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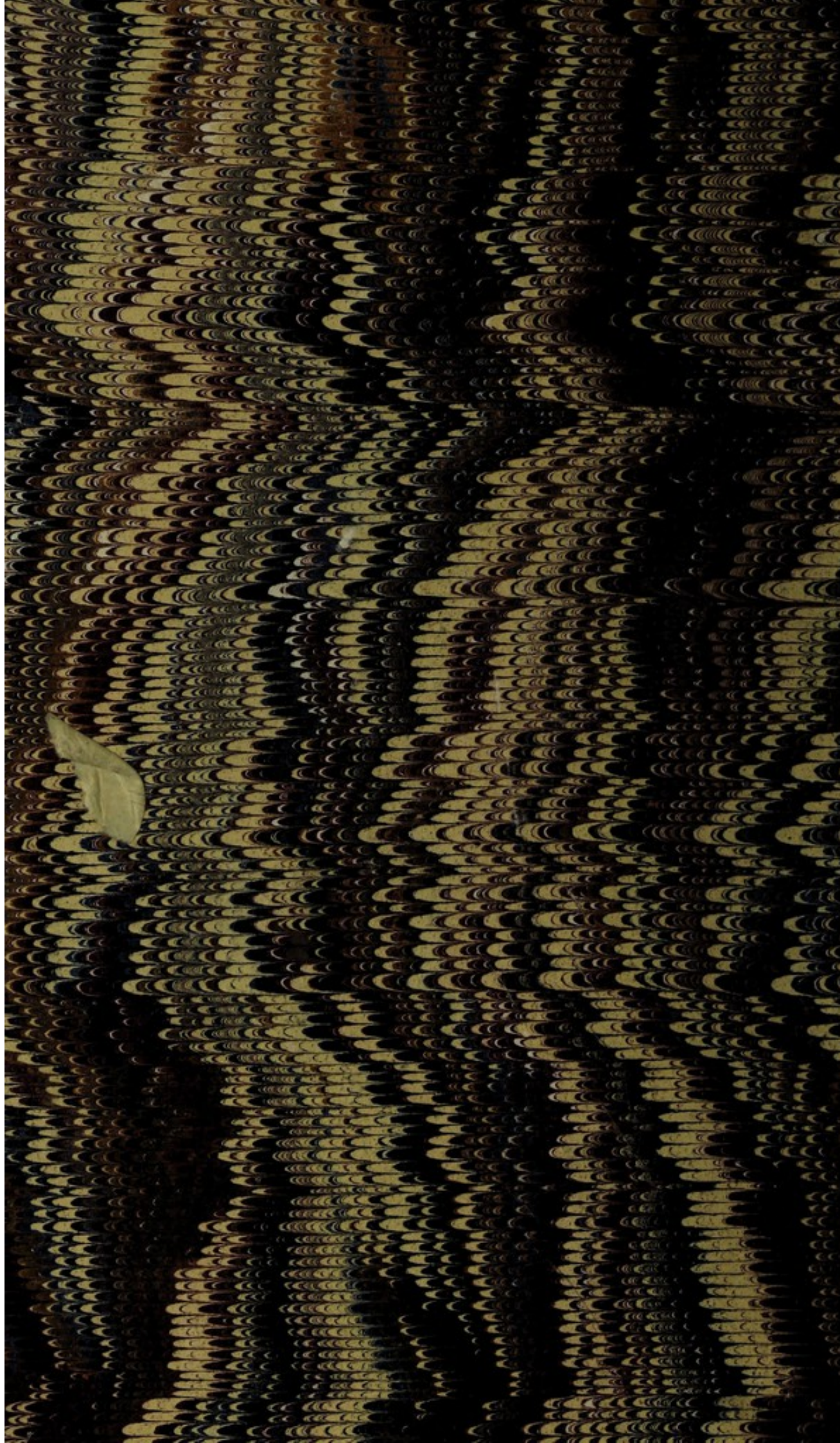
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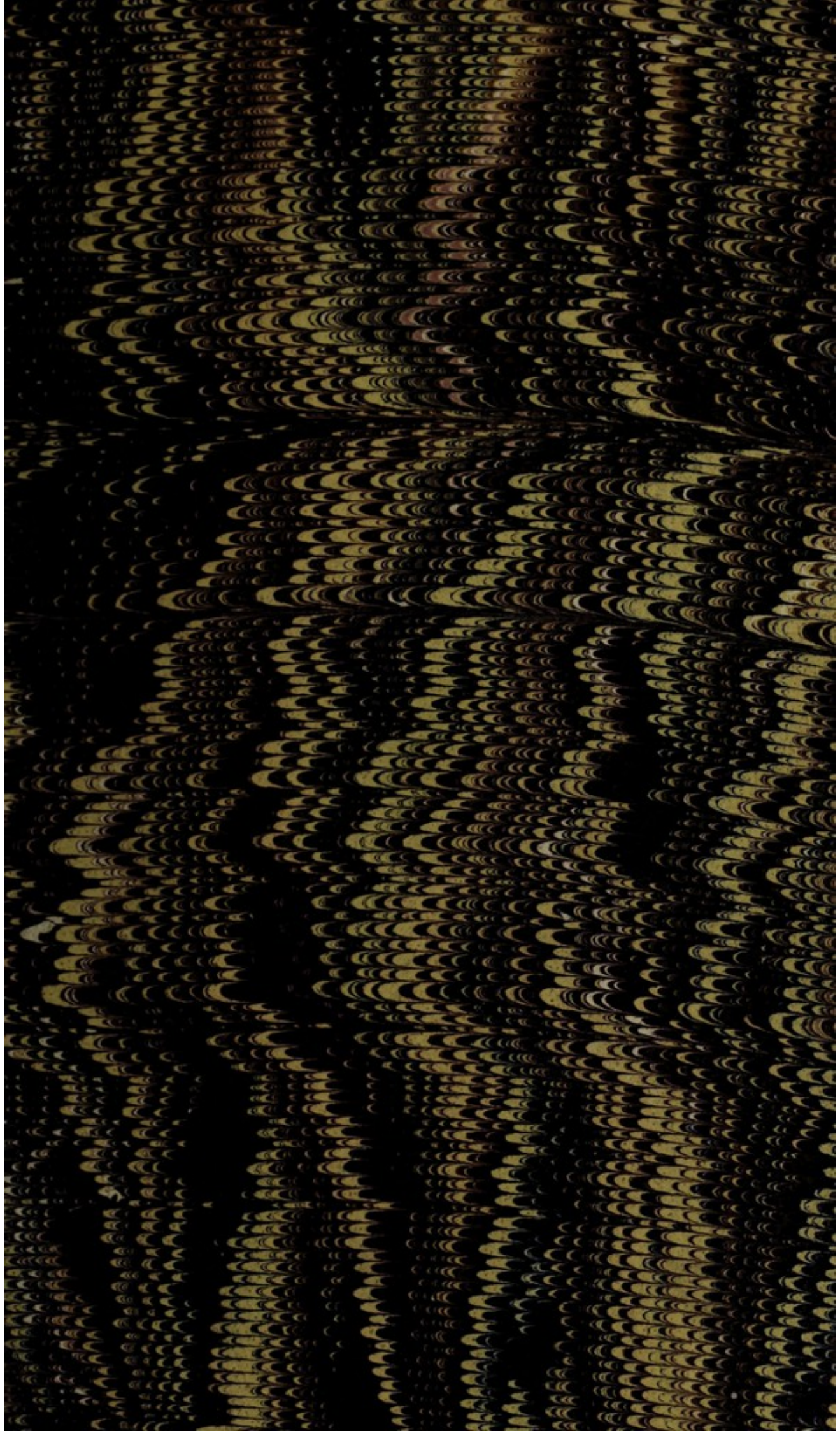
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Geological Relations

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Geological Relations and Geology

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Zoological Illustrations,
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ORIGINAL FIGURES AND DESCRIPTIONS
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NEW, RARE, OR INTERESTING
ANIMALS,
SELECTED CHIEFLY FROM THE CLASSES OF
Ornithology, Entomology, and Conchology,
AND ARRANGED ACCORDING TO THEIR NATURAL AFFINITES.

BY
WM. SWAINSON, ESQ., F. R. S., F. L. S.
ASSISTANT COMMISSARY GENERAL TO H. M. FORCES. CORRESPONDING MEM-
BER OF THE NATURAL HISTORY SOCIETY OF PARIS; HONORARY MEM-
BER OF THE CAMBRIDGE PHILOSOPHIC SOCIETY, &c.

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1832.—1833.

Geological Observations

ORIGINAL MANUSCRIPT OF THE OBSERVATIONS

ON THE GEOLOGY OF THE

WYOMING TERRITORY

BY J. W. WELLS

CONTAINING DESCRIPTIONS OF THE GEOLOGY

AND MINERAL RESOURCES OF THE

WYOMING TERRITORY

AND A DESCRIPTION OF THE GEOLOGY

OF THE

STATE OF WYOMING



13

TO HIS MOST CHRISTIAN MAJESTY,

Louis Philippe,

KING OF THE FRENCH,

Who, as a **PRIVATE GENTLEMAN**, exiled by despotism from his native country, enjoyed that respect which the dignity of virtue can alone ensure; who, as a **PRINCE**, descended from a race of **KINGS**, gained the affections of a whole people; — as the **KING** of a great and intellectual nation, enjoys the love and veneration of the wise and the good; and as a true **PATRON OF SCIENCE**, munificently encourages, both privately and publicly, all who are engaged in its pursuit,

THIS VOLUME

OF

ZOOLOGICAL ILLUSTRATIONS,

Is dedicated,

WITH SENTIMENTS OF THE HIGHEST ADMIRATION

AND OF THE GREATEST RESPECT,

BY THE AUTHOR.

TO THE HONORABLE SENATE OF THE UNITED STATES

SECOND REPORT

OF THE COMMISSIONERS OF THE GENERAL LAND OFFICE

IN RESPONSE TO A RESOLUTION PASSED BY THE SENATE
ON THE 15TH MARCH 1866, RELATIVE TO THE
LANDS BELONGING TO THE UNITED STATES
AND THE PROCEEDINGS THEREON SINCE THE
LAST REPORT OF THE COMMISSIONERS
IN 1864. PREPARED BY THE
COMMISSIONERS OF THE GENERAL LAND OFFICE
AND PUBLISHED BY ORDER OF THE SENATE.

WASHINGTON: PUBLISHED BY THE NATIONAL PRINTER, 1867.

BY ORDER.

JOHN W. WATSON, SECRETARY OF THE SENATE.

AND BY THE COMMISSIONERS OF THE GENERAL LAND OFFICE.

BY THE SENATE.

PREFACE.

THE present state of science in Britain, the usual subject of our preface, has recently been discussed by powerful writers;¹ and has drawn from others,² equally eminent, bitter reflections. As regards Zoology, there is a great show of patronage. Zoological gardens, and new societies have sprang up: cheap publications, on *popular* natural history, appear daily; and professors have been installed at the two London Universities. Yet what has resulted? We have lecturers expounding systems they do not comprehend,³ and we have professors maintaining that a walk into the fields will make "a very good naturalist."⁴ Meantime nearly every periodical work on pure science has languished or died away. The *Zoological Journal* has been discontinued, although nominally patronized by a society enjoying an enormous annual receipt. The fact, indeed, is but too apparent, that the science of the country, *speaking generally*,⁵ has become superficial, while "neither literature nor art has been encouraged in our opulent Island, half as much as they have been by some of the petty kingdoms of the Continent."⁶

But the political horizon is happily brightening, and the change will ultimately affect all. The stream of national patronage has long been prevented from branching off and fertilizing spots, now impoverished and neglected. Natural History, more than any other science, requires such aid; because it is inapplicable to the purposes of life; and while its study is attended with enormous expence, its acquirement leads to nothing tangible. It is a melancholy fact, that while our present laws crush individual exertion, by extorting a large number of free copies of the most costly works, undertaken by their authors without the slightest hope of remuneration,—the Government of France assigns *for subscriptions* to such publications, an annual sum of £10,000.⁶ But on questions regarding the patronage of science, Great Britain, unfortunately, is poorer than any nation in Europe.

¹ Babbage (*On the Decline of Science*), Quarterly Review:

² Herschel. Sir Humphrey Davy. Sir Nicholas Harris. Millengen. (*Ancient Coins*). See also Lowdon's Natural His. Mag. Nov. 1831. p. 481.

³ Northern Zool. 2. p. xliv. ⁴ Montague's *Orn. Dict.* new edition, *preface*.

⁵ Athæneum Journal, Jan. 1832. p. 32.

⁶ *Ibid*, p. 37.

Zoological Illustrations.

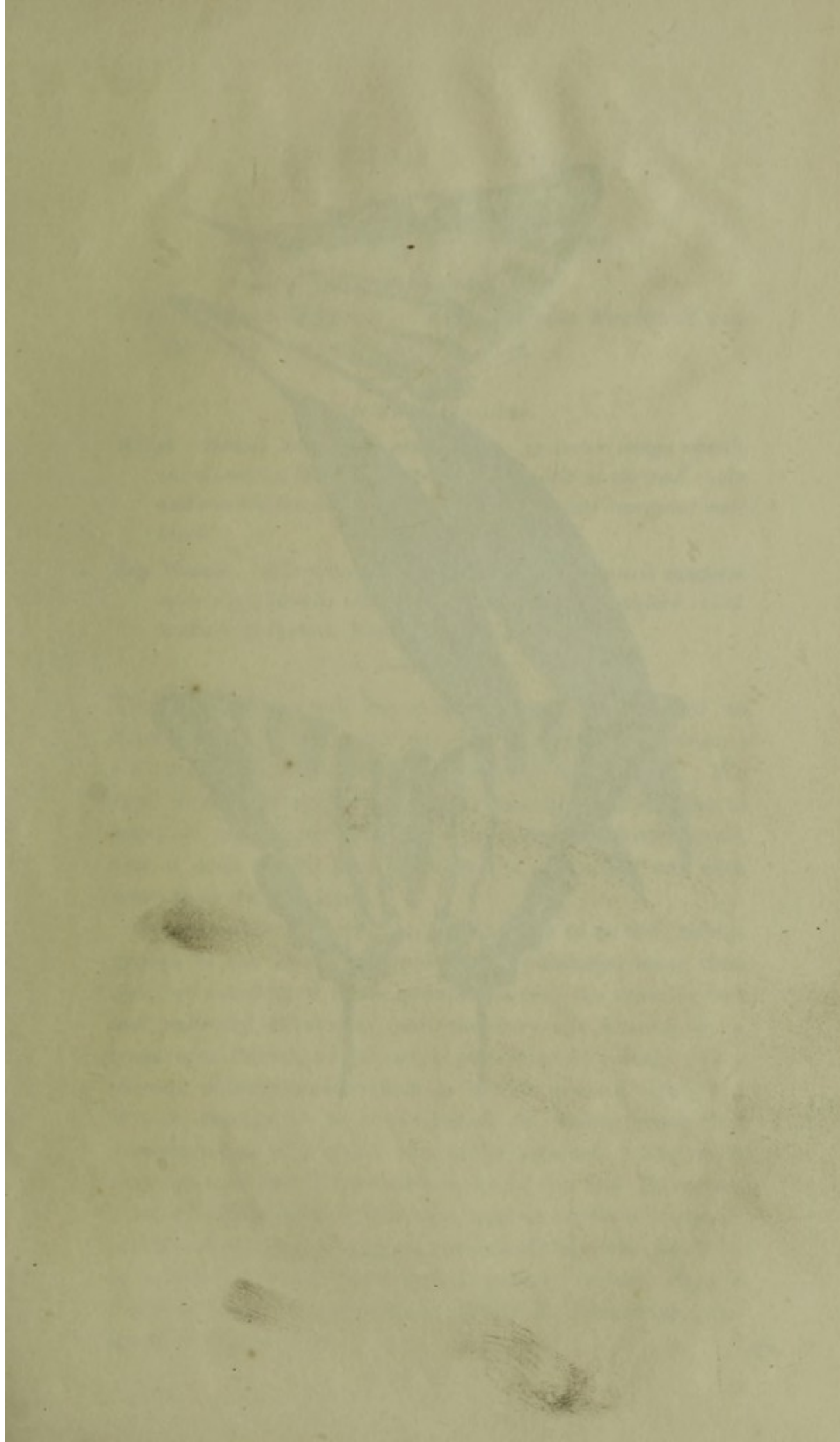
ENTOMOLOGY.

PART II.

Zoological Illustrations.

ENTOMOLOGICAL

PART II.





PAPILIO *Nianus*.

PAPILIO Niamus.

Order Lepidoptera. G. Papilio. (*Auct.*)

GENERIC CHARACTER.

Wings pale, with longitudinal bands; posterior lengthened, canted; the tails long and acute.

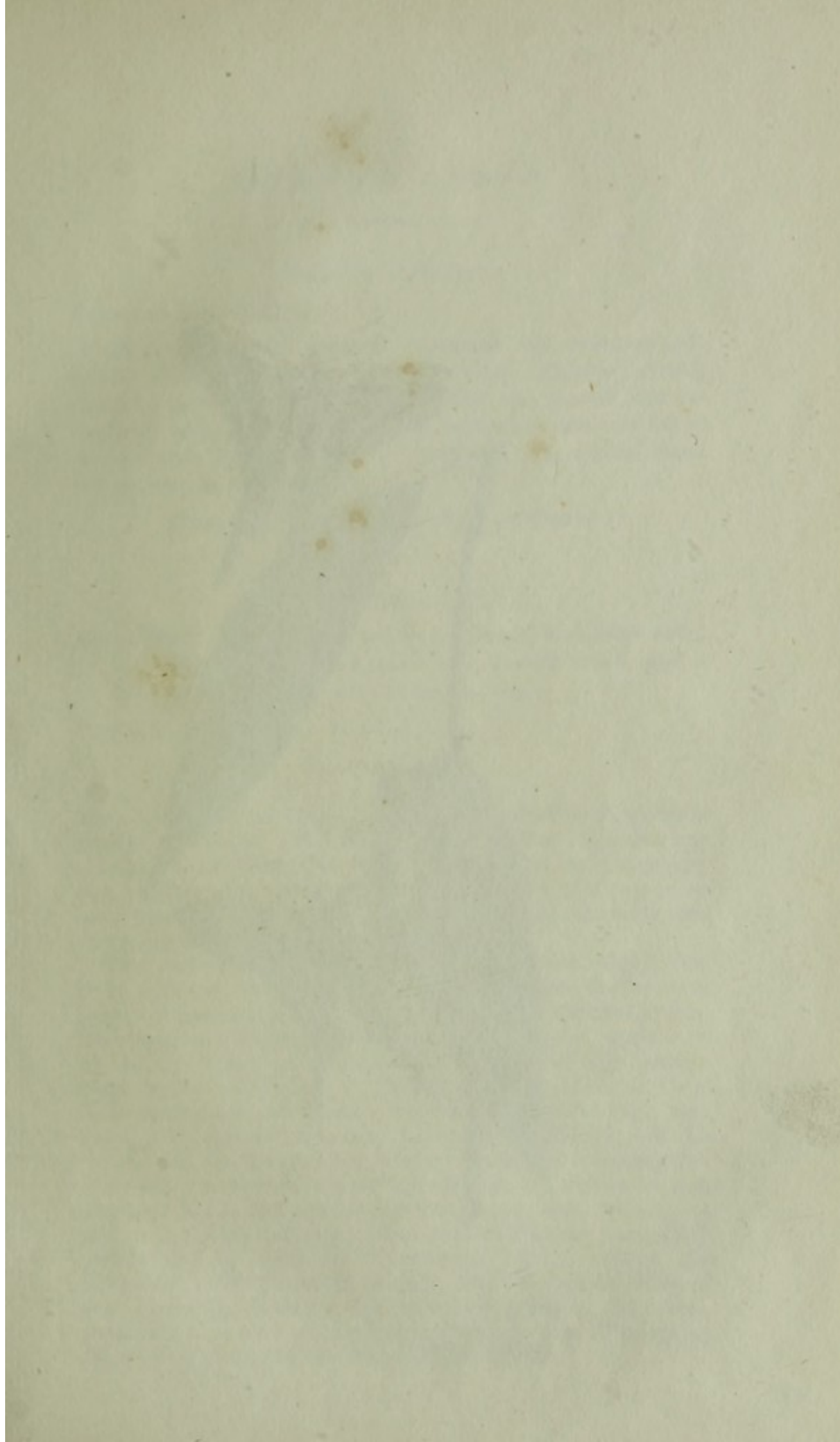
SPECIFIC CHARACTER.

Wings yellowish white with black bands; posterior wings acutely tailed, with a black line and whitish lunule at the anal angle, and marked beneath with a macular red band margined with black.

Pap. Niamus. *Alis flavo-albidis, fasciis nigris; posticis caudatis, apice nigro lunulis albidis: his subtus strigâ maculari rubrâ.*
Latrielle et Godart. Ency. Meth. 9, p. 51.

To describe in detail those colours and markings of an insect, which the eye can embrace at a single glance on a well executed representation, is surely unnecessary. We shall therefore merely observe that this species has hitherto remained unfigured: that it is a native of Southern Brazil, and of such rarity, that in two years, we never met with more than one specimen.

In some observations upon what appear to us the leading groups of the *Diurnal Lepidoptera*, published some time ago, we considered those groups wherein the anterior feet are perfectly developed, and the chrysalis braced by a transverse thread, as the most perfect and typical. Subsequent observations confirm us in this general view; but it still remains to be investigated, to which group the generic name of *Papilio* should be retained. The wide dispersion of that form represented in the two European species *Podalirius* and *Machaon*, and which form occurs in all the temperate and tropical regions of the globe, leads us to suspect it as the most typical group: to this, *Papilio Niamus*, from its very close affinity to *Podalirius*, unquestionably belongs.





RHETUS *Cramerii*.

R H E T U S Cramerii.

GENERIC CHARACTER.

Larva and *Pupa* unknown.

Wings triangular; the posterior lengthened and rather acutely tailed. *Antennæ* with the club linear-fuciform. *Palpi* cylindrical, elongate, porrect, incurved, remote, naked; the second joint remarkably long. *Anterior feet* in the male short and very hairy; in the female longer, naked, and furnished with minute claws. *Wings*, when at rest, horizontal.

Types.—Pap. Rhetus. Periander.—(Cramer.)

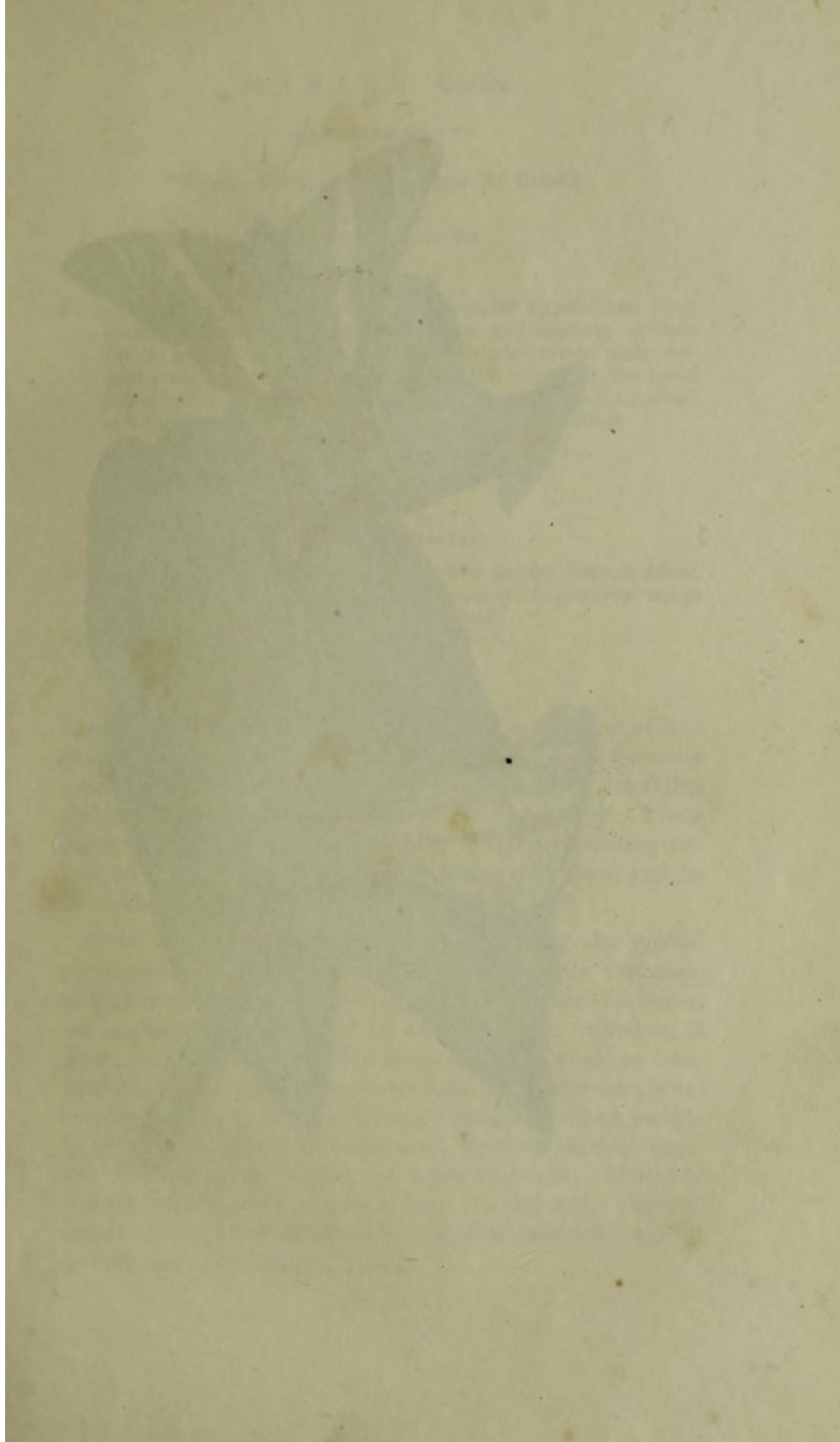
SPECIFIC CHARACTER.

Wings black, with two white subhyaline bands, both sides alike; posterior wings elongated, vivid blue, acutely tailed, with a transverse sub-lunular band at the anal angle.

Papilio Rhetus. Cramer. pl. 63, f. c.

THIS is one of the rarest and most splendid lepidopterous insects of Brazil. We were once fortunate in capturing six specimens, fluttering over a shrub in the early morning sun, during our encampment in the Forest of Urupeè, in the Province of Bahia: but we never again met with this charming creature.

The perfect insect has been figured in the costly, but truly valuable, work of Cramer; yet as neither the larva or pupa are known, we cannot determine on its natural group. Its relations, as suggested by the perfect insect, appear to be these. We consider the analogy between the groups respectively containing *P. Podalirius*, and *Marius* (Cr.), to be immediate and direct: the form of the last type, and much of its general structure, is seen in our insect; but the details will not admit of a further similitude. Among the *Ericinæ* we again detect this form in *P. Corineus* and *Dorylus* (Cr.), and continuing the comparison, we see the *antennæ*, *palpi*, and feet (in one sex) of *Rhetus*, accurately represented in those of *P. imperialis* (Cr.), among the *Thecladæ*. We therefore suspect, that the real affinities of our insect lie between the two last groups: It seems moreover to have a strong analogy with *Leilus*. The upper figure is of the male, the under of the female.





MARIUS *Cinna*

MARIUS Cinna.

Family Nymphalidæ. (Stirps. 3? Horsf.)

GENERIC CHARACTER.

Larva and pupa *unknown*.

Perfect insect. *Wings* Papilioniform, caudal appendages long, acute. *Palpi* porrect, approximating, and meeting at their tips so as to form an acute cone: the whole covered with compact scales. Anterior feet small, slender, imperfect, the tarsal joints? concealed by long hairs: club of the antennæ terminal, sub-fuciform and cylindric. Body short, thick, robust.

Type, *Papilio Marius*. Auct.

SPECIFIC CHARACTER.

Wings above brown, with two unequal white bands; beneath white, with narrow fulvous bands; basal angle of the posterior wings with an orange spot, ocellated with black.

Papilio Cinna. Cramer Vol. 1. pl. 100. f. 8.

CRAMER describes this elegant Butterfly as a native of Surinam, and our own specimens were received from the same country. All the species of this group that have yet fallen under our inspection, are natives of South America. Their flight is high, powerful and rapid: the predominating colour on the upper surface of their wings is brown, and on the under white.

It is the misfortune of not understanding the typical structure, and the principles which regulate its variation, in higher groups, that in defining the characters of a lesser, we can form no just idea of its relative value: whether, in short, we should consider it a genus or a sub genus, or whether it is typical, aberrant, or osculent. This, however, is but a temporary evil; and will only continue until an insight is gained into higher combinations, by first placing together kindred species under one common name. If this be done heedfully, such a group *must* be natural, whatever opinions may be entertained in the *first* instance, as to its proper denomination.

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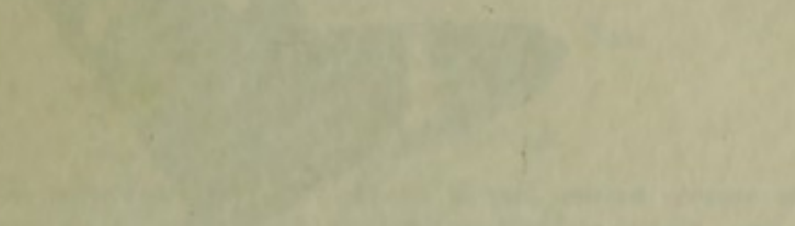
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THE HISTORY OF THE

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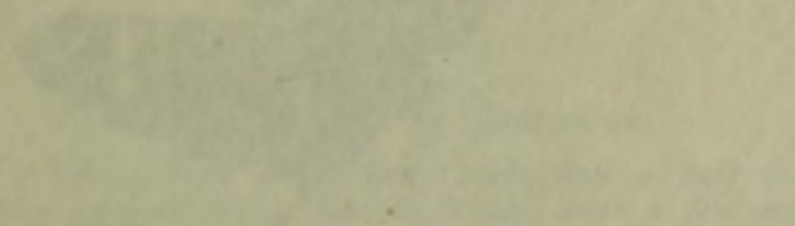
BY



BY

JOHN BURNET

OF



OF

THE

REIGN OF



2

EUDAMUS PIL
1. *Agorilaus* 2. *Doryssus*.

EUDAMUS Agesilaus.

Family Hesperidæ.—*Nob.* (*Anopluriform Stirps. Horsf.*)

GENERIC CHARACTER.

Antennæ with the club unequally fusiform, the outer half abruptly bent, forming a lengthened, attenuated hook, alike in both sexes; anterior wings papilioniform: posterior wings with the caudal appendages very long and obtuse.

Type.—*Hesperia Proteus.* Fab.

SPECIFIC CHARACTER.

Posterior wings dark brown, with a broad, entire, cream coloured margin; beneath marked with two darker bands, and a basal dot: appendages very long, whiteish.

THE insects composing this group, have only been discovered in the hot latitudes of America. In the *Systema Naturæ* one species alone is recorded; Fabricius was acquainted with three; our own cabinet possesses eighteen, all collected in a comparatively insignificant portion of Brazil. Others have been figured by Drury and Cramer, so that the number of species already known, may probably amount to near thirty.

The flight of these Swallow-tailed *Hesperidæ*, is usually performed in the morning and evening, and is so rapid, as frequently to elude the eye of the observer. They rest with *all the four wings perpendicular*, similar to the Swallow-tailed Butterflies, (*P. Machaon*, &c.) The present is a very rare species; we captured only two specimens near Bahia.

