymion* Blanchard, 1852 (TypeL: Coquimbo, Chile) as synonym of *collina* criticizing the act of Kirby (1871: 377), who gave the *sibylla* replacement name for *endymion*. The action of Kirby is valid in spite of the correct note of Nabokov (Bridges 1988: I. 320). Nabokov listed *sibylla* as junior objective synonym of *chilensis* by mistake.

Amongst the newly collected *Pseudolucia* material sent by Kurt Johnson was a well represented species, nearly a look-alike of *P. collina* but showing a completely different genitalia habitus, particularly apparent in the female (*collina* being greatly bifurcate and the other entity nonfurcate). I refer to this taxon subsequently in my listing of voucher material deposited in the various museums consulted in this study. It is curious that this new entity, *P. zembla* Bálint and Johnson, is more common in the collection of Peña than true *P. collina*. Above-listed material examined were identified in 1991 before the discovery of *P. zembla*. Consequently, identifications need to be rechecked with attention to the more elongate ventral hindwing "V" mark attributed to *P. zembla*, or (ideally) the structural characters.

***Pseudolucia sibylla* (Kirby, 1871)**
GOOD SPECIES, REVISED STATUS

Lycaena sibylla Kirby 1871 (replacement name for *Lycaena endymion* Blanchard 1852)
= "*sybilla* Draudt" [1921] of authors (misspelling).
Pseudolucia sibylla — Bálint and Johnson 1993a: 20.

Figures. 41,124.

Type material examined. LECTOTYPE, female, designated here, Lycaena endymion Kirby, 1871: "Coquimbo, Museum Paris, Chili, Gay 1943", deposited in MHNP (fig. 124).

This entity represents the group of *Pseudolucia* with strongly developed alulae at the zonal part of the aedeagus, with a weakly sclerotized part of diaphragma.

I have failed to find any specimen representing one of the taxa of the *sibylla* group in the studied material listed here but it was present in recent samples of Peña listed by Bálint and Johnson (1993a). This appears to result from Peña's emphasis on collecting in the northern desert regions of Chile in recent years. Among the material forwarded by Kurt Johnson to me was one specimen collected by Mr. Peña in Coquimbo region (fig. 41). Therefore, it appears I can confirm the statements of Ureta

(1964) concerning the identity of this species and its occurrence in Chile, further corroborated by the inclusion here of data concerning Blanchard's type. As noted in Bálint and Johnson (1993a), I do not recognize the misspelling of Draudt [1921] "*sybilla*" as constituting a valid taxon. The Draudt usage refers unambiguously to *sibylla* and appears in the literature purely by repetition.

Pseudolucia patago (Mabille, 1889)
NEW COMBINATION, REVISED STATUS

Itylos plumbea patago - Bridges 1988: I. 270; II. 51.

Figures. 38-40.

Material examined. BMNH: 2ms 1f: L. Nahuel Huapi, Eastern End, 17.XI.1926; Argentina: Terr. Rio Negro, F. & M. Edwards. ZMK: 1m: Argentina, Rio Negro 16: S.C. de Barichole, Camino del Tronador, 800m, 29.xi.1978; Misin Cientifica Danesa. 1m: Argentina, Neuquén 20: Paso del Córdoba, 1200 m, 1.xii.1981, Nielsen & Karsholt. 2ms: Argentina, Neuquén 42: Lago Tromen, 1000-1100m, 1.xii.1981, Nielsen & Karsholt.

Slides. M.K. 3, 8, 12, 28 (ms).

Note. Nabokov made a taxonomic error concerning the taxon *Lycaena patago* Mabille, 1889 which was believed by him to belong to a different subfamily (Nabokov 1945: 36). Studying the original description of the taxon (Mabille 1889: 143-144, figs. 1-2.), it became evident that *patago* is the most austral representative of the *collina*-lineage and perhaps identical with the nominate *collina*. If true, *patago* has been erroneously classified as a *plumbea* subspecies (*e.g.* Bridges 1988). I could not locate the type specimen of *Lycaena patago* in the MNHN, although it has been reported to be there (Horn und Kahle 1936: 162 and Bridges 1988: I. 270). Perhaps only this could help define its correct taxonomic status since, as Bálint and Johnson (1993a) show, *collina* shows a widely bifurcate female genitalia which make it unmistakable and these characters are consistent with distinctive traits in the male as well. However, *collina* superficially resembles a number of other taxa with a "V"-like pattern on the hindwing undersurface. Thus, tentatively I list *patago* in revised status but I suggest that it may be a *collina* synonym.

The phenomenon, that the Patagonian and the Chilean representatives of a polytypic segregate are different, is also recognized in other south American Rhopalocera, *e.g. Hypsochile wagenknechti-microdice* (Shapiro 1991: 167, fig.10b.), but the widely distributed *Tatochila mercedis* complex shows a cline from north to south. Most probably this *mercedis*-like phenomenon exists in the case of *collina* too, because the specimens collected in the northern part of Patagonia (figs. 38-40) are identical with the Chilean material.

Pseudolucia charlotte **Bálint and Johnson, 1993**

Pseudolucia charlotte Bálint and Johnson 1993a: 17.

Figures. 43-44.

Material examined. ZMK: Paratypes, 1f: Argentina, Patagonia, Pucará (Neuquén), 8-20.xii.1952, leg. Ing. S. Schajovskoy; HNHM, 1m: same data as ZMK paratypes.

Slides. M. K. 30, 31 (ms), 32 (f).

Note. The species was recently described. Interestingly, its male genitalic structure is closer to the representatives of the *plumbea*-group, although superficially it resembles *collina* (cf. figs. 35-37). Since *P. charlotte* is marked by a dazzling orange FW patch in both sexes, it could not be *patago* Mabille.

Pseudolucia plumbea **(Butler, 1881)**

Itylos plumbea - Bridges 1988: I. 283; II. 51.

Pseudolucia plumbea — Bálint and Johnson 1993a: 7.

Figures. 46-48, 113.

Type material examined. LECTOTYPE, male, designated here. "Scolitantides plumbea, Butler Type, Chili, 82. 61.; Lectotypus, Scolitantides plumbea, des. by Zs. Bálint, X. 1992, Budapest" Deposited in BMNH (drawer of types: 5.2.).

TypeL. The brief description of Butler (1881: 486) does not give an exact type locality ("Chili") (see the label data above). Studying newly collected *Pseudolucia* material I have found entities captured by Mr. Peña in the region of Chillán identical with Butler's type. Thus I designate the type locality of *plumbea* as Las Cabras, Cord. Chillán, Chile (figs. 47-48).

Material examined. 1m: Punehue, Chile, loc ?, Feb.1902., H.J. Elwes; EC. 1m: EC; JB. 1f: Chile, B. de Chillán, 6000 ft, 24.12.'01., H.J. Elwes; JB.

Slides. 17554, 17564 (ms); 17553 (f).

Note. Nabokov (1945: 36) treated *plumbea* as taxon possibly identical with *Lycaena patago* (Mabille, 1899). Bridges classified it as an *Itylos* (*sensu* Nabokov?) species.

Kurt Johnson found a polyommatine species belonging to the monotypic, holotropical *Zizeeria* section (det. Zs. Bálint: *Zizina oxleyi* Felder & Felder, 1865) determined as "*plumbea*" by Nabokov (handwritten label) in the collection of AMNH. It may explain why Nabokov did not include this taxon amongst the *Pseudolucia* species. The designation of the Lectotype specimen has clarified the status of *plumbea*.

Pseudolucia grata (Köhler, 1934)
NEW STATUS

Pseudolucia collina grata- Bridges 1988: I.148;II.92.

Figures. 49-52, 114.

Material examined. BMNH: 1f: Nahuel Huapi, Patagonia, Jan. 1912; RB. 1m: 54.21. Tecka, Territory of Chubut, N.W. Patagonia, 3000 ft, Jan -Feb. 1920; JB. ZMK: 1f: Argentina, Salta 72: Rosario de la Frontera, Los Banos, 8.iv. 1979., Mision Cientifica Danesa.

Slide. Brit. Mus. No. 19167 (m); M.K. 29.

Note. Köhler (1934: 39) made a comparison between *grata* and *pacis* (belonging to *Madeleinea*), as he described the taxon *grata* in the genus *Itylos*. This statement was followed by Nabokov (1945: 39). But *grata* shows a close relationship to *plumbea*, and does not belong to the *collina*-stock of *Pseudolucia*. Thus the classification of Ureta (1964), putting *grata* into *Pseudolucia*, was correct. The Patagonian female specimen's genitalia shows a tubular terminus typical of the *chilensis*-group. As its DHW pattern seems to be identical with the holotype specimen of *grata* (Köhler 1934, fig. 2) and the Chubut specimen (fig. 49), I presume that a "*vera*-like" phenomenon exists in the case of *grata* (superficially it belongs to the *plumbea*-like grade but structurally is an evident member of the *chilensis*-group). These relationships will be further clarified in the revision of the genus (Bálint and Johnson 1993c).

The Salta specimen, which represents the most northern occurrence of a *plumbea*-like stock (cf. Shapiro 1991: distribution of *Hypsochila galactodice*), is very interesting, differing from all known *plumbea*-relatives with its almost totally unpatterned grey VHW. However, the genitalic slide of the specimen is in good enough condition to recognize the tubular habitus typical of the *chilensis*-group. I list it tentatively under *grata* because the Nahuel Huapi female is the closest phenomenon known by me to this specimen.

Pseudolucia sirin Bálint
NEW SPECIES

Figure. 45, 112.

Diagnosis. Somewhat smaller than *plumbea* and *grata*; DW and RW ground colour lighter with very thin black margin. RHW basal and postmedian lunules better marked, not so suffused together; male genitalia smaller with a distinct rostellum.

Description. FW length 10 mm (holotype and two paratypes). Male, DFW and DHW ground luminous sky blue with thin inconspicuous black margin; FW discoidal patch slightly visible; veins well visible; fringes checkered;VFW ground colour pale yellow with grey anal part and white margin; postmedian markings well visible, marginal patterns suffused; RHW with large basal spots; basal area ground grey; discoidal spot longish; costal spots large, black but postmedian spots brown and ityloid; submarginal area white with distinct polyommatine markings. Male genitalia (fig. 112) resembling that of *plumbea* and *grata*: uncus horseshoe-shaped with pointed apex, gnathos strongly curved with slender upper part, base of gnathos strong; tegumen well developed with subscaphium; juxta large with strong arms; valval shape typical polyommatine with larger and rounder anal lobe than *plumbea*; rostellum less curved and thinner than in *plumbea*.

Female unknown.

Type. HOLOTYPE and PARATYPES (2 males) with the same label and data: "Chile-Arg., Puente del Inca, Elwes Coll;, 1902-85., Brit. Mus. 1937-707." Deposited in the BMNH (drawer 29A-927).

TypeL. Near the entrance of the Horcones valley, 9500 ft, Puente del Inca, Argentina (Elwes 1903: 265).

Slides. 17560, 17562.

Distribution. Known only from the type locality.

Etymology. Gender considered feminine; "Sirin" is the *nom de plume* under which Nabokov's works appeared in Russian.

Note. In the drawer of BMNH where the type material is deposited the following handwritten label can be found: "Elwes took these males flying with *andina* Calv. presumed that they were males of that species; see T.E. S.L. 1903, p. 288.". The two species are synchronic and sympatric, but DW of both sexes of *andina* are brown and the males have a rather remarkable genitalic structure (see andiana below). Elwes gives some supplementary data to the knowledge of the type locality and its butterfly fauna concerning this new entity (Elwes 1903).

The new taxon belongs to the group closely related to *plumbea*, *grata* and *annamaria*. It can be classified as a limited high Andean endemic like *Colias mendozina* Breyer (Shapiro 1991: 181-182). Shapiro (in litt. to Johnson) reports having collected numerous polyommatines along with his pierid samples. The "blues" are now with another European worker. It is probably that this material may contain other examples of *P. sirin* or other poorly known Patagonian species.

Pseudolucia andina **(Barlett-Calvert, 1894)**

Scolitantides andina - Bridges 1988: I. 22; II. 97.

Pseudolucia andina — Bálint and Johnson 1993a: 6. Synonym , *Scolitantides horsti* Ureta, 1949 (see Bridges 1988: 1.160.)

Figures. 53-55,100.

TypeL. Condes above Santiago, Chile (not mentioned by Bridges 1988).

Material examined. BMNH: 2ms: Chili, 93. 47. 4ms 1f: Chile, Puente del Inca; EC. 1m 1f: Puente del Inca, Mendoza, Argentina; H. J. Elwes; JB. A.F. Baynes, 1904-56; pupa found understone. 7ms 1f: Valley del Lago Blanco, Chubut (Thursby); RB. 1m: Nahuel Huapi, Patagonia, 1912; RB. 1f: 54.21., Maiten, Territory of Chubut, N.W.Patagonia, 2500 ft, March 1920; BBC.

Slides. Brit. Mus. No.: 15573, 19115 (ms); 17556 (f).

ZMK: 5ms 3fs: Argentina, Neuquén 20: Paso del Córdoba, 1200 m, 1.xii.1981, Nielsen & Karsholt.

Slides. M. K. 11, 15, 20, 25 (ms); 9, 21 (fs).

Note. Nabokov (1945: 36) wrote that this taxon may prove to be a synonym of *plumbea*. It is clear that there were no specimens of *andina* available to Nabokov or he would have immediately recognized the very distinctive appearance and structural characters of this species.

