









NOVITATES ZOOLOGICAE.

VOL. XXVI., 1919.





# NOVITATES ZOOLOGICAE.

A Journal of Zoology

*IN CONNECTION WITH THE TRING MUSEUM.*

EDITED BY

LORD ROTHSCHILD, F.R.S., PH.D.,

DR. ERNST HARTERT, AND DR. K. JORDAN.

VOL. XXVI., 1919.

*(WITH SIX PLATES.)*

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## ERRATA.

Page 136, No. 69 : Read "*crisatella*" instead of "*iristatella*."

Page 144, No. 124 : Read "*Pyromelana*" instead of "*Pyramelana*."

Page 145, Nos. 125, 126, 127 : Read "*Pyromelana*" instead of "*Pyromelaena*."

Page 199, No. 50 : Read "*Chlaenogramma*" instead of "*Chalenogramma*."

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# NOVITATES ZOOLOGICAE.

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No. I.

## SUPPLEMENTARY NOTES TO THE REVIEW OF HOULBERT AND OBERTHÜR'S MONOGRAPH OF *CASTNIINAE* BY TALBOT AND PROUT.

BY LORD ROTHSCHILD, F.R.S.

I HOPE when Dr. K. Jordan returns to Tring that he will complete and publish his **Monograph of the Castniidae** which will also necessarily include a detailed analysis of Houlbert and Oberthür's Revision; but meanwhile, I have been asked to publish Mr. George Talbot's review of the work in question. Thinking that, in view of the rarity of Castnias in collections, it would be interesting to give a list of those in the Tring Museum, I am doing so, adding such notes as I have been able to make while arranging my specimens according to the revision in question.

### *Castnia* (*Cyparissias*) *dedalus* (Cram.)

*Papilio dedalus* Cramer, *Pap. Exot.* vol. i. part 1. p. 1. pl. i. ff. A.B. (1775) (Berbice).

Messrs. Houlbert and Oberthür consider that, as there are no specimens they have seen which agree with Cramer's figure, this insect is still unknown and therefore have renamed the Guiana *Castnia* of this group *guyanensis*. It is well known that many of the plates in Cramer are very coarsely executed, though the "originals" now in the British Museum are very well drawn. In consequence of the faulty reproduction many figures do not agree closely with the insects we **know** they are meant to represent; therefore it is quite evident that the insect named *guyanensis* by Messrs. Houlbert and Oberthür is really *dedalus* Cram. and *guyanensis* becomes a pure synonym. Among the series at Tring moreover are specimens with very broad bands and large spots approaching very closely to Cramer's figure. In his description Cramer says he has seen specimens from Surinam, but that they are smaller. At Tring we have 3 specimens from the Felder collection which originally formed part of the Van Lennep collection, one of which bears the characteristic large label with the inscription "Danai Festivi, No. 1, Dedalus Cr. 1 fs. A.B." This is evidently one of the Surinam specimens examined by Cramer, who figured and described many specimens out of Van Lennep's collection. This specimen, however, is not *dedalus*, but is a ♂ of *Castnia grandis* Jord. We have in the Tring Museum 12 specimens as follows:

3 ♂♂, 2 ♀♀, Surinam (Felder coll.); 2 ♂♂, 3 ♀♀, British Guiana; 1 ♂, Christianeberg, Rio Demerara; 1 ♀ Bartica, British Guiana.

**Castnia (Cyparissias) dedalus amazonensis** Houlb.

*Castnia amazonensis* Houlbert, *Etud. Lépid. Comp.* fasc. xiii. p. 51. pl. ii. f. 2 (1917) (Upper Amazon).

This subspecies is chiefly distinguishable by the almost obsolete spots in the two rows on outer one-third of hindwing of ♂ and the enlarged anterior spots on inner row in the ♀. The Tring Museum has 3 specimens as follows:

2 ♂♂, 1 ♀ Juhuty Amazons, April 1905 (M. de Mathan).

**Castnia (Cyparissias) dedalus conspicua** subsp. nov.

♂ ♀. Distinguished from all the other races of *dedalus* by the almost uniform width of the oblique band on the forewing and by the large size and sulphur-yellow colour of the two rows of spots on the hindwing. The white markings, including the oblique band, on the forewings are also wider and more sharply defined than in the other forms.

ab. *magnipuncta* ab. nov. ♂ ♀ the two rows of yellow spots on the hindwings very much enlarged. The following specimens are in the Tring Museum:

1 ♂, 5 ♀♀ Buenavista, East Bolivia, 750 m. = 2,438 ft., August 1906—April 1907 (José Steinbach) (♀ type); 2 ♀♀ Sta Cruz de la Sierra, East Bolivia, 1905—1906 (José Steinbach); 1 ♀ Rio Chuelurras, Rio Palcazu, 320 m. = 1,040 ft., September 5th, 1904 (W. Hoffmanns); 1 ♀ Pozuzo, Dept. Huanaco, Peru (W. Hoffmanns); 1 ♂ Santiago del Estero, East Bolivia, 1905—6 (José Steinbach); 1 ♂ Prov. Sara, Dept. Sta Cruz de la Sierra, East Bolivia, February 1904 (José Steinbach); 1 ♂, 1 ♀ Escorado, Dept. Sta Cruz de la Sierra, East Bolivia, January 1904 (José Steinbach) (ab. *magnipuncta*, type ♀); 2 ♀♀ Santiago del Estero, East Bolivia, 1905—6 (José Steinbach).

**Castnia (Cyparissias) grandis** (Jord.)

*Eupalamides grandis* Jordan, *Novit. Zool.* vol. xxiv. p. 59. no. 1 (1917) (Kouron River).

Of this very distinct species, which exhibits its most distinctive characters in the genitalia, but which can, however, be outwardly distinguished from *dedalus* by its lacking the white submarginal spots on the forewings above the first radial nervure and in the entirely sealed underside, there are at Tring 10 specimens as follows:

1 ♂ Mouth of Kouron River, December 1903 (E. Le Mout) (type); 2 ♂♂ ??; 2 ♂♂, 1 ♀ Surinam (coll. Van Lennep, ex coll. Felder); 1 ♀? (ex Leyden Museum, ex coll. Felder); 2 ♀♀? (ex Berlin Museum, ex coll. Felder); 1 ♀ British Guiana.

**Castnia (Cyparissias) boliviensis** Houlb.

*Castnia boliviensis* Houlbert, *Etud. Entom. Comp.* fasc. xiii. p. 52 (1917) (Bolivia).

Messrs. Houlbert and Oberthür maintain that the unique Brazilian ♀ sent to Vienna by J. Natterer and described by Kollar as *Castnia geron* is entirely distinct from the ♂ insect from Bolivia described by Preiss as the ♂ of *geron*. These gentlemen also state they have never seen Preiss's insect either, but only know the two drawings. They nevertheless proceed to name the figure of Preiss as above. The Tring Museum possesses 9 Bolivian and Peruvian specimens, all ♂♂, so the question of the identity or otherwise of Kollar's and

Preiss's insects cannot be finally solved yet. As, however, these Peruvian and Bolivian ♂♂ differ immensely from Kollar's figure of the Brazilian ♀ and the habitats of the two are very far apart, I have preferred at present to keep them as distinct species till we can compare Brazilian ♂♂ and Bolivian ♀♀. Preiss's figure agrees exactly with the 9 ♂♂ at Tring.

5 ♂♂ Buenavista, East Bolivia, 750 m. = 2,438 ft., August 1906—April 1907 (José Steinbach); 3 ♂♂ Yahuarmya, S.E. Peru, 1,200 ft., February and March 1912 (H. and C. Watkins); 1 ♂ Sta Cruz de la Sierra, East Bolivia, 1905-6 (José Steinbach).

**Castnia (Amauta) cacica Herr.-Schaeff.**

*Castnia cacica* Herrich-Schaeffer, *Ausseeur Schmett.* pl. liv. fig. 143 (1854) (Central Columbia).

In the case of this species I am convinced that Druce was wrong and Houlbert and Oberthür right in separating two races of *cacica*, the typical one being confined to Central Columbia. The Tring Museum has 5 specimens of *cacica cacica* as follows:

2 ♂♂ Columbia; 1 ♂ Sta Fé de Bogotá; 1 ♀?; 1 ♀ Bogotá (Lindig coll., ex coll. Felder).

**Castnia (Amauta) cacica procera Boisduval.**

*Castnia procera* Boisduval, *Spec. Gén. Lépid. Hétt.* p. 503 (1874) (Mexico).

This form differs chiefly in the absence of the white discocellular stigma in the forewings.

There are at Tring 11 specimens as follows:

1 ♀ Guatemala (Salvin, ex coll. Felder); 2 ♂♂, 2 ♀♀ Sixola River, Costa Rica (W. Schaus); 2 ♂♂ ?; 1 ♂ S. America! (loc. err.); 1 ♂ Carilla, Costa Rica; 1 ♂, 1 ♀ Carrabianco, Costa Rica (Lankester).

**Castnia (Amauta) papilionaris amethystina Houlb.**

*Castnia amethystina* Houlbert, *Etud. Entom. Comp.* fasc. xiii. p. 54 (1917) (Panama).

This form differs from *papilionaris papilionaris* by its small size and narrow blue band on hindwings. The Tring Museum has one specimen, 1 ♂ Merida, Venezuela (Briceño).

**Castnia (Amauta) papilionaris velutina Houlb.**

*Castnia velutina* Houlbert, *Etud. Entom. Comp.* fasc. xiii. p. 55 (1917) (Guayaquil?).

1 ♀ Macco, Ecuador, 1905-6; 1 ♀ Zamora, Ecuador, 2—4,000 ft. (O. T. Baron); 2 ♂♂, 2 ♀♀ Ecuador.

**Castnia (Amauta) papilionaris affinis subsp. nov.**

This form is nearest to *velutina*, but the ♀♀ have the bands almost as broad as in Westwood's figure of *papilionaris papilionaris*. The Tring Museum has 8 specimens as follows:

3 ♂♂, 1 ♀ Yahuarmya, S.E. Peru, 1,200 ft., February—March 1912 (H. and C. Watkins); 1 ♂ Pozuzo, Huanaco, 800—1,000 m. = 2,600—3,250 ft. (W. Hoffmanns); 2 ♀♀ Chanchamayo, Peru; 1 ♂ Songo, Bolivia (Garlepp).

**Castnia (Amauta) angustata** Druce

*Castnia angustata* Druce, *Ann. Mag. Nat. Hist.* (7) xx. p. 505 (1907) (Ecuador).

Messrs. Houlbert and Oberthür as usual refuse to accept Druce's name because unaccompanied by a figure, though they were informed by Mr. Talbot that Houlbert's *Castnia oberthüri* is antedated ten years by *angustata* Druce.

The Tring Museum possesses 10 specimens as follows :

1 ♂ Rio Dagua, Columbia (W. Rosenberg); 2 ♂♂ Paramba, Ecuador, 3,500 ft., April 1897 (W. Rosenberg); 1 ♂, 5 ♀♀ Paramba, Ecuador, January—August 1898—1899 (Flemming); 1 ♀ Zamora, Ecuador, 3—4,000 ft. (O. T. Baron).

**Castnia (Eupalamides) schreibersi** Mikán

*Castnia schreibersi* Mikán, *Delectus Florae et Faunae Brasiliensis*, pl. 18 (1820).

The Tring Museum has 4 specimens of this species as follows :

1 ♂ ?; 1 ♀ ? (ex coll. Felder); 2 ♀ Upper Amazons.

**Castnia (Eupalamides) actor** Dalm.

*Castnia actor* Dalman, *Prodr. Monogr. Castniae*, in *Act. Holm.* p. 398. 2. pl. v. f. I (1824) (Brazil).

Messrs. Houlbert and Oberthür in opposition to Boisduval consider *actor* a distinct species from *schreibersi*; I cannot express an opinion as I only have one specimen, which agrees with Dalman's plate except that it lacks all blue on hindwing.

1 ♂ South Brazil.

**Castnia (Eupalamides) zerynthia** Gray

*Castnia zerynthia* G. R. Gray, *Trans. Entom. Soc. Lond.* 1838. p. 144.

Of this conspicuous species there are at Tring 7 specimens as follows :

1 ♂ Esperitu Santo, Brazil (ex coll. Fruhstorfer); 1 ♂ South Brazil; 1 ♀ ?; 2 ♀♀ Rio Janeiro, Vienna Academy Expedition, 1867 (ex coll. Felder); 2 ♀♀ ? but probably same source (ex coll. Felder).

**Castnia (Corybantes) pylades** (Stoll)

*Papilio pylades* Stoll, in Cramer, *Pap. Erot.* vol. iv. part xxxiii. p. 200. pl. 387. ff. A.B. (1782) (West Indies).

The Tring Museum possesses a single specimen of this fine and large species :

1 ♀ Cayenne (coll. Becker, ex coll. Felder).

**Castnia (Corybantes) mathani** Oberth.

*Castnia mathani* Oberthür, *Etud. Entom.* fasc. vi. pl. 4. f. 2 (1881) (Teffé).

The ♂ in the Tring Museum differs from the ♂ in the Paris Museum (*Etud. Lépidop. Comp.* fasc. xv. p. 183. fig. 63 ter.) by the entire absence of the 2 subapical pale spots on forewing, the spot above vein 5 alone being present.

1 ♂ Maripa, Caura River, Venezuela, July 1901 (S. M. Klages); 1 ♀, Rio Demerara, British Guiana.

**Castnia (Corybantes) veraguana parambae** subsp. nov.

Messrs. Houlbert and Oberthür have stated their conviction that Westwood's *veraguana* and Schaus's *govara* are distinct species, while Dr. Strand considers them ♂ ♀. There are in the Tring Museum 3 ♂♂ of *govara*, and if it were not for a fourth ♂ of this group the question of identity or otherwise might have remained doubtful. But a ♂ from Paramba, Ecuador, appears to solve the problem, for while having as in *govara* only 2 vitreous subapical spots instead of 3 as in *veraguana*, it has the large median chevron-like band of the forewings much narrower and deeper rufous, not whitish as in *govara*, while the hindwings are exactly as in Westwood's figure of *veraguana*. The latter, however, has the chevron band much broader than in *govara*. The truth therefore seems to be that we have here 3 local races or subspecies of *veraguana*, but the character of the 2 versus 3 hyaline subapical spots appears to be sexual.

This new form differs from *veraguana veraguana* by the very narrow and more rufous chevron band.

1 ♂ Paramba, Ecuador, January—August 1898 (Flemming)

**Castnia (Corybantes) veraguana govara** Schaus

*Castnia govara* Schaus, *Journ. New York Entom. Soc.* vol. iv. p. 147 (1896) (Columbia).

Differs from both *ver. veraguana* and *ver. parambae* in the entire absence of the red median band on the hindwings, only 1 of the 3 ♂♂ at Tring showing a minute red dot in the black disc.

3 ♂♂ Sta Fé de Bogotá, Columbia.

**Castnia (Castniomera) atymnius** Dalm.

*Castnia atymnius* Dalman, *Prodr. Monogr. Castniac.* in *Act. Holm.* p. 12 (1824) (Brazil).

Messrs. Oberthür and Houlbert have divided this species into a number of species; but as far as my series of this group of *Castnia* shows, I can only accept two as good species, viz. *drucei* Schaus and *atymnius* Dalm., the latter with at least 6 subspecies. All the subspecies show a tendency for some individuals to have the outer half of hindwings rufous or pale brown instead of black or deep brown, and this makes it almost impossible at the present moment to fix the forms named *newmanni* and *affinis* by Houlbert, for he records *newmanni* from Panama, Columbia, Guatemala, and Venezuela, while *affinis* is only recorded from Columbia. Again it is very difficult to follow Mr. Houlbert when he says in one paragraph (page 209) that *humboldti* is exclusively confined to Columbia and four lines farther down records specimens of *humboldti* in Mr. Oberthür's collection from Venezuela. As Mr. Houlbert, however, states that Guenée quotes Columbia with a ? as the *habitat* of the type of Houlbert's *newmanni* I consider we have the right to fix the type locality by subsequent designation as probably Venezuela, as my series from there agree best with their figure, and I shall in this list do so, at the same time considering all the specimens from other localities quoted by Houlbert under *newmanni* as aberrations of the respective forms of *atymnius* from those localities.

Messrs. Houlbert and Oberthür divide their genus *Castniomera* into two sections; one *Melanosema*, where the forewing has only a single pale band, while the other, *Phaeosema*, has two. On examination it will, however, be found that

all the specimens of this group of *Castnia* have two distinct pale bands on the **underside** of the forewing, and if in *drucei* or in the forms of *atymnius* other than *atymnius atymnius* the outer macular band shows through in some specimens, it is the exception and not the rule. (It is present above in the ♀♀ of all.)

The Tring Museum possesses 7 specimens of *atymnius atymnius*:

1 ♂ Espiritu Santo (ex coll. Fruhstorfer); 1 ♀ Rio Janeiro (the subapical macular band above is much more obsolete than in the other races and in *drucei*); 3 ♂♂ Brazil, Westin (ex. Mus. Holm. ex coll. Felder) (type); 2 ♂♂ ?.

***Castnia (Castniomera) atymnius humboldti* Boisid.**

*Castnia humboldti* Boisduval, *Spec. Gén. Lépid. Hét.* p. 528 (1874) (Columbia).

The Tring Museum possesses 8 specimens of this race as follows:

4 ♂♂, 2 ♀♀ Rio Dagua, Columbia (W. Rosenberg); 1 ♂ Bogotá (Childs); 1 ♂ Sta Fé de Bogotá.

***Castnia (Castniomera) atymnius futilis* Walk.**

*Castnia futilis* Walker, *Cat. Lepid. Ins. Brit. Mus.* vol. 7, p. 1581 (1856) (Nicaragua).

Owing to the confusion of *futilis* by Westwood and Druce, and because it has never been figured, Messrs. Houlbert and Oberthür ignore it entirely as a nomenclatorial unit, though under *drucei* they go fully into its history. I have compared the type carefully and have come to the conclusion that it is the same as Boisduval's *salasia*, which it therefore antedates by eighteen years. Strand's *brunneata* is rightly considered by Houlbert as a pale ♀ of *salasia* = *futilis*, there are 2 ♂♂ at Tring of the same aberration. The series in the Tring Museum consists of 34 specimens as follows:

1 ♂ Panama, October 1896 (W. Rosenberg); 5 ♂♂ Isthmus of Panama, December 1907 (Pemberton); 2 ♂♂ Guapiles, Costa Rica, June (W. Schaus); 1 ♂ Carillo, Costa Rica, June—July 1903 (Underwood); 1 ♂ Tuis, Costa Rica; 1 ♂ San José, Costa Rica (Underwood); 1 ♂, 1 ♀ San Ramon, Rio Wanks, Nicaragua, 375 ft., May—June 1905 (M. G. Palmer); 1 ♀ Honduras; 11 ♂♂, 1 ♀ Pacific Slope, Guatemala (Salvin, ex coll. Felder); 2 ♂♂ ? (ex coll. Felder); 1 ♂ Orizaba, Mexico; 1 ♀ Orizaba, Mexico (Biliwick, ex coll. Felder); 1 ♂ Pacific Slope, Guatemala (Salvin), 1 ♂ Central America, 1 ♂ ? (ex coll. Felder), **ab. *brunneata*** Strand.

***Castnia (Castniomera) atymnius newmanni* Houlb.**

*Castnia newmanni* Houlbert, *Etud. Lépid. Comp.* fasc. xiii. p. 58 (1917) (Columbia ?, Venezuela desig. subsp. W. R.).

The Tring Museum possesses 7 specimens of this form as follows:

5 ♂♂ San Esteban, Venezuela, July 1909 (S. M. Klages); 1 ♂ Venezuela (Mocquerys); 1 ♀ Onaca, Sta Marta, 2,000 ft. (Engelke).

***Castnia (Castniomera) atymnius ecuadorensis* Houlb.**

*Castnia ecuadorensis* Houlbert, *Etud. Lépid. Comp.* fasc. xiii. p. 57 (1917) (Ecuador).

The Tring Museum has 18 specimens of this race as follows:

2 ♂♂ Zamora, Ecuador, 3—4,000 ft. (O. T. Baron); 2 ♂♂ Cachabé, January 1897 (W. Rosenberg); 12 ♂♂, 2 ♀♀ Paramba, Ecuador, 3,500 ft., April 1897 (W. Rosenberg).

**Castnia (Castniomera) atymnius affinis** Houlb.

*Castnia affinis* Houlbert, *Etud. Lépid. Comp.* fasc. xiii, p. 57 (1917) (Columbia).

This may only prove to be an aberration of *humboldti*, but for the present I keep it separate. Two specimens only are in the Tring Museum.

1 ♂ Rio Negro (ex coll. Felder); 1 ♂ Coreato, Cauca Valley (Paine and Brinkley).

**Castnia (Castniomera) drucei** Schaus

*Castnia drucei* Schaus, *Ann. & Mag. Nat. Hist.* (8)7, p. 191 (1911) (Costa Rica).

The Tring Museum series consists of 17 specimens:

1 ♀ Guapiles, Costa Rica, May (W. Schaus) (cotype); 2 ♂♂ San Mateo, Costa Rica, 1—2,000 ft., November 25—December 12, 1906 (W. Schaus); 7 ♂♂, 2 ♀♀ Ascazu, Costa Rica, August—October 1903 (Underwood); 2 ♂♂ Bogava, Chiriqui, 800 ft. (Watson); 1 ♂ Costa Rica (Underwood); 1 ♂ Pacific Slope, Guatemala (Salvin, ex coll. Felder).

**Castnia licus** (Drury).

*Papilio licus* Drury, *Illust. Nat. Hist.* vol. i, p. 30, pl. xvi, ff. 1, 2 (1770) (Surinam).

The Tring Museum possesses 5 specimens of this excessively rare species, including a ♀ out of the Van Lennep collection which must have been examined by Cramer though he figures a ♂. I should have considered all the forms treated by Messrs. Houlbert and Oberthür under *licus*, *licoides*, and *licoidella* as subspecies of *licus* without hesitation, but I have a large series of specimens from British, Dutch, and French Guiana which agree with *licoides* and differ remarkably from the 5 true *licus*. It will most likely turn out that the genitalia of *licus* and the *licoides* forms are quite different, but I must leave the settling of this question and also the detailed description of *licus* to be published in Dr. Jordan's monograph.

1 ♂, 1 ♀ Surinam (ex coll. Van Lennep, ex coll. Felder); 1 ♀? (ex coll. Felder); 1 ♂, 1 ♀?.

**Castnia licoides** Boisduval.

*Castnia licoides* Boisduval, *Spec. Gén. Lépid. Hétt.* p. 527, pl. i. (1874) (Sta Catharina).

This is a very widespread and variable species, and I do not feel competent at this moment to describe the several unnamed subspecies and shall only treat them as Mr. Oberthür has done as races as yet unnamed.

The Tring Museum has 41 specimens from the following localities:

1 ♂ Bahia, 1 ♂, 1 ♀? (probably Bahia) (ex coll. Feld.); 9 ♂♂, 2 ♀♀ Amazon River; 6 ♂♂, 1 ♀ Ega, Amazons (Bates, ex coll. Felder); 3 ♂♂, 3 ♀♀ Itaituba to Obidos, April 1906 (W. Hoffmanns); 1 ♂, 1 ♀ Obidos, Amazons, October—November 1904 (M. de Mathan); 2 ♂♂, 3 ♀♀ Yuhuty, Amazons, April 1905 (M. de Mathan); 4 ♂♂, 2 ♀♀ Rio Janeiro; 1 ♂ Pará 1893 (Stuart).

**Castnia licoides** subsp. ?

Of the Guiana race there are 62 specimens at Tring:

8 ♂♂, 6 ♀♀ British Guiana; 3 ♂♂, 3 ♀♀ Rio Demerara, British Guiana; 8 ♂♂, 1 ♀ Bartica, British Guiana; 1 ♂ Fort George, September 1891; 1 ♀

Gourdonville, Kouron River, Cayenne, September 1905 (E. Le Moutl); 6 ♂♂, 9 ♀♀ Mouth of Kouron River, Cayenne, July 1905 (E. Le Moutl), 1 ♂ Kouron River, Cayenne, January 1906 (E. Le Moutl); 1 ♂ George Town, British Guiana; larva and pupa, George Town, British Guiana; 8 ♂♂, 3 ♀♀ St. Laurent de Maroni, Cayenne, August—December 1905 (E. Le Moutl); 1 ♀ St. Jean de Maroni, July—August 1904 (E. Le Moutl); 2 ♂♂, 1 Cayenne, 1 Maraukam (ex coll. Felder).

**Castnia licoides insularis** Houlb.

*Castnia licoides* form. *insularis* Houlbert, *Etud. Lépid. Comp.* fasc. xv. p. 235 (1918) (Trinidad).

The Tring Museum has 21 specimens:

15 ♂♂ Trinidad; 1 ♀ Maraval, Trinidad, August 1891; 1 ♂ Port of Spain, Trinidad, July 1891; 3 ♂♂ Ariapite Valley, Trinidad, June 1892; 1 ♂ Caparo Valley, Port of Spain, January 1897 (Dr. Percy Rendall).

**Castnia licoides** subsp. ?

Of the Venezuelan race there are 12 specimens at Tring:

1 ♂, 1 ♀ La Vuelta, Caura River, May 1904 (S. M. Klages); 9 ♂♂ Suapure, Venezuela, March—October 1899 (S. M. Klages); 1 ♂ Pataoquiria, Venezuela, August 1891.

**Castnia licoides** subsp. ?

Of the Columbian subspecies there are 4 specimens at Tring. The ♀ has the subapical spots very small.

1 ♂ Villavicencio to Rio Ooor Forest, 350—400 m. = 1,137—1,300 ft., January 1897 (Dr. Bürger); 1 ♂ Columbia; 2 ♀♀ Bogotá.

**Castnia licoides** subsp. ?

The Peruvian subspecies is represented at Tring by 18 specimens:

5 ♂♂ Chanchamayo, Peru, January—July 1901 (Hoffmanns & Schunke); 6 ♀♀, 1 ♂ Pozuzo Huanaco, 800—1,000 m. = 2,600—3,250 ft. (W. Hoffmanns); 2 ♂♂ Cuzco, Peru, March 1901 (Garlepp); 1 Oroya Inambari, 3,000 ft., May 1901 (G. Ockenden); 2 ♂♂ La Union, Rio Huacamayo Carabaya, 2,000 ft., November 1904 (G. Ockenden); 1 ♀ La Merced, Central Peru.

**Castnia licoides** subsp. ?

Of the Bolivian race there are at Tring 31 specimens:

16 ♂♂, 3 ♀♀ Buenavista, East Bolivia, 750 m. = 1,950 ft., October 1906—March 1907 (José Steinbach); 1 ♂ Sta Cruz de la Sierra, East Bolivia 1905—1906 (José Steinbach); 6 ♂♂, 2 ♀♀ Province Sara, Dept. Sta Cruz de la Sierra, East Bolivia, February 1904 (José Steinbach); 2 ♂♂ Yungas de la Paz, Bolivia 1,000 m. = 3,250 ft., November 1899 (Garlepp); 1 ♂ Quarnay Mapiiri, River Bolivia, 15,000 ft., July 1895 (Maxwell Stuart).

1 ♂ from Buenavista lacks the transverse white band on forewings, only having a white spot on costa, a white patch in cell and a white streak above tornus.



**Castnia licoides licoidella** Strand

*Castnia licus licoidella* Strand, in Seitz, *Macrolep. Erde*, vol. vi. p. 8. pl. 2b (1913) (Peru).

I believe this is nothing but an aberration occurring in all the races of *licoides*, but until I can prove it I record here under this name the specimens from the Peruvian Amazons and Rio Negro. There are 5 specimens at Tring:

2 ♂♂, 1 ♀ Rio Negro (ex coll. Felder); 1 ♂ Iquitos, 1 ♂ Rio Cachiaco (Maxwell Stuart).

**Castnia albomaculata** Houlb.

*Castnia albomaculata* Houlbert, *Etud. Lépid. Comp.* fasc. xiii. p. 59. pl. iv. f. 4 (1917) (Amazons, Peru).

This may turn out to be an extreme form of *licoides*, but apart from the fact that both ♂ and ♀ have the white subapical spots above, it appears that a true *licoides* race occurs with this species in the Peruvian Amazons.

There are two specimens at Tring:

1 ♂, 1 ♀ Bogotá (Lindig, ex coll. Felder).

**Castnia albomaculata microsticta** subsp. nov.

This race differs from *alb. albomaculata* in having the subapical white spots above very small.

There are 5 specimens of it at Tring:

4 ♂♂ San Ramon, Rio Wanks, Nicaragua, 375 ft., May—June 1905 (M. G. Palmer); 1 ♂ Esperanza, May (W. Schaus) (type San Ramon).

**Castnia (Erythrocastnia) syphax** (Fabr.)

*Papilio syphax* Fabricius, *Syst. Entom.* p. 480. No. 165 (1775) (in Indiis).

Of this species there is a series of 19 specimens at Tring, one of which belonged to the Van Lennep collection, and is one of those examined by Cramer:

3 ♂♂ Surinam (Klinkenberg, ex coll. Felder); 1 ♀ Surinam (ex coll. Van Lennep, ex coll. Felder); 1 ♂ Amazon (Bates), 1 ♂ America Centralis; 1 ♂ Berlin Museum, 1 ♂? (ex coll. Felder); 2 ♂♂ South America; 1 ♂ Para; 2 ♂♂ Saint Laurent de Maroni, Cayenne, September 1905 (E. Le Mout); 3 ♂♂, 2 ♀♀ Itaituba to Obidos, January—April 1906 (W. Hoffmanns); 1 ♂ Villa Franca, Amazonas (M. de Mathan).

**Xanthocastnia** Houlb.

In this section there are 3 fairly distinct groups: (1) *evalthe* and subspecies, (2) *viryi* and subspecies, and (3) *euphrosyne*. Messrs. Houlbert and Oberthür make this section consist of 7 species, but I consider that there are only 3, viz. *evalthe* with 4 named subspecies, *viryi* with 2 named subspecies, and *euphrosyne*. The forms of *evalthe* are distinguished above by two transverse bands on the forewing, and the yellow band on hindwing is narrow, while the red margin-submarginal spots are small; *euphrosyne* has on the forewing two transverse bands as in *evalthe*, but the yellow band on hindwing is transformed into a large irregular patch, and the red spots are much enlarged, lengthened and coalescent; in *viryi* above, the 2nd transverse band on the forewings is absent. The fact that Mr. Talbot found the pulvillus of *evalthe* differing somewhat from that of *evalthonida* does not necessarily mean that it is distinct, and

that the two are **species** as opposed to *subspecies*. If my readers will refer to Dr. Jordan's and my monograph, "Revision of the Lepidopterous Family *Sphingidae*," NOVITATES ZOOLOGICAE, volume ix. Supplement, pages 132-134, they will find under the description of *Hyloicus* (= *Sphinx*) *perelegans* Edwards that the species has two forms, *i.e.* is **dimorphic**, and that the one form *asellus* R. and J. has the pararychium of the tarsus **reduced** and **without lobe**, while the other form *perelegans* Edw. has this organ **with a prolonged lobe**. This case shows that occasionally seasonal or climatic influences may affect individual organs in lepidoptera within the same species or subspecies in the same locality, and yet are not of specific or subspecific importance or significance. On the other hand, structural variation, especially in chitinous organs, is in most instances of deeper significance than colour and pattern differences and must be more carefully studied before coming to a decision as to the precise meaning of this variation in a given instance.

#### **Castnia (Xanthocastnia) evalthe** (Fabr.)

*Papilio evalthe* Fabricius *Syst. Entomol.* p. 480. no. 166 (1775) (in Indiis).

1 ♂, 1 ♀ Onoribo, Dutch Guiana, February 1893 (C. W. Ellacombe); 1 ♀ Paramaribo, February 1892 (C. W. Ellacombe); 1 ♀ Rio Demerara; 1 ♀ British Guiana; 1 ♀?; 2 ♀♀, 1 ♂? (ex coll. Felder) evidently Surinam.

I have no specimens from Cayenne, so am unable to say if *evaltheformis* Houlb. is constantly distinct or not.

#### **Castnia (Xanthocastnia) evalthe evalthoides** Strand

*Castnia evalthe evalthoides* Strand, in Seitz, *Grossschmett. Erde*, vol. vi. p. 8. pl. 3a (1913) (Bolivia).

1 ♂ Cajon, Cuzco, November 1900 (Garlepp.); 1 ♂ Province Rio; 1 ♂, 1 ♀ Buenavista, East Bolivia, 750 m. = 2,437 ft., August 1906—April 1907 (José Steinbach); 1 ♂, 1 ♀ Sta Cruz de la Sierra, E. Bolivia 1905—1906 (José Steinbach); 1 ♂ Santiago del Estero, E. Bolivia, 1905—1906 (José Steinbach).

#### **Castnia (Xanthocastnia) evalthe quadrata** subsp. nov.

Nearest to *evalthe evalthoides* by reason of the complete submarginal row of 7 red spots on the hindwing. Differs from *e. evalthoides* in its much larger size, narrow and strongly bent upper portion of yellow band on hindwing, and in the great size and quadrate shape of the red spots.

Length of forewing: ♂ 52 mm.; ♀ 70 mm. Expanse: ♂ 112 mm.; ♀ 148 mm. Largest ♂ *evalthoides* at Tring length of forewing: 44 mm. Expanse: 7 mm.

1 ♂, 1 ♀ Pozuzo, Department Huanaco, Peru (Hoffmanns) (type ♀); 1 ♂ Marcapata, East Peru, 4,500 ft.; 1 ♂ Zamora, Ecuador, 3—5,000 ft. (O. T. Baron).

#### **Castnia (Xanthocastnia) evalthe evalthonida** Houlb.

*Castnia evalthonida* Houlb. *Etud. Lépid. Comp.* fasc. xiii. p. 66. pl. iv. f. 5 (1917) (Canache).

3 ♀♀ Bogotá; 1 ♂ Bogotá (Child); 3 ♂♂ Bogotá (Lindig, ex coll. Felder); 2 ♂♂, 1 ♀ Sta Fé de Bogotá; 2 ♂♂ Pizarro Cundinamarca, September 1903 (M. de Mathan); 1 ♀ Cundinamarca, Columbia, June—September 1903 (M. de Mathan); 1 ♂?.

**Castnia (Xanthocastnia) evalthe wagneri** Buchecker

*Castnia wagneri* Buchecker, *Syst. Entomol., Castnia*, pl. xx. f. 26 (1880).

1 ♂ Humayta, Rio Madeira, July—September 1906 (W. Hoffmanns); 1 ♀ ?.

**Castnia (Xanthocastnia) evalthe** subsp. ?

The material we possess is insufficient to describe this form.

1 ♂ Carillo, Costa Rica, June—July 1903 (Underwood); 1 ♀ Central America (Felder coll.).

**Castnia (Xanthocastnia) viryi intermedia** subsp. nov.

Differs from *viryi vicina* in the much narrower and feebler distal transverse line on the underside of forewing.

1 ♂ Costa Rica.

**Castnia (Xanthocastnia) euphrosyne** Perty.

*Castnia euphrosyne* Perty, *Delect. Anim. artic. Bras.* p. 155. pl. 31. fig. 1. ♂ (1830) (Brazil).

1 ♂, 2 ♀♀ Rio de Janeiro; 2 ♂♂, 1 ♀ ?.

**Castnia (Xanthocastnia) euphrosyne anerythra** subsp. (?) nov.

Differs from *e. euphrosyne* by the yellow patch on hindwing being joined to costa by a narrow serpentine yellow broken band on the upperside, and in the yellow patch having no red on outer side. The red spots much reduced.

1 ♂ ? (ex Felder coll.).

**Castnia (Graya) dalmannii** Gray

*Castnia dalmannii* Gray, *Trans. Entom. Soc. Lond.* 1837. p. 145 (Brazil).

1 ♂ Peru; 1 ♂ ?.

**Castnia (Athis) hegemon** Kollar

*Castnia hegemon* Kollar, *Ann. Wien. Mus.* vol. i. p. 217. pl. xiii. fig. 2. (1839) (Rio Janeiro).

3 ♂♂ Rio de Janeiro (ex coll. Felder); 3 ♂♂ Rio de Janeiro (R. May); 1 ♂, 1 ♀ ?.

**Castnia (Athis) hegemon variegata** subsp. nov.

Differs from *h. hegemon* on the hindwings in the inner black line being extended to costa and the outer to vein 6 and enclosing in two loops portions of the red ground-colour.

1 ♀ Sta Catharina.

**Castnia (Athis) fonscolombei** Godt.

*Castnia fonscolombe* Godart, *Enc. Méth.* vol. ix. p. 799. no. 13 (1824) (Brazil).

Houlbert uses Hübner's name of *japyx*, as he quotes 1806 as the date of the "Sammlung"; but the real date of vol. ii. is 1824, so Godart's name has priority.

3 ♂♂ Petropolis; 5 ♂♂, 1 ♀ Rio de Janeiro; 1 ♂ Rio de Janeiro (Stockholm University Expedition 1867, ex Felder coll.); 4 ♂♂ ? (Felder coll.); 2 ♂♂, 1 ♀ ?; 2 ♂♂ Sta Catharina; 1 ♂ Brazil.

[*Castnia* (*Athis*) *menetriesi* Boisd.

*Castnia menetriesi* Boisduval, *Spec. Gén. Lépid. Héti.* p. 511 (1874) (Brazil).

Messrs. Houlbert and Oberthür consider this insect as a distinct species, but if one examines the drawing even superficially it becomes at once apparent that it is in reality only an extreme form of *hegemon*. My *hegemon variegata* described above stands exactly intermediate between *hegemon* and *menetriesi* in regard to the amount of black on the outer one-third of hindwing; while on the underside of forewing the black markings are much more developed in *menetriesi* than in either *hegemon* or *h. variegata*: *menetriesi* must therefore stand as *hegemon menetriesi*. It probably came from the extreme south of Brazil.]

*Castnia* (*Athis*) *fabricii boisduvalii* Walk.

*Castnia boisduvalii* Walker, *List Lepid. Ins. Brit. Mus.* part i. p. 27 (1854) (Brazil).

Messrs. Houlbert and Oberthür declare that only males of this species are known. They also appear to have had very few specimens for examination, 4 in the collection of M. Charles Oberthür and 2 in the Paris Museum. The Tring Museum possesses 26 ♂♂ and 1 ♀. The ♀ is exactly like the ♀♀ of *papagaya* Westw., but the forewings are much darker, almost as dark as in ♂ *boisduvalii*.

5 ♂♂ Sao Paulo, 2,500—2,700 ft., February 1910; 2 ♂♂ Sta Catharina; 6 ♂♂, 1 ♀ Theresopolis, Sta Catharina, 800—1,000 ft., November 1904—February 1905 (J. Michaelis); 8 ♂♂?; 2 ♂♂? (ex Berlin Museum, ex coll. Felder); 2 ♂♂ Petropolis; 1 ♂ Blumenau.

*Castnia* (*Athis*) *fabricii papagaya* Westw.

*Castnia papagaya* Westwood, *Trans. Linn. Soc. Lond.* 1877. p. 170. pl. xxx. fig. 6 (Papagaya).

Messrs. Houlbert and Oberthür treat this as a distinct species, but it is only a larger and brighter race of *boisduvalii*. The Tring Museum has 11 specimens:

4 ♂♂, 7 ♀♀ Rio Grande do Sul.

[*Castnia* (*Athis*) *fabricii* Swains.

Messrs. Houlbert and Oberthür regard this insect, known to us only by Swainson's figure, as a distinct species. To my mind it is nothing but a female of a form of *boisduvalii* closely allied to *b. papagaya*, the black markings of the hindwings being reduced still more. This is the reason I have used this name for the species.]

*Castnia* (*Athis*) *orestes* Walk.

*Castnia orestes* Walker, *List Lepid. Ins. Brit. Mus.* part i. p. 26 (1854) (Brazil).

The Tring Museum possesses 16 specimens of this species:

2 ♂♂, 1 ♀ Petropolis; 4 ♂♂, 2 ♀♀ Nova Friburgo; 2 ♂♂, 1 ♀? (ex coll. Felder); 3 ♂♂ Brazil; 1 ♂?.

*Castnia* (*Athis*) *orestes leopoldina* Strand

*Castnia orestes leopoldina* Strand, in Seitz, *Grossschm. Erde*, vol. vi. p. 9 (1913) (Leopoldina).

1 ♂ Leopoldina, Espirito Santo, Brazil.

**Castnia (Elina) icarus (Cram.)**

*Papilio icarus* Cramer, *Pap. Exot.* vol. i. part ii. p. 26. pl. xviii. ff. A.B. (1775) (Surinam).

Messrs. Houlbert and Oberthür place in the *icarus* section of their genus *Elina* 6 species and one variety. Mr. Talbot (see postea, p. 30) lumps all these, with the exception of *jturna*, as aberrations of *icarus*. In my opinion both these points of view are wrong and I consider we have only one species of the *icarus* group with 5 subspecies; the most southern of which, *icarus endelechia* Druce, appears in 4 forms or aberrations.

As a rule the typical form *icarus icarus* is considerably larger than the 4 other subspecies.

The Tring Museum has 19 specimens of *icarus icarus*:

1 ♂ Surinam (ex coll. Van Lennep, ex coll. Felder); 1 ♂, 1 ♀ Rio Demerara, British Guiana; 1 ♂ Mouth of Kouron River, Cayenne, September 1905 (E. Le Moulton); 1 ♀ Gourdonville, Kouron River, November 1905 (E. Le Moulton); 1 ♀ Onaca, Sta Marta, 2,000 ft. (Engelke); 1 ♂ Ciudad Bolivar, June 1891; 1 ♀ La Vuelta, Caura River, April 1904 (S. M. Klages); 6 ♂♂, 2 ♀♀ Suapure, Venezuela, March 1899 (S. M. Klages): 1 ♂, 2 ♀♀ Cayenne.

**Castnia (Elina) icarus penelope** Schauf.

*Castnia penelope* Schaufuss, *Nunquam Otiosus*, p. 9. pl. 1 (1870) (Brazil).

The Tring Museum possesses 2 ♂♂ and 2 ♀♀ which agree exactly with Schaufuss's description; and 2 ♂♂ almost identical with *i. endelechia* Druce, but with more black on hindwing: ab. **endelechiodes** ab. nov.

1 ♂, 1 ♀ Amazon (Bates, ex coll. Felder); 1 ♂ Upper Amazon; 1 ♂ Nivac, Matto Grosso; 2 ♂♂ Nivac, Matto Grosso. ab. *endelechiodes* ab. nov.

**Castnia (Elina) icarus endelechia** Druce

*Castnia endelechia* Druce, *P.Z.S.* 1893, p. 280 (Corrientes Argentina).

This subspecies is more variable than the others; but the aberrations appear to be rare, the 3 named aberrations being represented in collections by 6 specimens only, viz. 4 ab. *icaroides*, 1 ab. *jordani*, and 1 ab. *paraguayensis*.

The Tring Museum possesses 15 specimens of *i. endelechia* and its aberrations.

8 ♂♂, 2 ♀♀ Sapucay, nr. Villa Rica, Paraguay, November—December 1902—1904 (W. Foster); 2 ♂♂?; 1 ♂ Paraguay.

ab. *icaroides* Houlb.

1 ♂ Sapucay, nr. Villa Rica, Paraguay, November—December 1904 (W. Foster); 1 ♀ Rio Bermejo, Chaco, Argentina, December 1903 (José Steinbach).

ab. *jordani* Houlb.

1 ♂ Sapucay, nr. Villa Rica, Paraguay, November—December 1904 (W. Foster).

[ab. *paraguayensis* Strand

The Tring Museum does not possess this aberration.]

[*Castnia* (*Elina*) *icarus invaria* Walk.

*Castnia invaria* Walker, *List Lepid. Ins. Brit. Mus.* part i. p. 23 (1854) (Rio Janeiro).

No specimen in the Tring Museum.]

[*Castnia* (*Elina*) *icarus juturna* Hopff.

*Castnia juturna* Hopffer, *Neue od. wenig bekannte Schmett.* part ii. p. 6. pl. iv. fig. 3 (1856) (Brazil).

There are no specimens at Tring.]

*Castnia* (*Elina*) *eudesmia* Gray

*Castnia eudesmia* G. R. Gray, *Trans. Entom. Soc. Lond.* 1838. p. 145.

The aberration *chilena* Houlb. has the abdominal margin of hindwings orange-yellow, but all intermediates occur.

The Tring Museum possesses 16 specimens and 3 cocoons:

4 ♂♂, 6 ♀♀, 3 cocoons, Valparaiso, Chili (Maxwell Stuart); 2 ♂♂ Chili (Germain, ex coll. Felder, fig. in Seitz); 3 ♂♂, 1 ♀?

*Castnia* (*Ceretes*) *marcel-serresi* Godt.

*Castnia marcel-serres* Godart, *Encycl. Méthod.* vol. ix. p. 800 (1824) (Brazil).

I propose the name ab. *nigrita* for two specimens ♂♀ from Matto Grosso. The ♂ is much blacker, almost sooty black instead of amber brown, while the ♀ has the stigmatic blotch of the forewings much heavier and the black markings on hindwings much broader and heavier. The Tring Museum has 35 specimens:

3 ♂♂, 1 ♀? (ex coll. Felder); 4 ♂♂, 4 ♀♀?; 3 ♂♂ Province Rio; 2 ♀♀ Rio de Janeiro; 2 ♂♂, 1 ♀ Matto Grosso (Zobrys & Wolter); 1 ♂, 1 ♀ Matto Grosso (Zobrys & Wolter) (ab. *nigrita* ♀ type); 3 ♂♂, 1 ♀ Sta Catharina; 1 ♂ Paraguay; 3 ♂♂ Buenavista, East Bolivia, 750 m. = 2,437 ft., August 1906—April 1907 (José Steinbach); 3 ♂♂, 1 ♀ San Jacintho Valley, Theophilo Ottoni Minas Geraës, 1907—1908 (F. Birch); 1 ♀ Theresopolis, Sta Catharina, November 1904—February 1905, 800—1,000 ft. (J. Michaelis).

*Castnia* (*Ceretes*) *thais* (Drury)

*Papilio thais* Drury, *Ill. Nat. Hist.* vol. iii. p. 20. pl. xvi. fig. 4 (1782) (Brazil).

I agree with Mr. Talbot that *thais* var. *gracillima* Houlb. is only a small aberration.

The Tring Museum has 31 specimens.

7 ♂♂, 6 ♀♀?; 2 ♂♂, 1 ♀? (ex Felder coll.); 2 ♂♂, 1 ♀ Brazil; 1 ♂, 1 ♀ Petropolis; 2 ♂♂ Province Rio; 1 ♂, 1 ♀ Rio de Janeiro; 3 ♂♂ San Jacintho Valley, Theophila Ottoni, Minas Geraes, 1907—1908 (F. Birch); 1 ♀ Brazil, 1 ♂, 1 ♀? (♀ Brazil ex Felder coll.) (ab. *gracillima*).

[*Castnia* (*Sympalamides*) *mimon* Hübn. and allied forms.

Mr. Talbot expresses the opinion (postea, p. 31) that this section of Hübner's genus *Sympalamides* is all referable to one species, and that, contrary to the opinions of Messrs. Houlbert and Oberthür, the name for the species is *phalaris* Fabr. Messrs. Houlbert and Oberthür consider the description of

*phalaris* Fabr. to be drawn up from a bad figure of a Nymphalid to which has been affixed the head of an Agaristid, but I cannot agree to this. I will take an opportunity of inspecting the Jones drawings and collection from which Fabricius described *phalaris*, as soon as the war work of the owner permits, and try and puzzle out the truth; but meanwhile, lack of sufficient material prevents me from giving a definite opinion as to whether these forms consist of one or several species. For the present I enumerate them under *mygdon* Dalm. as forms of one species, not defining their exact status.\*]

[*Castnia* (*Sympalamides*) *mygdon* Dalm.

*Castnia mygdon* Dalman, *Vit. Handb. Act. Holm.* 1824. p. 403. no. 13. pl. i. fig. 2 (Brazil).

No specimens at Tring.]

[*Castnia* (*Sympalamides*) *mygdon* form. *sora* Druce

*Castnia sora* Druce, *Ann. Mag. Nat. Hist.* (6) xvii. p. 217 (1896) (Paraguay).

No specimens at Tring.]

*Castnia* (*Sympalamides*) *mygdon* form. ?

This race is similar to *sora* Druce, but much smaller and the orange spots on the hindwings also smaller.

5 ♂♂ Sao Paulo.

*Castnia* (*Sympalamides*) *mygdon* form. ?

Similar to *sora* Druce, but spots on hindwings deep buff.

1 ♂?; 1 ♂ Rio de Janeiro; 1 ♂ Nova Friburgo.

*Castnia* (*Sympalamides*) *mygdon* form. *mimon* (Hübner).

*Sympalamides mimon* Hübner, *Samml. Exot. Schmett.* vol. ii. pl. 142. ff. 1, 2 (1822—1824).

Tring Museum possesses 20 specimens:

1 ♂ Rio de Janeiro; 3 ♂♂ Province Rio; 4 ♂♂ Tijuco; 3 ♂♂, 3 ♀♀?; 1 ♀ Amazon, Bates; 3 ♂♂ Surinam (Klinkenberg, ex coll. Felder); 1 ♂ Brazil; 1 ♂ South America.

*Castnia* (*Sympalamides*) *mygdon* form. *lombardi* (Houlb.).

*Sympalamides lombardi* Houlbert, *Etud. Lépid. Comp.* fasc. xv. p. 383. fig. 130 bis (1918) (Parana).

There are 9 specimens at Tring:

1 ♂, 1 ♀ Sta Catharina; 1 ♂, 4 ♀♀ Theresopolis, Sta Catharina, 800—1,000 ft., November 1904—February 1905 (J. Michaelis); 1 ♂ South America; 1 ♀ Brazil.

*Castnia* (*Sympalamides*) *mygdon* form. ?

♂. As large as the largest ♂ *mimon* but much paler, hindwings as in whitest ♀ *lombardi*.

2 ♂♂?; 1 ♂ Tijuco.

\* I have carefully examined, by the courtesy of Dr. Drewitt, the Jones drawings; Donovan's figure is a caricature, and the Jones drawing is a good figure of *Castnia invaria* Walk., which must stand as *phalaris* Fabr.

**Castnia (Sympalamides) mygdon form. albofasciata** Schauf.

*Castnia albofasciata* Schauffuss, *Nunquam Otiosus*, vol. i. p. 10 (1870) (Brazil).

The Tring Museum possesses 7 specimens of this form described from a ♀; the ♂ was described by Boisduval under the name of *argus*.

2 ♂♂, 1 ♀? (ex Berlin Museum), 1 ♀ Surinam (Klinkenberg) (ex coll. Felder); 1 ♂, 1 ♀?.

**Castnia (Sympalamides) mygdon form. rubrophalaris** Houlb.

*Castnia rubrophalaris* Houlb., *Etud. Lépid. Comp.* fasc. xiii. p. 69 (1917) (Bahia).

1 ♂ Sapueay, Paraguay, November 1903 (W. Foster); 1 ♂ Paraguay.

**[Castnia (Sympalamides) mygdon form. subvaria** Walk.

*Castnia subvaria* Walker, *List Lepid. Ins. Brit. Mus.* part. i. p. 25 (1854) (Rio de Janeiro).

No specimen at Tring.]

**Castnia (Sympalamides) mygdon form. dionaea** Hopff.

*Castnia dionaea* Hopffer, *Neue od. wen. bek. Schmett.* part. ii. p. 8. pl. v. fig. 3 (1856) (Brazil).

1 ♂?.

For another form of *mygdon*, cf. *postea*, p. 32.

**Castnia (Sympalamides) chelone** Hopff.

*Castnia chelone* Hopffer, *Neue od. wen. bek. Schmett.* part. ii. pl. iv. ff. 1. 2 (1856) (Mexico).

Of this extremely rare and very remarkable species there are a ♂ and ♀ at Tring.

1 ♂? (ex Mus. Berlin, ex coll. Felder); 1 ♀ Rio Balzas to Iguala, 1,100—480—800 m. = 3,575—1,560—2,600 ft., August 1904 (Dr. Gadow).

**Castnia (Ypanema) hübner** Boisd in Latr.

*Castnia hübner*, Boisduval in Latreille in Cuvier, *Règne Anim.* vol. iii. p. 439. pl. 20. f. 2 (1830).

Dr. Strand has described an aberration with the median band of white spots and the submarginal band of orange-yellow patches on hindwing much reduced as ab. *indecora*. In the Tring Museum is an aberration with the whole hindwing orange, only a patch of black surrounding the median band of white spots; this I name ab. *flavidior* ab. nov. There are 8 specimens in the Tring Museum:

1 ♂, 3 ♀♀ Matto Grosso (Zobrys and Wolter); 2 ♂♂? (1 ex Mus. Berlin, both ex coll. Felder); 1 ♀ Nivac, Matto Grosso (ab. *indecora* Strand); 1 ♀? (ex coll. Felder) (ab. *flavidior* type).

**[Castnia (Ypanema) uruguayana** Burm.

Not in Tring Museum.]



**Castnia (Ypanema) uruguayana cinerascens (Houlb.)**

*Ypanema uruguayana* var. *cinerascens* Houlbert, *Etud. Lépid. Comp.* fasc. xiii. p. 79 (1917)  
(Banda Oriental).

2 ♂♂, 1 ♀?

**[Castnia (Ypanema) strigata Walk.**

*Castnia strigata* Walker, *List Lepid. Ins. Brit. Mus.* part. i. p. 30 (1854) (Pernambuco).

Messrs. Houlbert and Oberthür make the statement in common with many other authors that *godarti* of Ménétrière's is the same as *strigata* of Walker. This is the more astounding because they have separated as good and distinct species many much closer allied forms, such as *licus*, *licoides*, and *licoidella*. Anyone comparing Ménétrière's figure with that of Butler of the type of Walker's *strigata* will perceive at once great differences; in the drawing of Ménétrière's the median longitudinal band is almost parallel to the streak in the cell and quite straight, while in Butler's plate it is almost S shape; then in *godarti* there are a series of 4 white patches above vein 1, whereas in *strigata* there are only 2; on the hindwings the median band in *strigata* consists of small linear or irregular white spots, whereas in *godarti* these spots are large quadrate patches. In fact, except for the presence of the white streak in the cell and the slight break between the longitudinal and the oblique transverse white bands on the forewing, Butler's figure agrees almost exactly with Strand's *decussata fulvipygga*. It is true that the figure of *godarti* appears to be that of a ♀, while that of *strigata* is of a ♂, but in *decussata*, the nearest allied species, the sexes only differ in the size of the white markings, **not** in their number or shape.

There are no specimens of this form at Tring.]

**Castnia (Ypanema) godarti Ménétrière's**

*Castnia godarti* Ménétrière's, *Descr. Nouv. Esp. Lépid. Mus. Petr.* part. iii. p. 130. no. 1462. pl. xi. fig. 4 (1863) (Diamantina, Brazil).

Of this form there are two specimens at Tring agreeing in all respects with Ménétrière's figure except that the white longitudinal band on forewing below median vein reaches base of wing. As these are both ♂♂ it more than proves my contention that *godarti* is **not** the ♀ of *strigata*.

1 ♂ Petropolis; 1 ♂ Interior of Brazil (ex coll. Felder).

**Castnia (Ypanema) decussata Godt.**

*Castnia decussata* Godart, *Encycl. Méthod.* vol. ix. p. 799 (1824) (Brazil).

Of this species the Tring Museum possesses 23 specimens, one of which has the ground-colour metallic plum purple instead of metallic oil green; I propose to call this ab. *pupurascens* ab. nov.

4 ♂♂, 1 ♀ Theresopolis, Sta Catharina, 800—1,000 ft., November 1904—February 1905 (J. Michaelis); 4 ♂♂, 1 ♀ Sta Catharina; 1 ♀ Brazil; 1 ♂, 1 ♀ Rio de Janeiro (ex coll. Felder); 1 ♂ Brazil; 1 ♂ South America; 1 ♂, 3 ♀♀?; 1 ♂, 2 ♀♀ Rio de Janeiro; 1 ♀ Brazil (ex coll. Felder) (type of ab. *pupurascens*).

**Castnia (Ypanema) decussata fulvipygga Strand**

*Castnia decussata* form. *fulvipygga* Strand, in Seitz, *Grossschmett. Erde*, vol. vi. p. 12 (1913) (Brazil).

This may eventually prove a distinct species. The single ♂ at Tring agrees with Strand's description in having the fulvous spot at tornus and the pure white three-fifths of underside of hindwing. In addition it differs in the band of hindwing above reaching tornus and **not** as in *d. decussata* stopping short at vein 2, i.e. it consists of 8 spots instead of 5, each spot bordered with orange instead of being pure white; the submarginal row is distinct and strongly marked, consisting of 6 orange spots with whitish centres to last 2, whereas in *d. decussata* this submarginal row consists of 3 almost obsolete whitish spots. Below on the forewing it lacks the rufous band below median vein on forewing of *d. decussata*, and on hindwing the median band is much wider and pure white edged distally with orange, **not** pale lavender. Expanse: 87 mm. 1 ♂ ?.

**Castnia (Schaefferia) amycus (Cram.).**

*Papilio amycus* Cramer, *Pap. Exot.* vol. iii, part xix. p. 60. pl. cccxvii. ff. D.E. (1779) (Berbee).

Messrs. Houlbert and Oberthür wish to restrict the name *amycus* to specimens from the Guianas. I am of opinion that *amycus* must include all the Brazilian specimens down to Rio de Janeiro; in Sta Catharina we first find such constant differences that we can set up a local race.

The Tring Museum contains 5 specimens of true *amycus*, 2 of which have so much reduction in the red markings that I propose to call them ab. *reducta* ab. nov.

1 ♂ Interior of Brazil (Schott, ex Vienna Museum, ex coll. Felder); 1 ♀ Rio de Janeiro; 1 ♀ ?; 2 ♂♂ ? (type of ab. *reducta*).

**Castnia (Schaefferia) amycus alboinsignita Strand**

*Castnia amycus* form. *alboinsignita* Strand, in Seitz, *Grossschmett. Erde*, vol. vi. p. 13. pl. 5 d (1913) (South America).

This form seems pretty constant in Sta Catharina and varies only in the amount of red on hindwing, which, however, is always less than in *a. amycus*. There are in the Tring Museum 11 specimens, of which 7 are *amycus alboinsignita*, 3 are ab. *tristicula* Strand, and 1 is ab. *meditrima* Hopffer:

2 ♂♂, 1 ♀ Theresopolis, Sta Catharina, 800—1,000 ft., November 1904—February 1905 (J. Michaelis); 3 ♂♂ Sta Catharina; 1 ♂ ?; 2 ♂♂ Theresopolis, 1 ♂ Sta Catharina (ab. *tristicula*); 1 ♂ Theresopolis (ab. *meditrima*).

**Castnia (Schaefferia) subcoerulea sp. nov.**

♀. Antennae black, distal half of club rufous brown; head, thorax, and abdomen deep black, anal tuft rufous orange. Forewing deep black, a post-median white oblique band from costa to just before termen below vein 2, a white oblique subapical band from costa to vein 6. Hindwing deep black, a large median bandlike patch of pale silvery blue on the edge of which and joined to it are two white patches on each side of vein 5; 2 white patches also, separated from it, on each side of vein 3.

Length of forewing: 31 mm. Expanse: 69 mm.

*Habitat.* Ecuador, 1 ♀.

**[Castnia (Aciloa) inca Walk.**

*Castnia inca* Walker, *List Lepid. Ins. Brit. Mus.* part. i. p. 24. no. 22.

There are no specimens from either Honduras or Venezuela in the Tring Museum, so I cannot judge if the differences between *inca* and *clitarchus* are individual, racial, or specific; so I must leave the question to be settled later.]

**Castnia (Aciloa) inca orizabensis Strand**

*Castnia clitarcha* form. *orizabensis* Strand, in Seitz, *Grossschmett. Erde*, vol. vi. p. 11. pl. 8 e. (1913).

The figure in Seitz taken from the type at Tring is much too dark. This is the same insect as Monsieur Houlbert's var. *mexicana*, and therefore Strand's name has priority. The majority of Mexican ♀♀ are much darker than the one mentioned by Walker, and 2 of my ♂♂ also, but 2 agree fully with Herrich-Schaeffer's figure.

3 ♂♂, 1 ♀ Orizaba, Mexico (♀ type); 1 ♂ Tuxpan, Vera Cruz; 2 ♀♀ Cordoba, Mexico (Bilimet, ex coll. Felder).

**Castnia (Acilia) clitarcha Westw.**

*Castnia clitarcha* Westwood, *Trans. Linn. Soc. Lond.* (2) i. p. 176. pl. 31. fig. 1 (1877) (Panama).

Should all this group turn out to be one single species *inca*, and not two, it remains to be found out whether we have to deal with a number of local races or only one polymorphic race all over its range. In any case, Strand is wrong in naming the Honduras form, which is typical *inca* of Walker by subsequent designation of Butler. There are at Tring 9 specimens:

1 ♂ South America !!?; 2 ♀♀ ?; 2 ♂♂ Presidio, Vulcan de Chiriqui; 1 ♂ Juan Vinas, Costa Rica (W. Sehaus); 1 ♂ Vera Paz, Guatemala (O. Salvín, ex coll. Felder); 2 ♀♀ Vulcan de Chirique, 5—9,000 ft. (Watson).

**Castnia (Aciloa) rutila Feld.**

*Castnia rutila* Felder, *Reise Novara, Lépid.* iv. pl. 79. f. 1 (1874) (Ega, Amazons).

The Tring Museum has 4 specimens:

1 ♀ Ega, Amazons (Bates, ex coll. Felder) (type); 1 ♂ Rio Demerara, British Guiana; 1 ♀ Christianeburg, Rio Demerara; 1 ♀ Amazons (Bates, ex coll. Felder); (ab. *rutiloides*).

Monsieur Houlbert gave the name *rutiloides* to Preiss's figure of *rutila* from *Iquitos*, believing it to be a geographical race, but Mr. Bates's 2nd ♀ from the Amazons is practically identical with Preiss's figure and thus proves it to be only an aberration.

**Castnia (Aciloa) palatinus (Cram.).**

*Papilio palatinus* Cramer, *Pap. Exot.* vol. ii. part. xiv. p. 98. pl. clix. ff. B.C. (1777) (Surinam).

We have 10 specimens at Tring:

2 ♂♂ Rio Demerara, British Guiana; 1 ♂, 1 ♀ Bartica, British Guiana; 1 ♀ British Guiana; 2 ♂♂, 1 ♀ St. Laurent de Maroni, Cayenne, August 1905 (E. Le Mout); 1 ♂ Surinam (ex coll. Felder); 1 ♀ Trinidad.

**Castnia (Aciloo) superba** Strand

*Castnia superba* Strand, in Seitz, *Grossschmett. Erde*, vol. vi. p. 11. pl. 5 a (1913) (Chanchamayo).

1 ♀ La Oroya, Rio Inambari, S.E. Peru, 3,100 ft., October 1904 (G. Ockenden).

[**Castnia (Imara) pallasia** Esch.

*Castnia pallasia* Eschscholtz, *Kotzeb. Reise*, vol. iii. p. 27. pl. 6. f. 27 (1821) (Brazil).

There are no specimens of this species at Tring.]

**Castnia (Imara) pallasia lativittata** Strand.

*Castnia pallasia* form. *lativittata* Strand, in Seitz, *Grossschmett. Erde*, vol. vi. p. 10. pl. 4 b (1913) (Brazil).

Dr. Strand in Seitz has named the figure of Preiss of *brecourti* ♀ as *umbratula*, while Monsieur Houlbert figures a specimen agreeing almost exactly with it as var. *nigrescens*. The Tring Museum has 4 specimens of this insect, which is only the melanic aberration of *pallasia lativittata* Strand.

The Tring Museum has 18 specimens of this form :

3 ♂♂, 1 ♀ Theresopolis, Sta Catharina, 800—1,000 ft., November 1904—February 1905 (J. Michaelis); 1 ♀ Sta Catharina; 2 ♂♂?; 2 ♀♀ Rio de Janeiro, 1 ♂, 1 ♀ Rio de Janeiro 1867, 1 ♀? (ex coll. Kader) (ex coll. Felder); 1 ♂ Tijuco; 2 ♂♂, 2 ♀♀ Sta Catharina (ab. *umbratula*).

[**Castnia (Imara) satrapes** Kollar

*Castnia satrapes* Kollar, *Ann. Wien. Mus.* vol. i. p. 216. pl. 12. fig. 3 (1839) (Matto Grosso).

The description of the type distinctly states the hindwings to be yellowish red. There is no specimen of this form at Tring.]

**Castnia (Imara) satrapes catharina** Preiss

*Castnia satrapes* var. *catharina* Preiss, *Neue u. Selt. Art. Cast.* p. 7. pls. 1. fig. 1. and 4. fig. 3 (1899) (Rio Grande do Sul).

The ♀ of this form generally has the hindwings darker yellow than the ♂♂, though 1 ♂ I have shows distinctly darker hindwings than the rest. Contrary to the statement of Dr. Strand my ♀ has hardly any red on the hindwings above, while all my 5 ♂♂ have distinct red bands, so that the loss of red is not a sexual character but purely individual.

2 ♂♂?; 3 ♂♂, 1 ♀ Rio Grande do Sul.

**Castnia (Spilopastes) galinthias** Hopff.

*Castnia galinthias* Hopffer, *Neue od. wen. bek. Schmett.* p. 7. pl. iv. fig. 4 (1856).

2 ♂♂ Petropolis; 2 ♂♂ Brazil.

**Castnia (Prometheus) cochrus** (Fabr.).

*Papilio cochrus* Fabricius, *Mant. Ins.* part ii. p. 25. no. 263 (1787).

E. Strand sets up a number of aberrations, founding them on the number of white submarginal spots in the hindwing, taking those with 4 as typical. Among the 15 specimens at Tring are several with no white spots = *depunctata* Strand, several with 1 spot = *casmilus* Hübn., several with 2 spots = *bipunctata*

Strand, 1 with 3 spots = *tripunctata* Strand, and lastly one with 5 spots, but **not** one with 4 spots. The naming of aberrations on such slight ground appears to me to be useless, especially as from the large series in the Adams collection, those at Tring and many other collections, the specimens with 1, 2, 3 or more spots appear to occur in almost equal numbers. The ab. *combinata* is more distinct owing to the reduced median white band on hindwing.

3 ♂♂, 2 ♀♀ Brazil (1 ex coll. Felder); 1 ♀ South America; 1 ♀ Lapa, Brazil (5 submarginal spots); 3 ♂♂ Province Rio; 1 ♂ Rio de Janeiro; 1 ♂ Interior of Brazil (ex Vienna Mus. ex coll. Felder); 1 ♂, 1 ♀ ab. *combinata* Strand, ♂ Brazil, ♀ Parte Allegro, Brazil; 1 ♀ Rio Grande do Sul.

#### **Castnia (Prometheus) garbei** Foett.

*Castnia garbei* Foetterle, *Rev. Mus. Paul.* vol. v. p. 639. pl. xvi. fig. 6 (1902) (Rio Grande do Sul).

Messrs. Houlbert and Oberthür had never seen this species, but Mr. Talbot records (see antea) 6 ♂♂ and 3 ♀♀ in the Joicey collection and also some in the Adams collection.

We have 5 at Tring:

3 ♂♂, 2 ♀♀ Rio Grande do Sul.

#### **Castnia (Prometheus) houlberti** sp. nov.

It is most extraordinary that 3 such closely allied species as *cochrus*, *garbei*, and *houlberti* should occur in Southern Brazil.

Differs from both *cochrus* and *garbei* in the forewing being deep black; a broad oblique transverse band slightly paler, more sooty and less densely scaled, down the **centre** of which runs an intense black line. In *cochrus* this line is **inside** the pale band and in *garbei* **outside** the pale band. A complete row of white submarginal spots on hindwing as in *garbei* and the central band as in *cochrus* ab. *combinata*. Eggs like grains of wheat.

1 ♀ Rio de Janeiro (Arp coll.).

#### **Castnia (Orthia) therapon** Koll.

*Castnia therapon* Kollar, *Ann. Wien. Mus.* vol. i. p. 218. pl. xiii. fig. 3 (1839) (Rio de Janeiro).

1 ♂ Rio de Janeiro; 1 ♂? (ex Berlin Mus. ex coll. Felder).

#### **Castnia (Cyanostola) diva** Butl.

*Castnia diva* Butler, *Lepid. Exot.* p. 46. pl. xvii. ff. 1, 2 (1869—1874) (Chontales).

Messrs. Houlbert and Oberthür rightly separate *tricolor* Feld. from *diva* Butl., but I think no one else can possibly consider it **more** than a **subspecies**, while they accord it **full specific** rank. Messrs. Houlbert and Oberthür have taken Dr. Strand's *maculifera* to be the race from Chiriqui, while they say they do not know his *Chiriquensis*. Dr. Strand's figure of *maculifera* shows the red margins broken into spots like Monsieur Oberthür's Chiriqui ♂, but I have 2 ♂♂ from Chiriqui with the band entire though suffused with dark scales. It is therefore evident that specimens with broken red bands occur in both Central American races, while we can only guess that it may be the same in *d. tricolor*, for only 1 ♂ is as yet on record of that race.

The Tring Museum has 9 *diva diva*:

1 ♂, 1 ♀ Carillo, Costa Rica, May—July 1903 (Underwood); 1 ♀ Guatemala (Salvin, ex coll. Felder); 2 ♂♂?; 4 ♂♂, 1 Carillo, 3 Esperanza, May (W. Schaus).

**Castnia (Cyanostola) diva chiriquensis Strand**

*Castnia diva chiriquensis* Strand, in Seitz, *Grossschmett. Erde.* vol. 6. p. 13 (1913) (Chiriqui).

2 ♂♂ Bogava, Chiriqui, 800 ft. (Watson).

**Castnia (Cyanostola) diva tricolor Feld.**

*Castnia tricolor* Felder, *Reise Novara, Lépid.* iv. pl. 79. f. 3 (1874) (Bogotá).

The Tring Museum has 9 specimens including the "type," all ♀♀:  
4 ♀♀ Bogotá; 1 ♀ Bogotá (Lindig. ex coll. Felder) (type); 4 ♀♀ ?.

**Castnia (Haemonides) cronis (Cram.)**

*Papilio cronis* Cramer, *Pap. Exot.* vol. ii. part xv. p. 125. pl. clxxviii. fig. A (1777) (Surinam).

Messrs. Houlbert and Oberthür maintain that Cramer's figure is all that is known of true *cronis* and all other black and white *Castnias* of the genus *Haemonides* Hübner are distinct species. There are so few of these handsome insects available for examination that I should not like to express a definite opinion on the subject, but at all events the Tring Museum possesses 2 ♂♂ of the true *cronis*:

1 ♂ St. Paulo de Olivença, Upper Amazons, August 1906 (M. de Mathan);  
1 ♂ Cacuta, Venezuela.

**Castnia (Haemonides) cronis cornigii H. Edwds.**

*Castnia cornigii* Henry Edwards, *Insect Life*, vol. iii. p. 316. fig. 29 (1891) (Oaxaca, Mexico).

This form is at once recognisable by its dark buff hindwings.

1 ♂ ?.

**Castnia (Haemonides) strandi Houlb.**

*Castnia strandi* Houlbert, *Etud. Lépid. Comp. fasc.* xiii. p. 75 (1917) (Cayenne).

I am keeping this separate as a species for the present on account of the heavy black bar on the hindwings below, which is entirely absent both in my two *cronis* and my solitary *cornigii*.

1 ♂ St. Laurent de Maroni, Cayenne, July 1905 (Le Mout); 1 ♀ Amazon (Bates, ex coll. Felder).

**Castnia (Haemonides) cronida Herr.-Schaeff.**

*Castnia cronida* Herrich-Schaeffer, *Samml. ausscur. Schmett.* p. 56. pl. 57. fig. 142 (1850—1869).

This fine species appears to be exceedingly rare.

1 ♂ Arouany, July 10th, 1881.

**Castnia (Herrichia) acraeoides Gray.**

*Castnia acraeoides* G. R. Gray, in Griffith, *Anim. Kingd.* v. pl. 53. fig. 4 (1832) (Brazil).

Tring Museum possesses 10 specimens:

2 ♂♂ Petropolis; 1 ♀ Rio de Janeiro; 2 ♀♀ ?; 3 ♂♂, 1 ♀ ? (ex coll. Felder);  
1 ♀ labelled "ex larva, Dec. 1892" and cocoon and pupa case; this specimen differs much from the remaining 9; the forewings are more uniform, the light markings being very much reduced; the hindwings are duller in colour, and their black margin becomes very narrow below vein 5.

**[Castnia (Jephrostola) gramivora Schaus.**

There are unfortunately no Sao Paulo specimens of *gramivora* at Tring for comparison, but there are 8 from Castro, Parana, collected by Mr. E. Duckinfield Jones, who took Mr. Schaus's type. I must at once say that I do not understand how the entirely erroneous figure in Seitz was produced; Strand described his *gramivora parana* from my smallest specimen, so **either** the figure is an utter travesty **or**, what is so often the case, Dr. Seitz, without consulting the author, used a totally different insect for his plate. All my 8 specimens distinctly show the large brown patch starting from the costa and almost dividing the large diaphanous space in two; they also have the "secondaries" (hindwings) and their large submarginal spots much more rufous than in Mr. Oberthür's figure of Houlbert's *fenestrata*. I therefore am convinced that all 3 forms *gramivora*, *parana*, and *fenestrata* are only aberrations of one insect, *gramivora* Schaus.]

**Castnia (Tephrostola) gramivora Schaus.**

*Castnia gramivora* Schaus, *Journ. New York Entom. Soc.* vol. iv. no. 4. p. 147 (1896) (Sao Paulo).

I consider that the only difference between Strand's *parana* and Schaus's *gramivora* is that the basal area of hindwings and their submarginal spots appear more rufous. This I consider merely aberrational. As regards size my 8 ♀♀ vary much as follows:

Length of forewing: 25 mm.—32 mm. Expanse: 54 mm. to 81 mm.

The specimen measuring 54 mm. in expanse is the "type" of Strand's *parana* and which he says expands 45 mm. This is due to faulty measurement. As I have proved by repeating this method, Strand must simply have placed the specimen against a rule and taken the breadth between the points of the wings; this is bound to be wrong, as no two specimens are ever set with their wings at absolutely the same angle. I take my measurements with a pair of compasses from the thorax to the end of wing, then again with the compasses take the width of thorax; this by adding the width of thorax to the length of both forewings gives the exact expanse of the insect. A more rough-and-ready way of arriving at an almost equally accurate result is to measure from the pin to apex of one forewing and then double the resulting figures. This is the method employed by Sir George Hampson and is fairly accurate if the pin is properly in or about the centre of the thorax. It will be seen that my largest ♀ is the same size as the Schaus "type."

8 ♀♀ Castro, Paraná, February 1897 (E. D. Jones).

**Castnia (Xanthospila) mimica Feld.**

*Castnia mimica* Felder, *Reise Novara*, pl. 79. fig. 7 (1874) (Ega).

The Tring Museum possesses two specimens of this remarkable species:

1 ♂ Ega, Amazons (Bates, ex coll. Felder) (type); 1 ♂ Jeffé, Amazons, November 1907 (M. de Mathan).

**Castnia (Enicospila) marcus Jord.**

*Castnia marcus* Jordan, *Novit. Zool.* vol. xv p. 253 (1908) (Pebas).

This remarkable species has up to now remained unique.

1 ♀ Pebas, Amazons, November 1906 (M. de Mathan).

**Castnia (Cabirus) linus** (Cram.)

*Papilio linus* Cramer, *Pap. Exot.* vol. iii, part xxii, p. 111, pl. celvii, fig. A (1779) (Surinam).

Of this form we have at Tring 3 specimens:

2 ♂♂ Surinam (ex coll. Van Lennep, ex coll. Felder) (Cramer's cotypes probably); 1 ♂ ?.

Monsieur Houlbart has united to *linus linus* specimens from French Guiana, the Amazons, and even Matto Grosso. I find that not only is this incorrect, but that even French Guiana specimens of which I have 6, and British Guiana ones of which I have 2, show important differences. All these 8 specimens differ from my 3 Surinam specimens in two important points, (1) the basal one-fourth of forewing and the yellow semivitreous median band are much lighter, less suffused with dark scales, and (2) in Surinam specimens the 2 first spots of the submarginal line of spots on the hindwing only are large and elongate, the rest are small; in the British and French Guiana specimens there is an extra spot nearer costa, and of the rest 4 are very large and elongated, while the rest are minute and semi-obsolete. I therefore describe them as follows:

**Castnia (Cabirus) linus omissus** subsp. nov.

Differs from *linus linus* on forewing by the basal area and median band of forewings being lighter, brighter and less suffused with black scales, and in the submarginal row of spots having an extra subapical one, while of the rest 4 as opposed to 2 are very large and elongate, being also larger than in *linus linus*.

4 ♂♂, 2 ♀♀ Gourdonville, Kouron River, French Guiana, September 1905 (E. Le Moutt); 1 ♂, 1 ♀ British Guiana.

**Castnia (Cabirus) linus obidonus** subsp. nov.

This is distinguished from *l. omissus* and *l. heliconoides* by its great size, especially in the ♀, and in the submarginal spots on the hindwing, which are very large and have the 1st, 2nd, 4th, and 5th very large and oblong, while the 3rd is small; and also by the very wide black outer portion of wing in which these spots stand.

Length of forewing: ♀ 56 mm. Expanse: 121 mm.

1 ♂, 1 ♀ Amazon (Bates, ex coll. Felder); 2 ♂♂, 1 ♀ Obidos, August 1906 (W. Hoffmanns) (♀ type).

**Castnia (Cabirus) linus** subsp. ?

The Tring Museum possesses 1 ♂, 1 ♀ of a form of *linus* which differs from *obidonus* in several particulars, but the material is insufficient for a proper diagnosis, especially as the localities appear incorrect.

1 ♂ labelled Honduras; 1 ♀ labelled Bolivia (bought of Watkins and Doncaster).

**Castnia (Cabirus) linus micha** Druce

*Castnia micha* Druce, *Ann. Mag. Nat. Hist.* (6) xvii, p. 217 (1896) (Paraguay).

1 ♂ Buenavista, East Bolivia, 750 m. = 2,438 ft., August 1906—April 1907 (José Steinbach); 1 ♀ Sta Cruz de la Sierra, E. Bolivia, 1905—1906 (José



Steinbach), these two = ab. *michana* Strand; 2 ♂♂, 2 ♀♀ Sapucay nr. Villa Rica, Paraguay, November—December 1902—1903 (W. Foster).

[Messrs. Houlbert and Oberthür place *linoides* Strand in the genus *Cabirus* Hübn.; it is, however, a true *Gazera*.]

**Castnia (Boisduvalia) pellationis** Strand

*Castnia pellationis* Strand, in Seitz, *Grossschmett. Erde*, vol. vi. p. 15. pl. 8 b (1913) (Songo, Bolivia).

♀ 1 Rio Songo, Bolivia, 1,100 m. = 3,575 ft., March—June 1896 (Garlepp) (type).

**Castnia (Boisduvalia) pellationis punctimargo** subsp. nov.

Differs from *p. pellationis* in that the submarginal rufous band on hindwing is broken up into spots and from *p. strandi* in that the black patch between vein 2 and inner margin on forewing is much larger and oblique, not longitudinal, and on the hindwing in there being 6 spots instead of 2.

1 ♀ Columbia.

**Castnia (Boisduvalia) melanolimbatata** Strand

*Castnia melanolimbatata* Strand, in Seitz, *Grossschmett. Erde*, vol. vi. p. 15. pl. 8 e (1913) (Peru).

1 ♂ Pozuzo, Department Huanaco, Peru (W. Hoffmanns).

**Castnia (Boisduvalia) amazonica** Strand

*Castnia amazonica* Strand, in Seitz, *Grossschmett. Erde*, vol. vi. p. 15. pl. 7 b (1913) (Pebas).

1 ♂, 1 ♀ Pebas Amazons, December 1906 (M. de Mathan).

**Castnia (Boisduvalia) melessus** Druce

*Castnia melessus* Druce, *Entom. Month. Mag.* vol. xxvi. p. 70 (1890) (Upper Amazons).

1 ♂ Pebas, Amazons, November 1906 (M. de Mathan); 1 ♀ Iquitos (Michaelis); 1 ♀ Iquitos 1893 (Maxwell Stuart); 1 ♀ Rio Cachyaco, Iquitos, 1893 (Maxwell Stuart).

**Castnia (Boisduvalia) melessus columbiana** subsp. nov.

Differs from *m. melessus* in the much narrower black band on hindwing below costa, and in the narrower postmedian oblique line on forewing.

1 ♂, 1 ♀ Bogotá.

**Castnia (Boisduvalia) tarapotensis** Preiss

*Castnia tarapotensis* Preiss, *Neue & Selt. Art. Castnia*, p. 10. pls. vi. fig. 5 and vii. fig. 11 (1899) (Tarapoto, Peru).

1 ♀ Amazons; 1 ♀ Rio Cachyaco, Iquitos, 1893 (Maxwell Stuart).

**Castnia (Gazera) zagraea** Feld.

*Castnia zagraea* Felder, *Roise Novara Lépid.* iv. pl. lxxix. f. 2 (1875) (Panama).

1 ♂, 1 ♀ Chiriqui; 2 ♂♂ Bogava, Chiriqui, 800 ft. (Watson); 1 ♂ "S. America" !?; 1 ♀ Panama (ex. coll. Felder) (type).

**Castnia (Gazera) zagraea** subsp. ?

There is a small ♀ of this species at Tring without locality and with the abdomen almost destroyed which differs in the band of the hindwings and in the oblique postmedian bar on forewings, but the material is too poor to warrant describing.

1 ♀ ?.

**Castnia (Gazera) hahneli** Preiss

*Castnia hahneli* Preiss, *Neue & Selt. Art. Castnia*, p. 10, pls. vi. fig. 2 and vii. fig. 5 (1899) (Valera, Venezuela).

The single specimen at Tring agrees perfectly with Preiss's figure and is undoubtedly a ♂.

1 ♂ Cucuta, Venezuela.

**Castnia (Gazera) daguana** Preiss

*Castnia daguana* Preiss, *Neue and Selt. Art. Castnia*, p. 10, pls. vi. fig. 6 and vii. fig. 6 (1899) (Rio Dagua, Columbia).

2 ♀♀ Zamora, Ecuador, 3—4,000 ft. (O. T. Baron).

**Castnia (Gazera) carilla** Schaus

*Castnia carilla* Schaus, *Ann. Mag. Nat. Hist.* (8) vii. p. 192 (1911) (Carillo, Costa Rica).

1 ♀ Carillo, Costa Rica, May (W. Schaus).

**Castnia (Gazera) cycna** form. **minor** Westw.

*Castnia cycna* form. *minor* Westwood, *Trans. Linn. Soc. Lond.* (2) i. p. 191 (1877) (Columbia).

The forms *cycna* Westw. and *modificata* Strand are not represented at Tring.

1 ♂, 1 ♀ Bogotá ; 2 ♂♂ Sta Fé de Bogotá ; 1 ♀ Muzo, Columbia ; 1 ♂ ? ; 1 ♀ Columbia.

**Castnia (Gazera) linoides** Strand

*Castnia linoides* Strand, in Seitz, *Grossschmett. Erde*, vol. vi. p. 14, pl. 8 b (1913) (Paramba).

This is only a white-coloured *Gazera*.

2 ♀♀ Paramba, Ecuador, 3,500 ft., March 1897 (Rosenberg) (type).

**Castnia (Nasca) pelasgus** (Cram.)

*Papilio pelasgus* Cramer, *Pap. Exot.* vol. iii, part xvii. p. 16, pl. ccii. fig. D (1779) (Surinam).

Messrs. Houlbert & Oberthür treat *pelasgus* and *unifasciata* Felder as distinct species, while they describe a third form from the Upper and Peruvian Amazons as *fulvofasciata*. The Tring Museum possesses 1 *pelasgus* and 1 *unifasciata* (type), and whereas it would require a long series from all localities of all these 3 forms to ascertain definitely their exact status, I shall treat them for the present as distinct.

1 ♀ S. America (ex Meyer coll.) (original of figure in Seitz).

**Castnia (Nasea) unifasciata** Feld.

*Castnia unifasciata* Felder, *Reise Novara, L'ipid.* iv. *Erklär. Taf.* p. 3. pl. lxxix. fig. 5 (1875) (Amazons).

In the *Erklärungen der Tafeln*, p. 3, it is stated that this insect was from the Amazons, collection Bates. There is, however, no indication whatever of this on the specimen for the characteristic Felder locality label, a small circular disc of blue paper, only has "Type" on it; this, however, is not of much consequence, because Felder was, judging from the specimens at Tring, very careless about labels. The specimen in addition to this blue disc has the full Type label in red ink of all the Novara types.

1 ♀ Amazons (Bates, ex coll. Felder) (type).

Of the genus *Westwoodia* Houlb. (nom. praecoc.) no specimens exist at Tring. Mr. Talbot has explained (postea, p. 436) that *pelopia* is an Erycinid and not a Castniid. Probably Houlbert's *pelopioides* also is only an aberrant *erycina*, though we have so many closely allied but distinct *Castnias* occurring in one and the same district that the fact of both *erycina* and *pelopioides* occurring in Ecuador is not necessarily a proof of their identity.

It may strike the readers of this article that I have throughout put *Castnia* in front of my species names, and the Houlbert-Oberthür generic names in brackets. This must not be taken to mean that I consider that all the *Castniinae* belong to the single genus *Castnia*, but only that I am not yet satisfied as to the number of genera or their exact limits. At any rate I am not yet satisfied that Messrs. Houlbert and Oberthür's genera nor the limits of their genera are the final and correct ones. I must, however, associate myself with all Mr. Talbot has said in the article here following as to the great advance in our knowledge brought about by the monograph we both have here discussed, and to the immense service Messrs. Houlbert and Oberthür have rendered to Entomology by their great work. According to the figures given by Monsieur Houlbert in the monograph, Mr. Oberthür's collection contains 374 specimens of 104 forms of *Castniinae*, while the Tring Museum possesses 919 specimens of 117 forms.

The British Museum possesses in the general collection 260 specimens of 70 forms, and in the Adams collection 132 specimens of 28 forms, or altogether 392 specimens of 76 forms. According to Mr. Houlbert the Paris Museum possesses 165 specimens of 55 forms and the Oxford Museum contains 176 specimens of 54 forms. Mr. Joicey's collection at Witley has 709 specimens of 97 forms.

## REVIEW OF A MONOGRAPH OF THE "CASTNIINAE."\*

BY GEORGE TALBOT.

MONSIEUR CHARLES OBERTHÜR and Monsieur C. Houlbert, Professor to the University of Rennes, are to be congratulated on the publication of an important monograph on the moths of the family *Castniidae*. The sub-family *Castniinae*, which is wholly American, is alone dealt with, but it is hoped that Monsieur Houlbert will be able to give us at some future date further studies on the rest of the family.

The author was fortunate in having plenty of material at his disposal, because the *Castniids* are not common in collections, and many species are very rare. Besides the material provided by the Oberthür collection, containing types of Boisduval and Guenée, there was placed at his disposal the rich collection of the Paris Museum, which included the types of Godart.

The work is dedicated to the memory of Dr. Boisduval, and comprises 730 pages of text, besides 16 pages of introduction. There are numerous text-figures, including a large number of excellent photographs. The plates in colour, for which the *Études* have been always famous, are not to be surpassed and are wonderfully delineated by Monsieur Jules Culot; there are 26 of them, showing 70 figures. All the known species are figured with a few exceptions, these being in the case of some very rare forms not known to the author in nature.

The first chapter deals with the anatomical characters used in the classification; the second with the early stages; the third with previous systems of classification of the family; the fourth with the systematic arrangement adopted by the author, an analytical key to the tribes and genera being given.

The second part of the work deals with the description of every known species, and the third part with their phylogeny and distribution.

A systematic catalogue with synonymy is given at the end, but we wish that the synonymy had been more complete, many references in the text not being included here, whilst many others are omitted altogether.