EUDAMUS Doryssus.

Posterior wings, with short snowy tails, and a half border of white on both sides; beneath brown, with a few paler dots near the base.

THE sexes of this species materially differ. Our figure represents the female: in the male, the wings are browner, and highly glossed at their base with green; the snowy border on the posterior wings is very narrow above, but much broader beneath. It appears very locally distributed; we found it common in the vicinity of Bahia.

Eudamus, Pl. 1.

EUDAMIS

Family: *Thymelaeaceae* (Not a *Thymelaeaceae* plant)

Genus: *Eudamis*

The genus *Eudamis* is a monotypic genus, the only species being *Eudamis* *sp.* (the name of the species is not known). It is a small tree, 10-15 m. high, with a trunk 10-15 cm. in diameter. The bark is smooth, greyish-brown, and the leaves are alternate, ovate, 5-10 cm. long, 2-4 cm. wide, with a pointed apex and a short petiole.

It is a native of the island of Sumatra.

Local Name: *Eudamis*

The wood is hard, heavy, and strong, and is used for building and for making furniture. The bark is used for making a medicine for the treatment of the skin.

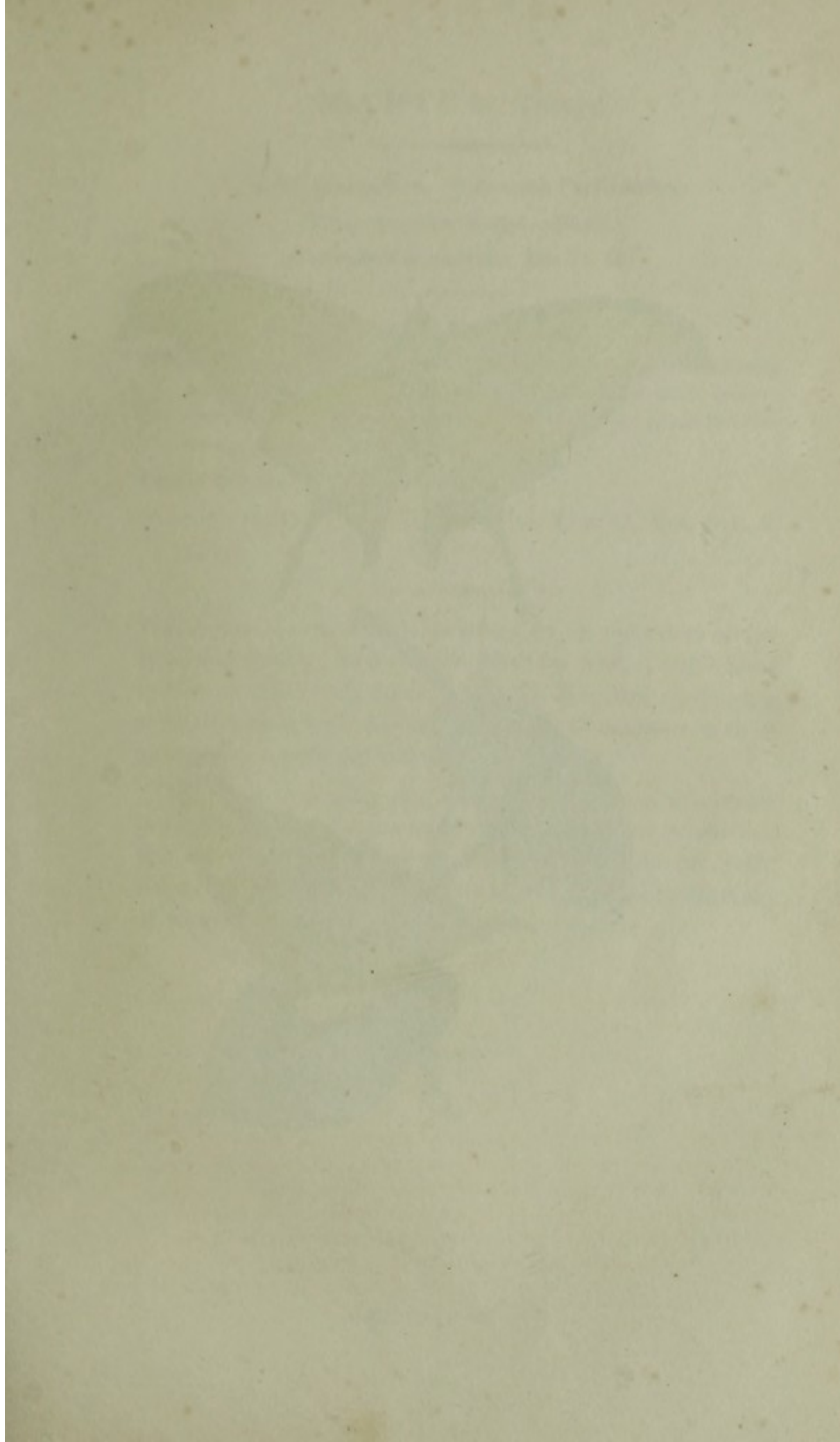
The fruit is a small, round, greenish-yellow berry, 5-10 mm. in diameter, with a short stalk. It is eaten raw, and is also used for making a medicine for the treatment of the skin. The fruit is also used for making a medicine for the treatment of the skin.

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MARIUS *Thelys*.

MARIUS Thetys.

Order Lepidaptera. Sub-order Papilionides.

(Thrysanuriform Stirps.—Horsf.)

GENERIC CHARACTER. See Pl. 45.

SPECIFIC CHARACTER.

Wings horizontally lengthened, above bright rufous, transversely banded with blackish stripes; beneath marbled with brown: lower part of the head, body, abdominal margin of the inferior wings, and feet, cream colour.

Papilio Petreus, Cramer, Pl. 87, D. E.

——— Thetys. Fabricius. Mant. Ins. 2, p. 47. Ens. Syst. 3, 1, 77.

WE frequently captured this Butterfly on the skirts of the Brazilian forests: its flight is bold and powerful, but it loves to bask on those leafy spots, where the sun, darting through a small opening of the dense foliage, illuminates a little space with sparkling brightness.

The poor and somewhat inaccurate figure of this insect in Cramer's work, is the only representation yet published. We have not had leisure to investigate its scientific relations, further than to ascertain its close affinity with *Marius*; of which group it appears on aberrant species.

THE LONDON MARINE TRANSACTIONS

(Continued from page 100)

THE LONDON MARINE TRANSACTIONS

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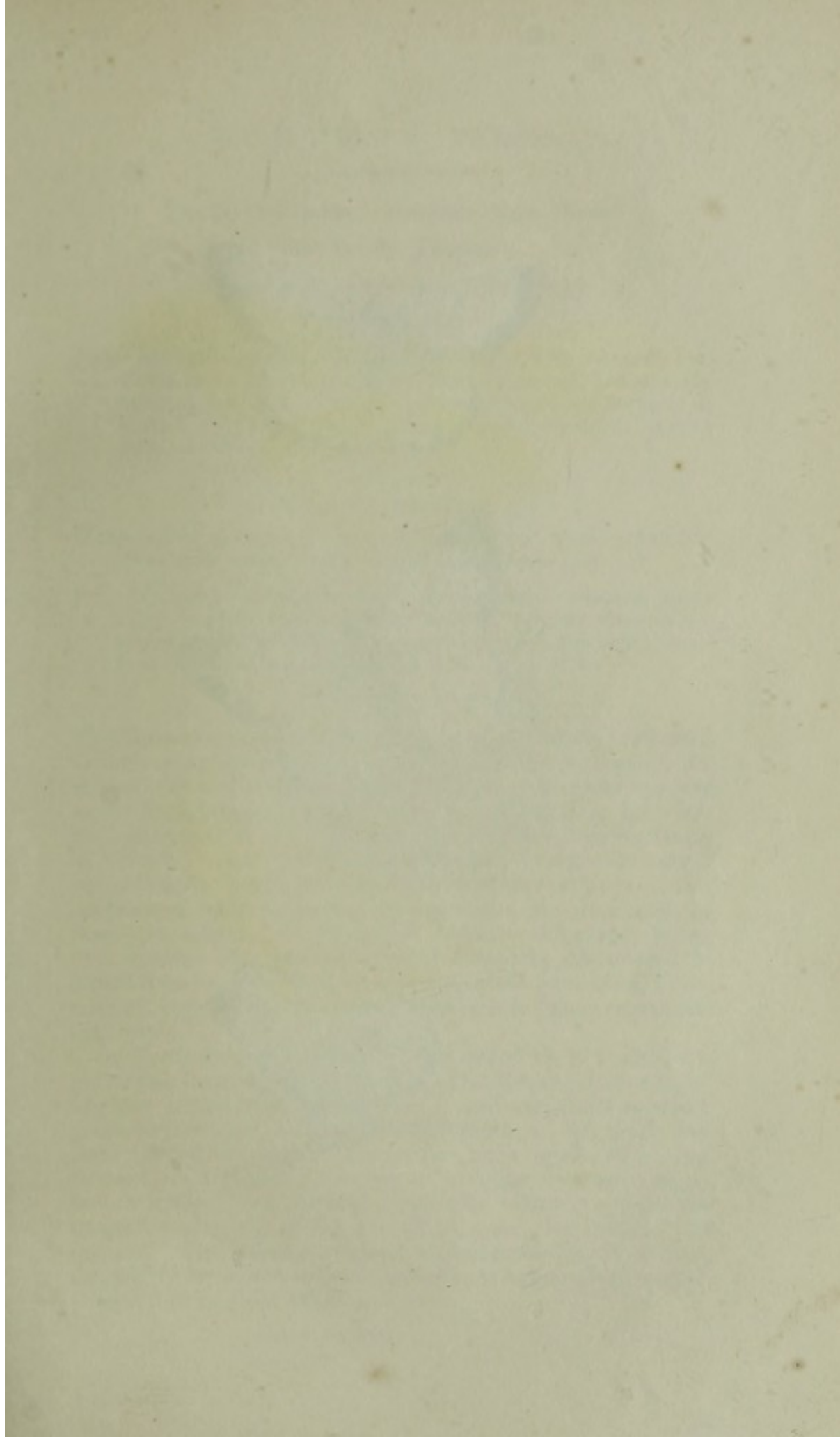
It is a well known fact that the marine industry is one of the most important and powerful in the world. It is the only industry that is not subject to the fluctuations of the market. It is the only industry that is not subject to the fluctuations of the market. It is the only industry that is not subject to the fluctuations of the market.

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EURYMUS *Phalodice*.

E U R Y M U S Philodice.

Family Papilionidæ. (Juliform Stirps. Horsf.)

Sub Family, Colianæ.

Sub-genus (?) Eurymus. *Nob. Horsf.*

CHARACTERS.

Palpi rather lengthened, clothed and fringed with unequal, dis-united hairs, the two last joints obliquely porrect, and scarcely touching the head. *Antennæ* slender, terminating abruptly in a thick cylindrical club. *Wings* simple, rounded, entire; destitute of concealed appendages.

SPECIFIC CHARACTER.

Wings yellow above; with a common border of black. *Anterior* above with a small, linear-oval, black, discoid spot.

Col. Alis integerrimis, rotundatis, flavis, limbo communi suprâ nigro: subtus anticis puncto ocellari, posticis sesquialtero argenteo; his sub-rufescentibus; anticarum limbo suprâ (fem.) flavo maculato. *Ency. Meth.* p. 100.

THE Butterflies constituting this group, are nearly restricted in their geographic range to the temperate regions of the old and the new world. Their principal metropolis appears to be in Europe; about twelve species having been described as natives of that continent. Of these, five are found in Britain; one of which, *E. Edusa*, has a very wide range; we have seen specimens from the mountains of Nepaul, and we possess others, collected by our friend Mr. Burchell, in Southern Africa. *C. Philodice*, hitherto unfigured, is the only species of a strictly typical character discovered in North America: we have several specimens from New York, where it appears not uncommon: the middle figure represents the female.

In illustrating this group, we feel called up to notice in a particular manner, the courtesy of Dr. Horsfield in adopting our manuscript name, after it had remained so many years unpublished, that the circumstance, on our part, had been totally forgotten. To us the mere credit of having pointed out a group, flattering as it might once have been, is now trifling: but the high principles which prompted the unequivocal thanks of Dr. Horsfield, must ever demand our respect. The passage, indeed, so honourable to its writer, singularly contrasts with the ambiguous acknowledgements, tendered to us from other quarter.

AMERICAN MEDICAL ASSOCIATION

CHICAGO, ILL., U.S.A.

Vol. 10, No. 1, January, 1917

Page 1

The following is a list of the names of the members of the American Medical Association who have been elected to the office of the President of the Association for the year 1917. The names are listed in alphabetical order.

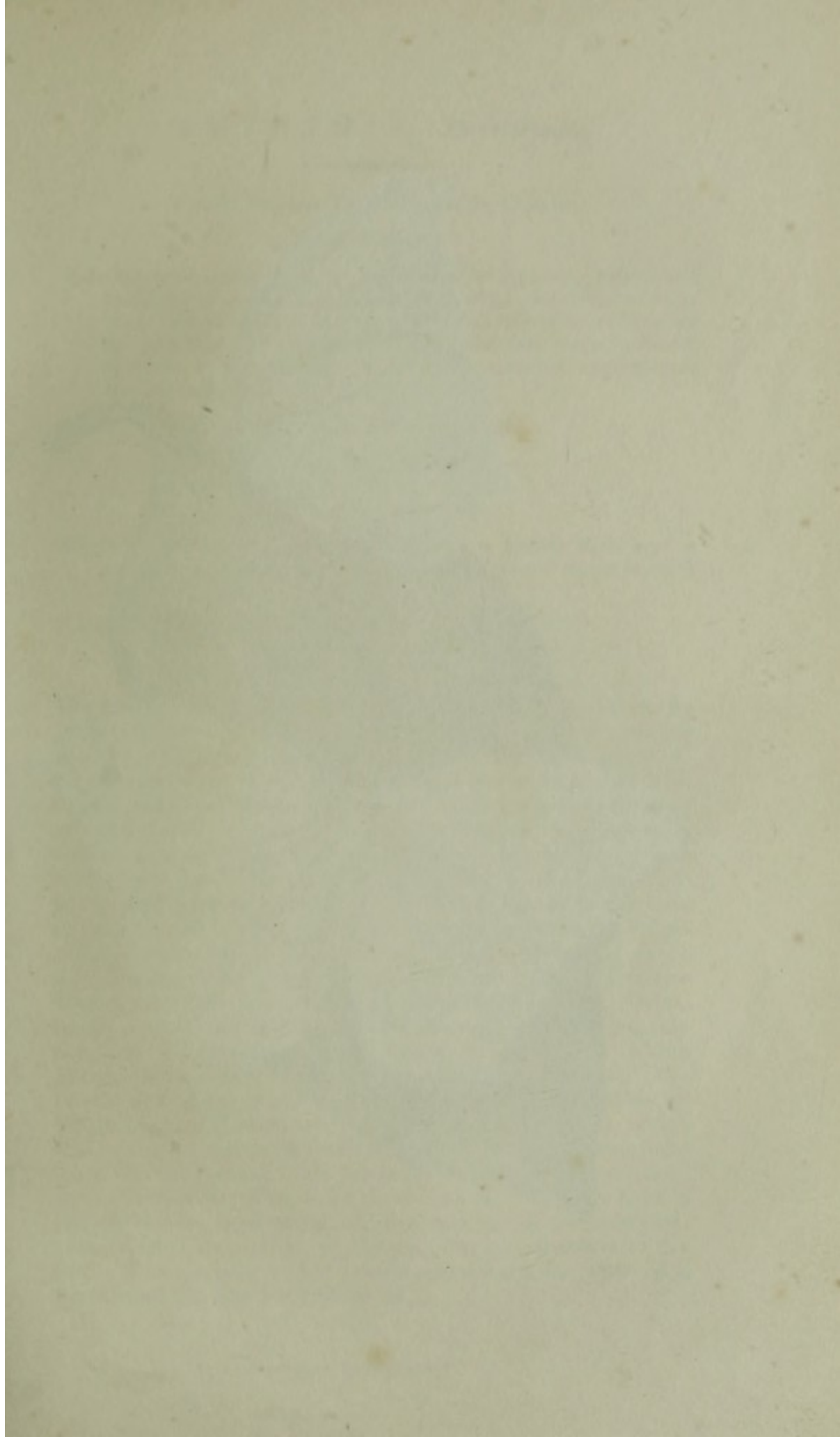
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Dr. J. C. Brainerd, Chicago, Ill.

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CYNTHIA *Swainsonia*.

AMYNTHIA Swainsonia.

Family Papilionidæ. Sub-family Colianæ.

CHARACTERS.

Antennæ graduating from the base to a lengthened, cylindrical truncated club; the terminal joint of which is naked and concave. *Head* smooth, destitute of a fascicle of hairs between the antennæ. *Palpi* as in *Colias*, the last joint inclining upwards. *Wings* angulated, with concealed appendages. *Feet* as in *Colias*. *Nob.*

Type. *Col. Merula*. Auct.

SPECIFIC CHARACTER.

Wings above greenish white, anterior with a yellow disk, and a quadrangular black dot, encircled with orange: wings beneath obscurely lineated with green.

Colias Swainsonia. Leach. M. S. S.

WE had the satisfaction of discovering this lovely Butterfly in the interior of Pernambuco, during our Brazilian researches in 1813. Although assiduously sought after, we never captured more than three specimens, and these were met with far distant from the coast: it must be either excessively rare, or very locally distributed. The colouring is peculiarly chaste and elegant; the ground is a pearly white, tinged with green, and relieved by clear yellow: in the female this latter colour is more diluted, and spreads nearly to the base of the anterior wings. This group appears to be the tropical representative of *Gonepteryx*; from which it is much more distinguished than *Eurymus* is from *Colias*. The two European types are called by British collectors, Brimstones, and Clouded-yellows. Dr. Horsfield has judiciously removed *P. Glaucippe* from *Pieris* to *Colias*, to which (although an aberrant species,) it manifestly belongs. We should not be surprised if that insect leads to *Amynthia* by means of *Amy. Leachiana* (Pl. 6. of our first series), which will be seen, from the description, to exhibit many deviations from its congener: this however is a mere supposition, for we have not yet analyzed these groups. Independent of the characters here sketched, *Gonepteryx* is distinctly separated from *Amynthia*, by the peculiar construction of the feet. The mistake of the printer, seen upon the plate, was discovered too late for correction.

CHAPTER

THEORY OF THE

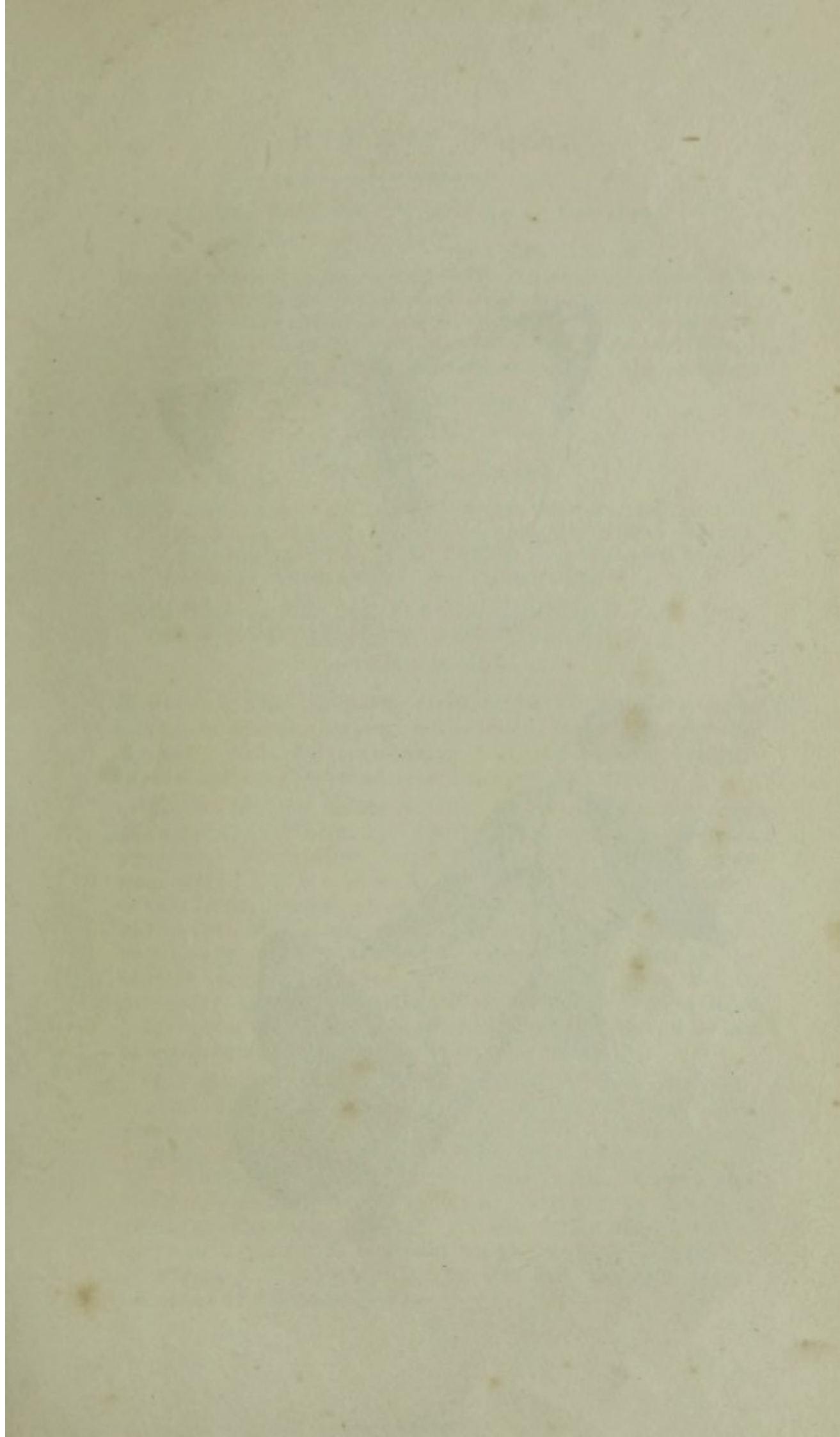
CHAPTER

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THEORY OF THE

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PIERIS *Nigra*.

PIERIS Nigrina.

PIERIS (*pars.*) Latr: Stev. PONTIA (*pars.*) Fab. Horsf.

GENERIC CHARACTER.

Antennæ with a spatulate, considerably compressed, obovate club.

Palpi hairy: the first joint with basal articulations, (Horsf. pl. 4. f. 10.) beyond which it is hardly longer than the second, or the third, which are each of equal length. *Anterior Wings* with the exterior margin manifestly shorter than the posterior.

Type. *Pieris Belisama*. Lat.

SPECIFIC CHARACTER.

Wings above white in one sex, grey in the other; anterior tip with black; beneath black, with a terminal band of yellow: posterior wings beneath black, varied with grey, and marked with an undulated, nearly central, border of crimson.

Pieris Nigrina. Fab. Sys. Ent. 475. Ent. Sys. 3. 1. 20. Ency. Meth. p. 149. Don. Ins. of New Holl. 19. f. 1.

ALTHOUGH this elegantly marked insect has long been known to Entomologists, we believe it has only once been figured. It is not uncommon in Australia, and being a typical species, we select it to illustrate this group.

The Butterflies called *Whites*, in the common language of Collectors, (*Pieris*, Lat.) are distinguished by their great simplicity of colouring, and a predominance of white upon their wings. It is a singular fact, that the various species of this family, among which are included the different white Butterflies of Europe; feed chiefly on such plants as are nourishing and salutary to the human body, such as the various sorts of cabbages, coleworts, turnips, &c., and in every foreign country where these white Butterflies have been found, plants of the same nutritious qualities, are sure to be discovered in the vicinity of their haunts.

The group to which we here restrict the name of *Pieris*, is confined, we believe, exclusively to the old world, and principally to intertropical latitudes. We have been much embarrassed, however, in applying this name correctly. Dr. Horsfield has placed many of our Indian *Pieris* under the genus *Pontia*, which group is restricted by Mr. Stephens to European insects. As this latter disposition is more in unison with our own views, we have adapted it; considering *P. Cratægi* to be the only aberrant representative of *Pieris* in Europe.

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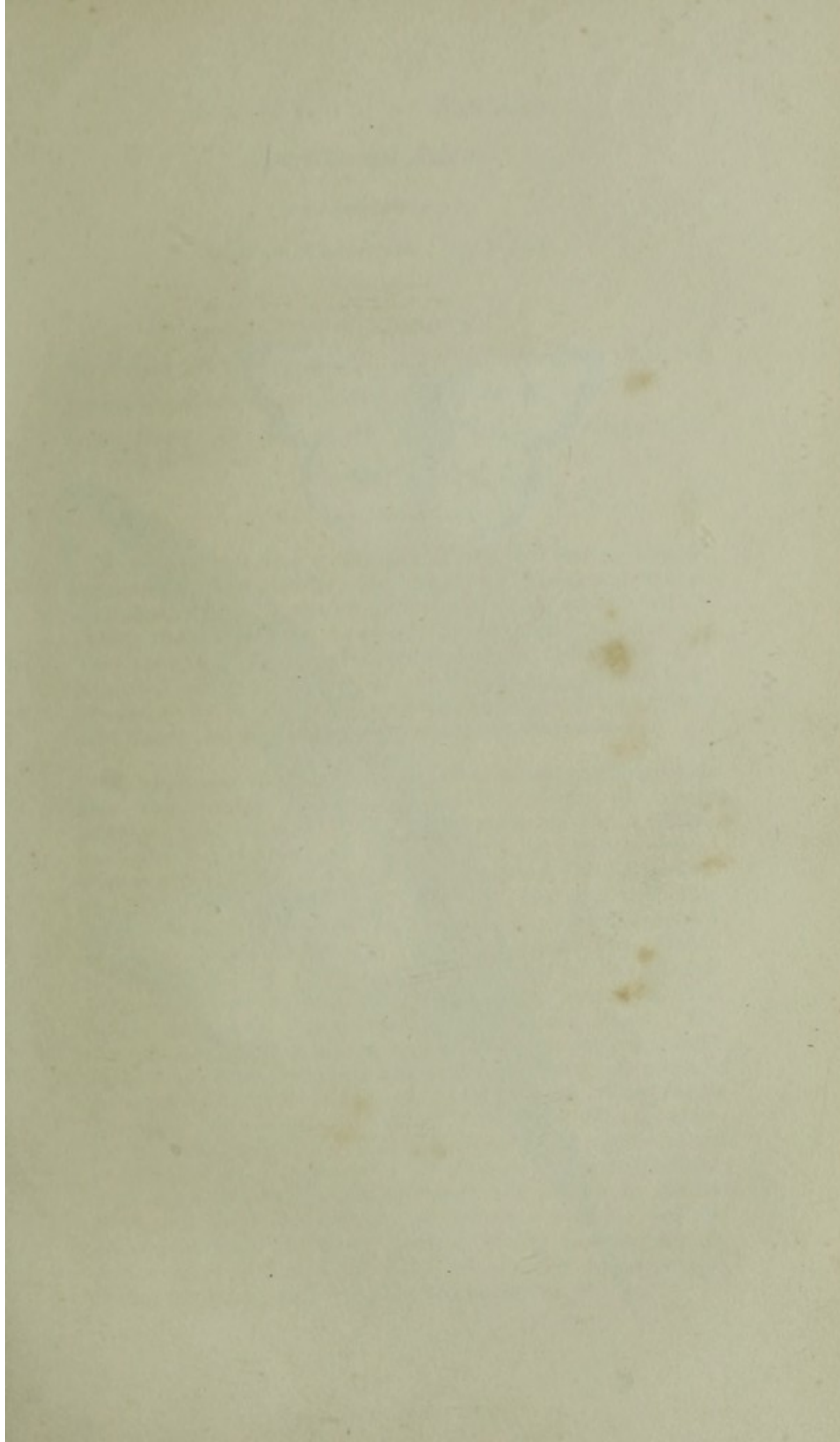
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EURYMUS *Eucropome.*

E U R Y M U S Europome.

The Clouded Sulphur.

GENERIC CHARACTER. See Pl. 60.

SPECIFIC CHARACTER.

See Stevens. *Ill. of Brit. Ent.* 1. p. 10. and Haw. *Lep. Brit.* 13.

Papilio Europome. Haworth *Lep. Brit.* p. 13. No. 12.

Colias Europome. Stev. *pl.* 1.* *fig.* 1. male. 2. 3. female. Syst. Cat. 5797.

In Mus. Nost.

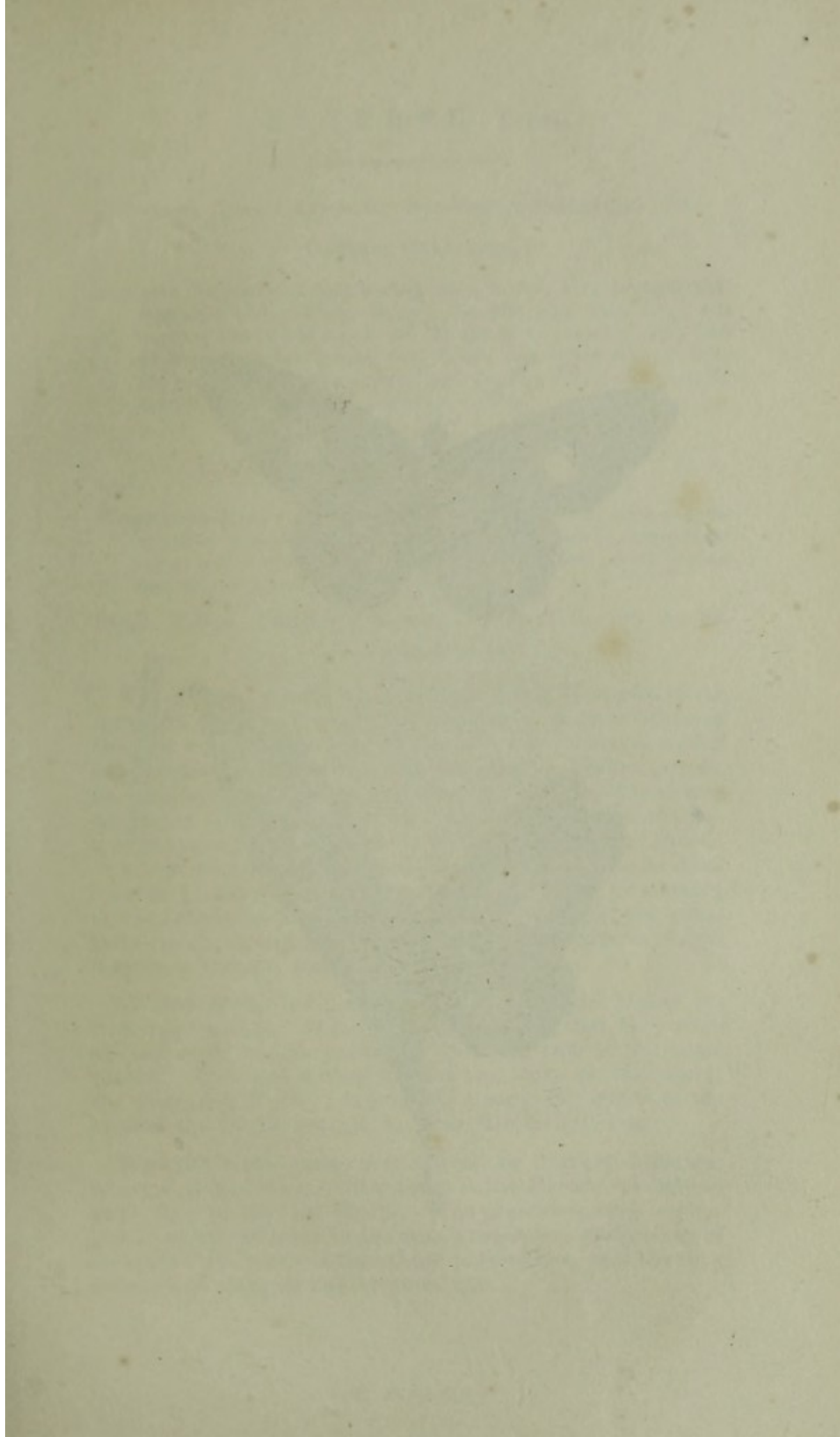
MUCH interest has recently been excited among British entomologists regarding this butterfly. Some are of opinion that it is not a native of Britain, while others, with a strong shew of reason, contend that it is truly indiginous. The specimens in the British collection formed by our lamented parent, and now in our possession, having been alluded to by both parties, we have been induced to represent them, and to throw some light upon their history.