The "male *andina*" specimens of Elwes (1903: 288-289) represent a new species (see above *P. sirin*), but the "females" are identical with Patagonian *andina* (figs. 123, 124). There is no structural difference between the material taken at Puente del Inca (Baynes, Elwes) and from Chubut (Thusby) (figs. 119 and 200). Elwes also notes (1903, l.c.) that he was able to determine *andina* based on the specimens donated by Calvert to the BMNH collection, which also served for the original description. Most probably these are two male specimens "Chili, 93.47" mentioned in the Material Examined. Accordingly, they can be accepted as syntype specimens.

Pseudolucia zembla **Bálint and Johnson 1993a: 6.**

TypeL. Chile, Reg. Bío Bío, Ñuble, 9 km. N. Los Trancas.

Voucher Depositions. *Paratypes*. HNHM: 1m,1f, Chile, Reg. Bío Bío, Ñuble, 3 km. N. Las Trancas, 4000 m., 15 January 1967, leg. L. Strange. BMNH: 2ms,2fs, Chile, Reg. Coquimbo, Elqui, La Higuera, November 1991, leg. L. Peña.

Note. A near look-alike of *P. collina* but with genitalia typical of the *plumbea*-group. Currently known in Chile from regions Coquimbo to Bío Bío.

Pseudolucia annamaria **Bálint and Johnson 1993a: 7.**

TypeL. Chile, Reg. Coquimbo, Elqui at Alcohuaz.

Voucher Depositions. *Paratypes*. HNHM: 3ms, 1f Chile, Reg. Coquimbo, Elqui, S. Vicuña, 3 November 1991, leg. G. Castillo; 1m, Chile, Reg. Coquimbo, 24 mi. S. Vicuña, 24 October 1992, leg. C. Snyder. BMNH: 1m, Chile, Coquimbo Reg., Elqui, June 1989, leg. G. Castillo; 1m; Chile, Coquimbo Reg., Monte Grande, 27 October 1992, leg. C. Snyder.

Note. A well-represented species long misidentified by Chilean workers as *P. plumbea*. Known in Chile from regions Coquimbo to Bío Bío and Maule.

Pseudolucia hazeorum **Bálint and Johnson 1993a: 8.**

TypeL. Chile, Reg. Bío Bío/ Maule, Malco, Cordillera Parral.

Voucher Depositions. *Paratypes*. HNHM: 1m, 1f, Chile, type locality, January 1958. BMNH: 1m, Chile, Reg. Bío Bío, Ñuble, Los Trancas, 15 December 1976, leg. L. Peña.

Note. A large species well marked by broad fuscous wing borders, among other unusual characters. In Chile known from regions Coquimbo to Bío Bío and Maule.

Pseudolucia clarea **Bálint and Johnson 1993a: 9.**

TypeL. Chile, Reg. Coquimbo, SE Vicuña at Elqui.

Note. Currently known only from smaller series in Chilean and North American depositories. Unmistakable because of mixed bronze and blue upper surface in both sexes, among other characters. Should be looked for in samples from Coquimbo desert regions.

Pseudolucia vera **Bálint and Johnson 1993a: 15.**

TypeL. Chile, Reg. [La] Araucania, Malleco, Malacahuello.

Voucher Depositions. *Paratypes*. HMNH: 1m, 1f, Chile, type locality, 27 November 1990, leg. L. Peña. BMNH: 2fs, Chile, type locality, 26 January 1991, leg. L. Peña.

Note. A very small (5-7 mm.) species nearly devoid of undersurface pattern. In Chile known from the southern [La] Araucania Region.

Pseudolucia lanin **Bálint and Johnson 1993a: 11.**

TypeL. Argentina, "Reg. Valdivia", Lago Hermosa, Parque Nacional Lanín.

Voucher Depositions. 3ms 3 fs: Argentina, Neuquén 45: Paso Puyehue, 1300 m, 10.xii.1981, Nielsen & Karsholt. [?] 2ms 3fs: Chile, Osorno 37: Parque Nacional Puyehue, Antillanca, 1100-1300 m, 11.xii. 1981, Nielsen & Karsholt.

Slides. M.K. 5,16,17,18(ms); 6,7,22(fs).

Note. The description of the taxa was based on a single male. According to the material listed above, this species is a close relative of *andina*: aedeagus of male with strong sagum; female genitalia with sclerotized terminalia an elliptic tube, without terminal nodule but with rather weak lateral wings.

Pseudolucia kinbote **Bálint and Johnson 1993a: 18.**

TypeL. Chile, Coquimbo Reg., Hda. Illapel, 2500-2900 m.

Note. Currently known only from early Peña material at the Field Museum and AMNH. The species deserves mention here because although its genitalia are typical of *Pseudolucia*, the wing pattern is curiously like *Madeleinea pelorias* (Weymer) of subsequent generic entry.

Pseudolucia oligocyanea **Ureta, 1964**

Pseudolucia oligocyanea — Bálint and Johnson 1993a: 20.

TypeL. Chile, Cordillera de Antofagasta.

Note. Besides *sibylla*, the taxon *oligocyanea*, described by Ureta (1956: 259, fig. 2) as subspecies of *endymion*, must be considered as a good species (see fig. 42; Bálint and Johnson 1993a) belonging to group.

Pseudolucia penai **Bálint and Johnson 1993a: 21.**

TypeL. Chile, Reg. Coquimbo, Rio La Laguna, Elqui (primary types), Reg. Coquimbo, Hda. Illapel, 2500-2900 m. (paratype).

Note. Currently known from Peña material in Chile and at AMNH. The species must be mentioned here because of its previous misidentification as *sibylla* Kirby (of previous entry) by Chilean workers. Peña writes (in litt. to Johnson) that his collection contains more individuals. It appears that resolution herein of the type facies of *endymion* Blanchard has led to consequent discovery of other undescribed congeners from the poorly known *endymion* [*sibylla*]-group (see below).

Pseudolucia aureliana **Bálint and Johnson 1993a: 15.**

TypeL. Chile, Atacama Reg., Huasco, 9 km. S of Orodel Inca in desert wash.

Voucher Deposition. ***Paratype.*** **HMNH:** type locality, 4 November 1992.

Note. Currently known from specimens taken in the 1992-93 "desert bloom" in the Atacama Region. The diversity of the *endymion* [*sybilla*]-group appears to derive from restriction to insular microniches.

Pseudolucia aconcagua **Bálint and Johnson 1993a: 22.**

TypeL. Chile/[Argentina], Valparaíso Reg., Cerro Aconcagua, E from Valle Piuquenes.

Note. Currently known from old Peña material at the Field Museum and yet another "player"in the diversity of the *endymion* [*sibylla*]-group. Of interest here because of the above-mentioned question of Patagonian/Chilean identities in the *plumbea*- and *collina*-groups. The region of uncertainly concerning *P. patago* obviously is also home to endemics the *endymion* [*sibylla*]-group, another reason for caution in making hasty subjective synonyms.

PARALYCAEIDES Nabokov, 1945

Figures. 57-66,109-111.

Synopsis. Small butterflies with silvery ityloid markings on VHW. Both sexes with brown DW. Male genitalic structures strongly resemble those of Holarctic *Lycaeides*.

Original generic description. Nabokov 1945: 36-38.

Note. Hitherto this genus has been considered monotypic since Nabokov did not have enough material to inquire deeper into its status (see table 1.).

Paralycaeides is a very Holarctic-looking genus as suggested by its name. A close relationship was suggested by Ureta (1956: 260) to the *endymion* [*sibylla*]-group of *Pseudolucia* in that Ureta classified the type species of *Paralycaeides* as a subspecies of *endymion* belonging to the genus *Itylos sensu* Nabokov. I explore this problem below. It appears to have stemmed from Ureta's not being familiar with typical *Paralycaeides inconspicua* in his studies of Chilean butterflies (1956, 1964).

Three new members of the genus emerged after the elaboration of South American polyommatine taxa. They are structurally very closely related (figs. 109, 110, 111) and their taxonomic status still warrants a thorough revisionary study when sufficient new material becomes available.

Paralycaeides shade Bálint
NEW SPECIES

Figures. 57-58,110.

Diagnosis. Unique, no similar lycaenid in the region. FW,HW ground reddish brown. FW costa straight, HW rounder; FW shape elongated with rounded outer margin, HW tailed; male genitalia typical of *Paralycaeides* but with stronger uncus and gnathos than some taxa; aedeagus with very long alulae, suprazonal portion short and bulbous.

Description. ***Male***. FW length of holotype 9.0 mm; DFW ground reddish brown with darker brown margin; veins conspicuous, dark brown; outer margin relatively long and straight; DFW ground darker brown with reddish brown submarginal lunules; cell CuA2 tailed with marginal spot; fringes white; VFW ground deep orange, apex white in cell R3-cell 5; discoidal spot, postmedian spots brown and white ringed; marginal pattern with prominant black spots tending darker to tornus; VHW ground grey with goldish shade; pattern ityloid: basal spots and postmedian spots relatively rectangular but suffused, strong pseudovitta present in postmedian cell CuA3-cell 1A+2A; margin grey with indistinct pattern; cell CuA1 and CuA2 with dark marginal spot. Male genitalia (fig. 110) typical *Paralycaeides* with stronger gnathos and uncus; aedoaegus with a somewhat longer alulae.

Female. Similar to male with wider wingshape.

Types. HOLOTYPE, male (fig. 57): Pérou. Huancayo, 21.XI.; Museum Paris, Dr: H. Oberthür, 1962; Olivier Dollfus, coll. H. Oberthür; gen. prep. No. 326, det. Zs. Bálint; Holotypus, Paralycaeides shade, det. Zs. Bálint, Budapest, 20. XII. 1992. ALLOTYPE, female (fig. 58) with the same data, both preserved in MHNP.

TypeL. Peru, Junin, Huancayo.

Distribution. Known only from the type locality, C. Peru.

Etymology. Gender feminine; named for "John Shade", the imaginary New England poet and author of Nabokov's Pale Fire.

Note. The discovery of this entity was a surprise because superficially it is very distinct from all congeners. In spite of this, the structure of the male genitalia shows a typical *Paralycaeides* habitus and there is no doubt that it is a member of the *P. inconspicua-vapa-oreopola* polyommatine lineage. Further detailed morphological study will clarify its status and whether it may exhibit ancestral characters.

Paralycaeides inconspicua (Draudt, [1921])

Paralycaeides inconspicua — Nabokov 1945: 36.
Itylos endymion inconspicua — Ureta 1956: 260.
Paralycaeides inconspicua — Bridges 1988: I. 167; II. 81.

Figure. 66,111.

Material examined. 1 m: Cuzco, Peru, 4000 ft, AB.

Slide. Brit. Mus. No. 19154 (m).

Note. This taxon seems to be one of the rarest species amongst the Neotropical polyommatine lycaenids in Lepidoptera collections. The existence of only three specimens are known to me: the type specimen of Draudt (SMF), the single male Cuzco specimen studied by Nabokov (1945:36; preserved in the NMNH) and the specimen found by me as "*Cupido speciosa*" in the AB, BMNH. These specimens seem to have originated from a single source.

Paralycaeides vapa (Staudinger, 1894)
NEW COMBINATION

Itylos vapa - Bridges 1988: I. 362; II. 51.

Figures. 59-62,109.

Type material examined. LECTOTYPE of Cupido vapa (fig. 59), male, designated here: "Huallat., Garl.; vapa; Zool. Mus. Berlin; 206.; Origin; Lectotypus, Cupido vapa, des: Zs. Bálint, 1992, XII.2., Budapest; det. Zs. Bálint, 324 gen. prep. No.". Deposited in MNHU.

Material examined. 1m: Huallatami, Bolivia, 14-18000 ft, Garlepp; GSC. 1m: Huallatami; OC. 1m: Cochabamba (Yunga del Spiritu Santo), Bolivie, P. Germain 1888-89; OC. 2ms: Road to Cocapata, Bolivia, 6-8000 ft, Garlepp; GSC. 2ms: Bolivia, Staud.; RB. 1m: Mareapata, E. Peru, 10.800 ft., (Ockenden); RB. 1m: Tirapata, Peru, 12700 ft, II.'06., G. Ockenden; JB. 1m 2fs: Tirapata, Carabaya, 12700 ft, II.'06., G.R. Ockenden; RB. 2ms 3fs: Peru, Fruhstorfer; FC. 1m 3fs: La Paz, Bolivia, 4000 m, V.'01, wet s. (Simons); RB.

Slides. Brit. Mus. Nos. 17549, 19113, 19160 (ms); 17550 (f). NMW: 2ms: 694, Stgr., 03, Bolivia.

Note. The identity of *vapa* was problematic for some lepidopterists, for example Nabokov, whose only *inconspicua* specimen was misidentified as *vapa* by Staudinger and Haas. Consequently, Nabokov did not know the taxon (see Nabokov 1945: 36). In fact, Draudt had given a relatively good illustration of the Staudinger's type (Draudt, [1921], Taf 144, m) and the original description of *Lycaena vapa* had been supplemented by a superb figure of the type specimen (Staudinger 1984: Taf II, fig 4).

Paralycaeides oreopola (Hayward, 1949)
NEW COMBINATION

Itylos oreopola - Bridges 1988: I. 258, II. 51.

Figures. 63-65.

Material examined. 3ms: Pucara, Puno, 12700 ft, II.'04., (G. Ockenden); RB. 1m 1f: Argentine, Prov. Tucuman, La Criolla, 1500 m, G. A. Baer, I-1903; RB. 1f: Argentine, Prov. Tucuman, Tapia 600 m, G. A. Baer, 3-4 1903; RB.

Slides. Brit. Mus. No. 19155 (m).

Note. According of the description and figure of Hayward (1949: 580-581, fig.2) the examined specimens are identical with *oreopola*. Hayward mentioned the close relationship of *oreopola* to "*Itylos vapa*". The taxonomic position of *oreopola* is not clear, because *vapa* shows a cline to the south producing an indistinct, more suffused, VHW pattern (figs. 61-62). Lacking material to make satisfactory decision concerning this, I have left the taxon in its original status.