We have spent a portion of our leave from military duties in examining certain portions of Monsieur Houlbert's work, especially with a view to throwing more light on some species described by Druce. Mr. J. J. Joicey kindly gave us facilities for comparing specimens and types of Druce's species in his Lepidopterological Museum at Witley, where assistance was also rendered by Mr. L. B. Prout, who is acting as curator in our absence.

We will first deal with the Druce species:

1. *Corybantes dolopia* Druce (p. 186).

The type is a ♀, and there is a second ♀ in the collection without locality. After careful comparison of these with the description and excellent figure of *fusca* Houlb. (p. 184), we conclude that *fusca* is the ♂ of *dolopia* and must there-

\* *Révision monographique de la Sous-Famille des Castniinae*, par C. Houlbert. (*Oberthür, Études de Lép. Comp.*, fasc. xv. Mars 1918.)

fore sink. In the absence of a figure of *dolopia* we think it useful to amend Druce's description as follows :

Female.—Head, collar, tegulae, thorax and base of the abdomen dark brown ; abdomen black ; antennae black, the tips pale brown. Primaries dark brown glossed with green ; a large greyish-brown spot at the end of the cell, beyond which the wing is crossed from near the apex by a series of dull greyish-brown spots, those nearest the apex very indistinct and merged with a large patch between veins 6 and 9, which is joined to two well-defined spots in cellules 4 and 5 ; below these two larger spots in 2 and 3 ; the spots are edged with black ; below the spots on the inner margin are two lunular black marks. Secondaries velvety blackish-brown, the base shot with bluish-green ; a row of 6 white spots crosses the wing from near the anal angle, the anterior spot in cellule 5 indistinct. The underside of both wings pale brown, with all the spots much more distinct, and all edged with black ; some blackish-brown scaling at the anal angle.

### 2. *Sympalamides sora* Druce (p. 394).

We compared the type of this species with the figure and description of *rubrophalaris* Houlb. (p. 387) and there is no doubt as to their identity. Houlbert's name must therefore sink. He expressed the opinion that *sora* was probably the ♀ of *mygdon* Dalm. The type is a ♂ and we regard it as a red form of *mimon* Hübn. The variation exhibited in 4 ♂♂ of *sora* in the Joicey collection is the same as seen in ♂♂ of *mimon*.

### 3. *Aciloa staudingeri* Druce (p. 459).

Although *A. palatinoides* Houlb. (p. 458) presents a close resemblance to *staudingeri* we cannot say that it is the ♂ of Druce's species. The type of Druce is in the Staudinger collection, but a specimen bearing the same data exists in the Joicey collection. In this specimen the brown discal spots on the underside of the hindwing are placed more as in *palatinus* and form a less oblique line than in the figured *palatinoides*. On the forewing below, the black costal spot is much broader distally, as in *palatinus*. On the forewing above are two white spots, and the three lower submarginal spots are nearer the post-discal line. On the hindwing above, the costal area is more broadly orange, the four anterior black spots separated, the whole band being farther from the margin and leaving in cellule 1° two yellow submarginal spots instead of the two white dots enclosed by black as seen in *palatinoides*. The abdomen is pale yellow, but in the figure of Houlbert's species it is white.

We judge therefore that in *staudingeri* we have a race, equally with *palatinoides*, of *palatinus*.

We note in passing that *Aciloa palatinoides* is headed as being a ♀ in both the original description and the present transcription, whereas it is defined in the description as being a ♂ in each case.

### 4. *Orthia amalthaea* Druce (p. 508).

This is a very distinct species and appears more nearly allied to *therapon* than to any other form.

We can add to Druce's description that the submarginal black spots on the hindwing are irregular in shape, are slightly separated at veins 2 and 4, and bear irregular white centres in cellules 1°, 2, 3, 5, and 6.

5. *Cabirus micha* Druce (p. 576).

This more nearly resembles *heliconioides* H.-S. The hyaline areas are much enlarged, especially the apical patch on the forewing. It can only be considered as a race and not as a distinct species. *Cabirus dodona* Druce represents another race similar to *heliconioides*.

6. *Boisduvalia melessus* Druce (p. 599).

The type is a ♂ from Iquitos. A second ♂ is in the Joicey collection, bearing the label "Amazons, ex Staudinger."

7. *Westwoodia pelopia* Druce (p. 656).

This species bears such a striking resemblance to *erycina* Westw. that Druce failed to examine it more closely.

The type is unique and upon examining it for the first time we found it to be a butterfly belonging to the family *Erycinidae*. We have referred it to the genus *Xenandra* on account of its neuration and general appearance.

The extraordinary likeness of this species (unique among the *Erycinidae*) to *Castnia erycina* Westw. (= *pelopioides* Houlb.) led Houlbert to suppose that it might prove to be the ♀ of his species.

The figure of *erycina* in *P.Z.S.* 1881, pl. xii. fig. 4, gives a wrong impression of the forewing in showing a red band; this is an exaggeration of the metallic gloss, the wing being without markings.

Apparently only four specimens of *erycina* are known. Besides the type in the Hope Museum, which has been kindly examined by Professor Poulton, two ♂♂ are in the Joicey collection (*ex* Druce), and were collected by Buckley at Chiguinda in Ecuador. As the Godman and Salvin moths passed into the possession of Druce, these specimens are undoubtedly paratypes. Oberthür's type of *pelopioides* is clearly identical.

It is to be expected that a form of *Castnia* resembling *erycina* will one day be found in Colombia in association with the Erycinid *pelopia*.

We will now proceed to discuss some other species concerning the treatment of which we beg to differ from Monsieur Houlbert. We take them in the order in which they occur in the monograph.

1. *Elina icarus* Cram. (p. 326).

Dr. Jordan, in *NOVITATES ZOOLOGICÆ* 1906, pl. x., figures four forms of *Castnia* under the name of *icarus* Cram., all from Paraguay, and considered by him to belong to one variable species.

Now Houlbert professes to have discovered three species among the four figured by Jordan; one he calls *icarioides* Houlb., one *jordani* Houlb., and the other *icarus* Cram. The two former forms are separated by Houlbert from *icarus* by the absence of the sub-apical white band on the forewing above. We have examined a series of 39 *icarus* in the Joicey collection. The sub-apical band is variable, and although it is not entirely absent in any one specimen, yet it becomes indistinct in some individuals. The pattern on both wings is subject to some variation, and one specimen from Venezuela closely approaches *jordani* in the white markings of the hindwing; no character appears constant.

We observe, however, in the excellent figures of *icaroides* and *jordani* that these agree in the continuity of the distal edge of the red ground which in all typical *icarus* is broken up into spots. This character is not specially mentioned by Houlbert. We are inclined to regard these forms as well-marked aberrations in which there is an increase of red coloration combined with white, forming a transition to *endelechia* Druce.

The forms in question are very rare; of *icaroides* only a pair seem to be known and of *jordani* probably only the one specimen figured in NOVITATES ZOOLOGICAE. With such scanty material it is unsafe to draw conclusions as to specific distinctions in relation to a variable species, and under these circumstances we must accept the more obvious view that we have to do with one variable species.

Monsieur Houlbert refers to "*jordani* var. *endelechia* Druce" when of course it should be *endelechia* var. *jordani* Houlb.

Until much more material is available for study, we must regard *endelechia* as a form (possibly a race) of *icarus*, whilst *icaroides* and *jordani* may be treated as aberrations more clearly defined than the other and smaller variations of a variable species.

## 2. *Ceretes thais* var. *gracillima* subsp. nov. (p. 366).

This appears to us to represent an aberration only, a similar form with slightly increased black markings on the hindwing being represented in the Joicey collection. As *gracillima* comes from Rio de Janeiro, and most of the known *thais* are from Brazil without precise locality, we cannot regard *gracillima* as being a local race in the absence of more strictly localized material.

## 3. *Sympalamides phalaris* Fabr. (p. 373).

We have gone carefully into the question raised as to the identity of this form, and discussed by both Messieurs Houlbert and Oberthür on pages 373-379!

It is true perhaps, that at first sight one would not suppose that Donovan's figure of *phalaris* represented a *Castnia*. We have searched for something resembling it among other groups of Lepidoptera with negative results, and, as Monsieur Houlbert points out, literature does not contain any other similar figure. The only insect which we find to possess a forewing underside like the figured *phalaris* is the *Castnia mimon* Hübn. We find, too, that the markings of the hindwing below are also very similar to the scheme of *Castnia*. The forewing above is said by Fabricius to be immaculate, and we suspect that certain obscure spots were exaggerated by Jones, whose drawing Donovan reproduces. These spots occupy the same position as the dark areas in *mimon*, and as these areas sometimes include some pale scaling, it is conceivable that such pale scaling could be enlarged. It is equally conceivable that these two spots may represent anterior parts of the pale bands as seen in *mimon*. On the hindwing one can trace a considerable likeness of the white markings to those of *mimon* and *subvaria*, the latter appearing to exhibit a transition between it and *phalaris*.

Regarded in this light Donovan's figure becomes perfectly intelligible, and until much stronger proof can be adduced to the contrary we see no reason for sinking Fabricius' name *phalaris*. We feel therefore justified in assuming that

the figure is that of a *Castnia*, but a rare form at present unknown in nature to Lepidopterists, and most likely an aberration.

Although Monsieur Houlbert separates *mimon* Hübn. from *subvaria* Walk., placing them in two different sections, their general facies is so similar that it seems reasonable to suppose that they represent forms of one variable species. Where orange forms are found we can very well have a yellow one. We submit then, from these considerations, that whilst the name *mimon* Hübn. (= *phalaris* Godt.) stands, the name *phalaris* Fabr. must also stand for the form figured by Donovan.

Further, it seems highly probable that *phalaris* Fabr. is a species comprising the forms *phalaris* Fabr., *mimon* Hübn., *lombardi* Le Cerf, *mygdon* Dalm., *argus* Bdv., *subvaria* Walk., *dionaca* Hopff., *albofasciata* Schauf., and *sora* Druce.

The *albofasciata* Schauf. must certainly be a ♀ form of *phalaris*. The ♀ appears to vary in the amount of orange-red on the hindwing. There may be none at all, or yellowish white edging to the white spots, merging into orange-red in other examples.

Another ♀ form of the *phalaris* group is represented by a specimen in the Joicey collection without locality. It is of striking coloration, with the darker ground-colour of *sora* still more increased especially on the hindwing, and with intensified white bands on the forewing.

We propose the name *signata* for this form, and Mr. L. B. Prout has kindly appended a more detailed description.

#### 4. *Prometheus garbei* Foett. (p. 491).

It may be interesting to record that specimens of this species exist in the Adams collection in the British Museum. There are also 6 ♂♂ and 3 ♀♀ in the Joicey collection from Rio Grande do Sul, Brazil.

#### 5. *Tephrostola fenestrata* Houlb. (p. 560).

The figure does not differ at all from some of the specimens of *gramivora* in the Joicey collection from Castro, Parana, and we must consider it to represent, like *parana* Strand, a simple aberration.

#### 6. *Cabirus peruviana* Strand (p. 575).

The author is unable to confirm the identity of this form. There are two females in the Joicey collection, one from Chanehamayo, and one from San Joas, Solimoes Riv. These are easily distinguished from the other races by their larger size, greatly enlarged hyaline areas, and by the very sparse dark sealing on the veins of the discal area of the hindwing.

It is interesting to note that the forms of this group of *Castnia* exhibit the same development of pattern as do the Ithomiine *Rhopalocera* with which they are doubtless associated.

#### 7. *Boisduvalia amazonica* Strand (p. 598).

There is a ♂ of this species in the Joicey collection which bears the locality of "S. Paulo, Amazons, ex Stgr."



8. *Boisduvalia personata* Wlk. (p. 608).

Mr. L. B. Prout has examined the type of this species at the British Museum and there is no doubt that Houlbert has placed the species in its right position.

9. *Erythrocastnia syphax* Fabr. and *Amauta angusta* Druce

are both placed as synonyms by Houlbert in conformity with Monsieur Oberthür's well-known dictum.

If Fabricius neglected to figure *syphax* there is no reason why it should be sunk under *harmodius* Cram., who figured it first. The same applies to *angusta* Druce.

In this connection we would call attention to Monsieur Oberthür's remarks at the bottom of page 370. He argues that if the type is lost the species must be referred to the category of the ignota. Now many practical entomologists will contend that most species can be identified by their descriptions, more especially if the correct habitat is given. A figure must only be a subsidiary aid to identification. A good figure must not only show form and pattern, but also all anatomical details, and this is absent in nearly all representations of Lepidoptera. A rule laid down for Lepidoptera must obviously be applicable to other animal forms as well as to plants. Would botanists and bacteriologists prefer good figures of plants and bacteria to proper descriptions of them? The answer would be in the negative. Some species of insects, proved to be quite distinct, so closely resemble others that without a complete description the species could not be recognized, and as in these cases it is the description which gives us the clue to identification, the figure must remain of secondary importance.

Monsieur Houlbert divides the *Castniinae* into 33 genera, of which 21 are regarded as new. These genera comprise 179 forms, of which 39 are new, but of these there are 4 names which we have already submitted should be sunk as synonyms.

We also find that the names given to some of the new genera are preoccupied. These are *Boisduvalia*, preoccupied Desv. in Diptera (1830); *Elina*, preoccupied Blanch. in *Satyridae* (1852); *Xanthospila*, preoccupied Fairmaire in Coleoptera (1884); *Westwoodia* preoccupied Brulle in Hymenoptera (1864) and several times since; *Cabirus* Hübn.

The genus *Cabirus* Hübn. was a composite one, comprising *linus* (a *Castnia*) and *julettus* (a *Hesperid*). Scudder in 1875 rejected *linus* and made *julettus* the type, and this has since been accepted by all writers on the *Hesperidae*. In the *Castniinae* this name now stands as *Cabirus* Houlb. nec Hübn. As *linus* Cram. is the oldest name for the group we must use the generic name *Gazera* Boisd., which that author undoubtedly created for *linus* Cram.

The group included by Houlbert under *Gazera* is represented by *zagraea* Feld. as the oldest species, and for this the generic name of *Doubledaya* was proposed by Buchecker, *Syst. Ent. Castn.*, t. 23 (1880?). This name will therefore stand, providing the genus is sufficiently characterized.

The splitting up of the *Castniinae* into several genera, some of which only lay claim to generic distinction by reason of their scheme of pattern and by quite small differences in the shape of the pulvillus and paronychium, seems to us to be of doubtful value. This is more so in the absence of any comparative study of the genitalia of these groups.

It is clear, however, that some of these genera will stand, since not only does the pulvillus show in these a well-marked difference in structure, but it is associated with a different neuration.

If our time had perforce not been occupied with the more practical side of entomology connected with War Service we should have liked to go more fully into the question of the genera of *Castniinae*. One test only were we able to make. Upon examining the unique specimen of *laura* Druce, it struck us that this probably did not belong to the *licus* group, but might perhaps be more suitably placed with *evalthe*. We therefore made preparations of the tarsus of the three species. To our surprise, we found that the pulvillus of *licus* was of the same form as that of *evalthe*, whilst *laura* differed distinctly from these.

The pulvillus of *laura* is similar to the figured *licoides*, but *licus* itself is different, the base being straight as in *evalthe*. The pulvillus of *evalthe* is similar to the figured *evalthonida*, but the anterior margin is not evenly rounded, there being a depression at either end; the base, too, is not rounded but straight.

It seems likely that *evalthe* and *evalthonida* are good species, and although in the same genus it is worthy of note that they differ in the form of the pulvillus. Let it be noted also that *licus*, although placed in a different genus, more closely resembles *evalthe* in the form of the pulvillus, whilst it differs from *licoides* already associated with it.

It appears therefore that in the *Castniinae* the form of the pulvillus is not a good character on which to found genera. The author, however, whilst admitting it as a character for most genera, regards pattern as of primary importance. We regret he has very little to say concerning neuration and the structure of the genitalia in diagnosing his genera. Without these essentials we are disposed to think that the creation of genera on pattern alone, combined perhaps with some slight difference in the form of the pulvillus, is to be deprecated. The genera *Spilopastes*, *Xanthospila*, and *Enicospila* are founded on pattern alone.

The genus *Corybantes* is curiously constituted as compared with other genera. It is not homogeneous from the point of view of pattern, and contains two types of pulvillus. A comparison of *pylades* with *dolopia* exhibits not only a difference in the scheme of pattern but also in neuration.

This monograph is the most exhaustive and elaborate yet given to the entomological world on the *Castniinae*, and materially advances our knowledge of this most interesting group of moths. The errors of previous authors are discussed and rectified, and some advance is made in grouping the various species, partly by a study of the morphology of the last segment of the tarsus.

There must be a much larger amount of properly localized material available for study before we can hope to arrive at definite conclusions as to the affinities of the various species and the real significance of their marked differences in pattern.

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At Mr. Talbot's request, the following fuller description of the new *Castnia* has been prepared.

*Castnia* (*Sympalamides*) *signata* Talbot & Prout sp. nov. (*phalaris* form?).

♀. Very distinct from any known form, especially in presence of the longitudinal dark band on the forewing above. May be recognized by a comparison

with *argus* Bdv. figured by Houlbert, pl. edxlvii. fig. 3.801. Antenna much lighter, more yellowish.

*Forewing* darker, less brown, mixed—especially in anterior and posterior regions and near termen—with slaty-grey scales; markings blacker; discal band somewhat broader (except at costa), more evenly margined, ending at fold about 2 mm. from termen, broadly confluent with a longitudinal band which runs inward, tapering behind eell nearly to base; a narrow white band proximal to the dark transverse band between SC<sup>1</sup> and M<sup>2</sup>, the pale area distally to the dark band likewise mostly white; subapical patch larger than in *argus*, its proximal edge less deeply sinuate; dark distal border very narrow, of equal width throughout.—*Hindwing* predominantly black (brownier in abdominal region); proximal orange spot and the two yellow spots which succeed it replaced by a band of three elongate, confluent orange spots between R<sup>1</sup> and M<sup>1</sup>; the white, orange-edged spots somewhat further from termen, mostly rather elongate, that between R<sup>1</sup> and M<sup>1</sup> wanting; curved tornal mark shorter; submarginal orange spots separate posteriorly, large between R<sup>2</sup> and M<sup>2</sup>, obsolete anteriorly to R<sup>1</sup>; fringe white in distal half. Forewing beneath with proximal area almost black, the yellow bands and posterior spot almost white, the first one narrow; distal border blackish, narrowly edged with white against the white band. Hindwing beneath largely blackened, becoming browner at abdominal margin, apex and termen; two elongate white spots in middle between the radials; the spots distal hereto likewise white, the two between M<sup>1</sup> and SM<sup>2</sup> large, the curved subtornal short and mixed with orange; orange submarginal spots nearly as above.

Patria? Type in coll. Joicey, labelled *albofasciata*, which—according to Schaufuss' short description—cannot be correct.

Length of forewing: 41 mm.

LOUIS B. PROUT.

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MORE NOTES ON THE CRESTED LARKS OF THE  
NILE VALLEY.

BY DR. ERNST HARTERT.

BEING exceedingly busy at present, I very much dislike answering articles in which attempts are made to correct my views on certain questions, and prefer to trust to the future which will vindicate me or prove that I erred, but I cannot help replying to Nicoll's letter on Crested Larks of the Nile Valley in *Ibis*, 1918, pp. 741-3, which is a reply to my notes on the same subject in *NOVITATES ZOOLOGICAE*, 1917, pp. 439-41.

Nicoll evidently dislikes to alter the conclusions to which he came before.

Nobody, however, can work without ever making mistakes, and should be broad-minded enough to accept alterations of one's own views or correct them oneself if one finds them out to be erroneous. This latter is what I have done in 1917, and Nicoll should not call what I have done "transferring" the name *altirostris*, because I have now not transferred it, but only applied it correctly. I have misled Nicoll in accepting the name *altirostris* for the bird inhabiting the Nile Valley from Cairo (and on poorer soil north to Damietta), to at least Assuan (Aswan). All he knew about this name was what I had written about it, and he agreed with that, because he was misled by my having labelled a Kom Ombo specimen as the type; before I unearthed the name *altirostris* and others it had been entirely forgotten, since the *Cat. B. Brit. Mus.* vol. xiii. made no mention of it. In my notes in *NOVITATES ZOOLOGICAE*, 1917, I tried to prove that I had been wrong, and as Nicoll now disagrees with me, I must do so again.

The reasons for my stating that the Akasheh specimen is the type of *altirostris*, and not the one from Kom Ombo (or Kom Ombo), are several.

First of all the description of *G. c. altirostris* in *Naumannia*, 1855, p. 209, does not agree with the Kom Ombo bird, but with the Akasheh ones. In the first very short and preliminary diagnosis, *Vogelfang*, p. 124 (1855), is hardly anything definite except the mention of the short, curved, and exceptionally high beak—otherwise Brehm said it was like some German specimens which he at the time called *pagorum*, and that is the whole description! We must therefore look for the fuller description in *Naumannia*, 1858. There Brehm compares it with *angustistriata*, of which he says that the middle rectrices are strongly tinged with rust-colour, while the lateral ones are chiefly rust-colour—in opposition to *maculata* which has the middle rectrices blackish. Now this is exactly what the Akasheh specimens show, while the one from Kom Ombo has the darker tail. I don't think much of the shape of the bill, which varies and is not very different in the two specimens in question. This is the most important point: the description fits the Akasheh skins, not the Kom Ombo one!

Secondly, the labels: One of the two Akasheh skins has the name *altirostris* clearly written out and unaltered. The one from Kom Ombo has it crossed out on both sides of the label, though "underpunctuated" again on the front side, meaning clearly that Brehm (we suppose, but do not know, that he had crossed it out himself) was uncertain about the name.

Thirdly, the locality : Kom Ombo (or Kom Ombos) is north of Assuan, and the specimen is, as Nicoll quite correctly states, somewhat ochreous, but undoubtedly the same form as the Assuan ones, from where the type of *maculata* came. On the other hand, the Akasheh birds are *not* like the Assuan ones, but paler, the middle rectrices more isabelline, the lateral ones rufous isabelline with a black wedge on the inner web only, while in all the *maculata* which I have seen there is much more dark colour on the middle tail-feathers, and the outer ones are blackish, with, generally, only the outer web isabelline, and that often not entirely.

Nicoll is in error about the situation of Akasheh ; here again I may have misled him. I said near Ambukol, because A. E. Brehm, in *Reiseskizzen*, iii. p. 304, mentions an Ambukol near Akasheh, but that is not the town of Ambukol south of Dongola, for Akasheh is only 112 km. south of Wadi Halfa, and the "Ambukol" mentioned by A. E. Brehm is what maps now spell "Ambigol." Akasheh is shown on all better maps, and Nicoll might have known it. This, however, seems to make no difference, for Nicoll agrees with me that the bird from south of Dongola is different from the one from Assuan, and I consider that the Akasheh and Dongola and the Dongola-bend birds are the same. These birds, as I have pointed out, must be called *altirostris*, and it was *my* mistake that I formerly placed *maculata* as a synonym of the latter.

Nicoll wishes to stick to the original locality given by Brehm, in 1855, as "Oberägypten, selten nördlich." This statement is not confirmed by the collection, and, keeping to Brehm's expression, "Oberägypten, selten nördlich" is actually all Nicoll has to stand on, because the description of 1858 does not agree with the birds north of Assuan. As I have said, Brehm's names of localities in Africa were sometimes vague, moreover the boundary of Egypt, as fixed by the Firman of February 13th, 1841, just passed through Akasheh, so that the latter might as well be called Upper Egypt as Nubia. No importance can be attached to the words "selten nördlich," which may mean anything, either Northern Egypt or even Europe. It is true that I omitted to quote them—miserable sinner that I am.

Nicoll wants to use Bianchi's name *nubica* for this form, but that name has no standing. Bianchi, in *Bull. Acad. de St. Pétersbourg*, xxv. p. 69, 1906, says :

" ? 17. *G. cristata nubica* Bianchi, ex Hartert, 1904, l.c. p. 234. *Galerida cristata*, subsp. ?, Hartert, 1904, *Vög. palaärkt. Faun.* i. p. 234 (Abyssinische Küstenländer).

Icones.

Nidif.

Nubia from Dongola to the Abyssinian coast."

Thus Bianchi merely gave a name to the birds which I mentioned under No. 376, pp. 234, 235. It is a very bad practice to give a new name to a form which, out of great carefulness, because he had not seen enough, or was otherwise uncertain, an author left unnamed, considering that the question was not settled ; if it is done, however, such name is technically valid, but in this case Bianchi's name is practically a *nomen nudum*, as I had not given a diagnosis or differentiating description. I said that the Abyssinian coast-countries, perhaps even both sides of the Red Sea, were inhabited by a pale middle-sized Crested Lark, which did not seem to differ from *brachyura*, further that the birds from the

Dongola-bend of the Nile *seemed* to me to be the same, but that, before a decision was arrived at, better series, specially of fresh autumn birds, should be examined, as I had only, at the time, worn spring birds. I now consider that the Dongola birds are the same as the Akasheh ones, i.e. *altirostris*, while those from the Abyssinian coast are different and have been named *G. cristata eritreae* (Zedlitz, *Orn. Monatsber.* 1910, p. 59). Should the Dongola birds differ again from the Akasheh ones (possibly a larger series might show them to be paler again, but this I cannot now decide, as I have only autumn birds of the one, spring ones of the other locality, but I believe they are identical), a new name must be given to the former.

Nicoll is convinced that his *moeritica*, collected about 50 km. from the Nile, is separable from the birds of the Nile Valley at the same latitude. Of course the Fayoum is very peculiar and has, as shown by Nicoll, who made a collection of birds there, several different, most interesting forms, but other species are quite the same, and the distance—probably actually much less than really 50 km., because Crested Larks probably occur between the places where Nicoll collected and the Nile—is so small that even local birds like Larks may well be the same in both places. I have found isolated colonies of *Galerida theklae deichleri* in the Western Sahara at places that were quite and even more than 50 km. apart. According to Nicoll, *moeritica* differs from the form of the opposite Nile Valley by having longer wings, “and in a large series generally having whiter underparts and smaller, more clear-cut spots on the jugulum.”

Now the supposed longer wings of “*moeritica*” are not a fact, at least two males from the Fayoum, collected by Messrs. Nicoll & Bonhote, have the wings 102 and 106 (barely), while others from the Nile Valley have wings of 102–7 mm.—i.e. exactly the same; even if Nicoll's larger series happens to show a slight greater average of length in wings of Fayoum birds, that would not be enough for separation, as it might be individual, accidental; such very slight (supposed) differences in the length of wing as might possibly exist in Nicoll's series become only worth considering if they are confirmed by a very large series. The smaller, “more clear-cut spots” are not in the least noticeable in the two Fayoum birds, compared with over a dozen Nile Valley ones. Remains the more whitish underside: this I remember was apparent in some, but not all, of Nicoll's little series which I saw when he and Bonhote described *moeritica*, but it seems to me insignificant, as of the two now before me only one shows it, and that can be matched by Nile Valley birds. In Larks, where the underside is often more or less soiled with the dust of the ground, this is altogether a very unsatisfactory character, and if it is the only one is not a good subspecific one. I therefore believe that in the end my uniting of *moeritica* with *maculata* will be approved of by unbiased brother ornithologists.

It is perhaps good that Nicoll wrote that letter to the *Ibis*, if only that it induced me to make my own views clearer and more explicit. In difficult genera like *Galerida* finality and consent can only be reached very gradually, by studying and discussing over and over again the various forms and questions. The status of the genus *Galerida* has altered more than perhaps any other within the last 30 years. In 1890 appeared Sharpe's account of it in vol. xiii. of the *Catalogue of Birds*. It is clear from the lengthy notes on pp. 625, 626, that Sharpe was considerably puzzled, and, though he might have separated more forms than he did, if he had had more regard to geographical separation, he could not possibly

have come to a fully satisfactory conclusion with the material before him. About the same time I began to take special interest in Larks, and the unsatisfactory state of the genus in the *Catalogue of Birds* led me to make my notes in NOVITATES ZOOLOGICAE, 1897, pp. 142-7. Thus I broke the spell, which, as in other cases, a great leading work had cast over the group. While Sharpe had recognized four species, *Galerida cristata*, *theklae*, *malabarica*, and *isabellina*—though not one of the birds he called *theklae* was a real *theklae*, and most of his *isabellina* belonged to other forms—I acknowledged two species, *G. cristata* and *deva* (Sharpe's *Spizalauda deva*), the former with 18 subspecies. This was a considerable advance, though some of my conclusions were utterly wrong.

The next step, and doubtless the greatest ever made in the study of Crested Larks, was Erlanger's review of the Tunisian forms in *Journ. f. Orn.* 1899, pp. 324-52. Erlanger had the enviable opportunity to travel through the greater part of Tunisia, and to observe and collect Crested Larks wherever he went. He was the first modern ornithologist who, apparently in collaboration with Kleinschmidt and Hilgert, clearly recognized that *G. theklae* was not a subspecies, but that in many parts of Northern Africa a form of *cristata* and one of *theklae* lived together, that both were therefore species, each with a number of subspecies. Erlanger also described biological differences, and so did I from my first journeys in Algeria with Lord Rothschild, but these conclusions do not hold good, the only difference which is a fact being that *G. cristata* is chiefly a bird of the plains, while some (not all) forms of *theklae* range high up in the mountains—in many places, however, for example in Spain, near Biskra, on the Hauts Plateaux of Algeria, in Morocco, in Tunisia, both occur in the same places; certain forms inhabit only certain restricted localities, but these peculiarities do not hold good throughout the species in all forms. Song, nests, and eggs differ sometimes, but not equally throughout the two species.

Based on Erlanger's discoveries, Whitaker's and my own continual studies of this group, I was able to come to a fairly correct review in *Vög. pal. Fauna*, pp. 226-40 (publ. 1904), but since then Kleinschmidt and Hilgert, Loudon and Härms, Nicoll, Neumann and others, have advanced our knowledge, while Rothschild, Hilgert, and I collected vast series in Algeria and the Sahara. It is there where an observant collecting ornithologist *must see* that two species live together, and how they vary geographically, but also, sometimes to a disturbing degree (specially the *theklae* forms), individually!

While Nicoll assures us that he has studied Crested Larks in Egypt for over eleven years, may I remind him that I have studied the Crested Larks of the world for about twenty-eight years, and I know probably very much more about their considerable individual variation, which Nicoll tells us (p. 743) exists, as if it was a point missed by us. It is just the individual variation which leads me to believe that "*moeritica*" cannot be separated from *maculata*, and I believe that this view will be the right one in the end, though I admit that I would like to examine again a larger series from the Fayoum.

About the distribution of *maculata* and *nigricans* nothing can be clearer than Nicoll's words in *Ibis*, 1914, p. 548, where he says of the former, which he called *altirostris* of course, that it "can be traced on the Mediterranean coast of Egypt from Mariut on the west as far east as Damietta, southward on both sides of the Nile south of Cairo to Asswan," adding: "It generally skirts the breeding range of *G. c. nigricans* in the delta and keeps to the poorer soil near the

desert edge, but in places it meets with, and possibly interbreeds with, the latter."

There is one sentence in Nicoll's article in the *Ibis*, 1918, p. 742, which I do not understand at all. He says, "Hartert, who has frequently expressed to me personally and also done so in print, that a scientific name on a label is unnecessary." I have surely never said such a thing, and I don't think Nicoll means that exactly. There are perhaps not very many ornithologists who have written more scientific names on labels than I, and for anyone using a collection it is of the greatest value to find the correct scientific names on the labels, and nobody has emphasized more than I how important it is to write them on the type specimens, and to mark the latter clearly and conspicuously, and for this we have adopted bright-red labels, which is of the greatest convenience and saves a lot of trouble. Probably Nicoll meant to say that I had explained to him that names on labels, unless published in print, have no standing in nomenclature, or I might have said that I did not consider it of value that a collector in the field, who has as a rule only his memory to go by, puts a name on a label, or that it is better not to write a name on unless one has compared the specimen in question and has made out what one believes to be the correct name, so as to avoid alterations afterwards.—*Vivat, crescat, floreat scientia Galeridarum!*

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FURTHER NOTES ON SOME *DICRURIDAE*.

By E. C. STUART BAKER, F.L.S., F.Z.S.

*Dicrurus annectens*.

IN the *Ibis*, 1918, p. 226, Kloss has recently separated the Siamese form of the Crow-billed Drongo as *Dicrurus annectens siamensis* on account of the alleged smallness of the bill. This diagnosis is to some extent confirmed by the material in the British Museum, but not to the same extent by two birds collected by Mr. E. G. Herbert.

Kloss's birds, which include three adults and two juv., have bills which measure 8·7 mm. in breadth at the nostrils, and 8·5 mm. in height at the chin. There are four birds in the British Museum from Siam, and these have the bill the same size in breadth as given by Kloss, but in depth at the chin they are just under 10 mm., practically the same as other birds from other areas. Of Mr. Herbert's two birds, one collected at Mi Nam Kabren, some 100 miles N.E. of Bangkok, has a bill only 8·3 mm. in width, but the other from Keo Tung Song in S.W. Siam, close to where Kloss's birds were obtained, has a bill 10·3 mm. in breadth.

The following table gives the measurements of *D. annectens* over the whole of its habitat. The width of the bill is taken at the nostrils and the depth at the chin in the same way as taken by Kloss, a method which obviates variation due to difference in make up of skin and loss of feathers.

Area.	Bill, breadth.	Bill, depth.	Wing.	No. of specimens.
Oude, Nepal, and Assam	10·1 mm. ( 9·0 to 11·5)	10·5 mm. (10·0 to 11·0)	143·0 mm. (132-147)	12
Central and North Burma	10·0 mm. ( 9·0 to 11·0)	10·7 mm. (10·0 to 11·0)	138·3 mm. (132-145)	15
Central Burma and Tennasserim	10·8 mm. (10·0 to 12·0)	10·8 mm. (10·0 to 11·0)	140·0 mm. (131-147)	5
S. Malay Pen.	11·0 mm. (10·0 to 12·0)	10·7 mm. (10·0 to 11·5)	138·5 mm. (129-145)	30
Borneo	10·0 mm. ( 9·0 to 12·0)	10·2 mm. ( 9·5 to 11·0)	139·1 mm. (124-147)	9
Siam	8·5 mm. ( 8·3 to 10·3)	9·5 mm. ( 8·5 to 11·0)	144·5 mm. (137-156)	8

The variation in both depth and breadth of bill is very great, but in Siamese birds the latter dimensions are very small, in every case but one being below the minima in other areas. It must also be noted that though they have the smallest bill measurements the birds themselves are the largest of all. Thus, in spite of the paucity of Siamese material, Kloss's sub-species must be maintained, at all events until more material either confirms or disproves his diagnosis. I therefore recognize two races of this species.

(1) *Dicrurus annectens annectens*.

*Buchanga annectens* Hodgs., *Ind. Rev.* i. p. 326 (1837).

Type in Calcutta Museum.

Type Locality. Nepal.

Size a trifle smaller, wing averaging just over 139 mm.; bill decidedly more broad, measuring at the nostrils about 10·5 mm.

*Habitat.* The Sub-Himalayas and adjoining country of Northern India from Nepal to extreme east and south of Assam, the whole of the tracts of lower hills in Burma, Malay Peninsula, and Northern Siam.

(2) *Dicrurus annectens siamensis*.

*Dicrurus annectens siamensis* Kloss, *Ibis*, 1918. p. 226.

*Type* in Museum Fed. Malay States.

*Type Locality.* Koh Lak, S.W. Siam.

Size a trifle larger, wing averaging 144.5 mm. ; bill decidedly less broad, measuring only about 8.5 mm. at the nostrils, also generally less deep and a little shorter, but by no means constant in the two last respects.

*Habitat.* Central, South, and Peninsular Siam. The boundaries of this form cannot be given at present with any degree of certainty, Gyldenstolpe did not meet with it in North and North Central Siam.

It must be remembered that Malayan birds generally, including those from Peninsular Burma, have bills of 11 mm. in breadth, larger than anywhere else, although in geographical position they are nearest to Kloss's *siamensis*. This is a fact that makes one doubt if, eventually, this sub-species will not have to be suppressed.

### Bhringa remifer.

This Drongo follows the universal, or almost universal, rule in Indian and Burmese birds and becomes somewhat smaller and smaller as one follows it through from north to south. The diminution in size is not, however, quite so marked as it is in many other instances, whilst, on the other hand, the extent of over-lapping is even greater. This is shown in the following table :

Area.	Wing, extremes.	Average.	No. of specimens examined.
(1) Nepal to Sikkim . . . . .	132.0 to 146.0 mm.	140.0 mm.	40
(2) Assam to Manipur . . . . .	131.0 to 143.0 mm.	134.6 mm.	33
(3) Upper Chin and Shan Hills . . . . .	133.0 to 142.0 mm.	136.2 mm.	22
(4) Central and South Burma . . . . .	129.0 to 137.0 mm.	131.5 mm.	23
(5) Java . . . . .	130.0 to 137.0 mm.	132.6 mm.	5
(6) Sumatra . . . . .	128.0 to 132.0 mm.	130.0 mm.	3
(7) Mt. of Perak and Pahang . . . . .	127.0 to 134.0 mm.	130.0 mm.	11

As regards division by size it is only the first four of these areas which need consideration, as birds from (5) and (6) are easily separable on account of their very small outer tail feathers, the raedquets of which are smaller—both shorter and narrower—than in birds from other parts ; whilst No. 7 is differentiated at once from all other geographical races by the quite different formation of the tail.

After some consideration it seems advisable to retain all those birds found in the four areas first enumerated under one and the same name. Principally I come to this conclusion because nowhere can a line be drawn where it can be said that the majority of birds on either side of it are larger or smaller, and no definite area exists in which the size is in any way constant. Again, there are no colour or structural differences which help to support the differences in average measurements.

I therefore recognize the following three races only :

(1) *Bhringa remifer remifer*.*Edolius remifer* Temm., *Pl. Col.* 178 (1823).*Type Locality.* Java and Sumatra.

I designate Java as the type locality.

This is a small bird with a wing averaging 131.6 mm. and varying between 128 and 137 mm. The tail is a very poor ornamental feature when compared with those of birds from the north; the outer tail feathers are only of 300 mm. or under, and with small, narrow racquets seldom exceeding 50 mm. in length. The birds in the collection of the Tring Museum confirm my diagnosis both in this and the other races admitted by me.

*Habitat.* Java and Sumatra only.(2) *Bhringa remifer tectirostris*.*Bhringa tectirostris* Hodgs., *Ind. Rev.* i. p. 325 (1837).*Type Locality.* Eastern Nepal.

This is on an average a much larger bird than typical *remifer*, though in the South of Burma the two forms are very similar in size. In every case, however, it has a far finer tail than has the Javan and Sumatran bird. The outer tail feathers in most cases exceed 350 mm. in length, running up to 400 mm., whilst the racquets are a good deal longer, generally between 70 and 90 mm., and, especially, a good deal wider.

The wing averages in 118 birds 136 mm., and varies between 129 and 146 mm.

*Habitat.* Northern India from Eastern Nepal to the whole of Burma north of Rangoon, Chin, Kachin and Shan States, Yunnan, and Northern Siam.(3) *Bhringa remifer peracensis*.Stuart-Baker, *Bull. B.O.C.* xxxix. p. 18 (1918).*Type Locality.* Mts. of Perak, Telom.

*B. r. peracensis* differs at a glance from all other races of *Bhringa remifer* in having the outermost tail feathers without any broad spatulae, but with the terminal half, or rather more, with broad webs on either side, narrowest where they commence from the practically bare shaft, and gradually increasing until the two form a feather about 15 mm. in width at the widest part. If the apparently bare webs be examined under an ordinary magnifying glass it will be seen that, unlike *B. remifer remifer* and *B. r. tectirostris*, there are signs of feathering everywhere except for an inch or two near the base.

In size *B. r. peracensis* averages in wing measurement 130 mm., and varies between 127 mm. and 134 mm. The tails are very long, the outermost feathers sometimes exceeding 400 mm.

*Habitat.* The mountains of Perak, Telom, Pahang.

It is quite probable that this form will be found to inhabit a higher range than the more typical *remifer*, and may possibly extend throughout the mountains of the Malay Peninsula, and we may expect the birds in the extreme north and extreme south to graduate in appearance with *B. r. tectirostris* and *B. r. remifer* respectively.

**Chibia hottentotta.**

The Hair-Crested Drongo is yet again one of the birds which follow the usual rule, and birds from the south are smaller than those from the north, as shown in the table here given.

Area.	Wing.	Average.	BILL.	Average.	No. of specimens.
North-West India . .	169-180 mm.	175.1 mm.	27-32.0 mm.	29.5 mm.	10
Nepal, Sikkim, Bhutan .	162-177 mm.	168.7 mm.	26-31.5 mm.	29.3 mm.	26
Assam . . . . .	158-175 mm.	166.3 mm.	26-31.0 mm.	28.0 mm.	21
Burma and Siam . . .	152-175 mm.	162.6 mm.	25-30.5 mm.	27.6 mm.	32
Bombay and Central India	155-165 mm.	158.0 mm.	25-29.5 mm.	28.0 mm.	5
China . . . . .	160-180 mm.	168.6 mm.	24-26.0 mm.	25.3 mm.	72

The above series are those contained in the British Museum, and the measurements of these 166 are confirmed by some 40 skins examined elsewhere, but the 5 Bombay and Central Indian birds and the 10 from North-West India are all I have been able to examine from these parts, and the smallness of my material from these places whence we have the two extremes of measurement makes me hesitate to draw any conclusions therefrom.

At first sight it would seem impossible that the birds from these two areas could be the same, the difference in average wing measurement being no less than 17 mm., whilst the largest Bombay bird is 4 mm. smaller than the smallest specimen from the North-West. If further material from these two areas confirms the above measurements it may be desirable to divide the Indian and Burmese birds into three forms. For the present I leave them all under the same name.

As regards the Chinese birds we do not require to rely on body measurements to distinguish them from those farther west, the small bill sufficing to show at a glance, in 9 out of 10 cases, the country from which they have come; the bill in Chinese birds measuring only some 25 mm. as against 29 mm. in those from elsewhere. The measurements are taken from the anterior edge of the nostril to the tip of the bill in a straight line, and though this makes the comparative difference seem but small, it ensures great accuracy. For the present, and until an examination of more specimens confirms or contradicts the measurements given in the table above, I retain only two races.

(1) *Chibia hottentotta hottentotta.*

*Corvus hottentottus*, Linn., *Sys. Nat.* i. p. 155 (1766).

*Type Locality.* Said to be Cape of Good Hope.

This locality is of course absurd, and I therefore designate Sikkim as the type locality.

A form varying very greatly in size; wing from 152 to 180 mm. and averaging 166.2 mm. This name may well embrace two more races when further material is available for examination, one from North-West India and a second from Bombay and Central India.

Its large bill, averaging about 29 mm. and varying between 26 and 29.5 mm. (rarely 25 mm.), suffices to distinguish it from the next sub-species with a bill of only a little over 25 mm.

*Habitat.* Bombay Presidency, the Himalayas from Murree to Eastern

Assam, Eastern Bengal, Assam, Burma as far south as Tennasserim, Shan States, Yunnan, and Northern Siam.

(2) *Chibia hottentotta brevirostris*.

*Trichometopus brevirostris* Cab., *Mus. Hein.* i. p. 112 (1851).

*Type Locality.* China.

About the same in size as *C. h. hottentotta*; wing average, 168·6 mm., and running from 160 to 180 mm., but with a distinctly smaller bill, measuring on an average only 25·3, and never exceeding 26 mm.

*Habitat.* South China.

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## A CLASSIFICATION OF THE *AEGERIADAE* OF THE ORIENTAL AND ETHIOPIAN REGIONS.

BY SIR GEORGE F. HAMPSON, BART., F.Z.S., ETC.

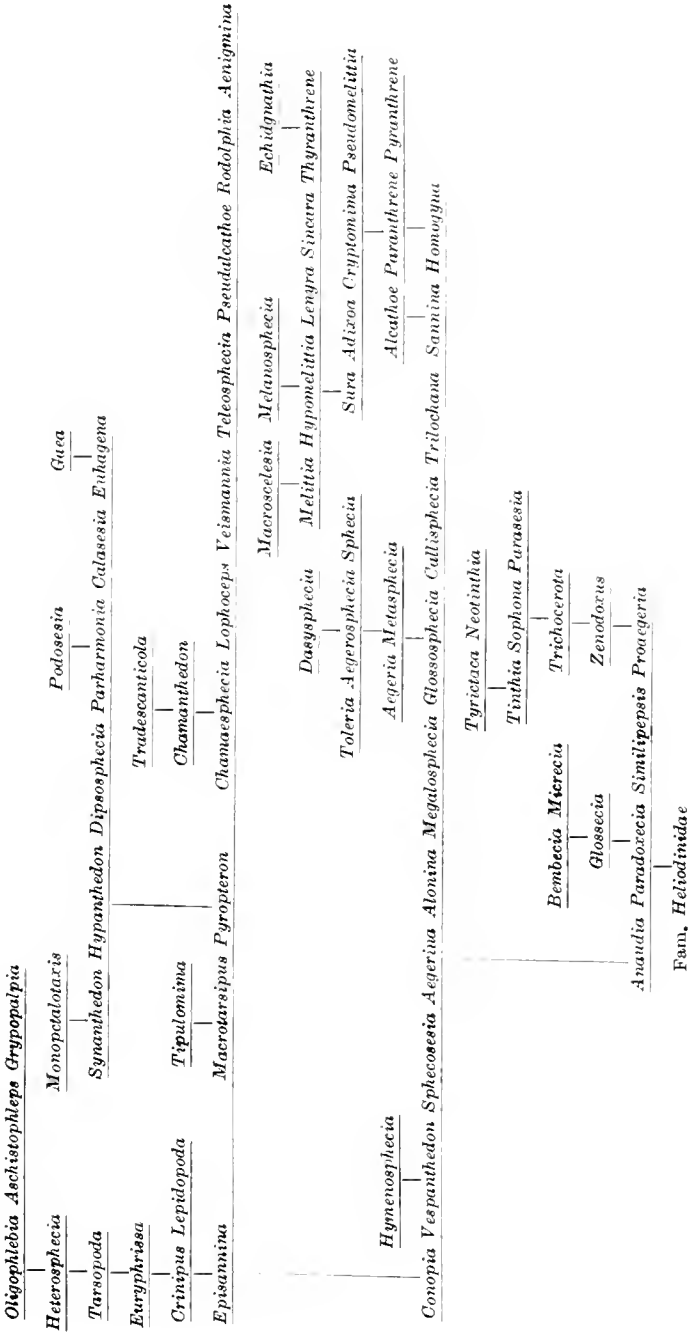
THE following classification of the *Aegeriadae* is intended to be supplementary to M. Le Cerf's excellent paper in Oberthür's *Études de Lépidoptérologie Comparée*, xiv. pp. 127-388 (1917), and the extremely beautiful plates illustrating it published by M. Ch. Oberthür in his *Fascicules*, xii. and xiv. This paper is unfortunately left very incomplete, owing to M. Le Cerf having been called up for military service; and as, besides the collection of the British Museum, I have had the types at the Oxford Museum, Lord Rothschild's collection, and also those in Mr. J. J. Joicey's and Mr. E. Meyrick's collection kindly placed at my disposal for study, I have had a rather exceptional opportunity afforded me for bringing the study up-to-date as far as the Oriental and Ethiopian regions are concerned. The study of the whole subject so as to include the faunas of the Palaearctic, Nearctic, and Neotropical regions would have taken more time than I had my disposal, but I have included all the sufficiently described genera in my key, and given a list of those from outside the regions dealt with, with the names of the type species. I am also indebted to Mr. A. J. T. Janse of Pretoria and Mr. H. Dollman of N. Rhodesia for the gift to the British Museum of the types of some new species described in this paper, and have also availed myself of the beautiful series of specimens bred by Mr. F. P. Dodd in Queensland in Lord Walsingham's collection.

A † signifies that I have examined the type of the species, and an \* that the species is not in the British Museum.

### FAM. *AEGERIADAE*.

Proboscis fully developed or aborted and not functional; palpi upturned, usually more or less obliquely, and reaching to about vertex of head, often fringed with long hair in front towards base, almost always acuminate at tip and very rarely with some spinous hair at the extremity of the joints (*Echidnathia*), in *Grypopalpia* with tuft of long hair from 2nd joint in front; frons smooth, very rarely with conical prominence (*Rodolphia*); eyes more or less elliptical and often rather small, not hairy; antennae pectinate with paired or uniseriate branches, serrate and fasciculate, fasciculate, or ciliated, the cilia often very long, or often almost simple, the shaft in all the genera of the typical group dilated towards extremity and ending in a small tuft of hair, but in the much smaller *Bembecia* group tapering to extremity and not ending in a tuft of hair; thorax usually smoothly scaled; legs with the mid and hind tibiae often tufted or fringed with long hair and scales; this reaches its climax in *Melittia*, where the tufts on the tibiae and tarsi are very largely developed and the hind legs are used for paddling in the air when hovering before a flower, in *Synanthedon*, etc., the hind tarsi have the first joint only tufted with scales, and in others the tibiae only are fringed with hair or scales, whilst in *Conopia*, etc., there are slight tufts of spurious hair at the spurs and at the tarsal joints, in *Alonina* the mid tibiae are spined, in

PHYLOGENY OF THE AEGERLADAE.



*Tipulomima*, *Macrotarsipus*, etc., the tarsi are very long; abdomen usually smoothly scaled, in *Oligophlebia* with hairy dorsal crests, in *Sura*, etc., with lateral tufts of scales towards extremity, the anal tuft usually large and spreading, but in *Aegeria*, etc., the abdomen tapers to a small compressed anal tuft; in *Sannina*, *Episannina*, etc., the abdomen ends in pencils of hair; whilst in *Alcathoe* and *Cryptomima* there are long roughly scaled dorsal processes from above the base of the anal tuft; in *Tipulomima*, etc., the abdomen is somewhat constricted at base, in *Vespanthedon* and *Similipepsis* it forms a slender pedicel. Forewing more or less narrow and elongate, the apex rounded, the termen obliquely curved; veins 1 b forked towards base; 1 c absent; 2, 3 usually separate, but sometimes stalked or coincident, and in *Tradescanticola* veins 2, 3, 4 all coincident; 4, 5, 6 usually well separated, in the *Aegeria* group veins 4, 5 curved downwards; 7, 8 usually stalked, but sometimes coincident or separate; 9, 10, 11 usually from the cell, but in *Aegerosphécia*, etc., 9 is stalked with 7, 8, and in *Leuyra* 10 also is stalked with them; whilst in *Callisphécia* 9 is stalked with 8, and 7 from the cell, and in other genera veins 10, 11 are coincident or become coincident towards the costa. Hindwing with veins 1 a and b present, 1 c absent, 2 usually from well before angle of cell; 3 and 5 usually stalked or from a point; but 3 in *Paranthrene*, etc., from before the angle of cell; in *Melittia*, etc., from nearer 2 than 5; and in the *Tinthia* group almost from a point with 2; vein 4 coincident with 3; 6 usually from well below upper angle of cell; and 7 from the angle, but in the *Bembécia*, *Tinthia* group 6 usually from much closer to the upper angle of cell; 8 concealed in a fold and closely approximated to the cell and vein 7.

A. Antennae dilated towards extremity and ending in a minute tuft of hairs.

- a. Hindwing with veins 3, 5 stalked or from a point.
- a<sup>1</sup>. Forewing with veins 4, 5 not curved downwards.
- a<sup>2</sup>. Forewing with veins 7, 8 coincident.
- a<sup>3</sup>. Forewing with veins 2, 3 coincident; hind tibiae and tarsi tufted with scales . . . . . *Oligophlebia*, p. 52
- b<sup>3</sup>. Forewing with veins 2, 3 not coincident.
- a<sup>4</sup>. Hind tibiae and tarsi tufted with scales.
- a<sup>5</sup>. Hind tarsi very long . . . . . *Aschistophleps*, p. 52
- b<sup>5</sup>. Hind tarsi of normal length.
- a<sup>6</sup>. Palpi with very long tuft of hair from 2nd joint in front . . . . . *Grypopalpia*, p. 52
- b<sup>6</sup>. Palpi without tuft of hair from 3rd joint in front. . . . . *Heterosphécia*, p. 53
- b<sup>4</sup>. Hind tibiae and tarsi not tufted with scales.
- a<sup>6</sup>. Abdomen constricted towards base . . . . . *Hymenosphécia*, p. 77
- b<sup>5</sup>. Abdomen not constricted towards base . . . . . *Calasesia*, p. 51
- b<sup>2</sup>. Forewing with veins 7, 8 stalked.
- a<sup>3</sup>. Forewing with vein 9 stalked with 7, 8 . . . . . *Megalosphécia*, p. 78
- b<sup>3</sup>. Forewing with vein 9 from the cell.
- a<sup>4</sup>. Forewing with veins 10, 11 coincident.
- a<sup>5</sup>. Hind tarsi with the 1st joint fringed with scales above . . . . . *Alcathoe*, p. 51
- b<sup>5</sup>. Hind tarsi with the 1st joint not fringed with scales above.
- a<sup>6</sup>. Abdomen slightly constricted towards base . . . . . *Aegerina*, p. 51
- b<sup>6</sup>. Abdomen not constricted towards base.
- a<sup>7</sup>. Proboscis aborted and not functional.
- a<sup>8</sup>. Forewing with veins 2, 3, 4 coincident . . . . . *Tradescanticola*, p. 64
- b<sup>8</sup>. Forewing with veins 2, 3, 4 separate . . . . . *Chamanthedon*, p. 64
- b<sup>7</sup>. Proboscis fully developed.
- a<sup>8</sup>. Vertex of head with large tuft of scales . . . . . *Lophoceps*, p. 69
- b<sup>8</sup>. Vertex of head without tuft of scales . . . . . *Teleasphécia*, p. 51



- b<sup>4</sup>. Forewing with veins 10, 11 becoming coincident towards costa.
- a<sup>5</sup>. Abdomen with very long roughly scaled process from above base of anal tuft . . . . . *Pseudalcatheo*, p. 51
- b<sup>5</sup>. Abdomen without dorsal process from above base of anal tuft . . . . . *Chamaosphacia*, p. 68
- c<sup>4</sup>. Forewing with veins 10, 11 separate.
- a<sup>5</sup>. Hind tarsi with the 1st joint fringed with scales above.
- a<sup>6</sup>. Proboscis aborted and not functional.
- a<sup>7</sup>. Hindwing with veins 3 and 5 stalked . . . . . *Monopetalotaxis*, p. 58
- b<sup>7</sup>. Hindwing with veins 3 and 5 from a point . . . . . *Gua*, p. 63
- b<sup>6</sup>. Proboscis fully developed.
- a<sup>7</sup>. Hindwing with veins 3 and 5 stalked.
- a<sup>8</sup>. Mid tibiae spined; hind tarsi very long . . . . . *Alonina*, p. 78
- b<sup>8</sup>. Mid tibiae not spined.
- a<sup>9</sup>. Hind tarsi very long . . . . . *Lepidopoda*, p. 54
- b<sup>9</sup>. Hind tarsi of normal length.
- a<sup>10</sup>. Palpi with the 2nd joint fringed with long scales in front; abdomen with large anal tuft . . . . . *Pyropteron*, p. 51
- b<sup>10</sup>. Palpi smoothly scaled in front.
- a<sup>11</sup>. Abdomen with five anal pencils of hair in male, two in female . . . . . *Sannina*, p. 51
- b<sup>11</sup>. Abdomen with large anal tuft . . . . . *Synanthedon*, p. 59
- b<sup>7</sup>. Hindwing with veins 3 and 5 from a point.
- a<sup>8</sup>. Hind tarsi strongly fringed with scales to near extremity . . . . . *Trilochana*, p. 83
- b<sup>8</sup>. Hind tarsi with the 1st joint only fringed with scales.
- a<sup>9</sup>. Hind tibiae with large tuft of scales above towards extremity.
- a<sup>10</sup>. Hind tarsi with fringe of scales on 1st joint above and tufts of scales on terminal joints . . . . . *Tarsopoda*, p. 51
- b<sup>10</sup>. Hind tarsi with fringe of scales on 1st joint above only . . . . . *Euryphrissa*, p. 51
- b<sup>9</sup>. Hind tibiae fringed with scales above throughout; palpi with the second joint fringed with long scales in front. . . . . *Hypanthedon*, p. 62
- c<sup>9</sup>. Hind tibiae with tufts of hair at the spurs; palpi with the 2nd joint smoothly scaled in front . . . . . *Crinipus*, p. 53
- b<sup>5</sup>. Hind tarsi with the 1st joint not fringed with scales above.
- a<sup>6</sup>. Proboscis aborted and not functional.
- a<sup>7</sup>. Abdomen constricted towards base . . . . . *Vespanthedon*, p. 77
- b<sup>7</sup>. Abdomen not constricted towards base.
- a<sup>8</sup>. Forewing with veins 2, 3 closely approximated.
- a<sup>9</sup>. Hind tarsi very long . . . . . *Aenigmata*, p. 71
- b<sup>9</sup>. Hind tarsi of normal length . . . . . *Dipsosphacia*, p. 63
- b<sup>6</sup>. Forewing with veins 2, 3 not approximated.
- a<sup>9</sup>. Head and palpi clothed with long hair . . . . . *Euhagena*, p. 64
- b<sup>9</sup>. Head and palpi not clothed with long hair . . . . . *Veismannia*, p. 51
- b<sup>6</sup>. Proboscis fully developed.
- a<sup>7</sup>. Abdomen constricted to a slender pedicel towards base . . . . . *Sphecosesia*, p. 77
- b<sup>7</sup>. Abdomen slightly constricted towards base.
- a<sup>9</sup>. Hind tarsi very long . . . . . *Tipulomima*, p. 56
- b<sup>9</sup>. Hind tarsi of normal length.
- a<sup>9</sup>. Palpi fringed with long hair in front . . . . . *Podosesia*, p. 63
- b<sup>9</sup>. Palpi smoothly scaled in front . . . . . *Parharmonia*, p. 51

- c<sup>7</sup>. Abdomen not constricted towards base.
- a<sup>8</sup>. Hind tarsi very long . . . . . *Macrotarsipus*, p. 58
- b<sup>8</sup>. Hind tarsi of normal length.
- a<sup>9</sup>. Hind tibiae very strongly tufted with scales . . . . . *Episannina*, p. 55
- b<sup>9</sup>. Hind tibiae not strongly tufted with scales.
- a<sup>10</sup>. Frons with conical prominence; palpi porrect . . . . . *Rodolphia*, p. 70
- b<sup>10</sup>. Frons without prominence; palpi upturned . . . . . *Conopia*, p. 71
- c<sup>2</sup>. Forewing with vein 9 stalked with 8, 7 from the cell . . . . . *Callisphacia*, p. 83
- d<sup>2</sup>. Forewing with veins 7, 8, 9 from the cell . . . . . *Anaudia*, p. 112
- b<sup>1</sup>. Forewing with veins 4, 5 curved downwards.
- a<sup>2</sup>. Forewing with vein 9 stalked with 7, 8.
- a<sup>3</sup>. Forewing with vein 7 from 8 before 9. . . . . *Toleria*, p. 79
- b<sup>3</sup>. Forewing with vein 7 from 8 beyond 9.
- a<sup>4</sup>. Hindwing with veins 3 and 5 stalked; abdomen clothed with rough hair . . . . . *Dasysphacia*, p. 79
- b<sup>4</sup>. Hindwing with veins 3 and 5 from the cell; abdomen smoothly scaled . . . . . *Aegerosphacia*, p. 79
- b<sup>3</sup>. Forewing with vein 9 from the cell.
- a<sup>3</sup>. Proboscis aborted and not functional.
- a<sup>4</sup>. Hindwing with veins 3 and 5 stalked . . . . . *Sphacia*, p. 80
- b<sup>4</sup>. Hindwing with veins 3 and 5 from a point . . . . . *Aegeria*, p. 81
- b<sup>3</sup>. Proboscis fully developed.
- a<sup>4</sup>. Forewing with veins 10, 11 becoming coincident towards costa, 2, 3 closely approximated; hindwing with the lower disco-cellular outwardly oblique, veins 3 and 5 stalked . . . . . *Metasphacia*, p. 82
- b<sup>4</sup>. Forewing with veins 10, 11 not becoming coincident towards costa, 2, 3 well separated; hindwing with the lower disco-cellular inwardly oblique, veins 3 and 5 from a point . . . . . *Glossosphacia*, p. 83
- b. Hindwing with vein 3 from well before angle of cell and nearer 2 than 5.
- a<sup>1</sup>. Forewing with veins 7, 8 coincident . . . . . *Melanosphacia*, p. 95
- b<sup>1</sup>. Forewing with veins 7, 8 stalked.
- a<sup>2</sup>. Hind tarsi very long and tufted with scales at the joints, especially towards extremity . . . . . *Macroscelisia*, p. 84
- b<sup>2</sup>. Hind tarsi of normal length and tufted with scales throughout . . . . . *Melittia*, p. 84
- c. Hindwing with vein 3 from before angle of cell and nearer 5 than 2.
- a<sup>1</sup>. Forewing with veins 7, 8 coincident.
- a<sup>2</sup>. Proboscis aborted and not functional; palpi obliquely upturned and moderately scaled; hind tibiae at extremity and tarsi at the joints with slight tufts of hair, the latter very long and fringed with scales above towards extremity. . . . . *Pyranthrene*, p. 110
- b<sup>2</sup>. Proboscis fully developed.
- a<sup>3</sup>. Hind tarsi strongly tufted with scales . . . . . *Hypomelittia*, p. 96
- b<sup>3</sup>. Hind tarsi not tufted with scales . . . . . *Adiroa*, p. 100
- b<sup>1</sup>. Forewing with veins 7, 8 stalked.
- a<sup>1</sup>. Forewing with veins 9 and 10 stalked with 7, 8; hind tarsi tufted with scales . . . . . *Lenyra*, p. 96
- b<sup>2</sup>. Forewing with veins 9 and 10 from the cell.
- a<sup>3</sup>. Proboscis aborted and not functional.
- a<sup>4</sup>. Palpi with some spinous hair at extremities of 2nd and 3rd joints; mid and hind tibiae at the spurs and the tarsi at extremity of 1st joint with tufts of scales and spinous hair . . . . . *Echidgnathia*, p. 97
- b<sup>4</sup>. Palpi without spinous hair at extremities of 2nd and 3rd joints; mid and hind tibiae at the spurs and the tarsi at extremity of 1st joint without tufts of scales and spinous hair . . . . . *Thyranthrene*, p. 97
- b<sup>3</sup>. Proboscis fully developed.
- a<sup>4</sup>. Hind tarsi strongly tufted with scales . . . . . *Pseudomelittia*, p. 100
- b<sup>4</sup>. Hind tarsi not strongly tufted with scales.

- a<sup>5</sup>. Abdomen constricted towards base . . . . . *Sincara*, p. 51
- b<sup>5</sup>. Abdomen not constricted towards base.
- a<sup>6</sup>. Abdomen with lateral tufts of hair towards extremity . . . . . *Sura*, p. 98
- b<sup>6</sup>. Abdomen without lateral tufts of hair towards extremity.
- a<sup>7</sup>. Abdomen with very long roughly scaled dorsal process from above base of anal tuft . . . . . *Cryptomima*, p. 100
- b<sup>7</sup>. Abdomen without dorsal process from above base of anal tuft.
- a<sup>8</sup>. Abdomen with large spreading anal tuft . . . . . *Paranthrene*, p. 100
- b<sup>8</sup>. Abdomen with slight anal tuft . . . . . *Homogygia*, p. 110
- B. Antennae tapering to a point at extremity and not ending in a tuft of hair.
- a. Hindwing with veins 3 and 5 stalked; forewing with veins 2, 3 coincident.
- a<sup>1</sup>. Forewing with veins 7, 8 stalked.
- a<sup>2</sup>. Proboscis aborted and not functional.
- a<sup>3</sup>. Forewing with veins 10, 11 coincident . . . . . *Micrecia*, p. 113
- b<sup>3</sup>. Forewing with veins 10, 11 separate . . . . . *Bembecia*, p. 112
- b<sup>2</sup>. Proboscis fully developed . . . . . *Glossocia*, p. 113
- b<sup>1</sup>. Forewing with veins 7, 8 separate, 2, 3 stalked . . . . . *Paradoxocia*, p. 114
- b. Hindwing with veins 2, 3 almost from a point long before angle of cell.
- a<sup>3</sup>. Forewing with veins 7, 8 coincident . . . . . *Tyriacta*, p. 114
- b<sup>1</sup>. Forewing with veins 7, 8 stalked, 10, 11 coincident . . . . . *Parasesia*, p. 51
- c<sup>1</sup>. Forewing with veins 7, 8 separate.
- a<sup>2</sup>. Forewing with veins 2, 3 coincident.
- a<sup>3</sup>. Hind tarsi with large tufts of scales above to near extremity.
- a<sup>4</sup>. Antennae with the shaft clothed with rough scales above . . . . . *Sophona*, p. 51
- b<sup>4</sup>. Antennae with the shaft not clothed with rough scales above . . . . . *Neotinthia*, p. 115
- b<sup>3</sup>. Mid and hind tarsi with large tuft of scales on 1st joint above . . . . . *Tinthia*, p. 115
- c<sup>3</sup>. Tarsi without tuft of scales on 1st joint above . . . . . *Trichocerota*, p. 116
- b<sup>2</sup>. Forewing with veins 2, 3 stalked . . . . . *Zenodorus*, p. 118
- c<sup>2</sup>. Forewing with veins 2, 3 separate . . . . . *Proaegeria*, p. 119
- C. Hindwing with vein 3 from just before angle of cell and widely separated from 2; forewing with veins 2, 3 coincident, 9 stalked with 7, 8; abdomen constricted to a slender pedicel at base . . . . . *Similipepsis*, p. 114

GENERA NOT FOUND IN THE ORIENTAL AND ETHIOPIAN REGIONS

- Agerina* Le Cerf, Oberth. *Ét. Léop. Comp.* xiv. p. 332 (1917) type *ovinia* . . . . . Mexico; Guatemala.
- Alcathoe* H. Edw., *Papilio*, ii. p. 53 (1882) type *caudata* . . . . . Canada; U.S.A.
- Calasesia* Beutenm., *J.N.Y. Ent. Soc.* vii. p. 256 (1899) type *coccinea* . . . . . U.S.A.
- Euryphrissa* Butl., *A.M.N.H.* (4) xiv. p. 409 (1874) type *plumipes* . . . . . Brazil.
- Parasesia* Le Cerf, Oberth. *Ét. Léop. Comp.* xiv. p. 322 (1917) type *crystallina* . . . . . Brazil.
- Parharmonia* Beutenm., *Bull. Am. Mus. Nat. Hist.* viii. p. 124 (1896) type *pini* . . . . . Canada; U.S.A.
- Pyropteron* Newman, *Ent. Mag.* i. p. 75 (1835) type *chrysidiformis* . . . . . Europe.
- Pseudalcathoe* Le Cerf, Oberth. *Ét. Léop. Comp.* xiv. p. 320 (1917) type *chatanayi* . . . . . Panama.
- Sannina* Wlk., viii. 64 (1856) type *uroceriformis* . . . . . U.S.A.
- Sincara* Wlk., viii. 61 (1856) type *eumeniformis* . . . . . Brazil.
- Sophona* Wlk., viii. 60 (1856) type *halictipennis* . . . . . Brazil.
- Tarsapoda* Butl., *A.M.N.H.* (4) xiv. p. 410 (1874) type *remipes* . . . . . Brazil.
- Teleosphacia* Le Cerf, Oberth. *Ét. Léop. Comp.* xiv. p. 280 (1917) type *bibis* . . . . .
- Le Cerf = *unicolor* Wlk. . . . . Bolivia.
- Veismannia* Spüler, Hoffmann's *Gr. Schm. Eur.* ii. p. 317 (1910) type *agdistiformis* . . . . . Europe.

GEN. *Oligophlebia*.

- Oligophlebia* Hmps., *Moths Ind.* i. p. 201 (Jan. 10th, 1893); id. *Ill. Lcp. Het. B.M.* . . . . . Type.
- ix, p. 61 . . . . . *nigralba*

† *Oligophlebia subapicalis* n. sp.

♀. Head, thorax, and abdomen black, with a slight leaden-grey gloss, the frons whitish at sides, the patagia at extremity and dorsal crest on 1st segment of abdomen tipped with some white and orange-yellow scales, the other segments with a few white scales at extremities, on the 5th segment forming a more complete band; antennae white before tips; palpi white in front except at tips; throat and coxae white, the fore tibiae below at base and tarsi except at tips white, the mid and hind tibiae and tarsi banded with white, the ventral surface of abdomen white except at extremity. Forewing black with a leaden-grey gloss; two white discoidal points; a semicircular white patch with a cupreous tinge except at costa just before termen from costa to vein 2; a slight white point above middle of inner margin and white mark at tornus. Hindwing hyaline, the veins and margins narrowly black-brown; cilia fuscous. Underside of forewing black-brown.

**Up. Burma**, Maymyo (Bingham), 1 ♀ type; **Siam**, Biserat, 1 ♀. *Exp.* 1 mill.

(1) *Oligophlebia nigralba*.

† *Oligophlebia nigralba* Hmps., *Moths Ind.* i. p. 201 (1893); *id. Ill. Het. B.M.* ix. p. 61. pl. 157. f. 21.  
**Ceylon.**

(2) \* *Oligophlebia cristata*.

*Oligophlebia cristata* Le Cerf, Oberth, *Ét. Lép. Comp.* xii. 1. pl. 377. f. 3159 (1916); *id. lc.* xiv. p. 273.  
**Java.**

(3) \* *Oligophlebia amalleuta*.

*Oligophlebia amalleuta* Meyr., *Rec. Ind. Mus.* v. p. 219 (1910).  
**Bengal**, Parisnath.

GEN. *Aschistophleps*.

*Aschistophleps* Hmps., *Moths Ind.* i. p. 200 (1893). . . . . Type.  
*lampropoda*

(1) *Aschistophleps lampropoda*.

† *Aschistophleps lampropoda* Hmps., *Moths Ind.* i. p. 200 fig. (1893).  
**Assam**, Khásis, Margarita; **Tonkin.**

(2) *Aschistophleps metachryseis*.

† *Aschistophleps metachryseis* Hmps., *Moths Ind.* iv. p. 465 (1896).  
**Up. Burma.**

(3) *Aschistophleps ruficrista*.

† *Aegeria ruficrista* Roths., *Nov. Zool.* xix. p. 122 (1912).  
**Borneo**, Sarawak.

GEN. *Grypopalpia* nov.

Type, *G. iridescens*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to about middle of frons, with a very long curved tuft of hair projecting from it in front with some loose hair above it, the 3rd long and nearly smoothly scaled;

frons smoothly scaled; eyes large, elliptical; antennae of female almost simple, dilated towards extremity where there is a slight tuft of hair; thorax smoothly scaled; fore tibiae slightly fringed with hair; mid tibiae with slight tufts of spinous hair at middle and extremity; hind tibiae and the first joint of tarsi strongly fringed on both sides with hair and hair-like scales; abdomen smoothly scaled. Forewing narrow; veins 2, 3 approximated; 7, 8 coincident; 10, 11 approximated. Hindwing with veins 3 and 5 from a point at lower angle of cell, 4 absent; 6 from below upper angle; 7 from upper angle of cell; 8 concealed in fold.

\* † *Grypopalpia iridescens* n. sp.

♀. Head and thorax black with an iridescent gloss and irrorated with a few white scales, the sides of frons and genae white, the palpi with the scales at extremity of 1st joint on inner side and some of the long hair at extremity of 2nd joint white; abdomen scarlet, the basal segment black, the 2nd, 3rd, 4th, and 5th with slight black segmental lines and diffused dorsal spots; forelegs black with white spots at base and extremity of coxae and the tarsi ringed with ochreous, the hindlegs with some white and ochreous at middle and extremity, the tarsi suffused with ochreous, the hindlegs with the tibiae except at base and the 1st joint of tarsi orange-scarlet, the rest of tarsi with a few orange scales; ventral surface of abdomen orange-scarlet except at base. Forewing black suffused with brilliant metallic blue-green except the costal area and cilia. Hindwing with the costal half and the veins and margins of inner half black suffused with brilliant metallic blue-green, the interspaces of inner half hyaline; cilia black.

**Natal**, Durban (Leigh), type ♀ in Coll. Rothschild. *Exp.* 20 mill.

GEN. *Heterospechia*.

*Heterospechia* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 243 (1917) . . . . . Type. *myticus*

(1) *Heterospechia cruentata*.

† *Adixoa cruentata* Swinh., *A.M.N.H.* (6) xvii. p. 359 (1896).

**Assam**, Khásis.

(2) \* *Heterospechia haematochrodes*.

*Aschistopleps haematochrodes* Le Cerf, *Bull. Soc. Ent. Fr.* 1912. p. 354. fig.

**Tonkin**.

(3) \* *Heterospechia myticus*.

*Heterospechia myticus* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. 1. pl. 375. f. 3139 (1916); *id. loc.* xiv. p. 244.

**Assam**, Nága Hills.

(4) \* *Heterospechia melissoides*.

† *Aschistopleps melissoides* Hmps., *Moths Ind.* i. p. 201 (1893).

**Burma**, E. Pegu.

GEN. *Crinipus*.

*Crinipus* Hmps., *P.Z.S.* 1896. p. 277 . . . . . Type. *leucozonipus*

**Crinipus leucozonipus.**† *Crinipus leucozonipus* Hmps. *P.Z.S.* 1896. p. 277. pl. x. f. 21.**Aden.****GEN. Lepidopoda.***Lepidopoda* Hmps., *J. Bomb. Nat. Hist. Soc.* xiii. p. 43 (1900) . . . . . Type. *heterogyna***(1) Lepidopoda heterogyna.**† *Lepidopoda heterogyna* Hmps., *J. Bomb. Nat. Hist. Soc.* xiii. p. 44 (1900).**Madras, Cuddapah.****(2) † Lepidopoda xanthogyna n. sp.**

♂. Head, thorax, and abdomen black glossed with metallic steel blue, the frons white at sides, the neck with yellow ring, the patagia with yellow dorsal edge and slight bar at middle, the pro- and metathorax with small yellow spots, the abdomen with yellowish white segmental lines, the large anal tuft with yellow dorsal streak and white lateral streaks; antennae yellow above towards tips; palpi yellow, the 2nd joint towards extremity and the 3rd joint black except in front; pectus with yellow lateral patches; forelegs yellow with some black scales; mid and hind legs black glossed with blue, the tibiae with some yellow hairs in the tufts; ventral surface of abdomen with yellowish white fascia except towards extremity. Forewing hyaline, the veins and margins narrowly black, glossed with metallic blue except the terminal band, which is black with a few yellow scales in the interspaces, moderately broad, its inner edge slightly waved and indented by a wedge-shaped hyaline spot between veins 7 and 8; the discoidal bar rather strong. Hindwing hyaline, the veins and margins narrowly black. Underside of forewing with the costal and subcostal nervures streaked with yellow to end of cell, and with more yellow on the terminal band except towards tornus; hindwing with the costa yellow to near apex.

♀. Thorax and abdomen chrome-yellow, the tegulae, patagia at base, and pro- and metathorax with black patches, the abdomen with dorsal black bars, the anal tuft orange-yellow with lateral black streaks; antennae not yellow towards tips; legs yellow, the mid femora blue-black above, the hind tarsi black above; forewing with some yellow at base; hindwing with the hair on inner margin yellow.

**Queensland, Kuranda (Dodd), 1♂, 3♀ type; Walsingham Coll. Exp. ♂ 30, ♀ 36 mill.**

**(3) Lepidopoda tenuimarginata.**† *Sciapteron tenuimarginatum* Hmps., *Moths Ind.* i. p. 193 (1893).**Burma, Karen Hills.****(4) Lepidopoda andrepectera.**† *Lepidopoda andrepectera* (sic) Hmps., *J. Bomb. Nat. Hist. Soc.* xx. p. 94 (1910).**Ceylon.****(5) † Lepidopoda pictipes n. sp.**

♂ Head with the vertex black, some golden yellow scales between the antennae which are black, the frons golden yellow (palpi wanting), the hair round

neck golden yellow, white below ; thorax black, the patagia with tufts of orange hair at extremity and orange-tipped tufts behind them ; abdomen black with a slight fulvous tinge on two basal segments, then with some white scales especially on the three terminal segments, the anal tuft white above ; pectus and legs black, the fore coxae white at sides, the terminal half of tibiae orange-yellow with a black spot above, the tarsi ringed with white, the mid legs with orange-yellow bands above at middle and extremity of tibiae, and the tarsi ringed with white, the hind legs with bands at middle and extremity of tibiae which are orange-yellow above, white below, the spurs white, the tarsi ringed with white ; ventral surface of abdomen white and brown, the anal tuft orange-yellow. Forewing hyaline, the veins and margins black, the costal area black, tapering to apex, the discoidal bar strong, the cilia black-brown. Hindwing hyaline, the veins and margins narrowly hyaline, some yellow hair at base of inner margin, the cilia black-brown.

**N.W. Rhodesia**, Solwezi (H. Dollman), 1 ♂ type. *Exp.* 26 mill.

(6) † **Lepidopoda sylphina** n. sp.

♀. Head and thorax black, the vertex of head and tips of patagia with some ochreous hair, the neck with ochreous ring ; the frons with white lines at sides ; palpi with the 2nd joint white at base and in front and behind ; abdomen black with some ochreous scales and white segmental lines, stronger on the two terminal segments, the anal tuft fulvous yellow, the ventral surface with large white scales mixed except towards extremity ; pectus ochreous white and black ; legs black, the fore coxae with white patches, the mid and hind tibiae with some ochreous and white hair above. Forewing hyaline, the veins and margins narrowly black, the costal area and a discoidal bar black. Hindwing hyaline, the veins and margins narrowly black, the cell with the hyaline tinged with rufous ; the inner area clothed with black and white scales except towards tornus.

**Sierra Leone**, Kamag-Bonse (Simpson), 2 ♀ type. *Exp.* 18 mill.

GEN. **Episannina**.

	Type.
<i>Episannina</i> Auriv., <i>Ark. j. Zool.</i> ii. 12. p. 44 (1905) . . . . .	<i>chalybea</i>
<i>Sylphidia</i> Le Cerf, <i>Bull. Mus. Nat. Hist. Paris</i> , xvii. p. 305 (1911) . . . . .	<i>perlucida</i>

(1) \* **Episannina chalybea**.

*Episannina chalybea* Auriv., *Ark. j. Zool.* ii. 12. p. 45 (1905).  
*Sylphidia pulchra* Le Cerf, Oberth. *Ét. Léop. Comp.* xii. 1. pl. 380. f. 3185 (1916) ; *id. l.c.* xiv. p. 348.

**Cameroons.**

(2) \* **Episannina perlucida**.

*Sylphidia perlucida* Le Cerf, *Bull. Mus. Nat. Hist. Soc. Paris*, xvii. p. 306. pl. v. f. 3 (1911) ; *id.* Oberth. *Ét. Léop. Comp.* xiv. p. 346. pl. 479. f. 3950.

**Gaboon.**

(3) **Episannina albifrons**.

† *Lepidopoda albifrons* Hmps., *A.M.N.H.* (8) vi. p. 151 (1910) ♂ (is a ♀).

**Gold Coast.**

(4) † **Episannina flavicincta** n. sp.

♂. Head and thorax black with a slight purple gloss, some silvery blue between antennae, the frons edged with white above and at sides, the palpi white,

except behind to near extremity of 2nd joint; abdomen black with slight yellow segmental lines on 1st and 3rd segments; forelegs black with the coxae white with a black bar just before extremity, the tibiae with some ochreous and white at extremity and fringe of white hair on outer side, the tarsi white except below, the mid legs with the coxae and femora mostly white and the tarsi white below, the hind legs with the coxae and femora mostly white, the tibiae with white bar above at middle, the tarsi ochreous below; ventral surface of abdomen ochreous white. Forewing with the costal area, veins, discoidal bar, and inner area greenish black; a hyaline streak above inner margin before middle and wedge-shaped patch in end of cell; the interspaces beyond the cell between veins 9 and 3 hyaline, leaving a very narrow line on termen and the cilia black. Hindwing hyaline, the veins and margins narrowly black, the hair on inner margin mostly ochreous to beyond middle, long towards base. Underside of forewing with the costal area to beyond the cell and the median nervure golden yellow.

**Gold Coast**, Obuasi (Graham), ♂ type. *Exp.* 16 mill.

(5) \* *Episannina modesta*.

*Sylphidia modesta* Le Cerf, Oberth. *Ét. Lép. Comp.* xiii. 1. pl. 380. f. 3184 (1916); *id. loc.* xiv. p. 349.

**Cameroons.**

GEN. *Tipulamima*.

<i>Tipulamima</i> Holl., <i>J.N.Y. Ent. Soc.</i> 1. p. 183 (1894) . . . . .	Type.
<i>Macrotarsipodes</i> Le Cerf, Oberth. <i>Ét. Lép. Comp.</i> xiv. p. 338 (1917) . . . . .	<i>flavifrons</i>
	<i>tricolorata</i>

Seet. I. Hind tarsi of male fringed with hair above throughout.

(1) \* *Tipulamima grandidieri*.

*Macrotarsipodes grandidieri* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 341. pl. 479. f. 3951 (1917).

**Madagascar.**

(2) \*† *Tipulamima pyrosoma* n. sp.

♂. Head black glossed with metallic blue, the palpi orange, the antennae orange-scarlet above towards tips, the neck with scarlet ring; thorax black-brown, the tegulae and patagia edged with scarlet, abdomen with the four basal segments black-brown above, the terminal segments and ventral surface scarlet; pectus and legs scarlet, the hind tarsi black glossed with blue, the 1st joint scarlet below except at extremity, and the hairs of the fringe mostly scarlet. Forewing hyaline, the veins and margins narrowly black, some scarlet at base; cilia eupreous brown. Hindwing hyaline, the veins and margins narrowly black; cilia eupreous brown. Underside of both wings with the costa orange to beyond middle.

**Br. E. Africa**, Kilindini (Legros), type ♂ in Coll. Rothschild. *Exp.* 28 mill.

(3) *Tipulamima flammipes*.

† *Macrotarsipus flammipes* Hmps., *A.M.N.H.* (8) vi. p. 153 (1910).

**Uganda.**

(4) \* *Tipulamima opalimargo*.

*Sesia opalimargo* Le Cerf, *Bull. Soc. Ent. Fr.* 1913. p. 167. fig.

**Madagascar.**



Sect. II. Hind tarsi of male not fringed with hair above.

(5) \* **Tipulamima flavifrons.**

† *Tipulamima flavifrons* Holl., *J.N.Y. Ent. Soc.* i. p. 183 (1894) ♀.

**Gaboon.**

(6) \* **Tipulamima haugi.**

*Macrotarsipodes haugi* Le Cerf, Oberth, *Ét. Léop. Comp.* xiv. p. 343. pl. 479. ff. 3952 3 (1917).

**Gaboon.**

(7) † **Tipulamima nigriceps** n. sp.

♀. Head black glossed with blue, the palpi orange-yellow with a few black scales at tips; thorax orange-yellow mixed with some black; abdomen black glossed with metallic blue; pectus, femora, and fore and mid tibiae orange-yellow, the tarsi black, the hind tibiae and tarsi black glossed with blue, the former with some orange-yellow below towards base; ventral surface of abdomen with yellow patches on three basal segments. Forewing uniform black suffused with brilliant metallic blue. Hindwing with the interspaces to end of cell hyaline, and with elongate hyaline spots beyond the cell above veins 5 and 4, and a slight mark above base of vein 2, the veins and a discoidal bar black; the rest of wing black, suffused with deep purple to vein 3, then with brilliant metallic blue, the dark area narrowing to tornus.

**Sierra Leone, Panguma** (Simpson), 1 ♀ type. *Exp.* 26 mill.

(8) \* ? **Tipulamima festiva.**

*Sesia festiva* Beutenm., *J.N.Y. Ent. Soc.* vii. p. 170 (1899).

**Gaboon.**

(9) **Tipulamima sophax.**

† *Acgeria sophax* Druce, *A.M.N.H.* (7) iv. p. 203 (1899).

The female has no orange-scarlet on the abdomen, but at sides of pectus and base of forewing only.

**Uganda; Br. C. Africa; Lourenço Marques; S. Rhodesia.**

(10) **Tipulamima sexualis.**

† *Macrotarsipus sexualis* Hmpsn., *A.M.N.H.* (8) vi. p. 152 (1910).

*Macrotarsipodes sexualis* var. *Waterloti* Le Cerf, Oberth, *Ét. Léop. Comp.* xiv. p. 341. p. l. 479. f. 3954 (1917).

**S. Nigeria; Dahomey; Br. C. Africa.**

(11) \* ? **Tipulamima malimba.**

*Sesia malimba* Beutenm., *J.N.Y. Ent. Soc.* vii. p. 172 (1899).

**Gaboon.**

(12) **Tipulamima tricincta.**

*Macrotarsipodes tricinctus* Le Cerf, Oberth, *Ét. Léop. Comp.* xii. i. pl. 380. f. 3182 (1916); *id. l.c.* xiv. p. 341.

**Zululand; Natal.**

GEN. *Macrotarsipus*.

*Macrotarsipus* Hmps., *Moths Ind.* i. p. 194 (1893) . . . . . Type.  
*albipuncta*

(1) *Macrotarsipus albipuncta*.

† *Macrotarsipus albipunctus* Hmps., *Moths Ind.* i. p. 194. fig. (1893).

**Burma, Bhámo.**

(2) \* *Macrotarsipus africana*.

*Sesia africana* Beutenm., *J.N.Y. Ent. Soc.* vii. p. 170 (1899).

† *Aegeria belia* Druce, *A.M.N.H.* (8) vi. p. 181 (1910).

**Gaboon ; Cameroons.**

(3) † *Macrotarsipus microthyris* n. sp.

♀. Head, thorax, and abdomen black-brown ; neck with a yellow ring ; palpi creamy white to near extremity of 2nd joint, then orange-yellow, the 3rd joint with some black scales ; tarsi ringed with yellow. Forewing black-brown ; a small hyaline spot in the cell towards extremity and short streaks beyond the cell between veins 7 and 4. Hindwing hyaline, the veins black ; a narrow black-brown terminal band ; cilia greyish black.

**Br. E. Africa**, Psaro R. (Neave), 1 ♀ type ; **Br. C. Africa**, Mlanje plateau, 6,500 ft. (Neave), 1 ♀. *Exp.* 28 mill.

GEN. *Monopetalotaxis*.

*Monopetalotaxis* Wllgrn., *Kongl. Vet. Akad. Forh.* 1858. p. 135 . . . . . Type.  
*doleriformis*  
*Trochilina* Feld., *Reis. Nov.* p. 9 (1874) non descr. . . . . *candescens*

Sect. I. (*Monopetalotaxis*). Antennae of male with long uniseriate branches.

(1) *Monopetalotaxis doleriformis*.

† *Aegeria doleriformis* Wlk., viii. 56 (1856).

*Monopetalotaxis wahlbergi* Wllgrn., *Wien. Ent. Mon.* iv. p. 41 (1860) ; id. *Kongl. Vet. Akad. Forh.* v. 4. p. 8 (1865).

† *Aegeria taylori* Druce, *A.M.N.H.* (7) iv. p. 204 (1899).

**Transvaal ; Natal ; Cape Colony.**

Sect. II. (*Trochilina*). Antennae of male serrate and fasciculate.

(2) *Monopetalotaxis candescens*.

† *Trachilina candescens* Feld., *Reis. Nov.* pl. 82. f. 23 (1874).

**Cape Colony.**

(3) *Monopetalotaxis pyrocraspis*.

† *Sciapteron pyrocraspis* Hmps., *A.M.N.H.* (8) vi. p. 153 (1910).

**Cape Colony.**

(4) † *Monopetalotaxis sinensis* n. sp.