So anxiously did our honored father preserve his cabinet, free from exotic specimens, that knowingly, he never admitted *one*, even as a temporary substitute for a native example. Yet living, in his early days, in constant intercourse with the famous Dutchess of Portland, Dr. Lightfoot, and Mr. Lewin, he received, from these sources, some few insects, which were placed in his cabinet, *under the assurance* that they were British. Among these are *Pap. Podalirius*, *Daplidice*, and the two specimens of the alleged *Europome* here figured: the latter being mistaken, and *intermixed*, with three examples of the true *Hyale*. On the other hand, it is incumbent upon us to say, that both these have been mended, before coming into our father's possession, by the heads and antennæ of *Gonepteryx Rhamni*! We must also state, that upon closely comparing them with a series of *E. Philodice*, we have failed to discover what appears to us a true specific distinction. The same unsuccess has attended our efforts to detach *Chrysotheme* from *Edusa*, of which latter we possess specimens from Germany, Genoa, Sicily, Greece, Africa, and several others unlabelled, all varying more or less from each other, and from British examples.

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EUTERPE *Toca*.

E U T E R P E Terea.

PAPILIO. (*pars.*) *Latrielle*. SUB-FAMILY PIERESINÆ. *Nob.*

GENERIC CHARACTER.

Antennæ lengthened, terminating in a broad, very compressed, spatulate club. *Palpi* hairy; the first joint very long, exceeding the united length of the two next: second joint half as long as the first; third very small, manifestly shorter than the second. *Anterior wings* long, papilioniform; the exterior margin longer than the posterior. *Nob.*

SPECIFIC CHARACTER.

Wings above black: anterior both above and below, with a trifid white or yellowish central spot: posterior with a four-parted rosey spot; and variegated beneath, at the base, with yellow and rosy stripes.

Papilio Terias. *Latrielle & Godart. En. Meth. 1. p. 38. No. 39.*

NATURE has so completely disguised this Butterfly in the form and colours of a genuine Papilio, as to have deceived the first entomologist now in Europe, and his most skilful and accurate coadjutor. In the *Ency. Methodique* we find this species recorded as a *Papilio*; whereas it perfectly agrees, in all the details of its structure, with the characters proposed in that valuable work for the genus *Pieris*. Whether nature has employed this beautiful device to indicate the group which next succeeds in her series, or whether she has intended it to point out a strong analogy, are questions which, in our present imperfect knowledge of Lepidopterous groups, cannot be answered.

Of this group we possess several new and highly interesting species. It is worthy of remark, that they were all collected in one particular locality, and at the same season. This was during a short residence at Mandioca, the plantation of Dr. Langsdorff, among the woods at the base of the Organ mountains, near Rio de Janeiro.

We believe this group is restricted to tropical America, where it probably represents the genuine *Pieris*, (as defined at pl. 69,) of the Old World. The present species is subject to much variation in the size, proportion, and colour of its spots: the white is sometimes pale yellow, and the rosy becomes of a deeper and brighter hue.



PELEUS.

1. *Ordine.* 2. *Ordine.*

PELEUS Æacus.

Family Hesperidæ.

GENERIC CHARACTER.

Antennæ not hooked, the club formed into a long, slender, fuciform arch. *Wings* with both surfaces alike, horizontally divaricated when at rest; posterior rounded, entire; broader from the base to the anal angle, than to the exterior margin.

Type. Hesp. Peleus. *Fab.*

SPECIFIC CHARACTER.

Wings deep brownish black; anterior with a redish transverse band, united to a spot of the same, and tipt with a sub-hyaline band of redish orange.

Hesp. Peleus. *Fab.* Cramer, pl. 284, f. F.

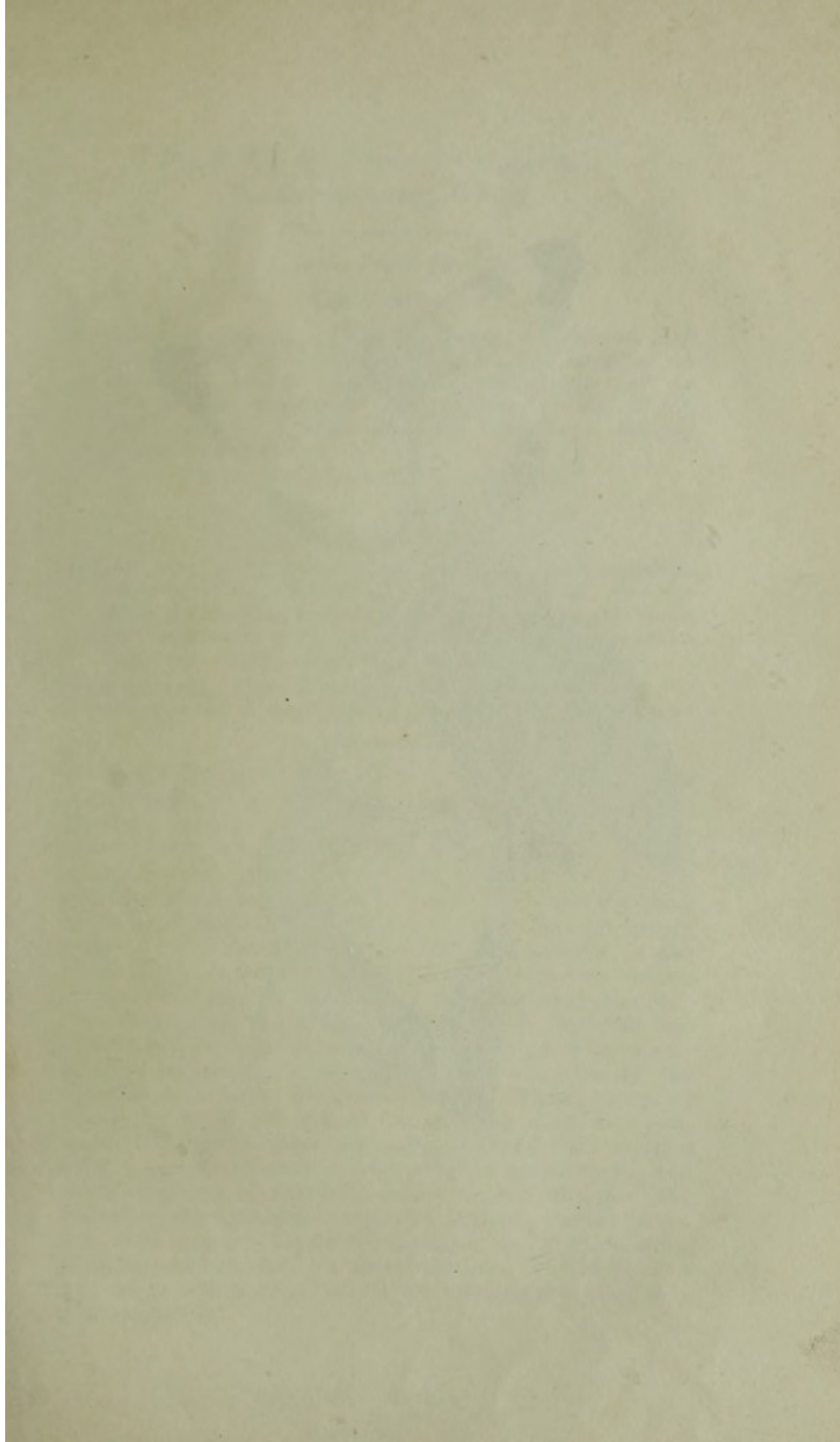
ENTOMOLOGISTS, from being acquainted only with the habits of the European species of this family, represent the *Hesperidæ* as resting with only the hinder wings elevated: This is altogether a mistake. Some groups, indeed, assume this position when basking in the sun, or taking food; but even these, when fairly at rest, erect their wings in the ordinary manner: a fact we have repeatedly witnessed. Not so, however, with the group we now illustrate: and which is peculiar to South America. These insects rest *with all the four wings expanded*; and hide themselves during the meridian heat, on the under side of broad leaves, in the deep forests. From never appearing exposed, this species long escaped our search, but having once discovered this singular part of its economy, we captured it in abundance. It probably feeds, like many of the *Sphingides*, or Hawk Moths, in the morning and evening, but its haunts were too far from our habitation, to allow of ascertaining this point.

PELEUS Gentius.

Anterior wings black, with three yellow bars, posterior yellow, with a simple black border.

Hesp. Gentius. *Fab.* Cramer, pl. 179, f. C.

Our specimens of this very rare insect were captured by Dr. Langsdorff, in the interior of Southern Brazil, the colours of the under surface of the wings are the same as those of the upper.





79.

PIERIS LIMNOBIA.

S. G. Meade.

PIERIS (*Melete*) Limnobia.
Yellow-underwing White.

Genus Pieris, Lat.

CHARACTERS.

Antennæ as in *Euterpe*. *Palpi* lengthened, the terminal joint linear, pointed, nearly naked, and longer than either of the two next. *Anterior wings* trigonal, the exterior and the posterior margins of equal length: *posterior wings* dilated. *Male* with the terminal abdominal valves large, abruptly attenuated, and hooked.

Type. Pieris Limnobia. Lat. & Godart.

SPECIFIC CHARACTER.

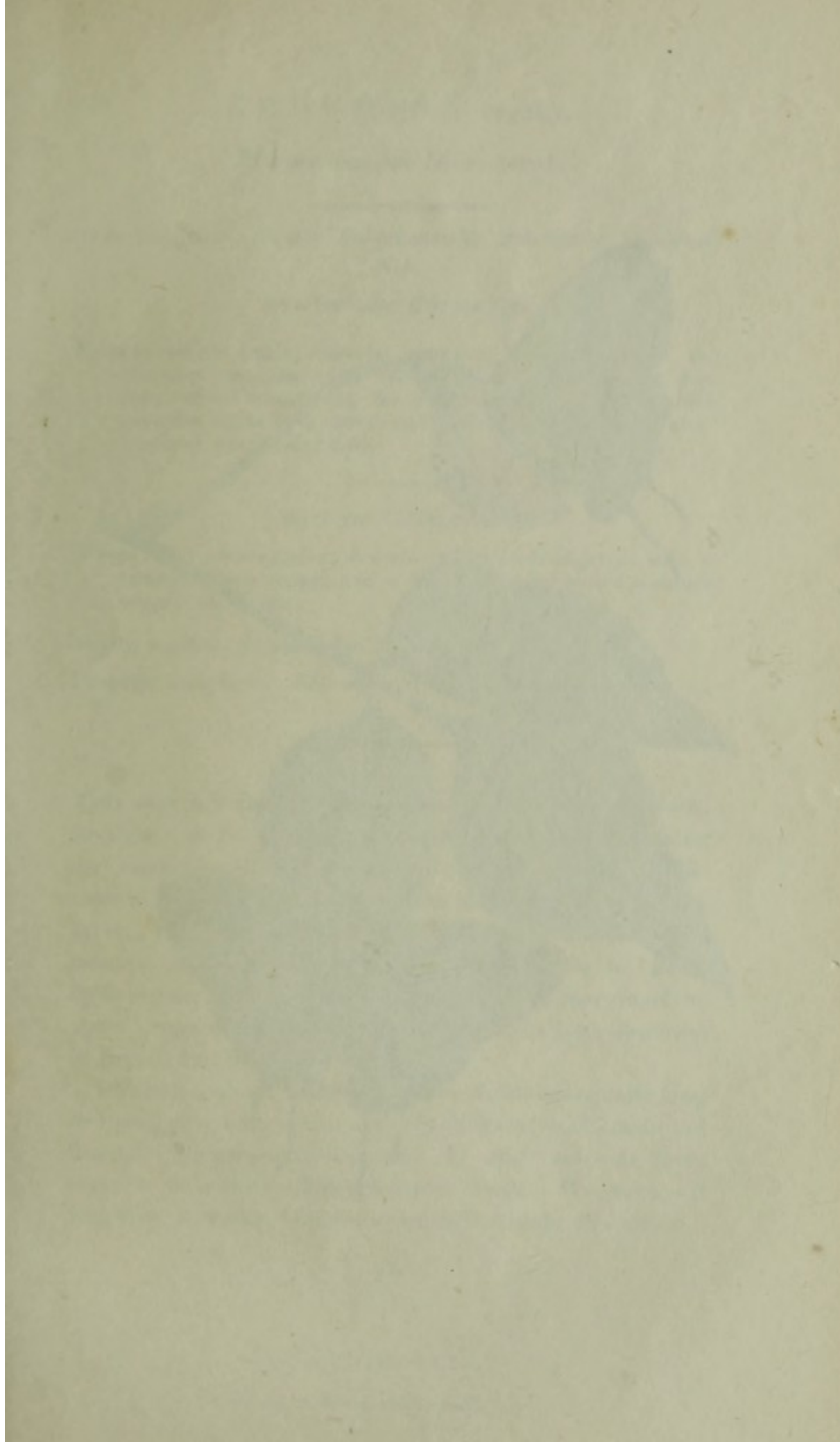
Anterior wings above yellowish white, with a black triangular exterior border, and a costal band in the female. *Posterior* above yellow, with an orange border, divided in the female, into round spots upon a black ground: under surface with a deep brown border, unspotted.

Pieris Limnobia. *Ency. Meth.* 1 p. 144. No. 93.

———Lycimnia? Cramer pl. 105. f. E. F. *Ency. Meth.* No. 92?

WE found this pretty Butterfly in profusion near the woods of Mandioca, at the foot of the Organ Mountains of Rio de Janeiro; when in company with our learned friend Professor Raddi, now prosecuting his researches in Egypt: it appears late in the season, and frequents the flowery openings of thick woods. The female is without the black costal band, and the margins of the lower wings are simply orange. The accurate description of *Limnoria* in the *Ency. Meth.* perfectly accords with our specimens; but we suspect the *Lycimnia* of Cramer is also the same species.

In illustrating the Lepidopterous insects, we shall first define all those variations in form, which appear to us sufficiently important; directing our chief attention to the external anatomy of the perfect insect. These groups or forms, we shall provisionally name: we shall next endeavour to detect their true affinities, and their relative value; abolishing such as may be found unnecessary, and confirming others which assume a higher station. We intend, in short, to proceed only by analysis, and we therefore wish that any incidental remarks, made by us in the interim, may be looked on with suspicion: or at least, with that doubt which must attend all opinions resulting only from synthesis.





ENDYMION *regalis*.

Maroon banded Hair streak.

ENDYMION regalis.

Maroon-banded Hair-streak.

Tribe Papiliones. Family, Polyommatidæ. Sub-family, Theclinae.
Nob.

SUB-GENERIC CHARACTER.

Palpi in one sex (male) scarcely projecting beyond the head, the last joint very minute; in the other (female) lengthened, porrect, curved downwards, the last joint as long as that which precedes it; in both obtuse and covered with close-set scales: posterior wings four tailed.

SPECIFIC CHARACTER.

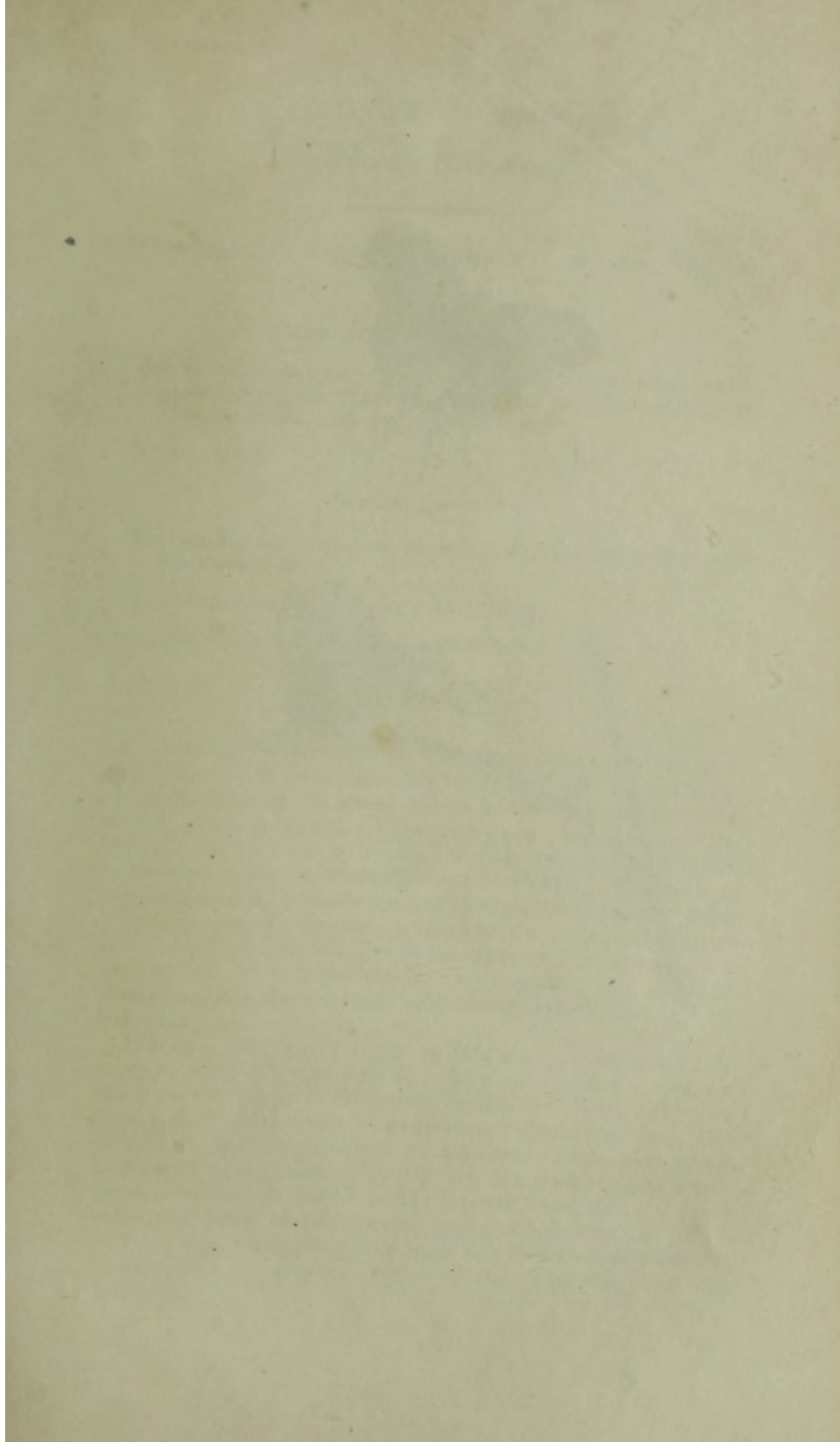
Wings above shining blue: beneath golden emerald green, with a common black stripe, and a broad red band on the posterior wings; ocelli none.

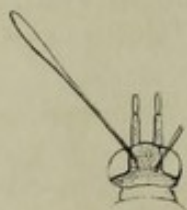
Papilio regalis. Cramer. *Ins. Pl.* 72. f. E. F.

Hesperia Endymion. Fab. *Ent. Sys.* 3. 1. 268.

THIS superb butterfly, both in size and brilliancy of colour, may vie with the Emerald Hair-streak, and both are among the most beautiful of their family yet discovered. The general colour of the under surface is of the richest golden green; the under wings being crossed by a broad bar of deep maroon, softened into pearly white. The female is known by being the largest, and by having the black margin of the upper wings much broader. Our specimens were captured in Brazil. Lat 8. 12. S.

The palpi, which in the sub-genus *Arcas* are equally long and perfect in both sexes, are very different in the male and female of the present sub-genus. In other respects there seems to be a close affinity between them. We have not had time, however, to enter upon their minute dissection.





ARCAS *Imperialis*.

A R C A S imperialis.

Emerald Hair-streak.

Tribe, Papiliones. Family, Polyommatae. Sub-family, Theclanæ.
Nob.

SUB-GENERIC CHARACTER.

Palpi, in both sexes, very long, thick, porrect, twice as long as the head, curved downwards, all the joints entirely covered with close-set scales, posterior wings six-tailed.

SPECIFIC CHARACTER.

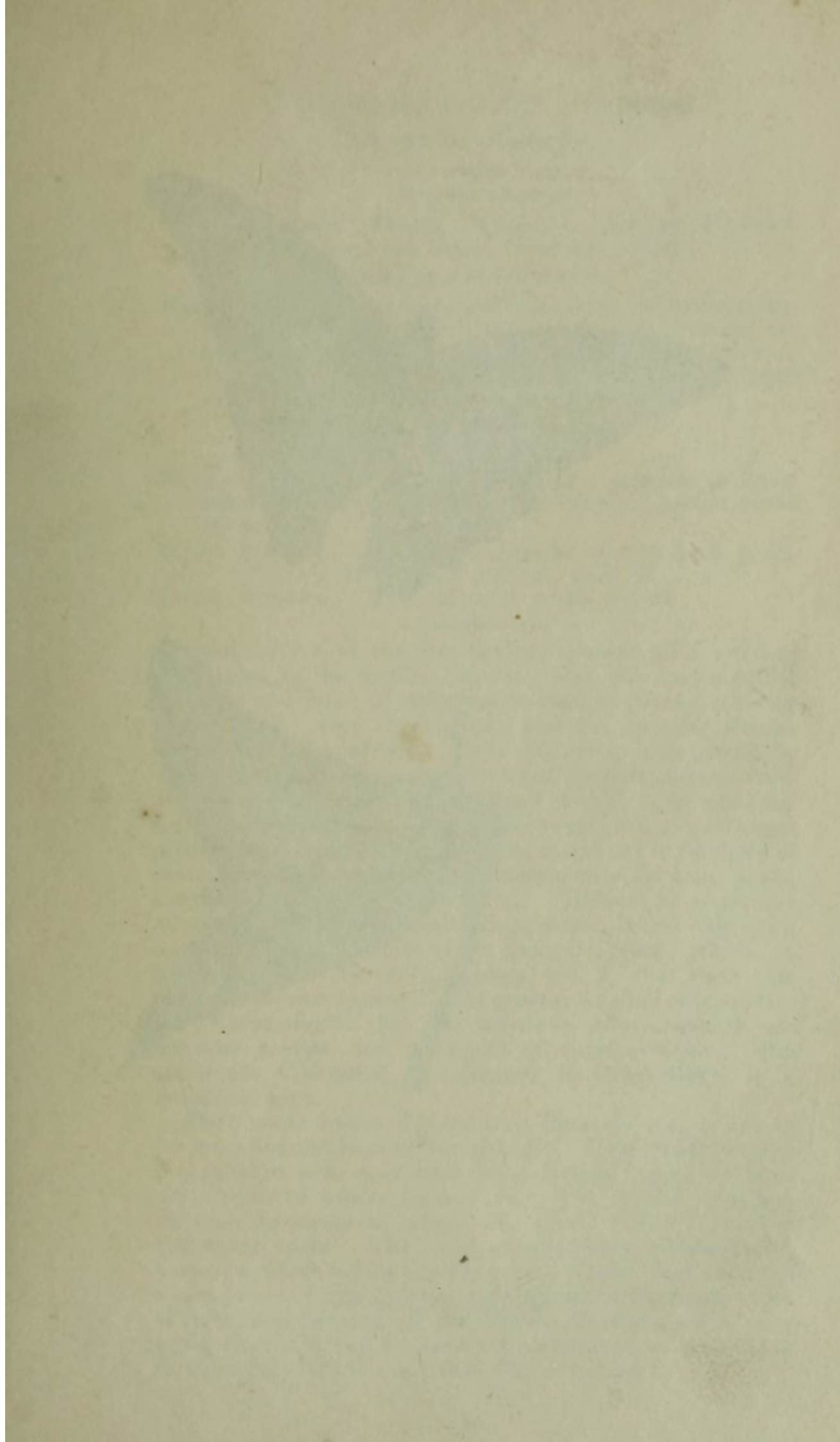
Above shining blue: beneath emerald-green, marked with minute black wavy lines.

Papilio imperialis. Cramer, *Pl.* 75. f. E. F.

Hesperia Venus. *Fab. Ent. Sys.* 3. 1. 268.

It is impossible to depicture with correctness, the resplendent blue which ornaments the upper surface, or the vivid emerald green on the under wings, of this rare and splendid insect. It is possessed by few collectors; nor did we capture more than three specimens, during two years devoted to the entomology and ornithology of Brazil. The male is distinguished by a black central spot on the anterior wings. The very remarkable prolongation of the palpi, which are alike in both sexes, induces us to consider this insect as a type of form, or in other words, a sub-genus: but we are at present unprepared to state any thing satisfactory on its true affinities.

We have thought it right in this and other instances, to retain the original specific name of Cramer; and we shall do the same in all instances where it will not produce a discordant union of generic and specific names. On this head, as the principle of Linnæus, from the great number of new genera since defined, can no longer be acted upon, we think that specific appellations, derived from some character of the insect, are much better, in every respect, than attempting to render the nomenclature of the Lepidoptera a correct index to the mythology of the Ancients.





CHLORISSES *Sarpedon*

CHLORISSES Sarpedon, *Sarpedon Butterfly.*

NATURAL GROUPS.

Tribe, Papiliones. Family, Papilionidæ. Sub-fam. Papilionæ.
Genus—. Sub-Genus, Chlorisses, Nobis.

SUB-GENERIC CHARACTER.

Wings, black, banded or variegated with green : the posterior narrowed, with obsolete acute tails ; *Head*, thick, sessile, the front very hairy ; *Antennæ*, long, the club spatulate, and concave beneath ; *Posterior feet*, with the first joint of the tarsus as long as the tibiæ.

SPECIFIC CHARACTER.

Wings black, with a common green band : posterior obsoletely tailed : beneath, marked with a red and black lunated spot at the base.

Papilio Sarpedon. Linn. Fab. Entom. Syst. 3. p. 1. p. 14.
No. 41. Cramer. Pl. 122. f. D. E.

Papilio Sarpedon. Ency. Meth. 9. p. 46. No. 62.

ENTOMOLOGISTS of the last century classed all day-flying Butterflies in the Genus *Papilio*. But this denomination has been restricted, of late years, to such as possess six long perfect legs ; very short palpi, and the anterior shanks spined near the middle. Now this group is so peculiarly distinct, and comprises within itself such numerous variations of form, that we have always viewed it as pre-eminently calculated to put to the most severe test any arrangement, the principles of which are conceived to be those of Nature. The *Papilionæ* have consequently, for many years, engaged much of our attention. Baffled in numerous attempts to understand their arrangement, it was only upon applying those principles of the natural system, which we have detailed in *Northern Zoology*, vol. 2, that their true affinities became apparent. At present we shall only apprise the Entomologist that the divisions above named are *circular groups*, and the result of strict analysis. The sub-genus *Chlorisses*, in reference to Ornithology, is a scansorial type.

The present Insect, figured from the male sex, is one of the most beautiful butterflies of India. General Hardwicke presented us with specimens from Nepaul ; and we have since received others from Java. The typical species is *Papilio Agamemnon*, where the green colour is broken into round spots. The most extraordinary circumstance, however, which belongs to the group, is this ; that although a sub-genus, it yet contains within itself *subordinate* types of form, representing all the higher divisions. The only ornithological group we have yet ascertained as possessing this property, is the sub-genus *Parus* (proper).

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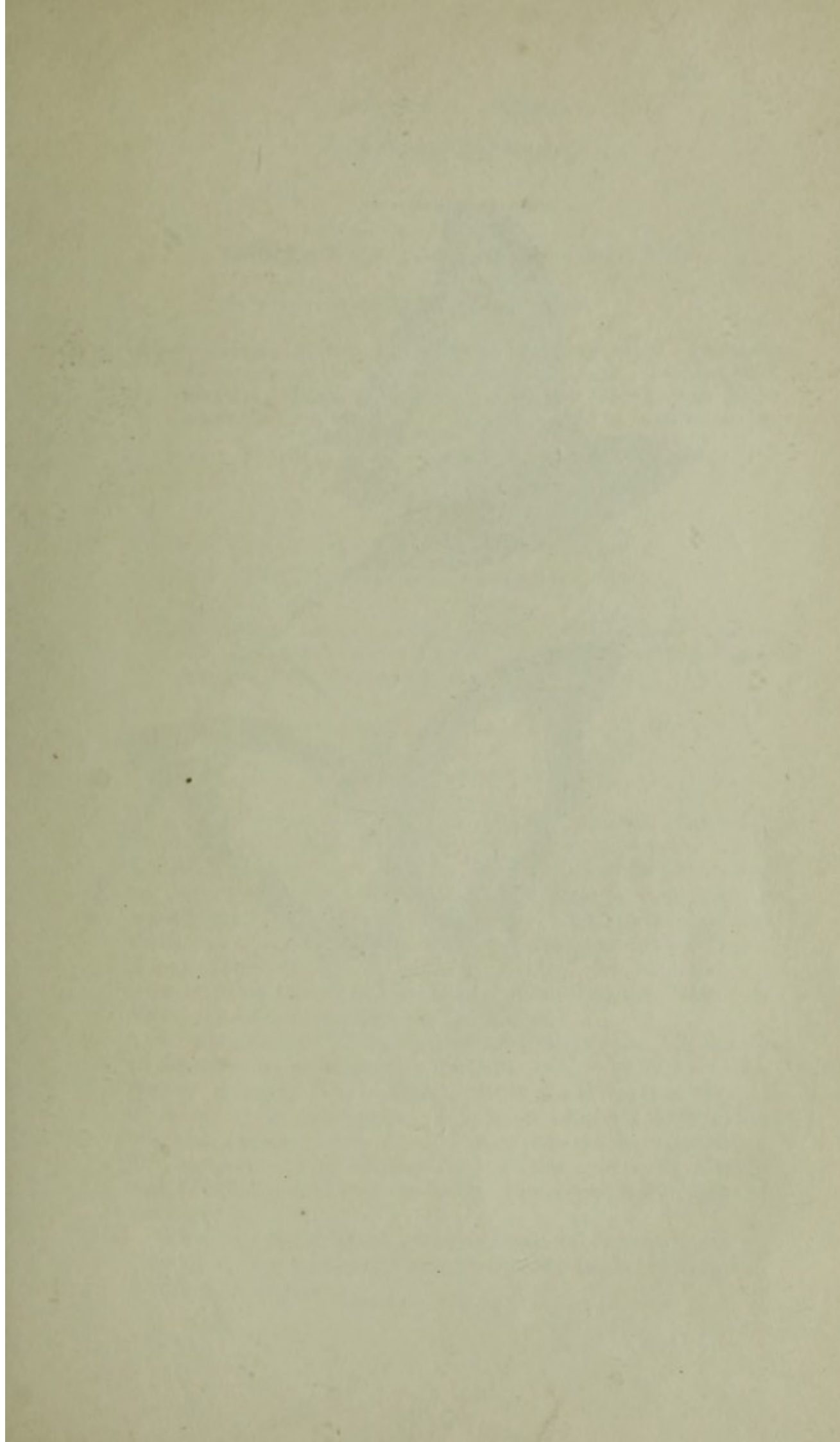
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JASIA *Althama*.