MADELEINEA Bálint,
NEW GENUS

Figures. 67-90,101-102,115-123.

***Synopsis*.** This new genus includes taxa of the oreal South American polymmatine group known historically as the genus *Itylos* (Nabokov 1945: 38-43; Bridges 1988: II. 51) and undescribed relatives. The genus is rather polymorphic, containing four different clades.

***Detailed generic description*.** Nabokov 1945: 38-40 (as *Itylos*).

***Type species*.** *Lycaena moza* Staudinger, 1894, designated by Nabokov (1945:38).

***Etymology*.** Considered feminine. This name was suggested by Dr. Gerardo Lamas when another manuscript name proposed by me was preoccupied. *Madeleinea* was the name going to be used by William D. Field (formerly of the NMNH) for the *koa*-group to honour his wife Madeleine. Field died in early 1992.

***Note*.** This entity is the genus *Itylos* Draudt *sensu* Nabokov (1945) which, as confirmed to me by Lamas (in litt., December 1991), has had no valid generic name (see above discussion of *Itylos*). Lamas also mentioned that in Peru there were at least six undescribed representatives of the *koa*-group requiring placement within an available generic name. I had previously recognized the complexity of the *koa*-clade. The morphology of the *moza*- and *koa*- lineages requires analysis in a very thorough study. However, until this is completed I will describe here two of the most conspicuous unnamed entities in order to make a generic name available for the many other members of this clade.

Nabokov gave a detailed and satisfactory characteriztion of his "*Itylos*"; it is therefore needless to present a generic redescription.

In recent literature Nabokov's nomenclature for "*Itylos*" has been generally followed (*e.g.* Ureta 1956, Bridges 1988); only Lamas (Lamas and Pérez 1983) had indicated the problem of the availability of the name.

Madeleinea is divided into four clades, namely the *lolita*-, *koa*-group (*s.str.*), the *moza*-group and the unique lineage *mashenka*, new species. The *moza*-group, which is very closely related to the *koa*-lineage, shows several convergent phenomena also seen in the Palearctic polyommatine lycaenids (see below in discussion of *M. moza*). *M. mashenka*, new species, seems to be a typical high altitude insect, while *M. lolita* is the most plesiotypic representative of the whole genus.

A very close relationship can be posited between *Madeleinea* and Holarctic *Plebejus* (*sensu* Bálint 1992) from their genitalic structures. Formerly, it was thought that the South American segregation represented a subgenus of the typical Neotropical "*Plebejus*" group. However, when numerous genitalic dissections were made and compared with Old World structures, it was apparent that Nabokov was correct about the distinctness of this group. Accordingly, upon further suggestion of Dr. Lamas (in litt.), I here give the group generic rank. *Madeleinea* is distinctive both in its morphological structures and its biogeographic history (see Nabokov 1945: 38-40). This will be a very interesting and promising theme in the further work planned for this genus.

Dr. Arthur Shapiro wrote to me (in litt.), that this genus (called by him "the Lycaenid genus *Itylos*", Shapiro 1991:188) most probably is ant-associated and strongly connected to habitats of *Astragalus*, the presumed larval hostplant. However, the exact identity of Shapiro's *Itylos* is unclear since most of his polyommatines from Argentina have gone to Dr. Balletto.

Madeleinea lolita Bálint
NEW SPECIES

Figures. 67,115.

Diagnosis. HW with small anal lobe and tailed at 1A+2A; VFW pattern normal polyommatine; VHW pattern essentially ityloid: postmedian spots converging; cell M1-M2 obscure; cell CuA1-CuA2 in postmedian area with prominent white marking and in submarginal area with dark suffusion and a suffused marginal patch. Male genitalia typical of *Madeleinea* but with very robust gnathos (fig. 115).

Description. ***Male.*** FW length 10 mm.; DFW, DHW: ground colour blackish brown with iridescent metallic blue basal and medial suffusion; fringes long and checkered; HW cell CuA2 with black marginal patch and tail at 1A+2A; RFW ground colour greyish brown with light grey basal suffusion; subbasal, discoidal and postmedian spots white-ringed; submarginal markings very close to marginal spots; VHW pattern complex: subbasal spots large and dark brown, discoidal spot strongly suffused; postmedian spots converging into a dark wavy line; darker and light postmedian areas strong mottled; cell M1-M2 with prominent dark line extending from base to termen; cell CuA1-CuA2 with prominent white spot; marginal patch suffused, tail black. Male genitalia. Extremely close to *Plebejus (sensu stricto)*; suprazonal portion about subequal with that of subzonal; aedeagus slightly incurved and acuminate; vesica tapered and sharp; alulae small; sagum absent; uncus straight, typical of *Madeleinea* but somewhat thicker, tapering into a blunt point; gnathos basal part with very robust shoulder; tegumen commonplace polyommatine with small and narrow appendix angularis; vinculum rather strong and long; valva representing Holarctic shape with normal, slender juxta, valva longer than aedeagus with well developed and strongly sclerotized suprazonal portion of penis.

Female. Unknown.

Type. HOLOTYPE (fig. 67), male: "Pérou, Huambo, Mde Mathan, IVeTrim 1889; Ex Oberthür Coll., Brit.Mus. 1927—3., Holotypus, Madeleinea lolita, det. Zs. Bálint, 1992. X., Budapest; 321, gen. prep. Zs. Bálint." Deposited in BMNH (drawer 29A-928).

Slide. Brit. Mus. No. 19173.

TypeL. Huambo, Dept. Amazonas, Peru at 0623N/7720W.

Distribution. N. Peru, known only from the type locality.

Etymology. Named for "Lolita", the nickname of the Nabokov's best-known character— the pre-teen nymphet Dolores in the well-known novel **Lolita.**

Note. The unique type specimen was found by Kurt Johnson amongst unelaborated South American lycaenid material during his May 1992 visit to BMNH. He immediately recognised the odd appearance of the specimen, suggesting that it might be closely related to *Nabokovia*.

After examination of the genitalia it was evident that the specimen represented an unknown taxon of *Madeleinea*. Even though *M. lolita* is different from all other known representatives of *Madeleinea* in the wing markings and genitalic structures, I do not erect a new genus for the taxon because: 1) there is no more hiatus between the structures of the male genitalia in *M. lolita* and *M. moza* than between *M. moza* and *Pseudolucia collina* or other type species of South American polyommatine genera; 2) if I erect a new genus for *M. lolita*, I have to do the same for the different lineages of *Pseudolucia* (which are evidently evolved from a common ground as in the *Madeleinea* taxa, see above and Bálint and Johnson 1993a); 3) I prefer large monophyletic units, which better express evolutionary steps than several monotypic genera; 4) I do not wish to introduce into the South America nomenclature the tradition of European lepidopterists concerning polyommatine lycaenids, *e.g.* the splitting of large monophyletic units into multiple, hardly distinguishable, "genera" (Bálint 1992). This practice has made the systematics and taxonomy of the Old World polyommatines rather chaotic and confused.

Madeleinea moza (Staudinger, 1894)
NEW COMBINATON

Itylos moza - Nabokov 1945: 40.
Itylos moza - Bridges 1988: I. 234; II.51.

Figures. 69-73, 101.

Type material examined. LECTOTYPE of Cupido moza (fig. 69), male, designated here: "Cocapata, Garl.; 207.; moza; Zool. Mus. Berlin; Origin.;Lectotypus, Cupido moza, des. by Zs. Bálint, 1992. XI.30., Budapest; gen. prep. No. 323, det. Zs. Bálint". Deposited in MNHU.

Material examined. BMNH: 3ms: Road to Cocapata, Bolivia, 6-8000 ft, Garlepp; GSC. 2sm: Illimani, 17000 ft, Bolivia, Garlepp; GSC. 2ms: Cochabamba (Yunga del Espiritu Santo), P. Germain, 1888-89; OC. 3ms: Cocapata, Bolivie; OC. 2ms: Boliv.; JB. 1m: Paraguay, 20.XI.1915, Jorgensen; JB. 2m: Salta, Arg., IV-IX.03 (J. Steinbach); RB. 4ms: Tucuman (J. Steinbach); RB. 1f: Tucuman, 17. 5.22.; RB. 3 ms: Uspallata, 1850 m, Mendoza, X-'47, Hayw. Wlk., Brit. Mus. 1955-262.

Slides. Brit. Mus. No. 19112, 19159 (ms); 15747, 17548, 19159 (fs).

NMW: 1m: 693, Stgr., 03, Bolivia.

Notes. The pattern of the VW in specimens tends to be paler southward. The most conspicuous specimens are the three males collected in Mendoza (figs. 73). These show different wing shapes and ventral patterns although the male genitalic structures are almost identical with those of *moza* from Cocapata (cf. fig. 101). It is possible that the Mendozan specimens represent a different taxon, but more specimens are needed for evaluation. In addition, the status of these individuals can only be elucidated in light of a clearer understanding of the morphology of the entire group.

Nabokov (1945: 41) listed the taxon *ruberrothei* Weeks (1902) as an entity distinct and independent from *moza*, although he suggested (footnote p. 41) that further study might indicate the taxa were conspecific. Considering that Nabokov stated that the primary type of *ruberrothei* had been available to him, and no additional work has been possible to date, I follow his original notation (along with Bridges 1988: II.51) in maintaining this taxon with its original status, although as—

Madeleinea ruberrothei (Weeks, 1902)
NEW COMBINATION

Madeleinea koa (Druce, 1896)
NEW COMBINATION

Itylos koa - Nabokov 1945: 42.
Itylos koa - Bridges 1988: I. 184; II. 51.

Figs. 74-78,92,113.

Type material. LECTOTYPE of Lycaena koa, male, designated here. "Type, L. koà, H.D. Type; Godman-Salvin, Coll. 1909-28.; Lectotypus, Lycaena koa, des. by Zs: Bálint, 18. XI. 1992, Budapest". Deposited in BMNH (drawer of types: 5.2.).

Material examined. **BMNH**: 3ms: El Monje près Loja, Equateur, 1893,DC; JB. 7ms 4 fs: Environs de Loja, Equateur, 1892, DC; JB; 1m 1f: Environs de Loja, Equateur, '87, DC; JB. 4ms: Ecuador, Loja, Dec 1892, (P. Dognin); DC: JB. 3ms: Loja, Equateur; DC; JB. 1m: Palanda, 9 juillet '86, Equateur; DC; JB.1m: Valle de Loja, mai '88; DC; JB. 6ms: Ecuador, Hewitson Coll. 1m 1f: Loja, Equateur, aout '86; DC; JB. 2fs: Loja, Ecuador, 2000 m (Simons); RB. GS. 1m: Puobamba, Ecquador, 2800 m, III.'99, wet season (Simons); RB. 12ms: Cayambé, 9000', VI.'97 (Rosenberg); RB. 1m: Polocate, N. Granada, Villagomez; GSC. 2ms: Cuenca; GSC. 8ms: Ecud.; JB. 3ms: Cayambe, al. 10000 ft, 6-'94; CB. 2ms: Ecuador, Rosenberg, 99--104; Cayambe Mount,12000 ft, 6.'97. 2ms: Zamora, Ecuador, 3-4000 ft (O.T. Baron). 1m: Loja, Équator, Mars 1886; DC; JB. 1m: Guachamana to Cilica, Ecuador, 2500-2000 m, VII.'99 (Simons); RB. 1m: Cajamarca, Peru, 2800 m (Simons); RB. 1m: W. slopes of Andes, N. Peru, 10000 ft, June, Pratt 1912; 1f: Paramo, Careques, Peru, 3600-4000 m, 30.XI.99., dry seas. (Simons); RB. 1m: Pozzuzo; GS.

Slides. Brit. Mus. Nos. 19116, 19152 (m); 17557, 19165 (fs).

MHNP: 1m: Chiles. 1m: Terum Noade [?]. 1m: Environs de Loja, Equateur, 1893; 1920-1932, coll. L. & J. De Joannis. 1m: Environs de Loja, Equateur, '87; 1920-1932, coll. L. & J. De Joannis. 3ms: Pifo, Equateur; 1920-1932, coll. L. & J. De Joannis. 1m: Prés Quito. 2ms: San Gabriel, Équateur, Dr. G. Rivet, 1901. 1m: Caritagua, 3600 m d'alt., Équateur, P. Rivet, 1903. 1m: Coll. G. A. Poujade, 1909. 1f: Mirador, Équateur, Dr. G. River, 1902. 1f: Quito, Équateur, R. Benoist, 1930. 1f: Env. de Quito, Équateur, R. Benoist, 1930.

Note. This taxon is widely distributed in the Ecuadorian Andes but its occurrence is doubtful in Bolivia as well as Chile. Lamas and Pérez (1983, figs. 38, 39) report the species from central Peru. The VW of the Peruvian populations tends to be much darker with a stronger "pseudovitta" (Nabokov 1945: 43) but the genitalic structures of *koa* are identical in the whole known distribution (figs. 92, 119). The *koa*-specimens originating from Puno, which were available for Nabokov (see table 1), most probably represent another taxon (cf. figs. 82, 116). For further notes concerning this complex, see the comments concerning the congeners below, especially *ludicra*.

Madeleinea ludicra (Weymer, 1890)
NEW COMBINATION

"*Itylos*" sp. n. - Lamas and Pérez 1983: 36.
Itylos ludicra - Bridges: I. 202; II. 51.

Figures. 79-81,121,123.