♂. Head, thorax, and abdomen black with a slight purplish gloss, the frons with yellow spots above and at sides, the neck with yellow ring, the patagia with yellow streak above and spot at origin of forewing, the abdomen with yellow bands on each segment, the anal tuft with yellow streaks at middle and sides; antennae with the serrations rufous; palpi yellow with some black hair in front; legs black and yellow, the hind tibiae yellow with black band at extremity, the tarsi yellow. Forewing hyaline, the veins and margins cupreous brown; a slight yellow streak below costa and fiery orange streak above inner margin to beyond middle; the discoidal spot with fiery orange spot on its outer side; some yellow in the interspaces before termen from apex to vein 3. Hindwing hyaline, the veins and margins narrowly cupreous brown. Underside of forewing with the costa to beyond middle, the inner area to termen, the discoidal spot and the interspaces of terminal area golden yellow; hindwing with the costa golden yellow to near apex, expanding into a small spot at upper angle of cell.

♀. Abdomen with yellow bands on dorsum of 2nd, 4th, and 6th segments only, and a lateral spot on 3rd.

**C. China**, Shanghai (J. J. Walker), 1 ♂ type; Fokien, Ting-hai (de la Garde), 1 ♀. *Exp.* ♂ 30, ♀ 32 mill.

(5) † *Monopetalotaxis chalciphora* n. sp.

♀. Head, thorax, and abdomen black glossed with leaden grey, the vertex of head with some rufous hair and the neck with rufous ring, the metathorax fiery red at sides, the abdomen with fiery red in front of 2nd segment at sides, the 3rd segment with yellow and fiery red in front, the 4th with yellow band, the 5th and 6th with fiery red bands, the anal segment fiery red above except at base; antennae fiery red with some black at sides; palpi fiery red, yellow towards base, the hair in front of 1st and 2nd joints leaden black at tips; fore coxae fiery red on outer side, the tibiae fiery red, the hind tibiae black on inner side, the tarsi yellow, white on inner side, the hind tarsi with some fiery orange on inner side at base. Forewing hyaline, the veins black; the costal area golden yellow tinged with scarlet and irrorated with black, the cell golden yellow, the inner margin golden yellow tinged with scarlet, the terminal area yellow suffused with black-brown; cilia black-brown. Hindwing hyaline, the veins yellow with some black scales, the terminal line and cilia black-brown. Underside of forewing with the costal area, cell, inner margin, and terminal area golden yellow, the last irrorated with black-brown; hindwing with the costa golden yellow.

**Br. C. Africa**, Mt. Mlanje (Neave), 1 ♀ type. *Exp.* 26 mill.

GEN. *Synanthedon*.

	Type.
<i>Synanthedon</i> Hübn., <i>Vern.</i> p. 129 (1827) . . . . .	<i>acstriformis</i>
<i>Austrosetia</i> Feld., <i>Reis. Nov.</i> p. 2 (1874) non descr. . . . .	<i>semirufa</i>

(1) *Synanthedon pyrethra*.

† *Sciapteron pyrethra* Hmps., *A.M.N.H.* (8) vi. p. 154 (1910). ♀.

The male has the forewing hyaline, the costal and terminal areas red-brown, a scarlet streak below base of costa and fascia on inner margin to near tornus,

a broad dark discoidal bar with the veins just beyond it scarlet; hindwing with the inner area clothed with scarlet scales and with a black streak above base of inner margin.

**Cape Colony.**

(2) \* *Synanthedon semirufa*.

† *Austrosetia semirufa* Feld., *Reis. Nov.* pl. 82. f. 22 (1874).

The abdomen is without white bands as figured, the hindwing sometimes has the disk almost hyaline and the black terminal band narrower.

**Cape Colony.**

(3) \* *Synanthedon aurania*.

† *Ceratocorema aurania* Druce, *A.M.N.H.* (7) iv. p. 205 (1899).

**Perak.**

(4) \* † *Synanthedon hypochalcia* n. sp.

♂. Head and thorax red-brown, some rufous between antennae, the neck with yellow ring and the patagia with yellow hair at extremity; abdomen dark red-brown tinged with grey, a yellow band on 3rd segment, the anal tuft with some rufous; frons yellow at sides; palpi yellow with a few black hairs in front; pectus and legs yellow, the tibiae banded with black; ventral surface of abdomen with yellow bands on four basal segments. Forewing hyaline, the veins, margins, and streaks in the interspaces of terminal area black; the costa with orange scales mixed, and some orange below it towards apex; the discoidal bar orange with some black scales on it. Hindwing hyaline, the veins and margins narrowly black. Underside of forewing with the costal area, discoidal bar, and the median nervure towards end of cell cupreous; hindwing with the costa cupreous with some black scales on it.

♀. Abdomen with five yellow bands, the band on 3rd segment broader, the ventral surface with broad yellow bands on each segment; forewing with some orange-yellow in and beyond upper part of cell and on inner margin.

**Assam**, Khásis, type ♂, ♀ in Coll. Rothschild. *Exp.* 22 mill.

(5) † *Synanthedon erythromma* n. sp.

♂. Head, thorax, and abdomen black, the frons and genae white, the neck with white ring, the abdomen with strong white segmental lines on all the segments, the anal tuft fuscous and white; palpi with the 1st joint and basal half of 2nd joint black and white, the rest of 2nd joint and the 3rd joint white; fore coxae black and white, the femora white at extremity, the tibiae orange-yellow below, the tarsi orange-yellow ringed with white, the mid tibiae with scarlet hair at middle, the spurs and hair at extremity white, the tarsi ringed with white, the hind tibiae fringed with scarlet hair above mixed with black towards extremity, the spurs and hair below at extremity white, the tarsi with black and scarlet hair above on 1st joint, the tarsi white below. Forewing hyaline, the costal area, veins, and margins black, a scarlet discoidal spot defined by black except below; some scarlet below the costa towards apex and before the black terminal line. Hindwing hyaline, the veins and margins narrowly black, the cilia blackish. Underside of forewing with the discoidal spot scarlet,

with some black scales on its inner edge, and with more scarlet beyond it below costa and before termen.

**Br. E. Africa**, S. Kavirondo, Kisii I ist. (Neave), 1 ♂ type. *Exp.* 20 mill.

(6) † *Synanthedon rubripicta* n. sp.

♀. Head, thorax, and abdomen black, the frons white, the neck with yellow ring, the abdomen with yellow segmental lines on 1st and anal segments and band on 4th, the anal tuft with scarlet mixed; antennae scarlet; black above towards base; palpi orange-yellow with some black scales in front of 1st and 2nd joints; fore tibiae yellow below, the tarsi yellow, banded with black above, the mid tibiae with scarlet hair at middle and extremity, the tarsi ringed with yellow, the hind tibiae with scarlet hair at middle and extremity, the spurs white, the tarsi with black and scarlet hair, the terminal joint white above, the ventral surface of abdomen with the yellow band on 4th segment only. Forewing hyaline, the costal area, veins, and margins black; some scarlet at base of inner margin and above vein 1 to below end of cell and below middle of subcostal nervure; the discoidal spot black with scarlet bar in centre; a scarlet streak below terminal part of costal area and some scarlet scales on the moderately broad terminal black band. Hindwing hyaline, the veins and margins narrowly black; a minute black and scarlet spot at upper angle of cell; cilia blackish, tinged with scarlet at base. Underside of forewing with the costal area scarlet to end of cell, the discoidal spot scarlet, defined by black on inner side; hindwing with some scarlet below base of costa.

**Sierra Leone**, Kengama (Simpson), 1 ♂ type. *Exp.* 18 mill.

(7) ? *Synanthedon mesochoriformis*.

† *Aegeria mesochoriformis* Wlk., viii. 56 (1856).

**Natal**. The type has the legs wanting.

(8) *Synanthedon pyrodisca*.

† *Aegeria pyrodisca* Hmps., *J. Bomb. Nat. Hist. Soc.* xx. p. 94 (1910).

**Burma**, Maymyo.

(9) †\* *Synanthedon pyrosema* n. sp.

♂. Head, thorax, and abdomen black-brown, the frons white at sides, the neck with yellow ring, the abdomen with fiery-red lines at base and on 5th and 7th segments, and some scales at base and extremity of anal tuft; mid and hind tibiae with some white hair at middle and extremity; ventral surface of abdomen with white line on 5th segment. Forewing hyaline, the veins and margins rather narrowly black-brown, with a purple gloss; the discoidal bar defined on outer side by fiery red. Hindwing hyaline, the veins and margins narrowly black-brown. Underside of forewing with some fiery-red scales on subcostal and median nervures; hindwing with some fiery-red scales on costa.

**Assam**, Khásis, type ♂ in Coll. Rothschild. *Exp.* 20 mill.

(10) *Synanthedon cupreifascia*.

*Trochilium cupreifascia* Miskin, *Pr. R. Soc. Queensl.* viii. p. 53 (1892).

**Queensland**. Type destroyed *in post fide* R. Turner, the two specimens in B.M. are part of the original material.

(11) \* *Synanthedon vassei*.

*Aegeria vassei* Le Cerf, Oberth, *Ét. Lép. Comp.* xiv. p. 337. pl. 478. f. 3939 (1917).

**Mozambique.**

(12) *Synanthedon flavipalpis*.

† *Lepidopoda flavipalpis* Hmps., *P.Z.S.* 1910. p. 505. pl. xli. f. 17.

**Br. C. Africa ; N. E. Rhodesia ; Transvaal.**

(13) *Synanthedon auripes*.

† *Lepidopoda auripes* Hmps., *A.M.N.H.* (8) vi. p. 152 (1910).

**Gold Coast.**

(14) *Synanthedon xanthozonata*.

† *Sciapteron xanthozonatum* Hmps., *Trans. Ent. Soc.* 1895. p. 282 ; id, *Moths Ind.* iv. p. 464.

**Burma, Tenasserim.**

(15) *Synanthedon exochiformis*.

† *Aegeria exochiformis* Wlk., vii. 58 (1856).

† *Lepidopoda albifrons* Hmps., *A.M.N.H.* (8) vi. p. 151 (1910) ♀.

**Sierra Leone ; Gold Coast.**

(16) \* *Synanthedon nyanga*.

*Sesia nyanga* Beutenm., *J.N.Y. Ent. Soc.* vii. p. 171 (1899).

**Gaboon.**

GEN. *Hypanthedon* nov.

Type, *H. marisa*.

Proboscis fully developed ; palpi upturned to rather above vertex of head, the 1st and base of 2nd joint clothed with long scales in front ; frons smooth ; eyes elliptical ; antennae of male ciliated, the cilia rather longer towards base, dilated towards tip, where there is a small tuft of hair ; vertex of head with tuft of hair-like scales ; lateral tufts of hair on metathorax and base of abdomen, which has the anal tuft small ; fore and mid tibiae fringed with rather long hair above, the hind tibiae fringed with long hair-like scales above and below, and the 1st joint of tarsus with large tuft of hair-like scales above. Forewing narrow, the costa straight, the apex rounded, the termen evenly curved ; veins 2 and 3 closely approximated ; 4, 5, 6 at intervals ; 7, 8 stalked ; 9, 10, 11 from cell, 9 widely separated from 7, 8. Hindwing with veins 3 and 5 from a point, 4 absent ; 6 from below upper angle of cell ; 7 from angle ; 8 concealed in the costal fold.

*Hypanthedon marisa*.

† *Aegeria marisa* Druce, *A.M.N.H.* (7) iv. p. 205 (1899).

**Br. C. Africa, Mt. Mlanje ; Transvaal, Barberton in Coll. Janse ; Cape Colony, Bedford.**

GEN. *Dipsosphecia*.

*Dipsosphecia* Spüler, Hoffmann's *Gr. Schm. Eur.* ii. p. 316 (1910) . . . . . Type. *ichneumoniformis*

*Dipsosphecia montis*.

† *Aceria montis* Leech, *P.Z.S.* 1888. p. 592. pl. 30. f. 4 ; Bartel, *Seitz. Gr. Schm.* pal. ii. pl. 51. i.

Japan.

There is a specimen of another species from **N. China**, Wei-hai-wei, in British Museum in too bad condition to describe.

GEN. *Podosesia*.

*Grotea* Möschl., *Stett. Ent. Zeit.* xxxvii. p. 319 (1876)  *nec Cress. Hym.* 1864 . . . . . Type. *syringae*  
*Podosesia* Möschl., *Stett. Ent. Zeit.* xl. p. 246 (1879) . . . . . *syringae*

† *Podosesia surodes* n. sp.

♂. Head, thorax, and abdomen black glossed with metallic blue ; palpi with some white in front ; pectus crimson at side ; tarsi white except towards base. Forewing black glossed with metallic blue. Hindwing black and strongly glossed with metallic green, the basal area with hyaline streaks in and below the cell and above inner margin. Underside of forewing suffused with purple to beyond the cell ; hindwing with some purple suffusion in and beyond end of cell.

♀. Hindwing metallic blue with slight green reflections.

In the forewing of the male veins 10, 11 become coincident towards the costa.

**Br. C. Africa.** Mt. Mlanje (Neave), 1♂, 1♀ type. *Exp.* ♂ 34, ♀ 40 mill.

GEN. *Gaea*.

*Larunda* H. Edw., *Papilio* i. p. 182 (1881)  *nec Leach, Crust.* 1815 . . . . . Type. *solitudo*  
*Gaea* Beutenm., *Bull. Am. Mus. Nat. Hist.* viii. p. 115 (1896) . . . . . *solitudo*

(1) *Gaea variegata*.

† *Tinthia variegata* Wlk., xxxi. 24 (1864).

Hongkong.

(2) † \* *Gaea leucozona* n. sp.

Head, thorax, and abdomen black glossed with metallic purple-blue, the frons white at sides, the palpi black and white, the 2nd joint entirely white towards extremity, the shoulders and sides of metathorax with patches of fiery red scales, the abdomen with subdorsal patches of yellowish white hair on 4th segment and broad band clothed with yellowish white hair on 5th ; coxae white, the fore coxae with black patches, the fore tibiae white except above, the mid and hind tibiae with rings of white hair at middle and extremities, and the 1st joint of tarsi with white ring at extremity ; ventral surface of abdomen with yellowish white band on 5th segment. Forewing black glossed with metallic purple-blue ; hyaline fasciae in the cell and submedian interspace to middle of wing. Hindwing hyaline to beyond the cell and tornus, the veins and margins black, the terminal area blackish glossed with metallic purple-blue, its inner edge irregular. Underside with some ochreous white on costal area of forewing to near apex, and on base of costa of hindwing.

**Assam,** Khásis, type ♂, ♀ in Coll. Rothschild. *Exp.* ♂ 30, ♀ 32 mill.

GEN. **Euhagena.**

*Euhagena* H. Edw., *Pap.* i. p. 181 (1881) . . . . . Type. *nebrascæ*

In the typical section the antennae of the male are bipectinate with long drooping branches.

Sect. II. Antennae of male serrate with long fasciculate cilia.

(1) **Euhagena lasicera.**

† *Trochilium lasicera* Hmps., *P.Z.S.* 1906, p. 495, pl. 36. f. 21.

**Tibet.**

*E. dispar* Staud. from Algeria belongs here.

Sect. III. Antennae of male ciliated.

(2) **Euhagena nobilis.**

† *Aegeria nobilis* Druce, *A.M.N.H.* (8) v. p. 401 (1910).

**Angola ; "Germ. E. Africa."**

GEN. **Tradescanticola** nov.

Type, *T. uniformis.*

Proboscis aborted and minute ; palpi obliquely upturned to rather above vertex of head, the 1st joint with a few rather long hairs in front, the 2nd with short hair in front and some rather long hair behind at extremity, the 3rd smoothly scaled and acuminate at tip ; frons smooth ; eyes rounded ; antennae almost simple, dilated towards extremity and ending in a small tuft of hair ; thorax smoothly scaled ; fore tibiae slightly fringed with hair, the mid tibiae fringed with long hair above and below, the hind tibiae fringed with still longer hair above and below, the tarsi smoothly scaled ; abdomen of male somewhat flattened and with slight lateral tufts of hair towards extremity, the anal tuft very large, of female cylindrical and the anal tuft small. Forewing very narrow and elongate, the apex rounded, the termen obliquely curved ; veins 2, 3, 4 coincident ; 5, 6 well separated ; 7, 8 stalked ; 9 from cell ; 10, 11 coincident. Hindwing with vein 2 from towards angle of cell ; 3 and 5 very shortly stalked ; 4 absent ; 6 from above middle of discocellulars ; 7 from upper angle of cell ; 8 concealed in a fold.

**Tradescanticola uniformis.**

*Sesia uniformis* Snell, *Tijd. v. Ent.* xliii. p. 34 (1900). ♂.

♀. Hindwing hyaline, the veins and margins rather broadly black-brown.

**Java.** The lava makes galls in *Tradescantia* (*Ancilema*).

GEN. **Chamanthedon.**

*Chamanthedon* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 287 (1917) . . . . . Type. *hypochroma*

(1) \* **Chamanthedon elymais.**

† *Aegeria elymais* Druce, *A.M.N.H.* (7) iv. p. 202 (1899). ♀.

The ♂ in Coll. Rothschild has the abdomen dorsally black except at base and extremity, the forewing with short hyaline streaks in the interspaces beyond the discoidal bar.

**Lourenço Marques ; Transvaal.**



(2) ? \* *Chamanthedon tropica*.

*Sesia tropica* Beutenm., *J.N.Y. Ent. Soc.* vii. p. 172 (1899).

**Gaboon.**

(3) † *Chamanthedon chrysopasta* n. sp.

♂. Head and thorax blue-black, the antennae with white ring towards tip, the palpi orange-yellow and black-brown, the neck with ring of orange-yellow scales, the shoulders with some orange-yellow scales and the metathorax at sides with some orange-yellow hair; abdomen black-brown irrorated with orange-yellow, the anal tuft orange-yellow at middle, black at sides; peetus and legs black-brown and orange-yellow, the coxae with some white scales; ventral surface of abdomen mostly orange-yellow, the anal tuft wholly so. Forewing black-brown thickly irrorated with orange-yellow scales; a wedge-shaped hyaline patch in the cell, bisected by a dark streak in the discal fold; the discoidal patch mostly orange-yellow; rather short hyaline fasciae above veins 6, 5, 4, and a minute spot above 3, defined on outer side by an orange-yellow band. Hindwing hyaline, the veins and margins narrowly black; veins 5, 1 c, 1 b, and 1 a, and the inner margin mostly orange-yellow; the black termen defined on inner side by orange-yellow. Underside of forewing orange-yellow, the costa black, the discoidal patch defined at sides by black, some black scales on the veins beyond the cell; hindwing with the costa and veins mostly orange-yellow, the cilia with some whitish.

**N.W. Rhodesia**, Solwezi (H. Dollman), ♂ type. *Exp.* 20 mill.

(4) ? \* *Chamanthedon brillians*.

*Sesia brillians* Beutenm., *J.N.Y. Ent. Soc.* vii. p. 172 (1899).

**Gaboon.**

(5) *Chamanthedon ochracea*.

† *Aegeria ochracea* Wlk., xxxi. 10 (1864).

**Natal.**

(6) \* *Chamanthedon xanthopleura*.

*Chamanthedon xanthopleura* Le Cerf, Oberth. *Ét. Léop. Comp.* xii. i. pl. 379 f. 3179 (1916); *id. l.c.* xiv. p. 289.

**Madras**, Trichinopoli.

(7) \* *Chamanthedon hypochroma*.

*Chamanthedon hypochroma* Le Cerf, Oberth. *Ét. Léop. Comp.* xii. i. pl. 379. f. 3178 (1916); *id. l.c.* xiv. p. 288.

**Up. Burma**, Momeit.

(8) *Chamanthedon flavipes*.

† *Sesia flavipes* Hmps., *Ill. Het. B.M.* ix. p. 60, pl. 157 ff. 19, 20 (1893); *id. Moths Ind.* i. p. 198.

**Madras**, Bangalore; **Ceylon**.

(9) † *Chamanthedon albicincta* n. sp.

♂. Head, thorax, and abdomen black glossed with steel-blue, the last with narrow white segmental bands on 4th and 6th segments; basal joint of antennae at sides and frons at sides white; palpi with the 1st and 2nd joints

white behind ; pectus with yellow patches at sides ; femora and tibiae streaked with white, the tarsi ringed with white ; ventral surface of abdomen eupreous brown with white bands on 4th, 5th, and 6th segments. Forewing black glossed with purple ; a hyaline fascia below the cell, wedge-shaped streak in end of cell and short streaks beyond the cell between veins 7 and 3 ; some yellow scales on the discoidal spot and slight streaks in the interspaces of terminal area. Hindwing hyaline, the veins and margins narrowly black.

**Ceylon** (Green), 1 ♂ type. *Exp.* 16 mill.

(10) **Chamanthedon hilariformis.**

† *Acgeria hilariformis* Wlk., viii. 57 (1856).

**Natal.**

(11) † **Chamanthedon xanthopasta** n. sp.

♂. Head and thorax black, the neck with some yellow scales, the tegulae with some yellow at sides, the patagia with some yellow above and tufts of pale yellow hair at extremity, the frons yellow below ; abdomen black with dorsal series of large elliptical pale yellow spots. confluent towards extremity, the anal tuft with orange-yellow streaks at middle and sides ; palpi white, tinged with yellow at sides except towards base and with some black scales towards extremity ; pectus black and greyish ; legs mostly white with some yellow and black, the tarsi entirely white ; ventral surface of abdomen with yellowish white segmental bands, obsolescent towards base, the anal tuft orange-yellow below. Forewing hyaline, the veins and margins black ; slight whitish streaks on and below costa, on base of median nerve and above inner margin to end of cell ; the discoidal bar defined on outer side by golden yellow ; a golden-yellow patch on apical area extending to vein 4. Hindwing hyaline, the veins white, black beyond the cell ; a small black spot at upper angle of cell ; the termen black ; the hair on inner margin white. Underside of forewing with the costa and veins to end of cell white ; hindwing with the veins white to termen.

**Mashonaland**, Maroe (Marshall), 1 ♂ ; **Transvaal**, Waterberg Distr. (Distant) 1 ♂, Johannesburg (Cooke) 1 ♂ type. *Exp.* 28-30 mill.

(12) † **Chamanthedon leucocera** n. sp.

♂. Head and thorax black-brown glossed with bronze, the frons white with some bronze above, the neck with yellow ring, the patagia and metathorax tipped with orange ; abdomen orange with dorsal series of black-brown patches forming dorsal bands on 2nd and 4th segments, the anal tuft with some black at middle and sides ; antennae bronze-brown, pure white above towards tips ; palpi pale yellow ; pectus and legs orange-yellow, the femora black above, the mid and hind tibiae at extremities and tarsi banded with black. Forewing hyaline, the veins and margins black-brown ; the discoidal bar strong ; four hyaline streaks beyond the cell ; the terminal band expanding towards apex and indenting the hyaline area in the fork between veins 7, 8. Hindwing hyaline, the veins and margins black-brown ; the costa yellow to beyond middle. Underside of forewing with the costal area golden yellow towards apex ; hindwing with the costa orange-yellow to towards apex, interrupted by a black-brown spot at upper angle of cell.

**Br. C. Africa**, Mt. Mlanje (Neave) 1 ♂ type. *Exp.* 16 mill.

(13) *Chamanthedon fulvipes*.† *Lepidopoda fulvipes* Hmps. n., *P.Z.S.* 1910. p. 506. pl. xli. f. 11.

Congo, Katanga.

(14) † *Chamanthedon amorpha* n. sp.

♀. Head, thorax, and abdomen black-brown with a slight bluish gloss, the frons white at sides, the abdomen with slight white ring on 4th segment; palpi whitish in front to near extremity of 2nd joint; fore coxae white; mid and hind tibiae at the spurs and the tarsal joints with white lines; ventral surface of abdomen with white lines on each segment. Forewing hyaline, the veins and margins black-brown with a slight bluish gloss; the discoidal bar strong; five hyaline streaks beyond the cell; the terminal band broad, expanding on apical area. Hindwing hyaline, the veins and margins narrowly black-brown. Underside of forewing with some orange-yellow below the costa to beyond the cell; hindwing with the costa orange-yellow towards base.

Portuguese E. Africa, Mt. Chipirone (Neave), 1 ♀ type. *Exp.* 16 mill.(15) † *Chamanthedon tapeina* n. sp.

♂. Head, thorax, and abdomen black with a slight blue-green gloss; palpi fulvous; neck with a fulvous ring, a small tuft of fulvous hair behind the patagia; the abdomen with slight dorsal patches of golden cupreous scales on 2nd and 4th segments, the anal tuft with some fulvous scales at middle; fore coxae fulvous, the mid and hind tibiae with tufts of fulvous hair at middle and extremities, the tarsi ringed with fulvous. Forewing brown; the cell and a fascia below it hyaline; a dark-brown discoidal spot; hyaline streaks in the interspaces beyond the cell between veins 9 and 3 to towards termen; cilia white. Hindwing hyaline, the veins and margins narrowly brown; cilia white.

Transvaal, Zoutpanberg (Janse), 1 ♂ type. *Exp.* 14 mill.(16) \* *Chamanthedon quinquecincta*.† *Sesia quinquecincta* Hmps. n., *Moth. Ind.* i. p. 196 (1893).

Burma, Bernardmyo.

(17) † *Chamanthedon leucopleura* n. sp.

♀. Head, thorax, and abdomen black-brown glossed with greenish blue, the back of head with some red-brown hairs and the neck and shoulders with some white scales, the base of abdomen with some white scales at sides and lateral white bars on the 4th and 6th segments; pectus in front and fore coxae with some white; mid and hind tibiae above with some white and the tarsi ringed with white; forewing black-brown glossed with greenish blue mixed with some red-brown especially on terminal area and cilia; a black discoidal spot. Hindwing black-brown, mixed with some red-brown on apical area; a hyaline streak below the cell to origin of vein 2; the cell and short streaks beyond it between veins 7 and 5 hyaline; a black discoidal spot.

Transvaal, Johannesburg (Distant), 1 ♀ type, Pretoria in Coll. Janse. *Exp.* 18 mill.(18) † *Chamanthedon chalypsa* n. sp.

♂. Head, thorax, and abdomen black-brown glossed with blue-green, the back of head with some fulvous orange hair, the abdomen with slight lateral tufts

of fulvous orange scales on each segment, the anal tuft orange at middle and below; palpi fulvous orange with some black above on 2nd joint at extremity and on 3rd joint; fore coxae fulvous orange; (mid and hind legs wanting). Forewing black-brown glossed with blue-green, the cilia more eupreous brown. Hindwing black-brown; the cell and streaks in the interspaces above and below submedian fold to end of cell and short streaks beyond the cell above and below vein 6 hyaline. Underside of forewing with the costa to beyond end of cell and the median nervure towards base fulvous orange; hindwing with the costa fulvous orange towards base.

**Natal**, Durban (Queckett), 1 ♂ type. *Exp.* 24 mill.

(19) \* *Chamanthedon critheis*.

† *Aegeria critheis* Druce, *A.M.N.H.* (7) iv, p. 202 (1899).

**Laurenço Marques**. The hind legs of the type are wanting.

(20) \* *Chamanthedon tiresa*.

† *Aegeria tiresa* Druce, *A.M.N.H.* (7) iv, p. 202 (1899).

**Laurenço Marques**.

GEN. *Chamaesphecia*.

*Chamaesphecia* Spüler, Hoffmann's *Gr. Schm. Eur.* ii, p. 316 (1910) . . . . . *empiformis* Type.

(1) †\* *Chamaesphecia tritonias* n. sp.

♀. Head, thorax, and abdomen black with a purple gloss, the frons white at sides, the neck with yellow ring, the thorax irrorated with yellow, the patagia edged with yellow, the abdomen with yellow bands on 2nd to 6th segments; palpi yellow, the 2nd joint towards extremity and the 3rd joint black above; (fore and mid legs wanting), the fore coxae yellow, the hind legs yellow with black band on the tibiae from the medial spurs to near extremity and the tarsi black ringed with yellow above. Forewing yellow hyaline with an opalescent gloss, the veins and margins dark reddish brown, the costal area and interspaces of terminal area irrorated with yellow; a golden-yellow discoidal bar defined by some black scales; the terminal band broad, indenting the hyaline area in the fork of veins 7, 8. Hindwing yellowish hyaline, the veins and margins narrowly black-brown with some yellow on the veins to end of cell and on inner area, the hair on inner margin yellow. Underside of forewing with the costa and subcostal nervure yellow to end of cell; hindwing with yellow streak below costa to near apex.

**Assam**, Khásis, type ♀ in Coll. Rothschild. *Exp.* 40 mill.

(2) † *Chamaesphecia ethiopica* n. sp.

♀. Head, thorax, and abdomen black-brown mixed with some grey-white, the frons eupreous brown, white at sides, the neck with white ring, the abdomen with white ring on each segment, the anal tuft black with some white hair at sides; antennae with a slight blue gloss; palpi with the basal joint white and the 2nd joint white above and below; pectus with some white; fore coxae white; legs black-brown, the tibiae and tarsi ringed with white; ventral surface of abdomen grey-brown, the 4th segment with white line. Forewing hyaline, the veins

and margins dark cupreous brown ; the discoidal bar moderate ; the terminal band broad, slightly indenting the hyaline area at fork of veins 7, 8. Hindwing hyaline, the veins and margins narrowly cupreous brown. Underside of forewing with the costa yellowish white to well beyond middle and the median nervure yellowish white.

**Br. C. Africa**, Mlanje Boma (Neave), 2 ♀ type. *Exp.* 24-28 mill.

(3) \* **Chamaesphecia rhodia**.

† *Aegeria rhodia* Druce, *A.M.N.H.* (7) iv. p. 203 (1899).

**Cape Colony**.

(4) **Chamaesphecia cyanopasta**.

† *Aegeria cyanopasta* Hmps. *J. Bomb. Nat. Hist. Soc.* xx. p. 93 (1910).

**Baluchistan**.

GEN. **Lophoceph** nov.

Type, *L. abdominalis*.

Proboscis fully developed ; palpi upturned, the 2nd joint reaching to about vertex of head and moderately scaled in front, the 3rd moderate ; frons smooth ; eyes large, round ; antennae dilated towards tips where there is a minute tuft of hair, typically almost simple ; vertex of head in both sexes with large tuft of long scales projecting forward between antennae ; tibiae with slight tufts of hair at the spurs ; abdomen of male typically very long with large lateral tufts of downturned scales on three terminal segments, of female with large anal tuft. Forewing narrow, the apex rounded, the termen evenly curved ; veins 2 and 3 closely approximated from near angle of cell ; 4, 5, 6 at intervals ; 7, 8 stalked ; 9 from upper angle of cell ; 10, 11 coincident. Hindwing with veins 3 and 5 stalked, 4 absent ; 6 from below upper angle ; 7, 8 hidden in the costal fold.

Sect. I. Abdomen of male very long with large lateral tufts of downturned scales on three terminal segments.

(1) † \* **Lophoceph abdominalis** n. sp.

♂. Head, thorax, and abdomen black glossed with steel-blue, the frons white, the neck with white ring, the abdomen with white line on 2nd segment and some scales on dorsum defining the 3rd to 6th segments ; palpi white in front ; coxae white ; tibiae and tarsi ringed with white ; ventral surface of abdomen with white band on 2nd segment and the 4th to 6th segments white, the anal tuft with some white at sides. Forewing hyaline, the veins and margins rather narrowly, black-brown with a greenish gloss, the terminal band with a cupreous gloss, widening to apex and indenting the hyaline area between veins 7, 8 ; the discoidal bar rather strong. Hindwing hyaline, the veins and margins narrowly black-brown. Underside of forewing with the terminal part of subcostal nervure and the interspaces of terminal area glossed with golden yellow ; hindwing with the costa yellow to near apex, indented by a black spot at upper angle of cell.

♀. Abdomen with white segmental lines on 2nd to 6th segments.

**Br. E. Africa**, Mombasa (Doherty), type ♂ ♀ in Coll. Rothschild. *Exp.* ♂ 14, ♀ 16 mill.

Sect. II. Abdomen of male normal.

A. Antennae of male minutely ciliated.

(2) † \* **Lophoceps tetrazona** n. sp.

♂. Head, thorax, and abdomen black glossed with greenish blue, the frons white at sides, the neck with white ring, the abdomen with orange bands on 2nd to 5th segments; palpi with the 1st and 2nd joints white in front; pectus and coxae white, the tibiae and tarsi ringed with white; ventral surface of abdomen with the 4th and 5th segments white. Forewing hyaline, the veins and margins glossed with greenish blue, the costal area, discoidal bar, and terminal band broad, the five hyaline streaks beyond the cell between veins 9 and 3 short. Hindwing hyaline, the veins and margins narrowly black.

**Assam**, Khásis, type ♂ in Coll. Rothschild. *Exp.* 18 mill.

B. Antennae of male with long cilia.

(3) † \* **Lophoceps cyaniris** n. sp.

♂. Head, thorax, and abdomen black glossed with metallic blue-green, the frons white at sides; palpi white on inner side, brown tipped with white in front; fore coxae white on outer side, the mid and hind tibiae and tarsi with the hairs at the spurs and joints white. Forewing hyaline, the veins and margins narrowly black glossed with metallic blue-green, the costal fascia and discoidal bar rather stronger; cilia brown. Hindwing hyaline, the veins and margins narrowly black; cilia brown.

**Assam**, Khásis, type ♂ in Coll. Rothschild. *Exp.* 22 mill.

(4) † **Lophoceps quinquepuncta** n. sp.

Head, thorax, and abdomen black-brown glossed with bronze, the frons with some white scales above below the tuft on vertex of head; tibiae with some white below, their extremities and the tarsal joints ringed with white. Forewing dark brown glossed with brilliant purple and cupreous, the terminal half with a few yellow scales; a round hyaline spot in the cell towards extremity; minute spots beyond the angles of cell with two points above the lower spot, forming an incurved series of four marks in the interspaces. Hindwing hyaline, the veins and margins narrowly dark brown.

**Sierra Leone** (Maj. F. Smith) 1 ♀. Free Town (Austen) 1 ♀ type, Bomaru (Simpson) 1 ♂. *Exp.* 16 mill.

GEN. **Rodolphia**.

*Rodolphia* Le Cerf, *Bull. Soc. Ent. Fr.* 1911. p. 92 . . . . . Type. *hombergi*

\* **Rodolphia hombergi**.

*Rodolphia hombergi* Le Cerf, *Bull. Soc. Ent. Fr.* 1911. p. 92.

**Madagascar.**

GEN. *Aenigmina*.

*Aenigmina* Le Cerf., *Bull. Soc. Ent. Fr.* 1912. p. 291. . . . . Type.  
*aenea*

\* *Aenigmina aenea*.

*Aenigmina aenea* Le Cerf, *Bull. Soc. Ent. Fr.* 1912. p. 291.

*Aenigmina aenea* var. *latimargo* Le Cerf, *Bull. Soc. Ent. Fr.* 1912. p. 292.

"Germ. E. Africa."

GEN. *Conopia*.

	Type.
<i>Conopia</i> Hübn., <i>Verz.</i> p. 129 (1827) . . . . .	<i>stomoxiformis</i>
<i>Teinotarsina</i> Feld., <i>Reis. Nov.</i> p. 9 (1874) . . . . .	<i>longipes</i>
<i>Ichneumenoptera</i> Hmps., <i>Moths Ind.</i> i. p. 194 (1893) . . . . .	<i>auripes</i>
<i>Vespa mima</i> Beutenm., <i>Bull. Am. Mus. Nat. Hist.</i> vii. p. 87 (1894) . . . . .	<i>sequoiar</i>
<i>Palmia</i> Beutenm., <i>Bull. Am. Mus. Nat. Hist.</i> viii. p. 123 (1896) . . . . .	<i>pracedens</i>
<i>Sanninoidea</i> Beutenm., <i>Bull. Am. Mus. Nat. Hist.</i> viii. p. 126 (1896) . . . . .	<i>exitiosa</i>
<i>Camaegeria</i> Strand. <i>Arch. Naturg.</i> lxxx. A. I. p. 48 (March 1914) . . . . .	<i>auripicta</i>
<i>Leptaegeria</i> Le Cerf, Oberth., <i>Ét. Lép. Comp.</i> xiv. p. 281 (1917) . . . . .	<i>flavacastanea</i>
<i>Stenosphacia</i> Le Cerf, Oberth., <i>Ét. Lép. Comp.</i> xiv. p. 285 (1917) . . . . .	<i>columbica</i>
<i>Osminia</i> Le Cerf, Oberth., <i>Ét. Lép. Comp.</i> xiv. p. 327 (1917) . . . . .	<i>ferruginea</i>

(1) *Conopia auriplena*.

† *Aegeria auriplena* Wlk., xxxi. 13 (1864).

*Synanthedon subauratus* Le Cerf, Oberth., *Ét. Lép. Comp.* xii. i. pl. 378 f. 3156 (1916); *id.* l.c. xiv. p. 295.

Celebes; N. Guinea.

(2) \* *Conopia phasiaeformis*.

*Aegeria phasiaeformis* Feld., *Sitz. Akad. Wiss.* xliiii. p. 26 (1861).

Amboina.

(3) *Conopia chrysophanes*.

*Sesia chrysophanes* Meyr., *P. Linn. Soc. N.S.W.* (2) i. p. 689 (1886).

Queensland.

(4) *Conopia panyasis*.

† *Aegeria panyasis* Druce, *A.M.N.H.* (7) iv. p. 201 (1899) ♂.

† *Aegeria caieta* Druce, *A.M.N.H.* (7) iv. p. 202 (1899) ♀.

Queensland; bred from *Alphitonia excelsa* by Mr. Dodd.

Differs from *C. chrysophanes* in the markings being yellow instead of deep orange.

(5) † *Conopia melanocera* n. sp.

♂. Head, thorax, and abdomen black glossed with metallic steel-blue, the neck with chrome yellow ring, the patagia edged with yellow, the abdomen with some yellow at base, a ring on 2nd segment and rather diffused bands on 4th, 5th, and 7th segments, the anal tuft with yellow streak at sides and yellow sublateral streaks; antennae without white towards tips; frons with white lines at sides; palpi yellow with some black at side of 2nd joint towards extremity and on 3rd joint; pectus with yellow patches at sides; forelegs yellow; mid legs yellow mixed with some purple-brown; hind legs black glossed with metallic blue with some yellow on inner side and with the

tufts of hair at the spurs and extremities of tarsal joints yellow; ventral surface of abdomen with purple-brown patch on 2nd and 3rd segment, and spots on 5th, 6th, and 7th segments. Forewing hyaline, the veins and margins black glossed with metallic blue except on the terminal band, which is broad, and with yellow streaks in the interspaces to vein 3, its inner edge slightly waved and indented by a hyaline streak above vein 8; the discoidal bar rather strong; cilia eupreous brown. Hindwing hyaline, the veins and margins narrowly black; the hair on inner margin yellow; cilia brown. Underside of forewing with slight yellow streaks on costa and subcostal nervure to end of cell and the yellow on terminal area stronger; hindwing with yellow streak on costa to near apex.

Ab. 1. Abdomen with the streaks at sides of anal tuft orange, and the yellow bands reduced.

♀. Thorax with the markings deep orange, the metathorax defined by a curved orange band, abdomen deep orange with black segmental bands glossed with metallic blue, the anal tuft orange with streaks at sides and the tips black; palpi, lateral patches on pectus, legs, and ventral surface of abdomen orange, the femora blue-black above, and the tarsi with some blue-black; forewing with some orange at base of median nervure and inner margin, the streaks on terminal area orange, the hyaline streaks all short; hindwing with the hair on inner margin orange; underside with the streaks orange.

**Queensland**, Kuranda (Dodd), 3 ♂, Johnson R. (Dodd) 2 ♂, 1 ♀ type, bred from a soft-wooded tree, Walsingham Coll. *Exp.* 20 mill.

The male differs from the same sex of *C. chrysophanes* Meyr. in the antennae not being white towards tips and the female in having short hyaline streaks beyond the cell of forewing.

(6) \* *Conopia auritincta*.

† *Conopia auritincta* Wileman, *Entom.* li. p. 169 (1918).

**Formosa.**

(7) *Conopia flava*.

† *Aegeria flava* Moore, *Lep. Atk.* p. 8 (1879); Hmps. *Moths Ind.* i. p. 197.

† *Aegeria calamis* Druce, *A.M.N.H.* (7) iv. p. 201 (1899).

**Sikhim; Burma; Perak; Java; Celebes.**

(8) *Conopia flavipalpus*.

† *Ichneumenoptera flavipalpus* Hmps., *Moth Ind.* i. p. 195 (1893).

**Bengal.**

(9) *Conopia flavicincta*.

† *Ichneumenoptera flavicincta* Hmps. *Moths Ind.* i. p. 195 (1893).

**Assam, Khásis; Burma, Maymyo, Tenasserim.**

(10) *Conopia xanthosoma*.

† *Ichneumenoptera xanthosoma* Hmps., *Moth Ind.* i. p. 195 (1903).

**Burma, Tenasserim.**

(11) \* *Conopia quercus*.

*Sesia quercus* Mats., *Thousand Ins. Jap. Suppl.* iii. p. 86. pl. 36. f. 17 (1911).

*Synanthedon nihonica* Bartel, Seitz, *Gr. Schm. pal.* ii. p. 388. pl. 50. g. (1912).

**Japan.**



(12) \* *Conopia simois*.† *Aegeria simois* Druce, *A.M.N.H.* (7) iv. p. 201 (1899).**N. Borneo.**(13) *Conopia pensilis*.† *Aegeria pensilis* Swinh., *Cat. Hct. Mus. Ozon.* i. p. 36 (1892).**Ceylon ; Sula.**(14) *Conopia xanthosticta*.† *Sesia xanthosticta* Hmps., *Moth Ind.* i. p. 197 (1893).**Kashmir ; Punjab ; Baluchistan.**(15) *Conopia uncinata*.† *Sesia uncinata* Hmps., *Moths Ind.* i. p. 196 (1893).**Burma, Karen Hills.**(16) *Conopia pentazona*.† *Sesia pentazona* Meyr., *Exot. Micr.* ii. p. 180 (1918).**Assam, Khâsis.**(17) † \* *Conopia aurifera* n. sp.

♀. Head, thorax, and abdomen black, the frons white at sides, the neck with orange ring, the shoulders with some orange, the abdomen with orange segmental lines on each segment, the anal tuft orange at middle and sides ; antennae below except at tips and palpi orange ; pectus and legs orange, the femora above and hind tibiae with band near extremity black ; ventral surface of abdomen orange with black segmental lines and broader bands on 3rd and 6th segments. Forewing orange hyaline, the veins and margins black, the costal fæscia rather broadly black ; a black discoidal bar defined on outer side by fiery orange ; a slight orange streak above inner margin to end of cell. Hindwing hyaline, the veins and margins narrowly black ; some orange on inner side of the black terminal line ; cilia cupreous brown. Underside of forewing with orange streaks on subcostal and median nervures, the interspaces of terminal area golden orange ; hindwing with orange streak on costa to near apex.

**Assam, Khâsis, type ♀ in Coll. Rothschild. Exp. 16 mill.**(18) ? \* *Conopia longipes*.† *Sesia longipes* Feld., *Sitz. Ak. Wiss.* xliii. p. 26 (1861) ; id. *Reis. Nov.* pl. 75. f. 2.

**Amboina ; Ternate.** In the type and another specimen from the Felder Coll. the hind legs are wanting and legs of *Aegeria apiformis* stuck on, the abdomen has that of another species—probably *Eublepharis rubricincta*—stuck on ; the hindwing has the discocellulars present.

(19) ? \* *Conopia rubripes*.† *Sesia rubripes* Pag., *Zoologica*, xxix. p. 22 (1900).

**Bismarck Arch.** In the type and another specimen from Coll. Ribbé the hind tarsi are wanting.

(20) \* *Conopia chalybea*.† *Aegeria chalybea* Wlk., *Journ. Linn. Soc. Zool.* vi. p. 82 (1862).**Borneo, Sarawak.**

(21) \* *Conopia versicolor*.

*Synanthedon versicolor* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 378. f. 3167 (1916); *id. L.c.* xiv. p. 296.

**Sumatra.**

(22) \* *Conopia rhodothictis*.

† *Sesia rhodothictis* Meyr., *Exot. Micr.* ii. p. 179 (1918).

**Assam Khásis.**

(23) † \* *Conopia opalizans* n. sp.

♂. Head and thorax black glossed with purple, the neck with yellow ring, the patagia edged with yellow, the metathorax defined in front by a curved yellow band; abdomen yellow with black bands, obsolescent except on the two terminal segments, the anal tuft orange and black; antennae with the basal joint yellow; frons white at sides and below; palpi, pectus, legs, and ventral surface of abdomen yellow, the tibiae and tarsi fulvous yellow, the mid femora blue-black above. Forewing yellowish hyaline with an opalescent gloss, the veins and margins black glossed with purple; the discoidal bar strong; the terminal band broad with some orange scales in the interspaces especially towards apex, its inner edge oblique and indented by a hyaline streak between veins 7 and 8. Hindwing hyaline, the veins and margins narrowly black, the hair on inner margin yellow. Underside of forewing with slight yellow streak on and below costa to end of cell, and more yellow below costa towards apex and before termen; hindwing with the costa yellow with some black scales on it.

**Sula Mangoli** (Doherty) type ♂ in Coll. Rothschild. *Exp.* 26 mill.

(24) *Conopia ignifera*.

† *Ichneumenoptera ignifera* Hmps., *Moth. Ind.* i. p. 195 (1893).

**Assam, Khásis**, in Coll. Rothschild; **Burma, Karen Hills.**

(25) † *Conopia ignicauda* n. sp.

♂. Head, thorax, and abdomen black glossed with steel-blue, the neck with whitish ring, the shoulders with yellow bars, the abdomen with some yellow at base, narrow bands on 2nd, 4th, and 6th segments and at extremity, the anal tuft fiery red, blue-black at sides; palpi yellow, with some blackish towards tips; pectus yellow; legs, blackish banded with yellow; ventral surface of abdomen with yellow bands on four terminal segments. Forewing hyaline, the veins and margins black with a greenish gloss, the discoidal bar, costa, and termen rather broadly dark, the last with its inner edge slightly indented by a hyaline streak between veins 7 and 8. Hindwing hyaline, the veins and margins narrowly black. Underside of forewing with some yellow on costa to end of cell, on outer edge of the discoidal bar, and in the interspaces of terminal area except towards tornus; hindwing with the costa yellow to near apex.

**Punjab, Simla**, in Coll. Rothschild; **Up. Burma, Chindwin, Kalewa** (Watson), 1 ♂ type. *Exp.* 18 mill.

(26) \* *Conopia velox*.

*Sesia velox* Fixsen, *Rom. Mém.* iii, p. 323. pl. 15. f. 5 (1887); Bartel, Seitz, *Gr. Schm. pal.* ii. p. 388. pl. 51. c.

**Corea.**

(27) \* *Conopia concavifascia*.

*Synanthedon concavifascia* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 380. f. 3180 (1916); *id. l.c.* xiv. p. 313.

**Java.**

(28) \* *Conopia gabuna*.

*Sesia gabuna* Beutenm., *J.N.Y. Ent. Soc.* vii. p. 170 (1899).

**Gaboon:**

(29) *Conopia gracilis*.

† *Ichneumenoptera gracilis* Hmps., *A.M.N.H.* (8) vi. p. 155 (1910).

**Cameroons.**

(30) \* *Conopia nuba*.

*Sesia nuba* Beutenm., *J.N.Y. Ent. Soc.* vii. p. 172 (1899).

**Gaboon.**

(31) \* *Conopia anisozona*.

† *Sesia anisozona* Meyr. *Exot. Micr.* ii. p. 180 (1918).

**Burma, Koni.**

(32) *Conopia flavicaudata*.

† *Aegeria flavicaudata* Moore, *Lep. Ceyl.* iii. p. 559. pl. 211. f. 12 (1887); Hmps., *Moths Ind.* i. p. 197.

**Ceylon.**

(33) *Conopia houqua*.

† *Aegeria houqua* Moore, *A.M.N.H.* (4) xx. p. 83 (1877).

**C. China.**

(34) *Conopia hector*.

† *Aegeria hector* Butl., *Ill. Lep. Het. B.M.* ii. p. 60. pl. xl. f. 4 (1878); Bartel, Seitz, *Gr. Schm. pal.* ii. p. 383. pl. 51. d; Mats. *Thousand Ins. Jap. Suppl.* iii. pl. 36. f. 17.

**Japan.**

(35) *Conopia unocingulata*.

† *Synanthedon unocingulata* Bartel, Seitz, *Gr. Schm. pal.* ii. p. 383. pl. 51. d. (1912).

**Japan.**

(36) *Conopia tenuis*.

† *Aegeria tenuis* Butl., *Ill. Lep. Het. B.M.* ii. p. 60. pl. xl. f. 8 (1878); Bartel, Seitz, *Gr. Schm. pal.* ii. p. 383. pl. 51. c.

**Japan.**

(37) *Conopia cerulipes*.

† *Ichneumenoptera cerulipes* Hmps., *J. Bomb. Nat. Hist. Soc.* xiii. p. 43 (1900).

**Sikhim.**

(38) \* *Conopia tenuiventris*.

*Synanthedon tenuiventris* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 379. f. 3170 (1916); *id. l.c.* xiv. p. 314.

**Java.**

(39) *Conopia flavipectus*.† *Ichneumenoptera flavipectus* Hmps., *A.M.N.H.* (8) vi. p. 155 (1910).**Gold Coast.**(40) \* *Conopia maculiventris*.*Synanthedon maculiventris* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 378. f. 3168 (1916); *id. l.c.* xiv. p. 304.**Cameroons.**(41) \* *Conopia javana*.*Synanthedon javanus* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 380. f. 3181 (1916); *id. l.c.* xiv. p. 305.**Java.**(42) \* *Conopia tricincta*.*Argeria tricincta* Moore, *L. p. Atk.* p. 8 (1879); Hmps. *Moths Ind.* i. p. 197.**Sikhim.**(43) \* *Conopia auripes*.† *Ichneumenoptera auripes* Hmps. *Moths Ind.* i. p. 194 (1893).**Assam ; Burma.**(44) \* *Conopia iris*.*Synanthedon iris* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 378. f. 3169 (1916); *id. l.c.* xiv. p. 308.**Cameroons.**(45) *Conopia cyanescens*.† *Ichneumenoptera cyanescens* Hmps., *P.Z.S.* 1910. p. 505. pl. xli. f. 10.**Congo, Katanga ; N. E. Rhodesia.**(46) *Conopia monozona*.† *Aegeria monozona* Hmps., *A.M.N.H.* (8) vi. p. 156 (1910).**Cape Colony.**(47) *Conopia platyuriformis*.† *Aegeria platyuriformis* Wlk., viii. 57 (1856).**Cape Colony** (not Natal as stated by Walker).(48) \* *Conopia albiventris*.*Sesia albiventris* Beutenm., *J.N.Y. Ent. Soc.* vii. p. 171 (1899).**Gaboon.**(49) \* *Conopia leucogaster* n. n.*Ichneumenoptera albiventris* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 318. pl. 478. f. 3948 (1917) *nec* Beutenm. 1899.**Gaboon.**(50) \* *Conopia olenda*.*Sesia olenda* Beutenm., *J.N.Y. Ent. Soc.* vii. p. 171 (1899).**Gaboon.**(51) \* ? *Conopia pauper*.*Sylphidia pauper* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 380 f. 3183 (1916); *id. l.c.* xiv. p. 350.**Cameroons.**

(52) \* *Conopia clavicornis*.

† *Aegeria clavicornis* Wlk., xxxi. 14 (1864).

**Batchian.**

*Species auctorum.*

<i>Sesia setodiformis</i> Mab., <i>Bull. Soc. Ent. Fr.</i> 1891. p. 174 . . . . .	Madagascar
<i>Sesia? xanthopyga</i> Auriv., <i>Ark. f. Zool.</i> ii. 12. p. 45 (1905) . . . . .	Cameroons
<i>Sesia? donkieri</i> Le Cerf, <i>Bull. Soc. Ent. Fr.</i> 1912. p. 55. fig. . . . . .	Madagascar
<i>Aegeria? alenicola</i> Strand, <i>Arch. Naturg.</i> lxxviii. A. 12. p. 67 (1913) . . . . .	Cameroons
<i>Aegeria? guineabia</i> Strand, <i>Arch. Naturg.</i> lxxviii. A. 12. p. 68 (1913) . . . . .	Spanish Guinea
<i>Sesia auronitens</i> Le Cerf, <i>Bull. Soc. Ent. Fr.</i> 1913. p. 212. fig. . . . . .	Gaboon

GEN. *Hymenosphecia*.

<i>Hymenosphecia</i> Le Cerf, Oberth. <i>Ét. Lép. Comp.</i> xiv. p. 284 (1917) . . . . .	Type.
	<i>albomaculata</i>

\* *Hymenosphecia albomaculata*.

*Hymenosphecia albomaculata* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 284. pl. 479. f. 3957 (1917).

**Uganda.**

GEN. *Vespanthedon*.

<i>Vespanthedon</i> Le Cerf, Oberth. <i>Ét. Lép. Comp.</i> xiv. p. 329 (1917) . . . . .	Type.
	<i>cerceris</i>

\* *Vespanthedon cerceris*.

*Vespanthedon cerceris* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 330. pl. 479. f. 3955 (1917).

**Mozambique.**

GEN. *Sphecosesia*.

<i>Sphecosesia</i> Hmps., <i>J. Bomb. Nat. Hist. Soc.</i> xx. p. 93 (1910) . . . . .	Type.
	<i>pedunculata</i>

(1) *Sphecosesia pedunculata*.

† *Sphecosesia pedunculata* Hmps., *J. Bomb. Nat. Hist. Soc.* xx. p. 93. pl. F. f. 14 (June 1910).

**Sikhim.**

(2) † *Sphecosesia aterea* n. sp.

♂. Head, thorax, and abdomen black, the frons silvery white at sides and above, the genae, tegulae at sides, and a narrow band behind them yellow, the abdomen with slight lateral tufts of yellow scales at base, the base of the pedunculate segment pale, the 4th segment with yellow segmental line; palpi yellow with tuft of black scales at base of 2nd joint; pectus with yellow patches at sides; the coxae and femora mostly yellow, the tibiae yellow below and with slight tufts of spinous yellow hair at middle and extremities; ventral surface of abdomen with the pedunculate segment pale, the 4th and 5th with yellow bands. Forewing hyaline, the veins and margins narrowly black, the costal area black with a purplish gloss; a black streak in end of cell; the interspaces of terminal area with wedge-shaped black-brown streaks; cilia black-brown. Hindwing hyaline, the veins and margins narrowly black, the cilia black-brown.

*Hab. Philippines*, Mindanão, Davão (Baker) 1 ♂ type. *Exp.* 22 mill.

(3) *Sphecosesia brachyptera* n. n.

† *Ichneumenoptera pedunculata* Hmps., *A.M.N.H.* (8) vi. p. 155 (Aug. 1910).

**Gold Coast.**

GEN. *Alonina*.

<i>Alonina</i> Wlk., viii. 62 (1858)	.	.	.	.	.	.	.	.	.	Type.
<i>Cicinoscelis</i> Holl., <i>J.N.Y. Ent. Soc.</i> i. p. 182 (1894)	.	.	.	.	.	.	.	.	.	<i>rhynchiiformis</i>
										<i>longipes</i>

(1) *Alonina rhynchiiformis*.

† *Alonina rygchiiiformis* (sic) Wlk., viii. 63 (1856).

**Natal.**

(2) † *Alonina difformis* n. sp.

♂. Head, thorax, and abdomen dark brown mixed with bright rufous, the anal tuft fiery red with some dark-brown hair at sides; antennae and palpi rufous; pectus and femora black, the fore and mid tibiae and tarsi orange-fulvous, the hind tibiae black, the extremity and tarsi fulvous, the spurs white. Forewing yellow-hyaline, the veins, margins, and a discoidal bar eupreous rufous, the narrow terminal band expanding slightly on apical area; a fine black terminal line; cilia grey-brown. Hindwing yellow-hyaline, the veins rufous, black on inner area, the termen black with some rufous scales to vein 2.

♀. Antennae fiery rufous, brownish towards base; abdomen black-brown with leaden grey dorsal line, and the anal segment suffused with leaden grey, the anal tuft black-brown, fiery rufous at middle. Forewing golden orange, the basal area suffused with black extending on costa to middle, the inner margin narrowly black; a rather broad black-brown terminal band expanding somewhat toward apex. Hindwing yellowish hyaline, the veins and margins narrowly black, the basal area suffused with black with some orange beyond it in and beyond end of cell, the veins beyond the cell yellow to near termen.

*Hab. Natal*, Durban (Millar) 2 ♂, 1 ♀ type. *Exp.* ♂ 44, ♀ 48 mill.

(3) \* *Alonina longipes*.

† *Cicinoscelis longipes* Holl., *J.N.Y. Ent. Soc.* i. p. 183 (1894).

**Gaboon.**

GEN. *Megalosphecia*.

<i>Megalosphecia</i> Le Cerf, Oberth. <i>Ét. Lép. Comp.</i> xiv. p. 359 (1917)	.	.	.	.	.	Type.
						<i>gigantipes</i>

(1) † *Megalosphecia callosoma* n. sp.

♀. Head and tegulae fulvous red, the back of head and tegulae in front brown, glossed with leaden grey; thorax brown glossed with leaden grey, the dorsum and upper edge of patagia with crimson-red streaks and the metathorax edged with crimson-red, tufts of ochreous white hair behind the patagia; abdomen with the basal segment black with tufts of yellow-tipped hair and yellow segmental line, the other segments banded black and crimson-red with yellow segmental lines, prominent on 2nd and 3rd segments and slight on the three following segments, the anal segment fulvous red; pectus and ventral surface of abdomen except the anal segment black; fore legs fulvous red with the coxae black on inner side, the mid legs fulvous red, the hind legs with the coxae fulvous red, the femora black, the tibiae black with some yellow near base and fulvous red streak on outer side, the tarsi with the 1st joint fulvous red, the others pale yellow. Forewing hyaline, the veins leaden black and fiery red; the costal area leaden black with the costal edge fiery red to end of cell; fiery red streaks

below subcostal and above median nervures, the former expanding into a spot in middle of cell ; discoidal bar black defined by fiery red, strongly on inner side ; a fiery red fascia beyond the cell below the costa and a fiery red streak above inner margin ; the termen and cilia black-brown. Hindwing hyaline, the veins and margin narrowly black. Underside of forewing with the costal area, the veins to beyond the cell, and inner margin fiery red ; hindwing with the costa and veins limiting the cell fiery red.

**N. W. Rhodesia**, Mwengwa (Dollman) 1 ♀ type, Kashitu 1 ♀ in Coll. Dollman. *Exp.* 40 mill.

(2) \* **Megalosphecia gigantipes**.

*Megalosphecia gigantipes* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 381. f. 3192 (1916) ; *id. l.c.* xiv. p. 360.

*Megalosphecia gigantipes* var. *obscura* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. 1. pl. 381. f. 3191 (1916) ; *id. l.c.* xiv. p. 361.

**Cameroons.**

GEN. **Toleria**.

*Toleria* Wlk., xxxi. 19 (1864) . . . . . Type. *abiaiformis*

(1) **Toleria sinensis**.

† *Sphacia sinensis* Wlk., xxxi. i. (1864).

**Hong Kong.**

(2) **Toleria abiaiformis**.

† *Toleria abiaiformis* Wlk., xxxi. 20 (1864).

**N. China.**

GEN. **Dasysphecia** nov.

Type, *D. bombiformis*.

Proboscis absent ; palpi upturned, the 2nd joint reaching to vertex of head and fringed with long hair in front, the 3rd rather long, acuminate and slightly hairy ; frons with rounded prominence ; eyes smooth elliptical ; antennae of female almost simple, dilated towards extremity, and ending in a tuft of hair ; build stout ; thorax and abdomen clothed with long rough hair, the latter short ; tibiae dotted with long hair, the tarsi with slight tufts of hair at the joints. Forewing narrow towards base, expanding towards extremity, the apex rounded ; vein 2 from well before angle of cell ; 3 from just before angle ; 5, 6 well separated ; 7, 8, 9 stalked, 7 from beyond 9, 10, 11 from cell. Hindwing with vein 2 from well before angle of cell ; 3 and 5 moderately stalked, 4 absent ; 6 from below upper angle of cell ; 7 from angle ; 8 concealed in a fold.

**Dasysphecia bombiformis**.

† *Sphacia bombiformis* Rotbs., *Nov. Zool.* xviii. p. 45 (1911) and xix. pl. iv. f. 30.

**Assam, Khâsis.**

GEN. **Aegerosphecia**.

*Aegerosphecia* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 363 (1917) . . . . . Type. *calliptera*

(1) **Aegerosphecia romanovi**.

† *Sphacia romanovi* Leech, *P.Z.S.* 1888. p. 591. pl. 30. f. 1 ; Bartel, Seitz, *Gr. Schm. pal.* ii. pl. 51. a ; Mats. *Thousand Ins. Jap. Suppl.* i. pl. 34. f. 1.

**Japan.**

(2) \* *Aegerosphécia calliptera*.

*Aegerosphécia calliptera* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 381. f. 3193 (1916); *id. l.c.* xiv. p. 364.

**Moluccas, Batchian.**

(3) \* *Aegerosphécia fulviventris*.

*Aegerosphécia fulviventris* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 381. f. 3194 (1916); *id. l.c.* xiv. p. 365.

**Dutch N. Guinea.**

(4) \* *Aegerosphécia fasciata*.

† *Melittia fasciata* Wlk., *Journ. Linn. Soc. Zool.* vi. p. 83 (1862).

**Padang; Borneo.**

(5) \* *Aegerosphécia mysolica*.

† *Melittia mysolica* Wlk., xxxi. 18 (1864).

**Mysol.**

(6) † \* *Aegerosphécia cyanea* n. sp.

♀. Head and tegulae orange, the vertex of head black glossed with blue; thorax and abdomen black glossed with metallic blue; antennae black, rufous below; palpi orange with some black scales at base, pectus, legs, and ventral surface of abdomen black glossed with blue. Forewing uniform black strongly glossed with metallic blue. Hindwing hyaline, the veins, inner margin, and termen narrowly, the costal area, cell, and a small patch beyond it black glossed with metallic blue.

**S. Celebes, Samanga** (Frühstorfer) type ♀ in Coll. Rothschild. *Exp.* 42 mill.

GEN. *Sphecia*.

	Type.
<i>Sphecia</i> Hübn., <i>Verz.</i> p. 127 (1827) . . . . .	<i>crabroniformis</i>
<i>Sphecodoptera</i> Hmps., <i>Moths Ind.</i> i. p. 189 (1893) . . . . .	<i>repanda</i>

(1) *Sphecia ignicollis*.

† *Trochilium ignicolle* Hmps., *Moths Ind.* i. p. 189 (1893).

**Punjab.**

(2) \* *Sphecia oberthuri*.

*Sphecia oberthuri* Le Cerf, *Bull. Soc. Ent. Fr.* 1914. p. 422; *id.* Oberth. *Ét. Lép. Comp.* xii. i. pl. 380. f. 3188; *id. l.c.* xiv. p. 362.

**W. China.**

(3) \* *Sphecia gloriosa*.

*Sphecia gloriosa* Le Cerf, *Bull. Soc. Ent. Fr.* 1914. p. 421; *id.* Oberth. *Ét. Lép. Comp.* xiv. p. 363.  
*Sphecia mandarina* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 381. f. 3190 (1916).

**W. China.**

(4) *Sphecia flavicollis*.

† *Sphecodoptera flavicollis* Hmps., *Moths Ind.* i. p. 190 (1893).

**Kashmir.**



(5) *Sphecia repanda*.

† *Sphecia repanda* Wlk., viii. 11 (1856); Hmps. *Moths Ind.* i. p. 189. fig.

**Punjab.**

(6) † *Sphecia asamaensis* n. sp.

♀. Head and tegulae ochreous yellow tinged with fulvous, the sides of frons white, the antennae brown, rufous below; thorax and abdomen dark brown glossed with leaden grey, rufous streaks above extremities of patagia and some rufous hair at sides of metathorax, the abdomen with narrow fulvous-yellow band just behind the 2nd segment and diffused bands on two terminal segments, the anal tuft fulvous yellow, legs mostly fulvous yellow, the fore coxae rufous on outer side. Forewing hyaline yellow, the veins and margins reddish brown glossed with leaden grey, the discoidal bar and a diffused fascia below the costa beyond the cell rufous. Hindwing hyaline yellow, the veins and margins narrowly reddish brown.

**Japan, Hondo, Oiwake (Pryer) 1 ♀ type. Exp. 36 mill.**

GEN. *Aegeria*.

<i>Aegeria</i> Fabr., <i>Ill. Mag.</i> vi. p. 288 (1807) . . . . .	Type.
<i>Trochilium</i> Scop., <i>Intr. Hist. Nat.</i> p. 414 (1777) no type; Oken, <i>Lehrb. Naturg.</i> p. 745	<i>apiiformis</i>
(1815) . . . . .	<i>apiiformis</i>

(1) *Aegeria ommatiaeformis*.

† *Trochilium ommatiaeformis* Moore, *Ind. Museum Notes*, ii. p. 16 (1891); Hmps. *Moths Ind.* i. p. 189. fig.

**Baluchistan.**

(2) † *Aegeria yezoensis* n. sp.

♀. Head and tegulae fulvous yellow, some white at back of head, the antennae red-brown, yellow above towards base, the palpi yellow, the hair fringing the 1st joint fulvous; thorax and abdomen dark red-brown glossed with leaden grey, the latter with broad yellow band on 3rd segment and the three terminal segments suffused with yellow; pectus, legs, and ventral surface of abdomen red-brown, the fore coxae rufous on outer side, the tibiae and tarsi fulvous yellow, the hind tibiae fringed with red-brown hair on inner side except towards base, the three terminal segments of abdomen suffused with fulvous yellow. Forewing hyaline yellow, the veins and margins red-brown glossed with silvery grey, the base darker brown; a cupreous streak above inner margin; a rather diffused fulvous discoidal bar and some fulvous below costa towards apex. Hindwing hyaline yellow, the veins and margins narrowly red-brown.

*Hab. Japan, Yezo (Pryer) 2 ♀ type. Exp. 48–50 mill. In a specimen from Hakodaté, Coll. Wileman, vein 4 on each forewing anastomoses with 5 for some distance.*

(3) *Aegeria rhynchioides*.

† *Sphecia rhynchioides* Butl., *Trans. Ent. Soc.* 1881. p. 389; Bartel, Seitz, *Gr. Schm. pal.* ii. p. 378. pl. 50. m.

**Japan, Tokio.**

(4) *Aegeria scribai*.*Sphacia scribai* Bartel, Seitz, *Gr. Schm. pal.* ii. p. 379. pl. 50. m (1912).

Japan, Yokohama.

(5) † *Aegeria molybdiceps* n. sp.

♀. Head dark leaden grey with some yellow hair behind, the antennae dark brown, yellow above towards base, the sides of frons and palpi yellow, the latter with some fulvous and black hair in front of basal joint; thorax dark brown glossed with leaden grey, the outer edge of tegulae and upper edge of patagia yellow, the metathorax with some yellow hair; abdomen dark brown, a yellow band on basal segment, diffused fiery-red bands on 2nd and 3rd segments, and fulvous-yellow bands on the four terminal segments; pectus, legs, and ventral surface of abdomen red-brown, the fore coxae and femora above yellow, the tibiae and tarsi suffused with fulvous yellow, the hind tibiae fiery rufous on outer side and black-brown on inner towards extremity, the ventral surface of abdomen with broad fulvous-yellow bands on each segment. Forewing hyaline yellow, the veins and margins rufous with a slight silvery gloss; the discoidal bar fiery orange; a slight orange streak below postmedial part of costa, the apical area rufous below costa, the interspaces of terminal area with wedge-shaped rufous marks. Hindwing hyaline yellow, the veins and margins narrowly red-brown.

Japan, Yokohama (Pryer) 6 ♀ type. *Exp.* 42-46 mill.(6) † \* *Aegeria chrysoptera* n. sp.

♀. Head black with some yellow behind and the frons yellow, the antennae cupreous red, the palpi yellow, the 1st joint fringed with black scales in front; thorax bright rufous, the patagia at extremity black edged with yellow; abdomen with the 1st segment and the 2nd except at extremity bright rufous with some black hair at base, the extremity of 2nd segment and the 3rd black, the 4th segment fulvous yellow and the three terminal segments fulvous with black segmental lines; pectus and legs fulvous, the pectus with yellow patches below base of forewings, the hind tibiae fringed with black scales below and above towards extremity; ventral surface of abdomen brown. Forewing golden yellow with some black scales on the veins and margins, the costa and a rounded apical patch black. Hindwing hyaline yellow, the terminal area suffused with golden yellow from vein 3 to near tornus; the veins and margins with some black scales and the basal area below submedian fold black.

Ceylon, Kandy, type ♀ in Coll. Rothschild. *Exp.* 40 mill. The specimen was received from Rolle of Berlin.*Species auctorum.**Trochilium alenicum* Strand, *Arch. Naturg.* lxxviii. A. 12. p. 70 (1913) . . . CameroonsGEN. *Metasphacia*.*Metasphacia* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 335 (1917) . . . . . Type. *vuilleti*\* *Metasphacia vuilleti*.*Metasphacia vuilleti* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 335. pl. 479 f. 3949 (1917).

Senegal.

GEN. *Glossospechia* nov.

Type, *G. contaminata*.

Proboscis fully developed ; palpi upturned, the 1st joint fringed with long scales in front, the 2nd with moderate scales and tapering to extremity, the third acuminate at tip ; frons smooth ; eyes large, elliptical ; antennae of female almost simple, stout, dilated towards extremity where there is a minute tuft of hair ; the fore tibiae on outer side and the mid and hind tibiae above moderately scaled ; abdomen smoothly scaled, somewhat constricted towards base and tapering to a point at extremity. Forewing with the costa arched towards apex, which is rounded, the termen evenly curved ; veins 2 to 6 well separated and 4 to 6 curved downwards ; 7 and 8 stalked ; 9, 10, 11 from cell and approximated. Hindwing with the lower discocellular inwardly oblique ; veins 3 and 5 from a point, 4 absent ; 6 from above middle of discocellular ; 7 from upper angle ; 8 concealed in a fold.

*Glossospechia contaminata*.

† *Spechia contaminata* Butl., *Ill. Het. B.M.* ii. p. 59. pl. xl. f. 2 (1878) ; Bartel, Seitz, *Gr. Schm.* ii. p. 378. pl. 51 b. ; Mats. *Thousand Ins. Jap. Suppl.* iii. pl. 34. f. 2.

Japan, Yokohama.

GEN. *Callispechia*.

*Callispechia* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 367 (1917) . . . . . Type. *oberthuri*

\* *Callispechia oberthüri*.

*Callispechia oberthüri* Le Cerf, Oberth. *Ét. Lép. Comp.* xiii. pl. 380. f. 3187 (1916) ; *id. l.c.* xiv. p. 367.

Cameroons.

GEN. *Trilochana*.

*Trilochana* Moore, *Lep. Atk.* p. 9 (1879) . . . . . Type. *scolioides*  
*Scoliomima* Butl., *Trans. Ent. Soc.* 1885. p. 371 . . . . . *insignis*

(1) *Trilochana scolioides*.

*Trilochana scolioides* Moore, *Lep. Atk.* p. 10. pl. ii. f. 2 (1879) ; Hmps. *Moths Ind.* i. p. 191.

Sikhim.

(2) \* *Trilochana oberthüri*.

*Trilochana oberthüri* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 353. fig. 14. o. pl. 480. f. 3963 (1917).

*Trilochana oberthüri* var. *boulleti* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 353. f. 14. B. (1917).

Java.

(3) *Trilochana insignis*.

† *Scoliomima insignis* Butl., *Trans. Ent. Soc.* 1888. p. 371. pl. x. f. 10.

N. Borneo.

(4) † *Trilochana chalcipera* n. sp.

♂. Head, thorax, and abdomen black glossed with blue, the frons white at sides, the palpi chrome-yellow with some black towards base and black tips, some yellow scales near and on base of antennae, the tegulae chrome-yellow, some yellow hairs on metathorax above the patagia, the abdomen with slight yellow

band at base of 4th segment, the anal tuft yellow at sides; mid tibiae with a few yellow hairs at middle, the hind tibiae with some white hairs at middle and extremity, the tarsi yellow towards extremities. Forewing semihyaline cupreous brown, the costal area black, narrowing to a point before apex, the inner margin black, broadly at base; a short hyaline streak below the cell near base. Hindwing semihyaline cupreous brown, the inner margin and cilia black-brown; a wedge-shaped hyaline patch below base of cell and the inner area from vein 1 to near the margin hyaline. Underside of forewing with the base of costa chrome-yellow.

**Madras**, Palmi Hills (Campbell), 1 ♂ type. *Exp.* 54 mill.

GEN. **Macrosclesia** nov.

Type, *M. longipes*,

Proboscis fully developed; palpi upturned, extending to above vertex of head and clothed with scales and some spinous hair, the 1st and 2nd joints with rather long hair in front, the third acuminate; frons smooth, with ridge of hair above; eyes large, elliptical; antennae of male with strong fascicles of cilia, dilated towards extremity and ending in a small tuft of bristles; abdomen without crests; fore and mid tibiae clothed with scales and spinous hair, the mid tarsi with small tufts of hair above on the joints, the hind tibiae very strongly tufted with hair and elongate scales, the tarsi very long with small tufts of hair-like scales at the joints, stronger towards extremity, the 1st joint strongly tufted with hair and scales. Forewing very narrow, the apex rounded, the termen evenly curved; veins 2 to 6 separate; 7, 8 stalked; 9 to 11 separate. Hindwing with vein 3 from well before end of cell and nearer 2 than 5, 4 absent; 6 from middle of discocellulars; 7 from upper angle of cell; 8 concealed in a fold.

**Macrosclesia longipes**.

† *Melittia longipes* Moore, *A.M.N.H.* (4) xx, p. 84 (1877).

**C. China.**

GEN. **Melittia**.

	Type.
<i>Melittia</i> Hübn., <i>Verz.</i> p. 128 (1827) . . . . .	<i>bombyliiformis</i>
<i>Eunallopoda</i> Wlgrn., <i>Ofv. Kongl. Vet. Akad. Forh.</i> 1858, p. 84 . . . . .	<i>laniremis</i>
<i>Parasa</i> Wlgrn., <i>Wien. Ent. Mon.</i> vii, p. 137 (1863) <i>nee</i> Moore, <i>Lep.</i> 1859 . . . . .	<i>aureosquamata</i>
<i>Pansa</i> Wlgrn., <i>Kongl. Svensk. Akad. Handl.</i> v. 4, p. 9 (1865) . . . . .	<i>aureosquamata</i>
<i>Desmopoda</i> Feld., <i>Reis. Nov.</i> p. 4 (1874) <i>non descr.</i> . . . . .	<i>bombyliiformis</i>
<i>Eublepharis</i> Feld., <i>Reis. Nov.</i> p. 4 (1874) <i>non descr.</i> . . . . .	<i>ruficincta</i>

Set. I. Vertex of head clothed with long hair projecting forward between the antennae.

(1) \* **Melittia haematopis**.

† *Melittia haematopis* Fawcett, *P.Z.S.* 1916, p. 736, pl. 1, f. 1.

**Br. E. Africa.**

(2) † **Melittia pyropis** n. sp.

♀. Head black-brown mixed with white, the frons white, the antennae black with a bluish gloss, the palpi white, the 3rd joint with some black hairs in front; thorax and two basal segments of abdomen olive-fulvous, the rest of abdomen black-brown with creamy white segmental lines, the 3rd and 4th segments

strongly irrorated with rufous, the 5th with broad creamy white band ; pectus and ventral surface of abdomen white ; legs black and white, the fore tibiae with a little rufous on outer side, the mid tibiae with some rufous, the hind tibiae and tarsi rufous mixed with some black on outer side with two patches of white on the tibiae and one on the tarsi, the hair and scales on the inner side of the tibiae and tarsi black-brown. Forewing hyaline, the veins and margins black tinged with grey, the median nervure, inner margin, and veins beyond the cell irrorated with fulvous ; the discoidal spot strong, black defined on each side by fiery rufous ; the terminal band expanding towards apex and irrorated except at termen with fulvous and whitish. Hindwing hyaline, the veins and margins black ; a few fulvous scales at upper angle of cell ; the inner area orange fulvous ; cilia grey-brown. Underside of forewing with some fulvous on costa towards base and a whitish fascia below costa to beyond middle ; hindwing with some fulvous on costa and median nervure to end of cell and on vein 1, the lobed inner area orange fulvous as above.

**Br. C. Africa**, Mt. Mlanje (Neave), 1 ♀ type ; **Natal**, in Mus. Oxon. *Exp.* 42 mill.

(3) *Melittia oedipus*.

*Melittia oedipus* Oberth., *Ét. Ent.* iii. p. 30. pl. iii. f. 1 (1878).

*Melittia ignidiscata* Hmps., *P.Z.S.* 1910. p. 597. pl. xli. f. 19.

*Melittia oedipoides*, Strand, *Arch. f. Naturg.* lxxviii. A. 12. p. 68 (1913).

**Spanish Guinea** ; **Zanzibar** ; **Br. C. Africa** ; **N.E. Rhodesia** ; **Mashonaland** ; **S. Rhodesia** ; **Transvaal**.

(4) † *Melittia endoxantha* n. sp.

♀. Head white and fulvous yellow with the hair on vertex mostly black, the antennae black with two series of white points above, the frons whitish, the palpi white with some blackish and yellowish hair in front ; thorax olive-fulvous with some blackish scales on shoulders ; abdomen black-brown mixed with orange-fulvous, some orange-yellow hair at base of sides and whitish segmental lines ; pectus, legs, and ventral surface of abdomen creamy white, the fore-legs with some black on femora and tibiae above, the mid legs with the femora blackish above, the tibiae clothed with orange-fulvous and some black hair above and with black patches at base and extremity, the tarsi black and white with the hair on basal joint creamy white and fulvous, the hind legs with the femora black, the hair on tibiae fulvous and black with patches of white at middle and extremity, the tarsi with the hair fulvous and white on basal joint, mostly black on inner side and towards extremity. Forewing hyaline, the veins and margins black mixed with grey ; some fulvous scales above inner margin and defining the discoidal bar on inner and outer sides ; the terminal band expanding widely on apical area, defined on inner side by fulvous scales and irrorated with blue-white before termen ; cilia pale cinnamon-brown. Hindwing hyaline, the veins and margins narrowly black ; the lobed inner margin orange-yellow and some yellow on lower discocellular and base of vein 6 ; cilia pale cinnamon-brown. Underside of forewing with pale yellow streak below costa to beyond middle, the hindwing with some orange-fulvous at base of costa.

“ **Germ. E. Africa**, ” Usangu Distr. (Neave), 1 ♀ type ; **Portuguese E. Africa**, in Coll. Rothschild. *Exp.* 34 mill.

(5) † *Melittia chrysobapta* n. sp.

♂. Head with the vertex clothed with golden olive and black hair, the frons yellowish white, the antennae with some white scales above, deep red in front; thorax golden olive, with tufts of yellow hair behind the patagia; abdomen with the two basal segments golden yellow, the other segments black clothed with metallic golden hair and with golden segmental rings; pectus yellowish white, the fore legs yellowish white, streaked with black above, the mid legs with the femora yellowish white below, black above, the tibiae yellow with black bands at middle and extremity, the former with a white patch before it in front, the tarsi banded black and yellow, the hind legs with the femora yellowish white, the tibiae banded yellow and black with some fulvous hair in front, the tarsi black with some yellow and fulvous in front of 1st joint, the extremity of tarsi white; ventral surface of abdomen yellowish white with downturned lateral tufts of golden hair. Forewing hyaline yellow, the veins and margins black irrorated with yellowish and fulvous scales; the discoidal bar moderate and defined by fulvous scales. Hindwing hyaline yellow, the veins and margins narrowly black-brown, the lobed inner margin clothed with golden-yellow scales.

**N.W. Rhodesia**, Solwezi, Lufu (H. Dollman), 1 ♂ type. *Exp.* 40 mill.

(6) *Melittia ursipes*.

† *Melittia ursipes* Wlk., viii, 68 (1856).

**Natal.**

(7) \* *Melittia victrix*.

*Melittia victrix* Le Cerf, Oberth. *Ét. Lép. Comp.* xiii, pl. 375, ff. 3133-4 (1916); *id. l.c.* xiv, p. 224.

**Cameroons.**

(8) † \* *Melittia amblyphaea* n. sp.

♂. Head, thorax, and abdomen dull rufous with a few white scales, the vertex of head with more white, the palpi mostly white in front; legs dull rufous, the hind tibiae at middle and the tarsi with some white scales; ventral surface of abdomen yellowish white. Forewing dull rufous irrorated with some bluish-white scales, especially on apical half of terminal area; a yellowish hyaline streak below the cell, a wedge-shaped patch in middle of cell, and four short streaks beyond the cell between veins 7 and 3, the uppermost shortest, the discoidal dull rufous patch large and rather wedge-shaped. Hindwing yellowish hyaline, the veins and margins dull rufous, the lobed inner area with the inner margin blue-white.

**Br. East Africa**, Escarpment (Doherty), 1 ♂ type in Coll. Rothschild, *Exp.* 28 mill.

(9) \* *Melittia brevicornis*.

*Melittia brevicornis* Auriv., *Ark. f. Zool.* ii, 12, p. 43 (1905).

**Cameroons.**

(10) \* *Melittia aethiopica*.

*Melittia aethiopica* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv, p. 227, pl. 477, f. 3929 (1917).

**Abyssinia.**

(11) † *Melittia accsmetes* n. sp.

♂. Head and thorax black-brown with a bronze gloss, the palpi black mixed with ochreous white especially towards base, some yellow hair above base

of hindwings; pectus and fore and mid femora white in front, the mid legs black with some rufous and white hair on the tibiae, the hind legs clothed with black, bright rufous and whitish hair, the tibiae with bands of spatulate white scales before and beyond middle. Forewing hyaline; the veins and margins black-brown, the latter slightly irrorated with whitish; the discoidal bar strong; the terminal band expanding on apical area but leaving some hyaline between bases of veins 7, 8. Hindwing hyaline, the veins and margins narrowly black-brown, some yellow hair on the lobed inner margin.

**Uganda**, Toro, Mpanga Forest (Neave), 1♂ type. *Exp.* 34 mill.

(12) \* *Melittia bouleti*.

*Melittia bouleti* Le Cerf, *Oberth. Ét. Lép. Comp.* xiv. p. 222. pl. 476. f. 3928 (1917).

**Mozambique**, Pungwe R.

SECT. II. Vertex of head not clothed with long hair projecting forward between the anten nae.

(13) \* *Melittia rutilipes*.

† *Melittia rutilipes* Wlk., xxxi. 16 (1864).

**Amboina** in Coll. Rothschild; **Batchian**.

(14) \* *Melittia chrysogaster*.

† *Melittia chrysogaster* Wlk., xxxi. 16 (1864).

**Celebes**.

(15) \* *Melittia batchiana*.

*Melittia batchiana* Le Cerf, *Oberth. Ét. Lép. Comp.* xiv. p. 190. pl. 476. f. 3920 (1917).

**Batchian**.

(16) \* *Melittia bombyformis*.

† *Desmopoda bombyformis* Feld., *Reis. Nov.* pl. 75. f. 5 (1874).

**Amboina**.

(17) \* *Melittia marangana*.

*Melittia marangana* Le Cerf, *Oberth. Ét. Lép. Comp.* xii. i. pl. 373. f. 3116 (1916); *id. l.c.* xiv. p. 188.

**Sumatra**.

(18) \* *Melittia distincta*.

*Melittia distincta* Le Cerf, *Oberth. Ét. Lép. Comp.* xii. i. pl. 374. f. 3122 (1916); *id. l.c.* xiv. p. 203.

**Assam**, Khásis.

(19) *Melittia amboinensis*.

*Melittia amboinensis* Feld., *Sitz. Akad. Wissens Wien.* xliii. p. 28 (1861).

*Melittia nepcha* Moore, *Lep. Atk.* p. 10 (1879); *Hmps. Moths Ind.* i. p. 205.

† *Melittia dorsatifformis* Hmps., *Ill. Het. B.M.* viii. p. 43. pl. 139. f. 21 (1891).

*Melittia congruens* Swinh., *Trans. Ent. Soc.* 1890. p. 169. pl. vi. f. 4.

- Melittia amboinensis* var. *celebica* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 373 f. 3117 (1916); *id. l.c.* xiv. p. 193.  
*Melittia amboinensis* var. *meekei* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 374. f. 3121 (1916); *id. l.c.* xiv. p. 195.  
*Melittia amboinensis* var. *doddi* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 373. ff. 3119-3120 (1916); *id. l.c.* xiv. p. 1916.  
*Melittia amboinensis* var. *asiatica* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 197. f. 5. g. (1917); *id. l.c.* xiv. p. 197.  
*Melittia amboinensis* var. *javana* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 373. f. 3118 (1916); *id. l.c.* xiv. p. 197.

**Sikhim; Assam, Khâsis; Madras, Nilgiris; Burma, Pegu, Rangoon, Karen Hills; Perak; Sumatra; Borneo, Pulo Laut; Java; Sula; Celebes; Bali; Lombok; Sangir; Amboina in Mus. Oxon.; Ceram; Br. N. Guinea; Trobriand Is., Fergusson I., Kiriwini; Queensland, Kuranda (Dodd), Walsingham Coll.**

(20) *Melittia bombylifformis*.

- Sphinx bombylifformis* Cram., *Pap. Exot.* iv. p. 241. pl. 400. f. C. (1782); Bartel, Seitz, *Gr. Schm. pal.* ii. p. 379. pl. 51 a.  
*Sesia chalciformis* Fabr., *Ent. Syst.* iii. 1. p. 382 (1793); Hmps. *Moths Ind.* i. p. 204.  
*Melittia anthedoniformis* Hübn., *Verz.* p. 128 (1827).  
*Melittia phorceus* Westw., *Cab. Or. Ent.* p. 62 (1848).  
† *Melittia arrecta* Meyr., *Exot. Ins.* ii. p. 181 (1918).

**Japan; Assam; Bombay; Madras; Ceylon; Burma; Sumatra; Java.**

(21) \* *Melittia madureae*.

- Melittia madureae* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 373. f. 3111 (1916); *id. l.c.* xiv. p. 170.

**Madras, Trichinopoly.**

(22) *Melittia auriplumia*.

- † *Melittia auriplumia* Hmps., *P.Z.S.* 1910. p. 506. pl. xli. f. 12.  
*Melittia laboussierei* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 229. pl. 477. f. 3930 (1917).

**Congo, Katanga; Uganda.**

(23) \* *Melittia laniremis*.

- Eumallopoda laniremis* Willgrn., *Wien. Ent. Mon.* iv. 41 (1860); *id. Kongl. Vet. Akad. Forh.* v. p. 8 (1865).

**Cape Colony.**

(24) *Melittia binghamii*.

- Melittia binghamii* De Niceville, *J. Bomb. Not. Hist. Soc.* xiii. p. 174. pl. E.E. f. 24 (1900).  
*Melittia burmana* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 374. f. 3124 (1916); *id. l.c.* xiv. p. 206.

**Sikhim in Coll. Rothschild; Burma, Momeit, Thoungyen Valley.**

(25) \* *Melittia siamica*.

- † *Melittia siamica* Wlk., xxxi. 18 (1864).  
*Melittia sumatrana* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 373. f. 3113 (1916).

**Malacca, in Coll. Rothschild; Siam; Sumatra.**



(26) \* *Melittia tabanus*.

*Melittia tabanus* Le Cerf, Oberth. *Ét. Léop. Comp.* xii. i. pl. 374. pl. 374. f. 3128 (1916); *id. Lc.* xiv. p. 205.

**Burma**, Tenasserim.

(27) † *Melittia moluccaensis* n. sp.

Head, thorax, and abdomen black-brown, the vertex of head and meta-thorax with some fulvous hair; palpi black-brown mixed with orange; pectus, legs, and ventral surface of abdomen black-brown, the forelegs with orange mixed and the tarsi orange, the mid tibiae with some orange hair, the hind tibiae with deep orange hair at middle and extremity. Forewing very dark red-brown with a few orange scales; a yellowish hyaline streak below the cell, a wedge-shaped streak in the cell, and four short streaks beyond the cell between veins 7 and 3, the uppermost shortest; the dark discoidal patch large and emitting a short streak in the cell. Hindwing yellowish hyaline, the veins and margins narrowly dark brown.