J A S I A Athama,
Athama Butterfly.

Tribe, Papiliones. Family, Nymphalidæ. *Nobis.*

SUB-GENERIC CHARACTER.

Lower wings, acutely bi-caudate; *Antennæ*, short, gradually thickening into a lengthened, cylindrical club, the tip nearly truncate; *Palpi*, projecting, and longer above, than is the head; their tips acute; their joints concealed by compact scales.

Type, Papilio Jasius. *Auct.*

SPECIFIC CHARACTER.

Wings above blackish, with a broad, common band, and an anterior spot of straw colour; beneath, having the band greenish, and margined with chesnut.

Papilio Athamas. *Cramer*, Pl. 89. f. C. D.

WE can communicate but little on this elegant Butterfly, of which our figures represent the female: the other sex is known by having the straw coloured band much narrower; on the under surface this colour is prismatic; changing, in some lights, to a delicate pea green. The great size and thickness of the thorax, intimate a powerful and rapid flight. The group is Oriental; but one species, the beautiful and rare *Pap. Jasius*. Lin. we have captured in the Island of Sicily, the most southern part of Europe.

As we have not yet completed the analysis of this family of Butterflies, we know not the rank or true affinities of the present group. It is evidently either one of the lowest types of form, or a sub-genus. We have received both sexes of these insects from Java, where the species appears to be common. The resemblance of this group, to *Rhetus* and *Marius*, would seem to indicate points of strong natural analogy.

We adopt the original specific name of Cramer: for we cannot, at this moment, trace the species in the voluminous works of Fabricius.

Proceedings of the

Academy of Sciences

Volume 10, No. 1, 1901

January 1, 1901

Meeting of the

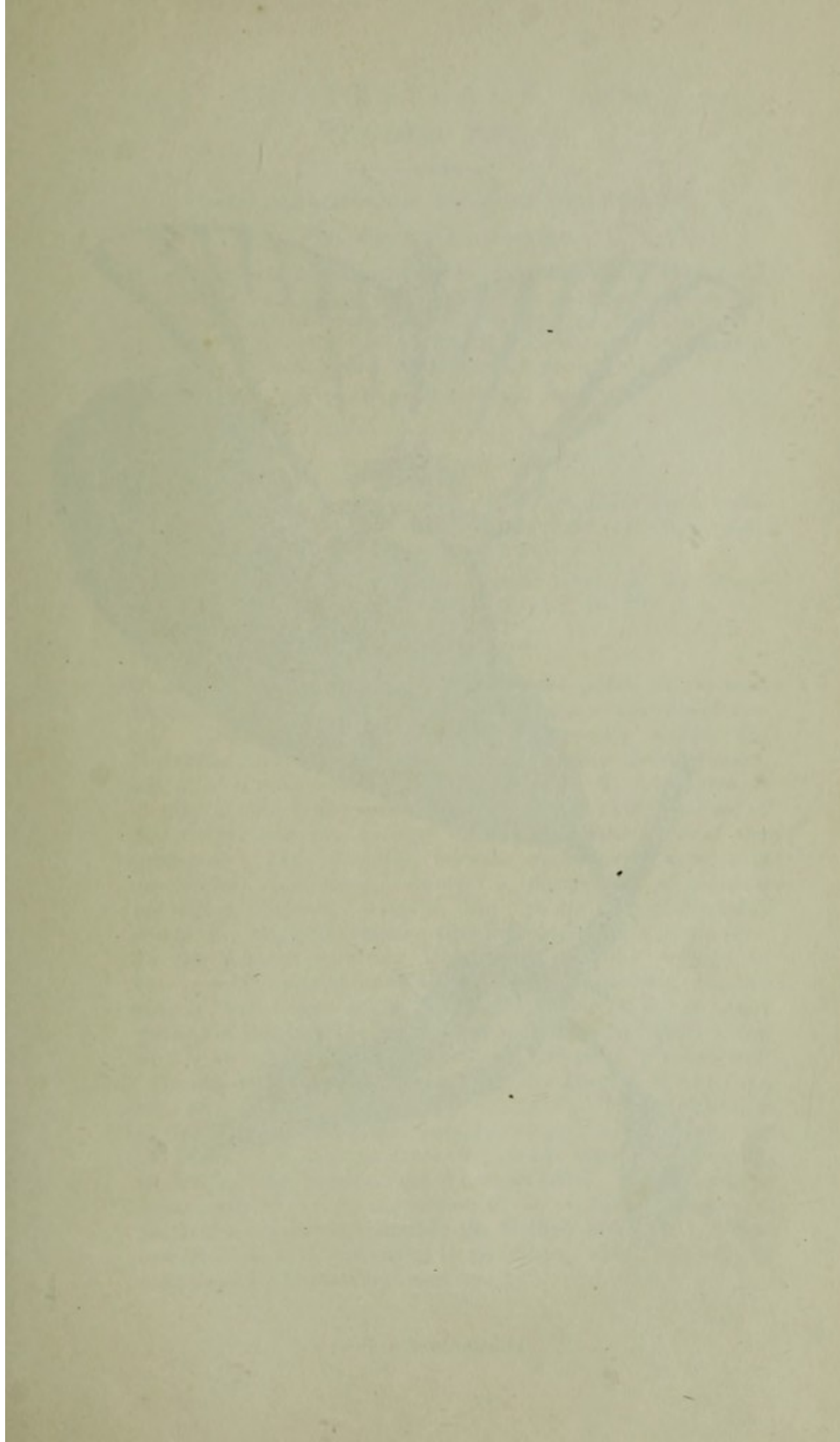
Academy of Sciences

January 1, 1901

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PROTESILAUS Leilus,
Protesilaus Butterfly.

Genus Amphrisius, Sw. Sub-genus Protesilaus, Sw.

SUB-GENERIC CHARACTERS.

Wings trigonal, acute, yellow with black transverse bands; the inferior lengthened, narrowed, with two long acute tails; antennæ short, the club thick, slightly compressed, but solid, and convex all round; front very hairy; *Larva* covered with sharp spines. *Pupa* braced, but suspended downwards.

Type, Pap. Protesilaus. Auct.

SPECIFIC CHARACTER.

Wings straw-colour; the superior with four, short, black, costal bands towards the base, and two towards the exterior margin; the latter uniting at the posterior angle.

Pap. Protesilaus. Lin. Fab. Ent. Sys. 3. pl. p. 23. Ency. Meth. p. 50. Merian Sur. pl. 43. Cramer. pl. 202. f. a. b.

FROM the resemblance which this insect bears to the rare British species, named by collectors the scarce Swallow-tail, (*Papilio Podalirius*,) it is generally called the Brazilian Swallow-tail. We advert to this circumstance, trivial as it may sound to scientific ears, first because it is one of the many proofs in which the nomenclature of the vulgar conveys greater information than that of the professor: and secondly, because these very names, in numberless instances, imply a perception of natural analogies, which, without the labour of philosophic research, suggest themselves to unscientific observers. In the present instance, these facts may be verified in the most unquestionable manner. According to our views, *Protesilaus* not only represents one of the primary groups of the Lepidoptera, but also typifies the Fissirostral birds, of which the swallows are the most pre-eminent.

Madam Merian's valuable work on the Insects of Surinam, has furnished us with a figure of the larva; which, unlike that of the European Swallow-tails, is covered with spines: the chrysalis also departs from the usual type of the family, in having the head directed downwards. These facts we have verified by an inspection of the original drawings, of M. Merian, now deposited in the British Museum. These are all important variations in structure, which can only be explained by the natural system.

PROTESTANT

Journal of the

General Assembly of the Protestant Church

of the State of New York

1850

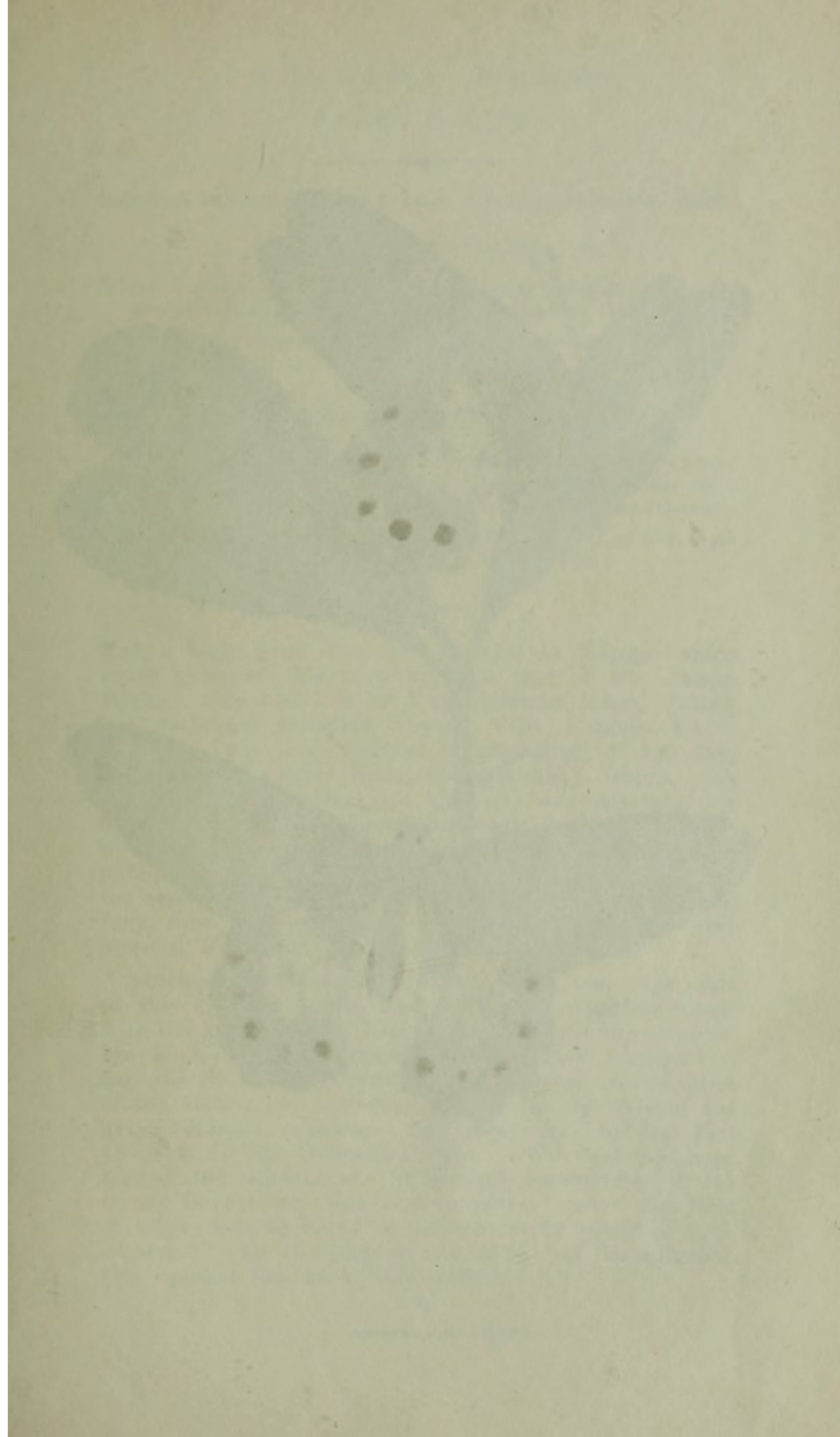
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24

CRESSIDA *Heliconides*.

CRESSIDA Heliconides,

Cressida Butterfly.

Sub-Fam. Papilionæ. Genus Papilio. Sub-Genus Cressida. *Nobis.*

SUB-GENERIC CHARACTER.

Wings diaphanous; posterior perpendicularly elongated, obtusely dentated or scolloped. Antenna stout, the club very thick.

Types, *Cressida* Heliconides and Harmonides. *Sw.*

SPECIFIC CHARACTER.

Anterior wings diaphanous, with the base, and two opaque, costal transverse spots, black; posterior black, with a central white space, and a marginal row of crimson spots, brightest beneath.

Papilio Cressida, Fab. Ent Sys. 3. 1. p. 20. Don. Ill. of Ent. 3. pl. 12. f. 2. Ency. Meth. p. 76. No. 145.

For a long time, the only museum in Europe which could boast of this butterfly, was that of Sir Joseph Banks; who found it in Van Deimans Land, during his celebrated scientific voyage with Captain Cook. Fabricius, the most eminent entomologist of that day, described the species from this specimen: which, with the whole of the Banksian Cabinet, was presented by its learned and munificent possessor to the Linnæan Society of London, where it still exists. The only published figure is that of Donovans, which is much too small, and is otherwise faulty. The species is still very rare in collections; our own, a fine pair, were received from Van Diemans Land.

Although unacquainted with the larva, and pupa state of this species, nature has stamped the perfect insect with the image of that group she intends it to represent. Its long, narrow, anterior wings, almost transparent, immediately reminds even the unpractised entomologist of the Heliconian butterflies; while the analysis of the genus *Papilio*, confirms this idea, by shewing that *Cressida* is the Heliconian type. We scarcely need remind the student of the natural system that if our theory be correct, this representation, under one form or other, will be found to pervade every group of *Lepidoptera*. In all such as we have yet investigated, this opinion has been fully verified.

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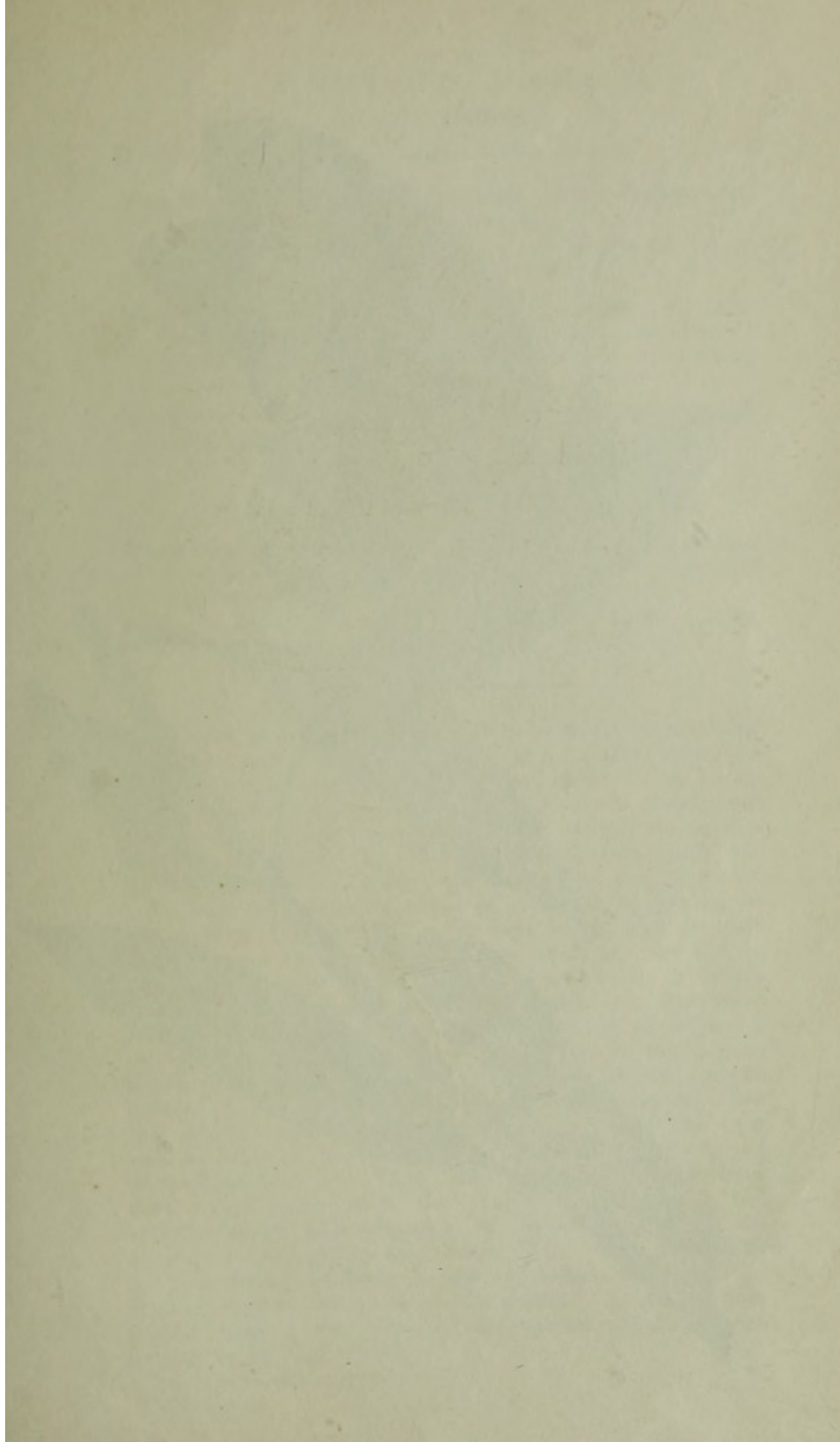
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PAPILIO *Memnon.*

PAPILIO Memnon,
Memnon Butterfly.

Fam. Papilionidæ. Sub-Fam. Papilionæ. Genus Papilio.—Sw.
(Typical form or Sub-genus.)

SUB-GENERIC CHARACTERS.

Wings without tails; the anterior horizontally lengthened, entire; the posterior margin concave; posterior wings perpendicularly lengthened, the margin rounded and scalloped; antennæ long. Larva smooth; Pupæ braced in an erect position.

SUB-TYPES OF FORM. 1. *Typical*, Memnon. 2. *Sub-typical*, Erectheus. 3. *Aberrant*, Pammon, Drusius? Codrus.

SPECIFIC CHARACTER.

Wings black, rayed with blue-grey; inferior wings beneath with two rows of marginal black spots on a pale ground, and four red spots at the base.

Papilio Memnon, Linn. *Auct. Ency. Meth.* 1. p. 29. No. 10.
Cramer, *pl.* 91. *f.* c.

ALTHOUGH of sombre colours, this butterfly is imposing in its size, and highly interesting. It is, in fact, that form which is *pre-eminently typical* of the whole of the Latriellian *Papilionidæ*. It seems to be common throughout India and particularly so in Java, from whence we possess several specimens. Dr. Horsfield's elaborate work has furnished us with figures of the caterpillar and chrysalis.

In now first defining some of the natural groups of the modern Genus *Papilio*, it may be as well to state that we give the results of minute analysis, the details of which we hope to lay before the public on a future occasion. In regard to the nomenclature, we have adopted the following principles, suggested to us by a scientific friend of no ordinary authority, as tending to facilitate recollection, without altering well known specific names. Each genus or sub-genus will be named after that species which is its peculiar type; and the new specific name of this species will imply one of its supposed natural analogies. Thus the sub-genus *Protesilaus*, derives its name from the typical species, while the specific name, now proposed of *Leilus*, points out the analogy of the group to *Urania* Fab. The sub-genus we now define, as being in our estimation, *pre-eminently typical*, retains the name of the genus. It seems also a geographic group, since all the species yet discovered belong to the old world.

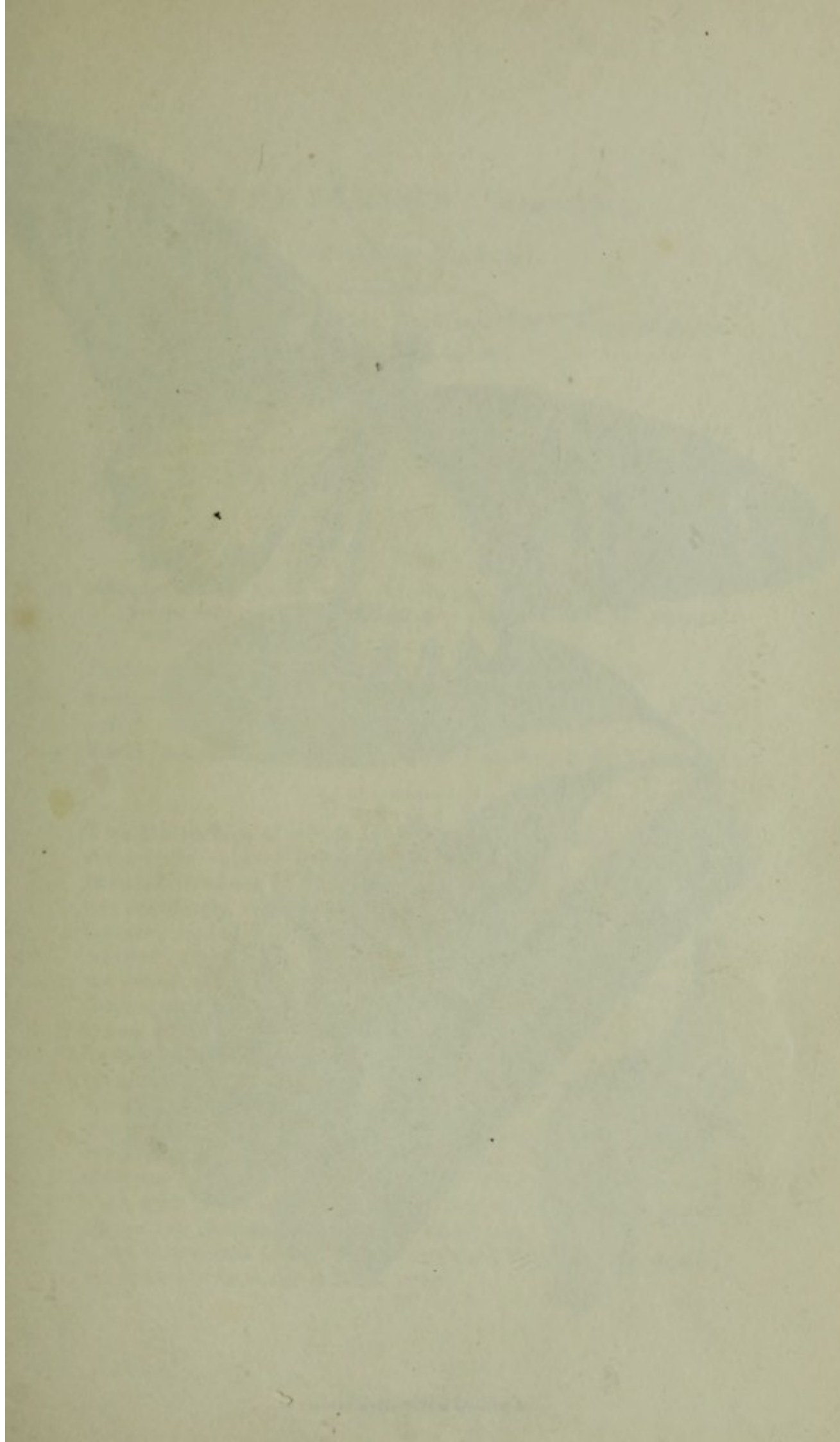
REPORT

of the

The following is a summary of the results of the experiments conducted during the past year. The experiments were designed to determine the effect of various factors on the growth of the plant. The factors studied were light, temperature, and moisture. The results showed that light had a significant effect on the growth of the plant, while temperature and moisture had a less significant effect. The growth of the plant was measured in terms of height and weight. The results of the experiments are presented in the following table.

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AMPHRISIUS Nymphalides,

Amphriscus Butterfly.

Family Papilionidæ. Sub-Fam. Papilionæ. Genus. Amphriscus. Sw.
(Typical Sub-Genus).

SUB-GENERIC CHARACTERS.

Wings without tails, the anterior externally dentated, the posterior short and rounded, the margin scolloped; Antennæ long. *Larva* covered with spine-like tubercles; *Pupa* braced in an inverted position.

SPECIFIC CHARACTER.

Anterior wings black, with longitudinal paler rays; posterior wings yellow, with a black serrated border, and an internal row of black spots.

Papilio Amphriscus. Godart. Ency. Meth. 1. p. 27, No. 7.

Papilio Heliacaon. Fab. Ent. Sys. 3. 1. p. 19. Don. Ind. Ins. pl. 19. f. 1.

Papilio Amphriscus.—Horsf. Descrip. Cat. Part 1. pl. 4. f. 13.

THE Butterflies of which we consider the species now figured as the typical example, constitute one of the great natural divisions of the modern genus *Papilio*; and they are peculiarly distinguished in all their three stages of existence, namely in the caterpillar, the pupa, and in the winged state. Dr. Horsfield has enabled us to illustrate the two former, and we add a figure of the perfect butterfly from specimens in our own cabinet, collected in Java. It seems subject to much variation in point of colour, but we have strong suspicions that some of the varieties are distinct species. The richness of the black resembles Genoa velvet, while that of the yellow may be compared to glossy satin. All the larger species of the group are Oriental, but we suspect America is not without typical examples, although they are of a much smaller size. The species however, even with these additions, are so few, that the sub-types of the group cannot be accurately made out.

As this seems to be the pre-eminent type of the genus, we preserve to it the generic name.

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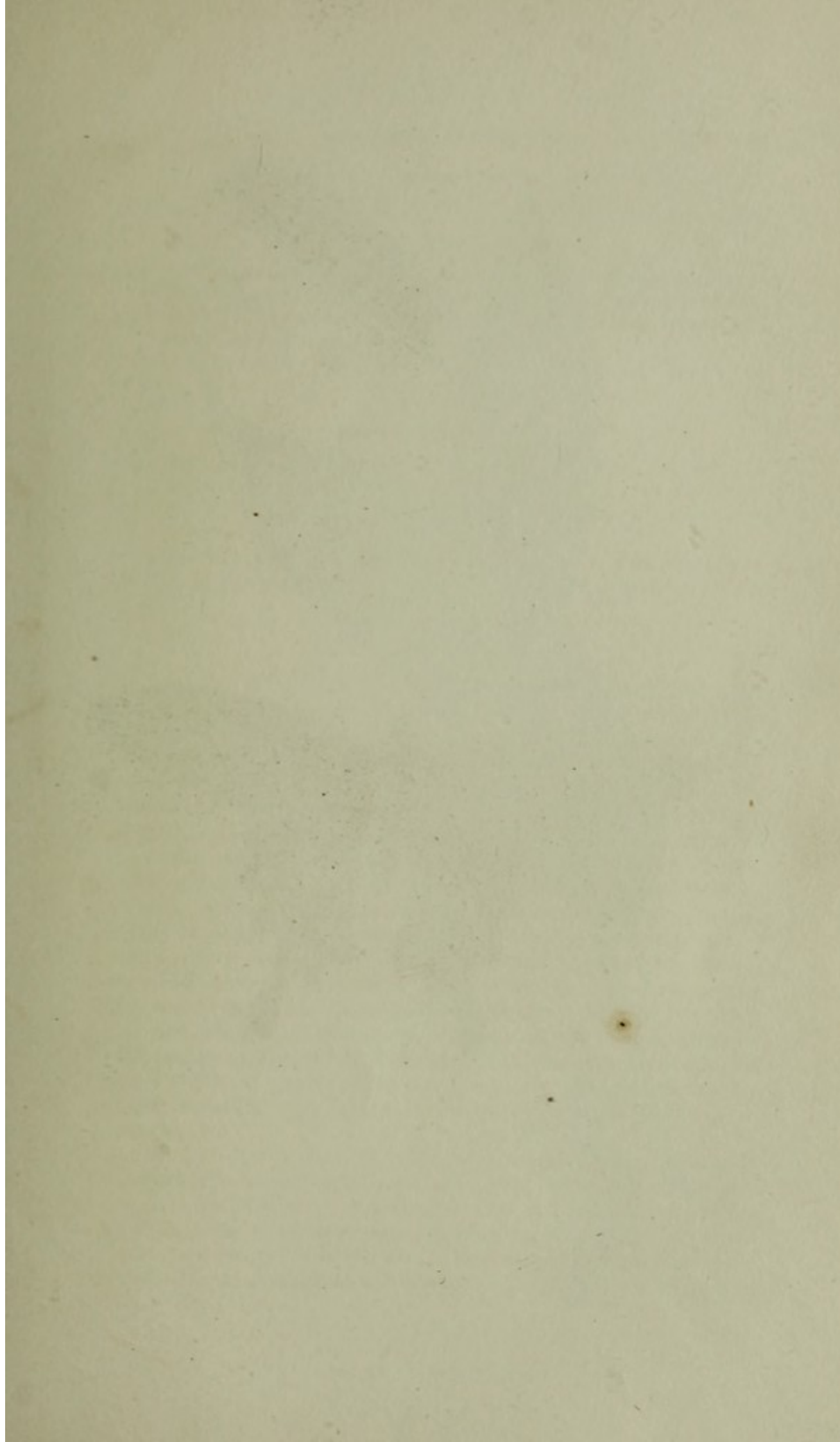
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POLYDORUS *Thoas*.

P O L Y D O R U S Thoas,
Polydorus Butterfly.

Sub-family Papilionæ. Genus Amphrisius. Sub-genus Polydorus. Sw.

SUB-GENERIC CHARACTER.

Anterior wings horizontally narrow and obtuse, posterior perpendicularly lengthened, and furnished with prominent spatulate tails; *Larva* covered with fleshy tubercles; *Pupa* braced and suspended, but with the head downwards.

Types, Pap. Polydorus. Polystes. Romulus. &c. *Auct.*

SPECIFIC CHARACTER.

Anterior wings brownish black, with darker stripes between the nerves; posterior, black with a central five-parted spot of white; lunules round the margin, obscure above, bright crimson beneath.

Papilio Polydorus Linn. Cramer. Pl. 128. f. a. b. Fab. Ent. Syst. 3. 1. p. 9. Ency. Meth. p. 72. No. 130. Horsf. Cat. pl. 3. f. 17. 17. a. (*larva and pupa*).

AMONG the most remarkable of those laws which belong to the natural system, is that which assigns to every great division of our globe its peculiar races of animals: and these in numerous instances, are so marked, that a naturalist would no more expect to find such genera inhabiting a different continent, than a Physiologist would hope to discover a race of Hottentots among the Highlands of Scotland. It is under the tropical latitudes of the old world (and chiefly those of Asia), that nature has placed the group of butterflies which we now, for the first time, characterize. Distinguished, in the most beautiful manner, by their larva and pupa, they shew, even in the external appearance of the perfect insect, an unerring distinction, in the dark stripes between the nerves of the anterior wings. We have indeed, in the tropics of America, a race of black and crimson butterflies representing these of India; but they belong to a very different group; and are known at the first glance by their broader wings, totally destitute of the stripes just mentioned.

M. M. Latrielle and Godart, are evidently mistaken regarding the insect figured by Clerk, which they consider to be the female of *Polydorus*; this error we have ascertained from fine specimens of both sexes, sent from Java and now in our possession. We have figured the male, and Dr. Horsfield has enabled us to add the Caterpillar and Chrysalis.