Material examined. 1m: Acopampa, S. Peru, 11500 ft, 2-3.'10, H. 1 C. Watkins; AB. 1f: Acopampa, S. Peru, 14000 ft, 1'10, H.& C. Watkins; AB. 1m: Perou, Prov. Cuzco, Vilcanota, 3000 m, ex Garlepp; OC. 1m: Challabamba, Pancartambo, Peru, 3000 m, I.'01., Garlepp; RB. 1m: Chachapoyas, dépt. Amazonas, Perou, M. de Mathan, 1898; OC. 5ms: Illimani, 17000 ft, Bolivia, Garlepp; RB. 3ms: Puno, Peru, 1.XI.1898, Altitude 12500 ft; JB. 3ms: Puno, Peru, 1.XI.1898, 12500 ft; SC. 3ms: Puno, Peru; OC. 1m 1f: Puno, Peru, 1.XI. 1898, Alt. 12500 ft; BC; BBC. [?] 1m: Puno, Peru, Nov. 1898., Altitude 12,500 Ft, Brit.Mus. 1922-94. [?] 1m: Aroza, Peru, Little rain (Simons); RB.

Slides. Brit. Mus. Nos. 17561, 19116, 19118, 19120, 19151, 19158, 19171 (ms), 17563 (f).

NMW: 1m. 691; Stgr., 03, Bolivia.

Note. Several BMNH specimens listed here under *ludicra* were identified by an unknown worker (possibly Dr. Balletto) as "sp. n.". My identifications are based on the description and the figure of Weymer (1890:121-122, Taf IV, figs. 2-3). The Weymer material went to MNHU in 1914 (according to Horn and Kahle 1937: 301) and during the process of this work I wrote a letter asking for the South American polyommatine types of Weymer (taxa *ludicra*, *pelorias* and *titicaca*). Thus, the determination of the specimens must be considered as tentative until the study of the original types can be completed.

Certain figures of Lamas and Pérez (1938, figs. 39, 40) show great similarity to this entity. It is thus probable that their "*Itylos*" "sp. n." is identical with *ludicra*.

The figured male specimens collected in Puno (fig. 82) and Aroza (fig. 83) also somewhat resemble *ludicra* but differ in a few morphological and structural aspects (figs. 116,118). I tentatively include them here under *ludicra*, hoping that there will be more material available in the future to clarify their status.

Madeleinea pacis (Draudt, [1921]),
NEW COMBINATION

Itylos pacis - Nabokov 1945: 41.
Itylos pacis - Bridges 1988: I. 262; II. 51.

Figures. 84-85,120.

Material examined. 1m: Cuzco, Peru, 4000 m; AB. 2ms: Challabamba, Pancartambo, Peru, 3000 m, Jan.01. (Garlepp); RB. 1m: Oconeque to Agualani, Carabaya, 6 to 9000 ft, March 05. (G. Ockenden); RB. 2ms: Palea, 3000 m to Huacahistana, 2000 m, 3.00, wet s. (Simons); RB. [?] 1m 1f: Quenche, S. Peru, 10000 ft, 1.'10, H.& C. Watkins; AB. [?] 2fs: Bolivia, Titicaca, Guaqui, V., coll. W. Schnuse; BBC.

Slides. Brit. Mus. Nos. 19153, 19168 (ms), 19148 (f).

NMW: 1f: Stgr., 03, Bolivia.

Note. The relationships of the entire *koa*-group need thorough taxonomic study because, according to the materials available, several taxa occur sympatrically in the Peruvian and Bolivian high Andes, in the altiplano region.

The genitalic differences between "*koa*" [*sensu* Nabokov, see the entry for *koa* above] and *pacis* were correctly described by Nabokov (1945: 41- 42, figs. KOA and PAC on pls 6,7).

The specimens collected at the Lake Titicaca, Bolivia (figs. 86-87) and in Queche, southern Peru (fig. 88) are not identical in their morphology with *pacis*. The genitalic structure of the male specimen captured in Bolivia is slightly different from that of *pacis* (fig. 122). Unfortunately the female genitalia of *pacis* is not known, so we can not compare the southern Peruvian specimen with its morphologically closest congener.

Madeleinea pelorias (Weymer, 1890)
NEW COMBINATION

Itylos pelorias - Bridges 1988: I. 272; II. 51.

Figures. 89-90.

Material examined. 1m 1f: Puno, Peru, 1.XI. 1898; SC. 1m 1f: Peru: Puno, Alt. 13000 ft, 26.IX.1937, G.I.Crawford; Brit.Mus. 1937-707.

Slides. Brit. Mus. Nos. 17758 (m), 17559 (f).

Note. Only this pair of specimens agrees with the description and figure of Weymer (1890: 121-122, Taf. IV, fig. 2). The taxon is close in VHW pattern and male genital structure to *pacis*.

Madeleinea mashenka Bálint,
NEW SPECIES

Figure. 68.

Diagnosis. Unique, no similar congener; wing-shape extended; DW ground colour bright metallic green; VFW with well developed markings; VHW with silver stripes.

Description. ***Male***. FW length 10 mm.; DFW and DHW unicolourous metallic green with very narrow black margin; fringes white with ciliary line; RFW ground colour deep brown with normal polyommatine markings; submarginal area with suffused white patches; RHW pattern modified ityloid with silver stripe in cells C, Sc +R1-RS and CuA2- CuA1/cell M3 to postmedian; submarginal area with deep brown, long and pointed, markings along veins and silvery patches in the cells. Male genitalia unknown (abdomen of holotype lost).

Female. Unknown.

Type. HOLOTYPE, male: "Holotype; Boliv. I., Tarma-Oroya [?]; G.T.B. Baker Coll., Brit. Mus. 1927-360.; Holotypus, Madeleinea mashenka, det. Zs. Bálint, 1992. VIII. London". Deposited in BMNH (drawer 29A-928).

Type L. Peru, Junín, between Tarma and La Oroya.

Distribution. Known only from the type locality.

Etymology. Gender feminine. "Mashenka" (Mary) was the title of the first novel published by Nabokov in Russian.

Note. This entity is a typical high altitude polyommatine, showing convergent evolutionary processes with some palaearctic polyommatine groups (*galathea-*, *jaloka-*, *lehanus-* and *pheretiades-* taxa groups in *Albulina* auct.) distributed in the Himalayas with its metallic green DW and light patterned VHW (Bálint, unpublished). The mentioned phenomenon can also be observed in the case of some high altitude (Mts. Meru, Kilimanjaro) afrotropical lycaenid genera (eg. genus *Harpendyreus* Heron, 1909). This suggests that the polyommatine lycaenids (even if they are not monophyletic) have, in the high altitude ecosystems, convergent processes accounting for the evolution of their morphology. It would be highly interesting to find the common ecologic pressures in their habitats which have delineated the main lineages of polymmatine pattern development at these high altitudes (cf. for birds: Dorst and Vuilleumier 1986).

NABOKOVIA Hemming, 1960

Figures. 15-16, 93.

Synopsis. The genus contains two entities, the well-known *faga* Dognin and a new sister species from the Coquimbo region in Chile. Both species resemble thecline lycaenids but their genitalia show clear polyommatine affinities (fig. 93).

Original generic description. Nabokov 1945: 11 (as *Pseudothecla*).

Note. The genus was reviewed very recently and according to results, *Nabokovia sensu* Bridges and Lamas has proved polytypic (Bálint and Johnson 1993c). In addition, the genus is not monophyletic with the other known South American thecline-like "polyommatine" lycaenid group (*sylphis* and its sister, see above) and its outgroup remains currently unknown.

Nabokovia faga (Dognin, 1895)

Pseudothecla faga - Nabokov 1945: 11.
Nabokovia faga - Bridges 1988: I. 130; II. 75.

Figures. 15-16,93.

Type material examined. LECTOTYPE, male (designated in Bálint and Johnson 1993b): "Loja, Equateur; Thecla Faga Dgn., Typ; I/94, dans nom.; Lycaenid allied to Scolitantides (?also described by Stgr.?), Hamilton Druce, avril 1908; J. J; Joicey Coll., B.M; 1929-435; Thecla faga Dognin, det P. Ackery.; Lectotypus, Thecla faga, des. by Zs. Bálint, 1992. X., Budapest". Deposited in BMNH (drawer 29A-927).

Material examined. 1m: La Paz, Bolivia, 3000 m, Garlepp; HDC; JB; 1m: Pérou, OC. 1m, 2fs: Tarma, Peru (Hoffmann); RB. 5ms: Pérou, Dépt. Amazonas (Chachapoyas); M. de Mathan, 1889; OC. 2fs: Peru, Cuzco, 4000m; HDC; JB. 1m: Cuzco, Peru, 4000 m; AB.

Slides. Brit. Mus. Nos. 19105, 19106, 19107 (ms).

Note. One of the most widely distributed lycaenids of the *Polyommatus*-section *sensu* Eliot. *N. faga* is known from southern Ecuador through Peru, Bolivia and northern Argentina (Jujuy and San Jaun provinces) and Chile (Tarapacá Prov.). A newly recognized entity, a sister species of *faga*, was described from Coquimbo, central Chile, in the recent revision in press by me and Kurt Johnson.

POLYTHECLUS Bálint and Johnson 1993.

Figures. 13-14,91.

Synopsis. This new described group contains two closely related taxa (most probably a sister species pair), which superficially resemble the thecline lycaenids.

Original generic description. Bálint and Johnson 1993b: 2 (see also 1993c, in press) (genitalia herein fig. 91).

Note. Recent treatments of oreal thecline-like polyommatines clarifies the relationship between *Nabokovia*, "*Scolitantides*" *sylphis* Draudt (1921) and the newly described sister species of the latter taxon (Bálint and Johnson 1993b). According to the results of the mentioned papers, thecline-like polyommatines of South America are not monophyletic. The generic entity including *sylphis* and its sister species is not monophyletic with any known polyommatine lycaenid genus of the *Polyommatus*-section (Eliot 1973) or any known Neotropical polyomamatine assemablage. Most probably its outgroup is a still unknown lowland group of the Eumaeini. Johnson (1992) recently demonstrated a purely lowland Neotropical affinity for the high Andean "elfin"-like Theclinae (infratribe "Thecloxurina") even though their external facies resemble numerous Nearctic and Palaearctic counterparts.

Polytheclus sylphis (Draudt, [1921])

Scolitantides (?) *sylphis* - Nabokov 1945: 11, 1. footnote.
Nabokovia (?) *sylphis* - Bridges 1988: I.338; II. 75.
Polytheclus sylphis: Bálint and Johnson 1993b: 3.

Figure. 14.

Material examined. 1m: Tarma, Peru, Hoffman; RB.

Slide. Brit. Mus. No. 17542 (m).

Note. Nabokov (1945: 11-12, footnote 1) suggested that the taxon *sylphis* was perhaps related to *faga* and belonged to *Nabokovia*. Lamas and Pérez (1983: 36) presumably followed this statement (see below). According to Bálint and Johnson (1993c) this taxon is not monophyletic with *Nabokovia* and is distinguished as a new genus of as yet unclear lycaenid affinity.

Polytheclus cincinnatus **Bálint and Johnson, 1993c.**
Nabokovia sylphis - Lamas and Pérez 1983: 36, fig. 42.
Figure. 13.

Type material examined. HOLOTYPE and PARATYPE, males: "Chosica, W. Peru, 2000', A.M. Moss.; RB." Deposited in BMNH (drawer 29A-927).

Slides. Brit. Mus. Nos. 17543, 17544 (ms) (fig. 91).

Note. Lamas identified this species as *Nabokovia sylphis* (Lamas and Pérez 1983, p. 36, fig. 42). Later he wrote to me that he had recognized, after finding the type specimen of *sylphis* in SMF, that the figured entity is an undescribed taxon.

CONCLUDING REMARKS

Polyommatine Diversity in the Neotropics.

It has generally been assumed that the diversity of the polyommatine lycaenid fauna in the oreal neotropics is not significant. Nabokov listed very few species in his seminal work (Nabokov 1945, c.p. table 1). More then forty years later, Descimon (1986) could only depend on these numbers when he listed known polyommatines in his overview of the high Andean butterfly fauna.

The polyommatine diversity in the oreal neotropics is far higher than Nabokov and Descimon anticipated. This proved obvious even when elaborating the old material of the BMNH. Consistent with Nabokov's presentation in his "table 1", I summarize the current data from this catalogue herein in table 2. The growth of the numbers is obvious: 45 taxa of eight genera[2] compared to Descimon's nine taxa of three genera occurring in the Andean region.

Furthermore, there are still a number of species to be described in forthcoming revisionary work (Bálint and Johnson, in preparation), particularly in *Itylos* (see Johnson 1992a) and the *koa*-group (G. Lamas, in litt.). These are still not included in table 2, so the species numbers for South American polyommatines are still higher.

From the Andean region, Descimon listed only a few representatives of the polyommatines (*sensu lato* of Eliot 1973), namely *Leptotes* (with two Andean representatives, *L. andicola* and *L. callanga*). The recent discovery of *Zizina oxleyi* (From Chile and also from Panama) increased the number of Eliot's polyommatine-sections represented in the neotropics[3].

Thus, if we consider the results of this paper, the results of Johnson (1992) and Johnson et al. (1992), the prophecy of Dr. Arthur Shapiro that "Almost every field trip to the high Andes or Patagonia turns up important surprises; for Lycaenidae or Hesperiidae, such surprises are guaranteed" (Shapiro 1991: 141) appears fulfilled. Furthermore, the work presented here is the fruit of only a "historical field trip". What kind of results can be expected by a thoroughly planned expedition with special attention concerning the biologies of these insects, *e.g.* hostplant choices, habitat preferencies, or the presumed myrmecophily in these Neotropical polyommatine lycaenids?

Polyommatine Distributional Patterns in the Neotropics.