**Batchian** (Waterstradt), 2 ♂ type in Coll. Rothschild; **Buru** (Doherty), 1 ♂, 1 ♀ in Coll. Rothschild. *Exp.* 34 mill.

(28) *Melittia rufodorsa*.

† *Melittia rufodorsa* Hmps., *A.M.N.H.* (8) vi. p. 150 (1910).

**Congo**.

(29) *Melittia culuana*.

† *Melittia kulluana* Moore, *P.Z.S.* 1888. p. 392; Butl., *Ill. Het. B.M.* vii. p. 98. pl. 135. f. 12; Hmps., *Moths Ind.* i. p. 204; Bartel, Seitz, *Gr. Schm. pal.* ii. p. 379. pl. 51. a.

**Punjab**, Kulu.

(30) † \* *Melittia elaea* n. sp.

♂. Head and thorax black-brown mixed with some red-brown and whitish, the palpi whitish to near extremity of 2nd joint; build slender; abdomen blue-black with red-brown segmental lines; pectus whitish tinged with rufous; legs black-brown, the fringe of hair on mid tibiae mostly rufous, on hind tibiae and tarsi black-brown mixed with rufous and white; ventral surface of abdomen rufous. Forewing narrow, hyaline with the veins and margins black; the discoidal patch emitting a short streak in the cell; the terminal band expanding slightly on apical area. Hindwing hyaline, the veins and margins narrowly black.

**Assam**, Khá-sis, type ♂ in Coll. Rothschild. *Exp.* 22 mill.

(31) \* *Melittia hamptoni*.

† *Melittia grandis* Hmps., *Moths Ind.* i. p. 203 (1893),  *nec* Streck, 1881.

*Melittia hamptoni* Beuten., *Bull. Am. Mus.* vi. p. 365 (1894).

**Sikhim**.

(32) *Melittia gigantea*.

† *Melittia gigantea* Moore, *P.Z.S.* 1879. p. 413: Waterhouse, *Aid.* ii. pl. 131. f. 4; Hmps. *Moths Ind.* i. p. 204.

† *Melittia humerosa* Swinh., *Cat. Het. Mus. Oxon.* i. p. 38 (1892).

**Japan; Corea; C. China; Punjab.**

(33) *Melittia nevara*.

*Melittia nevara* Moore, *Lep. Atk.* p. 10 (1879); Hmps. *Moths Ind.* i. p. 203.

**Sikhim; Assam, Khâsis.**

(34) † \* *Melittia leucogaster* n. sp.

♀. Head and thorax olive-brown, the antennae black-brown, pale red-brown below towards tips, the frons pale yellow at sides, the palpi pale yellow with some black scales in front; abdomen with the two basal segments rufous, the others black-brown with fine white segmental lines; pectus pale yellow; fore legs pale yellow streaked with black, the mid legs with the femora white above, yellow and black below, the tibiae rufous with white band at middle and some yellow at tips, the tarsi black, with silvery blue-white bands at base of three first joints, the hind legs with the femora white, the tibiae rufous, with some white above at middle, some silvery blue-white on outer side on basal half and at extremity and some black and yellow at extremity, the spurs black, the tarsi black with some yellow on 1st joint below; ventral surface of abdomen pure white. Forewing deep rufous, the terminal area irrorated with white scales; an hyaline fascia in the cell, forking at middle, a fascia below the cell, and fasciae beyond the cell below veins 7 to 4, very short above, longer below. Hindwing hyaline, the veins and margins narrowly black; the lobed inner area yellowish at base, then rufous; cilia reddish brown.

**Java, Salatiga, 1 ♀ type in Coll. Rothschild. Exp. 36 mill.**

(35) *Melittia sangaica*.

† *Melittia sangaica* Moore, *A.M.N.H.* (4) xx. p. 84 (1877).

**C. China.**

(36) *Melittia notabilis*.

† *Melittia notabilis* Swinh., *Trans. Ent. Soc.* 1890. p. 168. pl. vi. f. 1.

**Burma.**

(37) *Melittia chalconota*.

† *Melittia chalconota* Hmps., *A.M.N.H.* (8) vi. p. 149 (1910).

*Melittia congoana* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 373. f. 3112 (1916); *id. l.c.* xiv. p. 172.

**Gold Coast; S. Nigeria; Congo; "Germ. E. Africa," Usambara, in Coll. Rothschild.**

(38) † *Melittia dichroipus* n. sp.

♂. Head black mixed with some yellow, the neck with fulvous ring, the frons brown, yellowish white at sides, the antennae black with lateral white points, rufous below, the palpi pale yellow, the 2nd and 3rd joints with some black in front and behind; thorax fulvous yellow mixed with brown; abdomen black with golden yellow segmental lines, and some fulvous yellow

at base ; pectus brown and white ; forelegs black and yellow ; mid legs black with some yellow on femora and base of tibiae, a blue-white spot at middle of tibiae on outer side and blue-white points on the tarsal joints above ; hind-legs black, the tibiae clothed with yellow hair above to middle where there is a yellow patch on outer side followed by a minute silvery blue spot, and some yellow hair at extremity ; ventral surface of abdomen yellowish white. Forewing hyaline, the veins and margins black-brown ; some fulvous at base and a few scales on each side of upper part of the discoidal bar, which emits a streak in the cell ; the black-brown terminal band expanding on apical area and irrorated with a few white scales ; cilia grey-brown. Hindwing hyaline, the veins and margins narrowly black ; the lobed inner margin brown with some fulvous on basal half ; cilia grey-brown. Underside with the veins and margins wholly black-brown.

**Burma**, Bhámo 1 ♂, Thoungho 1 ♂, type, Tenasserim (Mackwood), 1 ♂. *Exp.* 36 mill.

(39) \* *Melittia staudingeri*.

*Melittia staudingeri* Boisd., *Lép. Het.* i. p. 478 (1874) ; Hmpsn. *Moths Ind.* i. p. 203 ; Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 374. f. 3123 ; *id. l.c.* xiv. p. 173.

**Sikhim**, in Coll. Rothschild.

(40) *Melittia indica*.

† *Melittia indica* Butl., *A.M.N.H.* (4) xiv. p. 411 (1874) ; Hmpsn. *Moths Ind.* i. p. 203 ; Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 182. pl. 476. ff. 3921-2.

**Sikhim ; Assam, Khásis ; Malay States ; Sumatra ; Annam.**

(41) *Melittia proxima*.

*Melittia proxima* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 186. pl. 476. f. 3923 (1917).

**Sikhim ; Assam, Khásis.**

(42) † *Melittia japona* n. n.

*Melittia eurytion* Bartel, Seitz, *Gr. Schm. pal.* ii. p. 371. pl. 51. e ; Mats. *Thousand Ins, Jap. Suppl.* iii. pl. 36. f. 20 (*nee* Westw.).

Head and thorax dark red-brown, the latter with some whitish hair at sides ; antennae black with paired series of white points to near tips ; rufous below ; frons grey-brown, white at sides ; palpi white mixed with rufous, the 2nd joint with some black hair in front and the 3rd with some black towards tip ; abdomen black with some red-brown and whitish scales and fine white segmental lines ; pectus white and rufous ; fore legs black and white with some rufous, the hind tibiae black with alternating tufts of rufous and white hair above and tufts of white hair at extremity, the hind tibiae and tarsi black mixed with rufous and white hair ; ventral surface of abdomen white. Forewing hyaline, the veins and margins black-brown, the latter irrorated with blue-white scales, some pure white on basal inner area ; the discoidal patch large and emitting a streak in the cell ; the terminal band expanding widely on apical area. Hindwing hyaline, the veins and margins narrowly black-brown ; the lobed inner margin with some white scales tinged with silvery blue at the margin ; cilia reddish brown.

**Japan**, Yokohama (Jonas, Pryer) 5 ♀, ♂ in Coll. Rothschild, Tsuruga (Leech) 2 ♀ type. *Exp.* 32 mill.

(43) *Melittia chalybescens*.

*Melittia chalybescens* Miskin, *Pr. R. Soc. Queensl.* viii. p. 59 (1892).

**Queensland.** The two specimens in Brit. Mus. from part of the original material, the type was given to Mr. Lower (F. R. Turner).

(44) † *Melittia callosoma* n. sp.

♂. Head black-brown with some whitish and fulvous hairs, the frons white at sides and above, the antennae black with series of ochreous white points above towards base, the palpi white mixed with black; thorax fulvous brown; abdomen deep indigo-blue with bands of golden fulvous scales on each joint; pectus white; fore legs black mixed with white and some fulvous, the mid tibiae and tarsi black with patches of white scales above, the hind tibiae and tarsi black with a few white scales above; ventral surface of abdomen white tinged with yellow. Forewing hyaline, the veins and margins black-brown; a strong black-brown discoidal bar, emitting a streak in the cell; the terminal band expanding on apical area and slightly indenting the hyaline area in the fork between veins 7 and 8. Hindwing hyaline, the veins and margins narrowly black-brown, the lobed inner area with some fulvous brown and yellowish scales.

**Sumatra**, Padang Bovenlanden, in Coll. Rothschild; **Borneo**, Sarawak, Ulu Lawas (Shelford) 1 ♂ type, Kuching, Pontianak, in Coll. Rothschild. *Exp.* 32 mill.

(45) † *Melittia flaviventris* n. sp.

♂. Head and thorax black-brown, the back of head and thorax tinged with olive-brown, the antennae black, rufous below, the palpi yellow with a black line at sides, some black hair in front of 2nd joint towards extremity and the 3rd joint mostly black; abdomen black glossed with purple and with yellowish-white segmental lines; coxae and femora chrome yellow, the fore tibiae and tarsi rufous and black, the mid tibiae and tarsi black, the former with some yellow scales below and white scales at sides, the 1st joint of tarsi with a tuft of white scales above (hind legs wanting); ventral surface of abdomen chrome yellow. Forewing hyaline, the veins and margins black-brown; the discal bar strong, not emitting a streak in the cell; and the terminal band expanding widely on apical area, the outer edge of the hyaline area oblique with the streak above veins 7 and 8 very short. Hindwing hyaline, the veins and margins narrowly black-brown, the lobed inner margin with some silvery blue above and whitish scales towards the margin.

**Ceylon**, 1 ♂ type. *Exp.* 36 mill.

(46) *Melittia eurytion*.

† *Melittia eurytion* Westw., *Cab. Or. Ent.* p. 62, pl. 30, f. 5 (1848); Hmps. *Moths Ind.* i. p. 203. fig.; Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 373. ff. 3114-5; *id. l.c.* xiv. p. 176. f. 4.

† *Melittia strigipennis* Wlk., xxxi. 17 (1864).

**W. China; Sikhim; Assam; Bombay; Burma; Java; Gilolo.**

(47) † *Melittia proserpina* n. sp.

♀. Head black with some white hairs, the antennae with a few white scales above, rufous below, the frons white at sides, the palpi black and white; thorax

black-brown glossed with silvery purple-blue ; abdomen black strongly glossed with silvery blue ; pectus, coxae, and femora black with patches of white, the fore tibiae with some blue-white at base, the tarsi banded with white, the mid tibiae and 1st joint of tarsi at sides with some blue-white scales, the other joints of tarsi with white points, the hind tibiae with some white hair above and a patch of brown scales and blue-white hair at extremity on outer side, the 1st joint of tarsi with a few rufous hairs and the 1st and 2nd joints with patches of white at sides ; ventral surface of abdomen black glossed with blue, the anal tuft with some white below and at extremity. Forewing black-brown irrorated with some blue-white scales especially on terminal area ; a hyaline streak below the cell from base to near origin of vein 2, short streak in lower part of middle of cell, and four short streaks beyond the cell between veins 7 and 3, very short above, longer below ; some silvery blue scales at base of inner margin ; cilia dull brown. Hindwing hyaline, the veins and margins narrowly black ; the lobed inner margin clothed chiefly with silvery-blue scales ; cilia dull brown.

**Queensland**, Kuranda (1♂), 1 ♀ type, Walsingham Coll. *Exp.* 49 mill.

(48) \* *Melittia formosana*.

*Melittia formosana* Mats., *Thousand Ins. Jap. Suppl.* iii. p. 86. pl. 36. f. 18 (1911).

**Formosa.**

(49) *Melittia plecta*.

† *Melittia plecta* Swinh., *Trans. Ent. Soc.* 1890. p. 169. pl. vi. f. 2 ; Hmps., *Moths Ind.* i. p. 202.

**Burma**, Rangoon.

(50) *Melittia volatilis*.

† *Melittia volatilis* Swinh., *Trans. Ent. Soc.* 1890. p. 170. pl. vi. f. 3 ; Hmps., *Moths Ind.* i. p. 202.

**Burma**, Rangoon.

(51) \* *Melittia khmer*.

*Melittia khmer* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 161. pl. 475. f. 3916 (1917).

**Cambodia.**

(52) \* *Melittia usambara*.

*Melittia usambara* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 231. pl. 471. f. 3965 (1917).

"**Germ. E. Africa**," Usambara.

(53) † *Melittia lentistriata* n. sp.

Head grey-brown, the frons white, the palpi pale fulvous yellow mixed with some white, almost wholly white towards base, the 2nd and 3rd joints with some black hair in front, the antennae black-brown, rufous below except towards base ; thorax olive-green ; abdomen black-brown, the anal tuft with some pale fulvous at extremity ; pectus and ventral surface of abdomen white ; fore femora and tibiae pale fulvous and white, the tarsi white, the mid femora and tibiae pale fulvous above, white below, the tibiae with white band at middle, the tarsi white, the hind femora black above, white below, the tibiae fringed with black hair on inner side and at extremity and white hair on outer side with a patch of fiery-red scales at extremity, the tarsi black with the scales on outer side of first joint fiery red mixed with some black at base and white at extremity.

Forewing black-brown with traces of a hyaline streak below middle of cell and of short streaks beyond the cell between veins 7 and 3. Hindwing hyaline, the veins and margins narrowly black-brown.

**Br. E. Africa**, Kibwezi (Neave), 1 ♀; **Mashonaland**, Salisbury (Marshall) 1 ♂ type. *Exp.* 22-30 mill.

(54) † \* *Melittia xanthogaster* n. sp.

♀. Head, thorax, and abdomen black-brown with a few white scales, especially in the frontal tuft and round the neck; antennae with the shaft yellow above; palpi black-brown with some white hairs and a few rufous ones at tips; pectus and legs black-brown, the fore tibiae with some rufous and white hairs, the tarsi black ringed with white, the mid tibiae with some rufous hair, the hind tibiae and tarsi with some rufous hairs and the tibiae with some opalescent white scales; ventral surface of abdomen yellow. Forewing black-brown sparsely irrorated with blue-white scales; short hyaline streaks beyond the cell between veins 6 and 3 and in the type a minute spot above vein 6. Hindwing hyaline, the veins and margins narrowly black-brown, the lobed inner margin clothed with silvery-blue scales.

**Br. E. Africa**, Escarpment (Doherty), 2 ♀ type in Coll. Rothschild. *Exp.* 36 mill.

(55) *Melittia aenescens*.

† *Melittia aenescens* Butl., *P.Z.S.* 1896. p. 134. pl. 6. f. 10.

*Melittia natalensis* var. *occidentalis* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 167. pl. 475. f. 3917 (1917).

**Gaboon; Br. C. Africa; N.W. Rhodesia; Portuguese E. Africa.**

(56) *Melittia natalensis*.

† *Melittia natalensis* Butl., *A.M.N.H.* (4) xiv. p. 411 (1874).

**Natal.**

(57) \* *Melittia ruficincta*.

† *Eublepharis ruficincta* Feld., *Reis. Nov.* p. 75. f. 4 (1874).

**Sudan.** The type has no abdomen or legs, the neuration is that of a *Melittia*.

(58) \* *Melittia astarte*.

† *Trochilium astarte* Westw., *Cab. Or. Ent.* p. 61. pl. 30. f. 4 (1848); *Hmps. Moths Ind.* p. 202.

**Punjab.**

(59) \* *Melittia aurociliata*.

*Pansa aurociliata* Auriv., *Ocfv. Ak. Forh.* xxxvi. 7. p. 47 (1879).

**Damaraland.**

(59a) † *Melittia ectothyris* n. sp.

♀. Head and tegulae fulvous orange; thorax and abdomen brown, the former with orange-fulvous line behind the tegulae and tuft of hair at end of patagia, the latter with golden-orange band on 2nd segment and the anal tuft orange; antennae black; pectus and legs orange and brown, the hind legs black-brown, the tibiae above except at base and the tarsi except at extremity

orange, the spurs white at tips. Forewing golden green irrorated with golden-yellow scales; cilia grey-brown. Hindwing brown glossed with blue, the interspaces of terminal half hyaline; cilia grey-brown. Underside of forewing dark brown glossed with blue and slightly irrorated with white; hindwing with the veins of terminal half orange.

**Transvaal**, 1 ♂ type. *Exp.* 40 mill.

(60) **Melittia aureosquamata.**

*Parasa aureosquamata* Wlgrn., *Wien. Ent. Mon.* vii. p. 137 (1863).

*Pansa aureosquamata* Wlgrn., *Kongl. Svensk. Akad. Handl.* v. 4. p. 9 (1865).

*Melittia houberti* Le Cerf, Oberth. *Ét. Léop. Comp.* xiv. p. 233. pl. 1577. f. 3931 (1917).

**Uganda; Br. C. Africa; N.W. Rhodesia; Transvaal; Cape Colony.**

(61) † \* **Melittia abyssiniensis** n. sp.

♀. Head and tegulae orange, the antennae black, some white at sides of frons and behind the eyes; thorax black suffused with orange, the shoulders and tufts of hair behind the patagia orange; abdomen black slightly glossed with blue; pectus, legs, and ventral surface of abdomen black, the tibiae and the hind tarsi to extremity orange above the outer spurs of hind tibiae slightly fringed with white hair. Forewing metallic blue-green irrorated with silvery scales. Hindwing brilliant metallic blue, the cilia brown tipped with whitish. Underside of wings purple-blue with greenish reflections in parts.

**Abyssinia**, Harrar (Kristensen) type ♀ in Coll. Rothschild. *Exp.* 36 mill.

*Auctororum.*

*Sphinx tibialis* Drury, *Exot. Ins.* ii. p. 49. pl. 28. f. 2 (1773) Sierra Leone *err. loc.* =

*Melittia satyriniformis* Hübn., *Zutr. ex Schmelt.* iii. p. 17. ff. 453-4 (1825) N. America.

*Melittia iridisquama* Mab., *Ann. Soc. Ent. Fr.* (6) x. p. 31 (1890) . . . . . **W. Africa.**

The description of the pencils of hair and long hair at end of abdomen suggests a new genus.

*Melittia azael* Le Cerf, *Bull. Soc. Ent. Fr.* 1914, p. 61. f. 1 . . . . . **Gaboon.**

The naked hind tarsi suggest a new genus.

GEN. **Melanosphecia.**

*Melanosphecia* Le Cerf, Oberth. *Ét. Léop. Comp.* xiv. p. 245 (1917) . . . . . Type.  
*atra*

This genus appears to have no tuft of hair at the extremity of the antennae; if so it is a derived and not ancestral character; the hair papillae are present, and the hairs may be worn off in the three specimens I have examined.

(1) \* **Melanosphecia auricollis.**

† *Melittia auricollis* Roths., *Nov. Zool.* xix. p. 123 (1912).

*Melanosphecia bouvieri* Le Cerf, Oberth. *Ét. Léop. Comp.* xiv. p. 247. pl. 477. ff. 3934-5 (1917).

**Borneo, Sarawak, Mt. Penrissen.**

(2) **Melanosphecia funebris.**

† *Melittia funebris* Roths., xviii. p. 46 (1911) and xix. pl. iv. f. 31.

**Dorey.**

(3) † \**Melanosphecia dohertyi* n. sp.

♂. Head, thorax, and abdomen black-brown with a slight bluish gloss, the antennae rufous below, the palpi rufous in front; hind tibiae with a few white hairs at the spurs, the ventral surface of abdomen with white segmental lines. Forewing glossy black-brown, the terminal area with a slight purplish gloss. Hindwing hyaline, the veins and margins narrowly black.

**Obi**, Laiwui (Doherty) 1 ♂ type in Coll. Rothschild. *Exp.* 30 mill.

(4) \**Melanosphecia atra*.

*Melanosphecia atra* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 376. f. 3140 (1916); *id. l.c.* xiv. p. 246.

**Dutch N. Guinea**, Geelvink Bay.

GEN. *Hypomelittia* nov.

Type, *H. hyaloptera*.

Proboscis fully developed; palpi upturned to rather above vertex of head, moderately scaled, acuminate at tip; frons smooth; eyes elliptical; antennae of female simple, dilated towards tip and ending in a minute tuft of hair; thorax and abdomen smoothly scaled, the latter tapering to extremity and with small anal tuft; fore and mid tibiae fringed with long hair and scales, the tarsi with slight tufts of scales at the joints, the hind tibiae fringed on each side with very long hair and scales, the 1st joint of tarsi fringed on each side with long scales, the other joints with slight tufts of scales. Forewing narrow, the apex rounded, the termen obliquely curved; veins 2, 3, 4, 5, 6 well separated; 7, 8 coincident; 9, 10, 11 from cell. Hindwing with vein 3 from before angle of cell but nearer 5 than 2, 4 absent; 6 from middle of discocellular; 7 from upper angle of cell; 8 concealed in a fold.

† *Hypomelittia hyaloptera* n. sp.

♀. Head, thorax, and abdomen black, the metathorax with some white scales, the abdomen with the terminal segments glossed with blue and the 5th segment edged by some yellowish scales; palpi with some white scales in front; pectus with an orange-scarlet streak below the shoulders; fore tarsi white below, the terminal joints with some pale red, the mid tibiae with some white hair, the hind tibiae and tarsi with some scarlet and white scales and hair. Forewing hyaline, the veins and margins black, the costal area rather broadly black to end of cell, then tapering to a point; a black discoidal bar defined on outer side by rather diffused orange-yellow; the interspaces of terminal area with fine black streaks. Hindwing hyaline, the veins and margins narrowly black, the veins to beyond end of cell tinged with yellow; the inner margin with some white hair.

**Barma**, Kawkerait (Mackwood) 1 ♀ type. *Exp.* 18 mill.

GEN. *Lenyra*.

*Lenyra* Wlk., viii. 71 (1856)

Type  
*astaroeth*

*Lenyra astaroeth*.

† *Trochilium astaroeth* Westw., *Cab. Or. Ent.* p. 14. pl. vi. f. 5 (1848); Hmps., *Moths Ind.* i. p. 205 fig.

**Punjab; Sikhim; Assam.**



GEN. *Echidnathia* nov.Type, *E. vitrifasciata*.

Proboscis aborted and non-functional ; palpi obliquely upturned and hardly reaching to vertex of head, the 1st joint with long scales in front, the 2nd and 3rd with spinous hair at extremities, the 3rd short ; frons smooth ; antennae of female thickened, dilated towards extremity and ending in a minute tuft of hair ; fore tibiae with some spinous hair above, the mid and hind tibiae at the spurs and tarsi at extremity of 1st joint with tufts of scales and spinous hair ; abdomen with lateral tufts of scales except towards base. Forewing narrow, the apex rounded, the termen evenly curved ; veins 2, 3, 4, 5, 6 all well separated ; 7, 8 stalked ; 9, 10, 11 from cell. Hindwing with vein 3 from well before angle of cell, but nearer 5 than 2, 4 absent ; 6 from above middle of discocellulars ; 7 from upper angle of cell ; 8 concealed in a fold.

*Echidnathia vitrifasciata*.† *Tinthia vitrifasciata* Hmps., *A.M.N.H.* (7) vi. p. 150 (1900).**Mashonaland.**GEN. *Thyranthrene* nov.Type, *T. obliquizona*.

Proboscis aborted and not functional ; palpi upturned to well above vertex of head, the 1st and 2nd joints fringed with long hair in front, the 3rd with some hairs towards tip, which is acuminate ; frons smooth with tufts of scales at sides and above, the vertex of head with some rough hair ; antennae of male bipectinate with rather long branches diminishing to before tip where the shaft is dilated and terminates in a minute tuft of hair ; tibiae and the 1st joint of hind tarsi above fringed with rather long hair ; abdomen with rather large lateral tufts of scales except at base, the anal tuft large. Forewing rather narrow, the apex rounded, the termen evenly curved ; veins 2, 3, 4, 5, 6 all well separated ; 7, 8 stalked, 9, 10, 11 from cell. Hindwing with vein 3 from just before angle of cell, 4 absent ; 6 from just above middle of discocellulars ; 7 from upper angle, 8 concealed in a fold.

(1) *Thyranthrene obliquizona*.† *Lepidopoda obliquizona* Hmps., *P.Z.S.* 1910. p. 506. pl. 41. f. 8.**N.E. Rhodesia.**(2) † *Thyranthrene metazonata* n. sp.

♂. Head, thorax, and abdomen black-brown, the hair on vertex of head pale brown, the frons white with some pale brown above, the palpi white with some of the hair in front of 1st and 2nd joints black, the 3rd joint brownish ochreous, the antennae with the shaft above and branches brownish white, the abdomen with white and ochreous line on penultimate segment, the anal tuft with some ochreous and white at middle ; fore tibiae with some pale brown hair, the tarsi brownish white above, the mid tibiae with the hair towards base and at extremity pale brown and white, the tarsi white, the hind tibiae with the hair on upperside pale brown and white, the tarsi white ; ventral surface of abdomen with the segments fringed with brownish-white scales. Forewing black-brown ;

a wedge-shaped hyaline mark in the cell towards extremity ; a semihyaline white fascia below the cell except at base ; an incurved hyaline band formed of five small spots in the interspaces between veins 9 and 3 beyond the cell ; a series of small hyaline white spots edged with brown just before termen between apex and vein 3 ; cilia red-brown. Hindwing black-brown ; a hyaline subbasal band interrupted by the brownish veins from costa to above inner margin towards which it narrows ; a triangular hyaline spot beyond the cell ; a series of small hyaline white spots edged with brown just before termen from apex to below vein 2 ; cilia red-brown ; the hair on inner margin white towards base.

**Natal**, Malvern (Jause), 1 ♂ type. *Exp.* 26 mill.

(GEN. *Sura*.)

*Sura* Wlk., viii. 65 (1856) . . . . . Type.  
*xylocopiformis*

(1) † *Sura pyrocera* n. sp.

♀. Head, thorax, and abdomen black glossed with blue, the antennae, sides of frons, and palpi fiery orange, the vertex of head with some orange scales, the neck with orange ring and some white behind the eyes, the patagia with fiery-orange patches, the anal tuft fiery orange except at base ; fore and mid femora with some fiery orange at extremities, the tibiae and tarsi fiery orange. Forewing uniform black strongly glossed with metallic blue-green. Hindwing black strongly glossed with metallic greenish blue ; a hyaline fascia in the cell, two in submedian interspace above and below the fold from near base to near termen, and a more wedge-shaped patch above inner margin ; two short fasciae beyond the cell above and below vein 6.

Ab.1. Hindwing metallic blue without the green tinge, hardly a trace of the two hyaline fasciae beyond the cell.

**Br. C. Africa**, Ruvo Valley (Neave), 1 ♀ type ; **Portuguese E. Africa**, Ruvo Valley (Neave), 1 ♀. *Exp.* 26-30 mill.

(2) *Sura ruficauda*.

† *Algeria ruficauda* Roths., *Nov. Zool.* xviii. p. 46 (1911) and xix. pl. iv. f. 36.

"**Germ. E. Africa**"; **Br. C. Africa**, Mt. Mlanje (Neave).

(3) † *Sura rufitibia* n. sp.

♀. Head, thorax, and abdomen black shot with greenish blue, the palpi with the terminal half of 2nd joint in front and the 3rd joint rufous, the anal tuft orange above except at base ; (fore and mid legs wanting) ; hind legs with the coxae white, the femora rufous above, white below, the tibiae fringed with rufous hair above, the spurs white. Forewing uniform black strongly glossed with metallic blue-green. Hindwing black strongly glossed with metallic blue-green, a hyaline fascia in the cell, a fascia above submedian fold from near base to towards termen, a slight fascia below the fold, and a short fascia above middle of inner margin ; two very short hyaline streaks beyond the cell above and below vein 6.

**N. Nigeria**, Baro (Morrison), 1 ♀ type. *Exp.* 40 mill.

(4) \* *Sura bicolor*.

*Sura xylocopiformis* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 377 ff. 3155 G. (nec Wlk.).

*Sura bicolor* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 271 (1917).

**Transvaal.**

(5) \* *Sura ignicauda*.

† *Trilochana ignicauda* Hampson, *Moths Ind.* i. p. 191. fig. (1892); Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 272. pl. 480. f. 3959.

**Burma; Java.**

(6) \* *Sura pryeri*.

† *Sura pryeri* Druce, *Ent. Mo. Mag.* xix. p. 15 (1882).

**Malacca**, in Coll. Rothschild; **N. Borneo.**

(7) † *Sura phoenicia* n. sp.

♀. Head and thorax black-brown, the patagia with scarlet patches, the antennae rufous below towards tips, the frons whitish, the palpi with some white in front; abdomen black shot with steel-blue; pectus and legs black-brown, the spurs whitish. Forewing brilliant metallic purple, the costal area and cell black shot with blue-green, narrowing to a point at apex. Hindwing brilliant metallic purple; hyaline fasciae below the cell and above inner margin from base to below origin of vein 2.

**Borneo**, Pulo Laut (Doherty), 1 ♀ type. *Exp.* 26 mill.

(8) † *Sura cyanea* n. sp.

♂. Head, thorax, and abdomen black shot with steel-blue; frons cupreous brown, whitish at sides; palpi dark brown. Forewing black shot with brilliant steel-blue, the costal area with a more purple-blue tinge. Hindwing black shot with brilliant steel-blue; hyaline fasciae below the cell from near base to below origin of vein 2; cilia black-brown. Underside of both wings with the terminal area shot with purple.

**Java**, Arjuno (Doherty), 1 ♂ type. *Exp.* 36 mill.

(9) *Sura xylocopiformis*.

† *Sura xylocopiformis* Wlk., viii. 65 (1856).

**Natal.**

(10) \* *Sura chalybea*.

*Sura chalybea* Butl., *P.Z.S.* 1876. p. 309. pl. 22. f. 4.

† *Sphécia curviconitens* Roths., *Noe. Zool.* xix. p. 122 (1912).

**Singapore; Borneo, Sarawak.**

(11) \* ? *Sura ellenbergi*.

*Episannina ellenbergii* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 319. pl. 478. f. 3941 (1917).

**Gaboon.**

(12) *Sura melanothalcia*.

*Episannina melanothalcia* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 319. pl. 478. f. 3940 (1917).

**S. Rhodesia; Mozambique.**

GEN. **Adixoa.**

*Adixoa* Hmps., *Moths Ind.* i. p. 198 (1893) . . . . . Type.  
*alterna*

(1) **Adixoa alterna.**

† *Ageria alterna* Wlk., xxxi. p. 10 (1864); Hmps., *Moths Ind.* i. p. 198. fig.

**Madras, Coimbatore.**

(2) \* **Adixoa soror.**

*Adixoa soror* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 376. f. 3143 (1916); *id. loc.* xiv. p. 253.

**Sikhim.**

*Species auctorum.*

*Adixoa tomentosa* Schultze, *Journ. Phil. Sci. A.* iii. p. 28. pl. i. ff. 2. a. b. c. d. (1908).

**Philippines.**

GEN. **Cryptomima.**

*Cryptomima* Butl., *P.Z.S.* 1902. p. 50 . . . . . Type.  
*hampsoni*

**Cryptomima hampsoni.**

† *Cryptomima hampsoni* Butl., *P.Z.S.* 1902. p. 50. pl. i. f. 8.

**Uganda.**

GEN. **Pseudomelittia.**

*Pseudomelittia* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 240 (1917) . . . . . Type.  
*berlandi*

(1) **Pseudomelittia andraenipennis.**

† *Melittia andracnipennis* Wlk. viii. 69 (1856).

**Cape Colony.**

(2) **Pseudomelittia berlandi.**

*Pseudomelittia berlandi* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 241. pl. 477. f. 3932 (1917).

**"Germ. E. Africa"; Br. C. Africa.**

GEN. **Paranthrene.**

	Type.
<i>Paranthrene</i> Hübn., <i>Verz.</i> p. 128 (1827) . . . . .	<i>tabaniformis</i>
<i>Memythrus</i> Neum., <i>Ent. Mag.</i> i. p. 44 (1832) . . . . .	<i>tabaniformis</i>
<i>Sciapteron</i> Staud., <i>Stett. Ent. Zeit.</i> 1856. p. 195 . . . . .	<i>tabaniformis</i>
<i>Tarsa</i> Wlk., viii. 61 (1856) . . . . .	<i>asilipennis</i>
<i>Pseudostia</i> Feld., <i>Sitz. Ak. Wiss. Wien.</i> xliii. i. p. 28 (1861) . . . . .	<i>insularis</i>
<i>Tirista</i> Wlk., xxxi. 22 (1864) . . . . .	<i>argentifrons</i>
<i>Pramila</i> Moore, <i>Lep. Atk.</i> p. 9 (1879) . . . . .	<i>atkinsoni</i>
<i>Albuna</i> H. Edw., <i>Papilio</i> i. p. 186 (1881) . . . . .	<i>pyramidalis</i>
<i>Fatua</i> H. Edw., <i>Papilio</i> , ii. p. 97 (1882) . . . . .	<i>asilipennis</i>
<i>Phlogothauma</i> Butl., <i>A.M.N.H.</i> (5) x. p. 237 (1882) . . . . .	<i>scintillans</i>

Sect. I. (*Tarsa*). Antennae of male bipectinate with the branches long towards base, then diminishing and ending before the dilation at end of shaft.

**Paranthrene asilipennis** Boisd. from N. America, of which *Trochilium vespipennis*, Herr Schäff, *Ausser. Eur. Schmell.* f. 217, Bartel, Seitz, *Gr. Schm. pal.* ii. p. 380, China, *err. loc.* is a synonym.

Sect. II. (*Paranthrene*). Antennae of male bipectinate with short branches.

(1) † *Paranthrene propyria* n. sp.

♂. Head fulvous red, the fascicles at end of antennal branches blackish, some white hair behind the eyes; tegulae fulvous red and blackish; thorax black, the patagia tinged with red and with tufts of fulvous red hair at extremity; abdomen black glossed with blue, the anal tuft fulvous red and black; fore legs black, the tibiae above and tarsi at extremity fulvous red, the mid and hind legs with the femora black, the tibiae and tarsi fulvous red, the spurs whitish. Forewing hyaline, the costal area fiery red, the median nervure black and red, the discoidal bar strong, fiery red defined by black, the veins beyond the cell, inner margin, and termen black; a short hyaline mark above bases of veins 7, 8; the red extending before termen to below vein 6. Hindwing hyaline, the veins and margins narrowly black; the underside with the costa streaked with fiery red.

**N.W. Rhodesia**, Solwezi (H. Dollman), 1 ♂ type. *Exp.* 40 mill.

(2) *Paranthrene flammans*.

† *Sciapteron flammans* Hmps., *Moths Ind.* 1. p. 191 (1893).

**Punjab**, Murree.

(3) \* *Paranthrene anthrax*.

*Paranthrene anthrax* Le Cerf, Oberth. *Ét. Léop. Comp.* xii. i. pl. 377. f. 3154 (1916); *id. l.c.* xiv. p. 270.

**Sierra Leone**.

(4) † *Paranthrene thalassina* n. sp.

♂. Head, thorax, and abdomen black glossed with blue-green, the frons greyish edged with silvery, the palpi black-brown mixed with white, the neck with bronze ring above and some white behind the eyes and below. Forewing black suffused with metallic blue-green, with purple reflections on terminal area. Hindwing bronze-green, the interspaces of terminal area hyaline from below vein 5, lengthening to tornus where the hyaline extends to above middle of inner margin.

♀. Palpi with some orange on third joint, the neck with orange ring, the patagia and fore coxae with some orange scales; forewing with the terminal area blue; hindwing metallic blue with hardly a trace of green.

**Br. C. Africa**, Mt. Mlanje (Neave), 1 ♂, 1 ♀ type. *Exp.* 40 mill.

(5) † *Paranthrene chalcoclora* n. sp.

♀. Head, thorax, and abdomen black glossed with greenish blue with purple reflections; palpi with some white hairs in front of 2nd joint; tibiae with the spurs white above. Forewing black suffused with dark green, the veins with diffused streaks of brilliant metallic golden green. Hindwing black, strongly suffused with brilliant metallic golden green, the interspaces of terminal area with hyaline patches, short towards apex and below vein 2 extending to before middle; cilia blackish.

**N.W. Rhodesia**, Mwendwa (H. Dollman), 1 ♀ type. *Exp.* 44 mill.

(6) † *Paranthrene xanthopyga* n. sp.

♀. Head, thorax, and abdomen black-brown, the vertex of head mostly rufous, the antennae rufous below towards tips, the frons whitish above, the palpi rufous, the abdomen with the terminal part of penultimate segment, the anal

segment, and the anal tuft orange; fore legs with the tibiae in front and at extremity and the tarsi with some rufous, the mid and hind legs with some rufous at extremity of the tibiae and the spurs white. Forewing black shot with metallic greenish blue. Hindwing black shot with metallic greenish blue; hyaline streaks in the interspaces of terminal area above and below submedian fold and above inner margin.

Mimics *Synagris analis* Sauss.

**Br. E. Africa**, N. Kavirondo, Nyangori (Neave), 1 ♀ type; **Uganda**, W. Ankole and S.E. Ankole (Neave), 2 ♀. *Exp.* 28-40 mill.

Sect. III. Antennae of male strongly serrate and fasciculate, the abdomen with paired anal pencils of hair.

(7) *Paranthrene regalis*.

† *Sciapteron regale* Butl., *Ill. Het. B.M.* ii. p. 60. pl. 40. f. 3 (1878); Bartel, *Scitz. Gr. Schm. pal.* ii. p. 380. pl. 51. b.; Mats. *Thousand Ins. Jap. Suppl.* iii. pl. 36. f. 21.

**Japan.**

(8) *Paranthrene chinensis*.

*Sciapteron regale* Leech, *P.Z.S.* 1888. p. 591 (part).

† *Sciapteron chinense* Leech, *Trans. Ent. Soc.* 1889. p. 121. pl. vii. f. 5.

**C. China.**

(9) \* *Paranthrene tricincta*.

† *Paranthrene tricincta* Wileman, *Entom.* ii. p. 169 (1918).

**Formosa.**

(10) *Paranthrene bicincta*.

*Ageria bicincta* Wlk. xxxi. 12 (1864); Bartel, *Scitz. Gr. Schm. pal.* ii. p. 380. pl. 50. k.

**Japan; C. China.**

Sect. IV. (*Pseudosecia*). Antennae of male fasciculate.

(11) \* *Paranthrene atkinsoni*.

*Pramila atkinsoni* Moore, *Lep. Atk.* p. 9. pl. ii. f. 1 (1879); Hampson, *Moths Ind.* i. p. 1912.

**Sikhim.**

(12) \* *Paranthrene limpida*.

*Paranthrene limpida* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 376. f. 3145 (1916); *id. l.c.* xiv. p. 256.

**Java.**

(13) † \* *Paranthrene pentazonata* n. sp.

♂. Head, thorax, and abdomen black-brown slightly glossed with blue, the frons white at sides, the basal joint of antennae yellow on outer side, the palpi with the 1st joint yellow except at base and the 2nd and 3rd yellow in front, the neck with yellow ring, the patagia with some yellow at base and the edges yellow, the metathorax edged with yellow behind, the abdomen with narrow yellow bands on five basal segments, the fore coxae yellow with black patch at middle, the tarsi white except the basal joint, the mid and hind tibiae with some yellow below towards extremities; ventral surface of abdomen with six yellowish

white bands, the anal tuft with some whitish below. Forewing yellowish hyaline, the veins and margins narrowly black with a purplish gloss, the base with a metallic blue gloss; the discoidal bar narrow and glossed with metallic blue, narrowly edged on outer side with golden yellow. Hindwing hyaline, the veins and margins narrowly black with a purplish gloss. Underside of forewing with a narrow golden-yellow streak below costa to beyond the cell, the discoidal bar more strongly edged with yellow; cilia of both wings with some yellow scales at tips.

**New Britain**, Kiningunang (Ribb ), 1 ♂ type in Coll. Rothschild. *Exp.* 26 mill.

(14) *Paranthrene rangoonensis*.

† *Acgeria rangoonensis* Swinh., *Trans. Ent. Soc.* 1890. p. 165.

**Burma**, Rangoon, Bh mo.

(15) † \**Paranthrene flavifrons* n. sp.

♂. Head, thorax, and abdomen black-brown slightly glossed with blue, the antennae with the basal joint yellow except above, the frons yellow with a blackish patch at middle, the palpi with the base and the 2nd joint in front yellow, the neck with yellow ring, white behind the eyes, the patagia at extremity, the metathorax at sides and the abdomen at base with some yellow scales; pectus and fore coxae with yellow patches, the fore tarsi yellowish, the mid and hind tibiae with some yellow at middle and extremities; ventral surface of abdomen with yellowish white bands on two basal segments. Forewing hyaline, the veins and margins narrowly black-brown, the discoidal bar oblique. Hindwing hyaline, the veins and margins narrowly black-brown.

**Dutch N. Guinea**, Humbolt Bay (Doherty), 1 ♂ type in Coll. Rothschild. *Exp.* 34 mill.

(16) † *Paranthrene albifrons* n. sp.

♂. Head, thorax, and abdomen black-brown with a slight purplish gloss, the frons white, the palpi white tinged with yellow, the neck with some yellow hair above, white behind the eyes and below, the shoulders with orange-yellow patches, the metathorax with some orange-yellow at sides; the abdomen with orange-yellow bands on 2nd and 4th segments; fore coxae white at base, the tarsi white at extremity, the mid and hind tibiae with some orange-yellow hair at middle and extremities, the tarsi slightly ringed with whitish; ventral surface of abdomen with five yellowish white bands. Forewing hyaline, the veins and margins black-brown with a slight purplish gloss, the discoidal bar oblique, the terminal band expanding towards apex but leaving some hyaline in the fork of veins 7, 8. Hindwing hyaline, the veins and margins narrowly black-brown, the discoidal bar narrow, the hair on inner margin white except at base.

**Burma**, Rangoon (Noble), 1 ♂ type, Pegu, Magaree, 1 ♂. *Exp.* 34 mill.

(17) † *Paranthrene canarensis* n. sp.

♂. Head, thorax, and abdomen black-brown, the frons bronze-brown with some white at sides and below, the palpi yellow, white behind, the neck with white ring, the metathorax with some white at sides; fore coxae and tarsi with some white, the hind tibiae and tarsal joints with some white at extremities.

Forewing yellowish hyaline, the veins and margins black-brown with a greenish tinge, the discoidal bar oblique, the terminal band expanding somewhat towards apex but leaving the fork of veins 7 and 8 hyaline. Hindwing hyaline, the veins and margins narrowly black-brown.

**Bombay**, Kanara, Karwar (Davidson), 1 ♂ type. *Exp.* 36 mill.

(18) \* *Paranthrene caeruleimicans*.

† *Sciapteron caeruleimicans* Hmps., *Moths Ind.* i. p. 1912 (1893).

**Burma**, E. Pegu.

(19) *Paranthrene insularis*.

† *Pseudoseitia insularis* Feld., *Sitz. Akad. Wiss. Wien.* xliii. p. 28 (1861); *id. Reis. Nov.* pl. 75. f. 3.

† *Melittia productalis* Wlk., xxxi. 19 (1864).

**Borneo**, Pulo Laut; **Amboina**; **Celebes**.

(20) *Paranthrene grotei*.

† *Pseudosesia grotei* Moore, *P.Z.S.* 1879. p. 414; Hmps. *Moths Ind.* i. p. 1912.

**Assam**, Khasis.

(21) *Paranthrene oberthuri*.

*Phlagothauma oberthuri* Le Cerf, *Oberth. Ét. Léop. Comp.* xii. i. pl. 376. ff. 3141-2 (1916); *id. Lc.* xiv. p. 251.

**Queensland**, Kuranda; **N. Australia**, Port Darwin (Lodd), Walsingham Coll.

(22) \* *Paranthrene isozona*.

† *Sesia isozona* Meyr., *Pr. Linn. Soc. N.S.W.* (2) i. p. 689 (1886).

**Queensland**.

(23) *Paranthrene trizonata*.

† *Sciapteron trizonata* Hmps., *J. Bomb. Nat. Hist. Soc.* xiii. p. 43 (1900).

**Sikhim**.

(24) \* *Paranthrene auricollis*.

† *Adiroa auricollum* Hmps., *Moths Ind.* i. p. 198 (1893).

**Burma**, Tenasserim.

(25) \* *Paranthrene dybousci*.\*

*Albuna dybouskii* Le Cerf, *Oberth. Ét. Léop. Comp.* xiv. p. 324. pl. 477. f. 3938 (1917).

**Gaboon**.

(26) \* *Paranthrene africana*.

*Albuna africana* Le Cerf, *Oberth. Ét. Léop. Comp.* xiv. p. 325. pl. 481. f. 3973 (1917).

**Togoland**.

(27) † \* *Paranthrene opalescens* n. sp.

♂. Head, thorax, and abdomen black glossed with blue, the frons white at sides, the palpi yellow in front except towards base, the neck with yellow hair above and white hair behind the eyes, the patagia golden yellow at base and above; pectus with some yellow below the shoulders; mid and hind tibiae with

\* The Author alone is responsible for alterations in the spelling of names.—EDITORS.



tufts of yellow hair at middle and extremity. Forewing hyaline, the veins and margins black with a purplish gloss; a golden yellow bar from costa near base; the hyaline streaks beyond the cell between veins 9 and 3 with silvery blue reflections; the terminal band broad, emitting short streaks into the hyaline interspaces and indented by some hyaline in the fork of veins 7, 8. Hindwing hyaline, the veins and margins narrowly black, the discoidal bar oblique. Under-side of forewing with the discoidal bar fiery red defined by black scales.

**S. Celebes** (Doherty), 1 ♂ type in Coll. Rothschild. *Exp.* 24 mill.

(28) \* *Paranthrene dohertyi*.

† *Ichneumenoptera dohertyi* Roths., *Nov. Zool.* xviii. p. 47 (1911) and *xix. pl. iv. f. 37.*

**Dutch N. Guinea**, Humboldt Bay.

(29) *Paranthrene cyanopis*.

† *Paranthrene cyanopis* Dmt. *Lep. Snow Mts., N. Guinea*, p. 166 (1915).

**Dutch N. Guinea**, Snow Mts.

(30) *Paranthrene chrysochloris*.

† *Trilochana chrysochloris* Hmps., *J. Bomb. Nat. Hist. Soc.* xi. p. 283 (1897).

*Sciapteron metallica* Van Eecke, *Tijd. v. Ent.* lviii. p. 276. pl. 9. f. 1 (1915).

**Assam**, Khâsis; **Sumatra**.

(31) † \* *Paranthrene aurifera* n. sp.

♀. Head, thorax, and abdomen black, the frons white at sides, the palpi yellow mixed with black, yellowish white in front, the neck white behind the eyes and below, the outer part of tegulae, upper edge of patagia and metathorax behind golden yellow, the abdomen with broad golden yellow bands on 2nd, 4th, and 6th segments; pectus yellow and black-brown; fore legs with the base of coxae, the greater part of tibiae and tarsi yellow, the mid and hind legs with the femora below, the greater part of tibiae and tarsi yellow. Forewing semihyaline yellow, the veins and margins cupreous brown; a golden yellow bar from base of costa; a wedge-shaped patch of golden yellow and dark scales in end of cell; discoidal bar oblique, golden yellow defined by dark brown; the greater part of terminal area irrorated with brown scales leaving some hyaline yellow above bases of veins 5 and 6, and as a streak above veins 7 and 8 extending to termen. Hindwing hyaline, the veins and margins narrowly dark brown, the cilia cupreous brown. Underside of forewing with the costal area yellow to beyond the cell.

**Assam**, Khâsis, 1 ♀ type in coll. Rothschild. *Exp.* 38 mill.

(32) \* *Paranthrene cupreivitta*.

† *Sciapteron cupreivitta* Hmps., *Moths Ind.* i. p. 193 (1893) ♀.

**Burma**, Pegu.

(33) *Paranthrene minuta*.

† *Pramila minuta* Swinh., *Trans. Ent. Soc.* 1890, p. 171, pl. vi. f. 5; Hmps., *Moths Ind.* i. p. 196.

**Burma**, Rangoon.

(34) \* *Paranthrene zonciventris*.

*Paranthrene zonciventris* Le Cerf, Oberth. *Ét. L'p. Comp.* xii. i. pl. 376. f. 3146 (1916); *id. l.c.* xiv. p. 257.

**Burma**, Momeit.

(35) *Paranthrene pernix*.

† *Bembecia pernix* Leech, *P.Z.S.* 1888. p. 592. pl. 30. f. 5; Bartel, Seitz: *Gr. Schm. pal.* ii. p. 409. pl. 51. k.

**Japan.**

(36) \* *Paranthrene davidi*.

*Paranthrene davidi* Le Cerf, Oberth. *Ét. L'p. Comp.* xiv. p. 259. pl. 177. f. 3936.

**W. China.**

(37) *Paranthrene feralis*.

† *Sciapteron feralis* Leech, *P.Z.S.* 1888. p. 591. pl. 30. f. 3; Bartel, Seitz, *Gr. Schm. pal.* ii. p. 380. pl. 51. b.

**Japan.**

(38) \* *Paranthrene tristis*.

*Paranthrene tristis* Le Cerf, Oberth. *Ét. L'p. Comp.* xiv. p. 261. pl. 177. f. 3937 (1916)

**Annam.**

(39) *Paranthrene sesiiformis*.

† *Paranthrene sesiiformis* Moore, *Lep. E.I.C.* p. 385 (1858).

**Java.**

(40) † *Paranthrene cuprescens* n. sp.

♂. Head, thorax, and abdomen black slightly glossed with blue, the antennae rufous below and with some yellow on basal joint below, the frons white at sides, the palpi yellow, the genae white, the neck with yellow ring, the abdomen with yellow bands on 2nd, 4th, and 5th segments, incomplete dorsally, some yellow above base of anal tuft; (fore and hind legs wanting), the mid legs with some white on the femora below towards extremity, the tibiae and tarsi scarlet, the mid and hind coxae yellow; ventral surface of abdomen with the 2nd, 3rd, and 4th segments golden yellow and a spot on the 5th. Forewing black glossed with purple-blue; some fiery red above base of inner margin; the cell and submedian interspace except at base and all the interspaces of terminal area cupreous red except at costa, the apical area suffused with purple-blue. Hindwing hyaline, the veins and margins narrowly black. Underside of forewing golden yellow, some black on basal area except at costa, the apical area suffused with purple and blue; hindwing with the costa and the veins defining the cell golden yellow.

**Portuguese E. Africa**, Ruo Valley (Neave), 1 ♂ type. *Exp.* 30 mill.

(41) *Paranthrene xanthosoma*.

† *Sciapteron xanthosoma* Hampson, *A.M.N.H.* (8) vi. p. 104 (1910).

**Uganda**, S. E. Ankole; **S. Rhodesia**, Bulawayo.

## Sect. V. Antennae of male simple.

## A. Abdomen of male with the anal tuft bifurcate.

(42) † *Paranthrene mesothyris* n. sp.

♂. Head, thorax, and abdomen black, the vertex of head with some chestnut-red hair, the antennae chestnut-red below, the palpi chestnut-red, the 1st joint yellow above and below, the neck with yellow ring, the patagia chestnut-red with some yellow hairs at extremity, the abdomen suffused with chestnut-red, with fine yellow bands on 2nd, 4th, and 6th segments and the anal tuft fiery red at middle and below; pectus with yellow patches below the shoulders; fore legs with the coxae, femora, and tibiae above chestnut-red, the tarsi red mixed with some yellow; mid and hind legs with some chestnut-red and whitish hair on femora below, the tibiae and tarsi chestnut-red with the spurs white. Forewing deep chestnut-red, the terminal area with a purple gloss; a fan of black scales tipped with chrome-yellow at base of cell; a wedge-shaped yellowish hyaline mark in middle of cell; a yellowish hyaline bar beyond the discocellars above bases of veins 8, 6, 5. Hindwing hyaline, the base obliquely, the costa, a discoidal bar, and the veins chestnut-red; a narrow dark brown terminal band tinged with chestnut-red, its inner edge slightly angled inwards at vein 2; cilia with a leaden gloss. Underside brighter chestnut; forewing with the costal area to towards apex yellow, the median nervure and a discoidal striga yellow; hindwing with the costa yellow to end of cell.

♀. Palpi without yellow on basal joint, the ring round neck chestnut-red, the patagia without chestnut-red or yellow, the abdomen without chestnut-red or yellow rings, the anal tuft fulvous; pectus without yellow below the shoulders, the legs with less red and the spurs not white; forewing black-brown with hardly a trace of red or purple, without the yellow mark at base or the hyaline marks; hindwing with the dark areas black-brown with hardly a trace of red.

*Hab. Natal*, Durban (Bell-Marley), 1 ♂, 1 ♀ type bred, Lr. Umkomass (Leigh) in Coll. Rothschild. *Exp.* ♂ 30, ♀ 32 mill.

## B. Abdomen of male with the anal tuft not bifurcate.

(43) *Paranthrene scintillans*.

† *Phlogothauma scintillans* Butl. *A.M.N.H.* (5) x. p. 238 (1882).

**New Britain.**

(44) \* *Paranthrene charlesi*.

*Paranthrene charlesi* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 3144 (1916); *id. l.c.* xiv. p. 255.

**Dutch N. Guinea.**

(45) \* † *Paranthrene leucocera* n. sp.

♀. Head, thorax, and abdomen black-brown with a slight bluish gloss, the antennae creamy white from two-thirds length to near tips, ringed with black below; palpi with the 2nd joint yellowish white in front; fore tarsi ochreous white from near base to near tips. Forewing black-brown strongly suffused with brilliant silvery blue except the costal area and termen which have a slight greenish gloss; a wedge-shaped hyaline subterminal patch between veins 6 and 3, intersected by the black veins and with its upper edge excised. Hindwing

hyaline, the veins and margins narrowly black : the costal area to just beyond the cell, the cell and area below it to just below submedian fold brilliant silvery blue.

**New Britain**, Kinigunang (Ribb ), 1 ♀ type in Coll. Rothschild. *Exp.* 34 mill.

(46) \* † *Paranthrene microthyris* n. sp.

♀. Head, thorax, and abdomen black-brown slightly glossed with blue ; frons white at sides ; fore tarsi white towards tips. Forewing black-brown strongly suffused with brilliant metallic blue, except the costal area and termen which are slightly tinged with purplish blue ; a small wedge-shaped subterminal hyaline spot between veins 4 and 3. Hindwing hyaline, the veins and margins narrowly black, the costal area to beyond the cell, the cell and area below it to submedian fold brilliant metallic blue.

**New Britain**, Kinigunang (Ribb ), 1 ♀ type in Coll. Rothschild. *Exp.* 26 mill.

(47) *Paranthrene meeki*.

*Scipteron meeki* Druce, *A.M.N.H.*, (7) i. p. 207 (1898).

**Trobriand Is.**

(48) † *Paranthrene carulifera* n. sp.

♀. Head, thorax, and abdomen black-brown with a slight bluish gloss, the frons white at sides, the palpi with some white scales, the neck with white ring ; mid and hind coxae with some white. Forewing black glossed with sage-green, the interspaces, except on costal area, suffused with brilliant metallic blue to well beyond the cell where it ends obliquely, the terminal area glossed with purple. Hindwing hyaline, the veins glossed with sage-green, the margins black-brown glossed with purple ; the costal area to beyond the cell, the cell and area below it to vein 1 brilliant metallic blue, leaving slight hyaline streaks in and below base of cell ; cilia greyish brown.

**Queensland**, Kuranda (Dodd), 1 ♀ type, Walsingham Coll. *Exp.* 32 mill.

(49) \* *Paranthrene pulchripennis*.

† *Sannina pulchripennis* Wlk., *Journ. Linn. Soc. Zool.* vi. p. 82 (1862).

*Melittia ambigua* Snell., *Tijd. v. Ent.* xliii. p. 36 (1900).

*Paranthrene andamana* Le Cerf, Oberth. * t. L p. Comp.* xii. i. pl. 377. f. 3150 (1916) ; *id. l.c.* xiv. p. 265.

**Andaman Is. ; Borneo**, Sarawak ; **Java**.

(50) \* *Paranthrene cambodialis*.

† *Sannina cambodialis* Wlk., xxxi. 15 (1864).

**Siam**, Cambodia.

(51) \* *Paranthrene affinis*.

† *Paranthrene affinis* Roths., *Nor. Zool.* xviii. p. 46 (1911) ; *id. l.c.* xix. pl. iv. f. 32.

**Malay States**, Padang Rengas.

(52) \* *Paranthrene javana*.

*Paranthrene javana* Le Cerf, Oberth. * t. L p. Comp.* xii. i. pl. 376. f. 3149 (1916) ; *id. l.c.* xiv. p. 265.

**Java**.

(53) *Paranthrene ruffinis*.† *Sannina ruffinis* Wlk., *Journ. Linn. Soc. Zool.* vi. p. 82 (1862).*Paranthrene celebica* Le Cerf, *Oberth. Ét. Lép. Comp.* xii. i. pl. 376. f. 3148 (1916); *id. l.c.* xiv. p. 264.**Borneo, Sarawak : Celebes.**(54) † *Paranthrene zygophora* n. sp.

♀. Head, thorax, and abdomen black-brown, the frons eupreous brown with some white at sides, the neck with ring of white hair. Forewing black-brown strongly suffused with brilliant metallic blue except on costal area which narrows to a point at apex. Hindwing hyaline suffused with brilliant metallic blue; a strong oblique metallic blue discoidal bar; the terminal area metallic blue extending to the median nervure at veins 3-5 and thence oblique to termen at apex and vein 6, leaving hyaline streaks above veins 6, 5, 3, elongate towards costa and short above vein 3.

**Borneo, Sarawak, Kuching (Shelford) 1 ♀ type. Exp. 36 mill.**(55) \* *Paranthrene lecerfi* n. n.*Paranthrene oberthuri* Le Cerf, *Oberth. Ét. Lép. Comp.* xii. i. pl. 377. f. 3153 (1916); *id. l.c.* xiv. p. 267 (*nec* p. 251. pl. 376. f. 3141).**Batchian.**(56) † *Paranthrene metaxantha* n. sp.

♀. Head, thorax, and abdomen black-brown with a purple-blue gloss, the last with orange bands on the 5th and 6th segments and the anal segment and tuft orange; frons white at sides; genae white; palpi orange, black above; fore legs with the tarsi white, the mid and hind legs with the outer spurs white, the tarsi obscurely ringed with yellowish white. Forewing black-brown strongly suffused with metallic blue, except on costal area which narrows to a point at apex; cilia black-brown. Hindwing hyaline, the veins and margins narrowly black-brown, the cell suffused with black brown; a strong black discoidal bar.

**Burma, Tenasserim, Ataran (Bingham), 1 ♀ type. Exp. 38 mill.**(57) \* *Paranthrene henrici*.*Paranthrene henrici* Le Cerf, *Oberth. Ét. Lép. Comp.* xii. i. pl. 376. f. 3147 (1916); *id. l.c.* xiv. p. 262.**Burma, Momeit.**(58) *Paranthrene gracilis*.† *Sciapteron gracilis* Swinh., *Trans. Ent. Soc.* 1890. p. 168; *Hmps. Moths Ind.* i. p. 193.**Burma, Rangoon.**(59) *Paranthrene noblei*.† *Sciapteron noblei* Swinh., *Trans. Ent. Soc.* 1890. p. 166; *Hmps. Moths Ind.* i. p. 192.† *Sciapteron jucunda* Swinh., *Trans. Ent. Soc.* 1890. p. 167.**Burma, Rangoon, Tenasserim.**(60) \* *Paranthrene siccima*.† *Sciapteron sikkima* Moore. *Lep. Atk.* p. 9 (1879); *Hmps. Moths Ind.* i. p. 193.**Sikhim.**

(61) *Paranthrene metallica*.† *Scipteron metallicum* Hmps., *Moths Ind.* i. p. 193 (1893).

Burma, Karen Hills.

(62) *Paranthrene pythes*.† *Agria pythes* Druce, *A.M.N.H.* (7) iv. p. 204 (1899).

Natal; Cape Colony, Bedford.

GEN. *Pyranthrene* nov.Type, *P. flammans*.

Proboscis aborted and not functional; palpi obliquely upturned to above vertex of head, moderately scaled, acuminate at tips; frons smooth; antennae of male simple, dilated towards extremity and ending in a minute tuft of hair; tibiae with slight tufts of hair at the spurs, the hind tarsi very long with slight tufts of scales at the joints; abdomen tapering to extremity and with the anal tuft slight. Forewing narrow, the apex rounded; veins 2, 3, 4, 5, 6 all well separated; 7, 8 coincident; 9, 10, 11 from cell. Hindwing with vein 3 from well before angle of cell, but nearer 5 than 2, 4 absent; 6 from middle of discocellulars; 7 from upper angle of cell; 8 concealed in a fold.

† *Pyranthrene flammans* n. sp.

♂. Head and thorax black, the patagia and prothorax fiery red, the papil with the 1st joint and the 2nd above to near extremity fiery red; abdomen fiery red, the basal segment black; mid tibiae with some fiery red below except towards base, the hind tibiae fiery red, black at base, the spurs white, the hair at extremity black, the tarsi black and blue with some white at base. Forewing fiery red, the base blue-black; a round black discoidal spot conjoined above to the broad eupreous black terminal area, its inner edge extending on costa to near middle, and slightly angled inwards at vein 2. Hindwing fiery red, the terminal area eupreous black, extending at costa to above end of cell, narrowing to tornus and with irregular inner edge angled inwards at median nerve and submedian fold. Underside of forewing with the dark area extending to well before middle; hindwing with black discoidal spot.

Br. C. Africa, Chiromo (Neave), 1 ♂ type. *Exp.* 28 mill.GEN. *Homogyna*.

*Homogyna* Le Cerf, *Bull. Mus. Hist. Nat.* xvii. p. 303 (1911) . . . . . Type.  
*allaudi*

(1) *Homogyna ignivittata*, n. sp.

♂. Head and thorax black with a leaden gloss, the vertex of head with some white hair, the frons white, the palpi white with the 2nd joint in front, except at base, and the 3rd joint on outer side black, the neck with white ring, some orange-scarlet behind the tegulae and above base and extremity of patagia which have a tuft of white hair beyond them; abdomen black with white bands which are rather diffused, except on 4th and 7th segments, the anal tuft with ochreous white patch at extremity; pectus in front and fore coxae mostly white, the fore tibiae white at sides, the mid tibiae with tufts of white hair at base and extremity and the spurs white, the hind tibiae with bands at middle

and extremity and the spurs white, the tarsi banded white and black; ventral surface of abdomen black with white band on 4th segment, incomplete ventrally. Forewing black, suffused with grey, the costal area blacker to end of cell; an oblique fiery scarlet band close to the base from below costa to just above inner margin, where it emits a fascia extending to near tornus; a wedge-shaped fiery scarlet patch from middle of cell to just before apical half of termen, interrupted by a small round black discoidal spot; the costal edge white towards apex, the termen black, the cilia brownish white. Hindwing grey-black with the cell and interspaces of inner area to near termen occupied by hyaline fasciae; cilia whitish brown. Underside of forewing grey-black with the base and costa to beyond middle white, some reddish white suffusion before and beyond the black discoidal spot.

**Transvaal**, Pretoria (Janse), 1 ♂ type; Natal, Weenen, in Coll. Rothschild. *Exp.* 18 mill.

(2) **Homogyna xanthophora.**

† *Tinthia xanthophora* Hmps., *A.M.N.H.* (8) vi. p. 150 (1910).

**Natal; Cape Colony.**

(3) **Homogyna endopyra.**

† *Tinthia endopyra* Hmps., *A.M.N.H.* (8) vi. p. 151 (1910).

**Natal.**

(4) † **Homogyna pyrophora** n. sp.

♀. Head and thorax red-brown, the patagia with tuft of rufous hair behind them, the frons at sides, basal joint of antennae in front and genae white, the palpi white, the extremity of 2nd joint and the 3rd joint rufous; abdomen black-brown with some rufous scales, the 2nd, 4th, and 6th segments with creamy white bands; pectus and legs black-brown and rufous, the fore coxae creamy white; ventral surface of abdomen with white band on 4th segment only. Forewing cupreous brown; a wedge-shaped white patch tinged with fiery red and indented by a streak from the discocellulars; a short white streak tinged with fiery red between veins 4 and 3. Hindwing hyaline, the veins and margins cupreous brown; some fiery red above inner margin and a slight streak in submedian fold.

**Natal**, Malvern (Barker), 1 ♀ type. *Exp.* 28 mill.

(5) \* **Homogyna allaudi.**

*Homogyna allaudi* Le Cerf, *Bull. Mus. Hist. Nat.* xvii. p. 303. pl. v. f. 1 (1911).

**Br. E. Africa.**

(6) † **Homogyna sanguicosta** n. sp.

♂. Head and thorax black-brown, the vertex of head and neck with white hairs, the antennae with white points on the shaft in front and some white on the branches towards base; palpi white at base, the tegulae with some crimson scales behind and the patagia with tufts of crimson scales at extremity; abdomen black with white bands on 4th and 5th segments; pectus with some crimson below the wings; coxae and femora below white, the spurs white, the tarsi ringed with white, the hind tarsi wholly white except the 1st joint; ventral surface of abdomen with crimson bands on each segment and some crimson

on anal tuft below. Forewing black with a greenish gloss, the costa and inner margin crimson to beyond middle. Hindwing black with a greenish gloss; hyaline streaks in lower part of base of cell, below the cell to origin of vein 2 and above base of inner margin; some white hair at base of inner margin; cilia black-brown. Underside of forewing with the costal area white to beyond middle, a white streak above the crimson streak on inner margin; hindwing with the costal edge white.

♀. Hindwing with the hyaline streak filling the cell and extending to beyond the black discoidal bar, the streaks below the cell and on inner area extending to near termen.

**Cameroons**, Buar, 1 ♂; **N.W. Rhodesia**, Mwendwa (H. Dollman), 1 ♂, 1 ♀ type; **S. Rhodesia**, Sebakwe, 1 ♀. *Exp.* 26 mill.

(7) \* **Homogyna spadiceicarpus**.

† *Homogyna spadiceicarpus* Prout, *A.M.N.H.* (9) iii. p. 190 (1919).

**N.E. Rhodesia**.

(8) † **Homogyna albicincta** n. sp.

♀. Head, thorax, and abdomen black-brown, the frons white, the palpi white with some black at extremity of 2nd joint and on inner side, the neck with white ring, the abdomen with white bands on 2nd, 4th, and 6th segments and before the anal tuft; pectus with some white below base of forewing; fore coxae white, the hind coxae, femora above, and tibiae above except at extremity white; ventral surface of abdomen with white bands on 3rd and 4th segments. Forewing black-brown with a few white scales in the interspaces beyond the cell. Hindwing hyaline, the veins and margins black, the discoidal band narrow and oblique, the narrow terminal band expanding somewhat at apex.

**Br. C. Africa**, Mt. Mlanje (Neave), 1 ♀ type. *Exp.* 24 mill.

GEN. **Anaudia**.

*Anaudia* Wlgrn., *Wien. Ent. Mon.* vii. p. 138 (1863) . . . . . Type, *felderi*

\* **Anaudia felderi**.

*Anaudia felderi* Wlgrn., *Wien. Ent. Mon.* vii. p. 138 (1863); *id. Kongl. Svensk. Akad. Handl.* v. pp. 9, 10 (1865).

**Br. Bechuanaland**, Lake N'Gami.

GEN. **Bembecia**.

*Bembecia* Hübn., *Verz.* p. 128 (1827) . . . . . Type, *respiformis*  
*Pennisetia* Dehne, *Stett. Ent. Zeit.* 1850. p. 28 . . . . . *respiformis*  
*Anthrenoptera* Swinh., *Cat. Het. Mus. Oxon.* i. p. 35 (1892) . . . . . *contracta*

**Bembecia contracta**.

† *Sphecia contracta* Wlk., viii. 11 (1856); *Hmps. Moths Ind.* i. p. 190. fig.

† *Sphecia fixseni* Leech, *P.Z.S.* 1888. p. 591. pl. xxx. f. 2; *Seitz, Gr. Schm. pal.* ii. pl. 52. f. 3; *Mats. Thousand Ins. Jap. Suppl.* iii. pl. 34. f. 3.

**Japan**; ? **India**.

*Bembecia odyneripennis* Wlk. = *marginata* Harr., Bartel, *Seitz, Gr. Schm. pal.* ii. p. 381. pl. 50. m. is from N. America (not Japan).



GEN. *Micrecia* nov.Type, *M. methalina*.

Proboscis aborted and minute ; palpi obliquely upturned to about vertex of head, smoothly scaled, the 2nd joint with slight tuft of scales in front at extremity ; frons smooth ; eyes rounded ; antennae of female almost simple, the shaft somewhat thickened and flattened, then tapering to extremity which is without a tuft of hair ; thorax smoothly scaled ; fore tibiae with tuft of spinous hair at extremity, the mid tibiae with tufts of spinous hair at base and extremity, the hind tibiae with tufts at medial and terminal spurs, the tarsi with slight tufts of spinous hair at the joints ; abdomen flattened with lateral tufts of scales towards extremity to which it tapers. Forewing narrow, the apex rounded, the termen obliquely curved ; veins 2 and 3 coincident ; 4, 5, 6 well separated ; 7 and 8 stalked ; 9 from cell ; 10 and 11 coincident. Hindwing with veins 3 and 5 strongly stalked ; 4 absent ; 6 from middle of discocellulars ; 7 from upper angle of cell ; 8 concealed in a fold.

† \* *Micrecia methalina* n. sp.

♀. Head, thorax, and abdomen black glossed with blue-green, the last with white line at base of second segment, the slight anal tuft fulvous yellow ; palpi white, tinged with brown towards extremity ; forelegs with the coxae white on outer side, the femora and tibiae white below, the mid legs with the femora white below, the tibiae white at middle and extremity, the hind legs with the femora white below, the tibiae wholly white ; ventral surface of abdomen mostly white. Forewing black glossed with blue-green. Hindwing hyaline, the veins and margins black, the black-brown on termen somewhat diffused on inner side.

**Little Kei I.** (Kühn), 1 ♀ type in Coll. Rothschild. *Exp.* 14 mill.

GEN. *Glossecia* nov.Type, *G. igniflua*.

Proboscis fully developed ; palpi obliquely upturned and not reaching vertex of head, the 1st and 2nd joints moderately scaled in front, the 3rd acuminate at tip ; frons smooth ; eyes rather small, elliptical ; antennae of male with long cilia, the shaft tapering to extremity where there is no tuft of hair ; thorax smoothly scaled ; legs smoothly scaled, tibiae at the spurs and tarsal joints with slight tufts of spinous hair ; abdomen rather flattened and with small lateral tufts of scales except towards base, the anal tuft slight. Forewing very narrow, the apex rounded, the termen obliquely curved ; veins 2, 3 coincident ; 4, 5, 6 well separated ; 7 and 8 stalked ; 9, 10, 11 from cell. Hindwing with vein 2 from towards angle of cell ; 3 and 5 stalked ; 4 absent ; 6 from rather above middle of discocellulars ; 7 from upper angle of cell ; 8 concealed in a fold.

*Glossecia igniflua*.

† *Sesia igniflua* Lucas, *Pr. Linn. Soc. N.S.W.* viii. p. 133 (1894).

**Queensland.**

GEN. *Paradoxecia* nov.Type, *P. gravis*.

Proboscis fully developed ; palpi upturned, hardly reaching to vertex of head and moderately scaled ; frons smooth ; eyes rather small, round ; antennae of female with the shaft fringed with long scales above on medial third, then tapering to apex, minutely ciliated, without tuft of hair at extremity ; thorax and abdomen smoothly scaled, the latter tapering to extremity ; the fore and mid tibiae at extremity, and the hind tibiae at middle and extremity with tufts of spinous hair above, the tarsi with some spinous hair at the joints. Forewing very long and narrow, the apex rounded, the termen oblique ; veins 2 and 3 stalked ; 4, 5, 6, 7, 8, 9, 10, 11 all from the cell and well separated except 7 and 8 which are from a point. Hindwing with vein 3 from well before angle of cell but nearer 5 than 2, 4 absent ; 6 and 7 from upper angle of cell ; 8 concealed in a fold.

*Paradoxecia gravis*.† *Aceria gravis* Wlk., xxxi. 12 (1864).

C. China.

GEN. *Similipepsis*.

<i>Similipepsis</i> Le Cerf, <i>Bull. Mus. Hist. Nat. Paris</i> , xvii. p. 304 (1911) . . . . .	Type.
<i>Vespaegeria</i> Strand, <i>Arch. Nat.</i> lxxviii. A. 12. p. 70 (1912) . . . . .	<i>violacea</i>
	<i>typica</i>

(1) † *Similipepsis lasiocera* n. sp.

♂. Head, thorax, and abdomen black with a purple-blue gloss ; palpi with some white in front ; abdomen with white segmental line on 2nd segment, the ventral surface white to just beyond the 2nd segment ; hind tibiae with a few spinous hairs near base and at extremity, the tarsi mostly white except the 1st joint ; (hindlegs wanting). Forewing hyaline, the veins and margins narrowly black ; a moderately broad black costal fascia with a purple-blue gloss, expanding somewhat towards apex. Hindwing hyaline, the veins and margins narrowly black.

*Hab.* Assam, Shillong (R. Turner), 1 ♂ type ; Siam. *Exp.* 18 mill.(2) *Similipepsis typica*.*Vespaegeria typica* Strand, *Arch. Nat.* lxxvii. A. 12. p. 71 (1912).

Sierra Leone ; Cameroons ; N. Rhodesia.

(3) \* *Similipepsis violacea*.*Similipepsis violaceus* Le Cerf, *Bull. Mus. Hist. Nat. Paris*, xvii. p. 304, pl. v. f. 5 (1911).

Gaboon.

GEN. *Tyriacta*.

<i>Tyriacta</i> Wlk., <i>Journ. Linn. Soc. Zool.</i> vi. p. 83 (1862) . . . . .	Type.
	<i>apicalis</i>

\* *Tyriacta apicalis*.† *Tyriacta apicalis* Wlk., *Journ. Linn. Soc. Zool.* vi. p. 84 (1862).

Borneo, Sarawak.

GEN. *Neotinthia* nov.

Type, *N. semihyalina*.

Proboscis fully developed ; palpi obliquely upturned to about middle of frons, rather broadly scaled in front towards base ; frons smooth ; eyes elliptical ; antennae of male with long cilia, tapering to extremity and not ending in a tuft of hair ; thorax and abdomen smoothly scaled, the anal tuft with large lateral tufts of scales ; fore legs with the coxae clothed with long spatulate scales, the tibiae with spinous hair at extremity, the tarsi fringed with scales above, (mid legs wanting), the hind legs with spinous hair at sides of tibiae at middle and extremity, and tufts of long spatulate scales above at middle and extremity, the tarsi with large tuft of scales on 1st joint above and fringe of scales on the other joints. Forewing narrow, the apex rounded ; veins 2 and 3 coincident ; 4, 5, 6, 7, 8, 9, 10, 11 from the cell and well separated except 7, 8, 9 which are from a point. Hindwing with veins 2 and 3 almost from a point ; 4 absent ; 5 from angle of cell ; 6 and 7 from upper angle ; 8 concealed in a fold.

† *Neotinthia semihyalina* n. sp.

♂. Head, thorax, and abdomen black-brown, the anal tuft orange-yellow, the palpi white in front, the neck with white behind the eyes ; fore tibiae and tarsi with some rufous, the hind tibiae with the spinous hair rufous, the tuft of scales on 1st joint of tarsi yellow. Forewing hyaline, the veins and margins black-brown, the costal area black-brown, the discoidal bar strong ; some cupreous in, below, and just beyond the cell. Hindwing hyaline, the veins and margins narrowly black-brown.

Burma, Ahsoon Hamdrow (Bingham), 1 ♂ type. *Exp.* 20 mill.

GEN. *Tinthia*.

	Type.
<i>Tinthia</i> Wlk., xxxi. 23 (1864) . . . . .	<i>varipes</i>
<i>Soronia</i> Moore, <i>A.M.N.H.</i> (4) xx. p. 83 (1877) nec <i>Erichs. Col.</i> 1845 . . . . .	<i>cuprealis</i>
<i>Ceratocorema</i> Hmps. <i>Moths Ind.</i> i. p. 200 (1893) . . . . .	<i>postcristata</i>

(1) \* *Tinthia postcristata*.

† *Ceratocorema postcristatum* Hmps., *Moths Ind.* i. p. 200. fig. (1893).

Ganjam ; Bombay.

(2) *Tinthia ruficollaris*.

† *Paranthrene ruficollaris* Pag., *Zoologica*, xxix. p. 21. pl. iv. f. 26 (1900).

Bismarck Arch., New Britain ; D'Entrecasteaux Is. Egum I. in Coll. Rothschild.

(3) † *Tinthia xanthospila* n. sp.

♂. Head and thorax black-brown with a slight greenish gloss, the palpi, back of head, a ring round neck, tegulae and shoulders orange-yellow ; abdomen with the basal segment orange-yellow (the other segments wanting) ; pectus blue-black ; fore and mid legs orange-yellow with some blue-black on femora and tibiae above, the mid tarsi with the 1st joint blue-black with the extremity orange-yellow, the hind legs with the coxae yellow, the femora blackish above, whitish below, the tibiae orange-yellow, blue-black at extremity, the tarsi blue-black with the spinous hair yellow. Forewing black with a greenish gloss ;

an elliptical orange-yellow patch beyond the cell. Hindwing hyaline, the veins and margins narrowly black, the terminal area slightly tinged with blackish, the hair at base of inner margin orange-yellow. Underside of forewing with the costa orange-yellow to near end of cell and some orange-yellow scales in and below the cell; hindwing with the costa orange-yellow to near apex.

**Queensland**, Cedar Bay (Meek), 1 ♂ type. *Exp.* 20 mill.

(4) *Tinthia varipes*.

† *Tinthia varipes* Wlk., xxxi. 24 (1864).

**Celebes**.

(5) *Tinthia cuprealis*.

† *Soronia cuprealis* Moore, *A.M.N.H.* (4) xx. p. 84 (1877).

**C. China**, Shanghai.

GEN. *Trichocerota*.

	Type.
<i>Trichocerota</i> Hmps., <i>Moths Ind.</i> i. p. 199 (1893) . . . . .	<i>ruficincta</i>
<i>Microspecia</i> Bartel, Seitz, <i>Gr. Schm. pal.</i> ii. p. 414 (1912) . . . . .	<i>tiniformis</i>

Sect. I. Antennae of male bipectinate with moderate branches to near apex.

(1) *Trichocerota constricta*.

† *Tinthia constricta* Butl., *Ill. Lep. Het. B.M.* ii. p. 61. pl. 40. f. 10 (1878); Bartel, Seitz, *Gr. Schm. pal.* ii. p. 413. pl. 52. f.

**Japan**.

Sect. II. Antennae of male with long fasciculate eilia.

(2) † \* *Trichocerota radians* n. sp.

♀. Head and thorax black, the frons ochreous white with some black scales above, the antennae fulvous with some black scales at sides, the palpi ochreous white, the 2nd and 3rd joints black behind except the former towards base, the neck with ochreous white ring, the tegulae with ochreous white band, the patagia ochreous white on outer side and with streaks of ochreous-white scales above them; the metathorax ochreous white; abdomen with the basal segment black, the 2nd ochreous white, the others black, strongly suffused with ochreous white, on the 3rd and 4th segments reduced to dorsal patches, the anal tuft ochreous white; pectus ochreous white; fore legs orange, the coxae yellowish white, orange on outer side, the mid legs with the femora ochreous white with some blackish above, the tibiae and tarsi orange, the tibiae with yellowish band at middle, (the hind legs wanting); ventral surface of abdomen yellowish white with narrow black segmental bands. Forewing black; a slight fulvous yellow streak below costa to end of cell, a yellowish white fascia below the cell and yellowish white fasciae beyond the cell in the interspaces below veins 8 to 4 tinged with fulvous towards extremities and ending just before termen; eilia pale fulvous yellow at base, blackish at tips. Hindwing hyaline, the veins and margins narrowly black; eilia pale yellow at base, blackish at tips. Underside of forewing with the costal edge fulvous to near apex, the fasciae fulvous, no fascia below vein 8 and below vein 7 towards apex only; hindwing with the costa fulvous, the eilia fulvous at base towards tornus.

**Assam**, Khásis, 1 ♀ type in Coll. Rothschild. *Exp.* 22 mill.

(3) † \* *Trichocerota intervenata* n. sp.

♂. Head, thorax, and abdomen black-brown with a leaden gloss; the palpi fulvous yellow; the neck with yellowish ring; the abdomen with some orange scales on 2nd segment and narrow orange bands on 5th and 6th segments; pectus, legs, and ventral surface of abdomen dark cupreous brown, a slight orange streak below the shoulders, the abdomen with whitish patch on 5th, 6th, and 7th segments. Forewing with the veins and margins black-brown, the interspaces filled in by semihyaline brownish white streaks, the streak in the cell bifurcating at middle; a small orange spot at base of costa. Hindwing hyaline, the veins and margins narrowly black-brown.

**Assam**, Khâsis, 1 ♂ type in Coll. Rothschild. *Exp.* 16 mill.

(4) \* *Trichocerata bicolor*.

*Zenodorus bicolor* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 372. pl. 431. f. 3968 (1917).

**Dahomey**.

(5) \* *Trichocerota ruficincta*.

† *Trichocerota ruficincta* Hmps., *Moths Ind.* i. p. 199. fig. (1893).

**Burma**, E. Pegu.

(6) † \* *Trichocerota fulvistriga* n. sp.

♂. Head and thorax black-brown with a slight leaden gloss; the palpi white in front, a fulvous streak on upper edge of patagia; abdomen with the four basal segments black-brown with a slight leaden gloss and an orange line at base of 4th segment, the three terminal segments clothed with rather rough grey-brown scales, the anal tuft red-brown; pectus, legs, and ventral surface of abdomen glossy dark brown, the hind coxae white, the 4th segment of abdomen with white band. Forewing black-brown; a semihyaline brownish white streak on lower part of cell, another below the cell, and short streaks beyond the cell above veins 3 and 4. Hindwing hyaline tinged with brown, the veins and margins narrowly black-brown.

**Assam**, Khâsis, 1 ♂ type in Coll. Rothschild. *Exp.* 24 mill.

(7) \* *Trichocerota spilogastra*.

*Trichocerota spilogastra* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 377. f. 3158 (1916); *id. loc.* xiv., p. 370.

**Up. Burma**, Momeit.

(8) † \* *Trichocerota dizona* n. sp.

♀. Head and thorax black-brown with a leaden gloss, the palpi white; abdomen black-brown, a narrow golden yellow band at base of 5th segment and a rather broader band at extremity of 7th; throat white; coxae and femora below with some white, the hind tibiae with the terminal half white below and the tarsi with some white below; ventral surface of abdomen with white bands on 5th and 6th segments. Forewing black-brown with a slight cupreous gloss; a slight hyaline streak below the cell to beyond middle of wing. Hindwing hyaline, the veins and margins narrowly black-brown.

**Assam**, Khâsis, 1 ♂ type in Coll. Rothschild. *Exp.* 26 mill.

(9) *Trichocerotha leiaeformis*.† *Aegeria leiaeformis* Wlk., viii. 58 (1856).**C. China.**(10) *Trichocerotha cupreipennis*.† *Aegeria cupreipennis* Wlk., xxxi. 11 (1864); Hmps. *Moths Ind.* i. p. 199. fig.**Madras, Coimbatore.**(11) *Trichocerotha univitta*.† *Trichocerotha univitta* Hmps., *J. Bomb. Nat. Hist. Soc.* xiii. p. 44 (1900).**Sikhim.**(12) † *Trichocerotha brachythyra* n. sp.

♂. Head, thorax, and abdomen black with a leaden gloss, the palpi orange-scarlet, the neck with ring of orange-scarlet hair, the shoulders with some orange-scarlet scales; pectus and fore coxae scarlet, (the fore legs wanting); the mid femora and tibiae scarlet, the latter black above at base and extremity, the spurs and tarsi black, the latter with the terminal joints scarlet below, the hind femora scarlet, the tibiae and tarsi black glossed with blue, the former with white band at middle and the spurs whitish, the latter with the spinous hair and terminal joints below scarlet. Forewing black glossed with metallic green. Hindwing black glossed with purple and silvery green; the cell, the submedian interspace to end of cell, and a streak above basal half of inner margin hyaline.

♀. Back of head and tegulae and prothorax except dorsally suffused with scarlet.

*Hab. Celebes*, Bonthain (Doherty), 1 ♂ type, Toli-toli (Fruhstorfer), 1 ♀ in Coll. Rothschild. *Exp.* ♂ 20, ♀ 26 mill.

(13) \* *Trichocerotha lambornella*.† *Tinthia lambornella* Durrant, *Trans. Ent. Soc.* 1913. p. 513.**S. Nigeria, Lagos.**GEN. *Zenodoxus*.

	Type.
<i>Zenodoxus</i> Grote and Rob., <i>Trans. Am. Ent. Soc.</i> ii. p. 184 (1868) . . .	<i>maculipes</i>
<i>Paranthrenopsis</i> Le Cerf, <i>Bull. Mus. Hist. Nat. Paris</i> , xvii. p. 302 (1911) . . .	<i>editha</i>
<i>Myrmecosphacia</i> Le Cerf, Oberth. <i>Ét. Lép. Comp.</i> xiv. p. 374 (1917) . . .	<i>lemoulti</i>

Sect. I. Antennae of male bipectinate to three-fourths length, the two terminal segments of abdomen clothed with rough scales above, the anal tuft large and with lateral tufts of long scales.

(1) *Zenodoxus proxima*.

*Trichocerotha proxima* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 377. f. 3157 (1916); *id. l.c.* xiv. p. 372.

**Assam, Khásis; Up. Burma, Momeit.**

Sect. II. Antennae of male clothed with rough scales above to near tips; abdomen slightly constricted towards base and tapering to a small anal tuft.

(2) † *Zenodoxus aurantia* n. sp.

♂. Head and thorax black mixed with some orange, the antennae orange with the terminal fourth black, the sides of frons, palpi, and neck orange;

abdomen black with orange bands on the six first segments, interrupted dorsally on the first four; legs orange-yellow, the tibiae and 1st joint of tarsi fiery orange above; ventral surface of abdomen orange-yellow. Forewing black-brown suffused with orange scales, the cell, a streak below it, and short streaks in the interspaces beyond the cell below veins 7 to 4 hyaline; an orange bar from costa near base, streaks on medial part of costa and below subcostal nervure and above base of inner margin. Hindwing hyaline, the costa to end of cell, and the veins orange, the costa towards apex, extremities of veins 6, 5, 3, termen, and inner margin black. Underside with fiery red replacing the orange.

♀. Head, thorax, first six segments of abdomen, anal tuft, antennae, pectus, and legs entirely orange; forewing with more orange on basal half, a black discoidal patch; hindwing with the veins beyond the cell black, the termen and inner margin orange.

**Assam**, Khásis, 1 ♂, type, ♂, ♀ in Coll. Rothschild. *Exp.* 36-40 mill.

Sect. III. (*Zenodoxus*). Antennae of male with long fasciculate cilia.

(3) † *Zenodoxus flavicincta* n. sp.

♀. Head and thorax black-brown, the palpi, the shoulders in front, and the metathorax at sides orange-yellow; abdomen black-brown with orange-yellow bands on each segment except the anal segment which is orange and black with the anal tuft orange-yellow; pectus whitish and brown; legs orange-yellow with some blackish above; ventral surface of abdomen yellowish white banded with blackish, the bands incomplete on terminal segments. Forewing black-brown with some orange-yellow scales, especially in the interspaces of terminal area; a wedge-shaped hyaline patch in the cell and short streaks beyond the cell above bases of veins 4, 5, 6. Hindwing hyaline, the veins and margins narrowly black-brown, the hair at base of inner margin yellow. Underside of forewing with orange-yellow streak below costa to beyond middle.