REPORT

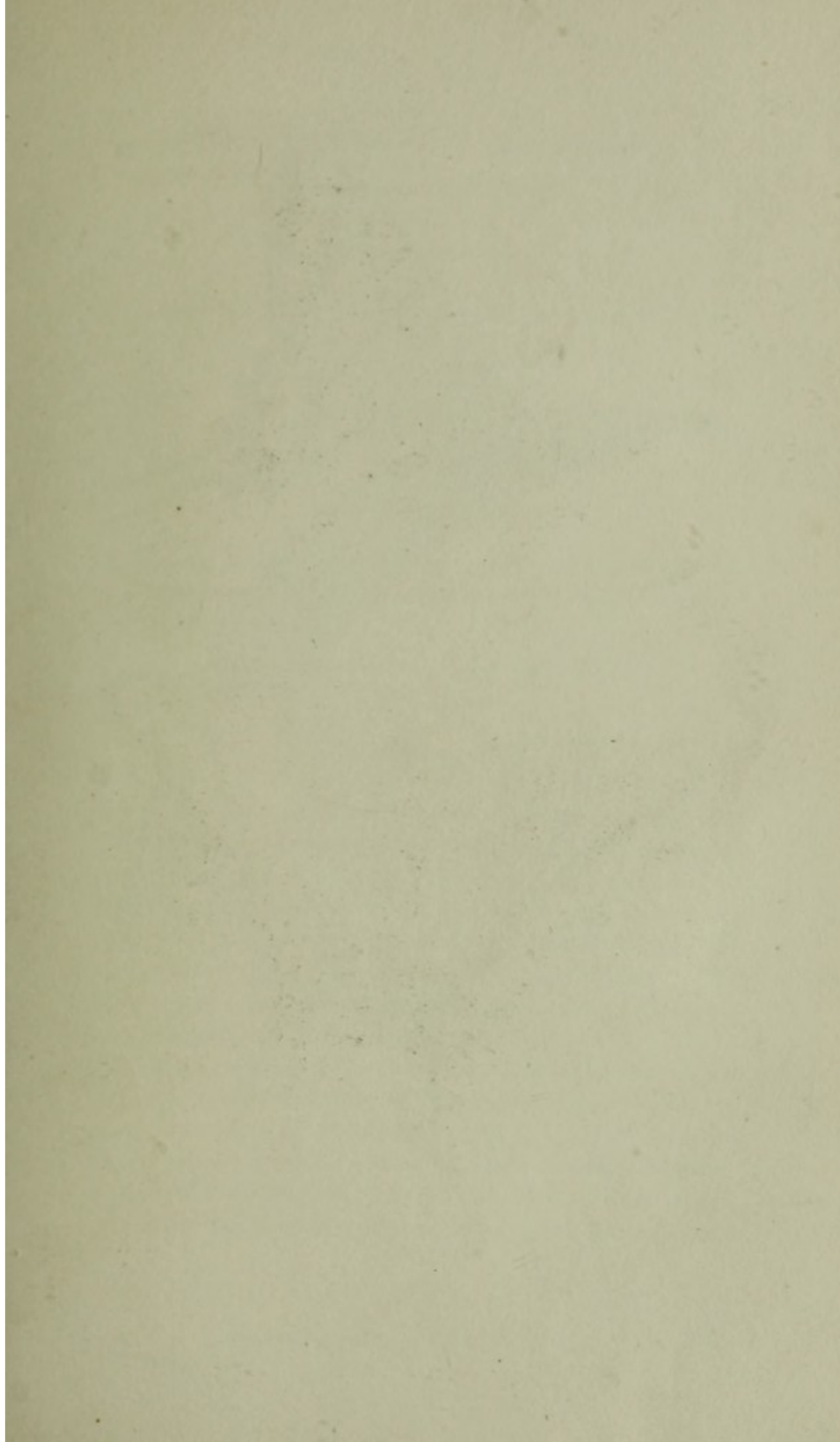
of the

Committee on the
Education of the
Colored People
in the
District of Columbia

Presented to the
House of Representatives
in the
Year 1862

By
J. M. McKim,
Chairman.

Washington:
G. P. Putnam & Co.,
Printers.





PROTESILAUS *Swainsonius*.

PROTESILAUS Swainsonius,
Swainsonian Swallow-tail.

Sub-family Papilionæ. Genus Amphrissius. Sub-genus Protesilaus.
Nob.

SUB-GENERIC CHARACTERS.

See pl. 93.

SPECIFIC CHARACTER.

Wings pale straw-colour; anterior with a forked band near the black exterior margin, and another much shorter towards the middle, both black.

Papilio Swainsonius. *Langsdorff, MS.S.*
Mus. Nost.

WE have searched in vain for some account of this very distinct and handsome species, collected by our venerable and enthusiastic friend Dr Langsdorff, in the interior of Brazil; and transmitted to us some years ago, in remembrance of the many happy days we passed together in the enchanting scenery of that delightful region. We have not seen the species in any of the London collections, and we believe it altogether undescribed.

The Larva and pupa are of course unknown to us, but the whole structure of the perfect insect agrees so truly with that of *Protesilaus Lelius*, that we have no doubt whatever of its belonging to the same sub-genus, and thus becoming an interesting addition to a group, capable of the most complete and diversified demonstration.

PROTESTANT

THE CHURCH OF ENGLAND

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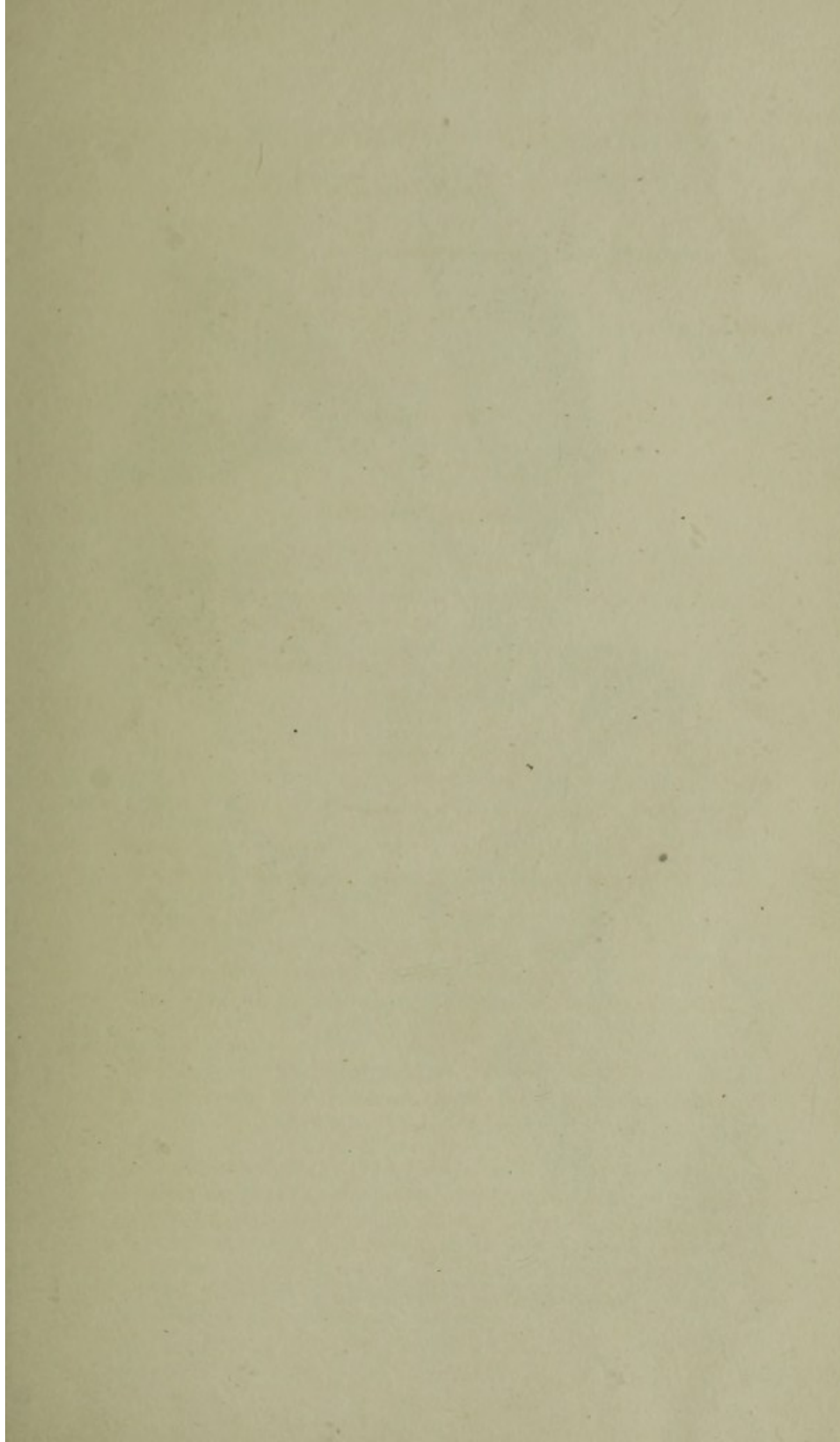
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PODALIRIUS *Pompilius*.

PODALIRIUS Pompilius,
Pompilius, or Javanese Swallow-tail.

Sub-family Papilionæ. Genus Papilio. Sub-genus Podalirius. *Nob.*

SUB-GENERIC CHARACTER.

Wings trigonal, acute, yellow, with black transverse bands, the inferior with two long narrow acute tails; *Antennæ* short, the club thick and solid at the base, but greatly compressed at the tip, where it is concave beneath; *head* small, front hairy; *Larva* smooth; *Pupa* braced in an erect position.

Type Podalirius Europæus. *Nobis.*

SPECIFIC CHARACTER.

Wings above pale yellow, the anterior with five short, black, stripes across the areola; and two others, much longer and broader, close to the exterior margin: posterior wings without lunulate spots.

Papilio Pompilius. *Fab. Mantissa* 2. p. 8. *Ent. Syst.* 3. 1. p. 25. *Ency. Meth.* 1. p. 49. *Horsf. Cat. pl.* 3. fig. 5. 5. a. (larva and pupa.)

WE may term this the Javanese Swallow-tail, for in that and the other Indian islands it appears to be not uncommon. We are indebted to the elegant *Catalogue* above quoted, for our figures of the *larva* and *pupa*; and to the rich collection of Mrs. Children for the examination of the perfect insect.

Entomologists will doubtless feel surprize that this and the *Protesilaus* on our last plate, should be placed as distinct types in two different genera. We have not done this without long deliberation; but we cannot, in a work of this nature, enter into those details which would demonstrate these divisions to be truly natural, in the most rigid acceptation of the word. We desire not, however, that Entomologists should adapt our views,—at least for the present. We hope, indeed, that they will not, because experience has shewn, that until a theory has been fully explained, more injury than good results to science, from injudiciously adopting, and hastily applying, a system not understood. We only desire, in short, to record our views, that they may be comprehended hereafter. We consider this as the *Thrysanuriform* type of the sub-genus, and our English *Papilio Machaon* of authors, as the *Heliconian*.—*Tempus ducamus.*

FOODALITHUS

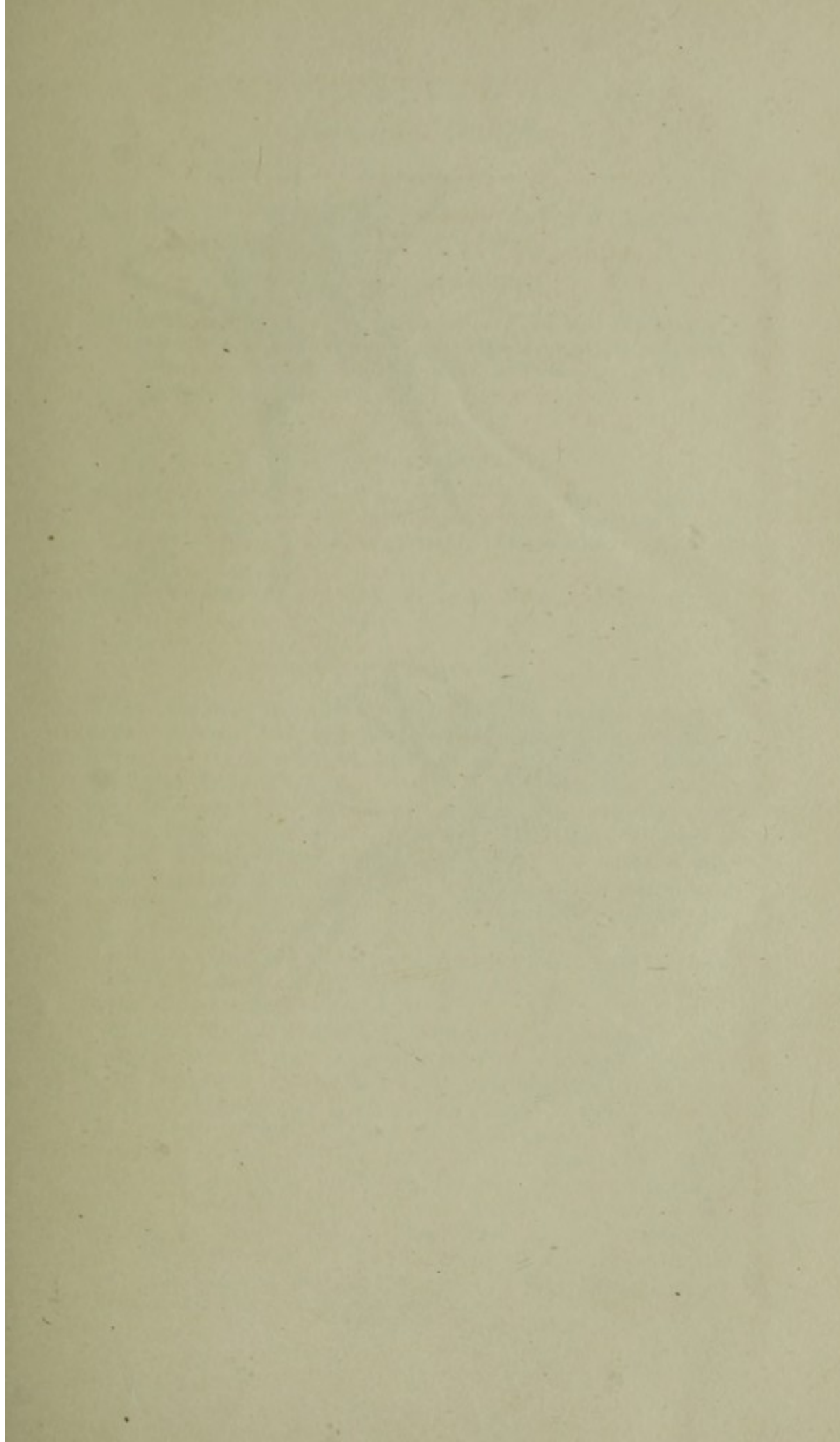
FOODALITHUS

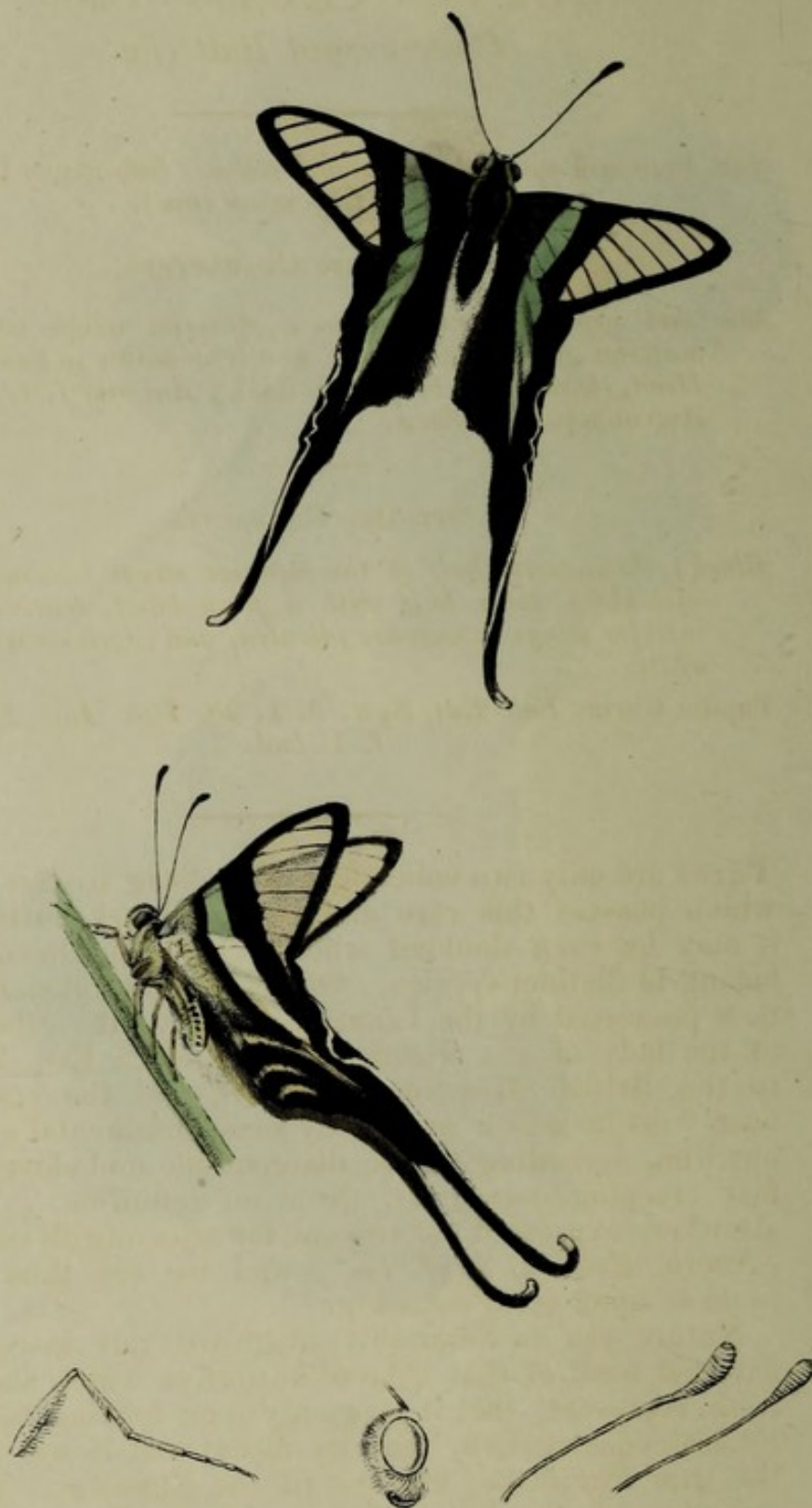
FOODALITHUS

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LEPTOCIRCUS *curius*.

LEPTOCIRCUS Curius,
Clear-winged Butterfly.

Sub. Family Papilionæ. Genus Urania. Sub-genus Leptocircus,
Nob. (*Erycinian type*).

SUB-GENERIC CHARACTERS.

Size and aspect of an Erycina; Anterior wings sub-hyaline; posterior greatly lengthened, and terminating in two long tails; Head, thorax, and body very thick; Anterior feet, palpi, and Antennæ papilioniform.

SPECIFIC CHARACTER.

Black; the exterior half of the superior wings hyaline, bordered with black, inner half with a green band, continued on the inferior wings, which are plicated, and edged externally with white.

Papilio Curius Fab. Ent. Syst. 3. 1. 28. Don. Ind. Ins. pl. 47. f. 1. bad.

THERE are only two collections we believe in this country, which possess this rare and extraordinary butterfly, and it may be even doubted whether these specimens do not belong to distinct species. One is in the Banksian cabinet, now possessed by the Linnæan Society, the other in that of the lady of our friend J. G. Children Esq. Zoologist to the British Museum. We are told the species has been "made into a genus" by some continental methodist, but who, according to the disreputable and slovenly mode fast creeping *among us*, gives no definition. We have elsewhere expressed our reasons for rejecting all such names (*North. Zool. 2. pref. lx.*), and we are thus pledged to do so upon every occasion.

Nature has so admirably disguised this insect in the external form of that tribe of butterflies which she intends it to represent, that it was only upon looking to its anatomical construction, that we discovered it was a type of the true *Papilionæ*, and not of the *Erycinæ*. The construction of the anterior feet, of the head and palpi, and of the antennæ, all which are here represented, magnified, places this fact beyond doubt, and leaves us nothing to desire but a knowledge of its caterpillar and chrysalis, and of the direction of the wings when the species is at rest. We suspect that like those of *Urania*, they are then *deflexed*.

and Family Lepidoptera, and other Lepidoptera.

LEPTOCORIS

and Family Lepidoptera, and other Lepidoptera.

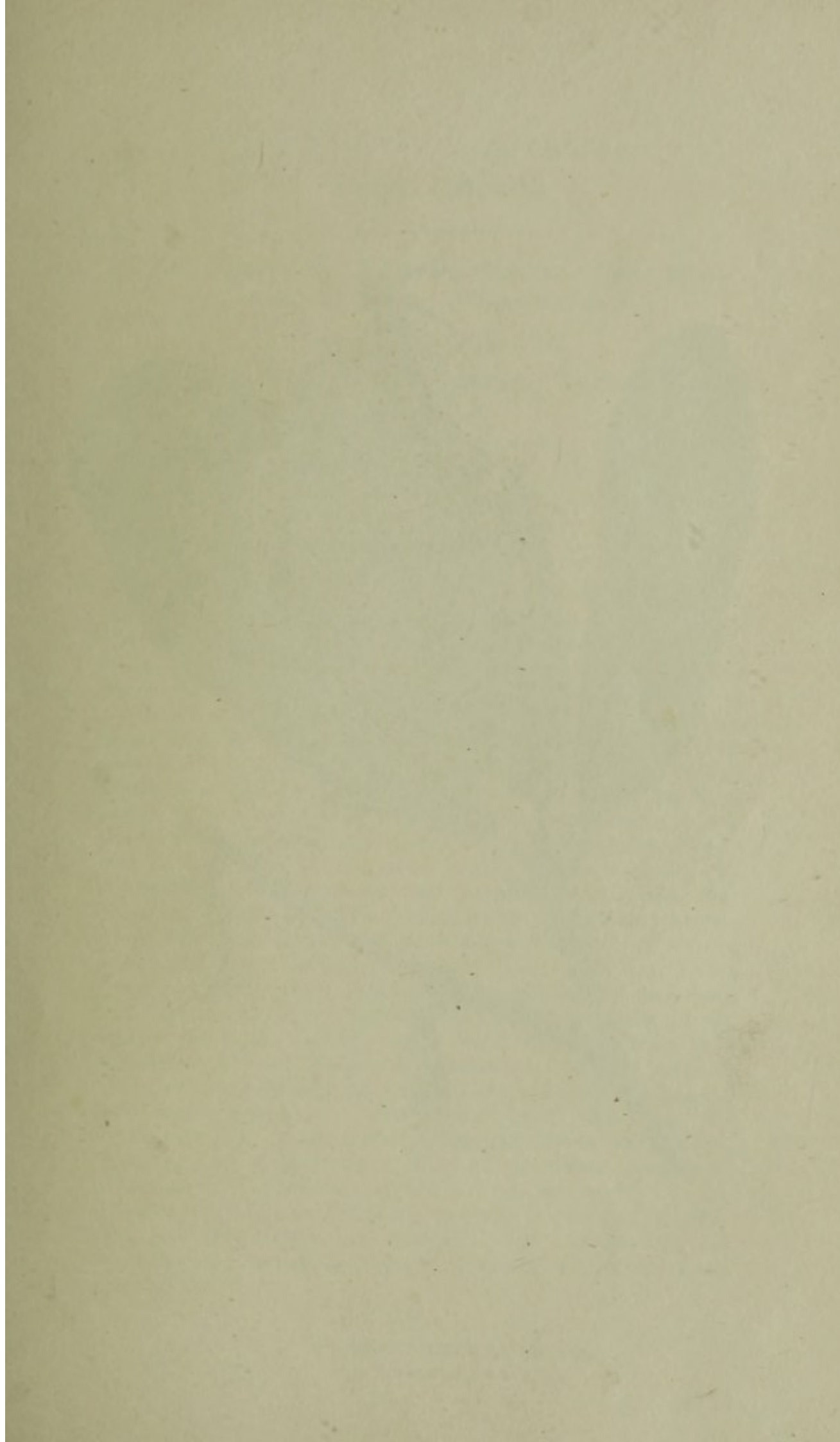
LEPTOCORIS

and Family Lepidoptera, and other Lepidoptera.

LEPTOCORIS

There are only two collections of Lepidoptera in this country, which possess the very rare and beautiful butterfly, and it may be very doubtful whether the specimens in the collection of the British Museum, which are the only ones now possessed by the British Museum, are the same as the ones of the body of a Lepidoptera, which are the only ones now possessed by the British Museum. The specimens in the collection of the British Museum, which are the only ones now possessed by the British Museum, are the same as the ones of the body of a Lepidoptera, which are the only ones now possessed by the British Museum.

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MARIUS (PETREUS) *Thetys*.
Larva & Pupa.

MARIUS (*Petreus*) Thetys,
Thetys Butterfly.

[Family Nymphalidæ. Sub-family Paphianæ. Genus Marius.
Sub-genus Petreus. (Heliconian Type.)

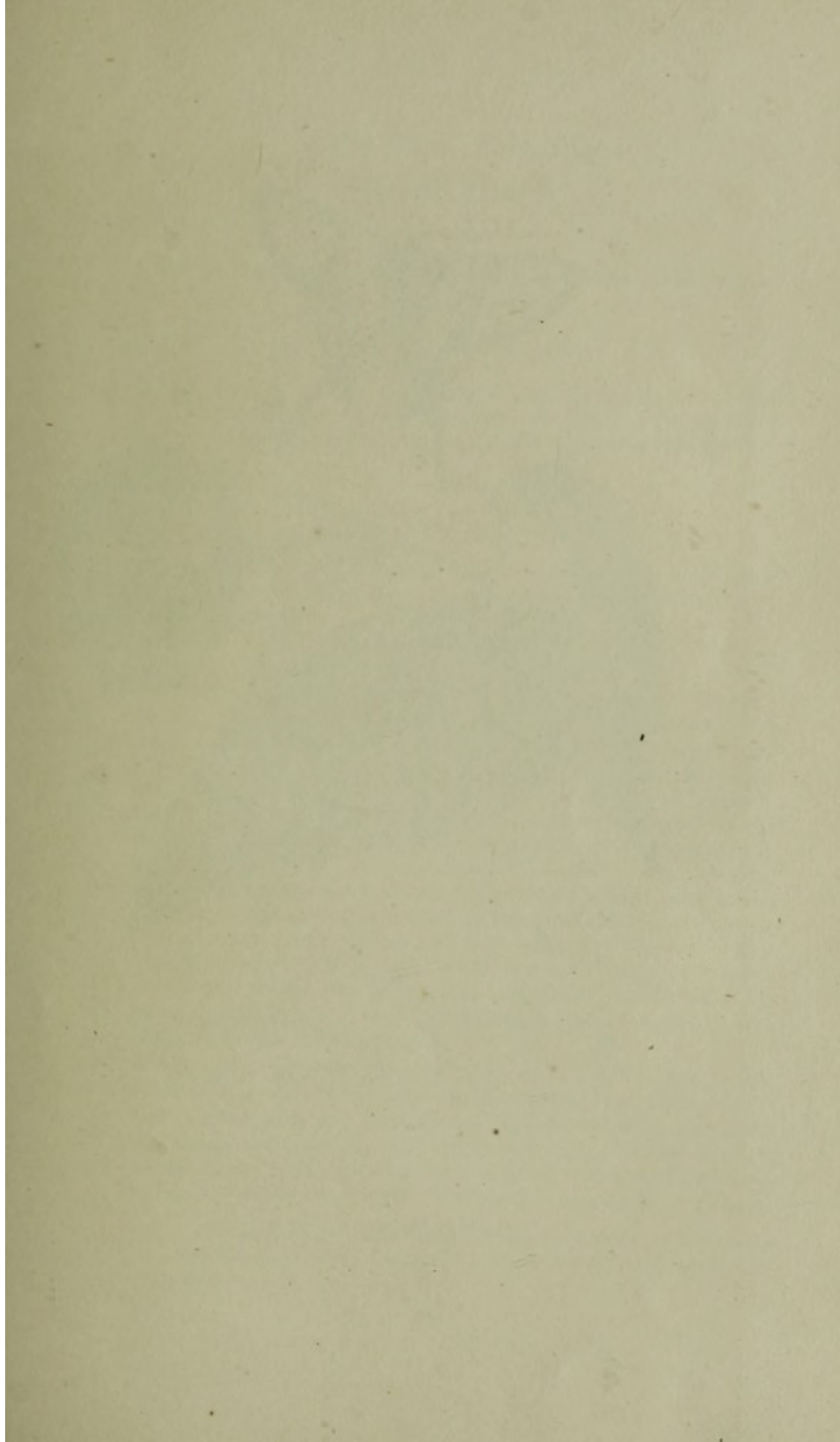
SUB-GENERIC CHARACTER.

Superior wings long, horizontally lengthened; Larva naked, with 3,
4 fleshy filaments on the body.

SPECIFIC CHARACTER.

See pl, 56.

THE perfect insect, or butterfly, of this elegant species, we have already figured at pl. 59 of our second volume: and that our illustration of a form so interesting may be complete, we have now delineated the caterpillar and the chrysalis, as given by Stoll; together with a sprig of the *Cashew* tree upon which it feeds. Every entomologist, upon looking to the perfect insect, will immediately be struck with its resemblance to the long-winged Heliconian Butterflies, and to the genus *Euplœa*, which is the Erycinian type of that family. Now this resemblance, which hardly requires pointing out, is a perfectly natural analogy; and is confirmed in the most remarkable manner by the caterpillar, which puts on that peculiar form which distinguishes *Euplœa*. The species in short, in every stage, exemplifies the truth of that fundamental law of nature which we have elsewhere so fully illustrated, viz. "that every *natural* group, contains representations of ALL others "in the same class," following each other precisely in the same series: thus establishing a truth which has long been suspected, but not before demonstrated, that the laws of variation are precisely the same in every group throughout the animal kingdom. The genus itself represents the Swallow-tailed types already figured (*Podalirius*, *Protesilaus*, and *Leptocircus*), but of the three remaining sub-genera of *Marius*, we are as yet ignorant. It is, however, by this genus that the two sub-families of *Paphianæ* and *Heliconinæ* are united; as it blends into the latter by means of the genus *Fabius*, which we shall shortly illustrate.





ZEONIA *Heliconides*. Pl. III.

ZEONIA Heliconides,

Zeonia Butterfly.

Family Erycinidæ. Sub-family Erycinæ. Genus—; Sub-genus
Zeonia. Nob.

SUB-GENERIC CHARACTER.

Wings trigonal, hyaline, the posterior ending in long tails; Palpi very short, not projecting beyond the head; Antennæ hairy, with the club very small, but gradually thickening from the base.

SPECIFIC CHARACTER.

Wings hyaline; the margins, and a common central band black and opaque; inferior wings two-tailed, with a red stripe at the anal angle.

No method is more calculated to demonstrate the existence of that symbolical representation which reigns throughout nature, than that of bringing before the eye of the student a series of forms belonging to different families, but which are *disguised*, under an outward appearance of general similitude; How few, even among professed entomologists, would suspect that the present butterfly, and *Leptocircus heliconides*, pl. 106, were of totally different families: looking to their general aspect, as size, form, and colour, we should even be tempted to place them in the same genus; On closer examination, however, we find that one is a genuine *Papilio*, and the other an *Erycina*; That this fact may be placed beyond all doubt, we have given magnified details of both insects, which, from their great rarity, will be highly acceptable to the Entomologist.

The specimen here figured is the only one we met with in Brazil, nor have we seen the species in any other collection; Excepting the black bands and the crimson spots, all the wings are transparent; the under surface being similar to the upper. We possess the mutilated remains of a second species; but we know not to what natural genus they belong.