Descimon did not know of the occurrence of any polyommatine lycaenids in the northern Andean region (for instance the Cordillera Sierra Nevada de Santa Marta or the Ecuadorian Andes) as well as in in the regions of Patagonia and Tierra del Fuego. His table is restricted to polyommatines occurring in the southern Peruvian and Bolivian regions.

The picture from the present study is drastically different (cf. table 2). Polyommatine lycaenids occur across the whole continental range of the Andes, north from the Sierra Nevada de Santa Marta south to Tierra del Fuego. Based on categories comparable to those in Descimon's table, the richest multigeneric polyommatine faunas in the new data can be found in central Peru (n = 15), Andean Bolivia (n = 10), southern Peru (n = 10) and Argentina (n=10). In contrast, the faunas of Patagonia (n = 6) and Ecuador and northern Peru (n = 4) and Colombia/ western Venzuela (n=5) appear slightly less rich at the present time. Numbers for northern and central Chile are hard to generalize because of the explosion there

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[2] The taxon *Pseudolucia parana* is not included.

[3] The tribe Polyommatini is represented by the following sections *sensu* Eliot (1973) in the Neotropics: *Leptotes*, *Zizula*, *Brephidium* and *Polyommatus*.

of endemicity in one genus, *Pseudolucia* (a phenomenon inviting some workers to perhaps consider splitting this monophyletic group into several "genera"). This question should be resolved by revisionary work to determine if thediverse *Pseudolucia* do indeed reflect a common morphological ground plan (which is presently my view and that reflected in Bálint and Johnson in press). If so, a future splitting of such "larger" genera would simply be a methodological preference.

Obviously, the counting of such "numbers by areas" will be more meaningful when the areas are themselves based not on political borders but recognized biogeographic zones. To an extent, historical recognition reflected herein of "Patagonia" as distinct from Argentina/Chile moves in this direction, but with an up-to-date idea of species diversity now available, new reflection should be given on how to divide the regions. For historical comparative purposes I have here stayed close to the concepts of Nabokov and Descimon. Also, it is probable that species numbers will continue to change as studies and explorations ensue. Certainly, the spectacular diversity of *Pseudolucia* was not apparent until morphological studies indicated the numbers of "look-a-like" species showing very different genitalia. However, it is possible that the balance of numbers per region will remain comparable to the present figures.

The Phenomenon of the Sagum.

Of obvious interest concerning neotropical polyommatine lycaenids is the "peculiar feature of the male genitalia, the sagum" (Descimon 1986: 509). Eliot wrote that in Neotropical species of his *Polyommatus*-section a sagum is nearly always present (Eliot 1973: 450).

Nabokov (1945: 45), however, whose work was the basis of Descimon's and Eliot's considerations, wrote differently: "The majority of neotropical Plebejinae posses a sagum or rudiments of one. It is completely absent only in *Itylos* as it is absent in all palaearctic, neartcic and palaeotropical species."

A true, or well-developed, sagum can be found in the following neotropical genera: *Pseudolucia* (partim), *Cyclargus*, *Hemiargus*, *Echinargus*, *Pseudochrysops* and the new genus being described for the "*sylphis* complex" by Bálint and Johnson (1993c).

The sagum is missing in other genera: *Nabokovia*, *Itylos*, *Pseudolucia* (partim), *Paralycaeides* and *Madeleinea*. This has obvious implications, even in the works presented here and by me and Johnson—*e.g.* some of the "genera" still recognized by more superficial wing and structural similarities may be non-monophyletic. This is why we have decided to pursue deliberate revisionary studies of these groups even after elaborating the bulk of their previously undescribed species.

The genera of the *Polyommatus*-section *sensu* Eliot are polyphyletic and several new sections are required (cf. Bálint and Johnson 1993c). It is clear that the Holarctic entities are monophyletic but there are difficulties with the Neotropical genera if we want to accurately interpret their relationships and origins. I suggest that some of the entities will show lowland, and others Afrotropical, affinities. Eliot supposed that the sagum, a "bizarre" character, could not have evolved in a short period (Eliot 1973:465). Accordingly, the genera and species exhibiting a sagum might be considered the plesiotypes of the *Polyommatus*-section.

Biogeographic Considerations.

Structurally, *Paralycaeides* and *Madeleinea* are very close to some Holarctic polyommatines. The ancestor of *Paralycaeides* could be the ancestor of the Holarctic *Lycaeides*-group (cf. Nabokov 1949: 480). Their arrival in the Pleistocene, however (as preferred by many dispersalist biogeographers), is rather questionable because structurally and morphologically they are far from the known American and Central Asian forms of *Lycaeides* (Bálint, unpublished). Their ancestor had to be in the Andean region earlier even though the data from some other gruops (e.g. pierids, cf. Shapiro 1991) does not suggest this. *Madeleinea* could be a descendant of the *Aricia* lineage (*Aricia*/ — /*Icaricia*/ — /*Madeleinea*) but the same contradiction also exists in this case: the representatives of the genus are very distinct from all known Holarctic "relatives". As well, neither *Nabokovia*, *Itylos*, nor *Polytheclus* can be interpreted from any stock of Holarctic lycaenids (Bálint and Johnson 1993c). This situation is not limited to Andean or Patagonian polyommatines. The *Cyclargus*— *Hemiargus*— *Echinargus*— *Pseudochrysops* lineage, of much wider Neotropical occurrence, also cannot be explained by Holarctic polyommatine ancestors based on present data. These widespread polyommatine groups represent a very old polyommatine segregate (Nabokov 1945:43) and perhaps future investigations will posit an Afrotropical relationship.

Pseudolucia is perhaps one of the best examples of this problem. In the case of some *Pseudolucia* species-groups (e.g. the *chilensis*-group of taxa) the presence of a strongly developed sagum and catochrysopoid pattern (Nabokov 1949:483) suggests an ancient origin. The occurrence of *P. parana* in the Serra de Mar mountain chain

(SE Brazil), which has several endemic taxa closely related to Andean entities supports this idea. According to this the younger *Pseudolucia* lineages, with ityloid pattern (*e.g.* the *sibylla*-group of taxa), were differentiated relatively recently by radiation in high Andean biotopes.

Interestingly, the phenomenon of the ityloid pattern can be seen also in the Afrotopical polyommatine genus *Euchrysops* Butler, 1900, (cf. *Euchrysops crawshay* Butler, 1899 in Larsen 1991, P. 25, fig. 367).

It is my hope that future studies will emphasize data on the ecology and life history of Neotropical polyommatines. This may be one of the surest ways to clarify their history.

Supplementary Notes.

Is the oreal Rhopalocera fauna of the neotropics overwhelmed by Holarctic descendants as Descimon (1986: 527) suggested or is there a remarkably Neotropical connection? Even based on the updated information in the present study, it is too early to give a satisfactory explanation of the South American polyommatine's biogeography and biohistory. However, these new data invite a new perspective and I would like to make some comments at this point. A basic one concerns the matter that the Neotropical polyommatine butterfly fauna (*sensu* Eliot) does not have a totally Holarctic origin:

1. The presence of *Zizina oxleyi*, which taxon belongs to the Holotropical *Zizeeria*-section of Eliot (1973: 447) is a conspicuous tropical lowland connection.

2. The Andean representatives of the *Leptotes* section are of conspicuously close relationship to the Afrotropical *Cyclyrius* (Stempffer 1967: 218-219). Another genus, *Brephidium* Scudder, 1876 in the northern neotropics offers another strong African link.

3. The Caribbean polyommatines (*Cyclargus*, *Hemiargus* and *Echinargus*) are structurally distinctive from their Holarctic relatives. Nabokov (1945: 43) already pointed out their ancient characteristics. The Caribbean polyommatine genera can be considered as endemic and their presence in the adjacent coastal continental American regions underlines the importance of lycaenid dispersal by wind at least in this part of the world. Descimon (1986: 522) quaried this (cf. the occurrence of *Pseudochrysops bornoi* in Haití and eastern Cuba [Alayo y Hernández 1987: 72]).

4. The presence of real Holarctic elements in the high Andean polyommatine fauna can be questioned because all the Andean genera are endemic (some weakly extending their range into the southwesternmost part of the Holarctic Realm, *e.g.* *Echinargus* and *Hemiargus*). The Neotropical polyommatine genera seem to be autochthonous entities, showing recent adaptive radiation in the Caribbean (*Cyclargus*- *Hemiragus*- *Echinargus*), the Peruvian and Bolivian altiplano (*Itylos* and *Madeleinea*), and the Patagonian regions[4] (*Pseudolucia*).

Epilogue.

Historically, very little attention has actually been paid to the elaboration of the polyommatine fauna of the oreal biome in South America. One of the main reasons for this ignorance was perhaps a fact already mentioned by Elwes, when he visited native lepidopterists in Chile: "There are, no doubt, in the collections of Mr. Paulsen and Dr. Isquierfo many specimens which would have been invaluable in studying the variation of Chilean butterflies, and perhaps some new species,but they have had no means of identifying their specimens with the types, which are all in Europe..." (1903: 273).

The result of this problem has been several fold. Not only have there been many misidentifications in the historical literature but an almost complete reliance on the repeated citation of early works based on small samples and few available taxa. This problem, compounded with time, led to a climate wherein not only could few taxa be elaborated, there was no historical basis for evaluating new material. As a result the lycaenid materials of entire expeditons were not elaborated at all (e.g. Forster 1955). In addition, one has to admit that in recent years the field of professional biology has put much of its effort and resources into theoretical work, often ignoring the fact that the basic descriptive work on which such studies must be based had itself not been attended to. With the increase in interest in methodology, basic work on organisms themselves often fell out of fashion. It is paradoxical, perhaps, but it is often difficult for workers to get support for basic descriptive research, even from the largest scientific institutions. Recent work by Shapiro (1991) and Johnson (1990, 1992), elaborating extensive elements of the high Andean butterfly fauna, has basically been supported by personal effort or smaller institutions.

The present paper represents a new step, after the work of Nabokov, to improve the incomplete knowledge of Neotropical polyommatines. At the very least, it demonstrates the volume of descriptive work needed to underpin any larger generalities concerning the biology of the

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[4] Most probably the listed territories are the main neotropical xeromontane chorological centers.

region. A number of intriquing new taxa have been described herein or mentioned as presently under investigation. It is hoped these will stimulate further interest in the taxonomy and field biology of these fascinating insects.

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TABLE 2

AREA (above) TAXON (below)	SN SM	C M	Col	Ec	nP	cP	sP	Bol	Ag	Chi	Pat	Tdf	sT
Itylos speciosa (*)						X	X	X					
I. titicaca (*)						X	X	X	X	X			
I. luzhin						X							
I. pnin						X							
Hemiargus ramon					X	X	X						
H. hanno	X	X	X	X				X					
H. bogotana		X											
Echinargus huntingtoni	X												
E. martha				X	X	X							
Pseudolucia chilensis (**)									X	X	X		
P. collina									X	X			
P. sibylla										X			
P. oligocyanea										X			
P. patago											X	X	X
P. charlotte									X	X	X		
P. plumbea										X			
P. grata									X	X	X		
P. sirin									X	X			
P. andina									X	X	X		
P. zembla										X			
P. annamaria										X			
P. hazeorum										X			
P. clarea										X			
P. vera										X			
P. lanin											X		
P. kinbote										X			
P. penai										X			
P. aureliana										X			
P. aconcagua										X			
Paralycaeides shade						X							
P. inconspicua (*)							X						

P. vapa (*)							X	X					
P. oreopola								X	X				
Madeleinea lolita						X							
M. moza (*)							X	X	X				
M. ruberrothei (*)								X					
M. koa (*)				X	X								
M. pacis (*)						X	X	X					
M. pelorios (*)						X	X						
M. ludicra (*)						X	X	X					
M. mashenka						X							
Polythecius cincinnatus						X							
P. sylphis						X							
Nabokovia faga				X	X	X	X	X	X	X			
N. n. sp.										X			
TOTAL TAXA # in table	2	2	1	4	4	15	10	10	10	21	6	1	1
AREA	SN SM	C M	Col	Ec	nP	cP	sP	Bol	Ag	Chi	Pat	Tdt	sT

TABLE 2.

Diversity and areal patterns of oreal polyommatine lycaenids in the Neotropical Realm. Taxa are listed as in the catalogue.

Abbreviations (following Descimon 1986, table 20-3): SNSM = Sierra Nevada de Santa Marta; CM = Cordillera de Mérida; Col = Colombian Cordilleras; Ec = Ecuadorian Andes; nP = northern Peru to Abra de Porculla and south to Callejón de Huaylas; cP = C Peru from Cordilleras Negra and Blanca to left side of Rio Apurímac; sP = S Peru; Bol = Bolivia; Ag = Andean region of Argentina; Chi = northern and central Chile; Pat = Patagonia and southern Chile; Tdf = northern Tierra del Fuego; sT = southern Tierra del Fuego;

(*) = taxon mentioned by Descimon 1986.
(**)= *P. parana* is omitted from the list

Species	**Material/Locality**
Itylos titicaca	5m 1f/ Titicaca Lake (Bolivia)
Nabokovia faga	1m/ Peru
Hemiargus ceraunus	28m 1/ Colombia
H. hanno	small series/ Cota (Colombia), Chulamani, Coroico (Bolivia)
H. ramon	2m/Quayaquil, San Rafael (Ecuador)
Pseudolucia collina	1m 1f/ Penco (Chile)
P. chilensis	3m 1f/ Penco, Central Chile (Chile)
Paralycaeides inconspicua	1m/ Cuzco (Peru)
Madeleinea moza	1m 1f/Sicasica (Bolivia)
M. rubberothei	2m/ Sicasica (Bolivia)
M. pacis	1m/ Cuzco (Peru)
M. koa	2m 1f/ Puno (Peru)

TABLE 1

TABLE 1.