**Borneo**, Pulo Laut (Doherty), 1 ♀ type. *Exp.* 26 mill.

(4) *Zenodoxus editha*.

† *Tinthia editha* Butl., *Ill. Lép. Het. B.M.* ii. p. 61. pl. 40. f. 9 (1878); Bartel, Seitz, *Gr. Schm. pal.* p. 413. pl. 52. f.

*Paranthrenopsis harmandi* Le Cerf, *Bull. Mus. Hist. Nat. Paris*, xvii. p. 302. pl. v. f. 4 (1911).

**Japan.**

GEN. *Proaegeria*.

*Proaegeria* Le Cerf, Oberth. *Ét. Lép. Comp.* xiv. p. 275 (1917) . . . . . Type. *vouauxi*

\* *Proaegeria vouauxi*.

*Proaegeria vouauxi* Le Cerf, Oberth. *Ét. Lép. Comp.* xii. i. pl. 381. f. 3195 (1912); *id. l.c.* xiv. p. 276.

**Cameroons.**

*Genera auctorum.*

<i>Conopyga metallescens</i> Feld., <i>Sitz. Akad. Wiss.</i> xliii. p. 27. (1861) ? <i>Sura</i> or <i>Paranthrene</i>	<b>Amboina</b>
<i>Adixoana auripyga</i> Strand, <i>Arch. Naturg.</i> lxxviii. A. 12. p. 69 (1913) . . . . .	<b>Cameroons</b>
<i>Conopsia terminiflava</i> Strand, <i>Arch. Naturg.</i> lxxviii. A. 12. p. 71 (1913) . . . . .	<b>Cameroons</b>
<i>Camaegeeria auripicta</i> Strand, <i>Arch. Naturg.</i> lxxix. A. 1. pp. 48, 49 (1914) . . . . .	<b>Cameroons</b>
<i>Nyctaegeria rohani</i> Le Cerf, <i>Bull. Mus. Paris</i> , xx. p. 336 (1915) . . . . .	<b>Angola</b>
<i>Bonia unicolor</i> Wlk., <i>Journ. Linn. Soc. Zool.</i> vi. p. 83 (1862) belongs to the <i>Heliodinidae</i>	<b>Borneo</b>

THREE NEW GENERA OF *TINEINA* RESEMBLING  
*AEGERIADAE*.

BY JOHN HARTLEY DURRANT, F.E.S.

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**HELIODINIDAE.**

**ANYPOPTUS**, gn. n.

(ἀνύποπτος, *ov* = unsuspected).

*Type*: **Sphacia tricolor** Rothsch.

*Antennae* (♀) simple, densely scaled. *Labial Palpi* erect, closely scaled; terminal joint short, pointed, scaled. *Head* loose-haired above. *Eyes* large, prominent. *Thorax* smooth. *Forewings* narrow, elongate, apex rounded, termen and tornus evenly rounded: *neuration* 13 veins; 7-8 separate, 7 to termen; 2-5 approximated at origin; 6-9 approximated at origin, 6 remote from 5; 11 from two-thirds of cell; an extra vein (12<sup>o</sup>) between 11-12, from before one-third of cell; an internal vein from midway between 11 and 12 to above 5. *Hindwings* narrow, elongate, apex rounded, termen oblique: *neuration* 8 veins; 6-7 separate; 3-4 stalked; 5 almost parallel with 6, remote from 3+4, an internal vein to above 5; 12 separate. *Abdomen* robust, anal segment long-haired (probably tufted in a good specimen); ovipositor extruded. *Legs*: hind tibiae long-haired above, but with slight indication of division into tufts; hind tarsi densely clothed with bristles at ends of joints.

Perhaps most nearly allied to *Cotaena* Wkr.

**Anypoptus tricolor** Rothsch.

*Sphacia tricolor* Rothsch., *Nov. Zool.* xix. 123. sp. 3 (1912).

*Type* ♀, Mus. Rothsch.

*Hab.* SARAWAK: Malang Road, 30. X. 1909 (*J. C. Moulton*).

The type was wrongly recorded as a ♂; it is a ♀ with trifold frenulum and extruded ovipositor.

**DOLOPHROSYNE**, gn. n.

(δολοφροσύνη, *ή* = subtlety).

*Type*: **Dolophrosyne balteata** Drnt.

*Antennae* three-fourths, biciliate in ♂. *Labial Palpi* recurved; median joint clothed with appressed scales, terminal joint shorter than median, pointed. *Maxillary Palpi* rudimentary. *Haustellum* well-developed. *Ocelli* absent. *Head* and *Thorax* smooth. *Forewings* narrow, elongate, apex depressed, obtuse, termen obliquely rounded: *neuration* 12 veins; 7-8 stalked, 7 to costa; 2 from beyond five-sixths; 3-5 approximated at origin; 6-9 approximated at origin; 11 from two-thirds; 1 basally furcate. *Hindwings* slightly broader than the forewings, costa rather straight, apex depressed, obtuse, termen obliquely rounded *neuration* 8 veins; 6-7 long-stalked; 3-4 connate; 5 arising about midway



between 4 and 6, but approaching 4 on the margin; 11 connecting radius to 12. *Abdomen* robust, anal tufts strongly developed and spreading laterally in both ♂ and ♀. *Legs*: hind tibiae smooth, with expansible hair-scales at origin of spurs; hind tarsi with short spines at apex of joints.

Allied to *Pseudaegeria* Wlsm., but differing in the structure of the antennae, in FW. 7 running to costa, and in HW. 3-4 being connate. In general appearance *Dolophrosyne balteata* most strongly resembles the genus *Paranthrene* Hb. (= *Sciapteron* Stgr.)—*Aegeriadae*.

***Dolophrosyne balteata*, sp. n.**

*Antennae* blackish. *Palpi* dark fuscous. *Head* and *Thorax* dark purplish fuscous; face shining. *Forewings* dark purplish fuscous, with some scattered whitish-opaline scales which occur in most profusion above the tornus; underside blackish fuscous. *Exp. al.* ♂ 17 mm.—♀ 22 mm. *Hindwings* hyaline, with ochreous scales along the veins and toward the costa; the scaling on the veins becomes blackish toward the margins, which with the cilia are also blackish fuscous; underside as above, but with a strong blackish subcostal line. *Abdomen* blackish fuscous, the second and fifth segments strongly banded posteriorly with ochreous scales, and with lateral patches of the same colour on the third and fourth segments, sometimes continued narrowly along the posterior edge of the fourth above; anal tuft ochreous, outwardly blackish fuscous. *Legs*: anterior and median pairs blackish fuscous, front tarsi ochreous beneath; posterior pair blackish fuscous, mixed with ochreous in the tufting at the spurs, femora ochreous, tarsi banded with whitish ochreous.

*Type*: ♂ (350,090); ♀ (350,091). BM. [*PT.* (7,566, Drnt. Det. 1919), Mus. Rothsch.]

*Hab.* QUEENSLAND: near Duaringa. Seven specimens from Dr. Lucas, and one in Lord Rothschild's Museum from the Barnard Collection.

**HEMEROPHILIDAE (= GLYPHIPTERYGIDAE).**

**CIBDELOSES, gn. n.**

(κίβδηλος = deceitful; σῆς, ὄ = moth).

*Type*: *Cibdeloses dolopsis* Drnt.

*Antennae* (♀) two-thirds, somewhat thickened above by appressed scales (from about one-fourth to three-fourths). *Labial Palpi* moderate, ascending; median joint clothed with appressed scales; terminal joint less than half second, pointed. *Maxillary Palpi* obsolete. *Ocelli* (not visible). *Head* with appressed scales. *Thorax* smooth. *Forewings* elongate, narrow at base, costa nearly straight to two-thirds, thence slightly arched, apex slightly depressed, obtuse, termen obliquely rounded: *neuration* 12 veins; 7-8 stalked, 8 to termen, 9 to apex; 2 from near end of cell, closely approximate to 3 at base; 4-5 slightly approximate toward base; 5-6 parallel; 1 weak. *Hindwings* broader than forewings, costa nearly straight, apex slightly depressed, obtuse, termen and dorsum evenly rounded: *neuration* 8 veins; 2-4 separate, remote; 6-7 stalked, 5 out of their stalk; media in line with 4. *Abdomen* (♀) moderate, anal tuft well-developed. *Legs*: hind tibiae smooth-scaled.

A transparent form, allied to *Burlacena* Wkr., but much more *Aegeria*-like than that genus.

**Cibdeloses dolopis**, sp. n.

*Antennae* dark purplish fuscous, basal joint and a broad patch above, before three-fourths, orange-ochreous. *Palpi* pale orange-ochreous. *Head* shining, leaden-metallic, pale orange-ochreous around the eyes and neck. *Thorax* leaden-metallic, posteriorly shining orange-ochreous; *tegulae* margined with orange-ochreous, with two interrupted ochreous lines between them on the thorax; *patagia* tipped with ochreous. *Forewings* hyaline, the costa, termen, dorsum, and neuration dark purplish fuscous; an orange subcostal patch near the base with a similar patch obliquely beyond it on the dorsum; *cilia* dark purplish fuscous. *Exp. al.* 22-23 mm. *Hindwings* hyaline, narrowly margined with purplish fuscous, with some ochreous scaling below the costa; the neuration toward the margin, and the *cilia* dark purplish fuscous. *Abdomen* leaden-metallic, banded with yellow, anal tuft dull ochreous; underside yellow, banded with ochreous. *Legs* orange-ochreous, purplish fuscous above on the outer half of the hind tibiae and on the basal joint of the tarsi.

*Type*: ♀ (400,130), BM. [*PT.* ♀ (7,567, Drnt. Det. 1919), Mus. Rothsch.]

*Hab.* ASSAM: Khásis, V-VI 1895 (*Nat. Coll.*). Two specimens.

## TYPES OF BIRDS IN THE TRING MUSEUM.

BY ERNST HARTERT, PH.D.

**B. TYPES IN THE GENERAL COLLECTION.**

(For A., *Types in the Brehm Collection*, see NOVITATES ZOOLOGICAE, 1918, pp. 4-63).

**I. CORVIDAE TO MELIPHAGIDAE.**

THIS is the first instalment of the list of types in the general collection. It is written on the same plan as the list of types in the Brehm Collection. As, however, the majority of the names are valid—only 40 out of 338 being now considered as anticipated, not valid or doubtful forms—a dagger (†) has been placed against the names of species and subspecies which cannot be used, while in the list of the Brehm types valid names were marked with an asterisk (\*).

The majority of the birds described from the Tring Museum are naturally named by Lord Rothschild and myself, and next to ourselves by those ornithologists who have temporarily worked here—*i.e.* Carl Hellmayr, Osear Neumann and Erwin Stresemann—but there are altogether also a good many types made by other ornithologists in the collection, partly purchased with smaller collections or allowed to be described when already in the Tring Museum, the contents of which are so generously placed at the disposal of ornithologists from all parts of the world.

A critical examination of all types is not always easy and my judgment may not be correct in every case, but I trust that it is so in nearly all instances.

TRING, November 1918.

**CORVIDAE.**1. *Garrulus glandarius rufitergum* Hart. = *G. glandarius rufitergum*.

*Garrulus glandarius rufitergum* Hartert, *Vög. pal. Fauna*, i. p. 30 (Novemb. 1903—"Grossbritannien und Irland." Ireland errore!)

Type: ♂ ad., Tring, 21. x. 1895. Shot by Hon. (now Lord) Walter Rothschild.

The British Jay is very closely allied to the continental form, but it is distinguishable if a series is compared; moreover, it is of particular interest as a stepping-stone from *G. glandarius glandarius* to *G. glandarius hibernicus*.

2. *Garrulus glandarius hibernicus* With. and Hart. = *G. glandarius hibernicus*.

*Garrulus glandarius hibernicus* Witherby & Hartert, *Brit. B.* iv. p. 234 (1911—Ireland).

Type: Ad., County Wexford, Ireland, November 1910. From Williams & Son (W. J. Williams) in Dublin.

This is the most distinct one of the Irish subspecies hitherto separated. There are now 28 skins in the Tring Museum and a good series in Witherby's

collection. It is strange that Irish birds have only quite recently been compared with their English and continental brothers. So far, besides the Jay, there have been separated the Irish Coal-tit and the Dipper.

3. *Garrulus glandarius whitakeri* Hart. = *G. glandarius whitakeri*.

*Garrulus glandarius whitakeri* Hartert, *Vög. pal. Fauna*, i. p. 33 (1903—North Marocco).

Type: ♂ ad., Tangiers, N. Marocco, No. 6348. Vaucher Coll.

(For *Garrulus glandarius kleinschmidti* = *fasciatus* see list of types in the Brehm Collection).

4. *Cissa jefferyi* Sharpe = *Cissa jefferyi*.

*Cissa jefferyi* Sharpe, *Ibis*, 1888, p. 383 (Kina Balu).

*Cf. Ibis*, 1889, pl. iv. Our late friend Sharpe, *Handlist B. v.* p. 609, spoiled the ease of the species of *Cissa*, omitting to state that *Cissa minor* is not only found on Sumatra, but also on Borneo, where *C. jefferyi* and *minor* occur on the same mountain. Kina Balu, though the former inhabits higher elevations.

Type: ♂ ad., Kina Balu, 8,000 feet, 16. iii. 1888. John Whitehead leg.

5. *Cissa katsumatae* Rothschild = *Cissa katsumatae*.

*Cissa katsumatae* Rothschild, *Bull. B.O. Club*, xiv. p. 9 (1903—Hainan).

Type: ♀ ad., Mt. Wuehi, Hainan, 24. iii. 1903. Katsumata leg. *Cf. NOVITATES ZOOLOGICAE*, 1910, p. 253.

6. *Dendrocitta sinensis insulae* Hartert = *D. sinensis insulae*.

*Dendrocitta sinensis insulae* Hartert, *Nov. Zool.* 1910, p. 252 (Hainan).

Type: ♂ ad., No Tai, Hainan, 3. x. 1902. Katsumata leg.

7. *Dendrocitta formosae sinica* Stres. = *D. formosae sinica*.

*Dendrocitta formosae sinica* Stresemann, *Orn. Monatsber.* 1913, p. 9 (China, Typus Ching-Feng in Fokien).

Type: ♀ ad., Ching-Feng, Fokien, 21. xii. 1897 (not 21. x. as quoted by Stresemann). F. W. Styan Coll.

*D. f. sinica* is only a new name for the bird generally called "*Dendrocitta sinensis*," *Corvus sinensis* Latham, 1790, being preoccupied by *Corvus sinensis* Gmelin, 1788, which is based on the drawing of an unknown and probably fictitious Chinese bird.

8. *Cyanopica cyanus swinhoei* Hart. = *C. cyanus swinhoei*.

*Cyanopica cyanus swinhoei* Hartert, *Vög. pal. Fauna*, i. p. 24 (1903—China).

Type: ad., Kiukiang, 26. xi. 1882. (No. 351.)

9. *Cyanopica cyanus interposita* Hart. = *C. cyanus interposita*.

*Cyanopica cyanus interposita* Hartert, *Nov. Zool.* 1917, p. 493 (Tsinling Mts. and Corea).

Type: ♂ ad., Tai-pai-shan, Tsin-ling Mts., 20. xi. 1905. Collected by Alan Owston's Japanese collectors. (No. 20915.) (Sharpe [*Handlist B. v.* p. 605] maintained that the correct generic name was *Cyanopoliis*, but his quotation in the *Cat. B. Brit. Mus.* iii. p. 67 is incorrect and the earliest name is *Cyanopica*).

10. *Nucifraga caryocatactes japonicus* Hart. = *N. caryoc. japonicus*.

*Nucifraga caryocatactes japonicus* Hartert, *Nov. Zool.* 1897, p. 134 (Japan).

Type : ♂ ad., No. 197, Shimotsuke, Island of Hondo, Japan. Bought from Alan Owston.

11. *Nucifraga caryocatactes rothschildi* Hart. = *N. caryoc. rothschildi*.

*Nucifraga caryocatactes rothschildi* Hartert, *Vög. pal. Fauna*, i, p. 27 (1903—Tian-sehan).

Type : ♂ ad., south of Lake Issik-Kul, February 1901. Collected by Rückbeil, Tancre's faithful collector. (No. I. K. 44.)

12. *Corvus meeki* Rothsch. = *Corvus meeki*.

*Corvus meeki* Rothschild, *Bull. B.O. Club*, xv, p. 21 (1904—Bougainville).

Type : ♂ ad., Bougainville, Solomon Is., 2. v. 1904. A. S. Meek Coll. No. A. 1719.

13. *Gazzola unicolor* Rothsch. and Hart. = *Gazzola unicolor*.

*Gazzola unicolor* Rothschild & Hartert, *Bull. B.O. Club*, xi, p. 29 (1900—Banggai, Sula Islands).

Type : ad., Banggai, Sula Islands. Native Coll.

In 1900 we received a number of well-prepared skins, collected by natives, from Mr. van Renesse van Duivenbode. They were said to come from Banggai in the Sula group, east of Celebes. Though the localities of skins from this source are often doubtful and incorrect, the locality must have been correct this time, as shown by certain other species and subspecies. Among these skins were the two specimens of *Gazzola unicolor*, and they remain all that is known to this day.

The genus *Gazzola* is based on rather slight grounds, and is perhaps as well united with *Corvus*. All that I can appreciate is the rather wide ridge of the culmen, which is broadly devoid of bristles to the base, and the general thickness of the beak. The tail is almost quite square. The shape of the wings affords no reason for generic separation.

14. *Corvus corax hispanus* Hart. and Kleinschm. = *C. corax hispanus*.

*Corvus corax hispanus* Hartert & Kleinschmidt, *Nov. Zool.* 1901, p. 45 (Spain. Type Aguilas).

Type : ♂ ad., Aguilas near Murcia, shot from nest, 2. v. 1898. Gray leg.

15. *Corvus corax canariensis* Hart. and Kleinschm.

*Corvus corax canariensis* Hartert & Kleinschmidt, *Nov. Zool.* 1901, p. 45 (Canary Islands. Type from Palma).

Type : ♂ ad., Palma, Canary Islands. Scott Wilson leg.

I admit that it is not easy to distinguish this form from *C. c. tingitanus*, and that one might not agree to separate it, while no such questions can arise with regard to *C. c. hispanus*. Mr. Bannerman (*Ibis*, 1912, p. 625, 1914, p. 235) declares that he does not find the supposed differences in his series, and he also cites a letter from Otto le Roi, who said that he had come to the same conclusion. At the same time I am not convinced that our conclusions are quite incorrect. While there are specimens of *canariensis* which have the same beaks as *tingitanus*, in the majority of examples the bill is slightly more elongated and not so high,

and the haekles on the throat are in most cases narrower and more pointed in *canariensis*, wider towards the tips in *tingitanus*.

When describing *canariensis*, Kleinschmidt and I had very few specimens for comparison, in fact Kleinschmidt saw only the type and I four others, while of *tingitanus* 12 were available in Tring alone, and some in Kleinschmidt's collection. We have now 32 *tingitanus* and 16 *canariensis* in the Tring Museum. The usually greater length in the bill of the latter is best seen when measuring the gonys. Males have a longer bill than females, as a rule.

16. *Corvus corax clarionensis* Rothsch. and Hart. = *Corvus corax clarionensis*.

*Corvus corax clarionensis* Rothschild & Hartert, *Nov. Zool.* 1902, p. 381 (Clarion Island).

Type: ♂ ad., Clarion Island, Revilla Gigedo group, 11. xii. 1900. No. 103. R. H. Beck leg.

We have since also received a male from San Benedicte Island with the wing-tips rather worn, but hardly over 390 mm. long. Cf. Ridgway, *B. North and Middle Am.* iii. p. 265.—Ridgway unites with these birds specimens from San Clemente and Santa Catalina in the Santa Barbara off South California, but states that these measurements are larger, having wings up to 412.7 mm., but shorter tarsi; perhaps these birds belong to another race, the Revilla Gigedo group being far away and having many specialized forms. According to Oberholser, however, *C. c. clarionensis* extends even over the south-western United States!

17. *Corvus macrorhynchus osai* Ogawa = *Corvus coronoides osai*.

*Corvus macrorhynchus osai* Ogawa, *Annot. Zool. Japon.* v. pt. 4. p. 196 (1905—Okinawa, Ishigaki and Kohama Iriomote).

Type: ♂ ad., Kohama Island, southern group of Riu-Kiu (Loo-tshoo) Islands, 26. vii. 1904. Collected by Owston's Japanese collectors. No. 1647.

This is a very small form. Cf. Stresemann, *Verh. Orn. Ges. Bayern*, xii. p. 282. In this article Stresemann has very ably reviewed the eastern Ravens, and he makes *japonensis*, *mandshuricus*, *hassii*, *connectens*, *osai*, *intermedius*, *andamanensis*, *levaillanti*, *madaraszi*, *hainanus*, *colonorum*, *macrorhynchus*, *philippinus*, *orru*, *insularis*, *coronoides*, *perplexus*, *bennetti*, *ceciliae*, and *lutirostris* subspecies of *coronoides*, a view with which I fully agree.

18. *Corvus coronoides connectens* Stres. = *C. coronoides connectens*.

*Corvus coronoides connectens* Stresemann, *Verh. Orn. Ges. Bayern*, xii. p. 281 (1916—Okinawa and Miyako, Riu-Kiu Islands).

Type: ♂ ad., Miyako-shima, 5. vii. 1904. No. 1642. Alan Owston's Japanese collectors.

? 19. *Corvus coronoides madaraszi* Stres. = *C. coronoides madaraszi*.

*Corvus coronoides madaraszi* Stresemann, *Verh. Orn. Ges. Bayern*, xii. p. 285 (1916—Ceylon).

Type: ♂ ad., Colombo, 13. ii. 1894. E. Ernest Green leg.

Seems to be distinguished from its nearest ally (*levaillantii*) by its short wings and more glossy, somewhat violet underside; but must perhaps be called *culminatus*, if the South Indian birds are as small as those from Ceylon (Baker in litt.). Most Ceylon forms are smaller than their continental brethren.

20. *Corvus coronoides hainanus* Stres. = *C. coronoides hainanus*.

*Corvus coronoides hainanus* Stresemann, *Verh. Orn. Ges. Bayern*, xii. p. 286 (1916—Hainan).

Type : ♂ ad., Hoihow, 15.iii.1902. Katsumata leg.

21. *Corvus frugilegus tschusii* Hart. = *Corvus frugilegus tschusii*.

*Corvus frugilegus tschusii* Hartert, *Vög. pal. Fauna*, i. p. 14 (1903—North Persia, Turkestan, S.W. Siberia, in winter in Afghanistan, Cashmir, and N.W. India).

Type : ♂ ad., Gilgit, 7. xii. 1879. J. Scully leg. (No. 711.)

22. *Coloetus monedula cirtensis* Rothsch. and Hart. = *C. monedula cirtensis*.

*Coloetus monedula cirtensis* Rothschild & Hartert, *Nov. Zool.* xviii. p. 471 (1912—North Algeria).

Type : Constantine, N. Algeria, 4. xii. 1911. Paul Dechabert leg.

## PARADISEIDAE.

† 23. *Aeluroedus jobiensis* Rothsch. = *Ailuroedus melanotis arfakianus*.

*Aeluroedus jobiensis* Rothschild, *Bull. B.O. Club*, iv. p. xxvi. (1895—Jobi).

Type : An adult specimen purchased from van Renesse van Duivenbode, said to have been prepared on Jobi Island by one of Bruijn's hunters. The latter statement is probably correct, judging from the preparation of the skin, but the locality is almost certain to be erroneous. Cf. Rothschild, *Paradiseidae, Tierrcich 2. Lief*, p. 7 (1898), and *NOVITATES ZOOLOGICAE*, 1903, p. 67.

24. *Ailuroedus buccoides oorti* Rothsch. and Hart. = *Ailuroedus buccoides oorti*.

*Ailuroedus buccoides oorti* Rothschild & Hartert, *Nov. Zool.* 1913, p. 526 ("N.W. New Guinea and adjacent islands." Type Waigiu).

Type : ♂ ad., Waigiu, 24. xii. 1902. John Waterstradt leg.

25. *Amblyornis flavifrons* Rothsch. = *Amblyornis flavifrons*.

*Amblyornis flavifrons* Rothschild, *Nov. Zool.* 1895, p. 480 (Dutch New Guinea).

Type : An adult bird, doubtless a male (as females of *Amblyornis* have no crest) of Arfak native preparation, purchased from van Renesse van Duivenbode. See pl. i., *NOVITATES ZOOLOGICAE*, 1896.

The exact locality of this very distinct species is not yet known, and our three males are all which are on record.

26. *Loboparadisea sericea* Rothsch. = *Loboparadisea sericea*.

*Loboparadisea sericea* Rothschild, *Bull. B.O. Club*, vi. p. xvi. (1896—Dutch New Guinea).

Type : ♂ ad. Purchased from van Renesse van Duivenbode, who said it was bought by his collectors from natives at Kurudu, Dutch New Guinea. Whether this locality is correct, we cannot say, but Albert Meek discovered the species on Mount Goliath, C. Boden Kloss on the Utakwa River, 4,200 to 5,500 feet high.

27. **Lophorina minor latipennis** Rothsch. = *Lophorina superba latipennis*.

*Lophorina minor latipennis* Rothschild, *Bull. B.O. Club*, xix, p. 92 (1907—Rawlinson Mountains).

Type: ♂ ad., Rawlinson Mts., German New Guinea, December 1905 or January 1906. Carl Wahnes leg.

*L. minor* is a subspecies of *L. superba*, which therefore consists of *L. superba superba*, *L. superba latipennis*, and *L. superba minor*.

28. **Parotia duivenbodei** Rothsch. = *Parotia duivenbodei*.

*Parotia duivenbodei* Rothschild, *Bull. B.O. Club*, x, p. 100 (1900—Dutch New Guinea).

Type: Adult male purchased from van Renesse van Duivenbode. Dutch New Guinea; bought from native hunters.

There is now a specimen in the Paris Museum, with no supra-orbital flags at all!

29. **Parotia carolae meeki** Rothsch. = *Parotia carolae meeki*.

*Parotia carolae meeki* Rothschild, *Bull. B.O. Club*, xxvii, p. 35 (1910—Snow Mountains).

Type: ♂ jun. (or moulting from off-plumage into nuptial), Lower Snow Mountains near Uta kwa River, 2,500 feet, 1. viii. 1910. No. 4558. A. S. Meek Coll.

30. **Parotia wahnesi** Rothsch. = *Parotia wahnesi*.

*Parotia wahnesi* Rothschild, "Two New Birds of Paradise," p. 2 (1906—"Mountains of German New Guinea"); see also *Bull. B.O. Club*, xix, p. 8 (October 1906); *Ibis*, 1911, pl. vi.

Type: ♂ fere ad., Rawlinson Mountains, Kaiser Wilhelm Land, December 1905—January 1906. Carl Wahnes leg.

31. **Paradigalla brevicauda** Rothsch. & Hart. = *Paradigalla brevicauda*.

*Paradigalla brevicauda* Rothschild & Hartert, *Nov. Zool.* 1911, p. 159 (Mt. Goliath).

Type: ♂ ad., Mt. Goliath, Eastern Central Lu ch New Guinea, 22. i. 1911. A. S. Meek Coll. No. 5164.

32. **Manucodia ater altera** Rothsch. & Hart. = *Manucodia atra altera*.

*Manucodia ater altera* Rothschild & Hartert, *Nov. Zool.* 1903, p. 84 (Eastern (British) New Guinea, Eastern Papuan Islands, and Aru).

Type: ♂ ad., Sudest Island, Louisiade group, 16. iv. 1898. No. 1735. A. S. Meek Coll.

33. **Cicinnurus regius coccineifrons** Rothsch. = *Cicinnurus regius coccineifrons*.

*Cicinnurus regius coccineifrons* Rothschild, *Nov. Zool.* 1896, p. 10 (Jobi).

Type: ♂ ad., Jobi Island, Geelvink Bay, 11. xi. 1883. H. Guillemard leg.

† 34. **Paradisea minor** var. **albescens** Mussch.

*Paradisea minor*; var. *albescens* Musschenbroek, *Bijdr. Taal-Land-en Volkenk. Nederl. Indië*, ser. 4, vii, p. 186 (1883).

Type: ♂ jun., with white breast and abdomen of *Paradisea minor minor* with the plumes of an adult male of *P. m. jobiensis*. Bought somewhere in the east by Messrs. Beal & Steere. Ex Michigan University Collection.



35. *Paradisea minor jobiensis* Rothsch. = *Paradisea minor jobiensis*.

*Paradisea minor jobiensis* Rothschild, *Bull. B.O. Club*, vi. p. xlvi. (1897—Jobi Island).

Type : ♂ ad., Jobi Island, 9. xi. 1883. H. Guillemard leg.

36. *Loborhamphus nobilis* Rothsch. = *Loborhamphus nobilis*.

*Loborhamphus nobilis* Rothschild, *Bull. B.O. Club*, xii. p. 34 (1901—Dutch New Guinea). Figured : *Nov. Zool.* 1903. pl. i.

Type : Adult male, from some part of Dutch New Guinea. Purchased from van Renesse van Duivenbode. Another ♂ reached the Tring Muscum afterwards.

† 37. *Pseudastrapia lobata* Rothsch. probably = *Pseudastrapia ellioti*.

*Pseudastrapia lobata* Rothschild, *Bull. B.O. Club*, xxi. p. 25 (1907).

Type : ♂ immat. (probably). Dutch New Guinea. Imported by Bensbach.

Rothschild, *Ibis*, 1911, p. 361, has quite correctly stated, that "*Epimachus ellioti*" belongs to the same genus as the very curious *Pseudastrapia lobata*. In fact, in view of the females (and probably young males) of *Astrapia nigra* and *rothschildi* bearing exactly the same relation to the adult male as this *Pseudastrapia lobata* does to *Pseudastrapia ellioti*, I believe that *lobata* is the young male (or female) of *Pseudastrapia ellioti*. The name *Pseudastrapia* is well chosen. Of neither *P. ellioti* nor "*lobata*" do we know the exact locality. The latter is unique, while of *ellioti* only two adult males are known, one in London (an imperfect skin without wings and feet !), and one in Dresden. Nearly thirty years ago a perfect male was offered for sale in London and shown both to Lord Rothschild and Dr. Sharpe, but the price was so exorbitant that both rejected it. Sharpe says he does not know what became of the specimen, but there can be no doubt that it is the one which the late A. B. Meyer bought for the Dresden Museum, at the same time, *i.e.* in 1889 or 1890.

38. *Astrapia rothschildi* Foerster = *Astrapia rothschildi*.

*Astrapia rothschildi* Foerster, Foerster & Rothschild, *Two New Birds of Paradise*, p. 2 (1906—"Mountains of German New Guinea").

Type : ♂ ad., Rawlinson Mountains, 800—1,000 m. Carl Walnes leg.

39. *Astrapia splendidissima* Rothsch. = *Astrapia splendidissima*.

*Astrapia splendidissima* Rothschild, *Nov. Zool.* 1895. p. 59. pl. v. ("Said to come from the foot of the Charles Louis Mountains").

Type : ♂ ad., found among plumassier's trade-skin, bought from van Renesse van Duivenbode. In view of the fact that this magnificent species has been found by Albert Meek on Mount Goliath, and by C. Boden Kloss's Dyaks on the Utakwa River, slopes of Snow Mountains, the original locality has probably been quite or nearly correct, though information about the Papuan trade-skins is generally unsatisfactory.

40. *Epimachus astrapioides* Rothsch. = *Falcinellus astrapioides*.

*Epimachus astrapioides* Rothschild, *Bull. B.O. Club*, vii. p. 22 (1898—Dutch New Guinea); *Nov. Zool.* xviii. pl. vii.

Type : ♂ ad., Dutch New Guinea, trade-skin. Still unique !

41. *Falcinellus striatus atratus* Rothsch. and Hart. = *Falcinellus striatus atratus*.

*Falcinellus striatus atratus* Rothschild & Hartert, *Nov. Zool.* xviii. 1911. p. 160 (Mt. Goliath).

Type: ♂ ad., Mount Goliath, Central Dutch New Guinea, 5,000 ft., 12. i. 1911. A. S. Meek leg. No. 5100.

42. *Seleucidés ignotus auripennis* Schlüt. = *S. ignotus auripennis*.

*Seleucidés ignotus auripennis* Schlüter, *Falco* vii. p. 2 (1911—"Dallmannshafen in Deutsch-Neuguinea").

Type: ♂ ad., Dallmannshafen, 1910.

43. *Paradisea mirabilis* Rehw. = *Janthothorax mirabilis*.

*Paradisea mirabilis* Reichenow, *Orn. Monatsber.* 1901. p. 186 ("Deutsch Neuguinea"); *Fig. Journ. f. Orn.* 1902. pl. i.

Type: ♂ ad., near Kaiser Wilhelmshafen, 1901.

This species is closely allied to *Janthothorax bensbachi*, of which only the type in Leyden is known. Of *J. mirabilis* we have, in the Tring Museum, now another specimen with the elongated central tail-feathers, but flat and without legs, in the old Papuan preparation. If more material is known and available for comparison, it is not impossible that *J. mirabilis* turns out to be the same as *J. bensbachi*, in which, however, head and neck are more glittering green and golden, and the flank-plumes all dark brown. When will a collector succeed in reaching the place where this, and about a dozen other species of *Paradiseidae*, of which the home is still unknown, live?

#### DICRURIDAE.

(The *Dicruridae* are, in Sharpe's *Handlist*, most judiciously placed next to the *Paradiseidae* to which they are, in my opinion, nearest related. Only recently E. C. Stuart Baker called my attention to the striking similarity of many of their eggs to typical *Paradisea* eggs.)

44. *Dissemurus paradiseus johni* Hart. = *Dissemurus paradiseus johni*.

*Dissemurus paradiseus johni* Hartert, *Nov. Zool.* 1902. p. 580 (Hainan).

Type: ♂ ad., Five Finger Mts., Hainan, 9. iv. 1899. John Whitehead leg., No. 72.

45. *Buchanga palawanensis* Whiteh. = *Dicrurus cineraceus rebaptizatus*,  
n. n. n.

*Buchanga palawanensis* Whitehead, *Ibis*, 1890. p. 47 (Palawan).

Type: ♂ ad., Taguso, Palawan, 3. vii. 1887. John Whitehead leg. No. 1491.

If *Buchanga* is united with *Dicrurus*, this form must be renamed, and I call it therefore *Dicrurus cineraceus rebaptizatus*, the type being the type specimen of *palawanensis*. This becomes necessary because there is already a *Dicrurus palawanensis* of Tweeddale, 1878.

(Under the name of *Dicrurus* Vieillot, *Nouv. Dict. d'Hist. Nat.* ix. p. 585,

1817, had a number of species. Of these the first has afterwards been designated as the type. This first species is the *Corvus balicassius* of Linnaeus, 1766! This *balicassius* is solely based on Brisson, who described and figured a *Drongo with a forked tail*, which he supposed to have come from the Philippines. This must have been an error, because the Philippine Drongo just happens to differ from the other species by *not* having a forked tail, the central pair of rectrices being almost as long as the others, so that no fork is visible at all. In this respect it is only almost equalled by the otherwise rather different *D. longirostris* of the Solomon Islands. Moreover, the common Philippine Drongo differ in having the whole upperside metallic glossy, in which *D. mirabilis* of Negros agrees with it, which, however, besides its white abdomen has already a distinctly, though not very deeply forked tail! Between this and the deep forks of the so-called *Buchanga* there is a complete gradation, moreover the name *Dicrurus* belongs, as I have shown, to a fork-tailed Drongo! I therefore agree with Oates (who was generally a great genus splitter!) and others, that *Buchanga* must be united with *Dicrurus*. But to return to the so-called *balicassius*. It is evident that this name, based on a Drongo with a deeply forked tail (see descriptions and figures of Brisson—vol. ii. pl. ii. fig. 1—and Daubenton's pl. enl. 603) cannot be used for the species which differs from nearly all the others by *not* having a forked tail. Therefore the Manila Drongo must henceforth be called *Dicrurus viridescens* (Gould): *Edolius viridescens* Gould, *Proc. Zool. Soc. London*, 1836, p. 6, described from a Philippine skin in the Eyton collection, examined by Viscount Walden (cf. *Trans. Zool. Soc. London*, iv. p. 180.)

46. *Buchanga periophthalmica* Salvad. = *Dicrurus stigmatops periophthalmica*.

*Buchanga periophthalmica* Salvadori, *Ann. Mus. Civ. Genova*, xxxiv. p. 594 (1894—Island of Si-Oban in the Mentawai group, west of Sumatra).

Cotype: ♀ ad., Si-Oban, 27.iv.1894. No. e of Salvadori's list, i.e. E. Modigliani leg, No. 86.

This specimen is marked "Typus" by the author, but he marked all his ten specimens "tipi della specie." One, therefore, is as good a type as the others, all being, in fact, "cotypes," according to Oldfield Thomas's now generally accepted nomenclature.

*B. periophthalmica* is undoubtedly a subspecies of *stigmatops*, which, however, might further be a form of *cineracea*.

47. *Dicruropsis viridinitens* Salvad. = *Dicrurus (bracteatus) viridinitens*.

*Dicruropsis viridinitens* Salvadori, *Ann. Mus. Civ. Genova*, xxxiv. p. 593 (1894—Si-Oban, Mentawai group).

Cotype: ♂ ad., Si-Oban, 28.iv.1894. Dr. E. Modigliani leg. No. 91. Specimen b of Salvadori's list. (See note under No. 46.)

I have very little doubt that *viridinitens*, *suluensis*, *guillemardi*, *meeki*, *dejectus*, *manumeten*, *buruensis*, and many others must be looked upon as subspecies of *bracteatus*. In some of these forms long bristles stand on the forehead, but not always, probably in adult males, and possibly at certain seasons only, others have never any. *D. densus* with its two subspecies seems to form another species. (Cf. NOVITATES ZOOLOGICAE, 1902, p. 440.)

48. *Dicrurus suluensis* Hart. = *Dicrurus bracteatus suluensis*.

*Dicrurus suluensis* Hartert, *Nov. Zool.* 1902. p. 441 (Sulu Islands).

Type : ♂ ad., Maimbun, Sulu Islands, 23. iv. 1883. Dr. H. Guillemard leg.

49. *Dicruropsis guillemardi* Salvad. = *Dicrurus bracteatus guillemardi*.

*Dicruropsis guillemardi* Salvadori, *Aggiunte Orn. Papuasias*, ii. p. 94 (*Mem. R. Accad. Torino*, xi. p. 220) (1890—Bisa).

Type : ♀ Island of Bisa, Obi group, 13. x. 1883. Dr. H. Guillemard leg.

Salvadori named this form, without having seen the skin, from Guillemard's remarks about his single specimen. I had overlooked the name *guillemardi* when describing *dohertyi*.

† 50. *Dicrurus dohertyi* Hart. = *Dicrurus bracteatus guillemardi*.

*Dicrurus dohertyi* Hartert, *Nov. Zool.* 1902. p. 441 (Obi Major).

Type : ♂ ad., Obi Major, September 1897. W. Doherty leg.

In these birds males and females differ much in size, and probably the former only have the long frontal bristles.

51. *Dicrurus meeki* Rothschild and Hart. = *Dicrurus (bracteatus) meeki*.

*Dicrurus meeki* Rothschild & Hartert, *Nov. Zool.* 1903. p. 110 (Guadalecanar).

Type : ♂ ad., Guadalecanar, Solomon Islands, 24. v. 1901. A. S. Meek leg. No. 3188.

52. *Chibia carbonaria dejecta* Hart. = *Dicrurus (bracteatus) dejectus*.

*Chibia carbonaria dejecta* Hartert, *Nov. Zool.* 1898. p. 522 (Sudest I.).

Type : ♂ ad., Sudest Island, Louisiade group, 24. iv. 1898. A. S. Meek leg. No. 1788.

This and *meeki* are of course subspecies of each other and of *carbonarius*, but can no doubt be associated with *bracteatus*, to which *carbonarius* is sub-specifically allied.

53. *Dicrurus kuhni* Hart. = *Dicrurus densus kuhni*.

*Dicrurus kuhni* Hartert, *Nov. Zool.* 1901. p. 170 (Tenimber Islands).

Type : ♂ ad., Larat, Tenimber Islands, 28. i. 1901. Heinrich Kühn leg. No. 3078.

54. *Dicrurus hottentottus manumeten* Stres. = *D. (bracteatus ?) manumeten*.

*Dicrurus hottentottus manumeten* Stresemann, *Nov. Zool.* 1914. p. 148 (Ceram).

Type : ♂, Manusela, Ceram (Seran), 2. vi. 1911. Erwin Stresemann leg. No. 739.

I do not think that one can go so far as to place this form as a subspecies of the Indian *hottentottus* with its huge frontal hairs, but it might be a form of the *bracteatus* group, though rather different. *D. densus densus*, *D. densus megatornis*, and *D. densus kuhni* form a group by itself, with very long tails and high beaks.

55. *Dicrurus (bracteatus?) buruensis* Hart., subsp. nov.

This very distinct form differs from *D. amboinensis*, with which it has hitherto been united, by its considerably larger dimensions. While in *D. (bracteatus?) amboinensis* the wing in males measures to about 150, in females to 140 or less, the wings in *burnensis* measure in males about 155, females about 145. The tail in *amboinensis* does not exceed about 146 or 147, in Buru specimens it measures 166—178 mm. in males.

Type: ♂ ad., "Mt. Madang," West Buru, 6. iii. 1902. Heinrich Kühn leg. No. 4712.

## ORIOLIDAE.

56. *Oriolus finschi* Hart. = *Oriolus striatus finschi*.

*Oriolus finschi* Hartert, *Nov. Zool.* 1904, p. 219 (Wetter).

Type: ♂ Wetter (Wetar) Island, north of Timor, 16. iv. 1901. Heinrich Kühn leg. No. 5604a.

I have decided to treat *Oriolus finschi*, as well as *bouruensis*, *decipiens* and even *viridifuscus*, as subspecies of *striatus*. The latter is, in my opinion, the most primitive of these forms, in which the sexes are still similar and heavily striped, while the striping becomes more indistinct in the other forms, and the sexes in *finschi* are already a little different, while they have reached the greatest divergence in *viridifuscus*, the male of which, with its green head and back and ashy throat and chest, seems to be quite different, while female and young are quite similar to *finschi*.

In a most interesting discourse in NOVITATES ZOOLOGICAE, 1914, pp. 395-400, Stresemann has discussed the origin of the well-known similarity between Orioles and Honey-eaters on Buru, Ceram, and other islands, and discredited the recently quite popular theory of mimicry in these cases, explaining the interesting phenomenon by an independent similarity of their course of development. I follow these clever deductions with great interest, and I quite see, and always felt, the weakness of the theory of mimicry in this case, because there seemed to be no particular need for this extraordinary mimicry, and the Honey-eater is no more able to withstand the attack of a hawk than the Oriole. There is, however, one remarkable fact which requires some more explanation, and which has not been mentioned by Stresemann: On the Timorlaut (Tenimber) Islands the *Philemon moluccensis timorlaoensis* not only resembles *Oriolus striatus decipiens* so closely in coloration, as to make their similarity really deceptive, but the Oriole has the feathers of the hind-neck also ruffled and defective, as is the case in the *Philemon*. It is perfectly true, that Wallace's statement that the Buru-Oriole has an incipient knob at the base of the culmen is imagination, and the same is, according to Stresemann, who has observed both birds in their native home, the case with the supposed mimicry of voice and flight, but the curious "defective" character of the neck-feathers, well known in the *Philemon*, where they are often quite curly, is an evident fact in *Oriolus s. decipiens* and also sometimes noticeable, at least during moult, in *Oriolus s. bouruensis*. The reason for this cannot in my opinion be the moult alone, or if it should be, it would be just as curious, as in other birds the hind neck-feathers do not moult in this way, all at once, so as to produce the appearance of a *Philemon*-neck.

57. *Oriolus flavocinctus migrator* Hart. = *O. flavocinctus migrator*.

*Oriolus flavocinctus migrator* Hartert, *Nov. Zool.* 1904. p. 218 (Letti, Moa, Roma).

Type: ♂ ad., Letti Island, 4. xi. 1902. Heinrich Kühn leg. No. 5907.

58. *Oriolus broderipi oscillans* Hart. = *O. broderipi oscillans*.

*Oriolus broderipi oscillans* Hartert, *Nov. Zool.* 1903. p. 32 (Tukang Bessi Islands, S.E. of Celebes).

Type: ♂ ad., Binungku, Tukang Bessi Islands, 12. xii. 1901. Heinrich Kühn leg. No. 4201.

59. *Oriolus celebensis meridionalis* Hart. = *Oriolus indicus meridionalis*.

*Oriolus celebensis meridionalis* Hartert, *Nov. Zool.* 1896. p. 155 (South Celebes).

Type: ♂ ad., Indrukaman, S. Celebes, 2,000 ft., October 1895. Alfred Everett leg.

A. Goodson has called my attention to the obvious fact, that *celebensis* and other forms can only be looked upon as subspecies of *O. indicus*, of which also *tenuirostris*, *macrurus*, *andamanensis*, *coronatus*, *maculatus* and *insularis* are subspecies.

60. *Oriolus isabellae* Ogilvie-Grant = *Oriolus isabellae*.

*Oriolus isabellae* Ogilvie-Grant, *Bull. B.O. Club*, iv. p. ii. (1894—Northern Luzon).

Type: ♀, Province Isabella, Central North Luzon, 4. v. 1894. John Whitehead leg. No. 363.

61. *Oriolus albiloris* Grant = *Oriolus albiloris*.

*Oriolus albiloris* Grant, *Bull. B.O. Club*, iii. p. xlix. (1894—Northern Luzon); *Ibis*, 1894, p. 504.

Type: ♀, Sablan, Benguet, North Luzon, 18. iii. 1894. John Whitehead leg. No. 333.

The original description compares this extraordinary new species with *O. samarensis*, with which it has nothing to do. In both *O. isabellae* and *albiloris*, according to Bourns and Worcester, the sexes are alike.

62. *Oriolus monachus permistus* Neum. = *Oriolus monachus permistus*.

*Oriolus monachus permistus* Neumann, *Journ. f. Orn.* 1905. p. 233 ("Berge des Omogebietes").

Type: ♀ ad., Gadat in Gofa, 3. ii. 1901. Osear Neumann leg. No. 752.

## STURNIDAE.

† 63. *Lamprocolius chloropterus schraderi* Neum. = *L. chalybeus chalybeus*.

*Lamprocolius chloropterus schraderi* Neumann, *Orn. Monatsber.* 1908. p. 65 ("Abyssinien, Schoa, Omo-Gebiet").

Type: ♂ ad., Ailet in Northern Abyssinia, 15. iv. 1903. G. Schrader leg.

Besides the colour-differences described by Neumann, this form is generally, though not always, smaller than *L. chalybeus chloropterus* from Senegal. Nubian specimens, however, agree absolutely with *schraderi*; I must therefore agree with what Selater and Praed said, *Ibis*, 1918, pp. 429, 430.

64. *Lamprocolius sycobius nordmanni* Hart. and Neum. = *L. sycobius nordmanni*.

*Lamprocolius sycobius nordmanni* Hartert & Neumann, *Orn. Monatsber.* 1914. p. 11 (Mossamedes).

Type: ♂ ad., Huilla, Mossamedes, 23. vii. 1906. W. J. Ansorge leg. No. 2376.

65. *Onychognathus intermedius* Hart. = *O. fulgidus intermedius*.

*Onychognathus* (should be *Onychognathus*) *intermedius* Hartert, *Nov. Zool.* 1895. p. 56 (Lukolele, Congo).

Type: ad., Lukolele, Congo. Rev. Harrison leg.

Sharpe and Shelley as well as Reichenow have united *intermedius* with *hartlaubi*, but this is incorrect. Neumann (*Journ. f. Orn.* 1904, p. 568) has explained that the type of *O. hartlaubi* cannot have come from Fernando Po, but must have been collected on the Lower Niger, where it is not rare, while it has never yet been obtained on Fernando Po. The type agrees absolutely with a series collected on the Niger by the late Dr. Ansorge. It is true that Salvadori, in 1903, in his list of the birds of Fernando Po, quotes Boeage, *Journ. Scienc. Lisboa* (2), iv. No. xiii. p. 11, 1895, as authority for the occurrence on Fernando Po, but Boeage only suggests that a flock of birds seen (not collected!) there by F. Newton might have been *O. hartlaubi*! The Lower Niger birds, therefore, must be looked upon as toptotypical *hartlaubi*. Ten males from there have the wings 125—132 (mostly about 128) mm. long, two females 120—122.5 mm. Two males from the Congo, two males and two females from the Kindu forest and 320 km. west of Baraka, Congo Free State, collected by Rud. Graner, and two from North Angola (Ansorge leg.) agree with each other and differ in being larger: wings, ♂♂ 134—136.5, ♀ 130—132 mm., and the bills are generally stouter, higher, not so pointed. These are my *intermedius*. Neumann (*Journ. f. Orn.* 1904, p. 568) and Shelley (*B. Africa*, v. p. 105) credit me with having named an "*Amydrus morio intermedius*," but this was merely a slip of memory by Neumann, and Shelley copied it from the latter, for I have never given the name "*intermedius*" to a form of *A. morio*, though I described *A. morio shelleyi*! I may here add that *A. morio shelleyi* from East Africa is actually intermediate between *A. morio morio* from South Africa and the much larger *rüppelli* from Abyssinia, but much nearer *morio* from which it only differs slightly in size.

*Onychognathus fulgidus harterti* Neum. from the Gold Coast is also very distinct by its much smaller size from both *O. f. fulgidus* and *hartlaubi*, as well as, of course, *intermedius*, which is not a well-chosen name.

66. *Aplonis panayensis gusti* Stres. = *Aplonis panayensis gusti*.

*Aplonis panayensis gusti* Stresemann, *Nov. Zool.* 1913. p. 375 (Bali).

Type: ♂ ad., Danau Bratan, Bali, 21. iii. 1911. E. Stresemann Coll. No. 328.

67. *Aplonis panayensis leptorrhynchus* Stres. = *Aplonis panayensis leptorrhynchus*.

*Aplonis panayensis leptorrhynchus* Stresemann, *Nov. Zool.* 1913. p. 377 (Pini Island, west of Middle Sumatra).

Type: "♀" ad., Pini. Raap coll. No. 34.

68. *Calornis kuehni* Hart. = *Aplonis minor kuehni* (Hartert).

*Calornis kuehni* Hartert, *Nov. Zool.* 1904. p. 220 (Romah).

Type: ♂ ad., Romah Island, 25., viii. 1902. Heinr. Kühn leg. No. 5824.

69. *Acridotheres iristatella brevipennis* Hart. = *Aethiopsar cristatellus brevipennis*.

*Acridotheres cristatella brevipennis* Hartert, *Nov. Zool.* 1910. p. 250 (Hainan).

Type: ♂ ad., Kiung-chan, Hainan, 14. xi. 1902. Katsumata leg.

70. *Aethiopsar cristatellus formosanus* Hart. = *Aethiopsar cristatellus formosanus*.

*Aethiopsar cristatellus formosanus* Hartert, *Bull. B.O. Club*, xxxi. p. 14 (Nov. 1912—Formosa).

Type: ♂ ad., Bankoro, Central Formosa, 6. v. 1907. Coll. by Alan Owston's Japanese collectors. No. F. 112.

71. *Leucopsar rothschildi* Stres. = *Leucopsar rothschildi*.

*Leucopsar rothschildi* Stresemann, *Bull. B.O. Club*, xxxi. p. 4 (1912—Bali). See also *Nov. Zool.* xix. pl. ii. fig. 1.

Type and unique specimen hitherto known: ♀ ad., Bubunan, Bali, 24. iii. 1911. Erwin Stresemann leg. No. 352.

72. *Gracupica tertia* Hart. = *Gracupica melanopectera tertia*.

*Gracupica tertia* Hartert, *Nov. Zool.* 1896. p. 547 (Bali). See also *Nov. Zool.* 1912. pl. ii. 1913. p. 374. (This bird is quite different from *G. melanopectera*, though one might treat it as a subspecies of the latter.)

Type: ♂ ad., Bali, March 1896. William Doherty leg.

73. *Goodfellowia miranda* Hart. = *Goodfellowia miranda*.

*Goodfellowia miranda* Hartert, *Bull. B.O. Club*, xiv. p. 11 (1903—Mindanao); *Nov. Zool.* xiii. pl. ii. fig. 2.

Type: ♂ ad., Apo volcano, Mindanao, 8,000 ft., April 1903. Walter Goodfellow leg.

74. *Sturnus vulgaris granti* Hart. = *Sturnus vulgaris granti*.

*Sturnus vulgaris granti* Hartert, *Vög. pol. Fauna*, i. p. 43 (1903—Azores).

Type: ♂ ad., near Santa Cruz, Graciosa, Azores, 22. iv. 1903. W. R. Ogilvie-Grant leg. No. 446.

## ICTERIDAE.

75. *Icterus xanthornus trinitatis* Hart. = *Icterus xanthornus trinitatis*.

*Icterus xanthornus trinitatis* Hartert, *Bull. B.O. Club*, xxxiii. p. 76 (1913—Trinidad).

Type: ♂ ad., Savannah Grande, Trinidad, 13. ii. 1897. Dr. Percy Rendall leg. No. 56.



76. *Icterus icterus ridgwayi* Hart. = *Icterus icterus ridgwayi*.

*Icterus icterus ridgwayi* Hartert, *Nov. Zool.* 1902. p. 299 (Curaçao and Aruba).

Type : ♂ ad., Aruba, 26. vi. 1892. Ernst Hartert leg. No. 105.

77. *Molothrus occidentalis* Beil. and Stolz. = *Molothrus bonariensis occidentalis*.

*Molothrus occidentalis* Berlepsch & Stolzmann, *Proc. Zool. Soc. London*, 1892. p. 378 (Lima, October and November 1889, January 1890).

Cotype : ♂ ad., Lima, Peru, 10. xi. 1889. J. Kalinowski leg. No. 258 (marked "typus" by Stolzmann).

## FLOCEIDAE.

78. *Spermospiza haematina leonina* Neum. = *Spermospiza haematina leonina*.

*Spermospiza haematina leonina* Neumann, *Journ. f. Orn.* 1910. p. 523 ("Gambia bis Liberia").

Type : ♂ ad., Bo, Sierra Leone, viii. 1904. R. Kemp leg. No. 147.

The females do not differ at all, and sometimes males from Sierra Leone have no dark red tips to the upper tail-coverts! In two specimens, collected by Major Kelsall, they are not visible; one of them may be disregarded, as some tail-coverts are wanting, but another, collected at Biwama, N.N.E. of Bo, 13. ix. 1912, the tail-coverts are complete and have no trace of red tips. On the other hand all our other specimens, *i.e.* those enumerated by Neumann, *l.c.*, and three further males from Major Kelsall, show the red tips distinctly. Comparison of further material is desirable.

79. *Amblyospiza aethiopica* Neum. = *Amblyospiza albifrons aethiopica*.

*Amblyospiza aethiopica* Neumann, *Orn. Monasther.* 1903. p. 9 (Malo, Kuffa).

Type : ♂ ad., Uaja, Malo, 13. ii. 1901. Oscar Neumann leg. No. 795.

This subspecies is readily distinguished from *unicolor*, but very close to true *melanotus*. The latter is said to have the head and neck lighter, more like that of *capitalba*. I have no specimens from the White Nile to compare, and nobody seems to have had a series for comparison. Koenig also obtained only a single specimen. Cf. Zedlitz, *Journ. f. Orn.* 1916, p. 23.

80. *Ploceus passerinus infortunatus* Hart. = *Ploceus passerinus infortunatus*.

*Ploceus passerinus infortunatus* Hartert, *Nov. Zool.* 1902. p. 578 (Malay Peninsula, type Sungei Lebeh).

Type : ♂ ad., Sungei Lebeh, Malay Peninsula, 19. v. 1901. John Waterstradt Coll.

81. *Foudia omissa* Rothschild. = *Foudia rubra omissa*.

*Foudia omissa* Rothschild, *Bull. B.O. Club*, xxxi. p. 26 (1912—Madagascar).

Type : ♂ ad., Tamatave, Madagascar, 21. viii. 1891. Purchased from A. Boucard.

82. **Hyphantornis crocata** Hartl. = *Ploceus (Hyphanturgus) ocularius crocatus*.

*Hyphantornis crocata* Hartlaub, *Abhandl. not. Verein Bremen*, vii. p. 100 (1881—1 ♀ ad., Magungo).

Type : ♂ ad., Magungo, 25. xi. 1879. Emin Pasha leg. No. 152.

The grouping of the genera of African Weavers in Sharpe's *Handlist* is quite impossible and unsuccessful. *Symplectes (Sycobrotus)* is perhaps separable. *Sitagra*, *Sharpia* and *Phormophlectes* must be united. If split up as much as possible, *Othyphantes*, *Heterophantes* (including *aliena*), and *Hyphanturgus* may be kept separate, further *Hyphantornis* (with *Xanthophilus* and part of Sharpe's *Sitagra* and *Hyphanturgus*), *Hypermegestes*, *Melanopteryx*, *Pachyphantes*, and *Brachycope*. I do not say that I would finally advocate so much splitting of genera, but the above arrangement would be sensible and logical, if unnecessary. (Cf. NOVITATES ZOOLOGICAE, 1907, p. 492).

† 83. **Ploceus ocularius abayensis** Neum. = *Ploceus (Hyphanturgus) ocularius crocatus*.

*Ploceus ocularius abayensis* Neumann, *Journ. f. Orn.* 1905. p. 339 ("Gigiro in Gudji östlich des Abaya—Sees"). Cf. *Nov. Zool.* 1907. pp. 496, 497.

Type : ♀ ad., Gigiro, 25. xii. 1900. Type : Oscar Neumann leg., 497. No. 487.

Zedlitz, *Journ. f. Orn.* 1916, pp. 13, 14, separates *abayensis*; I regret to say that the specimens before me do not bear out his statements of the differences.

84. **Ploceus ocularius po** Hart. = *Ploceus (Hyphanturgus) ocularius po*.

*Ploceus ocularius po* Hartert, *Nov. Zool.* 1907. p. 498 (Fernando Po).

Type : ♂ ad., Fish Town, Fernando Po, 2. i. 1904. E. Seimund leg. No. 3119.

85. **Ploceus melanoxanthus malensis** Neum. = *Ploceus (Hyphanturgus) nigricollis malensis*.

*Ploceus melanoxanthus malensis* Neumann, *Orn. Monatsber.* 1904. p. 162 (Male-land). Cf. *Journ. f. Orn.* 1905. p. 338.

Type : ♂ ad., Schambala (or Barssa) River, Male-land, 19. i. 1901. Oscar Neumann leg. No. 626.

86. **Sycobrotus emini** Hartl. = *Ploceus (Othyphantes) emini emini*.

*Sycobrotus emini* Hartlaub, *Ornith. Centralbl.* 1882. p. 92, *Journ. f. Orn.* 1882. p. 322 (Agaru).

Type : ♂ ad., Agaru, 30. iv. 1881. Emin Pasha leg. No. 101.

87. **Ploceus insignis frater** Neum. = *Ploceus (Sitagra) insignis frater*.

*Ploceus insignis frater* Neumann, *Bull. B.O. Club*, xxiii. p. 12 (1908—"Country west of Lake Albert Edward").

Type : ♀ ad., Forest 90 km. west of Lake Edward, 16. ii. 1907. Rudolf Grauer leg. No. 2055.

88. *Symplectes mentalis* Hartl. = *Ploceus* (*Symplectes*) *mentalis*.

*Symplectes mentalis* Hartlaub, *Journ. f. Orn.* 1891. p. 314 (Buguéra).

Type : ♂ ad., Buguéra near Wadelai, 23.iii.1889. Emin Pasha leg. (No. 1). (The name *Symplectes* need not be rejected, as Meigen did not anticipate it. His genus was called *Symplecta* !)

89. *Ploceus graueri* Hart. = *Ploceus* (*Hyphantornis*) *nigriceps graueri*.

*Ploceus graueri* Hartert, *Bull. B.O. Club*, xxix. p. 21 (1911—Usumbura).

Type : ♂ Usumbura, 31.iii.1908. Rudolf Grauer leg. No. 2239.

I expect *graueri*, though easily distinguishable by the warm brown tinge of the underside, must be a subspecies of *P. (H.) nigriceps*. The races of this species require further study ; southern and northern birds (Natal and Zambesi and Uganda !) are probably separable.

90. *Ploceus Bohndorffi* Rehw. = *Ploceus* (*Hyphantornis*) *cucullatus bohndorffi*.

*Ploceus Bohndorffi* Reichenow, *Journ. f. Orn.* 1887. p. 214 ("Stanley-Fälle," Bohndorff Coll.).

Type (or eotype) : ♂ ad., Stanley Falls, Congo, March. F. Bohndorff leg.

I quite agree with Oscar Neumann, who considers *Ploceus abyssinicus* and *bohndorffi* to be subspecies of *cucullatus*. *P. c. bohndorffi* is very closely allied to *P. c. abyssinicus*, but separable by the markings on the nape and hind-neck, while the ♂ of *feminina* has the black of the head more restricted. I do not treat *nigriceps* as a subspecies of *cucullatus*, as the markings on the back of the male are so very different. (See also *Ibis*, 1918, p. 434.)

91. *Ploceus heuglini neglectus* Neum. = *Ploceus* (*Hyphantornis*) *heuglini neglectus*.

*Ploceus heuglini neglectus* Neumann, *Bull. B.O. Club*, xxi. p. 58 (1908—"Upper Guinea, from Senegal to the Niger").

Type : ♂ ad., Gassam, Senegal, 29.viii.1907. F. W. Riegenbach leg. No. 1254.

92. *Ploceus aurantius rex* Neum. = *Ploceus* (*Hyphantornis*) *aurantius rex*.

*Ploceus aurantius rex* Neumann, *Bull. B.O. Club*, xxiii. p. 12 (1908—"Uganda").

Type : ♂, Entebbi, Uganda. Rud. Grauer leg.

93. *Pachyphantes superciliosus omoensis* Neum.

*Pachyphantes superciliosus omoensis* Neumann, *Journ. f. Orn.* 1905. p. 342 (Descr. from one single ♀ from Omo, between Malo and Koscha).

This will most probably turn out to be a good subspecies, but one cannot be certain about it from one female specimen. The supposed larger size does not hold good, nor does the lighter coloration of the underside. The upperside is very pale, but as the bird is in a worn plumage, even this requires confirmation. The bill is only very slightly larger than that of some Unyoro specimens.

† 94. **Ploceus holoxanthus** Hartl. = *Ploceus (Hyphantornis) aureoflavus aureoflavus*.  
*Ploceus holoxanthus* Hartlaub, *Abh. nat. Ver. Bremen*, 1891. p. 22 (Mtoni on the Kingani River, E. Africa).

Type: ♂ ad., Mtoni, January. Bohndorff leg.

In NOVITATES ZOOLOGICAE, 1907, p. 499, I expressed my opinion that *P. holoxanthus* could hardly be the same as *aureoflavus*. Zedlitz, *Journ. f. Orn.* 1916, pp. 20, 21, has examined more material and came to the conclusion that the so-called *holoxanthus* were only extreme yellow males, flavisms, as he calls it. As I have no series to form an opinion, I can only accept Count Zedlitz's view.

† 95. **Ploceus rubiginosus cinnamominus** Hart. = *Ploceus (Melanopteryx) rubiginosus trothae*.

*Ploceus rubiginosus cinnamominus* Hartert, *Bull. B.O. Club*, xxi. p. 11 (1907—S. Angola).

Type: ♂ ad., Kimukua, Mossamedes, 14.iii.1906. Dr. W. J. Ansorge leg. No. 1436.

This excellent subspecies had already been named *trothae* by Reichenow in 1905.

96. **Malimbus malimbica melanobrephos** Hart. = *Malimbus malimbicus melanobrephos*.

*Malimbus malimbica melanobrephos* Hartert, *Nov. Zool.* 1907. p. 491 ("Upper Guinea from Liberia to the Gold Coast and Togo").

Type: ♂ ad., Gold Coast (Fanti preparation) (No. 719).

97. **Malimbus malimbicus crassirostris** subsp. nov.

Formae *Malimbus malimbicus malimbicus* dictae persimilis, sed rostro crassiore facile distinguendus.

I have only one adult male, one apparently adult female, and a young bird from Budongo Forest, Unyoro. All three are at once distinguishable by the thicker beak, which appears more swollen, much wider at base, especially between the nostrils. (Possibly the sincipital crest is more pointed and longer, but a series would be necessary to prove this.)

Type: ♂ ad., Budongo Forest, Unyoro, 17.ii.1907. L. M. Seth-Smith leg.

98. **Uraeginthus bengalus perpallidus** Neum. = *Uraeginthus bengalus perpallidus*.

*Uraeginthus bengalus perpallidus* Neumann, *Journ. f. Orn.* 1905. p. 351 (White Nile).

Type: ♂ ad. 15. or 16.vi.1901 (not 14. or 15.), at Goz-abu-Guma or Kaka, Upper White Nile. Oscar Neumann leg.

This form is very distinct, but specimens from Gondokoro (Seth-Smith) are already distinctly darker, though by no means like *ugandae*.

99. **Uraeginthus bengalus schoanus** Neum. = *Uraeginthus bengalus schoanus*.

*Uraeginthus bengalus schoanus* Neumann, *Journ. f. Orn.* 1905. p. 350 ("Gebirge Schoas und Süd—Äthiopiens in Höhen von 2.200-3.000 m.").

Type: ♂ ad., Ejere, Province Meta, Shoa, 16.ix.1900. Oscar Neumann leg. No. 14.

100. *Uraeginthus bengalus ugandae* Zedl. = *Uraeginthus bengalus ugandae*.

*Uraeginthus bengalus ugandae* Zedlitz, *Journ. f. Orn.* 1911. p. 606 ("Uganda, Victoria. See bis Gazellen-Fe").

Type: ♂ ad., Entebbe, Uganda, 28. iv. 1907. Rud. Grauer leg. No. 76.

This form is very closely allied to *schoanus*, which is probably really its nearest neighbour, as another, probably unnamed form, seems to separate it near Gondokoro from *perpallidus*. Only when a series is compared it becomes evident that the upperside is darker, and the wing generally, but not always longer. A specimen collected by Dr. van Someren has a wing of 54 mm. The distribution of *schoanus* is possibly wider than known at present, but Mearns described (*Smithson. Misc. Coll.* lvi. No. 20. p. 6. 1911!) an *Uraeginthus bengalus brunneigularis* from Wambugu, because the females had a brown throat. It almost seems as if this were the case, while adult Uganda females have the throat blue. Unless the specimens with brown throats which Mearns examined are all juvenile (as they are in Uganda, etc.), his subspecies *brunneigularis* would be quite distinct, but the males seem to me to be exactly like the Uganda males. If not different from *ugandae*, then the name *brunneigularis* would have priority over *ugandae*! Unfortunately Zedlitz overlooked Mearns's name. He also gave another new name, "*natalensis*," but that form must be called *cyanogaster* Daud.

101. *Estrilda atricapilla graueri* Neum. = *Estrilda atricapilla graueri*.

*Estrilda atricapilla graueri* Neumann, *Bull. B.O. Club*, xxi. p. 55 (1908—"Western Kivu Volcanoes").

Type: ♂ ad., foot of Mt. Sabjinjo, 2,700 m., i. ix. 1907. In bamboo-forest. Rud. Grauer leg. No. 1136.

102. *Lagonosticta graueri* Rothsch. = *Estrilda cinereovinacea rudolfi*, nom. nov.!

*Lagonosticta graueri* Rothschild, *Bull. B.O. Club*, xxiii. p. 102 (1909—"Forest near Baraka, north-west of Lake Tanganyika, 1,900 metres").

Type: ♂ ad., forest north-west of Baraka, 11. xi. 1908. Rud. Grauer Coll. No. 3767.

I do not think that the genera *Estrilda* and *Lagonosticta* can be separated at all, and even if they should be separable, *cinereovinacea*, of which *graueri* Rothsch. is a subspecies, cannot be separated from *Estrilda*. If this view is correct, a new name must be given to *graueri* Rothsch., because Neumann named *Estrilda atricapilla graueri* in 1908. I propose for *graueri* Rothsch. the new name:

*Estrilda cinereovinacea rudolfi*

derived from Grauer's Christian name. The type of this name would be the same as that of *graueri* Rothsch. (The suspicion arises involuntarily, that this is *kandti* Rehw. 1902, which may have been described from a young bird, but the very short wing of the latter seems to exclude this possibility.)

103. *Estrilda cinderella* Neum. = *Estrilda cinderella*.

*Estrilda cinderella* Neumann, *Bull. B.O. Club*, xxiii. p. 44 (1908—Benguella).

Type: ♂, Deep-Sloot, Benguella, 25. xi. 1905. W. J. Ansorge leg. No. 609.

More information is badly wanted about this masculine Cinderella, of which, it seems, only this one specimen is known. It is doubtless a very distinct form.

104. *Astrilda nonnula* Hartl. = *Estrilda nonnula*.

*Astrilda nonnula* Hartlaub, *Journ. f. Orn.* 1883. p. 425 (Kudurma); Fig. *Zool. Jahrb.* ii. pl. xiii.

Type: ♀ immat., Kudurma, 12. xi. 1882. Emin Pasha Coll. No. 269.

105. *Chlorura intermedia* Hart. = *Chlorura hyperythra intermedia*.

*Chlorura intermedia* Hartert, *Nov. Zool.* 1896. p. 558 (Lombok).

Type: ♂ ad., Lombok, 4,000 feet, June 1896. Will. Doherty leg.

106. *Chlorura borneensis* Sharpe = *Chlorura hyperythra borneensis*.

*Chlorura borneensis* Sharpe, *Ann. Mag. Nat. Hist.* (6), iii. p. 424 (1889—ex *Ibis*, 1887. p. 453. Kina Balu, Borneo).

Type: ♂ ad., Kina Balu, 8,000 feet, 5. iv. 1887. John Whitehead leg. No. 1312.

107. *Erythrura trichroa woodfordi* R. & H. = *Erythrura trichroa woodfordi*.

*Erythrura trichroa woodfordi* Rothschild & Hartert, *Nov. Zool.* 1900. p. 7 (Guadalecanar).

Type: ♀, Aola, Guadalecanar, Solomon Islands, 30. vi. 1887. C. M. Woodford leg.

108. *Erythrura trichroa papuana* R. & H. = *Erythrura trichroa papuana*.

*Erythrura trichroa papuana* Rothschild & Hartert, *Nov. Zool.* 1900. p. 7 (Arfak Mts.).

Type: ♂ ad., Arfak Mountains, Dutch New Guinea. (Purchased in February 1894 from Gerrard & Sons.)

109. *Erythrura trichroa pinaiae* Stres. = *Erythrura trichroa pinaiae*.

*Erythrura trichroa pinaiae* Stresemann, *Nov. Zool.* 1914. p. 147 (Ceram).

Type: ♂ ad., Gunong Pinaia, Ceram, 7,500 feet, 18. viii. 1911. Erwin Stresemann leg. No. 876.

110. *Poëphila nigrotecta* Hart. = *Alisteranus cinctus nigrotectus*.

*Poëphila nigrotecta* Hartert, *Bull. B.O. Club*, viii. p. lix. (1899—Cape York, N. Queensland).

Type: ♂ ad., Cape York, 18. vi. 1898. A. S. Meek Coll., No. 1821.  
(Cf. Mathews, *List B. Australia*, 1913, p. 304.)

111. *Bathilda ruficauda clarescens* Hart. = *Aegintha (Bathilda) ruficauda clarescens*.

*Bathilda ruficauda clarescens* Hartert, *Nov. Zool.* vi. p. 427 (1899—Cape York).

Type: ♂ ad., Cape York, North Queensland, 14. vi. 1898. A. S. Meek Coll., No. 1794.

The genus *Bathilda* should, I think, be united with *Aegintha*. "*Bathilda clarescens*" is undoubtedly a subspecies of *ruficauda*, yet Sharpe (*Handlist B.* v. p. 446) placed it in the genus *Aegintha*, while he allowed a special genus, *Bathilda*, for *ruficauda*. Mathews (1913) put *clarescens*, of course, in its correct place, while placing *ruficauda* and its various subspecies under the generic name *Bathilda*.

112. *Munia nigerrima* Rothsch. & Hart. = *Munia nigerrima*.

*Munia nigerrima* Rothsch. & Hart., *Orn. Monatsber.* 1899. p. 139 (New Hanover).

Type: ♂, New Hanover, 1897. Capt. Cailey Webster leg.

113. *Munia subcastanea* Hart. = *Munia subcastanea*.

*Munia subcastanea* Hartert, *Nov. Zool.* 1897. p. 161 (Dongala).

Type: ♂ ad., Dongala, Palos Bay, West Celebes, viii. 1896. William Doherty leg.

(*Munia subcastanea* should probably be a subspecies of *Munia pallida*, but the latter occurs also in Celebes, at least in South Celebes, near Makassar, from where we have received specimens.)

114. *Munia caniceps kumusii* Hart. = *Munia caniceps kumusii*.

*Munia caniceps kumusii* Hartert, *Bull. B.O. Club*, xxvii. p. 47 (1911—Kumusi River).

Type: ♂ ad., Kumusi River, north-eastern British New Guinea, 5. viii. 1907. Albert S. Meek Coll., No. 3372.

115. *Munia punctulata blasii* Stres. = *Munia punctulata blasii*.

*Munia punctulata blasii* Stresemann, *Nov. Zool.* 1912. p. 317 (Timor).

Type: ♂ ad., Dilly (Deli), Timor, 12. iii. 1885. Collected by Dr. Platen.

116. *Hypochaera wilsoni* Hart. = *Hypochaera funerea wilsoni*.

*Hypochaera wilsoni* Hartert, *Nov. Zool.* 1901. p. 342 (Yelwa, Borgu).

Type: ♂ ad., Yelwa, Borgu, Niger, 2. viii. 1899. Captain Malcolm Wilson leg.

(Cf. NOVITATES ZOOLOGICAE, 1915. p. 263, and *Ibis*, 1918. pp. 449-450.)

117. *Pytelia phoenicoptera emini* Hart. = *Pytelia phoenicoptera emini*.

*Pytelia phoenicoptera emini* Hartert, *Nov. Zool.* 1899. p. 413 (Lado).

Type: Lado, 14. vi. 1881. Emin Pasha leg. No. 169.

118. *Pytelia ansorgei* Hart. = *Nesocharis ansorgei* (Hart.).

*Pytelia ansorgei* Hartert, *Bull. B.O. Club*, x. p. xxvi. (1899—Toru).

Type: ♂ ad., Wemo River, Toru, Uganda Protectorate, 21. iv. 1899. W. J. Ansorge leg. No. 379.

It is, apparently, not possible to keep this species in the genus *Pytelia*, and the generic name *Nesocharis*, though very inappropriate, as the birds of this group are mostly not inhabitants of islands, must be adopted.

We have also a paratype of *Nesocharis shelleyi* Boyd Alexander (*Bull. B.O. Club*, xiii. p. 48, 1903) from Fernando Po.

119. *Pyrenestes ostrinus rothschildi* Neum. = *Pyrenestes ostrinus rothschildi*.

*Pyrenestes ostrinus rothschildi* Neumann, *Journ. f. Orn.* 1910. p. 528 (Niger-Delta to Lagos and North Kamerun).

Type: ♂ ad., Warri, Lower Niger, 11. v. 1897. Dr. Felix Roth leg.

120. *Pyrenestes ostrinus gabunensis* Neum. = *Pyrenestes ostrinus gabunensis*.

*Pyrenestes ostrinus gabunensis* Neumann, *Journ. f. Orn.* 1910. p. 528 (South Kamerun and Gaboon, to Manyanga on the Congo and the Uelle district).

Type: ♀ ad., Lambarene, Ogowe, Gaboon, 22. ix. 1907. W. J. Ansorge leg. No. 756. (On the label: Iris red-brown. Feet brownish olive. Bill steel-black, but middle of upper near root steel-blue.)

† 121. *Nigrita sparsinguttata* Rehw. = *Nigrita canicapilla schistacea*.

*Nigrita sparsinguttata* Reichenow, *Ber. allg. D. Orn. Ges.* ix. p. 4 (December 1891; *Journ. f. Orn.* 1892, p. 132—Bukoba).

Cotype: adult, Bukoba. Emin Pasha leg.

The name *Nigrita schistacea* Sharpe was published in January, *N. sparsinguttata* in December 1891. The two are doubtless identical.

† 122. *Nigrita dohertyi* Hart. = *Nigrita diabolica* Rehw. & Neum. 1895.

*Nigrita dohertyi* Hartert, *Bull. B.O. Club*, xii. p. 12 (1901—Escarpment).

Type: ♂ ad., Escarpment, Brit. E. Africa, 8,500 feet, March 1891. William Doherty leg.

123. *Plocepasser mahali ansorgei* Hart. = *Plocepasser mahali ansorgei*.

*Plocepasser mahali ansorgei* Hartert, *Nov. Zool.* 1907. p. 487 (Benguella).

Type: ♂ ad., Kawayella, Benguella, 12. vii. 1904. W. J. Ansorge, No. 292.

124. *Pyromelana franciscana pusilla* Hart. = *Pyromelana franciscana pusilla*.

*Pyromelana franciscana pusilla* Hartert, *Bull. B.O. Club*, xi. p. 71 (June 1901—Lake Stephanie).

Type: ♂, Lake Stephanie, 7. vi. 1895. Dr. Donaldson Smith leg. No. 655.

There is in my opinion no doubt whatever that *pusilla* is a very "good" subspecies. When naming it, I referred to the small size only, but I am now of opinion that one cannot rely on this, though such small specimens as we have from Somaliland do not seem to occur in the west. The real difference, *i.e.* the shorter upper and under tail-coverts, which do not reach the end of the tail, has first been pointed out by Neumann (*Journ. f. Orn.* 1905. p. 346). I am, however, of opinion that all N.E. African specimens belong to *pusilla*, the tail-coverts being shorter and less copious in all males. I don't agree with Count Zedlitz (*Journ. f. Orn.* 1916. p. 27) that this varies individually, as I found it quite constant, apart, of course, from moulting specimens. Generally the red is less fiery than in western examples, but the back of adult males in nuptial plumage is only generally, not invariably more spotted and brownish. Possibly the West African *P. franciscana franciscana* ranges—as in many other cases—through the Sudan eastwards to the Nile and Akobo. The male shot by Oscar Neumann at the latter place (*v. Journ. f. Orn.* 1905. p. 345), a male from Khartum, and one obtained on the Lower Atbara by Captain Stanley Flower, appear certainly to belong to the true *franciscana*, not to *pusilla*!



125. *Pyromelaena ansorgei* Hart. = *Pyromelaena ansorgei* (? *P. friedrichseni ansorgei*).

*Pyromelaena ansorgei* Hartert, Ansorge's *Under the African Sun*, p. 344, pl. ii. (1899—Masindi, Unyoro).

Type: ♂, Masindi, Unyoro, 17. vi. 1897. Dr. W. J. Ansorge leg. No. 147.

Cf. Neumann, *Bull. B.O. Club*, xxiii. p. 47. Possibly this bird may be a subspecies of *P. friedrichseni*, though perfectly distinct.

† 126. *Penthetria hartlaubi* Cab. = *Pyromelaena ansorgei*.

*Penthetria Hartlaubi* Cabanis (nec Bocage!), *Journal f. Orn.* 1883. p. 218 ("Lado." Ex Hartlaub, *Abh. nat. Ver. Bremen*, viii. p. 202, sub nomine *P. concolor*).

Type: ♂ (in winter dress), Wakkala (or Okkela, east-south-east of Lado), 7. iv. 1881. Emin Pasha leg. No. 24.

† 127. *Coliuspasser dubiosus* Neum. = *Pyromelaena ansorgei*.

*Coliuspasser dubiosus* Neumann, *Journ. f. Orn.* 1905. p. 348 (Gelo or Akobo, April or May 1901).

Type: ♂ (in winter dress), Gelo or Akobo, April or May 1901. Osear Neumann leg.

Cf. Neumann, *Bull. B.O. Club*, xxiii. p. 47, December 1908.

† 128. *Ploceus flavissimus* Neumi.

*Ploceus flavissimus* Neumann, *Journ. f. Orn.* 1907. p. 595 (Soullouké).

Type: ♂, 22. viii. 1904. No. 460.

The type—a single specimen!—mostly canary-yellow and with white shafts to primaries and rectrices, with strongly worn tips to the quills, so much abraded, in fact, that the wings cannot be properly measured, is in my opinion *evidently* an aberrant specimen, and the case of *xanthopterus* is quite different. Probably this bird is an aberration of *P. galbula*, though Neumann denies it.

† 129. *Urobrachya phoeniceae quanzae* Hart. = *Urobrachya axillaris mechowi*.

*Urobrachya phoenicea quanzae* Hartert, *Bull. B.O. Club*, xiii. p. 56 (1903—Quanza River).

Type: ♂ ad., Burraca, Quanza River, Angola, 28. v. 1901. C. Hubert Pemberton leg. No. 561.

When describing this supposed new form, our African collection was still very small. I sent the specimen to Reichenow, who wrote on the label "*Urobrachya sp. n. aff. hildebrandti*," after which I had no doubt that I had a new species, or rather subspecies before me. It is strange that Reichenow did not refer to *mechowi*, and also in his *Vög. Afr.* iii. p. 133 united *mechowi* with *bocagei* and kept my *quanzae* separate. He distinguishes *mechowi* (which he unites with *bocagei*) as having the small upper wing-coverts orange-yellow, while he calls those of my *quanzae* fire-red. Cabanis, in the original description, calls the lesser upper coverts of *mechowi* "hochgelb," but in spite of this, I think that Shelley (*B. Afr.* iv. p. 68) was right in uniting *quanzae* with *mechowi*, which is not at all the same as *bocagei*. *U. axillaris bocagei* inhabits only Benguella (Caconda, Huilla, Kuvuli River, Cauculovar River). It is a much

smaller bird, with the bill smaller, wings (males) 83—87 mm., and the cinnamon bases of the outer primaries show well in front of the under wing-coverts. *U. axillaris mehowi* inhabits the valley of the Quanza River in Angola, where it has been found at Barraca, Cunga, Malanje, Colombo, also northwards at Duque de Braganza. This bird is closely allied to *bocagei* but larger, bill larger, wing 94—99 mm.; the lesser wing-coverts seem to vary, and in our two specimens (only one—not two as Shelley said—collected at Barraca by Pemberton, and one shot at Cunga by Ansorge) they are rather brighter orange than is *bocagei*, but more yellowish in the specimen in the British Museum from Colombo. I have now no doubt that these forms are subspecies, not only of *phoenicea*, but also of *axillaris*. The idea of Shelley, that this form ranges to Karungwesi on the Kolongatsi, which runs into Lake Meru, and to Uganda, remains to be proven. It is not possible to identify specimens in winter dress with absolute certainty, therefore Karungwesi remains doubtful, and of the occurrence in Uganda I know nothing.

130. *Diatropura progne ansorgei* Neum. = *Diatropura progne ansorgei*.

*Diatropura progne ansorgei* Neumann, *Bull. B.O. Club*, xxiii, p. 45 (1908—Angola and Benguella).

Type: ♂ ad., Bulu-bulu, Bihé, Angola, 3. x. 1904. No. † 169. W. J. Ansorge leg.

It is strange that this strikingly different form had not been noticed before.

131. *Steganura paradisea aucupum* Neum. = *Steganura paradisea aucupum*.

*Steganura paradisea aucupum* Neumann, *Bull. B.O. Club*, xxi, p. 43 (January 1908—"Upper Guinea, especially Senegambia").

Type: ♂ ad., Diourbel, Senegal Colony, 8. x. 1907. F. W. Riegenbach leg. No. 1638.

In the original description the date is given as "8. viii. 1907," but the specimen is marked "Oct." and October is the tenth month of the year.

132. *Hypargos harterti* Shell. = *Lagonosticta nitidula harterti*.

*Hypargos harterti* Shelley, *Bull. B.O. Club*, xiv, p. 30 (Dec. 1903—new name for *Lagonosticta nitidula* Hartl. 1886).

Type: ♂ ad., Sagua, Quanza River, Angola, 21. v. 1901. C. Hubert Pemberton leg.

There is no necessity to reject the name *nitidula* of 1886, as "*Estrelda nitidula*" Hartlaub, 1865, is not congeneric with his *Lagonosticta nitidula* of 1886. This has already been stated by Bannerman, *Ibis*, 1910, p. 682, but it is not, as Bannerman has it, the "attenuated extremity of the first primary" (more correctly the second!) which separates "*Hypargos*" from *Lagonosticta*, but on the contrary the fact that in *Hypargos* it is *not* attenuated! The attenuation of the second primary, moreover, is, though very remarkable, not found in all species of *Lagonosticta* of Shelley and there are intermediate forms. The genera can therefore by no means be grouped as Shelley has done it, and *Hypargos* and *Lagonosticta* cannot be separated by the shape of the second primary, and thus *Lagonosticta nitidula* Hartl. 1886 must remain in the genus *Lagonosticta*. On the other hand, *Estrelda nitidula* Hartl. 1865 differs very much by the short-

ness of its tail! The bill is comparatively large, the first primary minute, the second normal, not attenuated, and very little shorter than the third, fourth, and fifth. I propose for this species the new generic name:

*Mandingoa*, gen. nov.

Judging from two adult males collected by Rudolf Grauer 80 km. north of Kasongo, which I take to be typical *nitidula* (described from Lake Tanganyika), the *Lagonosticta harterti* is not quite identical with *nitidula*, the latter being darker, more brownish on the abdomen, and the white spots on the chest smaller, while the vinous pink of the throat and breast appears to be brighter. These birds will therefore have to be called *Lagonosticta nitidula nitidula*, while the Angolan form will be *Lagonosticta nitidula harterti*.

133. *Lagonosticta senegala rendalli* Hart. = *Lagonosticta senegala rendalli*.

*Lagonosticta senegala rendalli* Hartert, *Nov. Zool.* 1898. p. 72 (Upper Shiré River).

Type: ♂ ad., Upper Shiré River, B.C. Africa, 9.v. 1895. Dr. Percy Rendall leg. No. 13.

134. *Lagonosticta senegala abayensis* Neum. = *Lagonosticta senegala abayensis*.

*Lagonosticta senegala abayensis* Neumann, *Journ. f. Orn.* 1905. p. 349 (Giditscho Island, Lake Abaya).

Type: ♂ ad., Giditscho Is., Lake Abaya, 27.xii. 1900. Oscar Neumann leg. No. 502.

† 135. *Lagonosticta senegala erythrae* Neum. = *Lagonosticta senegala brunneiceps*.

*Lagonosticta senegala erythrae* Neumann, *Journ. f. Orn.* 1905. p. 349 ("Bogosland, Erythrea").

Type: ♂ ad., Adarte, 16.xi. 1899 (not 16.ii. 1899 as quoted by Neumann). G. Schrader leg.

There can be no doubt that *erythrae* is the same as *brunneiceps* from Eritrea. See under 136.

136. *Lagonosticta senegala pallidicrissa* Zedl. = *Lagonosticta senegala pallidicrissa*.

*Lagonosticta senegala pallidicrissa* Zedlitz, *Orn. Monatsber.* 1910. p. 173 (Angola).

Type: ♂ ad., Humpata, Mossamedes, 16.ii. 1906. W. J. Ansorge leg. No. 276.