Fig. 1. *Zeonia*, wing. 2. *Leptocircus*, wing. 3. *Zeonia*; anterior foot, with the claw more enlarged; 4. head and palpi in profile; 5. Antennæ.

ALBERTA

North America

Family: *Proteaceae*, subfamily: *Proteoideae*, genus: *Alnus*, species: *Alnus incana*

1870-1875

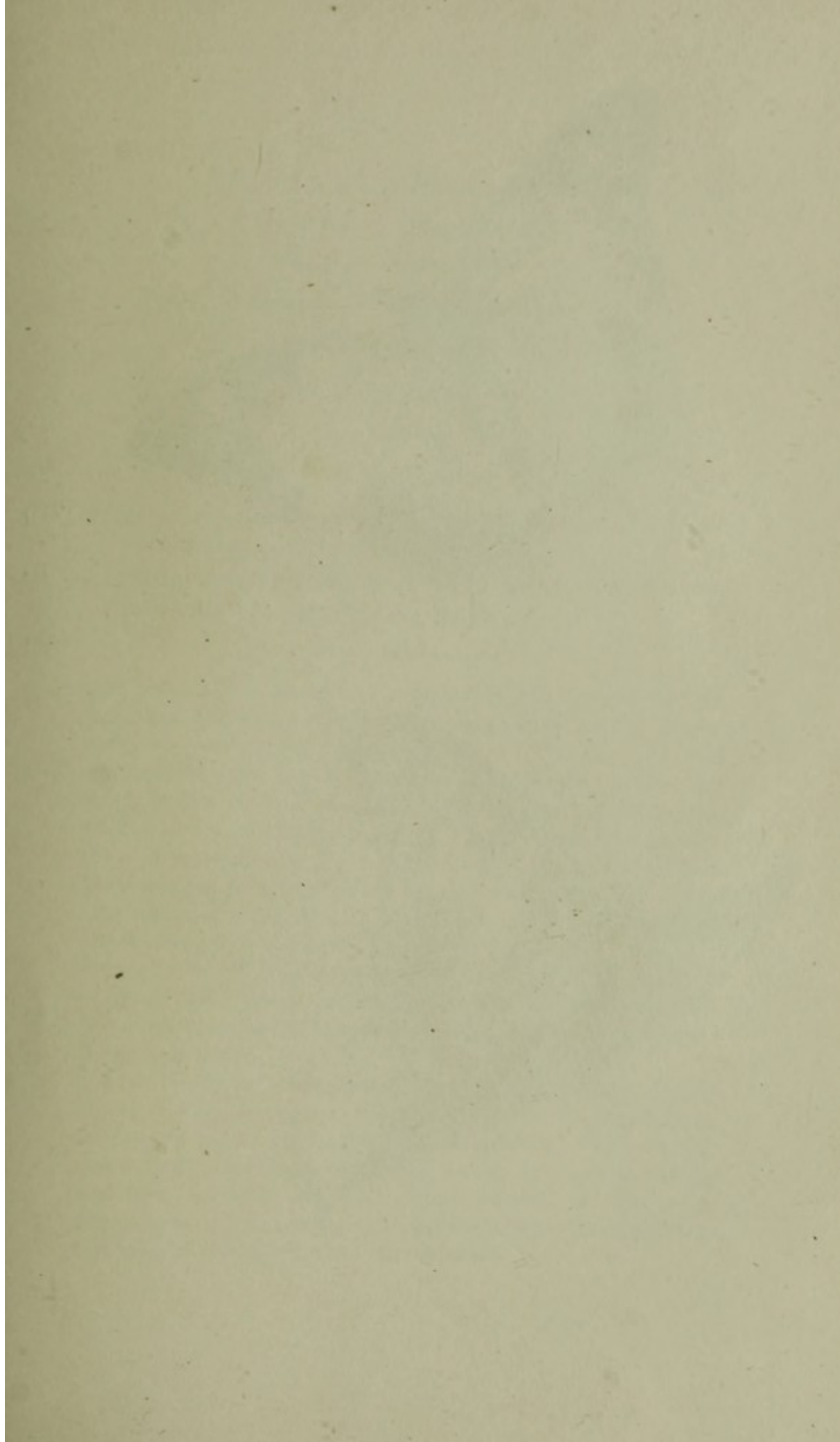
Stems: 1-2 dm. thick, bark smooth, grey, with small, irregular, fissures. Leaves: 1-2 dm. long, 1-2 cm. wide, ovate, serrated, green above, pale green below.

Flowers: 1-2 dm. long, 1-2 cm. wide, yellow, with small, irregular, fissures.

Leaves: 1-2 dm. long, 1-2 cm. wide, ovate, serrated, green above, pale green below. Bark: 1-2 dm. thick, smooth, grey, with small, irregular, fissures.

The tree is a small, bushy, deciduous tree, 1-2 dm. thick, with a smooth, grey bark, and small, irregular, fissures. The leaves are 1-2 dm. long, 1-2 cm. wide, ovate, serrated, green above, pale green below. The flowers are 1-2 dm. long, 1-2 cm. wide, yellow, with small, irregular, fissures. The tree is a small, bushy, deciduous tree, 1-2 dm. thick, with a smooth, grey bark, and small, irregular, fissures. The leaves are 1-2 dm. long, 1-2 cm. wide, ovate, serrated, green above, pale green below. The flowers are 1-2 dm. long, 1-2 cm. wide, yellow, with small, irregular, fissures.

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JASIA Australis,
Australian Jasia-Butterfly.

Family Nymphalidæ. Sub-family Paphianæ. Genus,—

SUB-GENERIC CHARACTER.

See pl. 90.

SPECIFIC CHARACTER.

Wings above yellowish white, the outer half of the anterior black with a series of spots disposed in the shape of the letter Y; inferior wings with a black border, margined by cinereous, and an orange spot at the anal angle.

WE believe the specimen from which our figures of this new and strikingly distinct butterfly were taken, is the only one which has yet been sent to Europe. It was captured by Mr. Cunningham, who accompanied Captain King, in his voyage to the North West coast of Australia, on the skirts of Careening Bay, Port Nelson, where the Ship Mermaid was hove down; and the officers had more leisure to attend to zoological pursuits. Mr. Cunningham remarked that it flew with great swiftness, in which respect it perfectly resembles the rest of the genus *Jasia*, of which it is a typical example. The geographic range of this group is thus proved to extend from the South of Europe to Australia, but it is entirely unknown in the new world.

The family of *Nymphalidæ* is the sub-typical group of the diurnal *Lepidoptera*, forming our tribe *Papiliones*. In its own circle it therefore represents the *Feræ* among quadrupeds, the *Raptores* among birds, the *Aptera* among annulose animals, and the *Scolopendridæ* in the order *Myriapoda*. The analogical representations resulting from this view of the subject are innumerable.

THE HISTORY OF THE

REPUBLIC OF THE UNITED STATES

OF AMERICA

FROM THE FIRST SETTLEMENTS

TO THE PRESENT TIME

BY

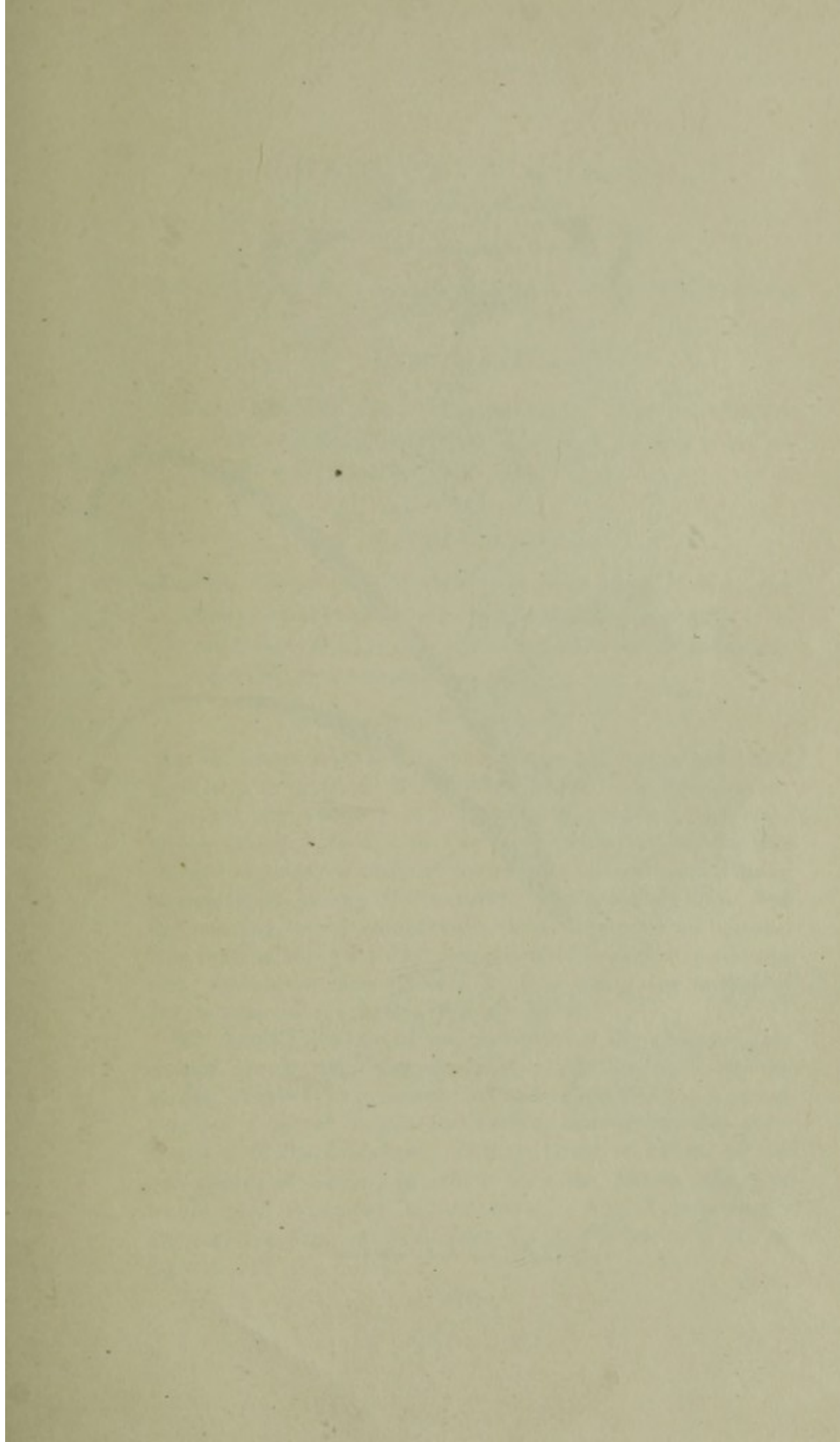
JOHN F. JOHNSON

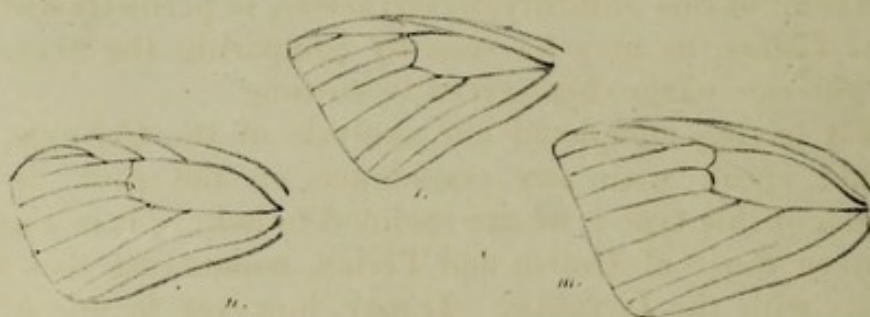
OF THE CITY OF NEW YORK

The history of the Republic of the United States of America is a subject of great interest and importance to all who are concerned with the future of the world. It is a subject which has attracted the attention of the most distinguished historians and statesmen of the world. The history of the Republic is a story of the struggle for freedom and independence, of the growth of a great nation, and of the development of a system of government which has become the model for all other nations.

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TERACOLUS *Sub-fasciatus*.

TERACOLUS sub-fasciatus,
Burchells Yellow.

Family Papilionidæ. Sub-family Colianæ. Genus (?). *Terocolus*
Nob.

GENERIC CHARACTERS.

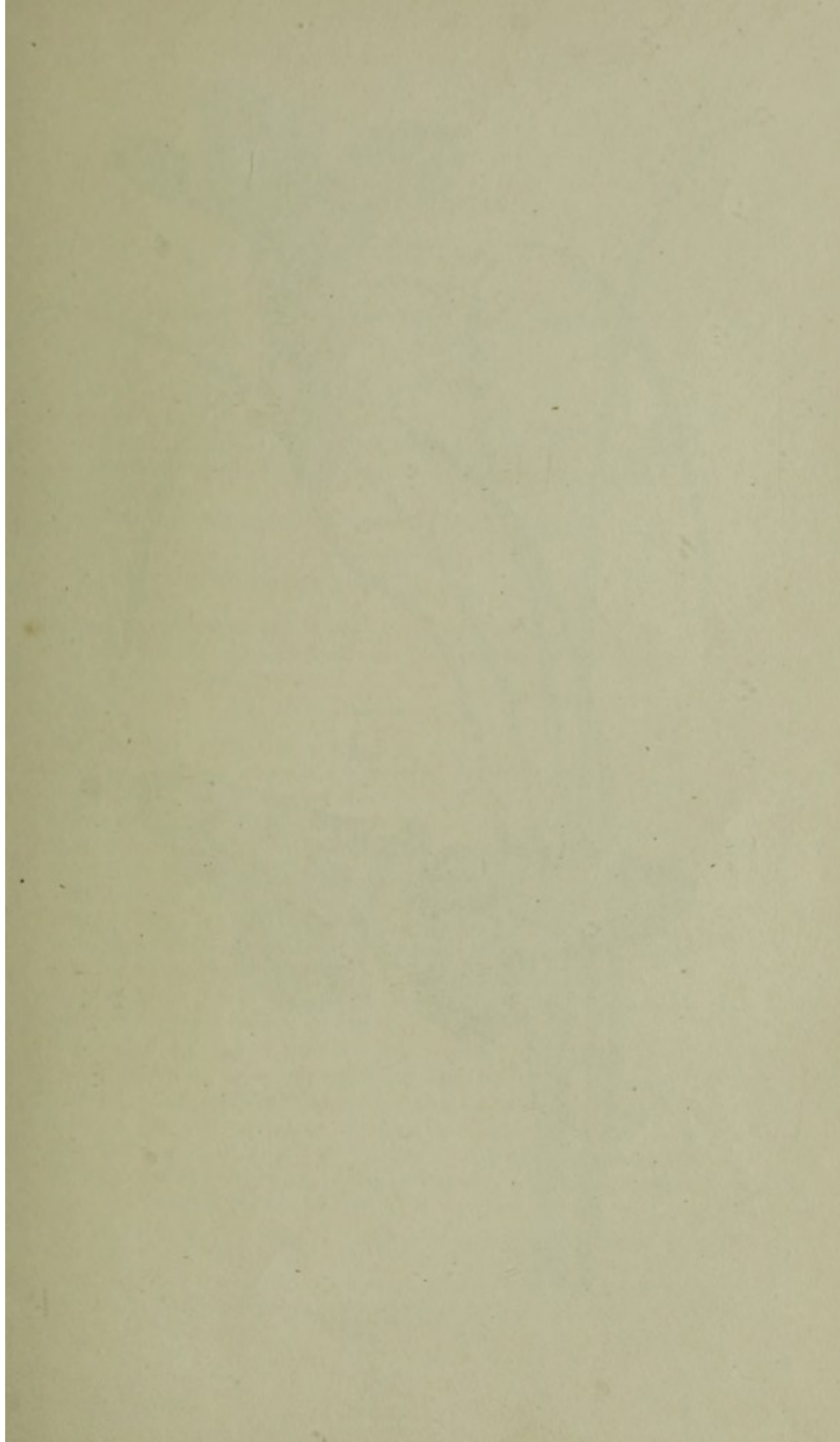
Antennæ with the club abrupt, and more or less compressed
anterior wings trigonal, posterior rounded; Palpi as in *Colias*,
but the scales intermixed with hairs.

SPECIFIC CHARACTER.

*Anterior wings pale yellow, with a terminal orange spot,
margined externally with brown, and internally by a short
black bar; areola with a black dot; posterior wings yellow-
ish white, both beneath immaculate.*

MR. BURCHELL was the first who discovered this unpublished species in the interior of Southern Africa, and by his kindness we are enabled to illustrate it. His specimens, unfortunately, are not in the best condition, for he was obliged to preserve many of his insects in books; and these, having been among the number, may probably have had the antennæ more compressed than they were in nature. The form of this butterfly, nevertheless, is perfectly distinct from *Colias*, as may be seen by comparing the nerves of the anterior wings, here given in outline.

Not having completed our analysis of the *Colianæ*, we cannot speak with any confidence on the rank or the station of this type; we are inclined to believe it is a *genus* between those of *Colias* and *Terias*, connecting this sub-family with the *Licininæ*. It may, however, be one of the sub-genera of *Colias*, in which case the genus, which it would then represent, is unknown. Fig. 1. represents the anterior wing of *Teracolus*, 2, of *Terias*, and 3, of *Colias*.





HELEONA *Fenestrata*.

HELEONA fenestrata,
Australian Burnet.

Tribe Sphingides. Family Anthoceridæ. Sw. (Zyganidæ Auct.)
Genus—?

SUB-GENERIC CHARACTERS.

Anterior Wings papilioniform, i. e. the exterior margin as long, or longer, than that of the posterior; inferior wings lengthened perpendicularly, but short and rounded; Antennæ pectinate in both sexes.

Type *Phalæna militaris*. Lin. Don. *Ins. of China*. pl. 43.

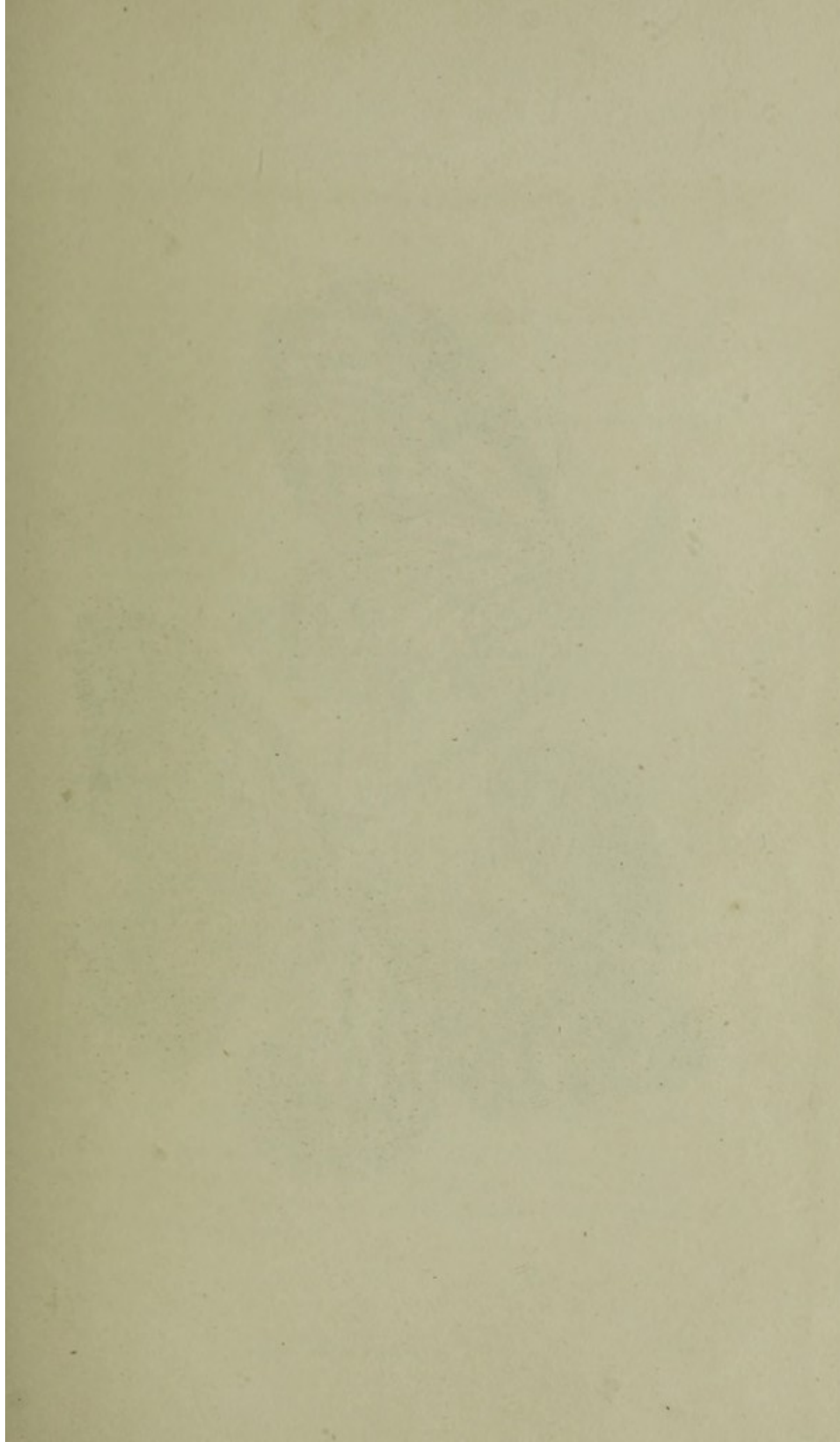
SPECIFIC CHARACTER.

Wings hyaline, clouded with irregular waved bars of blue; body, thorax, and macular band round the margin of the inferior wings, orange.

THE diurnal or Heliconean Hawk-mouths, form one of the most natural and remarkable groups among Lepidopterous insects. They fly during the heat of the day; and, (as representing in their own family the tribe of *Phalænides*) they have much of the general appearances of moths. In their slow flight, long transparent wings, and proaeness to imitate death on being handled, they afford a most beautiful analogy to the Heliconian Butterflies. Both have their chief metropolis in equinoctial America, and both find their prototypes in the lovely family of *Erycinidæ*. It is really surprizing that searchers after the *natural* system, should have overlooked such a group.

Among the comparatively few genera of this division, found in India and the adjacent islands, is that now first defined: and we illustrate it by a new and very rare species, even in its own country. It was twice seen by Mr. Cunningham, on the North West Coast of Australia; once in shady woods descending to the shores of York Island, and again in nutmeg woods adjoining Brunswick Bay.

The form of the wings, which strongly resemble those of the sub-family *Papilionæ* will immediately distinguish this from all the American genera. The plant, *Pattersonia glauca*, is of a sub-genus also peculiar to New Holland.





CLYTIA dissimilis.

CLYTIA dissimiles,
Idea-likeness Butterfly.

Family Papilionidæ. Sub-fam. Papilionæ. Genus Clytia.

GENERIC CHARACTER.

Wings rounded, spotted. Anterior broad, ample, the posterior and the external margins of equal length: posterior slightly undulated at the margin, but destitute of tails. Pupa braced, with the head upwards.

Types. Pap. Clytia, dissimiles. L. Pap. Macarius. Godart. P. Panope Cr.

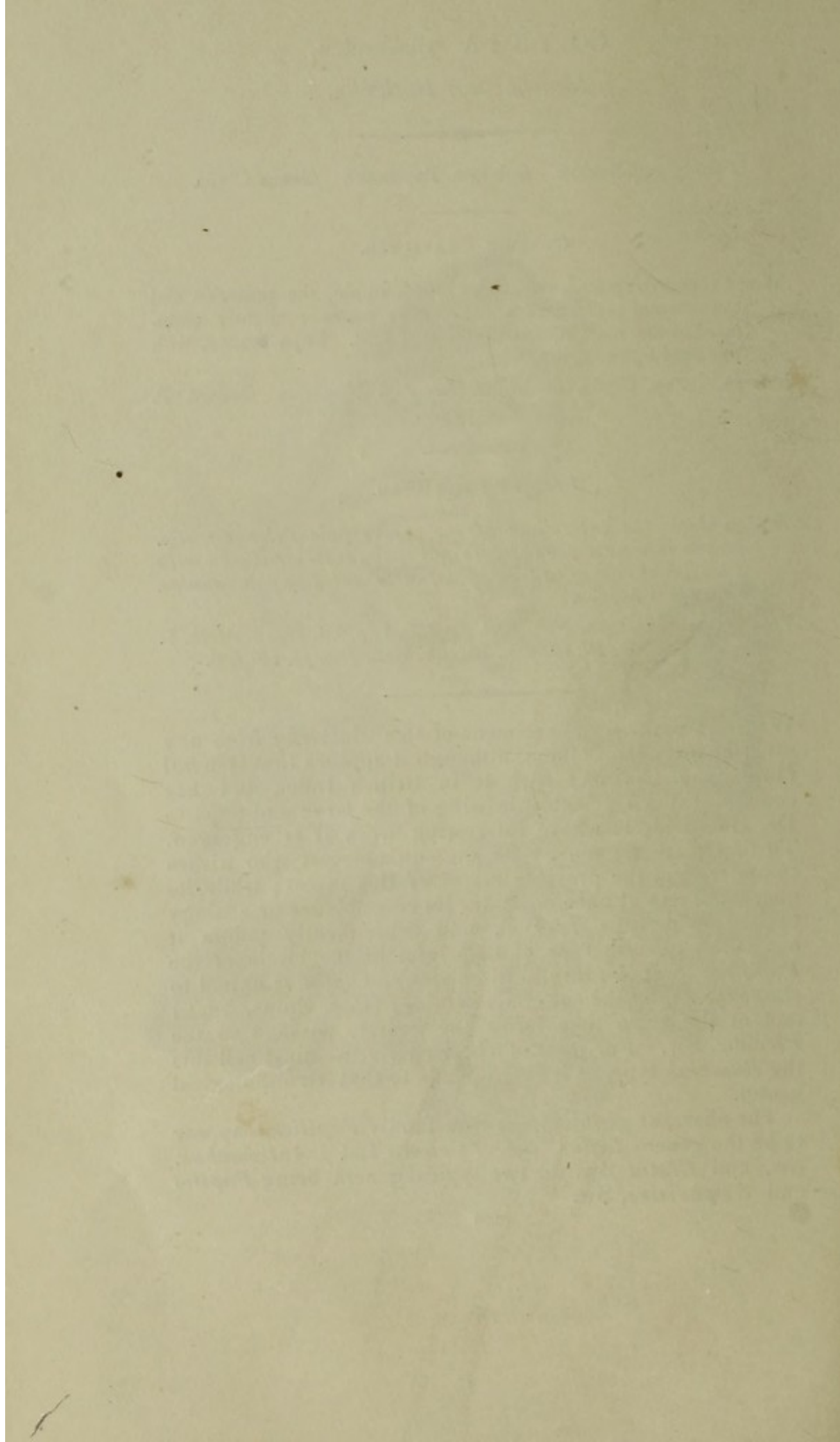
SPECIFIC CHARACTER.

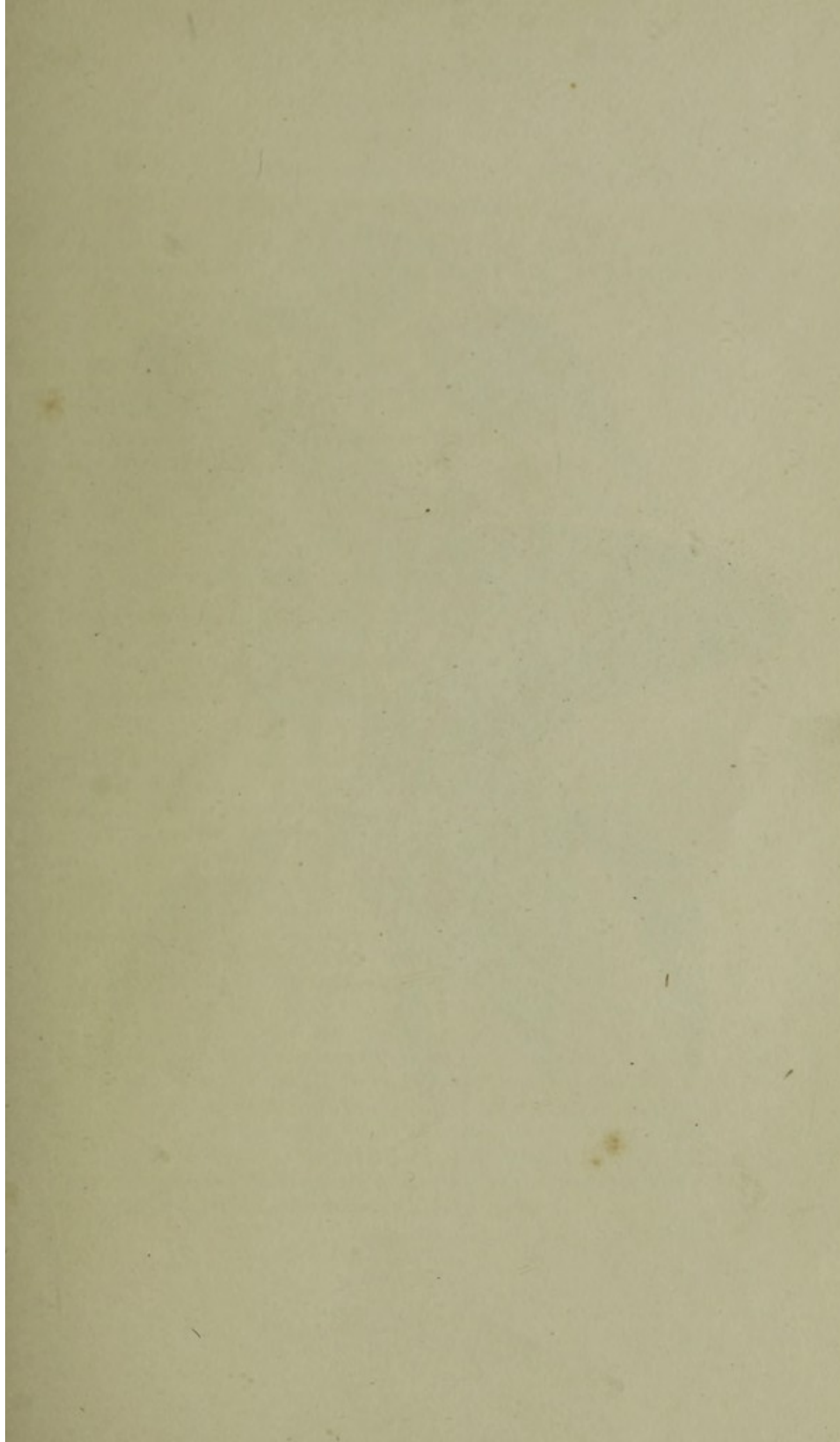
Wings black, the interstices of the nerves pale fulvous white, broken into numerous stripes and spots, inferior wings with a marginal row of orange spots, surmounted by pale lunules, on a black border.

Papilio dissimilis Linn. *Fab. Ent. Syst.* 3. 1. p. 38. *Ency. Meth.* 1. p. 76. Cramer. *Pl.* 82. c. d. Ræmer. *Gen. Ins. pl.* 18. f. 6.