Material available for Nabokov's study, compiled from Nabokov 1945. The names are changed to the present taxonomic usage. Pacific and Caribbean localities are omitted.

Teilhard, Pierre de Chardin 1955. Le Phénomène humain. Éditions du Seuil, Paris, 318 pp, 4 fgs.

Varga, Z., 1975. Zoogeographische Gliederung der palaearktischen Orealfauna. In: Verhandl. 6. int. Symp. Entomofauna. Mitteleur. Lunz. a. S. Junk, The Hague, pp. 263-284.

Weymer, G. 1890. Lepidopteren gesammelt auf einer Reise durch Colombia, Ecuador, Peru, Brasilien, Argentinien und Bolivien in den Jahren 1868-1977 von Alphons Stübel. In: A. Stübel Reisen in Süd-amerika. Berlin, A. Asher & Co., vi + 182 pp, 9 pls.

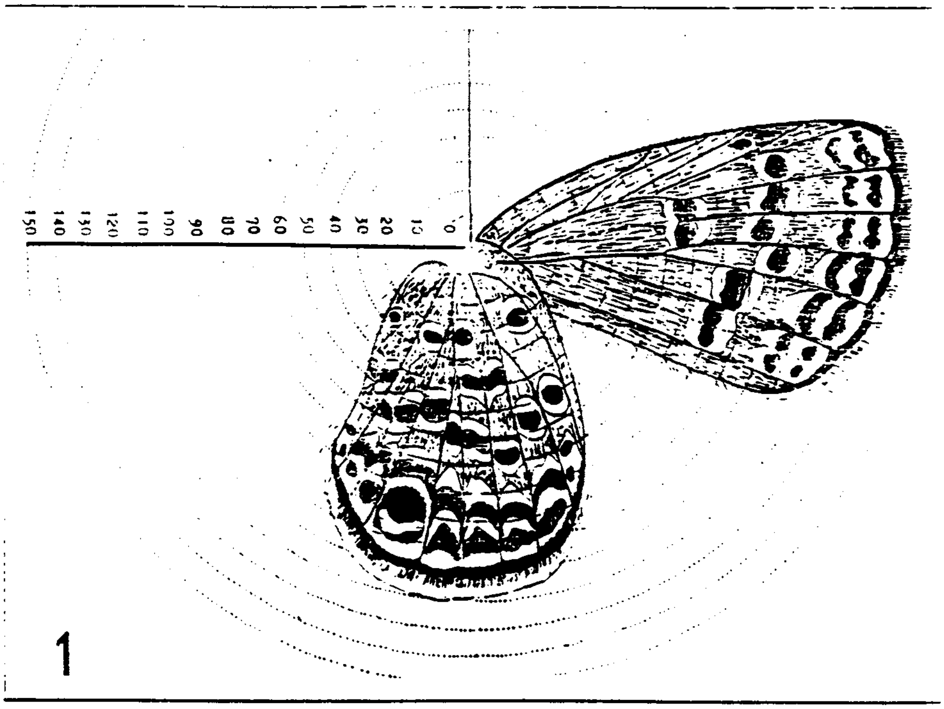
WING PATTERN FIGURES

OVERLEAFS and PHOTOPLATES IIIA,B; IVA,B numbered as in text, as follows.

fig. 1 catochrysopoid pattern of *Hemiargus huntingtoni* (after Nabokov 1945: pl. 81).
fig. 2. ityloid pattern of *Itylos speciosa* (after Nabokov 1945: fig. 1).
fig. 3. *Itylos luzhin* Holotype.
fig. 4. *Itylos luzhin* Paratype.
fig. 5. *Itylos pnin* Holotype.
fig. 6. "*Cupido speciosa*" Lectotype.
fig. 7. *Itylos speciosa*, male, Chicla, 12200 ft, Peru.
fig. 8. *Itylos speciosa*, female, Capachica, 12500 ft, Peru.
fig. 9. *Itylos speciosa*, male, Bolivia.
fig. 10. *Itylos speciosa*, male, Huallatani, Bolivia.
fig. 11. *Itylos speciosa* [?], Quebrada, Ancash, Peru.
fig. 12. *Itylos speciosa* [?], Quebrada, Ancash, Peru.
fig. 13. *Polytheclus cincinnatus*, Holotype.
fig. 14. *Polytheclus sylphis*, male, Tarma, Peru.
fig. 15. *Nabokovia faga*, male, Chachapoyas, Peru.
fig. 16. *Nabokovia faga*, male, Jureo, 2500 m, Peru.
fig. 17. *Hemiargus ramon*, male, Lima to Chosica, Peru.
fig. 18. *Hemiargus ramon*, female, Lima to Chosica, Peru.
fig. 19. *Hemiargus hanno*, male, Bogota, Colombia.
fig. 20. *Hemiargus hanno*, male, Loja, Ecquador.
fig. 21. *Hemiargus hanno*, male, Coroico, Bolivia.
fig. 22. *Hemiargus hanno*, male, Cordillera de Merida, N. of Merida, Venezuela.
fig. 23. *Hemiargus bogotana*, male, Depto. de Cundinamarca, Colombia.
fig. 24. *Hemiragus bogotana*, female, W. below Arcabucu, 2250m, Depto. de Boyaca, Colombia.
fig. 25. *Echinargus huntingtoni*, male, Sierra Nevada de Santa Marta, N. Colombia.
fig. 26. *Echinargus huntingtoni*, female, Atánquez, Sierra Nevada de Santa Marta, N. Colombia.
fig. 27. *Echinargus huntingtoni*, male, Topotype (Trinidad).
fig. 28. *Echinargus huntingtoni*, female, Topotype (Trinidad).
fig. 29. *Echinargus martha*, male, Balzapamba, Prov. Bolivar, Peru.
fig. 30. *Echinargus martha*, female, Sures, Peru,
fig. 31. *Pseudolucia chilensis*, male, Topotype (Coquimbo, Chile).
fig. 32. *Pseudolucia chilensis*, female, Penco, Concepción, Chile.
fig. 33. *Pseudolucia parana*, male, Topotype (Castro, Brasil).
fig. 34. *Pseudolucia parana*, female, Topotye (Castro, Brasil).
fig. 35. *Pseudolucia collina*, male, B. de Chillán, Chile.
fig. 36. *Pseudolucia collina*, female, B. de Chillán, Chile.
fig. 37. *Pseudolucia collina*, female, B. de Chillán, Chile.
fig. 38. *Pseudolucia patago*, male, Nahuel Huapi, Argentina.
fig. 39. *Pseudolucia patago*, female, Nahuel Huapi, Argentina.
fig. 40. *Pseudolucia patago*, male, Lago Tromen, Neuquen, Argentina.
fig. 41. *Pseudolucia sibylla*, male, Topotype (Coquimbo, Chile).
fig. 42. *Pseudolucia oligocyanea*, male, Paratype.
fig. 43. *Pseudolucia charlotte*, male, Pucara, Neuquen, Argentina.
fig. 44. *Pseudolucia charlotte*, female, Pucara, Neuquen, Argentina.
fig. 45. *Pseudolucia sirin*, Holotype.
fig. 46. *Pseudolucia plumbea*, male B. de Chillán, 6000 ft, Chile.
fig. 47. *Pseudolucia plumbea*, male, Topotype (Las Cabros, Chile).
fig. 48. *Pseudolucia plumbea*, female, topotype (Las Cabros, Chile).
fig. 49. *Pseudolucia grata*, male, Tecka, Chubut, Argentina.
fig. 50. *Pseudolucia grata*, female, Nahuel Huapi, Argentina.
fig. 51. *Pseudolucia grata* [?], male, Paso Puyehue, 1300 m, Neuquen, Argentina.