A useful review of the subspecies of *Lagonosticta senegala* is given by Count Zedlitz in *Orn. Monatsber.* 1910, pp. 171-174. There is, however, an error in it, under which also Neumann, *Journ. f. Orn.* 1905, p. 349, laboured, and for which our late friend R. Bowdler Sharpe is really responsible. When Sharpe, *Cat. B. Brit. Mus.* xiii. p. 277, 1890, first named *Lagonosticta brunneiceps*, he united under this name specimens of various subspecies, viz. from "North-eastern Africa throughout Eastern Africa, and the south-east and south-west portions of the continent," and he unfortunately omitted to fix any "terra typica" or any type! Neumann (*Journ. f. Orn.* 1905, p. 349) called two males from the Gelo River *L. s. brunneiceps*, and described *L. s. erythrae* and *abayensis*. The two "*brunneiceps*" from the Gelo should belong to the pale *brunneiceps*,

but (one especially) are badly worn and rather difficult to name. His *abayensis* is evidently a distinct form, and his *erythrae* much paler. In the same year, however, Shelley (*B. Africa*, iv. i. pp. 258, 259) informed us which was Sharpe's type, *i.e.* a bird collected by Jesse at Maragaz in Northern Abyssinia. If the type locality had been fixed before, Shelley's statement would have been of no avail, as one could not have proved whether the label had been marked as type in 1890 or later, but as that had not been done, Shelley's action must be followed. Therefore *L. s. erythrae* is a synonym of *brunneiceps* (s.s.). In Zedlitz's list therefore *erythrae* must be eliminated, and probably "*carlo*," said to inhabit the Hawash Valley and North Somaliland, is also identical with *brunneiceps*, at least I cannot see the differences described by Zedlitz. The South African form, which Zedlitz called *brunneiceps*, thus restricting, but too late, that name to the southern form, is probably not separable from *rendalli*, but more material is necessary to decide this finally.

137. *Lagonosticta rhodopareia ansorgei* Neum. = *Lagonosticta rhodopareia ansorgei*.

*Lagonosticta rhodopareia ansorgei* Neumann, *Bull. B.O. Club*, xxi. p. 58 (Febr. 1908—Angola).

Type: ♂ ad., Kabisombo River, Quillenges, Benguella, i. ii. 1905. W. J. Ansorge leg. No. 364.

138. *Estrilda paludicola benguellensis* Neum. = *Estrilda paludicola benguellensis*.

*Estrilda paludicola benguellensis* Neumann, *Bull. B.O. Club*, xxi. p. 96 (May 1908—Benguella).

Type: ♂, Que River, Benguella, 14. i. 1906. W. J. Ansorge leg.

139. *Amandina fasciata alexanderi* Neum. = *Amandina fasciata alexanderi*.

*Amandina fasciata alexanderi* Neumann, *Bull. B.O. Club*, xxiii. p. 43 (Dec. 1908—"East Africa from North Abyssinia, through Shoa and Somaliland, to German East Africa").

Type: ♂ ad., Waram, Hawash River, Shoa, 9. vi. 1903. P. Zaphiro leg.

#### TANAGRIDAE.

† 140. *Nemosia rosenbergi* Rothsch. = *Hemithraupis (Erythrothlypis) salmoni* (Sel.).

*Nemosia rosenbergi* Rothschild, *Bull. B.O. Club*, xii. p. vi. (Oct. 1897—Cachabé, N.W. Ecuador).

Type: ♂ ad., Cachabé, 500 ft., 13. xi. 1896, W. F. H. Rosenberg leg. No. 28.

The male with its scarlet upperside is a very striking, beautiful bird. Nobody could, when Mr. Rosenberg had discovered it, imagine that the dull yellowish olive "*Dacnis salmoni*" of Selater would be the same species. Nevertheless it is so. In NOVITATES ZOOLOGICAE, 1898, p. 484, I had said already that possibly "*Dacnis salmoni*" might be the female of the same, or a closely allied form, Count Berlepsch having explained to me in the British Museum, that it was not a *Dacnis* at all, but what we then called *Nemosia*. This was proved beyond doubt by Hellmayr, NOVITATES ZOOLOGICAE, 1906, p. 317, and *Proc. Zool. Soc. London*, 1911, vol. ii. pp. 1116, 1117. Cf. also Berlepsch, *Verh. V. Int. Orn. Kongress*, p. 1081, where *salmon*i has been made the type

of a new genus. It seems to me that the latter, *Erythrothlypis* Berl., must be accepted, if *Chrysothlypis* is accepted. See also Chapman, *Distr. Bird-Life, Colombia*, p. 617, 1917.

141. **Nemosia flavicollis centralis** Hellm. = *Hemithraupis flavicollis centralis*.

*Nemosia flavicollis centralis* Hellmayr, *Nov. Zool.* 1907. pp. 350, 352 ("Western Brazil: Humaytha, Rio Madeira, Matto Grosso, N.E. Bolivia").

Type: ♂ ad., Humaytha on the Rio Madeira, 17. ix. 1906. W. Hoffmanns leg. No. 1253.

142. **Cypsnagra ruficollis pallidigula** Hellm. = *Cypsnagra hirundinacca pallidigula*.

*Cypsnagra ruficollis pallidigula* Hellmayr, *Nov. Zool.* 1907. p. 350 (Humaytha).

Type: ♂ ad., Humaytha, Rio Madeira, 24. ix. 1906. W. Hoffmanns leg. No. 1290.

143. **Tachyphonus surinamus insignis** Hellm. = *Tachyphonus surinamus insignis*.

*Tachyphonus surinamus insignis* Hellmayr, *Nov. Zool.* 1906. p. 357 ("Lower Amazons from Pará westwards to Borba." Type: Bemfica).

Type: ♂ ad., Bemfica near Pará. J. B. Steere leg.

144. **Tachyphonus cristatus madeirae** Hellm. = *Tachyphonus cristatus madeirae*.

*Tachyphonus cristatus madeirae* Hellmayr, *Nov. Zool.* 1910. p. 277 ("Rio Madeira valley and its headwaters").

Type: ♂ ad., Calama, Rio Madeira, 2. viii. 1907. W. Hoffmanns leg. No. 329.

145. **Rhamphocoelus inexpectatus** Rothsch. = *Ramphocelus inexpectatus*.

*Rhamphocoelus inexpectatus* Rothschild, *Bull. B.O. Club*, vi. p. xxxii. (February 1897—Panama, from preparation).

Type: ♂ ad., Panama. (Trade-skin, bought from K. Dunstall).

Another specimen received afterwards agrees with the type, but the yellow colour is less golden, more sulphur yellow, and there is not quite so much black on the abdomen, there are no yellow edges to the feathers of the occiput, but some on the sides of the head.

146. **Rhamphocoelus dunstalli** Rothsch. = *Ramphocelus dunstalli*.

*Rhamphocoelus dunstalli* Rothschild, *Nov. Zool.* 1895. p. 481 (Central America, probably Panama, from preparation).

Type: ♂, Panama. (Trade-skin bought from K. Dunstall).

A second male from the collection of Comte de Dalmas, bought in 1896 from Sciana, a feather-dealer in Paris, is perfectly similar to the type, only the red of the underside a shade darker.

It is strange that no more information has come forth about these two birds. No collector has ever come across them. If they are two distinct species they must have a very restricted habitat, and no doubt they came from the same place, arriving about the same time (1895 and 1896) and being prepared in the same manner.

† 147. *Ramphocelus chrysopterus* Bouc. = *Ramphocelus chrysonotus*.

*Ramphocelus chrysopterus* Boucard, *Humming Bird*, i. p. 53 (July 1891—"State of Panama, Columbia").

Type (or cotypes, the author having had two specimens, both in the Tring Museum, both marked by the author "typical specimen"): ♂, Panama. Bought from A. Boucard 1891.

The name seems to suggest that there is yellow on the wings, but probably Boucard meant to say "*chrysonotus*," because of the yellow lower back, or to coin a name meaning golden-rumped. The lower back and rump as well as nearly all upper tail-coverts are golden orange-yellow. *all* the rest of the plumage black. In *chrysonotus* the rump varies from deep orange-red to orange-yellow.

148. *Buthraupis rothschildi* Berl. = *Buthraupis rothschildi*.

*Buthraupis rothschildi* Berlepsch, *Bull. B.O. Club*, vii. p. iii. (Oct. 1897—Cachabé, Ecuador).

Type: ♂ ad., Cachabé (Cachabi, Cachavé), North Ecuador, 500 ft., 17: xii. 1896. W. F. H. Rosenberg leg. No. 166.

See fig. NOVITATES ZOOLOGICAE, 1898, pl. ii. fig. 2.

149. *Calliste mexicana media* Berl. & Hart. = *Calliste mexicana media*.

*Calliste mexicana media* Berlepsch & Hartert, *Nov. Zool.* 1902. p. 19 (Orinoco region of Venezuela).

Type: ♂ ad., Maipures, River Orinoco, 12. xii. 1898. George K. and Stella Cherrie leg. No. 11,451.

(Though the difference of one letter is quite sufficient to distinguish two names, in this case *Calliste* Boie 1826 has been considered preoccupied by *Callista* Pali 1791, by American authors, because the two words are only different Latin renderings of the Greek *καλλιστη*. Thus *Calospiza* Gray has been used, but it seems to be that American authors now more correctly use the name *Tangara*.)

150. *Tangara aurulenta goodsoni* Hart. = *Calliste aurulenta goodsoni*.

*Tangara aurulenta goodsoni* Hartert, *Bull. B.O. Club*, xxxiii. p. 78 (Dec. 1913—W. Ecuador).

Type: ♂ ad., Gualca, W. Ecuador, August 1898. Walter Goodfellow and Hamilton leg.

(Chapman, *Bull. Amer. Mus. Nat. Hist.* xxxiii. p. 188, 1914; *Dist. Bird-life Colombia*, p. 595, 1917, described another race which he called *Tangara aurulenta occidentalis*, from the subtropical zone of the western Andes. This race appears to be quite recognizable, but two of our "Bogotá" trade-skins agree well with *goodsoni*, except in having a somewhat small bill. I doubt, however, if the size of the bill is constant enough to serve as distinguishing any of these forms.)

151. *Calliste johannae* Dalmás = *Calliste johannae*.

*Calliste johannae* Dalmás, *Bull. B.O. Club*, xi. p. 36 (December 1900—"El Paillon," near Buenaventura).

Type: ♂, El Paillon, near Buenaventura, W. Colombia, 9. v. 1899. E. André leg.

See figure, *Ibis*, 1901.

(In December 1900 I drew up a description of a specimen collected by R. Miketta at Paramba, N. Ecuador, but at the meeting of the B.O. Club, when I

laid it before the members, the chairman, our unforgettable P. L. Selater, read the description sent by Comte de Dalmas, and I withdrew my new name. Comte de Dalmas had, at that time, a fine collection of South American birds, but a few years later he gave it up, as part of it had been destroyed by moths. We were fortunate to acquire the rest, except all Humming Birds, which went into Mr. Simon's collection, for the Tring Museum. Comte de Dalmas then turned his energy and intelligence to fishing, chess-playing, and flying, apparently one after the other, and recently to the study of spiders, in which he has become, I understand, quite an authority.)

† 152. *Calliste emiliae* Dalmas = *Tangara lavinia lavinia*.

*Calliste emiliae* Dalmas, *Bull. B.O. Club*, xi. p. 35 (Dec. 1900—San José and El Paillon).

Type: ♂ ad., San José, near Buenaventura, 27. v. 1899. E. André leg.

153. *Tanagrella velia signata* Hellm. = *Tanagrella velia signata*.

*Tanagrella velia signata* Hellmayr, *Bull. B.O. Club*, xv. p. 90 (July 1905—Pará, N.E. Brazil).

Type: ♂ ad., Pará. J. B. Steere leg.

154. *Euphonia fulvicrissa purpurascens* Hart. = *Euphonia fulvicrissa purpurascens*.

*Euphonia fulvicrissa purpurascens* Hartert, *Nov. Zool.* 1901. p. 370 (Pambilar and San Javier in N.W. Ecuador).

Type: ♂, Pambilar, N.W. Ecuador, 60 feet, 15. ix. 1900. S. Flemming leg. No. 603.

155. *Euphonia fulvicrissa omissa* Hart. = *Euphonia fulvicrissa omissa*.

*Euphonia fulvicrissa omissa* Hartert, *Bull. B.O. Club*, xxxiii. p. 77 (Dec. 1913—Colombia; Noanamá and "Bogota Collections").

Type: ♂ ad., ex native Bogotá collections. Per Coll. Comte de Dalmas.

156. *Euphonia elegantissima vincens* Hart. = *Euphonia elegantissima vincens*.

*Euphonia elegantissima vincens* Hartert, *Bull. B.O. Club*, xxxiii. p. 77 (Dec. 1913—"Costa Rica and Chiriqui").

Type: ♂ ad., San José, Costa Rica, 20. i. 1898. C. F. Underwood leg.

#### COEREBIDAE.

157. *Cyanerpes caerulea cherriei* Berl. & Hart. = *Cyanerpes caerulea cherriei*.

*Cyanerpes caerulea cherriei* Berlepsch & Hartert, *Nov. Zool.* 1902. p. 16 (Munduapo, Orinoco).

Type: ♂ ad., Munduapo, Orinoco, 23. ii. 1899. Geo. K. and Stella Cherrie leg. No. 12,087.

158. *Dacnis berlepschi* Hart. = *Dacnis berlepschi*.

*Dacnis berlepschi* Hartert, *Bull. B.O. Club*, xi. p. 37 (1900—Lita, N.W. Ecuador).

Type: ♀ (erroneously marked "♂"), Lita, N.W. Ecuador, 3,000 feet, 13. x. 1899. G. Flemming leg. No. 339.

For description of adult male and figures see NOVITATES ZOOLOGICAE, 1901, p. 371, plate v.

When I showed the comparatively simple coloured female, at first believed

to be a male, to the late Count Berlepsch, he wrote on the label "*Dacnis* sp. nov. !, a great discovery," but his excitement, when he saw the beautiful male, was such as only men with his boundless interest and love for birds could evince.

159. *Diglossa pectoralis uncineta* Hellm. = *Diglossa pectoralis uncineta*.

*Diglossa pectoralis uncineta* Hellmayr, *Nov. Zool.* 1905. p. 504 (Levanto, Peru).

Type: ♂ ad., Levanto, North Peru, 9,000 feet, 13. xi. 1894. O. T. Baron leg.

160. *Coereba luteola montana* Lowe = *Coereba luteola montana*.

*Coereba luteola montana* Lowe, *Ibis*, 1912. p. 509 (Merida).

Type: ♂ ad., Merida, Venezuela, 20. ii. 1897, 1,600 m. Salomon Briceño leg.

#### FRINGILLIDAE.

161. *Geospiza darwini* Rothsch. & Hart. = *Geospiza conirostris darwini*.

*Geospiza darwini* Rothschild & Hartert, *Nov. Zool.* 1899. p. 158 (Culpepper Island, Galápagos Is.).

Type: ♂ ad., Culpepper Island, 27. vii. 1897. R. H. Beek leg. Cf. NOVITATES ZOOLOGICAE, 1902, p. 389.

162. *Geospiza propinqua* Ridgw. = *Geospiza conirostris propinqua*.

*Geospiza propinqua* Ridgway, *Proc. U.S. Nat. Mus.* xvii. p. 361 (1894—Tower Island).

Type: ♂ ad., Tower Island, Galápagos Is., 2. ix. 1901. G. Baur leg. (From spirits.)

163. *Geospiza bauri* Ridgw. = *Geospiza dubia bauri*.

*Geospiza bauri* Ridgway, *Proc. U.S. Nat. Mus.* xvii. p. 362 (1894—James Island).

Type: ♂ ad., James Island, Galápagos, 17. viii. 1891. G. Baur leg.

164. *Geospiza dubia simillima* Rothsch. & Hart. = *Geospiza dubia simillima*.

*Geospiza dubia simillima* Rothschild & Hartert, *Nov. Zool.* 1899. p. 161 (Charles Island).

Type: ♂ ad., Charles Island, Galápagos, 4. xi. 1897. Hall leg.

165. *Geospiza fuliginosa minor* Rothsch. & Hart. = *Geospiza fuliginosa minor*.

*Geospiza fuliginosa minor* Rothschild & Hartert, *Nov. Zool.* 1899. p. 162 (Bindloe and Abingdon Islands).

Type: ♂ ad., Bindloe Island, Galápagos, 5. ix. 1891. Dr. G. Baur leg. (From spirits.)

166. *Geospiza acutirostris* Ridgw. = *Geospiza acutirostris*.

*Geospiza acutirostris* Ridgway, *Proc. U.S. Nat. Mus.* xvii. p. 363 (1894—Tower Island).

Type: ♂ ad., Tower Island, Galápagos. G. Baur leg. (From spirits.)



167. *Geospiza harterti* Ridgw. = *Geospiza harterti*.

*Geospiza harterti* Ridgway, *B.N. & Middle Amer.* i. p. 507 (1901—Chatham Island. Ex Rothschild & Hartert, *Nov. Zool.* 1899, p. 163 !)

Type : ♂ ad., Chatham Island, Galápagos, 8. ix. 1891. Dr. G. Baur leg. (Ex spirits.) (Cf. NOVITATES ZOOLOGICAE, 1902, p. 396.)

168. *Geospiza scandens septentrionalis* Rothsch. & Hart. = *G. scandens septentrionalis*.

*Geospiza scandens septentrionalis* Rothschild & Hartert, *Nov. Zool.* 1899. p. 165 (Wenman & Culpepper Islands).

Type : ♂ ad., Wenman Island, Galápagos, 4. viii. 1897. Harris leg.

† 169. *Geospiza barringtoni* Ridgw. = *Geospiza scandens fatigata*.

*Geospiza barringtoni* Ridgway, *Proc. U.S. Nat. Mus.* xvii. p. 361 (1894—Barrington Island).

Type : ♂ ad., Barrington Island, Galápagos, vii. 1891. Dr. G. Baur leg. (Ex spirits.) Cf. NOVITATES ZOOLOGICAE, 1899, p. 164.

† 170. *Camarhynchus productus* Ridgw. = *Geospiza pallida*.

*Camarhynchus productus* Ridgway, *U.S. Nat. Mus.* xvii. p. 364 (1894—Albemarle Island).

Type : ♂, Albemarle Island, 31. vii. 1891. Dr. G. Baur leg. Cf. NOVITATES ZOOLOGICAE, 1899, p. 165.

† 171. *Camarhynchus compressirostris* Ridgw. = *Geospiza psittacula psittacula*.

*Camarhynchus compressirostris* Ridgway, *Proc. U.S. Nat. Mus.* xviii. p. 294 (1896—Jervis Island).

Type : ♀, Jervis Island, Galápagos, 8. viii. 1891. Dr. G. Baur leg.

Ridgway, in *B. N. and Middle Amer.* i. p. 481, still maintains the distinctness of this form, but it is quite impossible to separate, as not all Jervis Island specimens have the bill as in the type, and all intermediates occur. Cf. NOVITATES ZOOLOGICAE, 1902, pp. 400, 401.

172. *Camarhynchus affinis* Ridgw. = *Geospiza psittacula affinis*.

*Camarhynchus affinis* Ridgway, *Proc. U.S. Nat. Mus.* xvii. p. 365 (1894—Albemarle Island).

Type : Cowley Bay, E. Albemarle, 10. viii. 1891. Dr. G. Baur leg.

173. *Camarhynchus incertus* Ridgw. = *Geospiza incerta* (?).

*Camarhynchus incertus* Ridgway, *U.S. Nat. Mus.* xviii. p. 294 (1896—James Island).

Type : ♀, James Island, 13. viii. 1891. Dr. G. Baur leg.

Possibly this is only a *Geospiza psittacula psittacula*. Cf. NOVITATES ZOOLOGICAE, 1902, p. 401.

† 174. *Camarhynchus bindloei* Ridgw. = *Geospiza habeli*.

*Camarhynchus bindloei* Ridgway, *Proc. U.S. Nat. Mus.* xviii. p. 294 (1896—Bindloe Island).

Type : ♂ ad., Bindloe Island, Galápagos, ix. 1891. G. Baur leg.

175. *Chloris sinica ussuriensis* Hart. = *Chloris sinica ussuriensis*.

*Chloris sinica ussuriensis* Hartert, *Vög. pal. Fauna*, i. p. 64 (1903—"Östliche Mandchurei bis zum Amur, Korea und die Inseln Sachalin und Askold").

Type : ♂ ad., mouth of Sidemi, Amur Bay, 30. iv. 1884. Dörries Bros. leg.

(Sharpe, *Hand-list of Birds*, v. p. 196, says that *Chloris* must be rejected because of *Chloris* Schwarz 1788, but this is evidently an error.)

176. *Eophona personata magnirostris* Hart. = *Eophona personata magnirostris*.

*Eophona personata magnirostris* Hartert, *Bull. B.O. Club*, v. p. xxxviii. (April 1896—Amur-land).

Type : ♂ ad., Amur Bay, Ussuriland, 10. iv. 1894. Dörries Bros. leg.

177. *Eophona melanura migratoria* Hart. = *Eophona melanura migratoria*.

*Eophona melanura migratoria* Hartert, *Vög. pal. Fauna*, i. p. 59 (1903—"Ussuri-Länder Südost-Sibiriens").

Type : ♂ ad., Sidemi River, 24. v. 1884. Dörries Bros. leg.

(It is interesting to see that in the case of *Eophona personata* the form from Eastern Liberia has the larger bill, while in the *E. melanura* it is the small-beaked one. This case shows again, what I have so often emphasized, that one cannot lay down rules how the forms from one country must be, from the evidence of other forms, and that nature has not developed in a machine-like way. Probably in similar cases the development of the two forms has been quite different; for example, the one race may have become differentiated in Ussuri-land, while in the other it may have been there first and become altered in the southern parts of its habitat.)

178. *Guiraca rothschildii* Bartl. = *Cyanocompsa rothschildii*.

*Guiraca Rothschildii* E. Bartlett, *Ann. & Mag. Nat. Hist.* ser. 6, vol. vi. p. 163 (1890—R. Carimang, British Guiana).

Type : ♂ ad., River Carimang, 22. iv. 1885. H. Whitely coll.

(Ridgway, *B. N. and Middle Amer.* i. p. 594, 1903, has separated *Cyanocompsa* from *Guiraca*, and other American ornithologists as well as Sharpe, Hellmayr, Chubb, have followed him. While admitting that the two groups show some differences in the shape of the wing and bill, those of the tail are not constant, and altogether the differences have been overrated).

179. *Oryzoborus angolensis brevirostris* Berl. = *Oryzoborus angolensis brevirostris*.

*Oryzoborus angolensis brevirostris* Berlepsch, *Nov. Zool.* 1908. p. 115 (Cayenne).

Type : ♂ ad., Cayenne, 22. xi. 1902. Geo. K. Cherrie and B. T. Gault leg. No. 882.

180. *Melopyrrha taylori* Hart. = *Melopyrrha nigra taylori*.

*Melopyrrha taylori* Hartert, *Nov. Zool.* 1896. p. 257 (Grand Cayman).

Type : ♂ ad., Grand Cayman Island, 25. iii. 1896. C. B. Taylor leg. No. 70.

181. *Euetheia sharpei* Hart. = *Euetheia bicolor sharpei*.

*Euetheia sharpei* Hartert, *Bull. B.O. Club*, i. p. xxxvii. (1893—"Bonaire, Curaçao, Aruba").

Type : ♂ ad., Curaçao, 28. vii. 1892. Ernst Hartert leg. No. 246.

182. *Cardinalis phoeniceus* Bp. = *Cardinalis phoeniceus*.

*Cardinalis phoeniceus* Bonaparte, *Proc. Zool. Soc. London*, pt. v. p. 111 (1838—"Received by Mr. Gould from the country south of the Bay of Honduras" and at the time "in the collection of the Zoological Society").

Type: ♂ ad., "Honduras" (errore!), ex Mus. T. C. Eyton, per Coll. Edw. Bartlett. Marked in Eyton's hand "Ex Mus. Zool. Soc., Or. of Bonaparte's description."

This specimen must evidently be considered as the type of Bonaparte's description, not the male marked "Venezuela," from the Gould Collection, said to be the type in *Cat. B. Brit. Mus.* xii. p. 167. There is no proof that the type of *Cardinalis phoeniceus* ever was in Gould's collection, nor was it described as coming from Venezuela, though it probably did. The specimen was in the collection of the Zoological Society of London and marked as "*Cardinalis phoeniceus*" by Gould. The latter, however, never described it. Bonaparte (*l.c.*) said: "Finding in the collection of the Zoological Society two beautiful undescribed species of this my new form, I take this opportunity of making them known, especially as both come from Mexico." By "new form" he evidently meant "new genus," the genus *Cardinalis* here being established for the first time. The author then proceeds to describe "*Cardinalis phoeniceus* Gould," of which he says that it was received by Gould from "the country south of the Bay of Honduras." The bird must then have passed into Eyton's collection, thence into E. Bartlett's collection, which was bought by the present Lord Rothschild.

183. *Pitylus canadensis frontalis* Hellm. = *Pitylus canadensis frontalis*.

*Pitylus canadensis frontalis* Hellmayr, *Nov. Zool.* 1905. p. 277 (Pernambuco).

Type: ♀ ad., S. Lourenzo, Pernambuco, 29. vii. 1903. A. Robert leg. No. 1742.

184. *Saltator immaculatus* Berl. & Stolzm. = *Saltator immaculatus*.

*Saltator immaculatus* Berlepsch & Stolzmann, *Proc. Zool. Soc. London.* 1892. p. 375 (eight specimens, collected by Kalinowski at Lima, Sept. and Oct. 1889).

Co-type (probably all 8 specimens were marked "typus"): ♂. Lima, 16. ix. 1889. Jean Kalinowski leg. No. 62. Marked: "*Saltator immaculatus* Berl. and Stolzm., typus" by Stolzmann.

185. *Fringilla teydea polatzeki* Hart. = *Fringilla teydea polatzeki*.

*Fringilla teydea polatzeki* Hartert, *Orn. Monatsber.* 1905. p. 164 (Gran Canaria).

Type: ♂ ad., Gran Canaria, 1. v. 1905. Hptm. Polatzek leg. No. 1505.  
Figure: *Ibis*, 1912, pl. xii.

186. *Fringilla coelebs ombriosa* Hart. = *Fringilla coelebs ombriosa*.

*Fringilla coelebs ombriosa* Hartert, *Bull. B.O. Club*, xxxiii. p. 78 (Dec. 1913—Hierro).

Type: ♂ ad., Pinar (pine woods) of Hierro (Ferro), Canary Islands, 16. ii. 1903. Hptm. Polatzek leg.

187. *Fringilla spodiogenys koenigi* Rothsch. & Hart. = *Fringilla coelebs koenigi*.

*Fringilla spodiogenys koenigi* Rothschild & Hartert, *Orn. Monatsber.* 1893. p. 97 (Tanger, N. Marocco); *op. cit.* 1894. p. 75, corr.; Hartert, *Vög. pal. Fauna*, i. p. 128.

Type: ♂ ad., Tanger, 5. iv. 1884. Olcese leg. Ex. Coll. Bartlett, ex. Wilh. Schlüter.

(*Fringilla coelebs koenigi* is not spread over the whole of Marocco. I only know it from the neighbourhood of Tanger, and it is probably restricted to the northern peninsula, the neighbourhood of Tanger, Ceuta, Tetuan, and the Rif-country, and may not occur south of the River Sebou. Near Mazagan no Finch seems to breed, while in and about Mogador and in the southern Atlas *F. coelebs africana* is found. The typical *F. coelebs spodiogenys* appears to be confined to Tunisia.)

188. *Acanthis carduelis britannicus* Hart. = *Carduelis carduelis britannicus*.

*Acanthis carduelis britannicus* Hartert, *Vög. pal. Fauna*, i. p. 68 (1903—British Isles, Type Rottingdean in Sussex).

Type: ♂ ad., Rottingdean, April 1902. Brazenor Bros. leg.

189. *Acanthis carduelis africanus* Hart. = *Carduelis carduelis africanus*.

*Acanthis carduelis africanus* Hartert, *Vög. pal. Fauna*, i. p. 69 (1903—Spain, Marocco, Algeria, Tunisia).

Type: ♂ ad., Mhoiwa (Mehuila), east of Mazagan, W. Marocco, 1. ii. 1902. F. W. Riggenbach leg. No. 78.

190. *Loxigilla Chazaliei* Oust. = *Pyrrhulagra noctis chazaliei*.

*Loxigilla Chazaliei* Oustalet, *Bull. Soc. Zool. France*, xx. p. 184 (1895—Barbuda).

Types (only two specimens collected), two ♂, Barbuda, 15. ii. 1895. Comte de Dalmas leg.

This distinct form has been overlooked in Ridgway's *B. North and Middle Am.* i. (1901).

191. *Procarduelis rubescens* Blanf. = *Procarduelis rubescens*.

*Procarduelis rubescens* Blanford, *Proc. Zool. Soc. London*, 1871, p. 694 (Sikkim).

Type: ♂, Sikkim, sent to Blanford by Mandelli. Label in W. T. Blanford's handwriting: "Type described *P.Z.S.* 1871, p. 693, pl. lxxiv. W. T. B." The Tring Museum received it with Mr. Elves' collection. I do not know what happened to the female, which came to Blanford together with the male; probably it has been lost somewhere.

192. *Spinus citrinelloides kikuyensis* Neum. = *Carduelis citrinelloides kikuyensis*.

*Spinus citrinelloides kikuyensis* Neumann, *Journ. f. Orn.* 1905, p. 356 ("Kikuyu, Kenia, Naiwascha-See").

Type: ♂ ad., Escarpment, Kikuyu Mts., E. Africa. W. Doherty leg.

(It is in my opinion quite wrong to separate the genera "*Spinus*" and *Carduelis*, if we admit that colour alone cannot serve as a generic character.

The supposed differences in the shape of the bill are imagination, or so slight that, if admitted, it would follow that numerous new genera would have to be made among birds in general, and especially in what Sharpe called *Spinus* even in the *Handlist*. One might perhaps object to my also uniting the Linnets with *Carduelis*, as they really have a much thicker bill, but I prefer at present to unite them still, because the gap is slight and partly bridged over.)

193. *Spinus olivaceus* Berl. & Stolz. = *Carduelis olivaceus*.

*Spinus olivaceus* Berlepsch & Stolzmann, *Ibis*, 1894 (not 1904, as the *Handlist* says), p. 387 (three males and one female from Vitoc, Central Peru, 24. vii. and 13. ii. 1893).

Type or cotype: ♂ ad., Vitoc, 13. ii. 1893. Jean Kalinowski leg. No. 1872. Marked "Typus" by Stolzmann.

† 194. *Acanthis flavirostris stoliczkae* Hart. = *Carduelis flavirostris montanellus*.

*Acanthis flavirostris stoliczkae* Hartert, *Vög. pal. Fauna*, i. p. 77 (1903—Kashmir, Type Gilgit).

Type: (♂) Gilgit, 7. iii. 1880. J. Scully Coll. (No. 738).

Henderson and Hume, *Lahore to Yarkand*, p. 261, 1873, proposed conditionally, inconspicuously in the text, the name *Linota montanella* for the birds from Yarkand. This hitherto overlooked name must be adopted, though the differences originally described do not exist.

(The fine bill of this form differs from that of *Carduelis cannabina*. If our genus-splitters separate Linnets, Siskins, and Goldfinches into three genera, they must also again separate the Citril and Twites, and several more genera in America. What do we gain by having at least half a dozen genera in the place of one? Should we resort to such "furor genericus" (Selater) as has been exhibited by Bianchi or Mathews and in some cases by Sharpe and American nomenclators? If we did hardly anyone would know what was meant by so many birds under unknown names. This is beautifully illustrated by Mathews' latest list of Australian birds, and his great work on the same.)

195. *Acanthis cannabina meadewaldoi* Hart. = *Carduelis cannabina meadewaldoi*.

*Acanthis cannabina meadewaldoi* Hartert, *Nov. Zool.* 1901. p. 323 (Tenerife).

Type: ♂ ad., Esperanza, Tenerife, 22. iii. 1901. Curt Floericke leg.

196. *Montifringilla ruficollis* Blanf. = *Montifringilla ruficollis*.

*Montifringilla ruficollis* Blandford, *Proc. Asiat. Soc. Bengal*, 1871. p. 227 ("Láchen Valley near the Tibetan frontier," but all specimens collected are labelled "Kangra Lama Pass").

Type: Kangra Lama Pass, Sikkim, 15,500 ft., 5. x. 1870. Collected by H. J. Elwes and Blandford.

There can be no doubt that this specimen is the actual type, and not the one in the British specimen, which Sharpe registered as the type. The latter is no doubt a paratype, but on the original label is no remark to the fact; the word "type" has only been written on the British Museum's label, apparently by Sharpe, while our specimen bears the remark "*Montifringilla* sp. nov. type of *ruficollis*," evidently in the author's handwriting.

197. *Montifringilla brandti walteri* Hart. = *Montifringilla brandti walteri*.

*Montifringilla brandti walteri* Hartert, *Vög. pal. Fauna*, i. p. 138 (June 1904—Sung-pan).

Type: "♂?" Sung-pan, Sue-shan, Sechuan, 6. iv. 1894 (Russian date). Berezowsky leg. No. 286.

198. *Erythrospiza githaginea amantum* Hart. = *Erythrospiza githaginea amantum (amantium)*.

*Erythrospiza githaginea amantum* Hartert, *Vög. pal. Fauna*, i. p. 89 (1903—Fuertaventura, Lanzarote, Gran Canaria).

Type: ♂ ad., Oliva, Fuertaventura, 22. iii. 1889. Ramon Gomez leg. No. 1211.

199. *Erythrospiza githaginea zedlitzii* Neum. = *Erythrospiza githaginea zedlitzii*.

*Erythrospiza githaginea zedlitzii* Neumann, *Orn. Monatsber.* 1907. p. 145 (Algeria and Tunisia).

Type: ♂ ad., west of Biskra, 20. i. 1903. Ernst Flückiger leg.

200. *Gymnoris pyrgita pallida* Neum. = *Gymnoris pyrgita pallida*.

*Gymnoris pyrgita pallida* Neumann, *Bull. B.O. Club*, xxi. p. 70 (1908—"The Sudan, from the region of Khartum to Senegal").

Type: ♂ ad., Shendi, between Berber and Khartum, on the Nile (not "White Nile," as Neumann absentmindedly wrote), 28. ii. 1901 (not 26. i, as Neumann wrote by a slip), N. C. Rothschild and A. F. R. Wollaston leg. No. 170.

201. *Gymnoris pyrgita massaica* Neum. = *Gymnoris pyrgita massaica*.

*Gymnoris pyrgita massaica* Neumann, *Bull. B.O. Club*, xxi. p. 70 (1908—"Escarpment Station, Kikuyu").

Type: ♂ ad., Escarpment, Kikuyu Mts., B. E. Africa, 6,500 ft., January 1901. William Doherty leg.

202. *Gymnoris flavicollis transfuga* Hart. = *Gymnoris flavicollis transfuga*.

*Gymnoris flavicollis transfuga* Hartert, *Vög. pal. Fauna*, i. p. 145 (1904—Sind, Baluchistan, Southern Afghanistan and Persia).

Type: ♂ ad., Bagu-Kelat, Persian Baluchistan, 12. iii. 1901. N. Zarudny leg. (No. 3901.)

203. *Petronia petronia intermedia* Hart. = *Petronia petronia intermedia*.

*Petronia petronia intermedia* Hartert, *Nov. Zool.* 1901. p. 324 (Kashmir and Kandahar, Type Gilgit).

Type: ♂ ad., Gilgit, 9. i. 1880. J. Seully leg.

204. *Passer domestica biblicus* Hart. = *Passer domesticus biblicus*.

*Passer domestica biblicus* Hartert, *Vög. pal. Fauna*, i. p. 149 (1904—Syria and Palestine).

Type: Sueme, Palestine, 2. iv. 1897. No. 143. Bacher leg. (Purchased from Schlüter.)

205. *Passer hispaniolensis maltae* Hart. = *Passer hispaniolensis maltae*.

*Passer hispaniolensis maltae* Hartert, *Nov. Zool.* 1902. p. 332 (Malta).

Type: ♂, Malta, May 1861, Charles Wright leg. No. 4. (Per Coll. Bartlett.)

In the *Handlist*, v. p. 248, Sharpe said: "Probably hybrid between *P. italiae* and *P. hispaniolensis*.—Salvadori in litt." Perhaps Sharpe mistook a sentence of Salvadori's, but even if the latter thought it probable that the Malta Sparrow which I named is a hybrid between *italiae* and *hispaniolensis*, there is certainly no foundation for that belief. To produce hybrids both parents must occur in the same place, and that is not the case in this instance. All Malta Sparrows are *maltae*, the true typical *hispaniolensis* does not live there, and of *italiae* Despott tells us (*Ibis*, 1917, p. 305) that he knows of two undoubted occurrences! *Passer hispaniolensis maltae* used to be very numerous, but has now become much rarer. Schembri's and Wright's notes about the Malta Sparrows are confused (cf. Despott, *l.e.*).

206. *Passer indicus* Jard. & Selby = *Passer domesticus indicus*.

*Passer indicus* Jardine & Selby, *Ill. Orn.* iii. pt. viii. pl. 118 and text (1831—"Continental India").

Type: ♂ ad., "India." Ex. Coll. Jardine. (Per Coll. Bartlett.)

The label is marked in Jardine's handwriting: "Type of plate *Orn. Illust.*" The authors had only one pair; the female, however, is not in our collection. The late Edward Bartlett bought quite a number of birds from the Jardine Collection, and with the Bartlett Collection of Weaver-birds, Finches and Larks they passed into the Tring Museum. Jardine's type is mentioned in Bartlett's *Weaver Birds and Finches*, on p. 8 of the article "*Passer domesticus*."

On the dates of Jardine and Selby's *Ill. Orn.*, see *Ibis*, 1894, p. 326.

207. *Passer montana taiwanensis* Hart. = *Passer montanus taiwanensis*.

*Passer montana taiwanensis* Hartert, *Vög. pal. Fauna*, p. 161 (1904—Formosa).

Type: ♂ ad., Daihoku, Formosa, 9. x., collected by a Japanese in Mr. Jonas's service. (No. 448.)

208. *Passer rutilans debilis* Hart. = *Passer rutilans debilis*.

*Passer rutilans debilis* Hartert, *Vög. pal. Fauna*, p. 162 (1904—Kashmir to Sind and Western Himalaya).

Type: ♂, Sind Valley in Kashmir, 19. vii. 1873. Colonel Biddulph leg, No. 7265 g.

209. *Serinus striolatus graueri* Hart. = *Serinus (Poliospiza) striolatus graueri*.

*Serinus striolatus graueri* Hartert, *Bull. B.O. Club*, xix. p. 84 (1907—Ruwenzori).

Type: Ruwenzori, 7,000 ft. Rud. Grauer leg.

(I doubt if the genera *Serinus* and *Poliospiza* can be satisfactorily separated, but in no case is the grouping of the *Handlist* recommendable.)

210. *Serinus angolensis somereni* Hart. = *Serinus angolensis somereni*.

*Serinus angolensis somereni* Hartert, *Bull. B.O. Club*, xxix. p. 63 (1912—Toro, Uganda).

Type: ♂ (and ♀, pair), Toro, November 1910. Dr. R. V. L. van Someren leg.

211. *Serinus leucopygius riggenbachi* Neum. = *Serinus leucopygius riggenbachi*.

*Serinus leucopygius riggenbachi* Neumann, *Bull. B.O. Club*, xxi. p. 44 (1908—"Senegambia and Western Sudan").

Type: ♂, Thiès (inland Dakar), 24. v. 1907. F. W. Riggenbach leg. No. 519.

212. *Sicalis columbiana leopoldinae* Hellm. = *Sicalis columbiana leopoldinae*.

*Sicalis columbiana leopoldinae* Hellmayr, *Bull. B.O. Club*, xvi. p. 85 (1906—S. Leopoldina, Rio Araguay, Goiaz, C. Brazil).

Type: ♂ ad., S. Leopoldina, 15. viii. 1880. Dr. Ehrenreich and Prof. Karl von den Steinen leg. No. 100.

† 213. *Loxia curvirostra anglica* Hart. = *Loxia curvirostra curvirostra*.

*Loxia curvirostra anglica* Hartert, *Vög. pal. Fauna*, i. p. 119 (1904—England).

Type: ♂, High Scrubs, Tring, 7. xii. 1897. No. 1890.

It still seems remarkable to me that the rather long series which I examined in 1903 consisted all of rather dull coloured specimens, and that most of them had rather strong bills. Nevertheless it seems probable that the majority of the Crossbills which were so common in 1897 and other years came from the continent, that they only nest in England in small numbers and irregularly, and it is certain that equally dull-coloured and thick-billed specimens are also common on the continent of Europe. I therefore now consider *L. c. anglica* to be a synonym of *curvirostra*, while, on the other hand, *L. c. scotica* is an excellent form, which nests regularly in Scotland, and apparently nowhere else.

214. *Pyrrhula owstoni* Rothschild & Hart. = *Pyrrhula nipalensis owstoni*.

*Pyrrhula owstoni* Rothschild & Hartert, *Bull. B.O. Club*, xxi. p. 9 (1907—Mt. Arizan, Formosa).

Type: ♂ ad., Mt. Arizan, Formosa, 4. xii. 1907. Collected by Alan Owston's Japanese collectors. (Possibly the date is not correct, being a translation from the original Japanese label.)

In spite of the striking differences of the adult male, I now believe that *P. owstoni* should be considered as a subspecies of *nipalensis*, and that *Pyrrhula uchidai* Kuroda, *Annot. Zool. Japon.*, ix. p. 295, 1917, described from Shishaban, Ako district, Formosa, is the immature *P. nipalensis owstoni*. The plumage described under the latter name had been described by us in *Bull. B. O. Club*, xxi. p. 10, as the young of *owstoni*, but the white streak on the central tail-feathers was not mentioned, probably because at the time we thought it was albinistic. The bird which we took and take now to be an immature *owstoni* differs from the adult *nipalensis* only in having a darker, more ashy brown upperside and throat and chest, and a white shaft-streak on the central rectrices, and it agrees well with Kuroda's very good description. The white on the central rectrices



is evidently variable, as the male of Kuroda's bird had it on the two middle pairs, his female and our bird on the central pair only. Kuroda's birds were both captured together on July 16th, 1909, our specimen on December 17th, while the adult male (type) and three adult females were caught on December 4th. I fear, however, that there may be an error about the dates. We believe the male of December 17th to be the young of *owstoni* for the following reasons: It only differs from the adult females in the want of the sharply defined black frontal line, the less slaty-grey but brownish crown with blackish dusky centres to the feathers, the white line on the middle pair of tail-feathers, and more white abdomen; on the back some obviously juvenile feathers are seen; the bird is moulting, the lateral rectrices much worn; on one of our adult females the forehead is also distinctly spotted. Should Kuroda's view be correct, that there are two species of this Bullfinch on Formosa, then his *uchidai* would doubtless be a subspecies of *nipalensis*, our *owstoni* a separate species—but from our present knowledge I cannot take this view and consider *uchidai* a synonym of *owstoni*.

215. *Pyrrhula waterstradti* Hart. = *Pyrrhula nipalensis waterstradti*.

*Pyrrhula waterstradti* Hartert, *Bull. B.O. Club*, xii. p. 69 (1902—Gunong Tahan, Eastern Malay Peninsula).

Type: ♂ ad., Mount (Gunong) Tahan. John Waterstradt leg.

I now consider *waterstradti* also to be a subspecies of *P. nipalensis*, the only important differences from the latter being the much more extended white on the sides of the head, and the much more faintly spotted forehead and crown. Mr. Herbert C. Robinson's Malay hunters collected this bird in several places of Selangor, chiefly on Mount (Gunong) Meng Kuang Lebah, 4,800 feet high, and Mt. Ulu Kali, between 4,700 and 5,800 feet.

† 216. *Emberiza Alleonis* Vian = *Emberiza pallasi*.

*Emberiza Alleonis* Vian, *Rev. et Mag. Zool.* 1869. pp. 97. 103 (Dauria).

Type of ♀: ♀, Dauria 1868. From Madame Verdey.

This specimen is marked "Type" on the label under the stand in the Riocour Collection (cf. *l.c.* p. 98). The type of the male, which was also in the Riocour Collection, appears to be lost. It is not in the Tring Museum, where the greater part of the Riocour Collection seems to be now. It was bought from Boucard in 1890, after Sharpe had selected 148 specimens, among which were a number of types, and it is not among the latter. (Cf. Sharpe, *History Coll. Nat. Hist. Brit. Mus.* p. 315.)

217. *Emberiza schoeniclus pallidior* Hart. = *Emberiza schoeniclus pallidior*.

*Emberiza schoeniclus pallidior* Hartert, *Vög. pal. Fauna*, p. 197 (1904—Turkestan, Kashgar, Lob-Nor, middle Yang-tse-kiang, Omsk, Baikal).

Type: ♂, near Aiderli, Turkestan, 11. xi. 1899 (Russian date). N. Zarudny leg. No. 1298.

218. *Emberiza pyrrhuloides reiseri* Hart. = *Emberiza pyrrhuloides reiseri*.

*Emberiza pyrrhuloides reiseri* Hartert, *Vög. pal. Fauna*, p. 199 (1904—Thessaly).

Type: ♂, Lamia, 4. xii. 1901. No. 10,009.

219. **Emberiza cia par** Hart. = *Emberiza cia par*.

*Emberiza cia par* Hartert, *Vög. pal. Fauna*, p. 184 (1904—"Mittleres Asien, vom nördlichen Kaukasus durch Transkaspien bis Turkestan, Afghanistan, Ost-Persien und Baluchistan").

Type : ♂, near Gudan, Transcaspia, 13. v. 1892, Russian date. N. Zarudny leg. No. 1767.

220. **Emberiza affinis omoensis** Neum. = *Emberiza affinis omoensis*.

*Emberiza affinis omoensis* Neumann, *Journ. f. Orn.* 1905. p. 358 ("Omo-Gebiet, Südäthiopische Seen und Sobat-Quellgebiet").

Type : ♂ ad., "Schetic in Koscha," 28. ii. 1901. No. 934.

221. **Emberizoides macrourus hypochondriacus** Hellm. = *Emberizoides sphenurus hypochondriacus*.

*Emberizoides macrourus hypochondriacus* Hellmayr, *Bull. B.O. Club*, xix. p. 28 (1906—Frances, Volcano of Chiriqui).

Type : ♂ ad., Frances, Volcano of Chiriqui, 2,000 feet, 11. xi. 1905. H. Watson leg. No. 110,511.

The name *macrourus* must be replaced by *sphenurus* because *Fringilla macroura* Gmelin is preoccupied by *Fringilla macroura* Pallas, in Vroeg's *Cat. Adumbratiunculæ* (1764).

222. **Phrygilus alaudinus venturii** Hart. = *Phrygilus alaudinus venturii*.

*Phrygilus alaudinus venturii* Hartert, *Nov. Zool.* 1909. p. 180 (Tucuman).

Type : ♂ ad., Lagunita, Tucuman, Argentine, 3,000 m., 31. i. 1903. G. A. Baer Coll. No. 1352.

223. **Paroaria baeri** Hellm. = *Paroaria baeri*.

*Paroaria baeri* Hellmayr, *Bull. B.O. Club*, xix. p. 43 (1907—Goyaz, Brazil).

Type : ♀ ad., Rio Aragnaya, State of Goyaz, Brazil, viii. 1906, 550 m. G. A. Baer leg. No. 2396.

224. **Coturniculus savannarum caribaens** Hart. = *Ammodramus savannarum caribaens*.

*Coturniculus savannarum caribaens* Hartert, *Nov. Zool.* 1902. p. 298 (Curaçao and Bonaire).

Type : ♂ ad., Island of Bonaire, 11. vii. 1892. Ernst Hartert leg. No. 164.

225. **Ammodramus savannarum intricatus** Hart. = *Ammodramus savannarum intricatus*.

*Ammodramus savannarum intricatus* Hartert, *Bull. B.O. Club*, xix. p. 73 (1907—S. Domingo).

Type : ♂ ad., El Valle, San Domingo, 16. i. 1907. A. Hyatt Verrill leg. No. 4167.

## ALAUDIDAE.

226. *Certhilauda albofasciata erikssoni* Hart. = *Certhilauda albofasciata erikssoni*.

*Certhilauda albofasciata erikssoni* Hartert, *Bull. B.O. Club*, xix. p. 82 (1907—"Okahokahana, on the Etosha Saltpan in Southern Ovampoland, German S.W. Africa").

Type: Adult, Okahokahana (Okahokaanna), 25. vii. 1880. A. W. Eriksson leg. No. 2580.

Only this one specimen to hand, but a very distinct form.

227. *Certhilauda albofasciata obscurata* Hart. = *Certhilauda albofasciata obscurata*.

*Certhilauda albofasciata obscurata* Hartert, *Bull. B.O. Club*, xix. p. 83 (1907—Benguella).

Type: ♂ ad., Bulu-bulu in the Bihé district, Benguella, 30. ix. 1904. W. J. Anson leg. (No. 143.)

A dozen specimens compared when described.

228. *Alaemon alaudipes boavistae* Hart. = *Alaemon alaudipes boavistae*.

*Alaemon alaudipes boavistae* Hartert, *Bull. B.O. Club*, xxxvii. p. 56 (1917—Boa Vista, Cape Verd Islands).

Type: ♂ ad., Boavista, 29. x. 1897. Boyd Alexander leg.

229. *Melanocorypha calandra psammochroa* Hart. = *Melanocorypha calandra psammachroa*.

*Melanocorypha calandra psammochroa* Hartert, *Vög. pal. Fauna*, i. p. 210 (1904—"Ost-Persien, Afghanistan, Transkaspien und Turkestan").

Type: ♂, No. 14 (4420), Lur-Badom in East Persia, 14. xi. 1898 (Russian date!). N. Zarudny leg.

? † 230. *Tephrocorys cinerea erlangeri* Neum. = ? *Calandrella cinerea ruficeps*.

*Tephrocorys cinerea erlangeri* Neumann, *Journ. f. Orn.* 1906. p. 239 (North Somaliland).

Type: ♂ ad., Sheikh Mahomet on the Webbe, 13. xi. 1894. Dr. Donaldson Smith leg.

I doubt if this form can be separated from *ruficeps*; the type is in very worn plumage.

231. *Calandrella minor polatzeki* Hart. = *Calandrella minor polatzeki*.

*Calandrella minor polatzeki* Hartert, *Vög. pal. Fauna*, p. 217 (1904—Lanzarote and Fuertaventura).

Type: ♂ ad., Lanzarote, 3. iii. 1902. Hptm. Polatzek leg. No. 1178.

This form is certainly not the same as *rufescens*, but curiously enough it inhabits also Gran Canaria, while *rufescens* appears to be found only on the plateau of Laguna, Tenerife.

† 232. *Calandrella pispoletta canariensis* Hart. = *Calandrella minor rufescens*.

*Calandrella pispoletta canariensis* Hartert, *Bull. B.O. Club*, xi. p. 64 (1901—Laguna, Tenerife).

Type: ♂ ad., Laguna, 7. iii. 1901. Curt Fleric leg. No. 1260.

This is a very distinct subspecies, but it must bear the name *rufescens*, given to it by Vieillot in 1820. In addition to their rufescent upperside these birds become stained by the rufous soil of the Laguna plain, unless freshly moulted.

233. *Calandrella minor aharonii* Hart. = *Calandrella minor aharonii*.

*Calandrella minor aharonii* Hartert, *Bull. B.O. Club*, xxvii. p. 1<sup>o</sup> (Oct. 1910—Karyatein, North Syrian desert).

Type : ♂ ad., Karyatein, 25. iii. 1910. J. Aharoni leg.

So far all I have seen of this interesting Lark are six specimens collected in March and February at Karyatein.

234. *Calandrella minor nicolli* Hart. = *Calandrella minor nicolli*.

*Calandrella minor nicolli* Hartert, *Bull. B.O. Club*, xxv. p. 9 (Nov. 1909—Damietta, Egypt).

Type : ♂ ad., Damietta, 5. i. 1908. M. J. Nicoll leg. No. 268.

All I have seen so far of this little Lark are specimens collected near Damietta by Nicoll and by Schrader in winter, also on the shores of Lake Menzaleh in March by W. L. S. Loat.

235. *Mirafra hypermetra gallarum* Hart. = *Mirafra hypermetra gallarum*.

*Mirafra hypermetra gallarum* Hartert, *Bull. B.O. Club*, xix. p. 84 (Galla countries).

Type : ♂ ad., Bouta, Hawash Valley, 2. vi. 1903. Zaphiro leg. No. 2603.

236. *Mirafra africana athi* Hart. = *Mirafra africana athi*.

*Mirafra africana athi* Hartert, *Nov. Zool.* 1900. p. 46 (Athi Plain, East Africa).

Type : ♂ ad., Athi Plain, 25. i. 1899. W. J. Ansorge leg. No. 20.

237. *Mirafra africana dohertyi* Hart. = *Mirafra africana dohertyi*.

*Mirafra africana dohertyi* Hartert, *Bull. B.O. Club*, xix. p. 93 (1907—Escarpment, Kikuyu Mountains).

Type : ♂ ad., Escarpment, 6,500 feet, February 1901. Will. Doherty leg.

This form occurs also at Nyeri, Kenia district.

238. *Mirafra africana tropicalis* Hart. = *Mirafra africana tropicalis*.

*Mirafra africana tropicalis* Hartert, *Nov. Zool.* 1900. p. 45 ("Tropical East Africa to Lake districts and Uganda").

Type : ♂ ad., Bukoba, 6. iv. 1892. Dr. F. Stuhlmann leg.

† 239. *Mirafra africana harterti* Neum. = *Mirafra africana tropicalis*.

*Mirafra africana harterti* Neumann, *Bull. B.O. Club*, xxiii. p. 45 (1908—"British East Africa from South Ukamba to Teita, especially the districts of the Kiboko River and Simba Station").

Type : ♂ ad., Kiboko River, Ukamba, British East Africa, 25. iv. 1898. W. J. Ansorge leg. No. 375.

I am sorry to say that I cannot recognize this form. I consider all our specimens from Bukoba, Kiboko River, Buguera (Emin Pasha leg.), Toru (Ansorge leg.), Bale in Uganda (van Someren leg.), Kilimanjaro district (Jackson leg.), Entebbe (Jackson, Grauer leg.), Fort George on Lake Albert Edward (Ansorge leg.), the country between Kagera and Kivu, Kissenyi on Lake Kivu, Karagwe (Kud. Grauer leg.), and the Marienscen (Grauer), altogether now before me 23 specimens, to belong to *M. a. tropicalis*, while on the Athi River it is replaced by *M. a. athi* and in the Kikuyu Mts. to Kenia by *M. a. dohertyi*. We see thus here,

what one observes in many cases, that a fairly widespread form suddenly splits up into a number of closely situated local races ; it must, however, be stated, that specimens of *Mirafra africana* have not been compared from many parts of Africa where it is likely to occur, and that therefore the ranges of several forms may have to be extended considerably, and even more forms may still be discovered.

240. *Mirafra africana transvaalensis* Hart. = *Mirafra africana transvaalensis*.

*Mirafra africana transvaalensis* Hartert, *Nov. Zool.* 1900. p. 45 (Transvaal).

Type : Ad., Rustenburg, February 1894. W. Ayres leg.

241. *Mirafra rufescens* Ingram = *Mirafra javanica rufescens*.

*Mirafra rufescens* Ingram, *Bull. B.O. Club*, xvi. p. 116 (1906—Alexandria station in the Northern Territory of South Australia).

Type : ♀ ad., Alexandria station, 1905. W. Stalker leg. No. 826. Exchanged from G. M. Mathews.

(Of the very rare *Mirafra gilletti* Sharpe we have a male, collected by Dr. Donaldson Smith at Ahdeh, West Somaliland, 14. vii. 1894. This is actually one of the cotypes of Sharpe, though he omitted to mention it, like several other specimens.)

† 242. *Mirafra bucolica* Hartl. = *Heliocorys modesta*.

*Mirafra bucolica* Hartlaub, *Zool. Jahrb.* ii. p. 327 (1887—Fadjulo, Tamaja, Kabajendi).

Cotypes : ♂, Fadjuli, iii. 1882 ; ♀, Kabajendi, 1. xi. 1882. Emin Pasha leg. Nos. 6, 209.

? † 243. *Heliocorys modesta giffardi* Hart. = *Heliocorys modesta* ?

*Heliocorys modesta giffardi* Hartert, *Bull. B.O. Club*, x. p. v. (1899—Gambaga).

Type : ♂, Gambaga, 18. vii. 1898. Capt. Giffard leg.

I do not now believe that *H. m. giffardi* is really different from *H. modesta*, but the material at my disposal is so poor, that I would invite further investigation before finally deciding the question. The two specimens collected by Giffard are certainly lighter than those from Emin Pasha.

† 244. *Galerida cristata deltae* Hart. = *Galerida cristata nigricans*.

*Galerida cristata deltae* Hartert, *Nov. Zool.* 1897, p. 144 (Delta of the Nile).

Type : ♂ ad., Damietta, 22. xi. 1881. Gustav Schrader leg.

245. *Galerida cristata alexanderi* Neum. = *Galerida cristata alexanderi*.

*Galerida cristata alexanderi* Neumann, *Bull. B.O. Club*, xxiii. p. 45 (1908—Bautchi, interior Hausaland).

Type : ♂ ad., Bautchi, 11. ix. 1904. Boyd Alexander leg. No. 368.

246. *Galerida cristata riggenbachi* Hart. = *Galerida cristata riggenbachi*.

*Galerida cristata riggenbachi* Hartert, *Nov. Zool.* 1902. p. 333 (Mazagau, West Morocco).

Type : ♀ ad., Mazagan, 10. xi. 1900. F. W. Riggenbach leg. No. 48.

247. *Galerida cristata caroli* Hart. = *Galerida cristata caroli*.

*Galerida cristata caroli* Hartert, *Vög. pal. Fauna*, i. p. 234 (1904—Natron Valley, Lower Egypt).

Type: ♂ ad., Wady Natron, 26.ii.1903. N. C. Rothschild and F. R. Henley leg. No. 176.

248. *Galerida cristata cinnamomina* Hart. = *Galerida cristata cinnamomina*.

*Galerida cristata cinnamomina* Hartert, *Vög. pal. Fauna*, i. p. 235 (1904—"Nord-Palästina: Berg Carmel").

Type: ♂, Mt. Carmel, 29.viii.1897 (not 28.viii!). Bacher leg. No. 151 A.  
The distribution and stability of this and other Crested Larks in Palestina and Syria require further investigation.

249. *Galerida cristata tardinata* Hart. = *Galerida cristata tardinata*.

*Galerida cristata tardinata* Hartert, *Vög. pal. Fauna*, i. p. 235 (1904—"Süd-Arabien").

Type: "♀," Dthubiyut, West Hadramant, South Arabia, 21.viii.1903. G. W. Bury leg. No. 239.

250. *Galerida theklæ polatzeki* Hart. = *Galerida theklæ polatzeki*.

*Galerida theklæ polatzeki* Hartert, *Orn. Monatsber.* 1912. p. 30 (Balearic Isles, type Ibiza).

Type: ♂ ad., Ibiza, Western Balearic Isles, 29.iii.1910. Hptm. Polatzek leg. No. 17.

Dr. von Jordans is of opinion that this form cannot be separated from *G. theklæ theklæ* of Spain, but after once more comparing ten specimens with twenty Spanish ones, I am sorry to say I cannot agree with him, my *polatzeki* having finer bills.

251. *Galerida theklæ erlangeri* Hart. = *Galerida theklæ erlangeri*.

*Galerida theklæ erlangeri* Hartert, *Vög. pal. Fauna*, i. p. 237 (1904—"Nord-Marokko: Gegend von Tanger").

Type: ♀ ad., Tangiers, 16.iii.1897. Olcese leg. No. 1177.

† 252. *Galerida schlüteri* Kleinschm. = *Galerida theklæ harterti*.

*Galerida schlüteri* Kleinschmidt, *Orn. Monatsber.* 1914. pp. 196. 197 (Kerrata & Bône).

Cotype: ♂ ad., Kerrata in North Algeria, 4.v.1904. Ernst Flückiger leg. No. 295 (Marked by the author: "Cotypus von *G. schlüteri* K.").

253. *Galerida theklæ hilgerti* Rothschild & Hart. = *Galerida theklæ hilgerti*.

*Galerida theklæ hilgerti* Rothschild & Hartert, *Nov. Zool.* xviii. pp. 492. 494 (1912—"Southern slopes of Atlas, from Batna and Lambèse to El-Kantara and Biskra").

Type: ♂ ad., El-Kantara, 2.iii.1909. Rothschild, Hartert & Hilgert leg. No. 42.

254. *Ammomanes cinctura zarudnyi* Hart. = *Ammomanes phoenicura zarudnyi*.

*Ammomanes cinctura zarudnyi* Hartert, *Bull. B.O. Club*, xii. p. 43 (1902—East Persia).

Type: ♀ ad., Mudjnabad (Mudjun-Abad) in East Persia, 8.xi.1900 (Russian date). N. Zarudny leg.

(Some ornithologists think that the differences between *A. phoenicura* on

the one and *zarudnyi*, *arenicolor* and *cinctura* on the other hand are too striking—too qualitative, Dwight would say—and that therefore “*Ammomanes phoenicura*” should be kept specifically separate from “*A. cinctura cinctura*,” “*A. cinctura arenicolor*” and “*A. cinctura zarudnyi*.” Admitted that I have, in this case and in several others, taken rather a wide view of species, it cannot be denied that the similarity between the two groups is striking, and may as well be called quantitative; it is in any case of interest to have pointed this out, and the decision of what is qualitative and what quantitative is often most difficult! It is remarkable that a specimen collected south of Sehwan in Sind, 21. xii. 1875, by W. T. Blanford, and by him called *Ammomanes deserti* (!) is typical *zarudnyi*!

255. *Ammomanes deserti whitakeri* Hart. = *Ammomanes deserti whitakeri*.

*Ammomanes deserti whitakeri* Hartert, *Bull. B.O. Club*, xxvii. p. 46 (1911—Djebel Soda, Tripolitania).

Type: ♂ ad., Koshby, Djebel Soda, Tripoli, 16. vi. 1901. Dodson leg. No. 189. Ex Museo J. I. S. Whitaker, Palermo.

256. *Ammomanes deserti mya* Hart. = *Ammomanes deserti mya*.

*Ammomanes deserti mya* Hartert, *Ann. & Mag. Nat. Hist.*, ser. viii. x. p. 230 (1912—Oued Mya, Western Sahara).

Type: ♂ ad., Oued Mya, between the deserted Fort Miribel and In-Salah, 7. iv. 1912. Hartert & Hilgert leg. No. 200.

(Cf. NOVITATES ZOOLOGICAE, 1913, p. 43.)

† 257. *Pyrrhulauda lacteoidorsalis* Shell. = *Eremopteryx leucotis melanocephala*.

*Pyrrhulauda lacteoidorsalis* Shelley, *Bull. B.O. Club*, xiii. p. 73 (1903—Khartum).

Type (unique): ♂ (breeding) Khartum, 25. xi. 1902. A. L. Butler leg. No. 77. (Cf. Butler, *Ibis*, 1905, p. 310; Selater & Mackworth-Praed, *Ibis*, 1918, p. 610.) This is a rather peculiar aberration of *melanocephala*.

† 258. *Pyrrhulauda frontalis butleri* Shell. = *Eremopteryx frontalis frontalis*.

*Pyrrhulauda frontalis butleri* Shelley, *Bull. B.O. Club*, xiii. p. 73 (1903—20 miles west of Omdurman),

Type: ♂ ad., 20 miles west of Omdurman, 2. i. 1903. A. L. Butler leg. No. 130. (Cf. Selater & Mackworth-Praed, *Ibis*, 1918, p. 610.) There can be no doubt that this is *E. f. frontalis*.

#### MOTACILLIDAE.

259. *Motacilla flava simillima* Hart. = *Motacilla flava simillima*.

*Motacilla flava simillima* Hartert, *Vög. pal. Fauna*, i. p. 289 (1905—Kamchatka, migrating to Moluccas, etc.).

Type: ♂ ad. (erroneously marked “♀”), Sulu Island, i. v. 1883. Dr. Powell leg.

? † 260. *Motacilla boarula canariensis* Hart., probably = *Motacilla boarula boarula*.

*Motacilla boarula canariensis* Hartert, *Nov. Zool.* 1901. p. 322 (Tenerife).

Type: ♂ ad., Esperanza, Tenerife, 22. iii. 1901. C. Floericke leg.

261. *Anthus novaezealandiae chathamensis* Lor. = *Anthus novaezealandiae chathamensis*.

*Anthus novaezealandiae chathamensis* Lorenz, *Ann. Hofmuseum Wien*, xvii. p. 309 (1902—Chatham Islands).

Type: Ad., Mangare, Chatham Islands, 1890. H. C. Palmer leg., No. 236. (Details of date, sex, etc., lost in a diary accidentally burnt in Cambridge.)

262. *Anthus hellmayri* Hart. = *Anthus hellmayri*.

*Anthus hellmayri* Hartert, *Nov. Zool.* 1909. p. 165 (Tucuman).

Type: Tucuman, Argentina, 450 m., 12. vi. 1904. Dinelli leg. No. 3120.

263. *Anthus spinoletta kleinschmidti* Hart. = *Anthus spinoletta kleinschmidti*.

*Anthus spinoletta kleinschmidti* Hartert, *Vög. pal. Fauna*, i. p. 284 (1905—Faeroe Islands).

Type: ♂, Nolsö, Faeroe Islands, 1900. (The date on the label "8. 5. 1900," but the specimen appears to be in autumn plumage!) Bought from Kleinschmidt.

264. *Anthus berthelotii madeirensis* Hart. = *Anthus berthelotii madeirensis*.

*Anthus berthelotii madeirensis* Hartert, *Vög. pal. Fauna*, i. p. 271 ("Madeira und Porto Santo").

Type: ♀ ad., Poizo, Madeira, 20. ii. 1903. W. R. Ogilvie-Grant leg. No. 1344.

265. *Anthus richardi albidus* Stres. = *Anthus richardi albidus*.

*Anthus richardi albidus* Stresemann, *Nov. Zool.* 1912. p. 316 (Bali, Lombok, Sumbawa, Flores, Sumba).

Type: ♂, South Flores. Alfred Everett leg.

266. *Anthus leucophrys captus* Hart. = *Anthus sordidus captus*.

*Anthus leucophrys captus* Hartert, *Vög. pal. Fauna*, i. p. 269 (1905—"Palästina, Persien, Afghanistan, Baluchistan, im Winter im Indus-Tal bis in die Nähe von Karachi").

Type: "♂" (? ♀), Wadi Zerka, Palestine, 27. ix. (not xi.!) 1897. Bacher leg. No. 158. (Cf. NOVITATES ZOOLOGICAE, 1917, p. 458!)

267. *Anthus sordidus sokotrae* Hart. = *Anthus sordidus sokotrae*.

*Anthus sordidus sokotrae* Hartert, *Nov. Zool.* 1917. p. 457 (Sokotra Island).

Type: ♀ ad., Alilo Pass, Sokotra, 2. ii. 1899. W. R. Ogilvie-Grant & Forbes leg. No. 361.

268. *Anthus sordidus arabicus* Hart. = *Anthus sordidus arabicus*.

*Anthus sordidus arabicus* Hartert, *Nov. Zool.* 1917. p. 457 (Yemen and Amiri district, S. Arabia).

Type: "♀" (probably ♂), Menakha, Yemen, 29. i. 1913. G. W. Bury leg. No. 331.



269. **Anthus nicholsoni longirostris** Neum. = *Anthus sordidus longirostris*.

*Anthus nicholsoni longirostris* Neumann, *Journ. f. Orn.* 1906, p. 232 ("Nördliches Ost-Afrika vom nördlichen Massai bis zum Gandjule-See").

Type: ♂ ad., Gardulla, west of Gandjule Lake, 13. i. 1901. Oscar Neumann leg. No. 587.

270. **Anthus nicholsoni hararensis** Neum. = *Anthus sordidus hararensis*.

*Anthus nicholsoni hararensis* Neumann, *Journ. f. Orn.* 1906, p. 233 ("Harar Gebirge. Schoa?").

Type: ♂ ad., Abu Bekr near Harar, 8. xi. 1902. Zaphiro leg.

271. **Anthus leucophrys saphiroi** Neum. = *Anthus leucophrys saphiroi*.

*Anthus leucophrys saphiroi* Neumann, *Journ. f. Orn.* 1906, p. 235 ("Harar Gebirge").

Type: ♂ ad., Balassire near Harar, 21. (? 20) xi. 1902. Zaphiro leg.

272. **Anthus leucophrys omoensis** Neum. = *Anthus leucophrys omoensis*.

*Anthus leucophrys omoensis* Neumann, *Journ. f. Orn.* 1906, p. 234 ("Gebiet des Omo-Flusses").

Type: ♀ ad., Ergino Valley between Gofa and Doko, 10. ii. 1901. Oscar Neumann leg. No. 710.

273. **Anthus leucophrys angolensis** Neum. = *Anthus leucophrys angolensis*.

*Anthus leucophrys angolensis* Neumann, *Journ. f. Orn.* 1906, p. 236 ("Angola und nach Osten bis in das Nyassa Gebist und die Massai-Länder von Deutsch-Ostafrika").

Type: ♂ ad., Ambaca in Angola, 13. v. 1903. W. J. Ansorge leg. No. 158.

(Neumann's article, *l.c.*, is of great importance for the study of African Pipits. Other forms are described and discussed, which have nothing to do with the present list of types.)

#### DREPANIDAE.

† 274. **Telespiza flavissima** Rothsch. = *Telespiza cantans*.

*Telespiza flavissima* Rothschild, *Ann. & Mag. Nat. Hist.* (6), x, p. 110 (1892—Laysan).

Type: ♂ ad., Laysan, 18. vi. 1891. H. C. Palmer leg. No. 1095. Schauinsland's collection proved beyond doubt that *flavissima* is the fully adult *cantans*.

275. **Rhodacanthis palmeri** Rothsch. = *Rhodacanthis palmeri*.

*Rhodacanthis palmeri* Rothschild, *Ann. & Mag. Nat. Hist.* (6), x, p. 111 (1892—Hawaii).

Type: ♂ ad., Hawaii, 5. x. 1891. H. C. Palmer leg. No. 1380.

276. **Rhodacanthis flaviceps** Rothsch. = *Rhodacanthis flaviceps*.\*

*Rhodacanthis flaviceps* Rothschild, *Ann. & Mag. Nat. Hist.* (6), x, p. 111 (1892—Hawaii).

Type: ♂ ad., Hawaii, 1. x. 1891. H. C. Palmer leg. No. 1360.

\* Henshaw, *B. Hawaiian Islands*, p. 69, 1902, believes that only two specimens were obtained, and that "the exact status of the bird can hardly be regarded as settled." This is an error. The species is absolutely distinct, being much smaller, wing about 1 cm. shorter, all dimensions less, and the coloration of the males quite dissimilar. Eight skins were sent by Palmer, and it is remarkable that no other collector—as far as I know—ever came across this species.

277. *Psittirostra psittacea olivacea* Rothsch. }  
*Psittirostra psittacea deppei* Rothsch. } = *Psittirostra psittacea deppei*.

*Psittirostra psittacea olivacea* Rothschild, *Avif. Laysan*, p. 191 (1900—Oahu).

*Psittirostra psittacea deppei* Rothschild, *Bull. B.O. Club*, xv. p. 45 (1905—New name for *P. p. olivacea* Rothschild, nec Ranzani, *Elementi di Zool.* iii. pt. 6. p. 66 (1823—Amended name for *Psittirostra psittacea*). (Not iii. p. 6!)

Type of both names: ♂ ad., Oahu, 30. x. 1846. Prof. Behn, on the ship *Galathea*, No. 111 (1274 H.). Exchanged from the Kiel Museum.

(*Psittirostra oppidana* Bangs, Molokai, is not separable from *P. p. psittacea*.)

278. *Pseudonestor xanthophrys* Rothsch. = *Pseudonestor xanthophrys*.

*Pseudonestor xanthophrys* Rothschild, *Bull. B.O. Club*, i. p. xxxv. (1893—Maui, Sandwich Islands).

Type: ♂ ad., Maui, 4. viii. 1892. H. C. Palmer leg. No. 1690.

279. *Heterorhynchus wilsoni* Rothsch. = *Heterorhynchus wilsoni*.

*Heterorhynchus wilsoni* Rothschild, *Avifauna of Laysan*, pt. ii. p. 97. pl. 50 (1893—Hawaii).

Type: ♂ ad., Hawaii, 26. ix. 1891. H. C. Palmer leg. No. 1342.

280. *Hemignathus affinis* Rothsch. = *Heterorhynchus lucidus affinis* (Rothsch.).

*Hemignathus affinis* Rothschild, *Ibis*, 1893. p. 112 (Maui, rectius Maui); *Avifauna of Laysan*, pt. ii. p. 103, pl.

Type: ♂ ad., Maui, 4. viii. 1892. H. C. Palmer leg. No. 1688.

281. *Hemignathus lanaiensis* Rothsch. = *Hemignathus obscurus lanaiensis*.

*Hemignathus lanaiensis* Rothschild, *Bull. B.O. Club*, i. pp. 24, 33 (1893—Lanai).

Type: ♂, Lanai, 22. xi. 1892. H. C. Palmer leg. No. 1855.

(Only three specimens of this fine bird were obtained high up in the mountains on November 15th, 21st, and 22nd, 1892. All three were single birds, but another was seen on November 21st, two were heard calling to each other on the 23rd, and again, in another place, on the 24th; lastly one was seen in another place again on the 26th, but not secured. "This convinces me the 'Akialoa' inhabits pretty well all the upper part of the mountain of Lanai, where there is forest. The three specimens secured were in good condition, the last quite fat, and all their stomachs full of insects." No other collector has hitherto found a *Hemignathus* on Lanai, and the greatest credit is due to H. C. Palmer for having discovered this bird, which must be very rare and perhaps on the verge of extinction, or possibly now extinct. Progress and collecting in the upper forests of these islands is, however, difficult, and efforts should be made to secure more specimens, before the subspecies passes away.)

282. *Loxops ochracea* Rothsch. = *Loxops coccinea ochracea*.

*Loxops ochracea* Rothschild, *Ibis*, 1893. p. 112 ("Maui" = Maui).

Type: ♂ ad., Maui, 20–26. ix. 1892. H. C. Palmer leg. No. 1770.

† 283. *Loxops wolstenholmei* Rothsch. = *Loxops coccinea rufa*.

*Loxops wolstenholmei* Rothschild, *Bull. B.O. Club*, i. p. lvi. (1893—Oahu).

Type: ♂ ad., Wailua district, Oahu, 24. iv. 1893. H. C. Palmer & Wolstenholme leg. No. 2050.

284. *Himatione newtoni* Rothsch. = *Oreomystis newtoni*.

*Himatione newtoni* Rothschild, *Bull. B.O. Club*, i. p. xlii. (1893—"Maui" = Maui).

Type: ♂ ad., Maui, 9. viii. 1892. H. C. Palmer leg. No. 1699. The genus *Paroreomyza* Perkins cannot be separated.

285. *Oreomyza perkinsi* Rothsch. = *Oreomystis perkinsi*.

*Oreomyza perkinsi* Rothschild, *Avifauna of Laysan*, pt. iii. p. 129 (1900—Hawaii).

Type: ♂ ad., Kona, Hawaii, 25. ix. 1891. H. C. Palmer leg. No. 1332.

This curious specimen, the only one like it ever obtained, is probably a somewhat rare species which has been overlooked. Even Palmer, when he skinned it, never noticed that it was anything uncommon, but mistook it for the common "Amakihi," i.e. *Chlorodrepanis virens*. With this latter species it has nothing to do, and Perkins's suggestion that it might be a "sport" of it, has no foundation. In the shape of the beak and general proportions it agrees closely with *Oreomystis flammea* (Wils.) from Molokai, but, as the original description shows, is totally different in colour. In the dense forests of the Hawaiian highlands small birds like *Chlorodrepanis virens*, *Oreomystis mana*, and *O. perkinsi* must look almost alike, even at small distances.

286. *Viridonia sagittirostris* Rothsch. = *Viridonia sagittirostris*.

*Viridonia sagittirostris* Rothschild, *Ann. & Mag. Nat. Hist.* (6), x. p. 112 (1892—Hawaii).

Type: ♂ ad., Hawaii, 30. iv. 1892. H. C. Palmer leg. No. 1601.

287. *Himatione wilsoni* Rothsch. = *Chlorodrepanis wilsoni*.

*Himatione wilsoni* Rothschild, *Bull. B.O. Club*, i. p. xlii. (1893—"Maui" = Maui).

Type: ♂ ad., Maui, 17. vii. 1892. H. C. Palmer leg. No. 1650.

288. *Himatione fraithii* Rothsch. = *Himatione sanguinea fraithii*.

*Himatione fraithii* Rothschild, *Ann. & Mag. Nat. Hist.* (6), x. p. 109 (1892—Laysan).

Type: ♂ ad., Laysan, 18. vi. 1891. H. C. Palmer leg.

† 289. *Palmeria mirabilis* Rothsch. = *Palmeria dolei* (Wils.).

*Palmeria mirabilis* Rothschild, *Ibis*, 1893. p. 113 ("Maui" = Maui).

Type: ♂ ad., Maui, September 1892. H. C. Palmer leg. No. 1764.

#### MNIOTILTIDAE.

290. *Certhidea bifasciata* Ridgw. = *Certhidea cinerascens bifasciata*.

*Certhidea bifasciata* Ridgway, *Proc. U.S. Nat. Mus.* xvii. p. 359 (1894—Barrington Island, Galápagos).

Type: Ad., Barrington Island, 9. vii. 1891. Dr. G. Baur leg. No. 593. (From spirits!)

291. *Certhidea becki* Rothsch. = *Certhidea olivacea becki*.

*Certhidea becki* Rothschild, *Bull. B.O. Club*, vii. p. liii. (1898—Wenman Island, Galápagos).

Type: ♂, Wenman Island, 31. vii. 1897. Webster-Harris Expedition. No. 236. Hull leg.

292. *Certhidea drownei* Rothsch. = *Certhidea olivacea drownei*.

*Certhidea drownei* Rothschild, *Bull. B.O. Club*, vii. p. liii. (1898—Culpepper Island, Galápagos).

Type: ♂, Culpepper Island, 27. vii. 1897. Webster-Harris Expedition. R. H. Beek leg. No. 148.

293. *Certhidea mentalis* Ridgw. = *Certhidea olivacea mentalis*.

*Certhidea mentalis* Ridgway, *Pros. U.S. Nat. Mus.* xvii. p. 359 (1894—Tower Island, Galápagos).

Type: Ad., Tower Island, 2. ix. 1891. Dr. G. Baur leg. No. 594. (From spirits!)

294. *Certhidea olivacea ridgwayi* Rothsch. & Hart. = *Certhidea olivacea ridgwayi*.

*Certhidea olivacea ridgwayi* Rothschild & Hartert, *Nov. Zool.* 1899, p. 149 (Charles Island).

295. *Certhidea luteola* Ridgw. = *Certhidea olivacea luteola*.

*Certhidea luteola* Ridgway, *Proc. U.S. Nat. Mus.* xvii. p. 360 (1894—Chatham Island, Galápagos).

Type: ♂ ad., Chatham Island, 17. vi. 1891. Dr. G. Baur leg. No. 56.

† 296. *Certhidea salvini* Ridgw. = *Certhiola olivacea olivacea*.

*Certhidea salvini* Ridgway, *Proc. U.S. Nat. Mus.* xvii. p. 358 (1894—Indefatigable Island, Galápagos Archipelago).

Type: ♂ ad., Indefatigable Island, 6. viii. 1891. Dr. G. Baur leg. No. 438.

† 297. *Certhidea albemarlei* Ridgw. = *Certhiola olivacea olivacea*.

*Certhidea albemarlei* Ridgway, *Proc. U.S. Nat. Mus.* xvii. p. 360 (1894—Albemarle Island, Galápagos).

Type: Albemarle Island, 21. vii. 1891. G. Baur leg. No. 633. (Not No. 595, as Ridgway quoted). (From spirits!)

298. *Granatellus pelzelni paraensis* Rothsch. = *Granatellus pelzelni paraensis*.

*Granatellus pelzelni paraensis* Rothschild, *Bull. B.O. Club*, xvi. p. 87 (1906—Pará).

Type: ♂ ad., Prata near Pará, 17. xi. 1905. W. Hoffmanns leg. No. 141.

**MELIPHAGIDAE.**† 299. *Myzomela splendida* Tristr. = *Myzomela cardinalis cardinalis*.

*Myzomela splendida* Tristram, *Ibis*, 1879. p. 191 (Tanna Island).

Cotype: ♂ ad., Port Resolution, Tanna, New Hebrides, vii. 1878. E. L. Layard leg.

This specimen is marked "type" by Tristram, it is therefore just as much the type as the two males in the Tristram Collection, mentioned p. 206 of the

published catalogue of his collection. The fact is that Tristram marked all specimens as types, they are therefore all cotypes. There is no doubt that *splendida* is a synonym of *cardinalis*, which was also described from Tanna. Tristram's note is not quite correct; he only named the birds "at Mr. Layard's request, though with some hesitation," because he says Latham's measurements did not agree! He adds that Latham gave the length as 4 inches, instead of 5.6 to 6. Latham, however, in the original description said only "Length of our Creeper," and the length of the type is 4.5 and not 5.5 to 6 inches.

300. **Myzomela eichhorni** R. & H. = *Myzomela eichhorni eichhorni*.

*Myzomela eichhorni* Rothschild & Hartert, *Nov. Zool.* 1901. p. 181 (Kulambangra, Solomon Islands).

Type: ♂ ad., Kulambangra, 26.ii.1901. A. S. Meek and Eichhorn leg. No. 2799.

301. **Myzomela eichhorni interposita** R. & H. = *Myzomela eichhorni interposita*.

*Myzomela eichhorni interposita* Rothschild & Hartert, *Bull. B.O. Club*, xxxvii. p. 38 (1917—New, Georgia, Solomon Is.).

Type: ♂ ad., New Georgia, 15.iii.1904. A. S. Meek and Eichhorn leg. No. A. 1465.

302. **Myzomela eichhorni atrata** Hart. = *Myzomela eichhorni atrata*.

*Myzomela eichhorni atrata* Hartert, *Bull. B.O. Club*, xxi. p. 105 (1908—Vella Lavella Island Solomon Is.).

Type: ♂ ad., Vella Lavella I., 28.ii.1908. A. S. Meek and Eichhorn leg. No. 3884.

303. **Myzomela eques nymani** Rothsch. & Hart. = *Myzomela eques nymani*.

*Myzomela eques nymani* Rothschild & Hartert, *Nov. Zool.* 1903. p. 223 (Simbang, Kaiser Wilhelm's Land).

Type: ♀ ad., Simbang, 26.viii.1899. Dr. E. Nyman leg.

304. **Myzomela simplex mortyana** Hart. = *Myzomela obscura mortyana*.

*Myzomela simplex mortyana* Hartert, *Nov. Zool.* 1903. p. 56 (Morty Island).

Type: Morty Island. Dumas leg. No. M. 59.

† 305. **Myzomela obscura grisescens** Hart. = *Myzomela obscura obscura*.

*Myzomela obscura grisescens* Hartert, *Nov. Zool.* 1905. p. 235 (Brocks Creek, Northern Territory of South Australia).

Type: ♂ ad., Brocks Creek, 9.viii.1902. J. Tunney leg. No. R. 635.

I was quite right in separating this form from the one inhabiting North Queensland. As, however, the type of *M. obscura* Gould (*Proc. Zool. Soc. London* 1842, p. 137, published 1843) came from Port Essington, my *grisescens* became a synonym of *obscura*, while the form usually called *obscura* required a new name, and Mathews named it *M. obscura harterti*, terra typica Cape York, distribution Northern Queensland.

306. *Myzomela obscura meeki* Rothsch. & Hart. = *Myzomela obscura meeki*.

*Myzomela obscura meeki* Rothschild & Hartert, *Nov. Zool.* 1907. p. 479 (Upper Aroa River).

Type: ♀ ad., Upper Aroa River, British New Guinea, 6.ii.1905. A. S. Meek leg. No. B. 208.

(Mr. Ogilvie-Grant, *Ibis*, Suppl. II. 1915, pp. 51, 52, united the forms from the Aru Islands and from British New Guinea with *M. obscura obscura*, but he forgot to mention our *meeki*. The Aru specimens are darker, the ones from the Aroa River smaller than *M. obscura obscura*. The birds from Outanata are probably like the Aru ones, but we have seen no specimens from there, nor did we receive any from the Mimika River.)

307. *Myzomela albigula* Hart. = *Myzomela albigula albigula*.

*Myzomela albigula* Hartert, *Bull. B.O. Club*, viii. p. xx. (1898—Rossel Island).

Type: ♂ ad., Rossel I., Louisiade group, 27. i. 1898. A. S. Meek Coll. No. 1306.

308. *Myzomela pallidior* Hart. = *Myzomela albigula pallidior*.

*Myzomela pallidior* Hartert, *Bull. B.O. Club*, viii. p. xxi. (1898—St. Aignan Island).

Type: ♂ ad., St. Aignan, Louisiade group, 31. vii. 1897. A. S. Meek coll. No. 725.

In NOVITATES ZOOLOGICAE 1907, p. 480, I suggested that even *albigula* and *pallidior* might be subspecies of *M. obscura*, but the striped character of their undersides seems to me now so peculiar that it appears to be more natural to accept another species on the Louisiade Islands, which will then stand as *Myzomela albigula albigula* and *M. albigula pallidior*. Cf. also NOVITATES ZOOLOGICAE, 1899, pp. 79, 210.

309. *Myzomela nigrita louisiadensis* Hart. = *Myzomela nigrita louisiadensis*.

*Myzomela nigrita louisiadensis* Hartert, *Nov. Zool.* v. p. 527 (1898—Sudest Island).

Type: ♂ ad., Sudest Island, Louisiade group, 8. iv. 1898. A. S. Meek Coll. No. 1690.

310. *Myzomela batjanensis* Hart. = *Myzomela sanguinolenta batjanensis*.

*Myzomela batjanensis* Hartert, *Nov. Zool.* 1903. p. 56 (Batjan).

Type: ♂ ad., Batjan, vi. 1902. John Waterstadt leg. No. B. 579.

311. *Myzomela kuehni* Rothsch. = *Myzomela kuehni*.

*Myzomela kuehni* Rothschild, *Bull. B.O. Club*, xiii. p. 42 (1903—Wetter).

Type: ♂ ad., Wetter Island, 5. x. 1902. Heinrich Kühn leg. No. 5693.

312. *Anthreptes meeki* Hart. = *Oedistoma pygmacum meeki*.

*Anthreptes meeki* Hartert, *Nov. Zool.* 1896. p. 239 (Fergusson Island).

Type: ♂ ad., Fergusson Island, D'Entrecasteaux group, 6. x. 1894. A. S. Meek leg.

313. *Melilestes fergussonis* Hart. = *Toxorhynchus iliolophus fergussonis*.

*Melilestes fergussonis* Hartert, *Nov. Zool.* 1896. p. 237 (Fergusson Island).

Type: ♂ ad., Fergusson I., October 1894. No. 15, A. S. Meek Coll.

314. *Melilestes novaeguineae flaviventris* Rothschild & Hart. = *Toxorhynchus novaeguineae flaviventris*.

*Melilestes novaeguineae flaviventris* Rothschild & Hartert, *Bull. B.O. Club*, xxvii. p. 44 (Aru Islands).

Type: ♂ ad., Sungej Bark, Kobroor, Aru Is., 27. viii. 1900. Heinr. Kühn, No. 2380.

315. *Melipotés ater* R. & H. = *Melipotés ater*.

*Melipotés ater* Rothschild & Hartert, *Bull. B.O. Club*, xxix. p. 13 (1911—"Rawlinson Mountains, north of Huon Gulf, German New Guinea").

Type: (♂ ad.) Rawlinson Mountains, 1911. C. Keysser leg. (Bought from Professor Foerster).

There are now two females and one male of this remarkable species in the Tring Museum. Only one of the females is sexed, but it is evident from the very different size (wing 22 mm. longer!) that the type is a male, the third specimen also a female.

316. *Melipotés gymnops goliathi* R. & H. = *Melipotés gymnops goliathi*.

*Melipotés gymnops goliathi* Rothschild & Hartert, *Bull. B.O. Club*, xxix. p. 34 (1911—"Mt. Goliath, Central Dutch New Guinea, above 5,000 feet").