WE have never seen specimens of this Butterfly from any other country than China, although it appears that General Hardwicke has met with it in British India, and has communicated a valuable drawing of the larva and pupa to Dr. Horsfield, in whose interesting work it is engraved. To that plate we must refer the entomologist who wishes to understand the previous states of this insect; while its general aspect at once intimates its resemblance or analogy to the Sub-genus *Idea* F, and consequently points it out as the generic type of that form in the circle of the *Papilionæ*. According to these views, *Clytia* is united to *Amphrysus*, by the sub-genus *Epius*; (Pap. *Epius*. Auct.) and at the same time forms the generic passage to the *Pieridæ*. Sw. For want of a better term, we must call this the *Rasorial* type, as it corresponds to that Ornithological group.

The aberrant group of the Sub-family *Papilionæ* appear to be the genera *Leilus*, Sw. (*Uranea* Lat.) *Antimachus*. Sw. and *Clytia* Sw. the two typical genera being *Papilio* and *Amphrysus*, Sw.







THOAS *lysithous* Sw.

THOAS Lysithous, *Lysithous Butterfly.*

Sub-fam. Papilionæ. Genus, Papilio. Sw. Sub-genus Thoas. Nob.

SUB-GENERIC CHARACTER.

Posterior wings terminating in spatulate or obtuse tails; the margins deeply scoloped; *Larva* smooth; *Pupa* braced, with the head directed upwards.

TYPICAL SECTIONS.

- | | |
|---|--------------------------|
| 1. Wings with macular yellow bands. | PAP. THOAS. <i>Auct.</i> |
| 2. Wings with entire white bands, the posterior spotted with crimson. | AGAVIUS. |
| 3. Wings black, varied with emerald green bands or dots; tails short, obtuse. | PARIS. |
| 4. Tails obsolete. | EVANDER. |
| 5. Tails short, acute. | ANDROGEUS. |

SPECIFIC CHARACTER.

Wings uniform black; anterior with a white band; posterior dentated and tailed, margined by red lunules; the disk white, bordered behind by 4—5 red spots.

Papilio Lisithous. *Ency. Meth.* 1. p. 73, no. 136.

WE discovered this imposing species in the interior of Brazil, in 1814, long before it was made known in France by the specific name we have adopted. It is confined to the southern provinces; for we never met with it north of the Rio St. Francesco. Although greatly resembling *Thoas Agavus* and *Harrisianus*, (Z. Ill. 1 Series, pl. 109) it is at once distinguished by the longer and more acute dentations of the inferior wings. The under side shews no material difference from the upper. To the second type of this subgenus belongs also *Ascarius* L. *Polybius* Sw. (Z. I. 1 Series. pl. 137), and *Tros*. Fab. while *Dardanus* F. probably connects this American group with the third or *Paris* type, whose geographic range is confined to Asia.

In the fourth form (*Evander*), representing the Heliconian type, the tails are obsolete, but they begin to appear again in the fifth, and thus complete the circle of the sub-genus *Thoas*. By studying this natural series, the Entomologist will discover a most beautiful set of analogies between the genera *Papilio* and *Amphrisius*.

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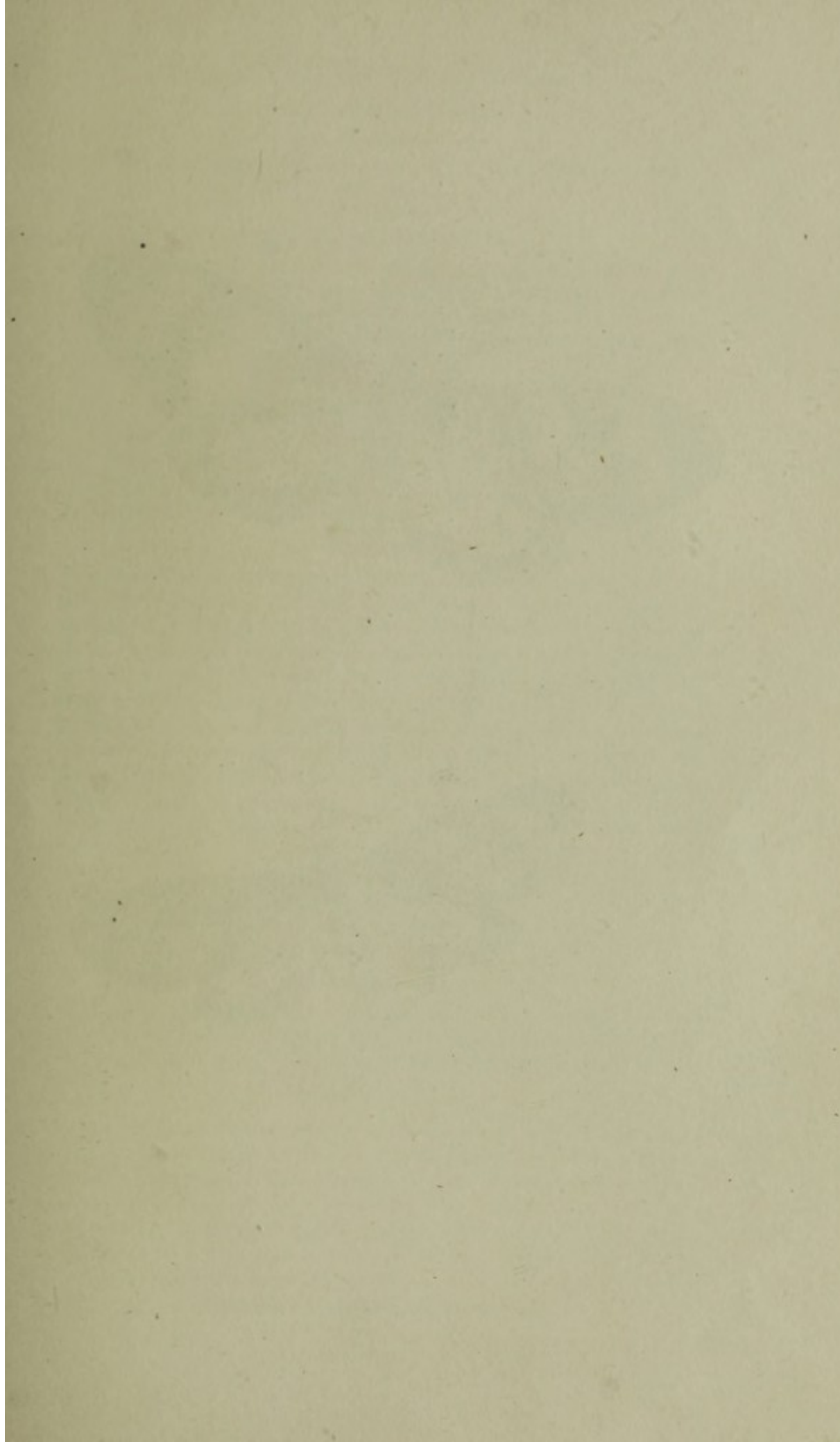
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ANTHOMYZA *Tiresina*. 2 *heliconides*.

ANTHOMYZA Tiresia.

Three banded Burnet.

Tribe, Sphingides. Family, Anthoceridæ. Sw. Genus——?
Sub-genus.

SUB-GENERIC CHARACTER.

Anterior wings with the outer or exterior margin much shorter than the posterior; inferior wings lengthened horizontally, but short and rounded. Antennæ slightly pectinated in one sex only: palpi pointing vertically. Inhabits Tropical America only. *Nob.*

SPECIFIC CHARACTER.

Large: anterior wings black, with one basal, and two transverse, opaque, deep yellow bands; posterior yellow, with a broad black border; margins of both wings dotted with white.

P. Tiresia. Cramer. Pl. 85. f. B.

WE now, for the first time, detach from the moth-like, or diurnal Sphinxes, all those large and imposing species which are found in Tropical America; and by comparing their characters with those of the Oriental group *Helonia*, it will be seen how strikingly they differ. During our researches in Brazil, the chief metropolis of this group, great attention was paid to these insects, of which we have a most extensive series. They fly slowly and heavily during the middle of the day, and on the least touch counterfeit death. Most of the species, when handled, discharge from their body a brown liquor, like their prototypes the *Heliconidæ*.

ANTHOMYZA heliconides, *Heliconian Burnet.*

Anterior wings black, with one basal and two transverse hyaline yellowish white bands: posterior yellowish white, with a broad black border, margins of both wings dotted with white.

IF we were not in possession of both sexes of the foregoing species, we should have suspected that *this* was a mere sexual difference; but the spots are transparent. The remarkable resemblance between this and some of the Heliconian butterflies, particularly *Linus* and *Psidii*, (Cr. pl. 257.) is truly astonishing. Nature could not have stamped their analogy stronger.

ARTICLE 1

SECTION 1

All legislative Powers herein granted shall be vested in a Congress of the United States, which shall consist of a Senate and House of Representatives.

SECTION 2

The House of Representatives shall be composed of Members chosen every second Year by the People of the several States, and the Electors in each State shall have the Qualifications requisite for Electors of the most numerous Branch of the State Legislature.

No Person shall be Representative of this United States who shall not, when elected, have seven Years Residence in the United States; and, when elected, be seven Years of Age; and, when elected, be seven Years of Age; and, when elected, be seven Years of Age.

Representatives and direct Taxes shall be apportioned among the several States which may be included within this Union, according to their respective Numbers, which shall be determined by adding to all free Persons, including Indians bound to Service, three fifths of all other Persons, not including Indians not bound to Service.

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LEILUS *Surinamensis*. Sw.

LEILUS Surinamensis.
Surinam Emerald Butterfly,

Family, Papilionidæ. Sub-fam. Papilionæ. Genus, Leilus. Sw.
 (*Fissirostral or Hesperian type*) Sub-genus. Leilus *proper*. Sw.

SYNOPSIS OF THE SUB-GENERA.

- | | |
|--|--------------|
| I. TYPICAL. Antennæ filiform, thickened in the middle; posterior wings with long pointed tails. | LEILUS. |
| II. SUB-TYPICAL. Antennæ as in the last, but arcuated near the tip. Tails of the posterior wings short and obtuse. | ORONTES. |
| III. ABERRANT. Antennæ clavate; front very hairy; tails none. | RIPHEUS. |
| Antennæ clavate; wings hyaline; tails very long. | LEPTOCIRCUS. |
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SPECIFIC CHARACTER.

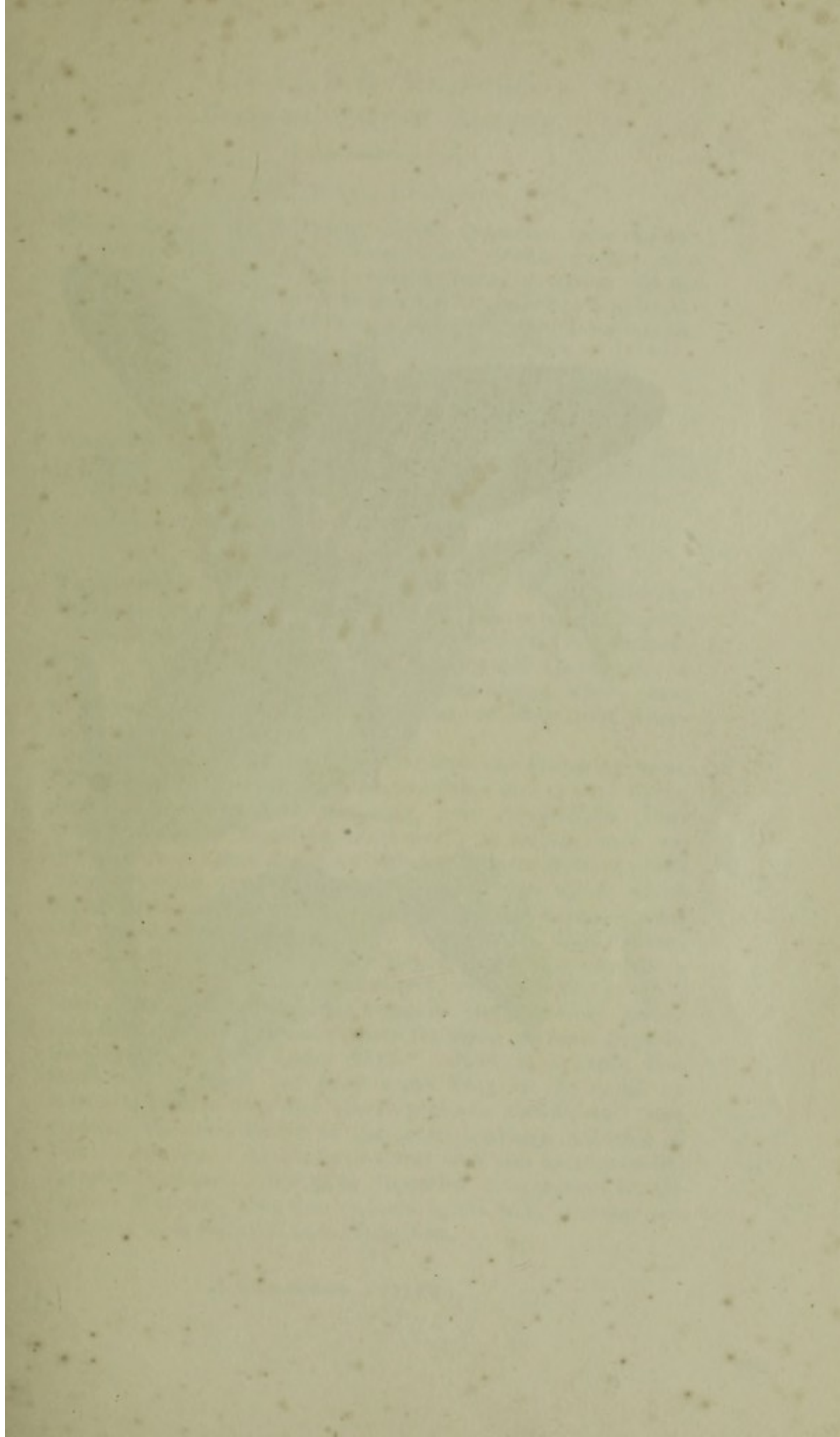
Wings black, varied with lines and bands of emerald-blue green: posterior tailed; the green spots round the margin running into each other; tails nearly white.

Papilio Leilus. Linn. Sys. Nat. 2. 750. Fab. Ent. Sys. 3. p. 21.
 Merian. Surin. pl. 29.

Urania Leilus. Fab. Syst. Gloss.

THE Butterflies composing this remarkable genus are perhaps the most splendid insects in creation. No art can effectually represent the changeable and resplendent green which relieves the velvet black of the wings, and which varies with every change of light. The typical species are found in Tropical America, where they fly with amazing rapidity, and perform, like their prototypes the Swallows, annual migrations. When at rest, the anterior wings are flat or horizontal, but only slightly spread. The present species appears confined to Surinam.

Modern systematists have been peculiarly unfortunate in the location and construction of this group; while the name of *Urania*, bestowed upon it by Fabricius, has long been appropriated to a genus of plants. Linnæus, more correctly, placed it with the genuine *Papiliones*; a station which is confirmed by the details of its structure: the anterior feet, like those of *Leptocircus*, figured at pl. 106, being provided with that short spiney process, which is a peculiar distinction of this sub-family. The analogies which result from this location of *Leilus* are beautiful, and almost interminable. It is the representation of the *Noctuidæ* and of the *Hesperidæ* in its own circle; and of the fissirostral tribe of birds; all these being modifications of the natatorial type of the VERTEBRATA.





LEILUS, *Brasiliensis*. Sw.

LEILUS Braziliensis.
Brazilian Emerald Butterfly.

SUB-GENERIC CHARACTER.

Wings when at rest, horizontal, slightly expanded; posterior furnished with acute tails. Palpi short, porrect; the last joint nearly naked, projecting beyond the head, but shorter than the second joint. *Tibiæ* of the anterior feet, spined in the middle: claws very small. *Antennæ* filiform, thickened in the middle; the tips bending outwards, but not uncinatæ. *Sw.*

SPECIFIC CHARACTER.

Wings black, varied with lines and bands of golden green: posterior wings tailed, the green spots round the margin divided and insulated; the tails black, with a narrow white edge.

In Mus. Britt. Nost.

THIS species, hitherto confounded with that peculiar to Surinam, is found only in Brazil; but its precise geographic range, in that vast empire, has not been correctly ascertained. We had the pleasure of capturing several specimens in Lat. 8, 24, S. in the vicinity of Pernambuco, where great numbers appear during the early weeks of May, and again in June.

On referring to our journals, we find the following note. "*Papilio Leilus*.—Great numbers of this insect were flying during the whole of the morning, past *Aqua Fria* (Pernambuco), in a direction from north to south: not one deviated from this course, notwithstanding the flowers which were growing around: they flew against the wind, which blew rather strong, and near the ground, but mounted over every tree or other high object which lay in their course; yet their flight was so rapid, that I could not capture a single specimen. They went singly, and near fifty or sixty must have passed the spot opposite the window, before mid-day: they continued to pass for three or four days in this manner. 12th June, 1817." Now it is clear that these insects could not have come from so far north as Surinam, where only the other species is found; and they certainly do not migrate to the more southern latitude of Rio de Janeiro. As we have never seen this species in the London Cabinets, we have deposited a specimen in the British Museum, that our entomologists may become acquainted with the structure of the feet.

LETTER
TO THE
HONORABLE
MEMBERS OF THE
LEGISLATIVE COUNCIL

OF THE PROVINCE OF ALABAMA

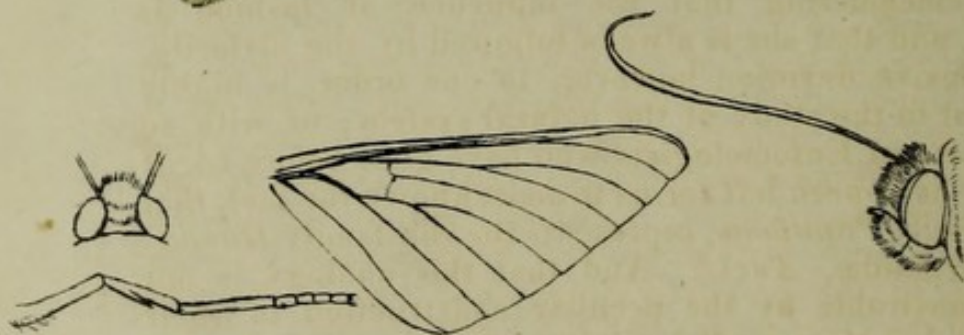
BY
JAMES H. HARRIS,
ATTORNEY AT LAW,
AND
SPEAKER OF THE HOUSE OF REPRESENTATIVES.

ALBANY:
J. B. HARRIS,
PRINTED BY
THE ALBANY PRESS,
1870.

THE
HONORABLE
MEMBERS OF THE
LEGISLATIVE COUNCIL,
ALBANY.

SIR,
I have the honor to acknowledge the receipt of your letter of the 10th inst., and in reply to inform you that the same has been forwarded to the proper authorities for their consideration. I am, Sir, very respectfully,
Yours,
JAMES H. HARRIS.





LEILUS *occidentalis*. Sw.

LEILUS Occidentalis,
West India Emerald-Butterfly.

SPECIFIC CHARACTER.

Posterior wings with a flame-coloured, irregularly indented, marginal band; tails black, with emerald green spots.

Papilio Sloaneus. Cramer. pl. 85. e. f. vol. 1. p. 134.

Papilio Leilus. var. Fab. Ent. Syst. 3. 1. 22.

SPECIMENS of this rare and splendid species, sent to our museum from the island of Jamaica, enable us to complete the illustration of the only three American species of this type hitherto discovered. It is in all probability the same as that figured by Cramer; particularly as his specimens came from the same locality. Even a superficial comparison of this figure with those on our two last plates, will shew the error of Fabricius and others, in classing them all under the same name. We have represented the species in that attitude which is assumed by *L. Braziliensis*, when at rest; the wings of which species are sometimes *less* but never *more* expanded: the fruit, upon which the insect is reposing, is the common West India *Banana*, shewing its natural size.

In drawing the attention of Entomologists to the anatomical details of this typical example of the genus *Leilus*, it will be readily perceived that the obscurity which has involved its natural affinities, has entirely arisen from ignorance of its structure. At a time when minute and obscure Coleoptera are submitted to the most delicate dissection, under powerful magnifiers, the LEPIDOPTERA, not only the most striking and splendid of all insects, *but the pre-eminent type of the ANNULOSA*, have been comparatively neglected. We cannot otherwise account for this, but by remembering that the influence of fashion is universal, and that she is always followed by the majority. This exclusive devotion however, to one order, is highly detrimental to the study of the natural system; or with so many profound Entomologists who have gone before us, it would not have been left for us to make known the fact, that the sub-family *Papilionæ*, represents the sub-family *Harpalinæ*, (*Harpalidæ*, *Auct.*) And that this analogy is not only demonstrable by the peculiar construction of their *tibiæ*, but by the parallel relations and by the circular affinities of the COLEOPTERA and the LEPIDOPTERA.





LEILUS *Orientalis* Sw.

L E I L U S Orientalis.
Oriental Emerald Butterfly.

SPECIFIC CHARACTER.

Posterior wings six tailed; anal angle with a large flame-coloured space, varied with black spots; tails unequal, whiteish.

Papilio Rhipheus. Cramer, Vol. 2, page 193, pl. 385, fig. A. B.

THAT the natural affinities of this superb and highly interesting group of insects should be no longer a matter of doubt, we are induced to deviate, for the first time, from our usual practice. On this and the next plate we have copied two figures of insects which we have never seen, for the purpose of bringing them immediately before the eye of the entomologist, and of clearing up some remarkable facts concerning them.

The first of these is taken from Cramer, who calls it *Pap. Rhipheus*, from an unaccountable idea that it was the same species as one figured by Drury, under that name. He imagines that this latter figure was made from a mutilated specimen, in which the tails had been broken off, and that *his*, consequently, represented the insect in its perfect state. Every succeeding writer, so far as we can discover, has taken up this idea, without the precaution of investigating its correctness. Now it follows that if the two species were the same, the posterior wings of *Cramer's*, would be spotted like those of *Drury's*, yet they are essentially different: a piece of paper, put over to hide the tails in our present figure, which may then be compared with the next, will at once explain our meaning: but setting this aside, Cramer expressly asserts that his insect has the Antennæ "*sans boutons*, and *comme filiformes*, and very justly compares it with our *Leilus Surinamensis*, "*mas plus encore*," with *Pap. Orontes*, L. (*Orontes Noctuides*, Sw.) the immediate type to which it leads.

How totally inapplicable this account is to Drury's insect, will be presently shewn. Cramer has most correctly given the immediate affinities of this insect. We have no space to state our reasons for considering it, at present, as a true *Leilus*; although with six tails, instead of *two*. It may possibly, however, be the fifth, or natatorial type, which in our synopsis of the genus at Pl. 125, we have not ventured to indicate. We have never seen, or even heard of a specimen in modern cabinets; that figured by Cramer, was found at Chandernagor, in Bengal, and was in the rich collection of M. Gigot d'Orcy.

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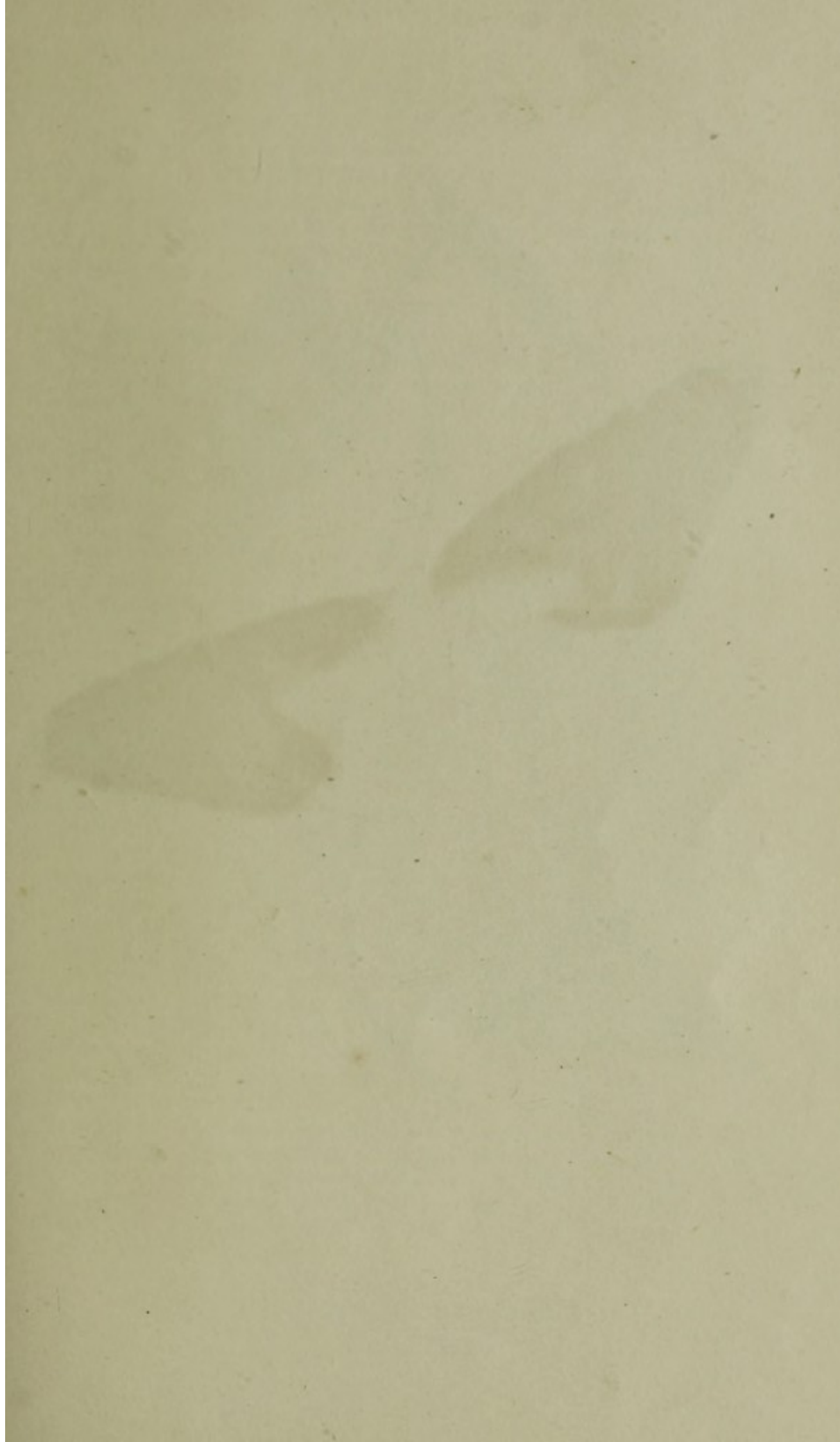
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RHIPHEUS *Dasycephalus*. Sw.

RHIPHEUS, dasycephalus.
Round-winged Emerald Butterfly

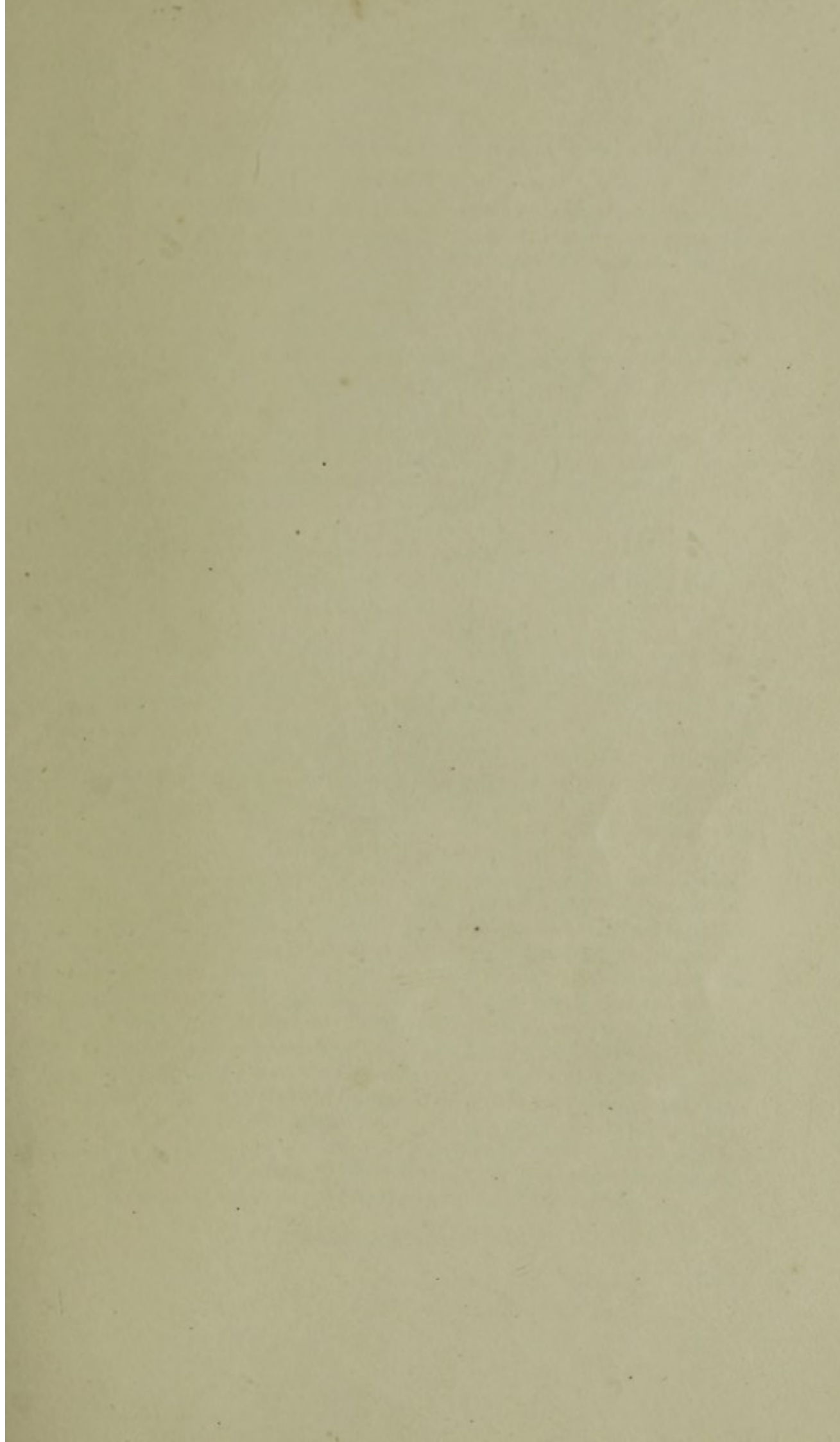
SPECIFIC CHARACTER.

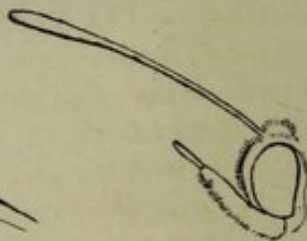
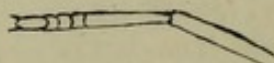
Wings black, varied with numerous irregular lines of emerald green; posterior with the internal and anal angle, deep blood-red, shining with gold and spotted with black.

Papilio Rhipheus. Drury. Ins. 2, p. 40, pl. 23, 1. 2.

IF the imagination was taxed to invent, or to concentrate into one figure all that was splendid, lovely, or rare in the insect world, Nature would far exceed the poor invention of man by the production of this incomparably splendid creature; its rarity also is so great, that but one specimen has ever been seen: this was brought from China, and in 1773, belonged to a Captain May, of Hammersmith: with whom it was seen by Drury, and drawn by Harris. It is not however, on this account only that we have been induced to copy this figure, but because its illustration will clear up one of the most intricate and perplexing questions, that has hitherto impeded the natural arrangement of the Linnæan *Papiliones*, and even of the whole order of *Lepidoptera*.