Continued on page after plates

Wing Pattern and Adult Illustrations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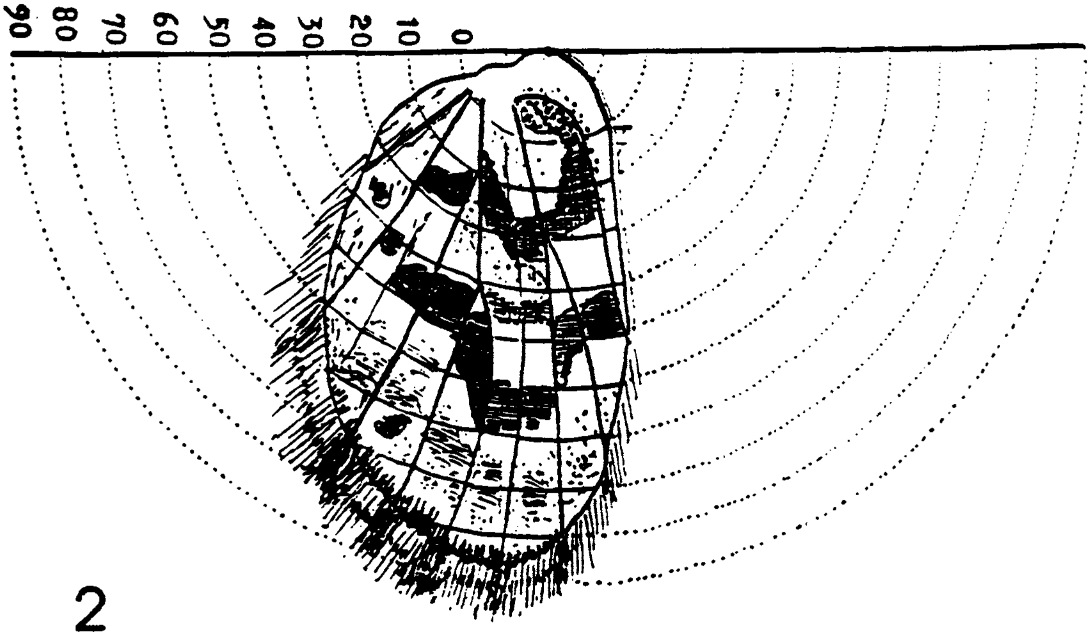
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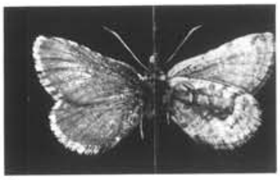
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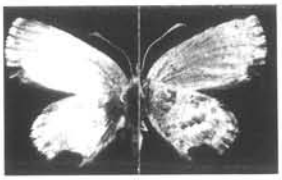
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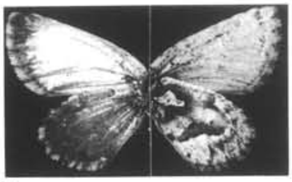
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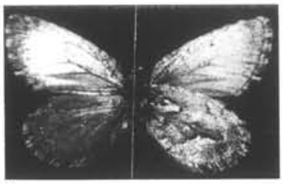
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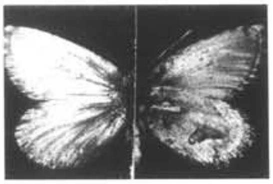
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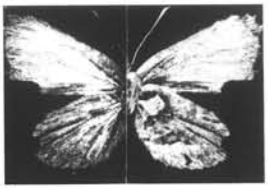
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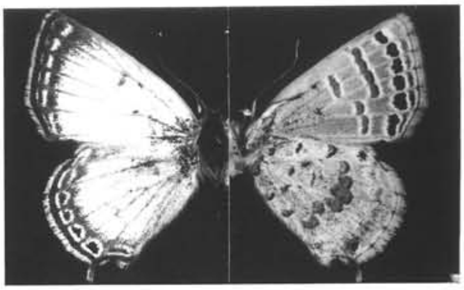
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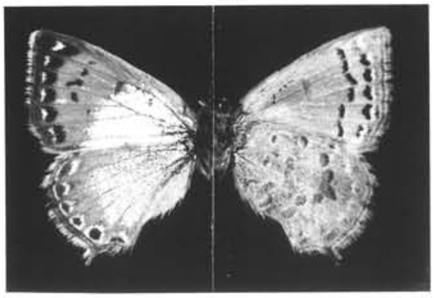
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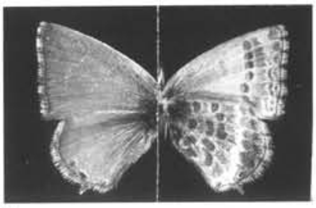
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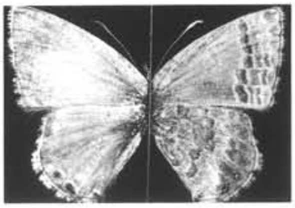
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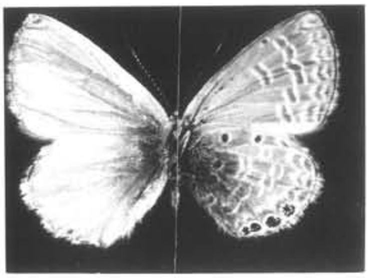
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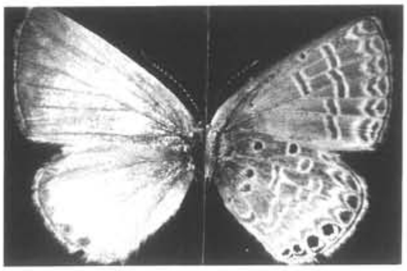
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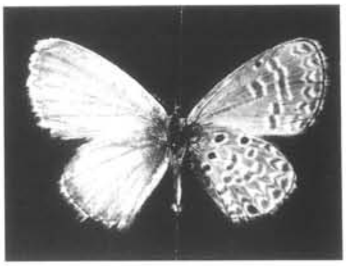
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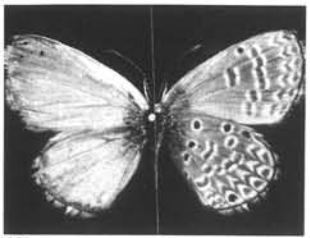
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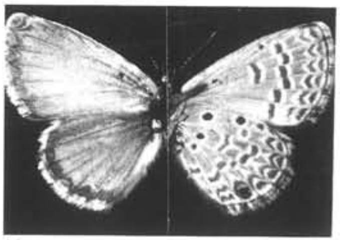
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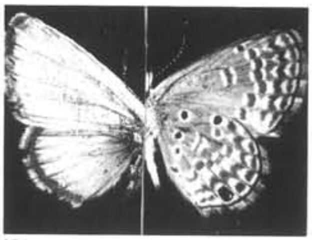
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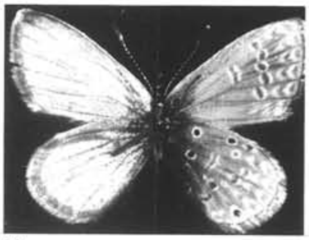
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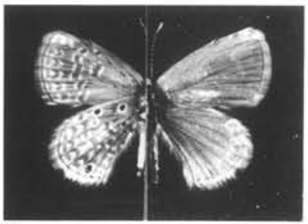
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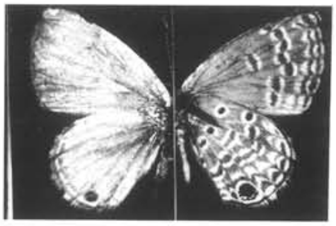
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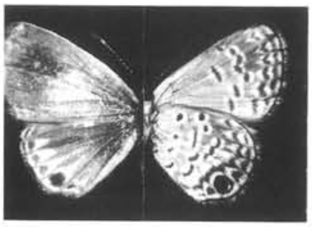
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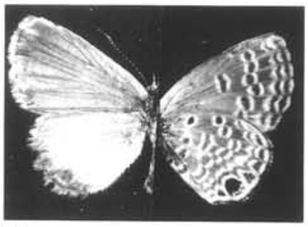
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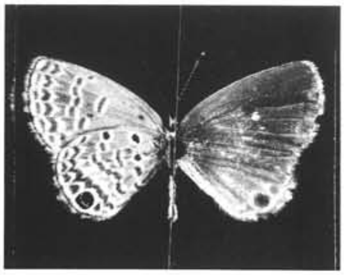
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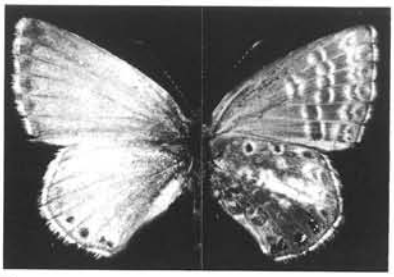
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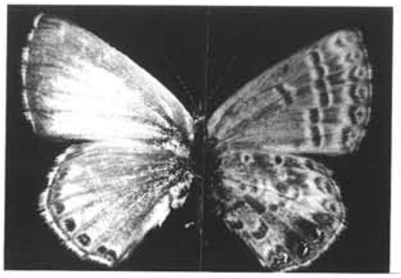
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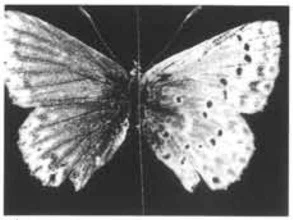
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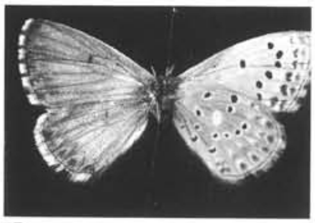
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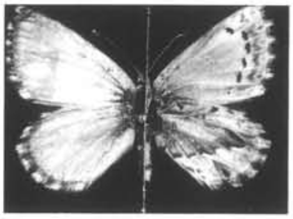
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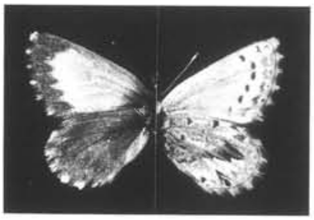
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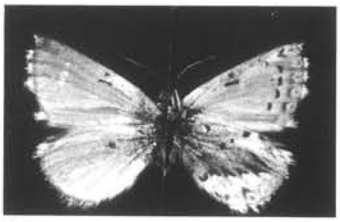
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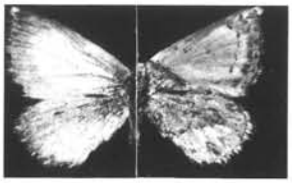
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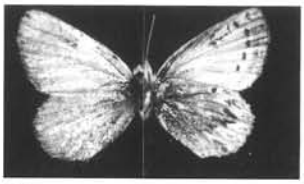
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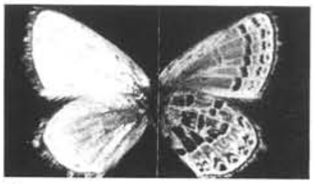
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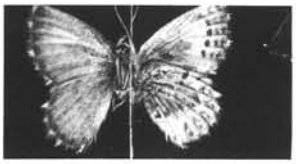
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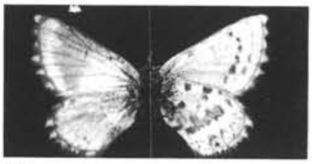
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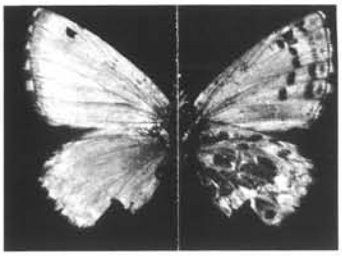
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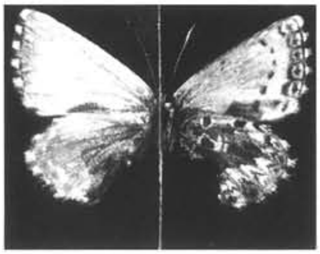
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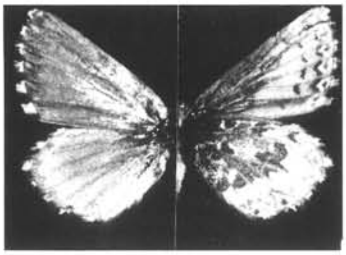
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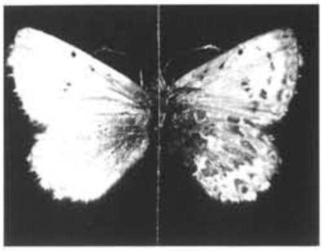
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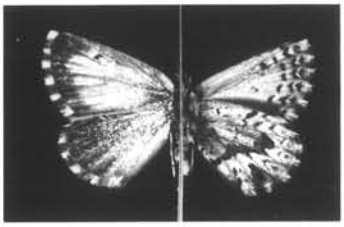
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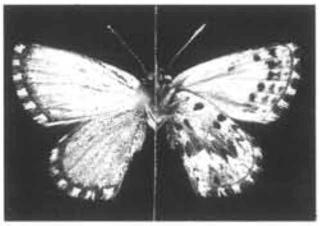
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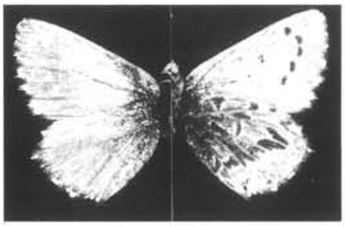
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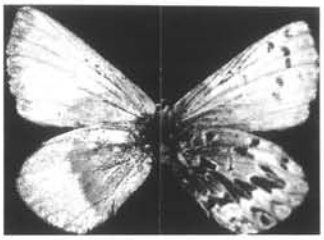
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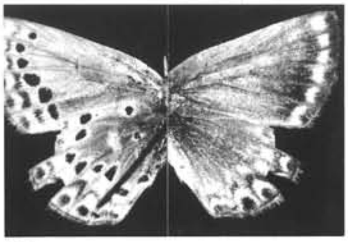
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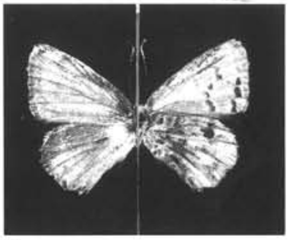
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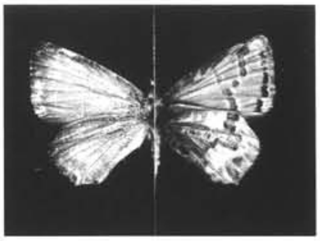
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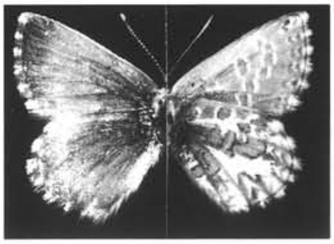
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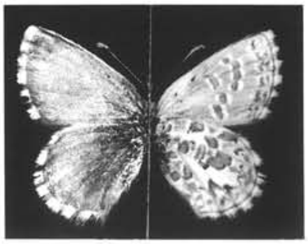
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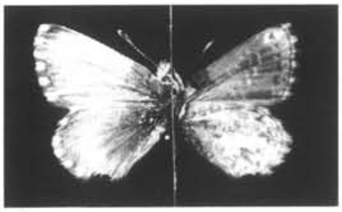
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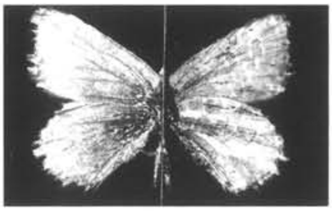
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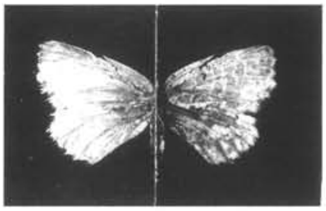
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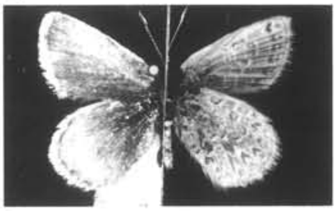
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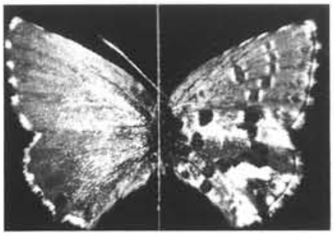
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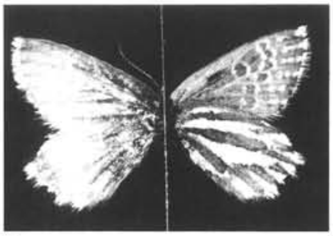
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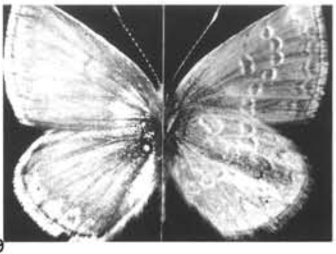
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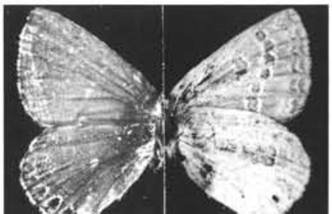
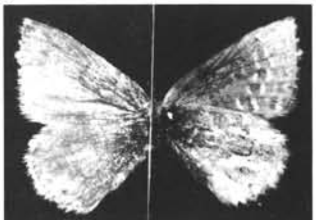
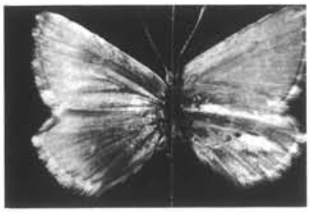