Type: ♂ ad., Mount Goliath, 27. i. 1911. A. S. Meek Coll. No. 5221.

This very distinct form is much nearer to *M. fumigatus* than to *gymnops*; we described it as *M. gymnops goliathi* because we had considered *gymnops* to be a subspecies of *fumigatus*. This may be open to criticism and *goliathi* might be called *M. fumigatus goliathi*.

317. *Melirrhophetes belfordi griseirostris* R. & H. = *Melirrhophetes belfordi griseirostris*.

*Melirrhophetes belfordi griseirostris* Rothschild & Hartert, *Bull. B.O. Club*, xxix. p. 34 (1911—"Mt. Goliath, Eastern Central Dutch New Guinea").

Type: ♂ ad., Mt. Goliath, 11. ii. 1911. A. S. Meek Coll. No. 5353.

318. *Melirrhophetes foersteri* R. & H. = *Melirrhophetes foersteri*.

*Melirrhophetes foersteri* Rothschild & Hartert, *Bull. B.O. Club*, xxix. p. 12 (1911—"Rawlinson Mountains, north of Huon Gulf, German New Guinea").

Type: (♂ ad.) Rawlinson Mts. C. Keysser leg. 1911. (Ex Professor Foerster).

319. *Stigmatops indistincta nupta* Stres. = *Stigmatops indistincta nupta*.

*Stigmatops indistincta nupta* Stresemann, *Nov. Zool.* 1913. p. 344 ("Aru-Inseln").

Type: ♂ ad., Manien, Aru Islands, 19. xi. 1897. Heinr. Kühn leg. No. 347.

320. *Stigmatops argentaureus patasiwa* Stres. = *Stigmatops argentaureus patasiwa*.  
*Stigmatops argentaureus patasiwa* Stresemann, *Nov. Zool.* 1913. p. 345 (Coral Island of Lusaolate on the north coast of Ceram).

Type: ♂, Lusaolate, 27. viii. 1911. E. Stresemann leg. No. 869.

321. *Stigmatops deningeri* Stres. = *Stigmatops deningeri*.

*Stigmatops deningeri* Stresemann, *Bull. B.O. Club*, xxxi. p. 6 (1912), and *Nov. Zool.* xxi. p. 392 (1912—Buru).

Type: ♂, Gunong Fogha, Buru, 25. ii. 1912. E. Stresemann leg. No. 1104.

322. *Stigmatops monticola* Stres. = *Stigmatops monticola*.

*Stigmatops monticola* Stresemann, *Bull. B.O. Club*, xxxi. p. 5 (1912—Ceram).

Type: ♂ ad., Gunong Sofia, Ceram, 4,000 ft., 27. vi. 1911. E. Stresemann leg. No. 696.

323. *Ptilotis aruensis sharpei* R. & H. = *Meliphaga aruensis sharpei*.

*Ptilotis aruensis sharpei* Rothschild & Hartert, *Nov. Zool.* 1903. p. 442 (Berau Peninsula, Batauta, Waigi, Salwatti, Misol, Jobi, Erima, D'Entrecasteaux Islands).

Type: ♂ ad., Dorey, October 1896. Will. Doherty leg.

324. *Ptilotis praecipua* Hart. = *Ptiloprora praecipua praecipua*.

*Ptilotis praecipua* Hartert, *Nov. Zool.* 1897. p. 370 (between Mts. Scratchley and Musgrave, British New Guinea).

Type: ♂ ad., between Mts. Scratchley and Musgrave, British New Guinea, 5,000—6,000 ft. Anthony leg.

† 325. *Ptilotis praecipua nigrirtergum* R. & H. = *Ptiloprora praecipua lorentzi*.

*Ptilotis praecipua nigrirtergum* Rothschild & Hartert, *Bull. B.O. Club*, xxix. p. 35 (1911—Mt. Goliath).

Type: ♂ ad., Mt. Goliath, Central Dutch New Guinea, 20. i. 1911. A. S. Meek Coll. No. 5143.

When describing this bird in 1911 we had overlooked that it had already been named in 1909, by Dr. van Oort. I would agree with Dr. van Oort in considering this form a subspecies of *erythropleura*, but Mr. C. Boden Kloss has collected both *Ptiloprora praecipua lorentzi* and what is apparently *P. erythropleura* in the same places on the Utakwa River. (Cf. Ogilvie-Grant, *Suppl. Ibis*, 1915, p. 76).

326. *Ptilotis meekiana* R. & H. = *Ptiloprora meekiana*.

*Ptilotis meekiana* Rothschild & Hartert, *Nov. Zool.* 1907. p. 482 (Upper Aroa River).

Type: ♂ ad., head of Aroa River, British New Guinea, 4,000—6,000 ft., 20. v. 1905. A. S. Meek Coll. No. A. 2199.

327. *Ptilotis salvadorii* Hart. = *Xanthotis salvadorii*.

*Ptilotis salvadorii* Hartert, *Nov. Zool.* 1896. p. 531 (Owen Stanley Mts., British New Guinea).

Type: ad., Mt. Victoria, Owen Stanley Range, 5,000—7,000 ft., April—June 1896. Anthony leg.



328. *Ptilotis visi* Hart. = *Xanthotis flaviventer visi*.

*Ptilotis visi* Hartert, *Nov. Zool.* 1896. p. 15 (Mailu district, British New Guinea).

Type: ♂ ad., Mailu district, vii.–viii. 1895. Anthony leg.

329. *Ptilotis chrysotis madaraszii* R. & H. = *Xanthotis flaviventer madaraszii*.

*Ptilotis chrysotis madaraszii* Rothschild & Hartert, *Nov. Zool.* 1903. p. 446 (Simbang & Stephansort, Kaiser Wilhelm's Land).

Type: ♂ ad., Simbang, 7. ix. 1899. E. Nyman leg.

330. *Ptilotis chrysotis saturator* R. & H. = *Xanthotis flaviventer saturator*.

*Ptilotis chrysotis saturator* Rothschild & Hartert, *Nov. Zool.* 1903. p. 445 (Aru Islands).

Type: ♂ ad., Sungei Wanumbai, Kobroor, Aru Islands, i. ix. 1900. Heinrich Kühn leg. No. 2425.

331. *Ptilotis forresti* Ingram = *Meliphaga sonora forresti*.

*Ptilotis forresti* Ingram, *Bull. B.O. Club*, xvi. p. 116 (1906—Alexandra Station, Northern Territory of South Australia).

Type: ad., Alexandra, July 1905. W. Stalker leg.

332. *Ptilotis analoga vicina* R. & H. = *Meliphaga sonora vicina*.

*Ptilotis analoga vicina* Rothschild & Hartert, *Nov. Zool.* xix. p. 203 (1912—Sudest Island, Louisiade group).

Type: ♂ ad., Sudest Island, 8. iv. 1898. A. S. Meek Coll. No. 1696.

333. *Entomyza cyanotis harterti* Rob. & Laver. = *Entomyza cyanotis harterti*.

*Entomyza cyanotis harterti* Robinson & Laverock, *Ibis*, 1900. p. 635 (Cooktown, Queensland).

Type: ♂ ad., Cooktown, 10. ii. 1900. Olive leg.

334. *Acrulocercus bishopi* Rothschild = *Moho bishopi*.

*Acrulocercus bishopi* Rothschild, *Bull. B.O. Club*, i. p. xlii. (1893—Molokai).

Type: ♂, Molokai, Sandwich Islands, 26. xii. 1892. H. C. Palmer leg. No. 1891.

335. *Philemon novaeguineae subtuberosus* Hart. = *Philemon novaeguineae subtuberosus*.

*Philemon novaeguineae subtuberosus* Hartert, *Nov. Zool.* 1896. p. 238 (Fergusson Island, D'Entrecasteaux group).

Type: ♂ ad., Fergusson Islands, 9. x. 1894. A. S. Meek leg.

336. *Philemon novaeguineae brevipennis* R. & H. = *Philemon novaeguineae brevipennis*.

*Philemon novaeguineae brevipennis* Rothschild & Hartert, *Nov. Zool.* 1913. vol. xx. p. 513 (Snow Mountains, Dutch New Guinea).

Type: ♂ ad., lower ranges of Snow Mountains, 4. ix. 1910. A. S. Meek Coll. No. 4713.

337. **Philemon novaeguineae tagulanus** R. & H. = *Philemon novaeguineae tagulanus*.

*Philemon novaeguineae tagulanus* Rothschild & Hartert, *Nov. Zool.* 1918. p. 319 (Sudest Island, Louisiade group).

Type: ♂ ad., Sudest Island, 6.v.1916. Eichhorn leg. No. 7411 of the Meek Collections.

338. **Philemon timoriensis pallidiceps** Hellm. = *Philemon timoriensis pallidiceps*.

*Philemon timoriensis pallidiceps* Hellmayr, *Avif. Timor* (in Haniel, *Zool. Timor*, Lief i.), p. 47 (1914—Wetter).

Type: ♂ ad., Wetter, 14. ix. 1902. Heinrich Kühn leg. No. 5432.

(To be continued.)

## DISPHARAGES (NÉMATODES) DE L'AFRIQUE MINEURE.

PAR L. G. SEURAT.

L'EXAMEN de l'œsophage et du ventricule succenturié d'Oiseaux capturés en Algérie m'a permis de recueillir un certain nombre de Dispharages dont la plupart appartiennent à des espèces nouvelles ou à des espèces insuffisamment connues ; certains d'entre eux ne peuvent rentrer dans aucun des genres actuellement existants d'*Acuariidae*.

Dans les lignes qui suivent, nous allons donner la liste de ces Nématodes, dans l'ordre de leurs affinités zoologiques telles que nous les comprenons en nous basant sur la structure des ornements cuticulaires de la région céphalique et sur la morphologie de l'appareil génital femelle.

## FAM. ACUARIIDAE Seurat 1913.

GENRE *Acuaria* Bremsler, 1811 ; SOUS-GENRE *Acuaria*.

1. *Acuaria (Acuaria) anthuris* (Rud. 1819).—Seurat, 1915, *C. R. Soc. Biologie Paris*, t. 78, p. 41, fig. 2 (ovéjecteur) ; *ibid.* 1916, t. p. 935.

*Habitat* : 5 femelles et 1 mâle trouvés sous la tunique cornée du gésier du Corbeau (*Corvus corax tingitanus* Irby), Bou Saâda, 9 avril 1914.

*Distribution géographique* : Europe, Turkestan, Algérie.

GENRE *Chevreuxia* Seurat 1918.

Ces Dispharages, à ornementation cuticulaire, très primitive, sont caractérisés par l'existence de quatre cordons eutanés droits, sans branche récurrente, mis deux à deux sur les lignes latérales par une anse appliquée sur une collerette cuticulaire prenant naissance, par duplication du tégument, immédiatement en avant de l'insertion des papilles postcervicales.

2. *Chevreuxia revoluta* (Rud.).—Seurat, *Bull. Soc. hist. nat. Afrique du Nord*, t. 9, pp. 106-109, fig. 1-2.

Synon.—*Spiroptera revoluta* Rud. 1819 ; Dujardin, 1845 ; Diesing, 1851. *Dispharagus revolutus* Molin, 1860 ; Stossich, 1897.

*Habitat* : Galeries creusées sous la tunique cornée du gésier de l'Échasse (*Himantopus himantopus* L.), 3 ♀ et 1 ♂, Alger, 15 avril 1918 ; 1 ♀, Bône, janvier 1918.

*Distribution géographique* : Europe, Algérie.

GENRE *Echinuria* Solovjev, 1912 (septembre).

Synon.—*Hamannia* Railliet, Henry, Sisov, 1912 (décembre).

La disposition des cordons eutanés du *Chevreuxia revoluta* (Rud.) permet de comprendre celle des cordons des *Echinuria* : chez les *Chevreuxia* et chez les *Echinuria* la région céphalique est ornée de quatre cordons droits, mis deux

à deux par une anse latérale ; mais tandis que les cordons conservent leur disposition symétrique chez les premiers, chez les *Echinuria* ils s'infléchissent vers les lignes latéro-ventrales où ils viennent s'unir à peu de distance au delà du pore excréteur, cette modification de trajet étant surtout marquée pour les cordons latéro-dorsaux, qui passent au dessous des papilles cervicales ; \* l'ornementation cuticulaire des *Echinuria* comprend, en outre, une double rangée d'aiguillons latéraux.

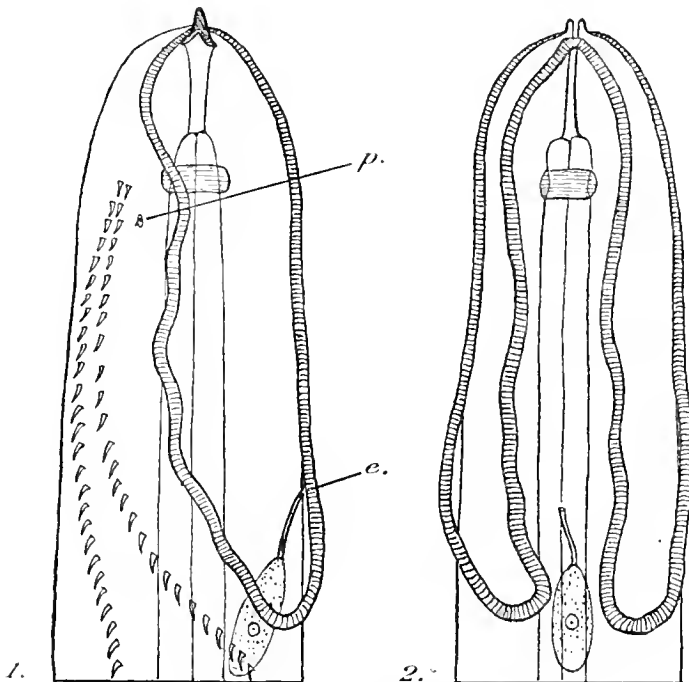


FIG. A.—*Echinuria uncinata* (Rud.).

1, extrémité céphalique vue du côté droit ; 2, la même, vue par la face ventrale ; p, papille postcervicale droite.

3. *Echinuria uncinata* (Rud.) Solovjev, 1912 ; Seurat, *C. R. Soc. Biologie Paris*, t. 81, p. 579 (appareil génital femelle).

Synon.—*Spiroptera uncinata* Rud. 1819, *Synopsis*, p. 26 et 246 ; Dujardin, 1845 ; Diesing, 1851 ; Molin, 1859 ; non Eberth 1863 (le Nématode figuré par Eberth et considéré par lui comme se rapportant à cette espèce est le Strongle de l'Oie, *Amidostomum nodulosum* (Rud.) Seurat, 1918). *Filaria uncinata* Schneider, 1866, *Monog. Nemat.*, p. 94, pl. vi, fig. 4 ; Hamann, 1893 et 1895. *Disparagus uncinatus* Railliet, 1895 ; Stossich, 1897 ; Neumann, 1909 ; Linstow, 1909. *Aenuria (Hamannia) uncinata* Railliet, Henry et Sisov, 1912, *C. R. Soc. Biologie*, t. 73, p. 622 ; Henry et Sisov, 1913.

*L'Echinuria uncinata* est caractérisé par la position reculée de la vulve, située à peu de distance en avant de l'anus ; l'ovéjecteur, du type de celui des *Dispharynx*, comprend un court vagin perpendiculaire à la paroi du corps, tapissé

\* Les papilles cervicales, qu'aucun auteur ne signale, sont situées immédiatement en arrière du niveau du bord postérieur de l'anneau nerveux, à la hauteur du troisième aiguillon de la rangée externe.

d'une épaisse tunique cuticulaire, qui donne accès dans l'ovéjecteur proprement dit ; celui-ci, dirigé vers l'arrière, est divisé en un vestibule et un sphincter dont la limite est marquée par un épaississement de la tunique musculaire. Le sphincter passe directement aux branches paires de la trompe, celles-ci remontant parallèlement à l'ovéjecteur pour rejoindre les utérus ; ces derniers eourent d'abord vers l'avant, entortillés en une spirale lâche, puis se séparent, l'un continuant sa direction vers la région antérieure du corps (utérus antérieur) tandis que l'autre se replie et revient vers l'arrière (utérus postérieur) ; les oviductes et les ovaires sont entortillés, d'une part dans la région antérieure du corps, d'autre part dans la région postérieure, en avant de l'anus. *Echinuria uncinata* est ainsi un amphidelphe à ovaires opposés, dont la vulve s'est *secondairement* rapprochée de l'anus, en entraînant la région proximale des utérus (chez *Echinuria phoenicopteri* Seurat la vulve s'ouvre, au contraire, au cinquième postérieur de la longueur du corps, c'est-à-dire assez loin en avant de l'anus).

*Habitat* : Un individu femelle, de 18<sup>mm</sup>5 de longueur, enfoncé dans les glandes gastriques de l'*Anas penelope* L., Aïn Mokra (Algérie), 12 mars 1918.

*Distribution géographique* : Europe, Algérie.

GENRE *Acuaría*, SOUS-GENRE *Dispharynx* Raillicet, Henry, Sisov 1912.

4. *Acuaría (Dispharynx) noctuae* Seurat 1913, *C. R. Soc. Biologie Paris*, t. 74, p. 103, fig. 1-4 et 1916, *ibid.* t. 79, p. 934.

*Habitat* : Œsophage de la Chevêche (*Carine noctua glaux* Sav.), Birine, Hauts plateaux d'Algérie, avril 1911.

*Distribution géographique* : Algérie.

5. *Acuaría (Dispharynx) spiralis* (Molin, 1858), Seurat, *C. R. Soc. Biologie Paris*, 1916, t. 79, pp. 934-938, fig. 1-4.

Synon.—*Dispharagus spiralis* Molin, 1858. *Dispharagus nasutus* Piana, 1897. *Dispharagus spiralis columbae* Bridré 1910, *Bull. Soc. path. exotique*, t. 3, pp. 38-39.

*Habitat* : Ventricule succenturié de la Perdrix de roche (*Alectoris barbara* = *Caccabis petrosa* auct. nec Gmelin), 10 femelles, 3 mâles, Annale, 19 octobre 1913 ; Orléansville, novembre 1917 ; Médéa, septembre 1917 ; ventricule succenturié du Pigeon domestique, Tunis (Bridré).

*Distribution géographique* : Europe, Turkestan, Congo belge, Algérie, Tunisie, Australie.

6. *Acuaría (Dispharynx) laplantei* n. sp.

Corps massif, atténué aux extrémités. Cuticule épaisse, striée transversalement, à stries espacées de 6  $\mu$ . Cordons cutanés présentant la même disposition que chez *Acuaría noctuae* et *A. spiralis*. Papilles postcervicales tricuspides, subsymétriques, insérées ainsi que chez *Acuaría spiralis* immédiatement en avant du niveau du pore excréteur ; papilles intestinales latérales subsymétriques, insérées, chez la femelle, à peu de distance au delà de la vulve.

Bouche limitée latéralement par deux fortes lèvres triangulaires encadrées par les cordons cuticulaires. Cavité buccale tubuleuse, légèrement évasée à son entrée, finement striée transversalement, plus allongée que chez *Acuaría*

*spiralis*. Œsophage nettement différencié en deux régions ; œsophage musculaire entouré par l'anneau nerveux au tiers antérieur de sa longueur.

*Femelle*.—Longueur totale 9<sup>mm</sup>9. Corps massif, brusquement atténué, ainsi que chez l'*Acuaria spiralis*, immédiatement en arrière de la vulve. Queue conique, courte.

Vulve non saillante, s'ouvrant au tiers postérieur de la longueur du corps, en rapport avec un ovéjecteur courbé en ? tapissé d'une membrane euticulaire interne sur toute sa longueur. Le vestibule, coudé vers son milieu (fig. B, 1) remonte d'abord vers l'avant, sur une longueur de 150 $\mu$ , puis revient brusquement vers l'arrière ; la partie vestibulaire ascendante (vagin), tapissée d'une épaisse euticule, présente une lumière assez large et renferme quelques (quatre) œufs prêts à être pondus ; au point de courbure du vestibule, on observe une

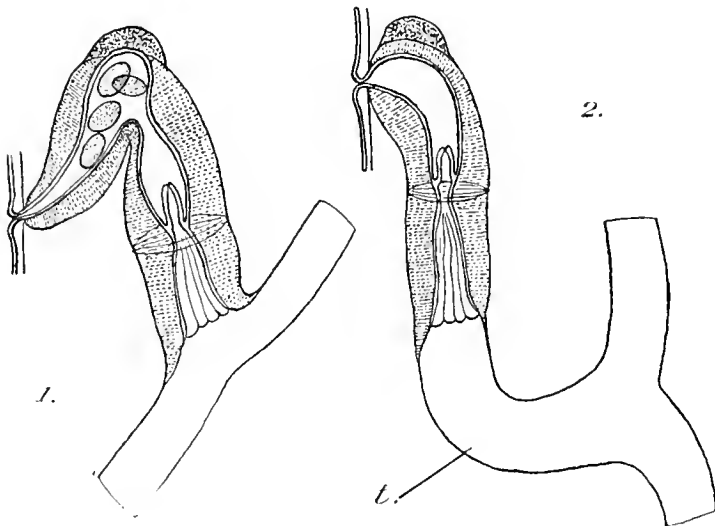


FIG. B.

1, ovjecteur de l'*Leucaria laplandica* n. sp. ; 2, ovjecteur de l'*Acuaria spiralis* (Molin).

volumineuse glande unicellulaire ; la branche descendante de l'ovéjecteur, de 320 $\mu$  de longueur, présente d'abord une lumière très étroite, puis s'élargit quelque peu, s'étrangle à nouveau vers son milieu et s'élargit ensuite graduellement. La partie étranglée correspond à la limite du vestibule et du sphincter ; en cet endroit, l'assise musculaire est fortement développée et fait saillie à l'intérieur ; de cette partie étranglée partent des replis cuticulaires dirigés vers l'avant et s'affrontant par leur extrémité libre ; ce dispositif permet le passage des œufs du sphincter vers le vestibule, mais s'oppose à leur retour vers l'arrière. L'ovéjecteur cuticulaire passe *directement* aux branches paires de la trompe, tapissées intérieurement de hautes cellules épithéliales, en sorte que la trompe impaire n'existe pas. Branches paires de la trompe diamétralement opposées. Utérus, opposés ; ovaires et oviductes entortillés, d'une part dans la région œsophagienne, d'autre part en avant de l'anus. Œufs elliptiques, à coque épaisse, larvés, à maturité.

**Acuaria (Dispharynx) laplantei n. sp.**

	♀	♂
Longueur totale . . . . .	9 <sup>mm</sup> 9	8 <sup>mm</sup> 350
Épaisseur maxima . . . . .	565 μ	300 μ
Queue . . . . .	170	370
Distance à l'extrémité céphalique :		
1° du milieu de l'anneau nerveux . . . . .	370	310
2° des papilles postcervicales { droite . . . . .	612	445
{ gauche . . . . .	672	410
3° du pore excréteur . . . . .	590	390
4° des papilles intestinales { droite . . . . .	7 <sup>mm</sup> 595	
{ gauche . . . . .	7 <sup>mm</sup> 560	
5° de la vulve . . . . .	7 <sup>mm</sup> 030	
Longueur des cordons . . . . .	805 μ	455
Cavité buccale . . . . .	190	170
Œsophage musculaire . . . . .	685	745
Œsophage entier . . . . .	3 <sup>mm</sup>	2 <sup>mm</sup> 610
Rapport de la longueur totale à celle de l'œsophage . . . . .	3, 3	3, 1
Œufs . . . . .	37 × 25 μ	
Spicules { droit . . . . .	240	
{ gauche . . . . .	865	

*Mâle*.—Longueur totale 7<sup>mm</sup>7 à 8<sup>mm</sup>4. Corps beaucoup plus grêle que celui de la femelle ; extrémité postérieure enroulée en spirale. Ailes caudales et papilles génitales ayant la même disposition que chez l'*Acuaria noctuae* et l'*A. spiralis* : quatre paires de papilles préanales, cinq paires de papilles postanales. Spicules inégaux (rapport de longueurs 3, 7), le droit court et large, falciforme, le droit, grêle et très allongé, pointu à l'extrémité, non ailé.

*Habitat* : Ventricule succenturié du Geai, *Garrulus glandarius cervicalis* Bp., 2 ♀, 2 ♂, Médéa, 15 novembre 1917 (L. de Laplante) ; Aïn Ograb, 10 octobre 1912 (Seurat).

*Affinités*.—Cette espèce, que je suis heureux de dédier à mon neveu Louis de Laplante, est extrêmement voisine de l'*Acuaria spiralis* (Molin) Seurat 1916, dont elle présente tous les caractères extérieurs ; elle en diffère par la longueur plus grande de la cavité buccale, par la position moins reculée de la vulve et surtout par la longueur plus grande de l'évéjecteur cuticulaire, l'absence de la trompe impaire et la longueur plus grande des spicules.

GENRE **Acuaria**, SOUS-GENRE **Synhimantus** Railliet, Henry, Sisov, 1912.

7. **Acuaria (Synhimantus) laticeps** (Rud. 1819).

Synon.—*Acuaria laticeps* ♂, Seurat, 1915, *C. R. Soc. Biologie*, t. 78, p. 42 ; *Acuaria laticeps* (Rud.), Seurat, 1916, *ibid.* t. 79, p. 1126, fig. 2. *Spiroptera laticeps*, Rud. 1819. *Dispharagus laticeps* Duj. 1845 ; Molin, 1860. *Filaria laticeps* Schneider, 1866. *Filaria involuta* Linstow, 1879. *Spiroptera fallax* Siebold, 1837. *Dispharagus spiralis* Linstow, 1883.

*Habitat* : Œsophage de l'Epervier (*Accipiter nisus* L.), 12 ♀, 2 ♂, Mascara, juillet 1914 ; estomac de l'Effraie (*Tyto alba* Scop. = *Strix flammea* auctorum), Bordj Menaiel et environs d'Alger, décembre 1913 ; ventricule succenturié de l'Elanion blanc (*Elanus caeruleus* Daud.), adultes et larves, Algérie.

*Distribution géographique* : Europe, Turkestan, Algérie.

8. *Acuaria (Synhimantus) affinis* Seurat, 1916. *C. R. Soc. Biologie*, t. 79, p. 1126, fig. 1.

Synon.—*Filaria laticeps* e.p. Mueller, 1897. *Acuaria laticeps* ♀, Seurat, 1915, *C. R. Soc. Biologie*, t. 78, pp. 41–44, fig. 1.

*Habitat* : Œsophage de l'Effraie (*Tyto alba* Scop = *Strix flammea* auct.), Bordj Menaïel (Kabylic), 20 décembre 1913 ; Corso (Algérie), 6 décembre 1913.

*Distribution géographique* : Europe, Algérie.

### 9. *Acuaria (Synhimantus) invaginatus* (Linstow, 1901).

Synon.—*Dispharagus invaginatus* Linstow, 1901, *Icnaisch. Zeitsch. Naturw.*, vol. 28, p. 414, pl. 13, fig. 10–11 ; Genre, 1913, *Proc. verb. Soc. Linn. Bordeaux*, t. 66, p. 23–31, fig. 1–3.

Cette espèce est caractérisée par la position reculée de la vulve immédiatement en avant de l'anus et par sa monodelphie ; le tube génital simple remonte vers l'avant, l'ovaire filiforme étant entortillé dans la région œsophagienne. La femelle jeune, immature, ne présente rien de particulier ; chez la femelle fécondée, au contraire, la région postérieure du corps s'invagine à l'intérieur d'un fort repli cuticulaire au fond duquel se trouvent cachés la vulve et l'anus, l'extrémité de la queue digitiforme faisant seule saillie au dehors.

*Habitat* : Œsophage du Garde-Bœuf, (*Ardeola ibis* (L.)), 2 ♀ et 2 ♂, Algérie, 30 décembre 1917 et du Héron pourpré, Corse, mars 1914.

*Distribution géographique* : Afrique (Lac Nyassa, Guinée française), Algérie Corse.

### GENRE *Rusguniella* n. gen.\*

Corps allongé, relativement grêle, orné dans la région céphalique de deux cordons cutanés en forme de eroissant prenant naissance aux angles d'insertion des lèvres buccales et s'étendant sur les faces latérales à la façon de deux épaulettes et, en outre, de deux ailes latérales qui prennent naissance à peu de distance au delà des cordons ; une paire de papilles préœsophagiques situées dans l'épaisseur de ces ailes ; pore excréteur ventral, s'ouvrant au delà de l'anneau nerveux. Bouche limitée par deux lèvres latérales dressées ; une paire de grosses papilles sessiles insérées sur le cadre buccal près des angles d'insertion de ces lèvres ; cavité buccale tubuliforme, légèrement évasée à son extrémité ; œsophage nettement différencié en un œsophage musculaire transparent entouré par l'anneau nerveux dans sa région antérieure et en un œsophage musculaire opaque. Vulve à lèvres saillantes, s'ouvrant à peu de distance en avant du milieu du corps ; ovéjecteur cylindrique, remontant vers l'avant ; utérus et ovaires opposés. Mâle inconnu.

*Habitat* : Œsophage des Charadriidés, des Longipennes et des Plongeurs.

*Espèce-type* : *Spiroptera elongata* Rud.

*Affinités*. Ce genre, remarquable par la simplicité des cordons cutanés de la région céphalique, se rapproche des Cosmocéphales par l'existence des ailes latérales.

\* *Rusguniella*, ruines romaines du Cap Matifou (Baie d'Alger).





suyvant Wedl. les œufs ovales, à coque épaisse, larvés à maturité, mesurent 38  $\mu$  de longueur sur 24  $\mu$  de diamètre transversal.

*Mâle* : Inconnu.\*

*Habitat* : Une femelle immature, trouvée sous la tunique cornée du gésier d'une Mouette, Alger, décembre 1917.

Les exemplaires vus par Rudolphi, Schneider et Molin ont été trouvés entre les tuniques de l'estomac de l'Hirondelle de mer (*Hydrochelidon nigra* L.), ceux de Wedl dans divers organes du *Podiceps nigricollis*.

*Affinités* : Cette espèce diffère nettement du *Rusguniella vanelli* (Rud. 1819, Linstow, 1884) par sa taille beaucoup plus grande.

*Distribution géographique* : Europe, Algérie.

### GENRE *Seuratia* Skrjabin, 1916.

Les Dispharages du genre *Seuratia* peuvent, par leur ornementation cuticulaire et en particulier par la structure des cordons céphaliques en forme d'épaulette, être considérés comme des *Rusguniella* chez lesquels les ailes latérales sont remplacées par une double rangée d'aiguillons.

#### 11. *Seuratia shipleyi* (Stossich, 1900).—Skrjabin, 1916, *C. R. Soc. Biologie de Paris*, t. 79, p. 971.

Synon.—*Gnathostoma shipleyi* Stossich 1900, *Boll. Soc. adriat. Sc. nat.* Trieste, vol. xx, pp. 1-2, pl. i, fig. 1-5.—*Rictularia paradoxa* Linstow, 1904, *Arch. f. Nat.* 70 Jahrg. i, p. 297.—*Acuaria pelagica* Seurat, 1916, *C. R. Soc. Biologie*, t. 79, p. 785, figs. 1-5.

*Habitat* : Ventricule succenturié de la Mouette cendrée (*Larus canus* L.) Mers-el-Kébir, 3 avril 1914 et du Puffin cendré (*Puffinus kuhli* Boie), Alger, 12 avril 1914.

*Distribution géographique* : Algérie (Méditerranée), Pacifique occidental.

### GENRE *Cosmocephalus* Molin, 1858.

Les Cosmocéphales, par la disposition des branches récurrentes des cordons cutanés anastomosées sur les faces latérales dans la région céphalique, par celle des papilles cervicales et du pore excréteur, des ailes caudales et des papilles génitales du mâle, par la conformation de l'ovéjecteur, montrent des affinités très étroites avec les *Acuaria* à cordons récurrents anastomosés (*Synhimantus*). Ils sont nettement caractérisés par l'existence des ailes latérales prenant naissance immédiatement au delà des papilles.

#### 12. *Cosmocephalus obvelatus* (Creplin, 1825).

Synon.—*Spiroptera obvelata* Creplin 1825, *Observ. de Entoz.* p. 10; 1829, *Novae Observ. de Entoz.* p. 4; *Wilmann's Arch.* 1846; Mehlis, *Isis*, 1831, p. 75; Dujardin, 1845. *Filaria obvelata* Linstow, *Arch. f. Nat.* 1877, I, pp. 174-175, pl. xii, fig. 4-6. *Dispharagus obvelatus* Linst. 1909. *Histioccephalus spiralis* Diesing 1851, *Syst. Helm.* II, p. 231. *Cosmocephalus papillosus* Molin 1859, Drasche 1883, *Verh. zool. bot. Gesellsch.* Wien, vol. 33, pp. 113-114, pl. III, figs. 17-20. *Dispharagus papillosus* Stossich 1898, Linstow 1909. *Cosmocephalus alatus* Molin, 1860.

Corps de couleur légèrement sanguinolente. Cuticule épaisse, finement striée transversalement, ornée dans la région céphalique de cordons cutanés

\* Wedl a observé un mâle dont la taille était la moitié de celle de la femelle, mais n'en donne pas de description.

à bord interne festonné, naissant sur les lignes ventrale et dorsale immédiatement en arrière de la bouche ; chacun des cordons a un trajet très sinueux : dirigés d'abord vers l'arrière, ils ne tardent pas à revenir vers l'avant en formant une première boucle, puis se recourbent (seconde boucle) pour se diriger à nouveau vers l'arrière ; après un trajet assez long, ils forment une troisième anse, remon-

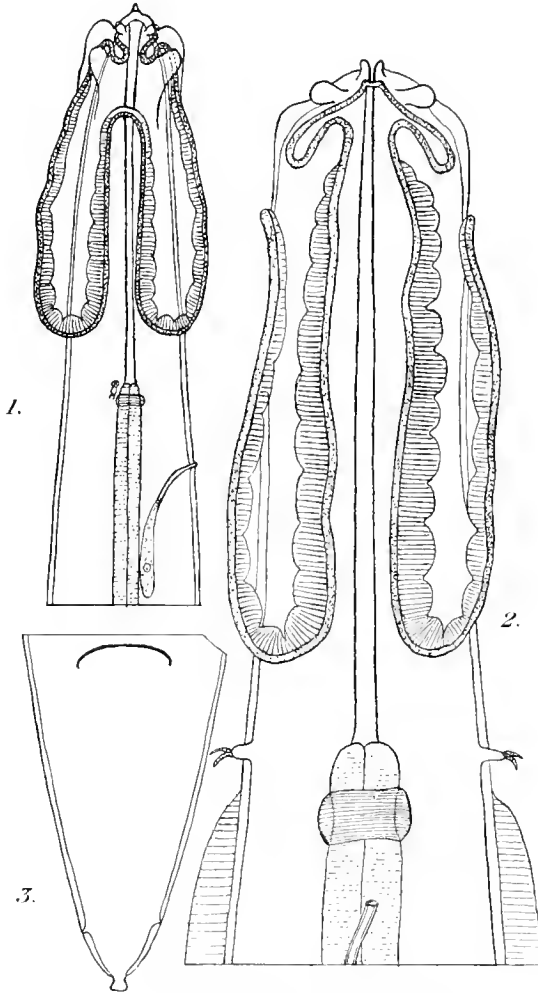


FIG. D.—*Cosmoccephalus obvelatus* (Creplin).

1, extrémité céphalique vue du côté droit ; 2, la même, vue par la face centrale ; 3, queue de la femelle, vue ventralement.

tent le long des lignes latérales et viennent s'unir à ceux du côté opposé ; la cuticule est légèrement soulevée au niveau de la seconde boucle (fig. D). Au delà des cordons cutanés, à la hauteur de l'origine de l'œsophage musculaire se trouve une paire de grosses papilles bicuspidées ; en arrière de celles-ci, la cuticule est soulevée en deux ailes latérales à fine striation transversale qui ne s'étendent guère au delà de la région œsophagienne.

Bouche limitée par deux lèvres latérales portant une dent conique et une paire de volumineuses papilles à leur base. Cavité buccale tubuleuse, étroite et très allongée, s'étendant jusqu'au niveau des papilles biéuspides. Œsophage musculaire entouré, dans sa région initiale, par un large anneau nerveux ; œsophage glandulaire de couleur foncée. Pore excréteur ventral, s'ouvrant au delà de l'anneau nerveux, en rapport avec une glande unicellulaire appliquée contre l'œsophage.

*Femelle*.—Corps droit, légèrement atténué dans la région antérieure ; queue conique, terminée par un petit bouton aplati de  $8\ \mu$  de hauteur (signalé par Dujardin, Linstow, etc.) ; pores caudaux subterminaux, situés à  $35\ \mu$  de l'extrémité caudale. Papilles intestinales asymétriques (distantes l'une de l'autre de  $1^{\text{mm}}4$ ) situées, la droite en avant, la gauche au delà du milieu du corps.

Vulve très petite, non saillante, s'ouvrant en avant du milieu du corps, aux deux cinquièmes de la longueur. Ovjecteur dirigé vers l'arrière ; ovjecteur cuticulaire court ( $155\ \mu$ ) ; vestibule à cavité spacieuse, piriforme ; sphincter rétréci. Utérus opposés ; œufs larvés à maturité.

#### *Cosmocephalus obvelatus* (Creplin).

	♂	♀
Longueur totale . . . . .	12 <sup>mm</sup> 200	13 <sup>mm</sup> 1
Épaisseur maxima (sans les ailes) . . . . .	255 $\mu$	300 $\mu$
Queue . . . . .	420	230
Longueur des cordons cutanés . . . . .	400	410
Distance à l'extrémité céphalique :		
1° du milieu de l'anneau nerveux . . . . .	465	480
2° des papilles cervicales . . . . .	430	490
3° du pore excréteur . . . . .	540	600
4° de l'origine des ailes latérales . . . . .	460	520
5° de la vulve . . . . .		5 <sup>mm</sup> 6
6° des papilles intestinales { droite . . . . .		6 <sup>mm</sup> 145
gauche . . . . .		7 <sup>mm</sup> 55
Cavité buccale . . . . .	430	420 $\mu$
Œsophage museulaire . . . . .	1 <sup>mm</sup> 090	925
Œsophage glandulaire . . . . .	3 <sup>mm</sup> 960	3 <sup>mm</sup> 960
Rapport de la longueur du corps à celle de l'œsophage . . . . .	2,4	2,7
Oeufs . . . . .		36 $\times$ 20 $\mu$
Spicules { droit . . . . .	155 $\mu$	
gauche . . . . .	540	

*Male*.—Corps grêle ; queue légèrement enroulée, relativement allongée, régulièrement atténuée, ornée de deux longues et larges ailes caudales hyalines qui s'unissent en avant de la pointe caudale ; trois papilles préanales à droite, 4 papilles à gauche ; cinq paires de papilles postanales pédonculées, la première (comptée à partir de la pointe caudale) éloignée des suivantes et située à peu de distance de la pointe caudale ; il existe en outre cinq petites papilles sessiles groupées entre les papilles génitales de la première paire. Pores caudaux subterminaux situés à la hauteur des deux premières papilles sessiles. Spicules inégaux, le droit court et large ( $30\ \mu$  de largeur), le gauche, filiforme, a une longueur presque quadruple de celle du spicule droit.

*Habitat* : Œsophage du Puffin cendré (*Puffinus kuhli* Boie) Alger, avril 1916 et œsophage d'une Mouette, Alger, décembre 1916.

*Distribution géographique* : Algérie, Europe.

## FORMES LARVAIRES.

13. **Acuaría tarentolae** Seurat 1916. *C. R. Soc. de Biologie*, t. 79, p. 934, fig. 1-2.

*Habitat* : larve trouvée dans l'estomac de la Tarente (*Tarentola mauritanica* L.), Kouba, août 1916.

14. **Echinuria phoenicopteri** (Seurat, 1916).

Synon.—*Acuaría (Hamannia) phoenicopteri* Seurat 1916, *C. R. Soc. de Biologie*, t. 79, p. 439, fig. 1-4.

*Habitat* : Ventricule succenturié du Flammant rose (*Phoenicopterus roseus* Pall.), Algérie, 19 février 1914.

SOME *SPHINGIDAE* FROM THE EAST.

BY DR. KARL JORDAN.

(With three text-figures.)

1. *Oxyambulyx phalaris* Jord. (1916).

♀. *Oxyambulyx wildei*, Rothschild & Jordan (*err. determ.*), *Nov. Zool.* ix. Suppl. p. 204 no. 165. pl. 8, fig. 4. ♀ *nec* fig. 3. ♂; Milne Bay.

♂. *Oxyambulyx phalaris* Jordan, in Seitz, *Grossschmett.* x. pl. 61e (1916).

The series of *Oxyambulyx* which we have received from New Guinea since the publication of the Revision proves that there are two species side by side, differing in colour and structure. The two specimens which we had when we wrote the Revision were referred by us to *O. wildei* Misk. (1891), and we find now that only the male belongs to that species, while the female is an example of the new species, which is the larger of the two.

♂. *Wings, upperside.* Forewing drab brown in fresh specimens, more fawn-colour in somewhat worn ones, much darker than in *O. wildei*; for markings cf. figures (*ll. cc.*); the terminal band broader than in *O. wildei*; the olive-black submarginal line more than twice as broad as in *wildei*.—Hindwing, more deeply coloured than in *wildei*; the brown speckling denser, and the basal patch less contrasting than in *wildei*.

*Underside.* The dark scaling a deep chestnut in the distal area of the wings, the lines blackish, the limbal band drab, and the proximal area shaded with drab; abdominal area of hindwing more or less pure drab.

Body more deeply coloured than in *O. wildei*, particularly on the underside, which is more or less deep chestnut colour.

♀. Body and wings, on the *upperside*, of a pale chocolate tint slightly washed with drab. Markings and underside as in the male. Anal tuft deep chestnut, appearing almost black.

*Genitalia.* ♂. Apical margin of eighth sternite slightly incurved laterally, excurved medianly, the broad and very short lobe thus formed somewhat curved upward (= inward), but its angles not tuberculiform. Harpe differs from that of *O. wildei* as follows: in *wildei* the ventral process is long and narrow (text-fig. 2), while in *phalaris* it is short and broad (text-fig. 1); the upper process is much slenderer in *phalaris* than in *wildei* and sharply pointed, and there are in *phalaris* no teeth proximally to this process, the ridge extending from the process basad being smooth. The long serrate ridge of the penis-sheath is nearly straight in *wildei*, and reaches beyond the apex of the apical process of the sheath; in *phalaris* the ridge is curved about halfway round the sheath, and therefore does not reach to the tip of the apical process.—♀. The eighth tergite is medianly sinuate in both species, but the sinus is rather deeper and the lobes much less broad in *wildei* than in *phalaris*. The vaginal cavity, in *phalaris*, is continued on to the postvaginal plate by a median depression which is flanked on each side by an obtuse longitudinal ridge; in *wildei*, on the contrary, the cavity is

posteriorly bounded by a transverse obtuse ridge which is highest in the centre ; in *wildei*, moreover, the post-vaginal plate is flat, slightly concave, and smooth, not wrinkled except laterally.

We have two subspecies :

(a) *O. phalaris phalaris* (text-fig. 1).

Literature as above, the female figured in the Revision and the male figured in Seitz belonging to this subspecies.

A very deeply coloured geographical race, recognised by the deep chestnut colour of the dark portions of the underside, both on body and wings.

Length of forewing : ♂, 56-58 mm. ; ♀, 58-61 mm.

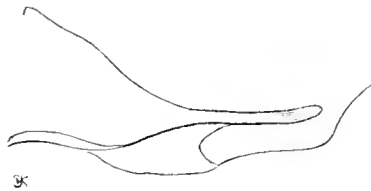
*Hab.* Dutch and British New Guinea, a series of both sexes, some collected by Meek and others by Pratt. Type from the Ninay valley in the Arfak Mts., 3,500 ft., Nov. 1908 to Jan. 1909.

FIG. 1—*O. ph. phalaris*.



FIG. 2—*O. wildei*.

FIG. 3—*O. s. celebensis*.



(b) *O. phalaris carycina* subsp. nov.

♀. Pallidior, magis ochracea, linea obliqua costali antemediana ante cellulae angulum posticum posita.

Long. al. ant. 56 mm.

*Hab.* Rook Island, July 1913 (A. S. Meek), one female.

The specimen is slightly worn, which may be the reason why it is paler than our palest female of *O. ph. phalaris* ; the hindwing particularly has the dark colouring much reduced in extent, the ochraceous ground-colour being as prominent as in *O. wildei*. The terminal band inclusive of the broad line bounding it, above and below, and the anal tuft are as in *O. ph. phalaris* ; the

chestnut scaling in the outer area of the forewing beneath is also deeper than in *O. wildei*, and the genital armature agrees with that of *phalaris*.

The subapical oblique bar in the cell of the forewing does not form a direct continuation of the brown vein-streak  $R^3$ , but ends below the lower angle of the cell. On receipt of more material this may prove to be an individual distinction only.

### 2. *Oxyambulyx substrigilis tattina* subsp. nov.

♂. Linea submarginali alae anticae minus curvata infra indistincta, armatura genitali diversa.

Long. al. ant. 55 mm.

*Hab.* Battak Mts., North-East Sumatra (Dr. L. Martin), one male.

Forewing conspicuously shaded with olive-green, especially between the antemedian lines and again between the discal ones; the subapical costal triangular olive-green patch broader and less oblique than in *O. s. substrigilis*; the marginal band less widened before middle; the black submarginal line not accompanied on the proximal side by a pale line, but instead by a diffuse olive-green shadow; the subbasal round spot drab in this specimen. Hindwing more tawny than in the male of *O. s. substrigilis*.

On the *underside* the forewing almost uniformly reddish tawny in the area proximal to the grey marginal border; the latter less wide before middle than in *O. s. substrigilis*, and the submarginal line bounding it not distinct, being diffuse and but little darker than the area proximal to it.

The apex of the ventral process of the harpe almost symmetrical, the apical margin of it slightly incurved; distally of the long pointed upper process indications of teeth. Inside-rod of penis-sheath broad, not pointed.

### 3. *Oxyambulyx semifervens celebensis* subsp. nov. (text-fig. 3).

♂. Alis angustioribus, antica margine exteriore in medio recto, macula diffusa fusca subapicali magna, linea submarginali supra et subtus olivaceo nigra.

Long. al. ant. 39 mm., lat. 12 mm.

*Hab.* Maros, South Celebes, July 30, 1906 (Dr. L. Martin), one male.

In shape and colouring recalling *O. subocellata* Feld.(1874). The forewing has two subbasal grey-bordered spots below the cell as in *semifervens* Walk. (1864); the discal markings are distinct, as in many *subocellata*, and the olivaceous-black subapical cloud also reminds one of that species; the submarginal line, which is olive-black both above and below, is distinct to  $R^3$  (= vein 4 of Herrieh-Schäffer) and is curved as in *O. s. semifervens*; the distal margin is straight from below apex. The anal angle of the hindwing is less produced than in *subocellata* and slightly more than in *semifervens*.

On the *underside* the forewing bears blackish lunules on the disk; the grey marginal band is as broad as in *semifervens*. Distal margin of hindwing blackish; this narrow band indented at the veins on the proximal side.

As in *semifervens* the harpe without the long upper process found in *subocellata*; the ventral process long and narrow (text-fig. 3), very different from that of *O. s. semifervens*.



LIST OF TYPES OF *LEPIDOPTERA* IN THE TRING MUSEUM.

By LORD ROTHSCHILD, F.R.S.

## I. SPHINGIDAE.

1. *Sphinx fasciatus* Rothsch. = *Herse fasciatus*.*Sphinx fasciatus* Rothschild, *Nov. Zool.* vol. i. p. 94 (1894) (Lifu).

This species must be very rare, as it has not been recorded again since the Tring Museum received the 5 specimens in 1893.

Type : ♀, Lifu, Loyalty Islands, received from Watkins and Doncaster.

† 2. *Phlegethontius lixi* Rothsch. = *Herse luctifera* (Walk.).*Phlegethontius lixi* Rothschild, *Nov. Zool.* vol. i. p. 94 (1894) (Nieura Brit. N. Guinea).*Macrosila luctifera* Walker, *List Lepid. Ins. Brit. Mus.* xxxi. p. 35 (1864) (New Guinea).

Type : ♀, Nieura, British New Guinea. Lix coll.

3. *Acherontia styx crathis* R. & J. = *Acherontia styx crathis*.*Acherontia styx crathis* Rothschild and Jordan, *Nov. Zool.* vol. ix. Suppl. p. 23 (1903) (Java).

Type : ♂, Java.

4. *Coelonia brevis* R. & J. = *Coelonia brevis*.*Coelonia brevis* Rothschild and Jordan, *Nov. Zool.* vol. xxii. p. 281. No. 1. figs. 1-3 (1915) (Miaramariva).

Type : ♂, Miaramarivo, Madagascar, received from M. E. le Moutt.

† 5. *Meganoton cocytioides* Rothsch. = *Meganoton rufescens severini* (Misk.).*Meganoton cocytioides* Rothschild, *Nov. Zool.* vol. i. p. 89 (1894) (Fort Mackay).*Macrosila severina* Miskin, *Proc. Roy. Soc. Queensland*, vol. viii. p. 25. No. 42 (1891) (Cape York).

Type : ♀, Fort Mackay, Queensland, received from Watkins and Doncaster.

6. *Meganoton hyloicoides* Rothsch. = *Meganoton hyloicoides*.*Meganoton hyloicoides* Rothschild, *Ann. Mag. Nat. Hist.* (8) v. p. 596 (1910) (Ninay Valley).

Type : ♂, Ninay Valley, Central Arfak Mts., Dutch New Guinea, November 1908 to January 1909. A. E. Pratt coll.

7. *Sphinx analis* Feld. = *Meganoton analis*.*Sphinx analis* Felder, *Reise Novara Lepid.* t. 78. f. 4 (1874) (Shanghai).

Type : ♂, Shanghai, ex Felder coll.

8. *Poliana micra* R. & J. = *Poliana micra*.*Poliana micra* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. App. p. 809. No. 766. fig. 6 (1903) (Ganale River).

Type : ♂, Ganale River, Somaliland, April 13, 1901. Baron Carlo von Erlanger coll.

9. **Poliana natalensis ferax** R. & J. = *Poliana natalensis ferax*.

*Poliana natalensis ferax* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 247. No. 1 (1916) (Manow).

Type: ♂, Manow, East Africa. Received from Messrs. Staudinger and Bang-Haas.

10. **Poliana leucomelas** R. & J. = *Poliana leucomelas*.

*Poliana leucomelas* Rothschild & Jordan, *Nov. Zool.* vol. xxii. p. 283. ff. 4-6. pl. 20. f. 1 (1915) (Pnom Penh).

Type: ♂, Pnom Penh, Cambodia. Received from Maison H. Donckier.

†11. **Meganoton distinctum** Rothsch. = *Leucomonia bethia* (Kirby).

*Meganoton distinctum* Rothschild, *Nov. Zool.* vol. i. p. 89. t. 7. f. 12 (1894) (North Queensland).

*Diludia bethia* Kirby, *Trans. Entom. Soc. Lond.* 1877. p. 243 (Rockhampton).

Type: ♂, North Queensland. Received from Watkins and Doneaster.

12. **Meganoton lifuense** Rothsch. = *Psilogramma menephron lifuense*.

*Meganoton lifuense* Rothschild, *Nov. Zool.* vol. i. p. 90. t. 7. f. 20 (1894) (Lifu).

Type: ♂, Lifu, Loyalty Islands. Received from Watkins and Doneaster.

13. **Dovania poecila** R. & J. = *Dovania poecila*.

*Dovania poecila* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 47. No. 23. pl. 6. f. 9 (1903) (District of Dowa on Chiwere).

Type: ♂, 4,500 ft., Lake Nyassa, 50 m. S.W. of Central Angoniland, Dowa (Native name Chiwere), December 1901—January 1902. H. A. Byatt coll. Received from Hope Museum, Oxford.

14. **Ellenbeckia monospila** R. & J. = *Ellenbeckia monospila*.

*Ellenbeckia monospila* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 810. No. 767 (1903) (Farro Gumbi).

Type: ♀, Farro Gumbi, Somaliland, April 23, 1901. Baron Carlo von Erlanger coll.).

15. **Hoplistopus penricei** R. & J. = *Hoplistopus penricei*.

*Hoplistopus penricei* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 50. No. 26. pl. xii. f. 5 (1903) (Munyendi River).

Type: ♂, Munyendi River, Angola, April 1901. Penrice coll.

16. **Hoplistopus butti** R. & J. = *Hoplistopus butti*.

*Hoplistopus butti* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 50. No. 27. pl. v. f. 15 (1903) (Beaufort West).

Type: ♂, Foot of Nieuwveld Mts., 5 miles N.W. of Beaufort West, Cape Colony. Miss Butt coll.

This species seems not to have been found again.

17. *Praedora marshalli* R. & J. = *Praedora marshalli marshalli*.

*Praedora marshalli* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 51. No. 28. pl. v. f. 16 (1903) (Umtali).

Type: ♂, Umtali, Mashonaland. G. K. Marshall coll. Received from the British Museum.

18. *Praedora marshalli tropicalis* R. & J. = *Praedora marshalli tropicalis*.

*Praedora marshalli tropicalis* Rothschild & Jordan, *Nov. Zool.* vol. xix. p. 128. No. 1 (1912) (Uganda).

Cotype: ♂, Uganda, 1904. W. L. Doggett coll.

19. *Praedora leucophaea* R. & J. = *Praedora leucophaea*.

*Praedora leucophaea* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 52. No. 30. pl. lxvi. f. 10 (1903) (Brit. E. Africa).

Type: ♂, Luitpold Mts., near Ikutha, B. E. Africa. Received from Messrs. Staudinger and Bang-Haas.

20. *Cocytius vitrinus* R. & J. = *Cocytius vitrinus*.

*Cocytius vitrinus* Rothschild & Jordan, *Nov. Zool.* vol. xvii. p. 456. No. 1 (1910) (Santiago).

Type: ♀, Santiago, Cuba. Tollin coll.

21. *Cocytius mortuorum* R. & J. = *Cocytius mortuorum*.

*Cocytius mortuorum* Rothschild & Jordan, *Nov. Zool.* vol. xvii. p. 448. No. 2 (1910) (Allianca).

Type: ♂, Allianca, below San Antonio, Rio Madeira, Brazil, November—December 1907. W. Hoffmanns coll.

22. *Cocytius lucifer* R. & J. = *Cocytius lucifer*.

*Cocytius lucifer* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 59. No. 35 (1903) (Jalapa).

Type: ♂, Jalapa, Mexico, June 1897. Received from William Schaus.

†23. *Cocytius affinis* Rothsch. = *Cocytius duponchel* (Poey).

*Cocytius affinis* Rothschild, *Nov. Zool.* vol. i. p. 92 (1894) (Central America).

*Amphonyx duponchel* Poey, *Cent. Lépid. Cuba* text and f. 4 (1832) (Cuba).

Type: ♂, Costa Rica. Underwood coll. Received from Henley Grose Smith.

†24. *Cocytius magnificus* Rothsch. = *Amphimoea walkeri* (Boisd.).

*Cocytius magnificus* Rothschild, *Nov. Zool.* vol. i. p. 92. t. 7. f. 21 (1894) (Guiana).

*Amphonyx walkeri* Boisduval, *Spec. Gén. Lépid. Hét.* i. p. 67. No. 7 (1875) (Oyapock).

Type: ♂, Surinam. Ex Felder coll.

†25. *Phlegethontius indistincta* Rothsch. = *Protoparce dilucida* Edwards.

*Phlegethontius indistincta* Rothschild, *Nov. Zool.* vol. i. p. 93 (1904) (Honduras).

*Protoparce dilucida* Edwards, *Entom. Amer.* vol. iii. p. 89 (1887) (Vera Cruz).

Type: ♂, Honduras.

26. **Sphinx quinquemaculatus** Haw. = *Protoparce quinquemaculatus quinquemaculatus*.

*Sphinx quinquemaculatus* Haworth, in Wood. *Ind. Entom.* p. 246. t. 53. f. 23 (1839) (Chelsea, London).

Type: ♂, Chelsea, Haworth Coll., ex Edwin Sheppard coll. Bought at Stevens's Sale.

27. **Protoparce mossi** Jordan = *Protoparce mossi*.

*Protoparce mossi*, Jordan, *Proc. Zool. Soc. Lond.* 1911. p. 34 (Lima).

Type: ♂, Lima, Peru, 1908. A. Miles Moss coll.

28. **Protoparce leucoptera** R. & J. = *Protoparce leucoptera*.

*Protoparce leucoptera* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 79. pl. xi. f. 2 (1903) (Chatham Island).

Type: ♀, Chatham Island, Galapagos Archipelago, March 14, 1901. R. H. Beek coll.

Besides the type there are only the 2 ♀♀ from Albemarle Island, Galapagos, in the Tring Museum, and a few specimens collected during the Expedition to the Galapagos Islands sent out by the California Academy of Sciences in 1905-6.

29. **Protoparce lucetius nubila** R. & J. = *Protoparce lucetius nubila*.

*Protoparce lucetius nubila*, Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 74. No. 41a (1903) (Costa Rica).

Type: ♂, Costa Rica. Underwood coll. Received from Henley Grose Smith.

There is some doubt as to the correctness of the locality, though all three specimens bear the printed label as above.

30. **Protoparce occulta** R. & J. = *Protoparce occulta*.

*Protoparce occulta* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 77. No. 43 (1903) (Orizaba).

Type: ♂, Orizaba, Mexico, 1896. Received from W. Schaus.

31. **Protoparce petuniae tropicalis** R. & J. = *Protoparce diffissa tropicalis*.

*Protoparce petuniae tropicalis* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 77. No. 42c (1903) (Brit. Guiana).

Type: ♂, Omai, British Guiana.

By an error *petuniae* Boisd. was made the specific name of this species, but *diffissa* (Butl.) is four years older, so the four forms must stand as follows:

*Protoparce diffissa diffissa* Butl.

La Plata, E. Argentina.

*P. diffissa petuniae* Boisd.

Southern Brazil.

*P. diffissa tropicalis* R. & J.

Tropical South America S. to Minas Geraes and S.E. Peru.

*P. diffissa mesosa* R. & J.

Salta, N.W. Argentina.

32. *Protoparce diffissa mesosa* R. & J. = *Protoparce diffissa mesosa*.

*Protoparce diffissa mesosa* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 252. No. 8 (Salta).

Type : ♂, Salta, N.W. Argentina. Steinbach coll.

33. *Protoparce pellenia janira* Jord. = *Protoparce pellenia janira*.

*Protoparce pellenia janira* Jordan, *Nov. Zool.* vol. xviii. p. 135. No. 2 (1911) (Rio de Janeiro).

Type : ♂, Rio de Janeiro. E. May coll.

34. *Protoparce scutata brasiliensis* Jord. = *Protoparce scutata brasiliensis*.

*Protoparce scutata brasiliensis* Jordan, *Nov. Zool.* vol. xviii. p. 135. No. 1 (1911) (Rio de Janeiro *loc. err.*)

Type : ♂, Sao Paulo.

The type is unique: the original description states "Rio de Janeiro 2 ♂♂," as in the case of the two other *Protoparce* described on the same page; this was a penslip.

35. *Protoparce scutata scutata* R. & J. = *Protoparce scutata scutata*.

*Protoparce scutata scutata* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 80. No. 47 (1903) (Merida).

Type : ♂, Merida, Venezuela, 1,630 m. = 5,298 ft. (1896). Briceno coll.

36. *Protoparce clarki* R. & J. = *Protoparce clarki*.

*Protoparce clarki* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 248. No. 3. text ff. 1, 2 (1916) (Fonte Boa).

Type : ♂, Fonte Boa, Upper Amazons, May 1906. S. M. Klages coll.

37. *Protoparce perplexa* R. & J. = *Protoparce perplexa*.

*Protoparce perplexa* Rothschild & Jordan, *Nov. Zool.* vol. xvii. p. 449. No. 4 (1910) (Allianca).

Type : ♂, Allianca, below San Antonio, Rio Madeira, Brazil, November—December 1907. W. Hoffmanns coll.

38. *Protoparce tucumana* R. & J. = *Protoparce tucumana*.

*Protoparce tucumana* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 81. No. 48. pl. v. f. 6 (1903) (Tucuman).

Type : ♂, Tucuman. P. Girard coll.

When we described this species the type was the only specimen at Tring we have since then received 5 ♂♂ and 3 ♀♀ from Tucuman and Salta from José Steinbach.

39. *Protoparce andicola* R. & J. = *Protoparce andicola*.

*Protoparce andicola* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 251. No. 6 (1916) (Tinguri).

Type : ♂, Tinguri, Carabaya, S.E. Peru, 3,400 ft. (August 1904). G. R. Ockenden coll.

40. *Phlegethontius stuarti* Rothsch. = *Protoparce stuarti*.

*Phlegethontius stuarti* Rothschild, *Nov. Zool.* vol. iii. p. 22. No. 2. pl. 13. f. 8 (1896) (La Paz).

Type : ♂, La Paz, Bolivia. Maxwell Stuart coll.

41. *Phlegthontius harterti* Rothsch. = *Protoparce rustica harterti*.

*Phlegthontius harterti* Rothschild, *Nov. Zool.* vol. i. p. 93 (1894) (Bonaire).

Type: ♀, Bonaire, Dutch West Indies. Ernst Hartert coll.

When I described this form I had only the single ♀ type; but there are now in the Tring Museum 6 ♂♂, 6 ♀♀, and 2 adult larvae from Bonaire, St. Vincent, Sta Lucia, and Dominica.

42. *Protoparce rustica calapagensis* ab. *nigrita* R. & J. = *Protoparce rustica calapagensis* ab. *nigrita*.

*Protoparce rustica calapagensis* ab. *nigrita* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 86 (1903) (Chatham Island).

Type: ♂, Chatham Island, Galapagos Archipelago, March 14, 1901. R. H. Beck coll.

One or more specimens of this aberration were procured during the Expedition to the Galapagos Islands sent out by the California Academy of Sciences in 1905-6.

43. *Protoparce fosteri* R. & J. = *Protoparce fosteri*.

*Protoparce fosteri* Rothschild & Jordan, *Nov. Zool.* vol. xiii. p. 178. No. 1 (1906) (Sapucay).

Type: ♂, Sapucay, Paraguay, January 22, 1905. W. Foster coll.

This species has remained unique, no second specimen having been recorded.

44. *Protoparce trimacula* R. & J. = *Protoparce trimacula*.

*Protoparce trimacula* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 86. No. 55. pl. 5. f. 7 (1903) (Rio Dagua).

Type: ♂, Rio Dagua, Columbia. W. Rosenberg coll.

Since we described this species in 1903, we have received 1 ♂ from Maceo, E. Ecuador, and 3 ♂♂ and 1 ♀ from La Oroya and Sto Domingo, S.E. Peru. The ♀ was unrecorded.

45. *Protoparce dalica anthina* Jord. = *Protoparce dalica anthina*.

*Protoparce dalica anthina* Jordan, *Nov. Zool.* vol. xviii. p. 135. No. 3 (1911) (Rio de Janeiro).

Type: ♂, Rio de Janeiro, Brazil. E. May coll.

The Tring Museum has lately received 1 ♂, 1 ♀, of this form from Sta Catharina; the ♀ was unrecorded.

46. *Protoparce sesquiplelex opima* R. & J. = *Protoparce sesquiplelex opima*.

*Protoparce sesquiplelex opima* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 251. No. 7 (1916) (Tuis).

Type: ♂, Tuis, Costa Rica. Received from Mr. Lathy.

47. *Protoparce muscosa* R. & J. = *Protoparce muscosa*.

*Protoparce muscosa* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 91. No. 60. pl. xi. f. 1 (1903) (Cenemerara).

Type: ♀, Cenemerara (Cuernavaca), Mexico, June 1900.

The Tring Museum has received 9 ♂♂, 1 ♀ since 1903 from various parts of Mexico and Costa Rica.

48. *Protoparce bergi* R. & J. = *Protoparce bergi*.

*Protoparce bergi* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 94. No. 66. pl. v. f. 8 (1903) (Tucuman).

Type: ♂, Tucuman, N.W. Argentina. P. Girard coll.

Since we described this conspicuous species the series in the Tring Museum has been increased by 39 ♂♂, 13 ♀♀, 1 adult larva, and 1 pupa, from Tucuman, Salta, and La Rioja, from José Steinbach and Dinelli.

49. *Protoparce armatipes* R. & J. = *Protoparce armatipes*.

*Protoparce armatipes* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 252. No. 9 (1916) (Tucuman).

Type: ♂, Tucuman. José Steinbach coll.

In addition to 4 out of the 5 recorded specimens, there is in the Tring Museum a ♂ specimen of this species from Rio Grande do Sul, Brazil, which is larger than the N.W. Argentine specimens. We also have an adult larva from Tucuman.

50. *Chlaenogramma undata undata* R. & J. = *Chlaenogramma undata undata*.

*Chlaenogramma undata undata* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 97. No. 68a. pl. xi. f. 6 (1903) (Costa Rica).

Type: ♂, Costa Rica. Underwood coll.

There is some doubt as to the correctness of the locality.

51. *Chlaenogramma undata cinerea* R. & J. = *Chlaenogramma undata cinerea*.

*Chlaenogramma undata cinerea* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 97. No. 68b. pl. x. f. 7 (1903) (Cordoba).

Type: ♀, Cordoba, Argentina. Received from Professor Carlos Berg.

Since describing this form we have received 2 ♂♂ from Rioja and Salta, from Giacomelli & José Steinbach.

52. *Euryglottis albostigmata basalis* R. & J. = *Euryglottis albostigmata basalis*.

*Euryglottis albostigmata basalis* Rothschild & Jordan, *Nov. Zool.* vol. xiii. p. 78. No. 2 (1906) (Santo Domingo).

Type: ♀, Santo Domingo, Carabaya, 6,000 ft. (March 1901). G. R. Ockenden coll.

53. *Euryglottis dognini* Rothsch. = *Euryglottis dognini*.

*Euryglottis dognini* Rothschild, *Nov. Zool.* vol. iii. p. 325. No. 11 (1896) (Loja).

Type: ♂, Loja, Ecuador, 1888. Received from Monsieur P. Dognin.

Since our monograph was written in 1903 the Tring Museum has received 12 ♂♂, 1 ♀ of this species from Maceo, Ecuador, S.E. Peru, and Central Peru, from E. Boettger and G. R. Ockenden.

54. *Euryglottis aper guttiventris* R. & J. = *Euryglottis guttiventris*.

*Euryglottis aper guttiventris* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 99. No. 72b (1903) (Rio Songo).

Type: ♂, Rio Songo, Bolivia. Garlepp coll.

Since describing this form the Tring Museum has received 19 ♂♂, 4 ♀♀ of this insect from Peru, Columbia, and Ecuador, collected by G. R. Oekenden and Lehmann, and as it is thus found side by side with *aper* it proves to be a distinct species. The ♀ was not recorded.

55. *Pseudodolbina aequalis* R. & J. = *Pseudodolbina aequalis*.

*Pseudodolbina aequalis* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 101. No. 74 (1903) (Khasia Hills).

Type: ♂, Khasia Hills, Assam, May 1894. Native coll. Received from Watkins and Doncaster.

The Tring Museum has lately received a damaged ♀ without locality, which is the first recorded ♀.

†56. *Pseudodolbina veloxina* Rothschild. = *Pseudodolbina fo* (Walker).

*Pseudodolbina veloxina* Rothschild, *Nov. Zool.* vol. i. p. 91. t. 6. f. 18 (1894) (Khasia Hills).  
*Zonilia fo* Walker, *List Lepid. Ins. Brit. Mus.* viii. p. 195. No. 6 (1856) (N. India).

Type: ♀, Khasia Hills. Native coll. Received from Watkins and Doncaster.

†57. *Sphinx cossoides* Rothschild. = *Neogene reevi* (Druce).

*Sphinx cossoides* Rothschild, *Nov. Zool.* vol. i. p. 94. pl. 7. f. 22 (1894) (Castro Parana).  
*Hyloicus reevi* Druce, *Entom. Mo. Mag.* 1882. p. 18 (Paraguay).

Type: ♂, Castro, Parana, Brazil.

58. *Sphinx arthuri* Rothschild. = *Sphinx arthuri*.

*Sphinx arthuri* Rothschild, *Nov. Zool.* vol. iv. p. 307. No. 1. t. 7. f. 1 (1897) (La Paz).

Type: ♂, La Paz, Bolivia. Arthur Maxwell Stuart coll.

The type has remained unique.

59. *Hyloicus aurigutta* R. & J. = *Sphinx aurigutta*.

*Hyloicus aurigutta* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 120. No. 91. pl. xi. f. 4 (1903).

Type: ♂, Chanchamayo, Peru. Thamm coll. Received from Messrs. Staudinger and Bang-Haas.

The Tring Museum has received, since 1903, 4 ♂♂, 3 ♀♀ of this species from Huancabamba, Cerro de Pasco, Peru, from E. Boettger.

60. *Hyloicus geminus* R. & J. = *Sphinx geminus*.

*Hyloicus geminus* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 123. No. 95. pl. xi. f. 3 (1903) (Jalapa).

Type: ♀, Jalapa, Mexico, July 1897. Received from W. Schaus.



61. **Sphinx separatus melaena** R. & J. = *Sphinx separatus melaena*.

*Sphinx separatus melaena* Rothschild & Jordan, *Nov. Zool.* vol. xxiii, p. 253. No. 11 (1916) (Guerrero Mill).

Type: ♂, Guerrero Mill, Hidalgo, Mexico, 9,000 ft. Mann and Skewes coll. Received from R. Preston Clark.

62. **Hyloicus istar** R. & J. = *Sphinx istar*.

*Hyloicus istar* Rothschild and Jordan, *Nov. Zool.* vol. ix. Suppl. p. 126. No. 99. pl. xii. f. 2 (1903) (Mexico).

Type: ♀, Mexico.

The Tring Museum has, since 1903, received 5 ♂♂, 1 ♀ from Ciudad de Guatemala, Cuernavaca, Mexico, and Guerrero Mill, Hidalgo, Mexico, from Rodriguez, Dr. Gadow, and Mann and Skewes per R. Preston Clark.

63. **Hyloicus praelongus** R. & J. = *Sphinx praelongus*.

*Hyloicus praelongus* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 126. No. 100. pl. xii. f. 1 (1903) (Rosery Mine).

Type: ♂, Rosery Mine, Spanish Honduras, 3,000 to 4,000 ft.

64. **Sphinx lanceolata** Feld. = *Sphinx lanceolata*.

*Sphinx lanceolata* Felder, *Reise Novara Lepid.* t. 78. f. 3 (1874) (Mexico).

Type: ♀, Mexico. Ex Felder coll.

The Tring Museum possesses now 12 ♂♂, 5 ♀♀ of this conspicuous species; one ♀ is very deep coloured and dusky.

65. **Hyloicus chersis mexicanus** R. & J. = *Sphinx chersis mexicanus*.

*Hyloicus chersis mexicanus* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 129. No. 102a. pl. xiii. f. 5 (1903) (Mexico).

Type: ♂, Mexico.

66. **Hyloicus chersis pallescens** R. & J. = *Sphinx chersis pallescens*.

*Hyloicus chersis pallescens* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 129. No. 102b (1903) (Prescott).

Type: ♂, Prescott, Arizona, June 25, 1898. Dr. Kunze coll.

67. **Hyloicus perelegans** H. Edw. f. **asellus** R. & J. = *Sphinx perelegans* H. Edw. f. *asellus*.

*H. perelegans* f. *asellus* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 133. No. 105a. pl. xiii. f. 2 (1903) (Colorado).

Type: ♂, Durango, Colorado, July 1, 1899. Oslar coll.

68. **Hyloicus gordius oslari** R. & J. = *Sphinx gordius oslari*.

*Hyloicus gordius oslari* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 136. No. 109a (1903) (Colorado).

Type: ♂, Glenwood Springs, Colorado, June 19, 1901. Oslar coll.

On the type label the name is erroneously written *H. luscitiosa oslari*.

69. **Hyloicus pinastri morio** R. & J. = *Sphinx pinastri morio*.

*Hyloicus pinastri morio* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 147. No. 116b. pl. xiii. f. 9 (1903) (Japan).

Type : ♂, Japan.

This insect has remained unique at Tring up to the present ; but I am not sure whether others have not found their way into various extra-European collections.

70. **Hyloicus caligineus sinicus** R. & J. = *Sphinx caligineus sinicus*.

*Hyloicus caligineus sinicus* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 149. No. 117b. pl. xii. f. 7 (1903) (Zocé).

Cotype : ♀, Shanghai, China. Received from Mons. l'Abbé de Joannis.

71. **Hyloicus oberthueri** R. & J. = *Sphinx oberthueri*.

*Hyloicus oberthueri* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 149. No. 118. pl. xiii. f. 10 (1903) (Tsé-kou).

Type : ♂, Tsé-kou, China, 1895. R. P. Dubernard coll. Received from Mr. Charles Oberthür.

According to the practice followed by the Commission on Nomenclature, *ligustri* Linn. is the type of *Sphinx*, and therefore the genus called in our monograph *Hyloicus* must stand as *Sphinx*, and the genus we called *Sphinx*, taking *ocellata* Linn. as type, must have another name.

†72. **Hopliocnema melanoleuca** R. & J. = *Hopliocnema brachycera* (Lower).

*Hopliocnema melanoleuca* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 158. No. 126. pl. xii. f. 6 (1903) (Roebourne).

*Cosmotriche? brachycera* Lower, *Trans. Roy. Soc. S. Austr.* vol. xxi. p. 50 (1897) (Broken Hill).

Type : ♂, Roebourne, West Australia.

73. **Sphinx marmorata** Lucas = *Synoecha marmorata* (Lucas).

*Sphinx marmorata* Lucas, *Proc. Linn. Soc. N.S. Wales* (2) vi. p. 278 (1891) (Coomooboolaroo).

Type : ♀, Coomooboolaroo, Duaringa, Dawson River, December 27, 1884. Ex Barnard collection, per A. S. Meek.

74. **Dalbina elegans** Bang-Haas = *Dalbina elegans*.

*Dalbina elegans* Bang-Haas, *Iris*, xxvi. 1912. p. 229 (1913) (Iskenderun).

Cotype : ♂, Akbés, Syria. Received from Messrs. Staudinger and Bang-Haas.

75. **Kentrochrysalis consimilis** R. & J. = *Kentrochrysalis consimilis*.

*Kentrochrysalis consimilis* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 164. No. 132 (1903) (Chinzengi).

Cotype : ♂, Chinzengi, Japan, August 1881. Lewis coll. Received from British Museum.

The following 3 types have been missed out of their proper sequence.

76. **Poliana marmorata** Fawcett = *Poliana buchholzi wintgensis* (Strand).

*Poliana marmorata* Fawcett, *Proc. Zool. Soc. Lond.* 1915, p. 105, No. 85, pl. 2, f. 22 (Masongaleni Brit. E. Africa).

*Jaboribia wintgensis* Strand, *Ann. Soc. Ent. Belg.* vol. liv, p. 228 (1910) (German East Africa).

Type : ♂, Masongaleni, British East Africa, January 23, 1911. W. Feather coll.

77. **Dovania circe** Fawcett = *Callosphingia circe*.

*Dovania circe* Fawcett, *Proc. Zool. Soc. Lond.* (1915) p. 106, pl. 1, fig. 1 (Kedai).

Cotype : ♀, Kedai, British East Africa, No. 25, 1911. W. Feather coll.

78. **Sphinx cluentius** Cram. = *Cocytius cluentius*.

*Sphinx cluentius* Cramer, *Pap. Erot.* vol. i, fasc. vii, p. 124, pl. 78, f. B. (1775) (West Indies).

Cotype : ♂, ex coll. J. C. Sylvius Van Lenep, ex coll. Felder.

The insects forming the collection of Van Lenep, who was a contemporary of Cramer, were all at the latter's disposal during the progress of his work, and many of the species in the "Papillons Exotiques" were described and figured from this collection. This is not the case with this species, but it can quite correctly be classed as a cotype, for it was before Cramer at the time of writing.

79. **Protambulyx euryalus** R. & J. = *Protambulyx euryalus*.

*Protambulyx euryalus* Rothschild & Jordan, *Nov. Zool.* vol. ix, Suppl. p. 176, No. 136, pls. i, f. 3 and lxvii, f. 9 (1903) (Merida).

Type : ♂, Merida, Venezuela. Briceno coll.

Since 1903 the Tring Museum has received 16 ♂♂, 8 ♀♀ of this species from Santo Domingo and Tinguri, Carabaya, and La Oroya, Inambari, S.E. Peru, Macas E. Ecuador, and Jungas de Coroico, Bolivia, from G. R. Ockenden and Gustav Garlepp.

80. **Protambulyx ockendeni** R. & J. = *Protambulyx ockendeni*.

*Protambulyx ockendeni* Rothschild & Jordan, *Nov. Zool.* vol. ix, Suppl. p. 176, No. 137, pl. lxxvi, ff. 7, 8 (1903) (Santo Domingo).

Type : ♂, Santo Domingo, Carabaya, S.E. Peru, 6,000 ft., June 1901. G. R. Ockenden coll.

The Tring Museum has received, since 1903, 5 ♂♂, 4 ♀♀ from Sto Domingo, Oconeque, Carabaya, and Huayabamba River, Chachapoyas, Peru, from G. R. Ockenden and O. T. Baron. The ♀ was unrecorded.

81. **Protambulyx xanthus** R. & J. = *Protambulyx xanthus*.

*Protambulyx xanthus* Rothschild & Jordan, *Nov. Zool.* vol. xiii, p. 179, No. 3 (1906) (Tuis).

Type : ♂, Tuis, Costa Rica. Received through Mr. Percy Lathy.

The Tring Museum has since received 1 ♂, 1 ♀ from Tuis and Limon, Costa Rica, from Mr. William Schaus. The ♀ is unrecorded.

82. **Ambulyx eurycles** ab. **sulphurea** Rothsch. = *Protambulyx sulphurea*.

*Ambulyx eurycles* ab. *sulphurea* Rothschild, *Nov. Zool.* vol. i. p. 542 (1894) (Aroa).

Type : ♂, Aroa, Venezuela. Received from Watkins and Doncaster.

83. **Protambulyx carteri** R. & J. = *Prolambulyx carteri*.

*Protambulyx carteri* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 180. No. 142. pls. lxvi. f. 3 and lxvii. f. 12 (1903) (Bahamas).

Type : ♂, Nassau, Bahamas. Sir Gilbert Carter coll.

In addition to the 2 ♂♂ recorded there are 3 ♂♂ in the British Museum.

84. **Amplipterus gannascus cubanus** R. & J. = *Amplipterus gannascus cubanus*.

*Amplipterus gannascus cubanus* Rothschild & Jordan, *Nov. Zool.* vol. xv. p. 259. No. 1 (Santiago, Cuba).

Type : ♂, Santiago, Cuba. Tollin coll.

Since 1908 we have received a second ♂ from Mr. W. F. Rosenberg, collected by Mr. William Schaus.

85. **Amplipterus ypsilon** R. & J. = *Amplipterus ypsilon*.

*Amplipterus ypsilon* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 182. No. 144 (1903) (Costa Rica).

Type : ♂, Costa Rica. Underwood coll. Received from Henley Grose Smith.

Since 1903 the series at Tring has been increased by 13 ♂♂, 4 ♀♀, from Misantla, Vera Cruz ; Siyo, Juan Vinas, Sixola, Carre Blanca, and Tuis, Costa Rica ; Potaro, Tumatumari, and Georgetown, British Guiana ; received from Mr. William Schaus, Mr. Percy Lathy, S. M. Klages, Mr. Lankester, and the Rev. Mr. Whitford, and E. Guehmann.

86. **Ambulyx eurysthenes** Feld. = *Amplipterus eurysthenes*.

*Ambulyx eurysthenes* Felder, *Reise Novara Lepid.* t. 77. f. 5 (1874) (Columbia).

Type : ♀, Columbia, ex coll. Felder.

At present there are in the Tring Museum 3 ♂♂ and 3 ♀♀ of this species ; of these 2 ♂♂, 1 ♀ have been acquired since 1903, viz. 1 ♂, 1 ♀ from Theresopolis, and 1 ♂ from Blumenau, Sta Catharina, from J. Michaelis, per H. Fruhstorfer.

†87. **Ambulyx schausi** Rothsch. = *Amplipterus eurysthenes* (Feld.).

*Ambulyx schausi* Rothschild, *Nov. Zool.* vol. i. p. 87 (1894) (Petropolis).

Type : ♂, Petropolis, Rio de Janeiro, Brazil. W. Schaus coll.

88. **Ambulyx tigrina** Feld. = *Amplipterus tigrina*.

*Ambulyx tigrina* Felder, *Reise Novara Lepid.* t. 77. f. 4 (1874) (Venezuela).

Type : ♂, Venezuela, ex coll. Felder.

The Tring Museum has acquired, since 1903, 13 ♂♂, 8 ♀♀ of this species from Santo Domingo and Tinguri, Carabaya, and La Oroya, Rio Inambari, and Huaneaboya, Cerro de Paseo, Peru ; and Zamora, Ecuador, from G. R. Oekenden O. T. Baron, and E. Boettger.

89. **Amplipterus donysa dariensis** R. & J. = *Amplipterus donysa dariensis*.  
*Amplipterus donysa dariensis* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 253. No. 13 (1916) (Sitio).  
 Type: ♂, Sitio, Costa Rica, June. W. Schaus coll.
90. **Compsogene panopus celebensis** R. & J. = *Compsogene panopus celebensis*.  
*Compsogene panopus celebensis* Rothschild & Jordan, *Nov. Zool.* vol. xiii. p. 179. No. 4 (1906) (Tondano).  
 Type: ♂, Tondano, North Celebes. Received from H. Fruhstorfer.
91. **Batocnema coquereli comorana** R. & J. = *Batocnema coquereli comorana*.  
*Batocnema coquereli comorana* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 191. No. 153b (1903) (Gt. Comoro Island).  
 Type: ♂, Grande Comoro, Comoro Islands. Received from Mons. René Oberthur.  
 We have received 1 ♀, Grande Comoro, July 1911, from G. F. Leigh. The ♀ of this form is unrecorded; it shows the same differences from ♀ *c. coquereli* as the ♂♂ do.
92. **Oxyambulyx bima** R. & J. = *Oxyambulyx bima*.  
*Oxyambulyx bima* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 197. No. 158. pl. ix. f. 1 (1903) (Bima).  
 Type: ♀, Bima, Sambawa, February 1896. W. Doherty coll.  
 This has remained unique, no other specimen having been recorded.
93. **Oxyambulyx substrigilis tattina** Jord. = *Oxyambulyx substrigilis tattina*.  
*Oxyambulyx substrigilis tattina* Jordan, *Nov. Zool.* vol. xxvi. p. 192. (1919) (Battak Mts.).  
 Type: ♂, Battak Mts., N.E. Sumatra. Dr. Martin coll.
94. **Oxyambulyx substrigilis wilemani** R. & J. = *Oxyambulyx substrigilis wilemani*.  
*Oxyambulyx substrigilis wilemani* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 254. No. 14 (1916) (Manila).  
 Type: ♂, Manila Philippine Islands, September 9, 1912. A. E. Wileman coll.
95. **Oxyambulyx phalaris phalaris** Jord. = *Oxyambulyx phalaris phalaris*.  
*Oxyambulyx phalaris phalaris* Jordan, in Seitz, *Grossschm. Erde.* vol. x. pl. 61. c (1916) (Ninay Valley).  
 Type: ♂, Ninay Valley, Central Arfak Mts., Dutch New Guinea, November 1908—January 1909. A. E. Pratt coll. Received from W. F. Rosenberg.  
 There are in the Tring Museum 3 ♂♂, 6 ♀♀ of this subspecies from Ninay Valley, Upper Setekwa River, and Nr. Octakwa River, Dutch New Guinea; and Biagi, Mambare River and Milne Bay, British New Guinea, collected by A. E. Pratt and A. S. Meek.
96. **Oxyambulyx phalaris carycina** Jord. = *Oxyambulyx phalaris carycina*.  
*Oxyambulyx phalaris carycina* Jordan, *Nov. Zool.* vol. xxvi. p. 191. (1919) (Rook Island).  
 Type: ♀, Rook Island, Papuan Islands, July 1913. A. S. Meek coll.

97. *Oxyambulyx meeki* R. & J. = *Oxyambulyx meeki meeki*.

*Oxyambulyx meeki* Rothschild & Jordan, *Nov. Zool.* vol. ix, Suppl. p. 204, No. 166, pl. i, f. 2 (1903) (Isabel Island).

Type: ♂, Isabel Island, Solomon Islands, June 1—July 9, 1901. A. S. Meek coll.

98. *Oxyambulyx meeki pyrrhina* Jord. = *Oxyambulyx meeki pyrrhina*.

*Oxyambulyx meeki pyrrhina* Jordan, in Seitz *Grossschm. Erde* vol. x. (1915) (Choiseul Island).

Type: ♀, South side of Choiseul Island, January 1904. A. S. Meek coll.

99. *Ambulyx japonica* Rothsch. = *Oxyambulyx japonica*.

*Ambulyx japonica* Rothschild, *Nov. Zool.* vol. i. p. 87 (1894) (Kiushiu).

Type: ♂, Kiushiu, Japan. Received from Heine.

100. *Ambulyx subocellata* Feld. = *Oxyambulyx subocellata*.

*Ambulyx subocellata* Felder, *Reise Novara Lepid.* t. 76. f. 3 (1874) (Java).

Type: ♀, Java, ex coll. Felder.

101. *Oxyambulyx semifervens celebensis* Jord. = *Oxyambulyx semifervens celebensis*.

*Oxyambulyx semifervens celebensis* Jordan, *Nov. Zool.* vol. xxvi. p. 192, (1919) (Maros).

Type: ♂, Maros, South Celebes, July 20, 1906. Dr. Martin coll.

102. *Ambulyx dohertyi* Rothsch. = *Oxyambulyx dohertyi dohertyi*.

*Ambulyx dohertyi* Rothschild, *Nov. Zool.* vol. i. p. 87 (1894) (Humboldt Bay).

Type: ♂, Humboldt Bay, N.E. Dutch New Guinea, September—October 1892. W. Doherty coll.

Since 1903 the series at Tring has increased by 38 ♂♂, 15 ♀♀ from Little Key; Oetakwa River, Ninay Valley, Upper Setekwa River, Kumusi River, Biagi, Mambare River, Upper Aroa River, and Mount Kebea, New Guinea; Fergusson and Goodenough Islands, D'Entrecasteaux Islands; and Rook Island, from Heinrich Kühn, A. S. Meek, and A. E. Pratt.

103. *Oxyambulyx meeki salomonis* R. & J. = *Oxyambulyx meeki salomonis*.

*Oxyambulyx meeki salomonis* Rothschild & Jordan, *Nov. Zool.* vol. ix, Suppl. p. 209, No. 171 b (1903) (Guadalecanar).

Type: ♂, Guadalecanar, Solomon Islands, March 1901. A. S. Meek coll.

The Tring Museum has received 2 ♂♂, 1 ♀, since 1903, from Arawa, Bougainville, and Tulagi, Solomon Islands, from A. S. Meek and Charles M. Woodford.

†104. *Clanis gigantea* Rothsch. = *Clanis undulosa* (Moore).

*Clanis gigantea* Rothschild, *Nov. Zool.* vol. i. p. 96 (1894) (partim ♂, ♀ alia spec., Khasia Hills).

*Clanis undulosa* Moore, *Proc. Zool. Soc. Lond.* 1879. p. 387 (N. China).

Type: ♂, Khasia Hills, Assam. Received from Watkins and Doncaster.

The series at Tring has been increased since 1903 by 7 ♂♂, 5 ♀♀, from N. India; Jaintia and Khasia Hills, Assam; and Chang Yang, West China, from Swinhoe, Watkins and Doncaster, and A. E. Pratt.

105. *Clanis stenosema* R. & J. = *Clanis stenosema*.

*Clanis stenosema* Rothschild & Jordan, *Nov. Zool.* vol. xiv. p. 92. No. 1 (1907) (Kalim Bungo, Nias).

Type : ♀ Kalim Bungo, Island of Nias, January—April 1896. R. Mitschke coll.