The error of Cramer, regarding *Rhipheus* has already been rectified. It will now be demonstrated that not only are the two insects distinct as *species*, but that they actually belong to different *genera*. Cramer's being a *Urania* of Fabricius and Latrielle, while Drury's is a *Papilio* of the same authors. This is proved by the figures; and confirmed by the following words of Drury, "*The antennæ are black, and knobbed at their extremities,*" in other words, clavate; while the palpi, as expressed in the figure, are so small as not to project beyond the head, where they lie hid in the frontal hairs: this also being a typical distinction of the Latrellian *Papiliones*. The figures in Drury's work were all drawn and engraved by Moses Harris, well known as one of the most accurate artists that ever lived: as a remarkable proof of this, we find that he has not failed to delineate that peculiar nuration of the anterior wings, which belongs only to the types of *Leilus*. A closer affinity therefore between *Papilio* and *Leilus* cannot possibly be imagined: while its remarkably hairy front, points out its analogy, as an aberrant type in its own genus, to *Chlorisses*, among insects, and *Dasycephala* among birds. So true it is that the natural system "illuminates with a flood of light" every supposed anomaly, and reconciles facts apparently the most inexplicable.





LYCÆNA *Dispar.*

LYCÆNA dispar.
The Large British Copper.

Family Erycinidæ. Sub-family Theclinæ. Sw. Genus *Polyommatus*.

GENERIC CHARACTER.

Wings (typically) obtuse, rounded; anterior having the external margin shorter than the posterior: posterior wings entire or nearly so: destitute both of filiform caudal appendages, and of metallic anal spots. *Nob.*

SUB-GENERIC CHARACTER,

Posterior wings obsoletely dentated, particularly at the anal angle: club of the antennæ short, spatulate; palpi hairy, the last joint lengthened, acute, naked, obliquely vertical. *Type.* L. Phlæas.

SPECIFIC CHARACTER.

Wings coppery: the male with two discoid black dots on the anterior, and one on the posterior wings: club of the antennæ elongated and fusiform. (Aberrant.)

Papilio Hippothoë. Lewen's Pap. pl. 40.

Pap. dispar. Haworth. Lep. Brit. p. 40. Stevens. Brit. Ent. 1. p. 82. Pl. 3.

As considerable misconception appears to exist regarding the type of the tenuirostral or vermiform family of the Diurnal Lepidoptera, we shall endeavour to illustrate this subject. Our concluding number is accordingly devoted to the genus *Polyommatus* of Latrielle, and its subordinate types or sub-genera. These compose, what we have elsewhere defined, a natural and perfect group; (*North. Zool.* 2, 288) inasmuch as it has been tested by the analogies, and conformed by the representations, which it bears to innumerable others, both in the Annulose and vertebrated circles. According to this analysis, both *Lycæna* and *Polyommatus*, strictly so termed, instead of being types either of families or sub-families, are of one and the same genus: which genus, moreover, is but the portion of the aberrant group of the *Theclinæ*. The typical forms of the genus *Erycina*, exclusively confined to Tropical America, constitute, in fact, the pre-eminent perfection of the family in question.

As *Lycæna* represents the *Nymphalidæ*, or sub-typical family of the Diurnal Butterflies, so is it the sub-typical form of the genus *Polyommatus*. Its geographic range is wide, being extended to the temperate latitudes of both hemispheres. The largest British species is that now figured, from the identical specimens mentioned by Lewin.

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London: Published by the Institute

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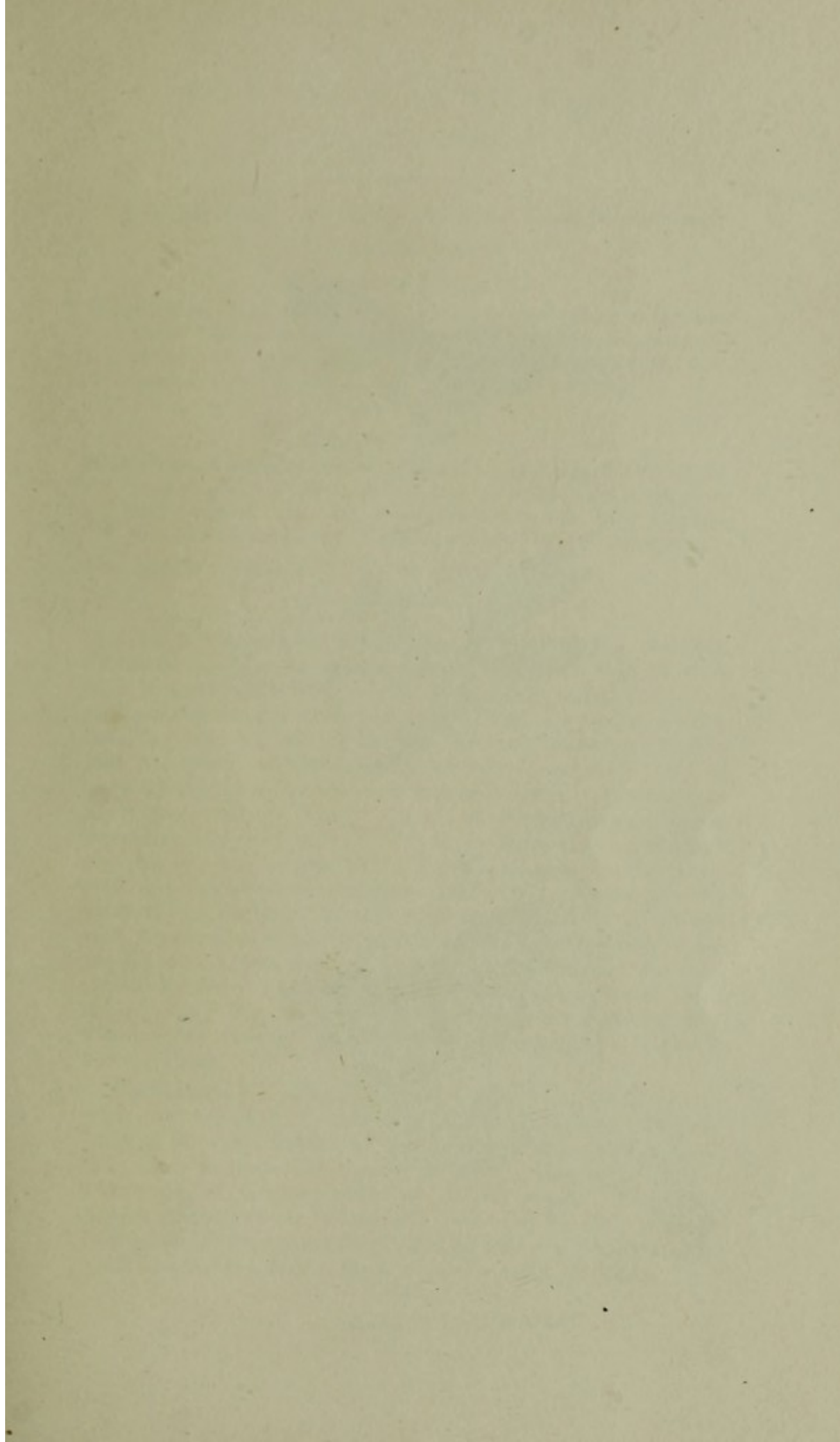
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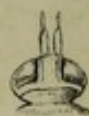
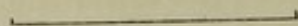
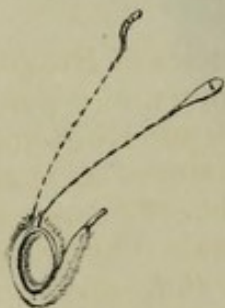
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POLYOMMATUS *Cassius*.

POYLOMMATUS Cassius.

Brazilian Blue.

Family Erycinidæ. Sub-family Theclinæ. Genus Polyommatus.
(The typical sub-genus.)

SUB-GENERIC CHARACTER.

Wings entire, obtuse; the posterior rounded, particularly at the anal angle. Palpi covered and fringed with long hair; the last joint distinct and nearly naked. Antennæ with a lengthened, fusiform, spatulate club. Colour blue, beneath ocellated.

SPECIFIC CHARACTER.

Male: wings sub-diaphanous, blue, immaculate; whitish near the anal angle. Female: the disk of all white, with black spots and borders. In both sexes, beneath white, with blackish dots: those on the anterior wings transverse and confluent.

Pap. Cassius. (the female) *Cramer, pl. 23, fig. c. d.*

WE have elsewhere pointed out, as one of the peculiar distinctions of forms and groups pre-eminently typical, that their geographic distribution is invariably wide, and generally universal; and that this is one of the reasons why certain forms are found both in Europe, America, India, and Australia. This was said of Birds, and the remark is even more applicable when we look to insects. We accordingly find, that the typical species of the genus now under consideration, not only spread themselves over all Europe and Africa, but extend to the Indian islands on one side, and over the whole of America on the other, without offering more than a sectional variation of character. It is uncertain, however, whether any species occur in Australia; for the European type seems to be represented there by the sub-genus *Erina*. The genus, collectively, is a rasorial type, representing the family *Satyridæ* among the *Papiliones*,—*Parnassius* among the *Papilionidæ*,—and the *Paronidæ* among Birds.

Pol. Cassius is one of the most common species of Brazil, where we found it frequenting similar situations, and possessing the same habits, as the ordinary Blues of England. The analysis bestowed upon this group, convinces us that *Pithecops*, *H.* is but a section of this sub-genus. The upper figure represents the female, the lower the female: both are enlarged. The connecting species between *Polyommatus* and *Lycæna* are *Helle*. Hub. *Lametia*, and *Boeticus*.

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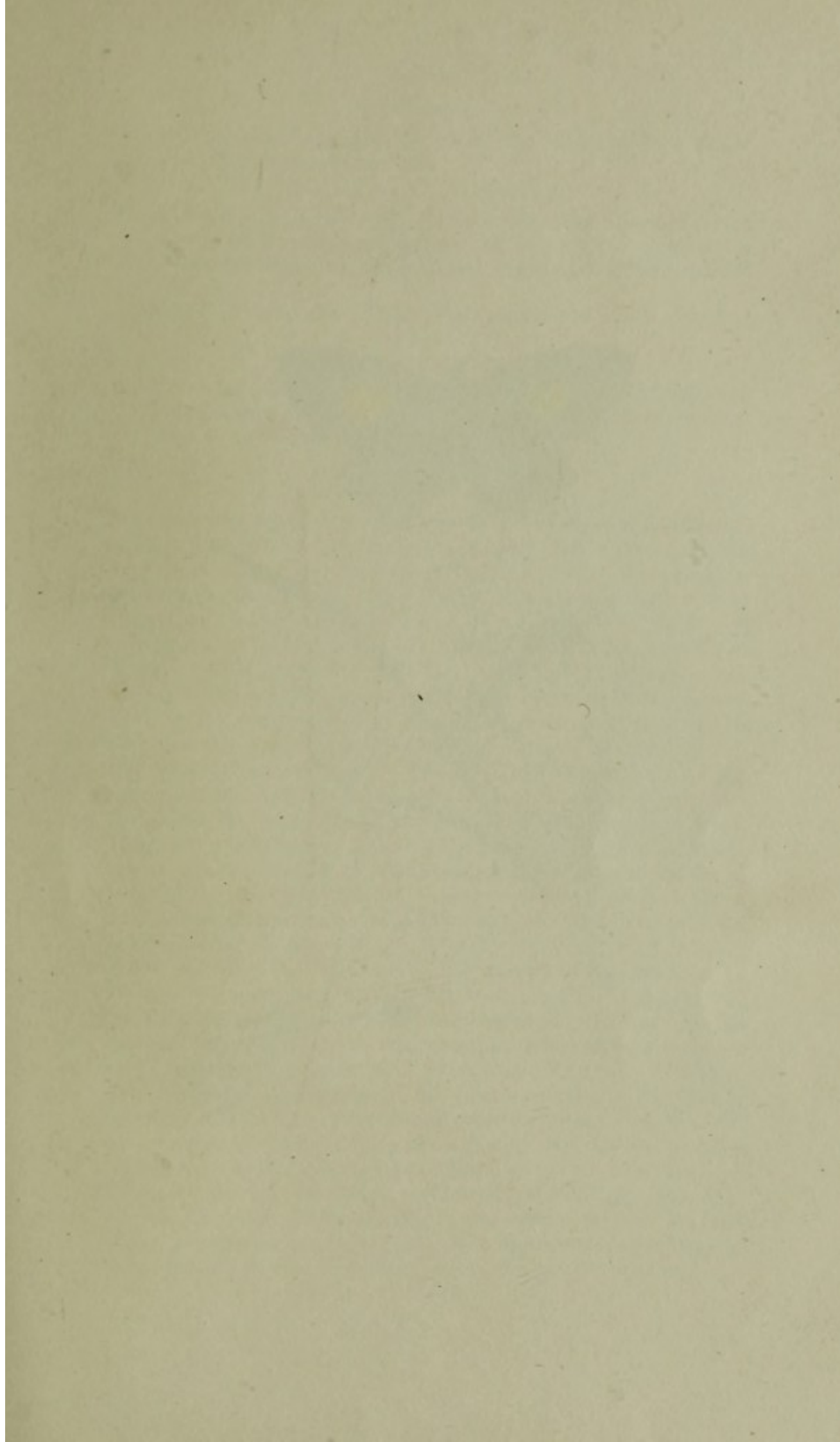
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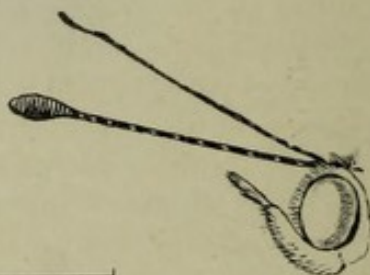
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ERINA *pulchella*.

ERINA pulchella.

Buff-spotted Blue.

Family, Ericinidæ. Sub-fam., Theclinaæ. Sw. Genus, Polyommatus.
Lat. Sub-genus, Erina. Sw.

SUB-GENERIC CHARACTER.

Wings obtuse, very entire: palpi covered only with compact scales, the last joint lengthened, slender, and very naked. Club of the antennæ short, broad, and spatulate. Colour, dark blue, spotted beneath.

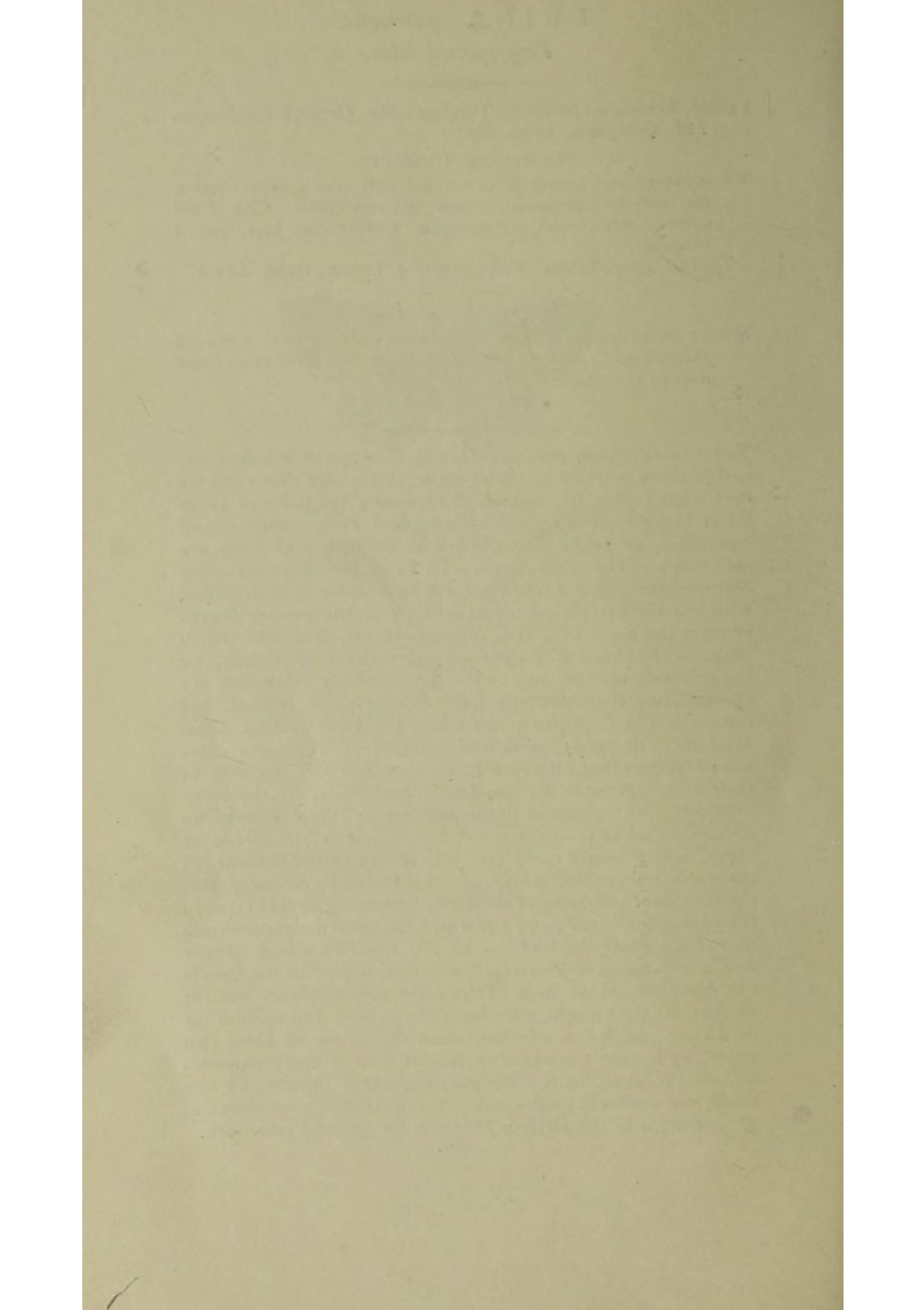
Typical. Hesp. Erinus. Fab. Aberrant. Lycæna ignita, Leach.

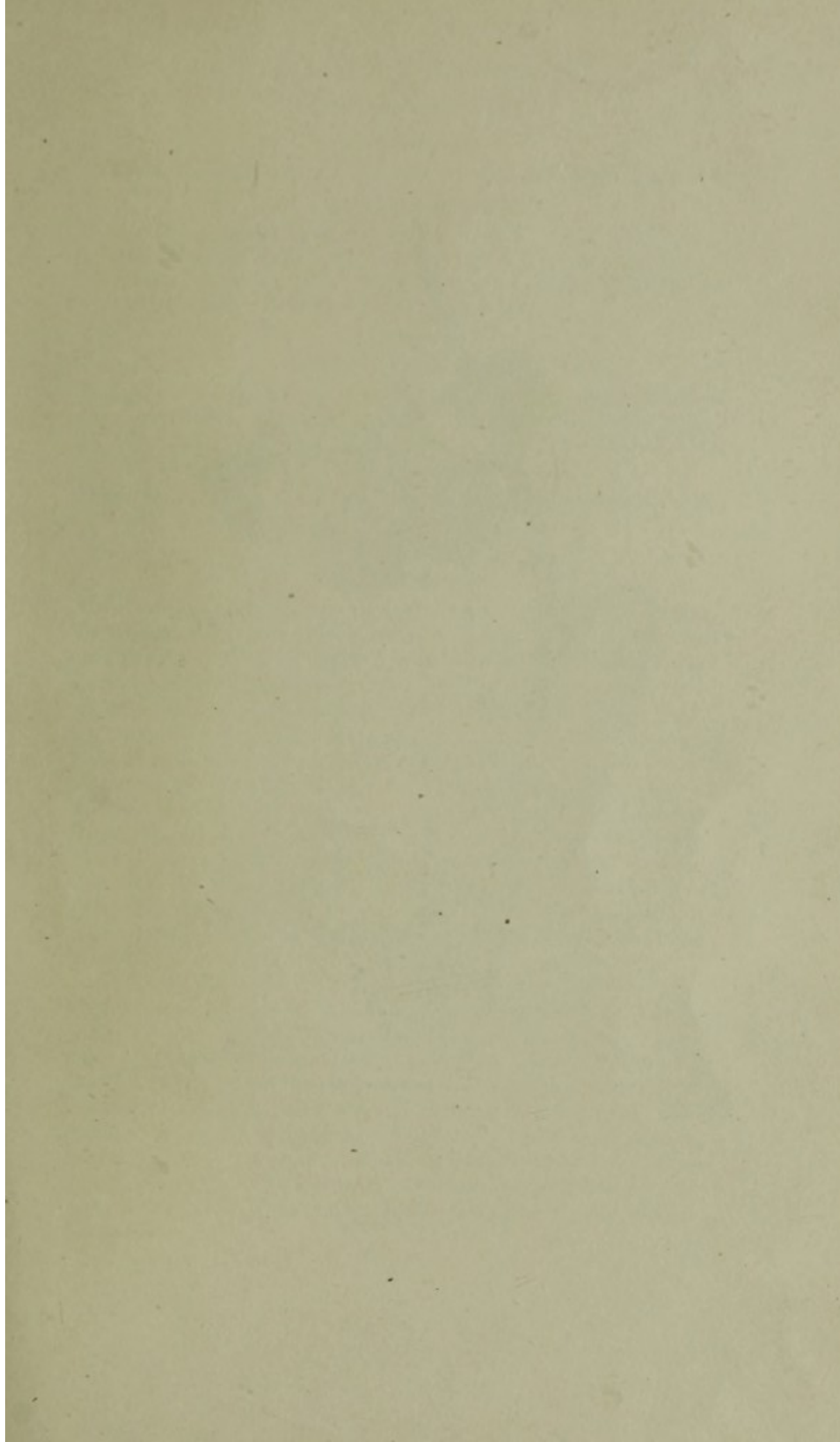
SPECIFIC CHARACTER.

Wings above brown, glossed with blue; anterior with a discoid fulvous spot; beneath white: posterior pair with three black dots in the middle.

Mus. Brit. Nost.

THE passage from *Polyommatus* to the type now before us, is distinctly marked by the section (for under that rank we may still retain it), named *Pithecopis*; the palpi of these latter being both hairy, like the typical *Polyommatus*, and squamose, as in *Erina*: the posterior wings of both are also much of the same shape. By these blended characters Nature gently glides into the form now under consideration, which is the satyrian or *rasorial* type of the genus; representing the *Satyridæ*, the *Hipparchianæ*, &c. and which supplies the place of *Polyommatus*, strictly so termed, on the Australian continent. We have already before us six species from that country; five of which are typical, but the sixth, the *L. ignita* of our friend Dr. Leach (*Zool. Miss.* 1, pl. 60), demands particular attention. We have elsewhere shewn that all aberrant forms unite into a circle of their own. Now as *Erina*, *Lucia*, and *Naïs*, are the aberrant forms of the genus *Polyommatus*, so there should be species either in the first or the last,—that is, in *Erina* or *Naïs*, which would exemplify this theory in the present instance. We accordingly find it demonstrated by *Erina ignita*; for that insect, although essentially belonging to this type, in the characters of the palpi and antennæ, nevertheless assumes one of the great distinctions of *Naïs*.—*The wings of the two sexes being different*: the posterior pair in the female are dentated, while those of the male are completely entire: so that the first might pass for a *Naïs*, and the second for an *Erina*; both sexes further shew the union of these two types, by having the under surface of their wings ornamented, as in *Naïs*, with silvery spots. Our figures, by the scale, are somewhat enlarged. We have sent a specimen of *E. pulchella* to the British Museum for general reference.







LUCIA limbaria.

LUCIA limbaria.

Brown-winged Blue.

Sub-fam. Theclinæ. Genus Polyommatus. *Lat.* Sub-genus Lucia. *Sw.*

SUB-GENERIC CHARACTER.

Wings horizontally lengthened, entire: palpi very slender, ciliate with long hairs, the last joint very minute, scarcely distinguishable. Antennæ with a lengthened club, either cylindrical or compressed. Colours obscure, moth-like.

SPECIFIC CHARACTER.

Wings above brown, disk of the anterior fulvous, with two brown spots above, and three beneath, encircled with white: posterior beneath varied with grey and white, with a central band of square brown spots.

Hesp. Lucanus? *Fab. Ent. Syst.* 3, 1, p. 322. *Donovan's Ind. Ins. pl.* 43, f. 4?

Mus. Nost.

THIS, which appears the most aberrant type of the genus, immediately reminds the student of a dark coloured *Erycina* or a *Phalæna*, both of which families, as being the Heliconian or Erycinian type of *Polyommatus*, it truly represents. It is at once known from *Erina*, by its very peculiar palpi, and by its more lengthened wings. The antennæ of three species now before us, present a remarkable difference. In two of these, the club is compressed and spatulate, like that of *Erina*; but in the third, here figured, it has the cylindrical form belonging to *Naïs*. Which of these forms is typical, must at present, be undecided; but there cannot be a stranger link of connection between *Lucia* and *Naïs*, than the fact of this species borrowing, as it were, the cylindrical club of the latter. Without such a link, in short, the series would be imperfect.

As we cannot satisfactorily determine whether the types here figured of *Lucia* and *Erina* are described in books, we have been compelled to regard them as unnamed. This, and the two other species we possess, are all from Australia. On bringing the genus *Polyommatus* to analogical tests, the only demonstration of a natural group, we find the subgenera representing the families of the Diurnal Lepidoptera, in the following manner:—1. TYPICAL, *Polyommatus*, *Papilionidæ*.—2. SUB-TYPICAL, *Lycæna*, *Nymphalidæ*.—3. ABERRANT, *Naïs-Hesperidæ*, *Lucia-Erycidinæ*, and *Erina-Satyridæ*.

The first of the year was a very dry one, and the crops were much injured by the drought.

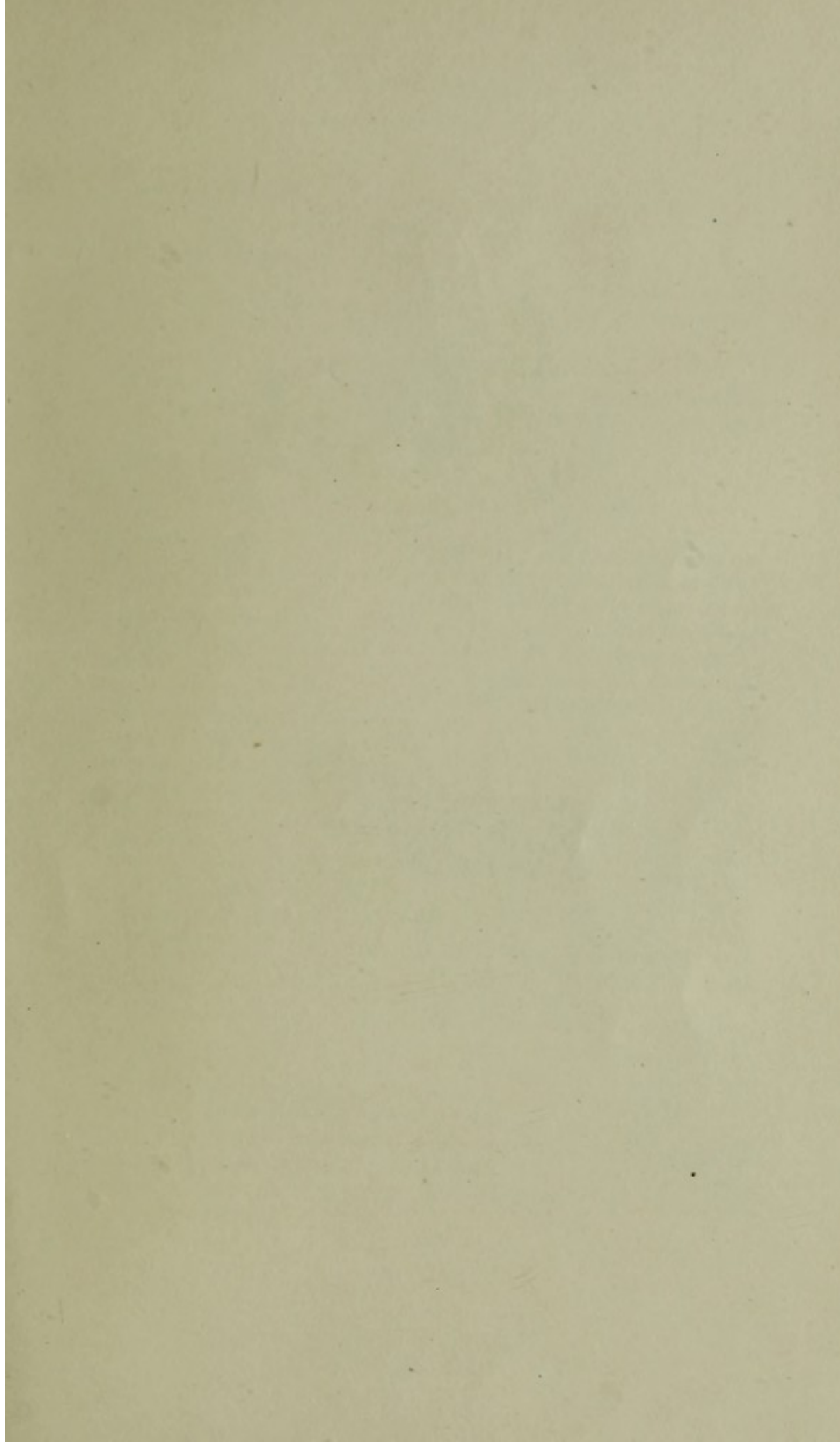
The second of the year was a very wet one, and the crops were much injured by the rain.

The third of the year was a very dry one, and the crops were much injured by the drought.

The fourth of the year was a very wet one, and the crops were much injured by the rain.

The fifth of the year was a very dry one, and the crops were much injured by the drought.

The sixth of the year was a very wet one, and the crops were much injured by the rain.





NAÏS *splendens*.

N A Ì S splendens.
Blue-shouldered Copper.

Sub-fam. Theclinæ. Genus Polyommatus. Sub-genus Nais. Sw.

SUE-GENERIC CHARACTER.

Wings sub-angulated; posterior dentated, particularly at the anal angle. Copper coloured above, with silvery spots beneath. Antennæ cylindrical, thickening from the base: the tip truncate.

SPECIFIC CHARACTER.

Wings above coppery, with black dots, their basal half-shining blue; beneath fulvous; the posterior varied with ferruginous, and marked by silvery spots.

Pap. Nais. Cramer, pl. 57, fig. D. E.

IN every natural group of the diurnal Lepidoptera which we have analysed, (and the number is somewhat considerable,) there is always one in which the posterior wings are more than usually tailed; and this seems to be such a prevalent form throughout the Vertebrata and the Annulosa, that we believe it is universal: in other words, that it is one of the PRIMARY TYPES of Nature. We have consequently termed it the *natatorial*, since it represents that order of birds, as the Swallow-tailed *Papilionæ* typify the Swallows. That we should find this form in a group where the chief character is the roundness and the integrity of the wings, is certainly astonishing; but it shews that the laws of Nature are as simple, as they are universal. The absolute union of this sub-genus with *Lycæna*, with which we commenced the circle, is palpable to the meanest capacity. All the species we possess, are from Africa and India. As they represent the *Argynnineæ*, we accordingly find them ornamented with silver spots. The species now figured, are probably male and female, and were received from Africa.

We have now given the natural types of an Entomological genus; the only one that has been attempted, since the demonstration of *Phanæus* and *Scarabæus*. These are but three genera, out of many thousands, which at present have any other foundation, strictly speaking, than mere opinion. But the great principles of variation are now discovered, and we must hope that those naturalists of a higher order, who join acknowledged talent to matured experience, will follow up the subject.

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