Photoplate IV B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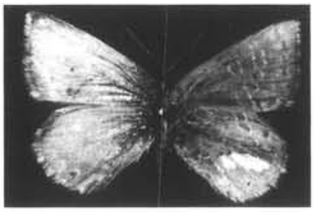
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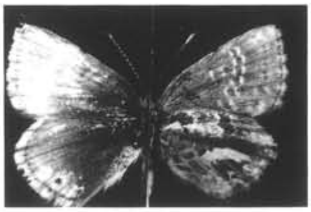
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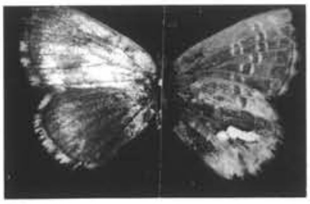
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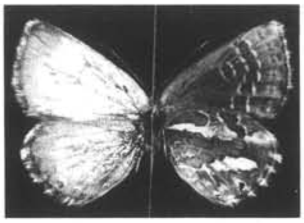
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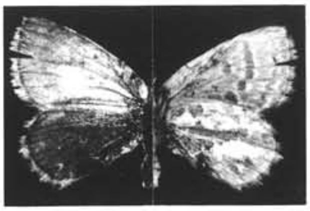
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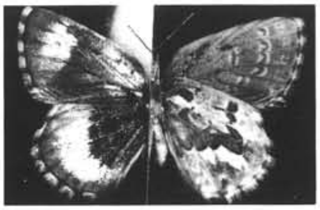
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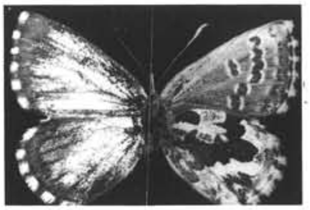
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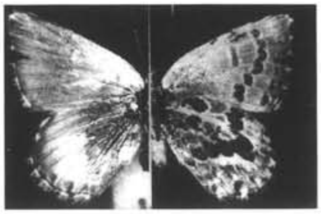
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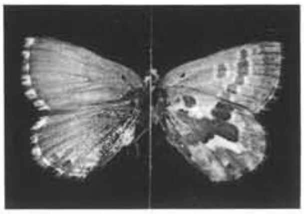
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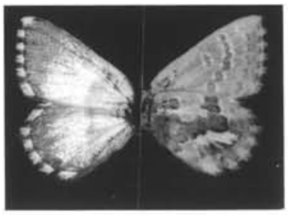
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fig. **52**. *Pseudolucia grata* [?], female, Paso Puyehue, 1300 m, Neuquen, Argentina.
fig. **53**. *Pseudolucia andina*, male, Valley de Lago Blanco, Chubut, Argentina.
fig. **54**. *Pseudolucia andina*, male, Maiten, Chubut, Argentina.
fig. **55**. *Pseudolucia andina*, male, Puente del Inca, Argentina.
fig. **56**. "*Polyommatus atahualpa*", Lectotype.
fig. **57**. *Paralycaeides shade*, Holotype.
fig. **58**. *Paralycaeides shade*, Allotype.
fig. **59**. "*Cupido vapa*", Lectotype.
fig. **60**. *Paralycaeides vapa*, male, Yunga Espiritu Santo, Cochabamba, Bolivia.
fig. **61**. *Paralycaeides vapa*, female, Tirapata, 12700 ft, Carabaya, Bolivia.
fig. **62**. *Paralycaeides vapa*, male, Tirapata, 12700 ft, Carabaya, Bolivia.
fig. **63**. *Paralycaeides oreopola*, female, Pucara, 12700 ft, Puno, Peru.
fig. **64**. *Paralycaeides oreopola*, male, Tapia, 600 m, Tucuman, Argentina.
fig. **65**. *Paralycaeides oreopola*, female, La Criola, 1500 m, Tucuman, Argentina.
fig. **66**. *Paralycaeides inconspicua*, male, Topotype (Cuzco, Peru).
fig. **67**. *Madeleinea lolita*, Holotype.
fig. **68**. *Madeleinea mashenka*, Holotype.
fig. **69**. "*Cupido moza*", Lecotype.
fig. **70**. *Madeleinea moza*, male, Cocapata, Bolivia.
fig. **71**. *Madeleinea moza*, female, Salta, Argentina.
fig. **72**. *Madeleinea moza*, female, Tafi, 2000 m, Tucuman, Argentina.
fig. **73**. *Madeleinea moza*, male, Uspallata, 1850 m, Mendoza, Argentina.
fig. **74**. *Madeleinea koa*, male, Pozzuzo, Ecuador.
fig. **75**. *Madeleinea koa*, male, Cayambe, 9000 ft, Ecuador.
fig. **76**. *Madeleinea koa*, female, Topotype (Loja, Ecuador).
fig. **77**. *Madeleinea koa*, female, Topotype (Loja, Ecuador).
fig. **78**. *Madeleinea koa*, female, Careques, Peru.
fig. **79**. *Madeleinea ludicra*, male, Mareapata, 10800 ft, E. Peru.
fig. **80**. *Madeleinea ludicra*, male, Illimani, 17000 ft, Bolivia.
fig. **81**. *Madeleinea ludicra*, male, Challabamba, 3000 m, Peru.
fig. **82**. *Madeleinea* sp.?, male, Puno, 12500 ft, Peru.
fig. **83**. *Madeleinea* sp.?, male, Azora, Peru,
fig. **84**. *Madeleinea* pacis, male, Cuzco, 4000 m, Peru.
fig. **85**. *Madeleinea* pacis, male, Challabamba, Peru.
fig. **86**. *Madeleinea* ?, male, Guaqui, Lake Titicaca, Bolivia.
fig. **87**. *Madeleinea* ?, female, Guaqui, Lake Titicaca, Bolivia.
fig. **88**. *Madeleinea* ?, female, Quenche, 14000 ft, Peru.
fig. **89**. *Madeleinea pelorias*, male, Puno, 12500 ft, Peru.
fig. **90**. *Madeleinea pelorias*, female, Puno, 12500 ft, Peru.

figs. **124—125**. Lectotype specimens of some neotropical polyommatine lycaenid taxa.

fig. **124**. Lectotype of *Lycaena endymion*.
fig. **125**. Lectotype of *Lycaena chilensis*.

Notes Added at Reprinting: Some initial technical errors in this paper by Zs. Bálint were solely the responsibility of the technical staff. A second markup of galley proof was not received in time by overnight air courier from Hungary. Press proceeded after waiting one week for arrival. To remedy these problems, consistent with an errata "paste-in" mailed to original recipients of *Report #29*, this reprint has been reprinted with all relevant corrections added and as reread in proof by the author. Internal corrections have been made but, for consistency, the original pagination has been maintained except for a few minor variances at the bases of page columns.

FACING PAGE

For convenience, repetition of the key to photographic figures for ***Pseudolucia*** described by Bálint and Johnson—

Pseudolucia collina: A(♂),B(♀).

Pseudolucia zembla: C(♂),D(♀).

Pseudolucia plumbea: E(♂).

Pseudolucia annamaria: G(♂),H(♀).

Pseudolucia hazeorum: I(♂),J(♀).

Pseudolucia clarea: K(♂),L(♀).

Pseudolucia vera: M(♂),N(♀).

Pseudolucia chilensis: O(♂),P(♀).

Pseudolucia charlotte: Q(♂),R(♀).

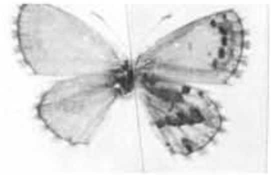
Pseudolucia lanin: S(♂).

Pseudolucia kinbote: T(♂).

Pseudolucia andina: U(♂),V(♀).

Pseudolucia penai: Y(♂).

Photoplate V



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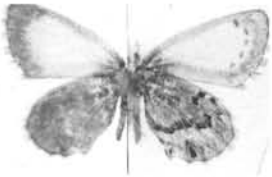

B

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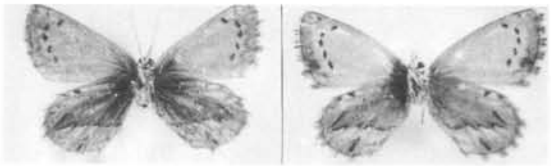

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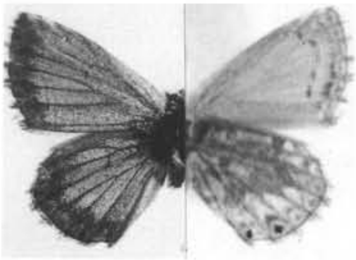

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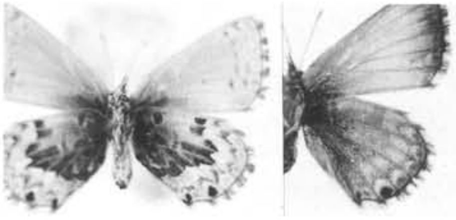

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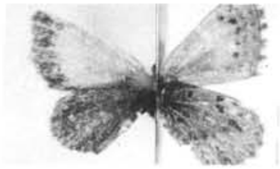

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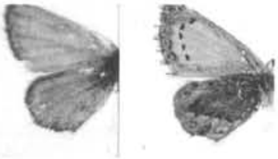

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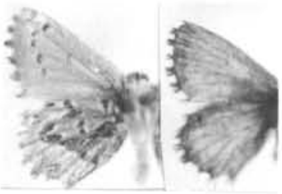

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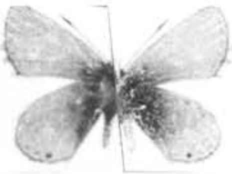

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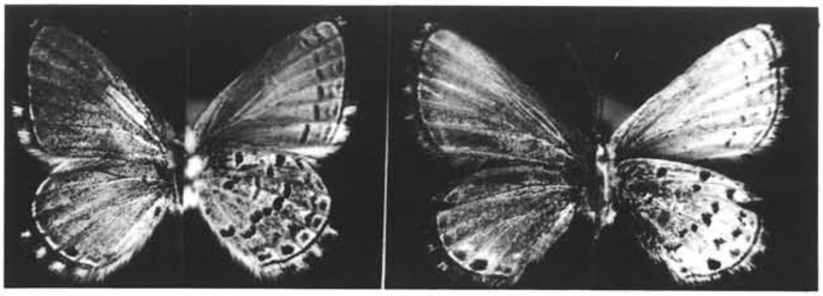

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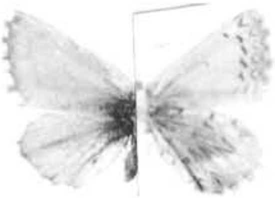

U

V

Notes on the Location of Certain Type Specimens of Neotropical Eumaeini (Lepidoptera: Lycaenidae)

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REPORTS of the
Museum of Natural History, University of Wisconsin
Stevens Point

NO. 30

ABSTRACT

The location of types of *Thecloxurina loxurina lustra* Johnson (1992), *T. feminina* Johnson (1992), *Candora cyanomediana* Johnson (1992), *Pontirama brunea* Johnson (1992), *Rhamma cuchoensis* Johnson (1992), *R. chilensis* Johnson (1992), *Shapiroana matusikorum* Johnson (1992) and *Strymon cryptogramus* Johnson, Eisele & MacPherson (1992) is clarified regarding published deposition notations and institutional ownership.

INTRODUCTION

Johnson (1992) described a large number of species of Eumaeini based on material recently obtained from various South American sources. Johnson, Eisele and MacPherson (1992) elaborated some new Argentine species from recently collected specimens. Three problems arose with published citations regarding deposition of the primary type material of some of these species. These problems are remedied below.

ANNOTATED ENTRIES

Text Citations. Johnson (1992) was produced with a computer "macro" dividing the text by a pre-programmed subtitle prompt. In some entries entitled TYPE, wherein the paragraph included both primary paratype lists, the macro divided the section at the first listing of paratypes. As a result whenever the manuscript contained a contiguous list of primary and paratypes all belonging to the same institution, the published text associated the deposition abbreviation only with the paratypes. This was not noted at proof but became apparent during subsequent curation.

Although deposition locations of these type series might be construed by comparing entries in the text, for purposes of the "Code" of the International Commission on Zoological Nomenclature deposition abbreviations should be associated with the primary type data. Below listed are the instances requiring clarification with the institutional deposition again noted.

Thecloxurina

Thecloxurina loxurina lustra Johnson, holotype male, allotype female AMNH;

Thecloxurina feminina Johnson, holotype male AMNH.

Candora

Candora cyanomediana Johnson, holotype male, allotype female AMNH.

Pontirama

Pontirama brunea Johnson, holotype male, allotype female AMNH.

Rhamma

Rhamma cuchoensis Johnson, holotype male, allotype female AMNH.

Institutional Ownership. The death of Dr. J. Herrera G., during the final stages of publication of Johnson (1992), left some unresolved problems of ownership regarding series of material supplied by Herrera and the understanding that certain percentages of these could be eventually deposited at the AMNH. This was further complicated by the fact that Herrera had in his possession for many years specimens loaned to him by L. Peña. With the help of Dr. Raul Cortez ("IEUMCE", see entry immediatly below) these matters were resolved following eventual deposition of Herrera's collection in Santiago subsequent to the publication of Johnson (1992). The general policy that the Instituto Entomología (Santiago, Chile) (IEUMCE) would receive primary types was followed (see *Candora kellya* Johnson 1992) with one exception. It was construed that the holotype female of *Rhamma chilensis* Johnson has been previously accessioned by the AMNH. Thus, the holotype of *R. chilensis* has been returned and deposited at the AMNH.

Also resolved after the publication of Johnson (1992) were the depositions of two holotypes held at the time in private collections. The holotype female of *Shapiroana matusikorum* Johnson was subsequently donated the AMNH by David Matusik and the holotype male of *Strymon cryptogramus* Johnson, Eisele and MacPherson donated to the AMNH by Robert Eisele.

Changes of Institutional Name. Prior to Johnson (1992) some Chilean type material was noted in the literature as residing at the "Central Entomological Collection, University of Chile" (CECUC). However, in 1991 the schools of education and science were declared separate under the name Universidad Metropolitana de Ciencias de la Educación. For depositions at the latter institution, J. Herrera (in litt.) suggested the abbreviation

"UMCE". Because of historical label data, citations of both CECUC and UMCE appear in Johnson (1992).

Subsequently, however, editors of *Acta Entomologia Chilena* have used "IEUMCE" as the abbreviation for the Instituto Entomología UMCE (see, e.g. Johnson, Miller and Herrera 1992). The matter still appears unresolved since it is reported (Raul Cortez, in litt.) that IEUMCE plans to changes its name once again to honor J. Herrera. As is well known, various authors have suggested a stablization of such institutional abbreviations. However, when such stability has not been followed, different usages applying to the same institution should be recorded.

Type Photographs. Various "Notes added in proof" (Johnson 1992) listed a few errors in the formatting of photographic plates for the volume. As noted, the respective upperside and undersides of *Cisincisalia guatemalena* Clench and *C. moecki* Johnson were reversed. This was unfortunate since the differences in the wing patterns of these species need to be emphasized. Also, the allotype female of *Shapiroana shapiroi* (p. 246) was inadvertently left out and its space occupied instead by a second photograph of the holotype of *S. circe* Johnson. The type of *Ignata illepida* Johnson (p. 249) was mistakenly captioned as a male though treated consistently as a female throughout the text. This error in figure labelling resulted from a previously noted tendency of some Eumaeini females to show "pseudo-brands" on the forewings (see for instance, Johnson 1988, 1989) and *Thecloxurina eiselei* Johnson (1992, p. 107).

Acknowledgments

I am grateful to Dr. Raul Cortez (IEUMCE) for helping resolve the deposition of the J. Herrera Collection and to Luis Peña for arranging delivery of Herrera types in my care to IEUMCE after use for the forthcoming Chilean butterfly guide. Dr. Frederick H. Rindge (AMNH) researched the accession history of *R. chilensis* and called some other problems to my attention.

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