106. *Clanis euroa* R. & J. = *Clanis euroa*.

*Clanis euroa* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 216. No. 178 (1903) (Oinainisa).

Type : ♂, Oinainisa, Island of Timor (Dutch), November—December 1891. W. Doherty coll.

107. *Clanis titan* R. & J. = *Clanis titan*.

*Clanis titan* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 218. No. 180 (1903) (Khasia Hills).

Type : ♂, Khasia Hills, Assam. Received from Watkins and Doneaster.

108. *Pseudoclanis grandidieri comorana* R. & J. = *Pseudoclanis grandidieri comorana*.

*Pseudoclanis grandidieri comorana* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 254. No. 15 (1916) (Comoro Islands).

Type : ♂ Grande Comoro, Comoro Islands, 1894. L. Humboldt coll. Received from Mr. Charles Oberthür.

109. *Pseudoclanis postica occidentalis* R. & J. = *Pseudoclanis postica occidentalis*.

*Pseudoclanis postica occidentalis* Rothschild & Jordan, *Nov. Zool.* vol. ix; p. 222. No. 183 c (1903) (Sierra Leone).

Type : ♂, Sierra Leone.

The series in the Tring Museum, since 1903, has been increased by 9 ♂♂, 2 ♀♀, from Sierra Leone; Abossi and Prestea, Gold Coast; Lagos, Ogrugu, and Wassau, Niger; from Dr. J. Wilson and others.

110. *Platysphinx phyllis* R. & J. = *Platysphinx phyllis*.

*Platysphinx phyllis* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 226. No. 187. pl. 1. f. 1 (1903) (Konakry Island).

Type : ♀, Konakry Island, Los Islands. This has remained unique, as no further specimens are recorded.

111. *Leptoclanis pulchra* R. & J. = *Leptoclanis pulchra*.

*Leptoclanis pulchra* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 228. No. 189. pl. lxvi. f. 9 (1903) (Salisbury).

Type : ♂, Salisbury, Mashonaland, S. Africa, December 1900. G. K. Marshall coll.

Since 1903 2 ♂♂ have been added to the Tring series from Bihé, Angola, and Lilongwe, Angoniland, from Edw. Sanders and Andrews.

112. *Leucophlebia afra edentata* R. & J. = *Leucophlebia afra edentata*.

*Leucophlebia afra edentata* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 254. No. 16 a. text ff. 5, 6 (1916) (Gambaga).

Type : ♂, Gambaga, Gold Coast. Dr. Bury coll.

113. **Leucophlebia afra rosulenta** R. & J. = *Leucophlebia afra rosulenta*.

*Leucophlebia afra rosulenta* Rothschild & Jordan, *Nov. Zool.*, vol. xxiii, p. 256. No. 16 c (1916) (Mohoro) ;

Type : ♂, Mohoro, German East Africa, May 1902.

114. **Leucophlebia neumanni** R. & J. = *Leucophlebia neumanni*.

*Leucophlebia neumanni* Rothschild & Jordan, *Nov. Zool.*, vol. ix, p. 598. No. 11 (1902) (Gelo River).

Type : ♀, Gelo River, Akobo River, Abyssinia, May 1901. Oscar Neumann coll.

We have received a third ♀ of this species from the Blue Nile, collected by Mr. Gorringe ; it is slightly smaller and also duller in colour than Oscar Neumann's 2 ♀♀.

115. **Polyptychus draconis** R. & J. = *Polyptychus draconis*.

*Polyptychus draconis* Rothschild & Jordan, *Nov. Zool.*, vol. xxiii, p. 115. No. 1. text f. 1 (1916) (Thibet probably West China ?).

Type : ♂, "Thibet" (West China ?). Received from Mons. E. Le Moutt.

116. **Polyptychus trilineatus luteatus** R. & J. = *Polyptychus trilineatus luteatus*.

*Polyptychus trilineatus luteatus* Rothschild & Jordan, *Nov. Zool.*, vol. ix, Suppl. p. 237. No. 195 a (1903) (Ceylon).

Type : ♂, Ceylon.

117. **Polyptychus trilineatus undatus** R. & J. = *Polyptychus trilineatus undatus*.

*Polyptychus trilineatus undatus* Rothschild & Jordan, *Nov. Zool.*, vol. ix, Suppl. p. 238. No. 195 c (1903) (Khasia Hills).

Type : ♂, Khasia Hills, Assam. Received from Watkins and Doncaster.

6 ♂♂, 1 ♀ have been added to the Tring series since 1903, from Lakinpoor and Khasia Hills, Assam ; Mynpo ; Andaman Islands ; and Sumatra ; from the Elwes collection and Monsieur Le Moutt.

118. **Polyptychus trilineatus chinensis** R. & J. = *Polyptychus trilineatus chinensis*.

*Polyptychus trilineatus chinensis* Rothschild & Jordan, *Nov. Zool.*, vol. ix, Suppl. p. 239. No. 195 d (1903) (China).

Type : ♀, China.

119. **Polyptychus orthographus** R. & J. = *Polyptychus orthographus*.

*Polyptychus orthographus* Rothschild & Jordan, *Nov. Zool.*, vol. ix, Suppl. p. 244. No. 201. pl. i. f. 9 (1903) (Bopoto).

Type : ♂, Bopoto, Upper Congo. Rev. Kenred Smith coll.

Since 1903 the Tring series has been increased by 6 ♂♂ from Bingerville, Ivory Coast ; Prestea, Gold Coast ; Bopoto, Congo ; Sierra Leone ; and Heshu, South Nigeria, from G. Melou, Rev. Kenred Smith, Major Bainbridge, and Captain Humfrey.



120. **Polyptychus murinus** Rothsch. = *Polyptychus murinus*.

*Polyptychus murinus* Rothschild, *Nov. Zool.* vol. xi. p. 435. No. 1 (1904) (Kassai River).

Type : ♀, Kassai River, Congo Free State.

Since 1904 we have received 6 ♂♂ from Upper Congo ; and Wassaw and Abossi, Gold Coast, from Watkins and Doncaster, and Dr. J. J. Wilson.

121. **Polyptychus retusus** R. & J. = *Polyptychus retusus*.

*Polyptychus retusus* Rothschild & Jordan, *Nov. Zool.* vol. xv. p. 259. No. 3 (1908) (Sierra Leone).

Type : ♂, Sierra Leone. Major Bainbridge coll.

One additional ♂ has been received from Abouasi, Gold Coast.

122. **Polyptychus falcatus** R. & J. = *Polyptychus falcatus*.

*Polyptychus falcatus* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 247. No. 207. pl. x. f. 12 (1903) (Salisbury).

Type : ♀, Salisbury, Mashonaland, S. Africa.

We have since received 1 ♂ from Nyassaland, from Messrs. Staudinger and Bang-Haas.

123. **Polyptychus anochus** R. & J. = *Polyptychus anochus*.

*Polyptychus anochus* Rothschild & Jordan, *Nov. Zool.* vol. xiii. p. 179. No. 5 (1906) (Sierra Leone).

Type : ♂, Sierra Leone.

124. **Polyptychus consimilis ancyclus** R. & J. = *Polyptychus consimilis ancyclus*.

*Polyptychus consimilis ancyclus* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 258. No. 19 b. text ff. 10 II (1916) (Gambaga).

Type : ♂, Gambaga, Gold Coast. Dr. Bury coll.

125. **Polyptychus consimilis prionites** R. & J. = *Polyptychus consimilis prionites*.

*Polyptychus consimilis prionites* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 258. No. 19 c. text f. 12 (1916) (Upper Chari River).

Type : ♂, Upper Chari River, Lake Chad.

126. **Polyptychus coryndoni** R. & J. = *Polyptychus coryndoni*.

*Polyptychus coryndoni* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 251. No. 213. pl. ii. f. 7 (1903) (Gowlu-pan, E. Africa).

Type : ♂, Gowlu-pan, between Lialui and Kazungula, Upper Zambesi, East Africa, March 1898. Coryndon coll.

We have received, since 1903, 1 ♂, 1 ♀ of this species from Pemba Island and Bihé, Angola, from E. Morland and E. Sanders.

127. **Polyptychus calcareus** R. & J. = *Polyptychus calcareus*.

*Polyptychus calcareus* Rothschild & Jordan, *Nov. Zool.* vol. xiv. p. 92. No. 2 (1907) (Masai).

Type : ♂, Masai, German East Africa.

We have since received a ♀ from Mlanje, Nyassaland, from Watkins and Doncaster, and have seen several other specimens, from which we have come to the conclusion that *neavi* Hampson and *martha* Closs are synonyms of *calcareus*,

128. *Polyptychus baxteri* R. & J. = *Polyptychus baxteri*.

*Polyptychus baxteri* Rothschild & Jordan, *Nov. Zool.* vol. xv. p. 259. No. 2 (1908) (Mpapwa).

Type: ♂, Mpapwa, German East Africa. Dr. Baxter coll.

The Tring Museum has since received 1 ♂ from Mamboia, German E. Africa, also from Dr. Baxter.

129. *Polyptychus amabilis* Jord. = *Polyptychus amabilis*.

*Polyptychus amabilis* Jordan, *Nov. Zool.* vol. xviii. p. 135. No. 4 (1911) (Belgian Congo).

Type: ♂, Belgian Congo.

130. *Polyptychus erlangeri* R. & J. = *Polyptychus erlangeri*.

*Polyptychus erlangeri* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 810. No. 768 (1903) (Dahele).

Type: ♂, Dahele, Abyssinian Somaliland, April 25, 1901. Carlo von Erlanger coll.

131. *Polyptychus fulgurans* R. & J. = *Polyptychus fulgurans*.

*Polyptychus fulgurans* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 254. No. 217. pl. ii. f. 14 (1903) (Kiokwe).

Type: ♂, Kiokwe, British East Africa, 1894.

132. *Polyptychus numosae hesperus* R. & J. = *Polyptychus numosae hesperus*.

*Polyptychus numosae hesperus* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 260. No. 24 c (1916) (Tsumeb).

Type: ♂, Tsumeb, S.W. Africa.

133. *Polyptychus contraria diffusus* R. & J. = *Polyptychus contraria diffusus*.

*Polyptychus contraria diffusus* Rothschild & Jordan, *Nov. Zool.* vol. xvii. p. 456. No. 2 (Shinda).

Type: ♂, Shinda, Eritraea. Received from Messrs. Staudinger and Bang-Haas.

134. *Polyptychus nigriplaga* R. & J. = *Polyptychus nigriplaga*.

*Polyptychus nigriplaga* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 259. pl. v. f. 4 (1903) (Camaroons).

Type: ♂, Lolodorf, South Camaroons. L. Conradt coll. Received from the Berlin Museum.

135. *Polyptychus hollandi* R. & J. = *Polyptychus hollandi*.

*Polyptychus hollandi* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 261. No. 224. pl. v. f. 3 (1907) (Warri).

Type: ♂, Warri, Niger, June 1897. Dr. Roth coll.

The Tring Museum has received, since 1903, 4 ♂♂, 1 ♀ of this species from Warri, Degama and Akassa to Onitslia, Niger; W. Africa; and Sekondi, Gold Coast, from Dr. Roth, N. T. Hamlyn, and Dr. Cook.

136. *Clanis bicolor* Rothschild = *Libyoclanis bicolor*.

*Clanis bicolor* Rothschild, *Nov. Zool.* vol. i. p. 96 (1904) (?).

Type: ♀, hab. ?.

The Tring Museum has received, since 1903, 5 ♂♂ from various places on the Gold Coast, from Dr. J. J. Wilson and others.

137. *Libyoclanis major* R. & J. = *Libyoclanis major*.

*Libyoclanis major* Rothschild & Jordan, *Nov. Zool.* vol. xxii. p. 284. No. 3 (1915) (Sierra Leone).

Cotype (Paratype): ♀, Sierra Leone.

138. *Libyoclanis bainbridgei* R. & J. = *Libyoclanis bainbridgei*.

*Libyoclanis bainbridgei* Rothschild & Jordan, *Nov. Zool.* vol. xiii. p. 180. No. 6 (1906) (Sierra Leone).

Type: ♀, Sierra Leone. Major Bainbridge coll.

139. *Libyoclanis vicina* R. & J. = *Libyoclanis vicina*.

*Libyoclanis vicina* Rothschild & Jordan, *Nov. Zool.* vol. xxii. p. 285. No. 4 (1915) (Cross River).

Type: ♂, Cross River, Lower Niger. F. C. Martell coll.

140. *Typhosia illustris* R. & J. = *Typhosia illustris*.

*Typhosia illustris* Rothschild & Jordan, *Nov. Zool.* vol. xiii. p. 407. No. 2 (1906) (Abuassi).

Cotype (Paratype): ♂, Obuassi, Ashanti, Gold Coast, 1905 (G. E. Bergmann). Received from the British Museum.

141. *Likoma apicalis* R. & J. = *Likoma apicalis*.

*Likoma apicalis* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 265. No. 229. pl. v. f. 5 (1903) (Likoma).

Type: ♂, Likoma, Lake Nyassa, March 24, 1896. Rev. Dutton coll.

142. *Likoma crenata* R. & J. = *Likoma crenata*.

*Likoma crenata* Rothschild & Jordan, *Nov. Zool.* vol. xiv. p. 93. No. 3 (1907) (Megana).

Type: ♂, Megana, British East Africa, August 6, 1896. C. S. Betton coll.

143. *Marumba spectabilis malayana* R. & J. = *Marumba spectabilis malayana*.

*Marumba spectabilis malayana* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 274. No. 232 b (1903) (Benkoelen).

Type: ♂, Benkoelen, W. Sumatra. Eriksen coll.

This has remained unique, no further specimens being on record.

144. *Marumba juvenis* R. & J. = *Marumba juvenis*.

*Marumba juvenis* Rothschild & Jordan, *Nov. Zool.* vol. xix. p. 132. No. 5. text f. 6 (1912) (Malay Peninsula).

Type: ♂, Malay States, Malay Peninsula. Received from Messrs. Staudinger and Bang-Haas.

145. **Marumba amboinicus celebensis** R. & J. = *Marumba amboinicus celebensis*.  
*Marumba amboinicus celebensis* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 277. No. 234 b  
 (1903) (Tawaya).

Type : ♀, Tawaya, North of Palos Bay, North Celebes, August—September 1896. W. Doherty coll.

We have received 1 ♂ from North Celebes, from Messrs. O. E. Janson and Son, since 1903.

146. **Smerinthus amboinicus** Feld. = *Marumba amboinicus amboinicus*.  
*Smerinthus amboinicus* Felder, *Sitzber. Ak. Wiss. Wien*, vol. xliii. p. 29. No. 33 (1682) (Amboina).

Type : ♀, Amboina, ex coll. Felder.

147. **Marumba timora timora** R. & J. = *Marumba timora timora*.  
*Marumba timora timora* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 278. No. 235 a (1903)  
 (Oinanisa).

Type : ♂, Oinanisa, Dutch Timor, November—December 1891. W. Doherty coll.

148. **Marumba timora laotensis** R. & J. = *Marumba timora laotensis*.  
*Marumba timora laotensis* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 278. No. 235 b (1903)  
 (Larat).

Type : ♂, Larat, Timor Lant (= Tenimber Islands), April—May 1901. H. Kühn coll.

This is still unique.

149. **Poliodes roseicornis** R. & J. = *Poliodes roseicornis*.  
*Poliodes roseicornis* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 285. No. 242. pl. i. f. 7 (1903)  
 (Western side of Luitpold Mts.).

Type : ♂, Western side of Luitpold Mts., nr. Ikutha, British East Africa.

Since 1903 the series at Tring has been augmented by 6 ♂♂, 1 ♀ from Kedai, British East Africa, from Mr. W. Feather.

150. **Ceridia mira** R. & J. = *Ceridia mira*.  
*Ceridia mira* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 287. No. 243. pl. ix. f. 12 (1903) (Western  
 side of Luitpold Mts.).

Type : ♂, Western side of Luitpold Mts., nr. Ikutha, British East Africa.

One ♀ from Kedai, British East Africa, from Mr. W. Feather, has been added to the series at Tring.

151. **Smerinthus heuglini** Feld. = *Ceridia heuglini*.  
*Smerinthus heuglini* Felder, *Reise Novara Lepid.* t. 78. f. 2 (1874) (Abyssinia).

Type : ♂, Abyssinia (Heuglin coll.), ex coll. Felder.

1 ♀ from Raga, Bahr-el-Ghazal, from Dr. S. Mabouf, has reached Tring since 1903. The 2 ♂♂, 1 ♀ now at Tring appear to be all the specimens recorded of this species.

152. *Lophostethus carteri* Rothsch. = *Lophostethus demolini carteri*.

*Lophostethus carteri* Rothschild, *Nov. Zool.* vol. i. p. 97 (1894) (Lagos).

Type : ♀, Lagos. Sir Gilbert Carter coll.

Since 1903 the Tring Museum has received 5 ♂♂, 2 ♀♀ from Prestea and Gold Coast ; Hesha, Nigeria ; and Kammanura, Bulamwesi, from Sir Gilbert Carter, Captain Humfrey, and Dr. Ansorge. Also a huge series from Bingerville, Ivory Coast, from Melou, and a large larva from Bihé, Angola, from W. C. Bell.

153. *Langia zenzeroides nawai* R. & J. = *Langia zenzeroides nawai*.

*Langia zenzeroides nawai* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 292 No. 247 b (1903) (Lake Biwa).

Type : ♀, Lake Biwa, Hondo, Japan. Jiomach Nawa coll.

154. *Cypa decolor euroa* R. & J. = *Cypa decolor euroa*.

*Cypa decolor euroa* Rothschild & Hartert, *Nov. Zool.* vol. ix. Suppl. p. 299. No. 253 c (1903) (Milne Bay).

Type : ♀, Milne Bay, British New Guinea, December 1898. A. S. Meek coll.

The Tring Museum has received 11 ♂♂, 1 ♀ since 1903, from Goodenough Island, D'Entrecasteaux Islands ; Biagi, Mambare River, British New Guinea ; and Mt. Goliath and Ninay Valley, Arfak Mts., Dutch New Guinea, from A. S. Meek and A. E. Pratt.

155. *Cypa perversa* Rothsch. = *Smerinthulus perversa*.

*Cypa perversa* Rothschild, *Nov. Zool.* vol. ii. p. 28 (1895) (Khasia Hills).

Type : ♂, Khasia Hills, Assam. Received from Watkins and Doncaster.

156. *Cypa mirabilis* Rothsch. = *Degmaptera mirabilis*.

*Cypa mirabilis* Rothschild, *Nov. Zool.* vol. i. p. 542 (1894) (Khasia Hills).

Type : ♀, Khasia Hills, Assam. Received from Watkins and Doncaster.

One other ♂ from the Khasias from the same source as the type has reached Tring since 1903.

157. *Cypa olivacea* Rothsch. = *Degmaptera olivacea*.

*Cypa olivacea* Rothschild, *Nov. Zool.* vol. i. p. 70. t. 7. f. 7 (1894) (Labuk).

Type : ♂, Labuk, British North Borneo, May 20, 1885. D. Cator coll.

158. *Callambulyx rubricosa amanda* R. & J. = *Callambulyx rubricosa amanda*.

*Callambulyx rubricosa amanda* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 309. No. 263<sup>c</sup> (1903) (Kina Balu).

Type : ♂, Kina Balu, N. Borneo.

The Tring Museum, since 1903, has received 2 ♂♂, 1 ♀ further specimens of this form from Malay Peninsula (Malay States), and Upper Palembang, from Völcker and Messrs. Staudinger and Bang-Haas.

159. **Ambulyx poecilus** Rothsch. = *Callambulyx poecilus*.

*Ambulyx poecilus* Rothschild, *Nov. Zool.* vol. v. p. 604. No. 4. fig. 2 (1898) (Muree).

Type : ♂, Muree, North-West Provinces of India. Received from Watkins and Doncaster.

160. **Phyllosphingia dissimilis sinensis** Jord. = *Phyllosphingia dissimilis sinensis*.

*Phyllosphingia dissimilis sinensis* Jordan, in Seitz, *Grossschm. Erde.* vol. ii. p. 247 (1911) (Shantung).

Type : ♂, Tsingtau, Province of Shantung, China. Received from Messrs. Staudinger and Bang-Haas. 2 ♂♂, 1 ♀ at Tring.

161. **Pachysphinx modesta imperator** f. temp. *kunzei* R. & J. = *Pachysphinx modesta imperator* f. temp. *kunzei*.

*Pachysphinx modesta imperator* f. temp. *kunzei* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 343. No. 280 b (1903) (Arizona).

Type : ♂, Phoenix, Arizona, U.S.A., July 8, 1897. Dr. Kunze coll.  
The Tring Museum possesses now of the 2 generations of *imperator* 33 ♂♂ and 27 ♀♀.

162. **Pachysphinx modesta regalis** R. & J. = *Pachysphinx modesta*.

*Pachysphinx modesta regalis* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 343. No. 280c (1903) (Jalisco).

Type : ♂, Jalisco, Mexico.

163. **Isognathus swainsoni** Feld. = *Isognathus swainsoni*.

*Isognathus swainsoni* Felder, *Wien. Entom. Mon.* vol. vi. p. 187. No. 175 (1862) (Rio Negro).

Type : ♂, Rio Negro, ex Felder coll.

The Tring series has been augmented by 16 ♂♂, 1 ♀, since 1903, from Minas Geraes and Rio de Janeiro, Brazil; San Antonio do Javary, Amazons; Onai and Georgetown, British Guiana, and Songo, Bolivia, from Kennedy and E. May, S. M. Klages, G. Garlepp, and the Rev. Whitford.

164. **Isognathus rimosa molitor** R. & J. = *Isognathus rimosa molitor*.

*Isognathus rimosa molitor* Rothschild & Jordan, *Nov. Zool.* vol. xxii. p. 286. No. 5 (1915) (Cape Haïtien).

Type : ♀, Cape Haïtien, Haiti. W. M. Mann coll.

165. **Erinnyis lassauxi** f. *impunctata* R. & J. = *Erinnyis lassauxi* f. *impunctata*.

*Erinnyis lassauxi* f. *impunctata* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 365. No. 293 d. (1903) (Aroa).

Type : ♂, Aroa, Venezuela. Received from Watkins and Doncaster.

The Tring series of this form has been augmented, since 1903, by 5 ♂♂, 3 ♀♀ from Caracas, Venezuela, and Sto Domingo, Carabaya, S.E. Peru, from Watkins and Doncaster, and G. R. Ockenden.

166. *Erinnyis obscura conformis* R. & J. = *Erinnyis obscura conformis*.

*Erinnyis obscura conformis* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 369. No. 298a (1903) (Galapagos Islands).

Type: ♂, Top of Crater, S.E. Albemarle Island, Galapagos Archipelago, March 27, 1902. R. H. Beck coll.

167. *Pachylia syces insularis* R. & J. = *Pachylia syces insularis*.

*Pachylia syces insularis* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 375. No. 303b (1903) (Jamaica).

Type: ♂, Jamaica.

168. *Sphinx triptolemus* Cram. = *Leucorhampha triptolemus*.

*Sphinx triptolemus* Cramer, *Pap. Exot.* vol. iii. fasc. xviii. p. 40. t. cexvi. f. F (1779) (Surinam).

Cotype: ♀, ex coll. J. C. Sylvius Van Lennep ex coll. Felder.

169. *Leucorhampha diffusa* R. & J. = *Leucorhampha diffusa*.

*Leucorhampha diffusa* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 381, No. 309. pl. vi. f. 10 (1903) (Rio Dagua).

Type: ♂, Rio Dagua, Columbia. W. F. Rosenberg coll.

170. *Hemeroplanes ornatus* Rothsch. = *Leucorhampha ornatus*.

*Hemeroplanes ornatus* Rothschild, *Nov. Zool.* vol. i. p. 9. pl. vi. f. 9 (1894) (Venezuela, err. !).

Type: ♀, Corcovado, Rio Janeiro, Brazil.

Since 1903 the series at Tring has been augmented by 87 ♂♂ of this species, 73 being from Allianca, Rio Madeira, from W. Hoffmanns, and the rest from Rio Grande do Sul; Rio Cachyaco, Iquitos; and Rio Ouapes, from E. Maxwell Stuart, Dr. Kock, and others.

171. *Hemeroplanes acuta* R. & J. = *Hemeroplanes acuta*.

*Hemeroplanes acuta* Rothschild & Jordan, *Nov. Zool.* vol. xvii. p. 451. No. 23 (1910) (Allianca).

Type: ♂, Allianca, below San Antonio, Rio Madeira, Brazil, November—December 1907. W. Hoffmanns coll.

172. *Sphinx oichus* Cram. = *Madoryx oichus*.

*Sphinx oichus* Cramer, *Pap. Exot.* vol. iii. fasc. xviii. p. 39. t. cexvi. f. C (1779) (Surinam).

Cotype or Type?: ♂, Surinam, ex coll. Van Lennep ex coll. Felder.

Cramer's figure is of a ♂ ex coll. Mr. W. van der Meulen, but this specimen agrees so well with the figure that I suggest it is the type and had passed into Van Lennep's possession. In any case, it is a cotype; (for reasons, see antea).

173. *Callioma grisescens* Rothsch. = *Hemeroplanes grisescens*.

*Callioma grisescens* Rothschild, *Nov. Zool.* vol. i. p. 73 (1894).

Type: ♀?, ex coll. Felder.

The series at Tring has been augmented, since 1903, by 28 ♂♂, 21 ♀♀ from Salta and Santiago del Estera, Argentina; and Tucuman; from J. Steinbach, P. Gerrard, and Dinelli.

†174. **Callioma ellacombei** Rothsch. = *Hemeroplanes calliomenae* (Schauf.).  
*Callioma ellacombei* Rothschild, *Nor. Zool.* vol. i. p. 74 (1894) (San Domingo).  
*Philampilus calliomenae* Schaufuss, *Nunq. Otios.* vol. i. p. 19 (1870) (Venezuela).

Type: ♀, San Domingo, West Indies (Tweedie coll.), ex coll. Felder.

175. **Hemeroplanes inuus** R. & J. = *Hemeroplanes inuus*.

*Hemeroplanes inuus* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 391. No. 321 (1903) (Rio Cachyaco).

Type: ♀, Rio Cachyaco, Province Iquitos, Upper Amazons, 1893. Maxwell Stuart coll.

Since 1903 we have received 75 ♂♂, 7 ♀♀ of this species from Allianca, Rio Madeira; Tuis and Juan Vinas, Costa Rica; and Huatuxco, Vera Cruz; from W. Hoffmanns and W. Schaus.

†176. **Tylognathus philampeloides** Feld. = *Aleuron carinata* (Walk.).

*Enyo carinata* Walker, *List Lepid. Ins. Brit. Mus.* Part viii. p. 117. No. 9 (1856) (Para).  
*Tylognathus philampeloides* Felder, *Reise Novara Lepid.* t. 75. f. 11 (1874) (Amazons).

Type: ♀, Amazons (Bates coll.), ex coll. Felder.

†177. **Tylognathus smerinthoides** Feld. = *Aleuron prominens*.

*Tylognathus smerinthoides* Felder, *Reise Novara Lepid.* t. 82. f. 5 (1874) (Amazons).

Type: ♂, Amazons (Bates coll.), ex coll. Felder.

We have received 1 ♀ from Province of Rio Janciro since 1903.

178. **Aleuron neglectum** R. & J. = *Aleuron neglectum*.

*Aleuron neglectum* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 398. No. 330. pl. lxxvi. f. 11 (1903) (Rio Cachyaco).

Type: ♂, Rio Cachyaco, Province Iquitos, 1893. Maxwell Stuart coll.

The Tring series has increased, since 1903, by 80 ♂♂, 2 ♀♀ from Allianca and Humayta, Rio Madeira; Bartica, British Guiana; Suapure, Venezuela; St. Laurent de Maroni, French Guiana; Buenavista, East Bolivia; and Sapucay, Paraguay; from W. Hoffmanns, S. M. Klages, Monsieur Le Mout, J. Steinbach, and W. Foster.

179. **Enyo pronœ fuscatus** R. & J. = *Enyo pronœ fuscatus*.

*Enyo pronœ fuscatus* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 401. No. 332b (1903) (Sta Catharina).

Type: ♂, Sta Catharina.

This is still unique, with exception of Bönninghausen's record.

180. **Epistor lugubris latipennis** R. & J. = *Epistor lugubris latipennis*.

*Epistor lugubris latipennis* Rothschild and Jordan, *Nor. Zool.* vol. ix. Suppl. p. 404. No. 333b (1903) (Jamaica).

Type: ♂, Jamaica. Taylor coll.

Since 1903 we have received 2 ♂♂ from Lord Walsingham, from Jamaica, making the Tring series 18 ♂♂, 6 ♀♀.



181. **Epistor bathus** Rothsch. = *Epistor bathus*.

*Epistor bathus* Rothschild, *Nov. Zool.* vol. xi. p. 436. No. 2 (1904) (Huancabamba).

Type : ♂, Huancabamba, Cerro de Pasco, 6,000—10,000 ft., Peru. Boettger coll.

Since 1904 5 ♂♂ of this species have reached Tring from Huancabamba, Cerro de Pasco ; Chanchamayo, and Pozuzu, Huanaco, Peru ; Chiriqui, Panama ; and Rio Songo, Bolivia ; from Boettger, W. Hoffmanns, and Fassl.

182. **Epistor taedium australis** R. & J. = *Epistor taedium australis*.

*Epistor taedium australis* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 407. No. 336b (1903) (Petropolis).

Type : ♂, Petropolis, Rio de Janeiro, Brazil.

183. **Epistor cavifer** R. & J. = *Epistor cavifer*.

*Epistor cavifer* Rothschild & Jordau, *Nov. Zool.* vol. ix. Suppl. p. 407. No. 337 (1903) (Rio Dagua).

Type : ♂, Rio Dagua, Columbia. W. Rosenberg coll.

Since 1903 we have received 9 ♂♂, 3 ♀♀, and 1 pupa of this species from Muzo, Columbia ; Quevedo, W. Ecuador ; St. Laurent de Maroni, Cayenne ; La Palma, Cundinamarca, Columbia ; Rio Songo, Bolivia ; Espirito Santo, Brazil ; Chanchamayo, and Pozuzu, Huanaco, Peru ; and Allianca, Rio Madeira, Brazil ; from A. H. Fassl, von Buchwald, Mons. Le Moul, Mons. de Mathan, Schuncke, and W. Hoffmanns.

184. **Pachygonia drucei** R. & J. = *Pachygonia drucei*.

*Pachygonia drucei* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 411. No. 341 (1903) (Chiriqui).

Type : ♂, Chiriqui, Panama. Received from Messrs. Staudinger and Bang-Haas.

Since 1903 we have received 2 ♀♀ from St. Ramon, Rio Wanks, Nicaragua ; and Bouquete, Chiriqui, Panama ; from M. G. Palmer and Watkins.

185. **Ambulyx hyposticta** Feld. = *Nyceryx hyposticta*.

*Ambulyx hyposticta* Felder, *Reise Novara Lepid.* t. 77. ff. 2, 3 (1874) (Columbia).

Type : ♂, Bogota, Columbia (Lindig coll.), ex coll. Felder.

Since 1903 the Tring Museum series have been augmented by 13 ♂♂ from Zamora, Ecuador ; Sto Domingo, Carabaya, La Oroya, Rio Inambari, Huancabamba, Cerro de Pasco, and Caradoc Marcapa, Peru ; San Antonio, West Cordillera, Cañon del Tolima, and Pichinde, Cauca Valley, Columbia ; and Pozuzu, Huanaco, Peru ; from O. T. Baron, G. R. Oekenden, Boettger, A. H. Fassl, Seydlemayer, and Paine and Brinkley.

186. **Nyceryx lunaris** Jord. = *Nyceryx lunaris*.

*Nyceryx lunaris* Jordan, *Nov. Zool.* vol. xviii. p. 599 (1911) (Macas).

Type : ♂, Macas, East Ecuador. Received from Messrs. Staudinger and Bang-Haas.

187. *Perigonia magna* Feld. = *Nyceryx magna*.

*Perigonia magna* Felder, *Reise Novara Lepid.* t. 75. f. 12 (1874) (Amazons).

Type : ♂, Amazons (Bates coll.), ex coll. Felder.

We erroneously gave Peru as type locality in our monograph (1903). We have, since 1903, received 6 ♂♂, 1 ♀ from Allianca, Rio Madeira ; Teffé, Amazons ; and Macas, East Ecuador ; from W. Hoffmanns, Mons. de Mathan ; and Messrs. Staudinger and Bang-Haas.

188. *Pachygonia maxwelli* Rothschild. = *Nyceryx maxwelli*.

*Pachygonia maxwelli* Rothschild, *Nov. Zool.* vol. iii. No. 4 (1896) (San Augustino).

Type : ♂, San Augustino, nr. Mapiri, Bolivia, 3,500 ft., September 1895. Arthur Maxwell Stuart coll.

Since 1903 we have received of this species 5 ♂♂, 1 ♀ from Zamora, Ecuador ; Rio Songo, Bolivia ; and Theresopolis, Sta Catharina, Brazil ; from O. T. Baron, J. Michaelis, and A. H. Fassl.

189. *Nyceryx eximia* R. & J. = *Nyceryx eximia*.

*Nyceryx eximia* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 116. No. 2 (1916) (Chiriqui).

Type : ♂, Chiriqui, Panama. Received from Messrs. Staudinger and Bang-Haas.

190. *Nyceryx nictitans saturata* R. & J. = *Nyceryx nictitans saturata*.

*Nyceryx nictitans saturata* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 420. No. 353b (1903) (Chanchamayo).

Type : ♂, Chanchamayo, Peru.

We have received 9 ♂♂ of this form, since 1903, from Rio Songo, Bolivia ; Macas, E. Ecuador ; and Huancabamba, Cerro de Pasco, Peru ; from A. H. Fassl, Boettger, and Messrs. Staudinger and Bang-Haas.

191. *Nyceryx continua cratera* R. & J. = *Nyceryx continua cratera*.

*Nyceryx continua cratera* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 117. No. 3 (1916) (Rio Songo).

Type : ♂, Rio Songo, Bolivia, 750 m. = 2,438 ft. A. H. Fassl coll.

192. *Pachygonia stuarti* Rothschild. = *Nyceryx stuarti*.

*Pachygonia stuarti* Rothschild, *Nov. Zool.* vol. i. p. 665 (1894) (Rio Cachyaco).

Type : ♂, Rio Cachyaco, Province Iquitos, Upper Amazons, 1893. Arthur Maxwell Stuart coll.

Since 1903 the Tring Museum has received 49 ♂♂ of this species from Allianca, Rio Madeira ; San Augustino, Mapiri, Bolivia ; and Georgetown, British Guiana ; from W. Hoffmanns, Arthur Maxwell Stuart, and Rev. Mr. Whitford.

193. *Perigonia grisea* R. & J. = *Perigonia grisea*.

*Perigonia grisea* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 424. No. 360. pl. x. f. 6 (1903) (Rio Songo—Rio Suapi).

Type: ♂, Rio Songo to Rio Suapi, Bolivia, 1,100 m. = 3,575 ft., March—June 1896. Gustav Garlepp coll.

The series at Tring has been augmented by 19 ♂♂, 4 ♀♀ from Zamora, Ecuador; Chanchamayo, Huancabamba, Cerro de Pasco, Cuzco, Pozuzu, Huanaco, and Huayabamba, S.E. of Chachapoyas, Peru; and Yungas de la Paz, Bolivia; from O. T. Baron, Schuncke, E. Boettger, W. Hoffmanns, and G. Garlepp.

194. *Perigonia pallida* R. & J. = *Perigonia pallida*.

*Perigonia pallida* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 425. No. 361 (1903) (Merida).

Type: ♂, Merida, Venezuela. Briceno coll.

4 ♂♂ have been added to the Tring series since 1903 from Port of Spain, Trinidad; Corcovado, Brazil, and Valencia, Venezuela.

195. *Perigonia leucopus* R. & J. = *Perigonia leucopus*.

*Perigonia leucopus* Rothschild & Jordan, *Nov. Zool.* vol. xvii. p. 457. No. 3 (1910) (Cuyaba).

Type: ♂, Cuyaba, Matto Grosso, Brazil. Received from Messrs. Staudinger and Bang-Haas.

196. *Stenolophia tenebrosa* Feld. = *Perigonia lusca* f. *tenebrosa*.

*Stenolophia tenebrosa* Felder, *Reise Novara Lepid.* t. 82. f. 3 (1874) (Amazons).

Type: ♀, Amazons (Bates coll.), ex coll. Felder.

The Tring Museum has received, since 1903, 10 ♂♂, 8 ♀♀ of this form from Merida, and Caracas, Venezuela; Upper Amazons; Bogota, Columbia; British Honduras; San Pedro Sula, Honduras; Dominica, and Sta Lucia, West Indian Islands; and Allianca, Rio Madeira; from Briceno, Watkins and Doncaster, E. Agar, Selwyn Branch, and W. Hoffmanns.

197. *Perigonia jamaicensis* Rothschild = *Perigonia jamaicensis*.

*Perigonia jamaicensis* Rothschild, *Nov. Zool.* vol. i. p. 69 (1894) (Jamaica).

Type: ♂, Jamaica.

2 ♀♀ have been added to the Tring series since 1903, one from St. Anne's, from Taylor.

198. *Eupyrhroglossum venustum* R. & J. = *Eupyrhroglossum venustum*.

*Eupyrhroglossum venustum* Rothschild & Jordan, *Nov. Zool.* vol. xvii. p. 453. No. 42 (1910) (Allianca).

Type: ♂, Allianca, below San Antonio, Rio Madeira, Brazil, November—December 1907. W. Hoffmanns coll.

199. *Sesia tantalus clavipes* R. & J. = *Sesia tantalus clavipes*.

*Sesia tantalus clavipes* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 436. No. 371c (1903) (Guadalajara).

Type : ♂, Guadalajara, Mexico, July 1896. Received from W. Schaus.

We have added to the Tring series, since 1903, 14 ♂♂, 4 ♀♀, from Bougava, Chiriqui, Panama ; Valencia, and Merida, Venezuela ; Central Amazons, Brazil ; Sixola River, Costa Rica ; Zamora, Ecuador ; Camoapa, W. Nicaragua ; Jalapa, Mexico ; Maripa, Caura River, Venezuela ; and Buenavista, East Bolivia ; from Watkins, Brieno, Watkins and Doncaster, W. Schaus, O. T. Baron, M. G. Palmer, S. M. Klages, G. Steinbach, and others.

200. *Haemorrhagia staudingeri ottonis* R. & J. = *Haemorrhagia staudingeri ottonis*.

*Haemorrhagia staudingeri ottonis* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 457. No. 383a (1903) (Amur).

Type : ♂, Amurland, Eastern Asiatic, Russia.

We have received, since 1903, 2 ♂♂ of this form from Pompejefka, Little Chingan Mts., and Tjutju, Sichota-Alin Mts., Eastern Asiatic Russia, from W. Mau.

201. *Haemorrhagia tityus alaiana* R. & J. = *Haemorrhagia tityus alaiana*.

*Haemorrhagia tityus alaiana* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 451. No. 379a (1903) (Alai Mts.).

Type : ♂, Alai Mts., Russian Central Asia, ex Grum-Grshmailo coll.

The series at Tring has, since 1903, been augmented by 6 ♂♂ from Aksu, Karagaitau, Juldus, Kuldcha, and Sanka, Tian Shan Mts., Russian Central Asia.

202. *Macroglossa venata* Feld. = *Haemorrhagia venata*.

*Macroglossa venata* Felder, *Sitz. Ber. K. K. Ak. Wiss. Wien.* vol. xliii. p. 29. No. 61 (1861) (Amboina).

Type : ♂, Amboina, Moluccas (Dolesehal coll.), ex coll. Felder.

This still remains unique.

203. *Sphinx pelagus* Cram. = *Haemorrhagia thysbe* f. *pelagus* = *cimbiciformis* (Steph.).

*Sphinx pelagus* Cramer, *Pap. Erot.* vol. iii. fasc. xxi. p. 53. pl. cexlviii. f. B (1779) (North America).  
*Sesia cimbiciformis* Stephens, *Illust. Brit. Entom. Haust.* Part i. p. 135. No. 3 (1828).

Cotype : ♀ ex coll. J. C. Sylvius Van Lennep ex coll. Felder.

I consider there is no doubt that this is a cotype, for Cramer had before him Van Lennep's collection and would not have noticed the slight differences.

204. *Cephonodes woodfordi* Butl. = *Cephonodes woodfordi*.

*Cephonodes woodfordi* Butler, *Trans. Entom. Soc. Lond.* p. 389. t. 12. f. 1 (1889) (Guadalecanar).

Type : ♀, Guadalecanar, Solomon Islands. H. M. Woodford coll.

One further ♂ from Bougainville, Solomon Islands, has come to hand since 1903.

205. **Cephonodes woodfordi luisae** R. & J. = *Cephonodes woodfordi luisae*.

*Cephonodes woodfordi luisae* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 464. No. 390b (1903) (Rossel Island).

Type : ♀, Rossel Island, Louisiade Archipelago, February 1898. A. S. Meek coll.

Only 1 ♀, also from Rossel Island, came to hand in 1916.

206. **Cephonodes janus austrosundanus** R. & J. = *Cephonodes janus austrosundanus*.

*Cephonodes janus austrosundanus* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 465. No. 391a (1903) (Flores).

Type : ♂, South Flores, Lesser Sunda Islands, November 1896. A. E. Everett coll.

2 ♂♂ have been added to the Tring series, since 1903, from Wetter Island, Lesser Sunda Islands ; and Tomia, Toekan Besi Islands ; from H. Kühn.

207. **Cephanodes simplex** Rothsch. = *Cephanodes janus simplex*.

*Cephanodes simplex* Rothschild, *Nor. Zool.* vol. i. p. 66. pl. v. f. 1 (1894) (Lifu).

Type : ♂, Lifu, Loyalty Islands. Received from Watkins and Doncaster. The type appears to be unique, no further specimens being on record.

†208. **Cephanodes unicolor** Rothsch. = *Cephanodes janus janus*.

*Cephanodes unicolor* Rothschild, *Nor. Zool.* vol. iii. p. 231 (1896) (Duaringa).

Type : ♂, Coomooboolaroo, Duaringa, Dawson District, Queensland. Barnard coll.

209. **Cephonodes xanthus** R. & J. = *Cephonodes xanthus*.

*Cephonodes xanthus* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 465. No. 392. pl. v. f. 17 (1903) (Okinawa).

Type : ♀, Kimmura, Okinawa, Loo Choo Islands, August 26, 1891. Dr. A. Fritze coll.

This also appears to be unique.

210. **Macroglossum trochilus** Guér. = *Cephonodes trochilus*.

*Macroglossum trochilus* Guérin in Deless. *Voy. Ind. Or.* p. 81 (1843) (Mauritius).

Type : ♂, Mauritius.

211. **Cephonodes leucogaster** R. & J. = *Cephonodes leucogaster*.

*Cephonodes leucogaster* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 469. No. 396 (1903) (Madagascar).

Type : ♂, Antanambé, Bai d'Antongil, Madagascar, March—April 1897. A. Moequerys coll.

1 ♂, 1 ♀ have been procured by the Tring Museum, since 1903, from Tamatave, Madagascar, from H. Rolle.

212. **Cephanodes titan** Rothsch. = *Cephanodes titan*.

*Cephanodes titan* Rothschild, *Nov. Zool.* vol. vi. p. 69, No. 6 (1899) (Amboina).

Type : ♀, Amboina. Received from Mons. H. Donckier.

213. **Cephanodes armatus armatus** R. & J. = *Cephanodes armatus armatus*.

*Cephanodes armatus armatus* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 470, No. 399a (1903) (Fiji Islands).

Type : ♂, Suva, Viti Levu, Fiji Islands. Charles M. Woodford coll.

214. **Cephanodes lifuensis** Rothsch. = *Cephanodes lifuensis*.

*Cephanodes lifuensis* Rothschild, *Nov. Zool.* vol. i. p. 66 (1894) (Lifu).

Type : ♀, Lifu, Loyalty Islands. Received from Watkins and Doncaster.

215. **Sphinx picus** Cram. = *Cephanodes picus*.

*Sphinx picus* Cramer, *Pap. Exot.* vol. ii. fasc. xiii. p. 83, pl. cxlviii. f. B (1777) (Coast of Coromandel).

Type : ♀ ex coll. J. C. Sylvius Van Lennep ex coll. Felder.

Cramer says that the insects figured at A and B and EF on this plate were in the collection of Mr. C. Stoll, while C and D were in the Van Lennep collection. I believe, however, that many of Stoll's and other collectors' specimens mentioned by Cramer afterwards passed into the hands of Van Lennep, and so I think we can assume this is the actual type. In any case it is a cotype.

216. **Sataspes tagalica** f. *thoracica* R. & J. = *Sataspes tagalica* f. *thoracica*.

*Sataspes tagalica* f. *thoracica* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 474, No. 402b<sup>1</sup> (1903) (Khasia Hills).

Type : ♂, Khasia Hills, Assam (Native coll.). Received from Watkins and Doncaster.

The Tring Museum has received, since 1903, 4 ♂♂ of this form out of the Elwes collection from Sikkim and Burmah, from Otto Möller and Adamson.

217. **Sataspes tagalica** f. *collaris* R. & J. = *Sataspes tagalica* f. *collaris*.

*Sataspes tagalica* f. *collaris* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 474, No. 402c<sup>1</sup> (1903) (Burmah).

Type : ♂, Burmah. Received from Messrs. Staudinger and Bang-Haas.

The following six species have accidentally been omitted from their proper sequence.

218. **Sphinx ligustri nisseni** R. & J. = *Sphinx ligustri nisseni*.

*Sphinx ligustri nisseni* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 253, No. 12 (1916) (Hammam Meskoutine).

Type : ♂, Hammam Meskoutine, Province of Constantine, Algeria, April 22nd, 1914. Dr. H. Nissen coll.

219. **Cornipalpus succinctus** Feld. = *Enyo jupix* (Cram.).

*Cornipalpus succinctus* Felder, *Reise Novara Lepid.* tab. lxxxii. f. 6 (1874) (America).

*Sphinx jupix* Cramer, *Pap. Exot.* vol. i. fasc. viii. p. 137, pl. lxxxvii. f. C (1776) (New York).

Type : ♂, America, ex Museum Berol ex coll. Felder.

†220. *Sphinx camertus* Cram. = *Epistor lugubris lugubris* (Drury) ♀.

*Sphinx camertus* Cramer, *Pap. Exot.* vol. iii, fasc. xix, p. 53, pl. ccxxv, f. A (1779) (Surinam).  
*Sphinx lugubris* Drury, *Illustr. Exot. Entom.* vol. i, p. 61, t. 28, f. 2 [Index Scient. name] (1770) (Antigua).

Cotype : ♀ ex coll. C. Van Lennep ex coll. Felder.

The type of Cramer's plate was in the collection of Mr. W. Van der Meuler, but all Van Lennep's specimens are cotypes where they are not actual types.

†221. *Sphinx fegeus* Cram. = *Epistor lugubris lugubris* (Drury) ♂.

*Sphinx fegeus* Cramer, *Pap. Exot.* vol. iii, fasc. xix, p. 56, pl. ccxxv, f. E (1779) (Surinam).  
*Sphinx lugubris* Drury, *Illustr. Exot. Entom.* vol. i, p. 61, t. 28, f. 2 (1770) (Antigua).

Cotype : ♂ ex coll. C. Van Lennep ex coll. Felder.

The same remarks apply to this as to the preceding.

†222. *Sphinx danum* Cram. = *Epistor ocypte* (Linn.) ♂.

*Sphinx danum* Cramer, *Pap. Exot.* vol. iii, fasc. xix, p. 53, pl. ccxxv, f. B (1779) (Surinam).  
*Sphinx ocypte* Linnaeus, *Syst. Nat.* ed. x, p. 498, No. 4 (1758).

Cotype : ♂, Surinam, ex coll. C. Van Lennep, ex coll. Felder.

The same remarks apply to this also.

†223. *Sphinx lyctus* Cram. = *Epistor gorgon* (Cram.) ♂.

*Sphinx lyctus* Cramer, *Pap. Exot.* vol. iii, fasc. xix, p. 56, pl. ccxxv, f. F, (1779) (Surinam).  
*Sphinx gorgon* Cramer, *Pap. Exot.* vol. ii, fasc. xii, p. 73, pl. cxiii, f. E (1777) (Surinam).

Type : ♂, Surinam, ex coll. C. Van Lennep ex coll. Felder.

The same remarks apply here also.

224. *Pholus triangulum* R. & J. = *Pholus triangulum*.

*Pholus triangulum* Rothschild & Jordan, *Nov. Zool.* vol. ix, Suppl. p. 479, No. 405, pl. lxxvi, f. 2 (1903) (Huataxco).

Type : ♂, Huataxco, Vera Cruz, Mexico.

The series at Tring, since 1903, has been increased by 61 specimens of both sexes from Tuis, Costa Rica; Zamora, Ecuador; and Pozuzu, Huanaco, Peru; from W. Schaus, O. T. Baron, and W. Hoffmanns.

225. *Pholus satellitia analis* R. & J. = *Pholus satellitia analis*.

*Pholus satellitia analis* Rothschild & Jordan, *Nov. Zool.* vol. ix, Suppl. p. 482, No. 406d, (1903) (Paraguay).

Type : ♂, Paraguay. Dr. Bohls coll.

22 specimens (3 ♂♂) have been added to the Tring series, since 1903, from Sapucay and Patino Cué, Paraguay; and Petropolis, Castro, Parana; Nivac, Mattogrosso, and Sta Catharina, Brazil; from W. Foster, E. D. Jones, and others.

226. *Dupo domingonis* Rothsch. = *Pholus strenua* (Ménétr.).

*Dupo domingonis* Rothschild, *Nov. Zool.* vol. i, p. 83, (1894) (San Domingo).

*Chaerocampa strenua* Ménétries, *Enum. Corp. Anim. Mus. Petr. Lepid.* p. 132, No. 1523, t. 12, f. 3 (1857) (Haiti).

Type : ♂, San Domingo.

227. *Pholus drucei* R. & J. = *Pholus drucei*.

*Pholus drucei* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 483. No. 407. pl. ii. f. 3 (1903) (Ecuador).

Type: ♂, Ecuador. Received from Emile Deyrolle fils.

We have received 2 ♂♂, 2 ♀♀, since 1903, from Guayaquil, West Ecuador, from von Buchwald.

228. *Pholus neuburgeri* R. & J. = *Pholus neuburgeri*.

*Pholus neuburgeri* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 483. No. 408. pl. ii. f. 4 (1903) (Argentina).

Type: ♂, Argentina, ex coll. Neuburger.

This appears to be still unique.

229. *Philampelus cissi* Schauf. = *Pholus cissi*.

*Philampelus cissi* Schaufuss, *Nunq. Otios.* vol. i. p. 19 (1870) (Venezuela).

Cotypes: 1 ♂, 1 ♀, Venezuela (Moritz coll.), ex coll. Felder.

The series at Tring, since 1903, has increased by 17 ♂♂, 8 ♀♀, from Huanca-bamba, Cerro de Pasco, and Pozuzu, Huanuco, Peru; and Zamora, Ecuador; from E. Boettger, W. Hoffmanns, and O. T. Baron.

230. *Pholus obliquus* R. & J. = *Pholus obliquus*.

*Pholus obliquus* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 486. No. 411. pl. lxvi. f. 1 (1903) (Rio Dagua).

Type: ♂, Rio Dagua, Columbia. W. Rosenberg coll.

We have received 6 ♂♂, 6 ♀♀, since 1903, from Tuis, Costa Rica; Zamora, Ecuador; Cayenne; Belmont, Port of Spain, Trinidad; St. Laurent de Maroni, Cayenne; Georgetown, British Guiana; and Jalapa, Mexico; from W. Schaus, O. T. Baron, E. Lafond, Mons. Le Mout, and the Rev. Whitford.

231. *Pholus adamsi* R. & J. = *Pholus adamsi*.

*Pholus adamsi* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 488. No. 413 (1903) (Venezuela).

Type: ♂, Venezuela, ex coll. H. J. Adams.

We have added 1 ♂ from Sao Paulo to the Tring Museum since 1903.

232. *Pholus vitis fuscatus* R. & J. = *Pholus vitis fuscatus*.

*Pholus vitis fuscatus* Rothschild & Jordan, *Nov. Zool.* vol. xiii. p. 181. No. 7 (1906) (Sta Lucia).

Type: ♀, Island of Sta Lucia, West Indies, May 26, 1904. Selwyn Branch coll.

Since 1910 the Tring Museum has received 4 ♀♀ from Dominica, West Indies, from E. A. Agar.

†233. *Sphinx crantor* Cram. = *Pholus achemon* (Drury).

*Sphinx crantor* Cramer *Pap. Exot.* vol. ii. fasc. ix. p. 11. pl. civ. f. A (1774) (East Indies !!).

*Sphinx achemon* Drury, *Illustr. Exot. Entom.* vol. ii. p. 51. pl. xxix. f. 1. Index (1773) (Jamaica !!).

Type: ♀, ex coll. J. C. Sylvius Van Lennep ex coll. Felder.

The following 2 types were omitted from their right sequence.



234. **Sphinx hannibal** Cram. = *Protoparce hannibal*.

*Sphinx hannibal* Cramer, *Pap. Exot.* vol. iii. fasc. xviii. p. 39. pl. ccxvi. f. A (1779) (Surinam),

Cotype: ♂, ex coll. J. C. Sylvius Van Lennep ex coll. Felder.

235. **Sphinx caicus** Cram. = *Grammodia caicus*.

*Sphinx caicus* Cramer, *Pap. Exot.* vol. ii. fasc. xi. p. 42. pl. cxxv. f. F (1777) (Surinam),

Type: ♂, ex coll. J. C. Sylvius Van Lennep ex coll. Felder.

236. **Chromis meeki** R. & J. = *Chromis meeki*.

*Chromis meeki* Rothschild & Jordan, *Nov. Zool.* vol. xiv. p. 93. No. 4 (1907) (Biagi).

Type: ♂, Biagi, Upper Mamberé River, British New Guinea, January—April 1906. A. S. Meek coll.

Besides the series of 18 specimens from Biagi, the Tring Museum now possesses 3 ♂♂, 10 ♀♀ from Ninay Valley, Arfak Mts., nr. Oetakwa River, Snow Mts., and Mt. Goliath, Snow Mts., Dutch New Guinea; and Angabunga River, and Owarra, Aroa River, British New Guinea; from A. E. Pratt and A. S. Meek.

†237. **Theretra alberti** Rothsch. = *Chromis heliodes* (Meyr.).

*Theretra alberti* Rothschild, *Nov. Zool.* vol. ii. p. 162. pl. ix. f. 9 (1895) (Fergusson Island).

Type: ♂, Fergusson Island, D'Entrecasteaux Islands, October—November 1894. A. S. Meek coll.

The Tring Museum series, since 1903, has been augmented by 33 specimens of both sexes, from Ninay Valley, Arfak Mts., Upper Setekwa River, nr. Oetakwa River, and Mt. Goliath, Dutch New Guinea; Stephansort, and Bongu, Huon Gulf, N.E. New Guinea; Biagi, Mamberé River, and Kumusi River, N.E. British New Guinea; and Goodenough Island, D'Entrecasteaux Islands; from A. E. Pratt, A. S. Meek, and C. Wahnes.

238. **Daphnis dohertyi** Rothsch. = *Deilephila dohertyi dohertyi*.

*Daphnis dohertyi* Rothschild, *Nov. Zool.* vol. iv. p. 307. No. 2 (1897) (Kapaur).

Type: ♂, Kapaur, Dutch New Guinea, December 1896. W. Doherty coll.

5 ♂♂, 6 ♀♀ have been added to the series at Tring, since 1903, from Sudest Island, and Rossel Island, Louisiade Archipelago; Ekeikei, British New Guinea; and Ninay Valley, Arfak Mts., Dutch New Guinea; from A. S. Meek and A. E. Pratt.

239. **Deilephila dohertyi callusia** R. & J. = *Deilephila dohertyi callusia*.

*Deilephila dohertyi callusia* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 120. No. 9 (1916) (Choiseul).

Type: ♂, North side of Choiseul Island, Solomon Islands, December 1903. A. S. Meek coll.

240. **Deilephila placida salomonis** R. & J. = *Deilephila placida salomonis*.

*Deilephila placida salomonis* Rothschild & Jordan, *Nov. Zool.* vol. xiii. p. 181. No. 8 (1906) (New Georgia).

Type: ♂, New Georgia, Solomon Islands, March 1904. A. S. Meek coll.

† 241. *Daphnis torrenia rosacea* Rothsch. = *Deilephila placida torrenia* (Druce).  
*Daphnis torrenia* Druce, subsp. *rosacea* Rothschild, *Nor. Zool.* vol. i. p. 85 (1894) (Lifu).

Type: ♂, Lifu, Loyalty Islands. Received from Watkins and Doncaster.

† 242. *Daphnis gloriosa* Rothsch. = *Deilephila hypothous pallescens* (Butl.).  
*Daphnis gloriosa* Rothschild, *Nor. Zool.* vol. i. p. 85 (1894) (Borneo! ?).

Type: ♂, Borneo (*loc. err.* R. & J.). Received from Emile Deyrolle et fils. It is quite certain that this is a rather worn specimen of *h. pallescens* and not true *hypothous*, and must have come from a locality east of the Moluccas.

243. *Ampelophaga khasiana* Rothsch. = *Ampelophaga khasiana khasiana*.  
*Ampelophaga khasiana* Rothschild, *Nor. Zool.* vol. ii. p. 482. No. 1 (Khasia Hills).

Type: ♂, Khasia Hills, Assam. Received from Watkins and Doncaster.

1 ♂ from the Khasia Hills from the same source has been secured by the Tring Museum, since 1903.

244. *Ampelophaga khasiana malayana* R. & J. = *Ampelophaga khasiana malayana*.  
*Ampelophaga khasiana malayana* Rothschild & Jordan, *Nor. Zool.* vol. xxii. p. 286. No. 6 (1915) (Perak).

Type: ♀, Batang, Padang Valley, Perak, 1,250 m. = 4,063 ft., September—October, 1910. E. Stresemann coll.

245. *Acosmeryx anceus subdentata* R. & J. = *Acosmeryx anceus subdentata*.  
*Acosmeryx anceus subdentata* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 528. No. 444a (1903) (Sikkim).

Type: ♂, Sikkim, July—September. Received from Fruhstorfer.

The Tring Museum series, since 1903, has been augmented by 7 ♂♂, 4 ♀♀ from Darjeeling, Sikkim; West Java; Palawan; Buxa, Bhutan; and Sarawak, Borneo; from Fruhstorfer, Fritz Möller, H. S. Young, and others.

246. *Acosmeryx omissa* R. & J. = *Acosmeryx omissa*.  
*Acosmeryx omissa* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 530. No. 447 (1903) (Buxa).

Type: ♂, Buxa, Bhutan.

1 ♂ ex coll. H. J. Elwes (without locality) has been added to the Tring series since 1903.

247. *Acosmeryx castanea* R. & J. = *Acosmeryx castanea*.  
*Acosmeryx castanea* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 531. No. 448 (1903) (Yokohama).

Type: ♂, Yokohama, June 25, 1896.

There is an adult larva labelled "Japan," from the Pryer collection, at Tring.

248. *Panacra micholitzi* R. & J. = *Panacra micholitzi*.

*Panacra micholitzi* Rothschild & Jordan, *Ann. Mag. Nat. Hist.* (6) xii. p. 456. No. 2 (1893) (Simbang).

Type : ♂, Simbang, N.E. New Guinea, June 1893. Micholitz coll. Received from F. Sander & Co.

Since 1903 we have received 2 ♂♂, 1 ♀ from Biagi, Mamberé River, and Haidana, Collingwood Bay, N.E. British New Guinea, from A. S. Meek.

249. *Panacra pulchella* R. & J. = *Panacra pulchella*.

*Panacra pulchella* Rothschild & Jordan, *Nov. Zool.* vol. xiv. p. 94. No. 5 (1907) (Biagi).

Type : ♂, Biagi, Mamberé River, N.E. British New Guinea, 5,000 ft., March 1906. A. S. Meek coll.

250. *Panacra busiris marina* R. & J. = *Panacra busiris marina*.

*Panacra busiris marina* Rothschild & Jordan, *Nov. Zool.* vol. xxii. p. 287. No. 8 (1915) (Andamans).

Type : ♂, Andaman Islands.

251. *Angonyx splendens* Rothsch. = *Panacra splendens*.

*Angonyx splendens* Rothschild, *Nov. Zool.* vol. i. p. 82. pl. v. f. 15 (1894) (Queensland).

Type : ♀, Queensland. Received from Watkins and Doneaster.

9 ♂♂, 14 ♀♀ have been added to the Tring series, since 1903, from Wokan, Aru Islands ; Little Key, Key Islands ; Kuranda, Cairns, Queensland ; Barnard Island ; Biagi, Mamberé, and Kumusi River, British New Guinea ; nr. Oetakwa River, Dutch New Guinea ; and Bougainville, Choiseul, Guizo, and Rendova Islands, Solomon Islands ; from A. E. Pratt, H. Kühn, W. P. Dodd, and A. S. Meek.

252. *Panacra malayana* R. & J. = *Panacra malayana*.

*Panacra malayana* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 537. No. 454. pl. vii. f. 24 (1903) (Java).

Type : ♀, South Java, 1,500 ft. 1896. H. Fruhstorfer coll.

Since 1903, 27 ♂♂, 24 ♀♀ have been added to the Tring Museum, from North Nias and Pulo Nias, from Watkins and Doneaster, and Kannegieter ex coll. Van de Poll.

253. *Panacra dohertyi* Rothsch. = *Panacra dohertyi*.

*Panacra dohertyi* Rothschild, *Nov. Zool.* vol. i. p. 81 (1894) (Gunong Ijau).

Type : ♀, Gunong Ijau, Perak. W. Doherty coll.

5 ♂♂, 2 ♀♀, have been received at Tring, since 1903, from Assam ; Pulo Nias ; and Baram District, Sarawak, Borneo ; from Kannegieter ex coll. Van de Poll, and Charles Hose.

254. *Panacra sinuata* R. & J. = *Panacra sinuata*.

*Panacra sinuata* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 539. No. 459. pl. vi. f. 13 (1903) (Sikkim).

Type : ♂, Sikkim, July—September. Received from Fruhstorfer.

We have received, since 1903, 10 ♂♂, 1 ♀ from Darjeeling, Sikkim ; and Khasia Hills, Assam ; from F. Möller, and Knyvett, ex coll. H. J. Elwes.

255. *Panacra hamiltoni* Rothsch. = *Panacra variolosa* (Walk.).

*Panacra hamiltoni* Rothschild, *Nov. Zool.* vol. i. p. 82 (1894) (Khasia Hills).

*Panacra variolosa* Walker, *List Lepid. Ins. Brit. Mus.* Part viii. p. 156. No. 4 (1856) (Silhet).

Type : ♂, Khasia Hills, Assam (Hamilton coll.). Received from Watkins and Doncaster.

1 ♀ from Khasia Hills has been received at Tring, since 1903.

†256. *Panacra variegata* Rothsch. = *Panacra mydon elegantulus* (Herr.-Sch.) ♂.

*Panacra variegata* Rothschild, *Nov. Zool.* vol. i. p. 81 (1894) (Philippines).

*Thyreus elegantulus* Herrich-Schaeffer, *Aussereur. Schmeth.* f. 479 (1856) (Java).

Type : ♂, Philippine Islands.

†257. *Panacra perakana* Rothsch. = *Panacra mydon elegantulus* (Herr.-Sch.) ♀.

*Panacra perakana* Rothschild, *Nov. Zool.* vol. i. p. 81 (1894) (Gunong Ijau).

*Thyreus elegantulus* Herrich-Schaeffer, *l.c.*

Type : ♀, Gunong Ijau, Perak. Received from Watkins and Doncaster.

We have received, since 1903, 18 ♂♂, 35 ♀♀ of *Panacra mydon elegantulus* from various places in Sumatra and Nias, from Kannegieten and others, mostly out of the Van de Poll collection.

258. *Panacra excellens* Rothsch. = *Angonyx excellens*.

*Panacra excellens* Rothschild, *Ann. Mag. Nat. Hist.* (8) viii. p. 234. No. 2 (1911) (Oetakwa River).

Type : ♂, Nr. Oetakwa River, Snow Mts., Dutch New Guinea, up to 3,000 ft., October—December 1910. A. S. Meek coll.

259. *Angonyx testacea papuana* R. & J. = *Angonyx testacea papuana*.

*Angonyx testacea papuana* Rothschild & Jordan *Nov. Zool.* vol. ix. Suppl. p. 544. No. 463b (1903) (Cedar Bay).

Type : ♂, Cedar Bay, Queensland. A. S. Meek coll.

2 ♂♂, 5 ♀♀ have been added to the Tring series, since 1903, from German New Guinea ; and Biagi, Mambaré River ; and Upper Aroa River, British New Guinea ; from C. Wahnes and A. S. Meek.

260. *Angonyx meeki* R. & J. = *Angonyx meeki*.

*Angonyx meeki* Rothschild & Jordau, *Nov. Zool.* vol. ix. Suppl. p. 545. No. 465. pl. ii. f. 6 (1903) (Guadalcanar).

Type : ♂, Guadalcanar, Solomon Islands, May 1901. A. S. Meek coll.

In our monograph we enumerated the ♀♀ of *A. meeki* as the ♀♀ of *A. testacea papuana*, not having any ♀♀ of that insect at that time. We have since the publication of the monograph added 21 ♂♂, 7 ♀♀ to the Tring series, from Bougainville, Choiseul, Guizo, Rendova, Florida, and Tulagi Islands, Solomon Islands ; from A. S. Meek, and Charles M. Woodford.

261. **Angonyx boisduvali** Rothsch. = *Angonyx boisduvali*.

*Angonyx boisduvali* Rothschild, *Nov. Zool.* vol. i. p. 82 (1894) (Guadalecanar).

Type : ♀, Guadalecanar, Solomon Islands. Charles M. Woodford coll.

We have received 5 ♂♂, 2 ♀♀, since 1903, from New Georgia, and Tulagi and Bougainville Islands, Solomon Islands ; from A. S. Meek and Charles M. Woodford.

262. **Enpinanga labuana oceanica** R. & J. = *Enpinanga labuana oceanica*.

*Enpinanga labuana oceanica* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 120. No. 10 (1916) (Andamans).

Type : ♀, Andaman Islands. Received from J. W. Kaye.

263. **Microlophia sculpta** Feld. = *Cizara sculpta*.

*Microlophia sculpta* Felder, *Reise Novara Lepid.* t. 75. f. 9 (1874) (Siam).

Type : ♂, Siam (Lorquin coll.), ex coll. Felder.

We have received, since 1903, 1 ♀ from Moulmein, Burma.

264. **Maassenia heydeni comorana** R. & J. = *Maassenia heydeni comorana*.

*Maassenia heydeni comorana* Rothschild & Jordan, *Nov. Zool.* vol. xxii. p. 286. No. 7 (1915) (Grande Comoro).

Type : ♂, Grande Comoro, Comoro Islands, September 1911 (G. F. Leigh).

†265. **Sphinx morpheus** Cram. = *Nephele didyma* f. *didyma* (Fab.).

*Sphinx morpheus* Cramer, *Pap. Exot.* vol. ii. fasc. xiii. p. 84. pl. cxlix. f. D (1777) (Coast of Coromandel).

Cotype : ♀, ex coll. J. C. Sylvius Van Lennep, ex coll. Felder.

266. **Nephele xyliana** R. & J. = *Nephele xyliana*.

*Nephele xyliana* Rothschild and Jordan, *Nov. Zool.* vol. xvii. p. 457. No. 4 (1910) (Abyssinia).

Type : ♀, Abyssinia. Received from Messrs. Staudinger and Bang-Haas.

267. **Nephele funebris** f. *conimacula* R. & J. = *Nephele funebris*  
f. *conimacula*.

*Nephele funebris* f. *conimacula* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 558. No. 478ab<sup>1</sup> (1903) (Sierra Leone).

Type : ♀, Sierra Leone.

7 ♂♂, 4 ♀♀ have been received at Tring, since 1903, from Mayotte Island, Comoro Islands ; and Nguelo, Usambara, Dar-es-Salaam ; and Uluguru, German East Africa ; from G. F. Leigh, Neuburger, and H. Rolle.

268. **Nephele funebris maculosa** f. *maculosa* R. & J. = *Nephele*  
*maculosa* f. *maculosa*.

*Nephele funebris maculosa* f. *maculosa* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 558. No. 478bc<sup>1</sup> (1903) (Yakusu).

Type : ♂, Yakusu, Upper Congo, May 1900. Rev. Kenred Smith coll.

269. *Nephele funebris maculosa* f. *ovifera* R. & J. = *Nephele maculosa*  
f. *ovifera*.

*Nephele funebris maculosa* f. *ovifera* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 558. No. 478b<sup>d</sup> (1903) (Yakusu).

Type : ♂ Yakusu, Upper Congo, May 1900. Rev. Kenred Smith coll.

We have now, after examining further material, come to the conclusion that *maculosa* is a distinct species and **not** a subspecies of *funebris*. We have received, since 1903, 30 ♂♂, 5 ♀♀ of the form *maculosa* and 5 ♂♂ of the form *ovifera* from Luebo, and Luluaburg, Kassai, Congo ; Niger Coast ; and Abonondo, Camaroons ; from P. Landbeck, Taymans, per J. Linden & Sons, and others.

†270. *Nephele aureomaculata* Rothsch. = *Nephele discifera* Karsch f. *discifera*.

*Nephele aureomaculata* Rothschild, *Nor. Zool.* vol. i. p. 88 (1894) (Upper Congo).

*Nephele peneus* (Cr.) f. *discifera* Karsch, *Entom. Nachr.* vol. xvii. p. 298 (1891) (Camaroons).

Type : ♀, Upper Congo.

The Tring Museum has received, since 1903, 7 ♂♂, 3 ♀♀ from Kumasi, West Africa ; Luebo, Kassai, and Bopoto, Congo ; from D. Sanders, P. Landbeck, and the Rev. Kenred Smith.

271. *Nephele discifera* f. *rattraya* Rothsch. = *Nephele discifera* f. *rattraya*.

*Nephele discifera* f. *rattraya* Rothschild, *Nor. Zool.* vol. xi. p. 436. No. 3 (1904) (Kampala).

Type : ♂, Kampala, Uganda. Captain H. B. Rattray coll.

We have received 2 ♂♂, 1 ♀ of this form, since 1903, from Kumasi, West Africa ; from D. Sanders.

272. *Nephele peneus* f. *innotata* R. & J. = *Nephele peneus* f. *innotata*.

*Nephele peneus* f. *innotata* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 560. No. 481b<sup>1</sup> (1903) (Sierra Leone).

Type : ♀, Sierra Leone.

The series at Tring of this form has been augmented by 5 ♂♂, 3 ♀♀ from Moyambe, Sierra Leone ; Lagos, Nigeria ; Accra, Gold Coast ; Casamance, Senegal ; and Kumasi, West Africa ; from Laglaize, D. Cator, and D. Sanders.

†273. *Zonilia malgassica* Feld. = *Nephele densoi* (Keferst.).

*Zonilia malgassica* Felder, *Reise Novara Lepid.* tab. 76. f. 2 (1874) (Madagascar).

*Zonilia densoi* Keferstein, *Jahrb. Akad. Erfurt.* (2) vi. p. 14. t. 2. f. 5 (1870) (Madagascar).

Type : ♂, Madagascar, ex coll. Felder.

274. *Nephele oenopion stictica* R. & J. = *Nephele oenopion stictica*.

*Nephele oenopion stictica* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 562. No. 485b (1903) (Grande Comore).

Type : ♂, Grande Comore, Comoro Islands. Received from Mr. R. Oberthür.

275. *Nephele oenopion continentis* R. & J. = *Nephele oenopion continentis*.

*Nephele oenopion continentis* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 562. No. 485c (1903) (Sierra Leone).

Type : ♂, Sierra Leone, August 1898. Captain Stevens coll.

276. *Temnora oxyptera* R. & J. = *Temnora oxyptera*.

*Temnora oxyptera* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 119. No. 8 (1916) (Chintriehe).

Type : ♂, Chintriehe, Nyassaland.

277. *Temnora aureata* R. & J. = *Temnora aureata*.

*Temnora aureata* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 569. No. 491 (1903) (Camaroons).

Cotype (Paratype) : ♀, Barombi Station, Camaroons. Dr. Preuss coll. Received from the Berlin Museum.

Since 1903 the Tring Museum has received 11 ♂♂, 2 ♀♀ from Pungo Andongo, Angola ; Entebbe and Kampala, Uganda ; Nguelo, Usambara, German East Africa ; and Eldoma Ravine, British East Africa ; from A. von Homeyer, H. R. Gallatly, and H. Rolle.

278. *Lophurion inornatum* Rothsch. = *Temnora inornatum*.

*Lophurion inornatum* Rothschild, *Nov. Zool.* vol. i. p. 71. t. v. f. 8 (1894) (Namaqualand).

Type : ♂, Little Namaqualand, Cape Colony. Received from Watkins and Doncaster.

5 ♂♂, 2 ♀♀ have been added to the series at Tring, since 1903, from Durban, Natal ; from G. F. Leigh.

279. *Temnora namaqua* R. & J. = *Temnora namaqua*.

*Temnora namaqua* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 571. No. 496. pl. vii. f. 2 (1903) (Little Namaqualand).

Type : ♂, Little Namaqualand, Cape Colony. Received from Watkins and Doncaster.

We have received, since 1903, 2 ♀♀ of this species from Amshaw, Cape Colony, from Miss Barrett.

280. *Temnora stevensi* R. & J. = *Temnora stevensi*.

*Temnora stevensi* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 571. No. 497. pl. vii. f. 15 (1903) (Port Lokkoh).

Type : ♂, Port Lokkoh, Suza Country, Sierra Leone, July 1899. Captain Stevens coll.

1 ♂ from Ilesha, South Nigeria, from Captain Humfrey, has reached Tring since 1903.

281. *Temnora subapicalis* R. & J. = *Temnora subapicalis*.

*Temnora subapicalis* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 572. No. 498. pl. vii. ff. 3, 4 (1903) (Kikuyu).

Type : ♀, Kikuyu Escarpment, British East Africa, 6,500—9,000 ft., February 1901. W. Doherty coll.

This has remained unique.

†282. *Diodosida brunnea* Rothsch. = *Temnora marginata marginata* (Walk.).

*Diodosida brunnea* Rothschild, *Nov. Zool.* vol. i. p. 72 (1894) (Namaqualand).

*Darapsa marginata* Walker, *List Lepid. Ins. Brit. Mus.* Part viii. p. 185. No. 5 (1856) (Natal).

Type : ♀, Little Namaqualand, Cape Colony. Received from Watkins and Doncaster.

The series at Tring has been augmented, since 1903, by 4 ♂♂, 7 ♀♀ of this form from Chintriche, Nyassaland ; and Durban, Natal ; from G. F. Leigh and others.

283. *Temnora marginata comorana* R. & J. = *Temnora marginata comorana*.

*Temnora marginata comorana* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 573. No. 499b. pl. vii. f. 4 (1903) (Grande Comore).

Type : ♂, Grande Comore, Comoro Islands. Received from Mons. R. Oberthür.

284. *Temnora leighi* R. & J. = *Temnora leighi*.

*Temnora leighi* Rothschild & Jordan, *Nov. Zool.* vol. xxii. p. 287. No. 9 (1915) (Anjouan Island).

Type : ♂, Anjouan Island, Comoro Islands, July 15, 1911. G. F. Leigh coll.

285. *Temnora albilinea* R. & J. = *Temnora albilinea*.

*Temnora albilinea* Rothschild & Jordan, *Nov. Zool.* vol. xi. p. 436. No. 4 (1904) (Pungo Andongo).

Type : ♂, Pungo Andongo, Angola, June 1875. A. von Homeyer coll.

Since 1904 we have received 2 ♂♂, 2 ♀♀ of this species from Entebbe, Uganda ; and the original series from Pungo Andongo consists also of 2 ♂♂ and 2 ♀♀.

286. *Temnora curtula* R. & J. = *Temnora curtula*.

*Temnora curtula* Rothschild & Jordan, *Nov. Zool.* vol. xv. p. 260. No. 5 (1908) (Entebbe).

Type : ♀, Entebbe, Uganda. F. J. Jackson coll.

This specimen appears so far the only one on record.

†287. *Diodosida uniformis* Rothsch. = *Temnora zantus* (Walk.).

*Diodosida uniformis* Rothschild, *Nov. Zool.* vol. i. p. 72 (1894) (Sierra Leone).

*Enyo uniformis* Walker, *List Lepid. Ins. Brit. Mus.* Part viii. p. 116. No. 7 (1856) (Sierra Leone).

Type : ♀, Sierra Leone.

The Tring series, since 1903, has been augmented by 9 ♂♂, 7 ♀♀ of this species from Dimbroko and Bingerville, Ivory Coast ; Entebbe, Uganda ; Nguelo, Usambara, German East Africa ; and Luebo, Kassai, Congo ; from J. Dyot, G. Melou, H. Rolle, Captain H. B. Rattray, and P. Landbeck.

†288. *Lophuron maculatum* Rothsch. = *Temnora plagiata plagiata* Walk.

*Lophuron maculatum* Rothschild, *Nov. Zool.* vol. i. p. 71 (1894) (Natal).

*Temnora plagiata* Walker, *List Lepid. Ins. Brit. Mus.* viii. p. 105. No. 2 (1856) (Natal).

Type : ♀, Natal. Received from Watkins and Doncaster.

5 ♂♂ and an adult larva have been added to the Tring series, since 1903, from Caffraria !, Natal, and Cape Colony ; from Miss Barrett and G. F. Leigh.



289. *Temnora plagiata fuscata* R. & J. = *Temnora plagiata fuscata*.

*Temnora plagiata fuscata* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 576. No. 504b. pl. vii. f. 21 (1903) (Kikuyu).

Type: ♀, Kikuyu Escarpment, British East Africa, 6,500–9,000 ft., January 1901. W. Doherty coll.

This appears to be still unique.

290. *Temnora rattrayi* Rothsch. = *Temnora rattrayi*.

*Temnora rattrayi* Rothschild, *Nov. Zool.* vol. xi. p. 437. No. 6 (1904) (Kampala).

Type: ♂, Kampala, Uganda. Captain H. B. Rattray coll.

1 ♂ from Entebbe, Uganda, has come to hand since 1904.

291. *Temnora wollastoni* R. & J. = *Temnora wollastoni*.

*Temnora wollastoni* Rothschild & Jordan, *Nov. Zool.* vol. xv. p. 260. No. 3 (1908) (Luluaburg).

Paratype: ♀, Luluaburg, Kassai, Congo. P. Landbeck coll.

292. *Temnora stigma* R. & J. = *Temnora stigma*.

*Temnora stigma* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 811. No. 769 (between Addis Abeba and Kismayo).

Type: ♀, Between Addis Abeba and Kismayo, Abyssinian Somaliland. Carlo von Erlanger coll.

This is still unique.

293. *Temnora elegans polia* R. & J. = *Temnora elegans polia*.

*Temnora elegans polia* Rothschild & Jordan, *Nov. Zool.* vol. xi. p. 437. No. 5 (1904) (Pungo Andongo).

Type: ♂, Pungo Andongo, Angola, July 1875. Major A. von Homeyer coll.

We have received 3 ♂♂ from Bihé, Angola and Uganda, from Sir F. Jackson, since 1904.

294. *Temnora palpalis* R. & J. = *Temnora palpalis*.

*Temnora palpalis* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 579. No. 510. pl. vii. f. 19 (1903) (Antanambé).

Type: ♂, Antanambé, Baie d'Antongil, Madagascar, March–April 1897. A. Mocquerys coll.

295. *Temnora angulosa* R. & J. = *Temnora angulosa*.

*Temnora angulosa* Rothschild & Jordan, *Nov. Zool.* vol. xiii. p. 182. No. 9 (1906) (Kassai).

Type: ♀, Luluaburg Kassai, Congo, September 1902 (P. Landbeck coll.).

A second ♀ has come to hand, since 1906, from Bitye, Ja River, Camaroons, from L. G. Bates, per W. F. Rosenberg.

†296. **Pterogon clementsi** Rothsch. = *Temnora iapygoides* (Holl.).

*Pterogon clementsi* Rothschild, *Nor. Zool.* vol. i. p. 69 (1894) (Sierra Leone).

*Ocyton iapygoides* Holland, *Trans. Amer. Entom. Soc.* vol. xvi. p. 60. No. 8. t. 2. f. 5 (1889) (Benita-Gaboon).

Type: ♂, Sierra Leone, 1892. Dr. Clements coll.

The Tring Museum has received 4 ♂♂ 7 ♀♀ of this species since 1903, from Takwa, Gold Coast; and Sierra Leone; from Major Bainbridge, Captain Berne, Captain Stevens, and R. E. James; and from the Sesse Islands, Uganda; and Bopoto, Upper Congo; from Rev. Kenred Smith, etc.

297. **Temnora pylades** R. & J. = *Temnora pylades*.

*Temnora pylades* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 583. No. 517 (1903) (Natal).

Type: ♂, Natal.

We have received 3 ♂♂ and 7 ♀♀, since 1903, from Transkei, Cape Colony; George, Cape Colony; and West Pondoland; from Miss Barrett, Dr. Brauns, and H. H. Swinny.

298. **Lophuron pseudopylas** Rothsch. = *Temnora pseudopylas pseudopylas*.

*Lophuron pseudopylas* Rothschild, *Nor. Zool.* vol. i. p. 71. (1894) (hab. ?).

Type: ♂, Loc. ?

We have added to the Tring series 11 ♂♂, 7 ♀♀ from Nairobi, and the Kikuyu Escarpment, Uganda; Ukami, German East Africa; Nygeleni Distr., N. Pondoland; and Transkei and other places, Cape Colony; from Sir F. J. Jackson, W. Doherty, H. Rolle, H. H. Swinny, and Miss Barrett.

299. **Temnora leptis** R. & J. = *Temnora leptis*.

*Temnora leptis* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 584. No. 519 (1903) (Sierra Leone).

Type: ♂, Sierra Leone.

2 ♀♀ have been added to the Tring series, since 1903, from Sierra Leone; and Rutiti Toru, Uganda; from Captain Berne and Dr. Ansoerge.

300. **Pterogon lasti** Rothsch. = *Temnoropais lasti*.

*Pterogon lasti* Rothschild, *Nor. Zool.* vol. i. p. 70. t. 5. f. 5 (1894) (Madagascar).

Type: ♂, S.W. Madagascar. Last coll. Received through Mr. Henley Grose Smith.

301. **Polyptychus erlangeri** R. & J. = *Polyptychus erlangeri*.

*Polyptychus erlangeri* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 811. No. 770 (1903) (Wahé Mane).

Type: ♂, Dahele, Abyssinian Somaliland, April 25, 1901. Carlo von Erlanger coll.

302. **Odontosida erlangeri** R. & J. = *Odontosida erlangeri*.

*Odontosida erlangeri* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 811. No. 770 (1903) (Webi Maki, loc. err.)

Type: ♂, Wahi Mane, April 1, 1901. Carlo von Erlanger coll.

In the original description we erroneously gave as locality Webi Maki.

303. *Smerinthus pusillus* Feld. = *Odontosida pusillus*.

*Smerinthus pusillus* Felder, *Reise Novara Lepid.* t. 82. f. 1 (1874) (Kaffraria).

Type : ♂, Tsomo River, Kaffraria, South Africa. R. Trimen coll. ex coll. Felder.

†304. *Lophuron pulcherrimum* Rothschild. = *Odontosida pusillus* (Feld.).

*Lophuron pulcherrimum* Rothschild, *Nov. Zool.* vol. i. p. 70 (1894) (Namaqualand).

*Smerinthus pusillus* Felder, *vide antea*.

Type : ♀, Namaqualand. Received from Watkins and Doncaster.

We have received 4 ♂♂ of *Odontosida pusillus*, since 1903, from Transkei, Cape Colony ; from Miss Barrett.

305. *Lophuron magnificum* Rothschild. = *Odontosida magnificum*.

*Lophuron magnificum* Rothschild, *Nov. Zool.* vol. i. p. 71. t. 5. f. 7 (1894) (Little Namaqualand).

Type : ♀, Little Namaqualand, S.W. Africa. Received from Watkins and Doncaster.

7 ♂♂, 11 ♀♀ of this species have been added to the Tring series since 1903, from Transkel and Amshaw, Cape Colony ; from Miss Barrett.

306. *Sphingonaepiopsis ansorgei* Rothschild. = *Sphingonaepiopsis ansorgei*.

*Sphingonaepiopsis ansorgei* Rothschild, *Nov. Zool.* vol. xi. p. 438. No. 7 (1904) (Mikenga).

Type : ♂, Mikenga, Angola, September 14th, 1903. Dr. Ansorge coll.

The Tring Museum has received, since 1904, 4 ♂♂ of this species from N. West Rhodesia ; and Bihé, Angola ; from H. Dollmann and others.

307. *Eurypteryx molucca* Feld. = *Eurypteryx molucca*.

*Eurypteryx molucca* Felder, *Reise Novara Lepid.* t. 76. f. 1 (1874) (Ternate).

Type : ♀, Ternate, Moluccas, ex coll. Felder.

We have received 1 ♂, 1 ♀ of this rare species since 1903, from Amboina ; and Waigcu Island, Papuan Islands ; from Pratt and Waterstradt.

308. *Eurypteryx shelfordi* R. & J. = *Eurypteryx shelfordi*.

*Eurypteryx shelfordi* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 813. No. 772 (1903) (Kuching).

Type : ♀, Kuching, Borneo, December 1896. R. Shelford coll.

The Tring Museum has received, since 1903, a ♂ of this species from W. Sumatra, from Herr H. Fruhstorfer.

309. *Antinephele lunulata* R. & J. = *Antinephele lunulata*.

*Antinephele lunulata* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 598. No. 539. pl. vi. ff. 16, 17 (1903) (Mikindani).

Type : ♂, Mikindani, German East Africa, January—May 1897. Reimer coll.

1 ♂ has reached Tring, since 1903, from Moyambé, Sierra Leone, from D. Cator.

310. *Hypaedia* *butleri* Rothsch. = *Hypaedia* *butleri*.

*Hypaedia butleri* Rothschild, *Nov. Zool.* vol. i. p. 69. t. 6. f. 4 (1894) (Aburi).

Type: ♀, Aburi, Ashanti, West Africa. Received from Watkins and Doncaster.

We have received, since 1903, 7 ♂♂, 4 ♀♀ of this species from Entebbe, and Kampala, Uganda; from Captain Rattray, and Sir F. H. Jackson.

311. *Proserpinus* *juanita oslari* R. & J. = *Proserpinus* *juanita oslari*.

*Proserpinus juanita oslari* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 610. No. 551b (1903) (Verde River).

Type: ♂, Verde River, Arizona, June 1902. Oslar coll.

5 ♂♂, 4 ♀♀ have been added to the Tring series from Arizona; from Oslar.

†312. *Macroglossa* *burmanica* Rothsch. = *Macroglossum* *gyrans* (Walk.).

*Macroglossa burmanica* Rothschild, *Nov. Zool.* vol. i. p. 68. t. 5. f. 3 (1894) (Minbu).

*Macroglossa gyrans* Walker, *List Lepid. Ins. Brit. Mus.* Part viii. p. 91. No. 11 (1856) (Madras, etc.).

Type: ♂, Minbu, Burma. Received from Messrs. Watkins and Doneaster.

8 specimens have come to hand, since 1903, from various localities in India, from the collection of H. J. Elwes.

313. *Macroglossum* *fruhstorferi latifascia* R. & J. = *Macroglossum* *fruhstorferi latifascia*.

*Macroglossum fruhstorferi latifascia* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 639. No. 574b. pl. vi. f. 6 (1903) (Obi).

Type: ♀, Laiwui, Obi, September 1897. W. Doherty coll.

†314. *Macroglossa* *similis* Rothsch. = *Macroglossum* *vacillans* (Walk.).

*Macroglossa similis* Rothschild, *Nov. Zool.* vol. i. p. 68 (1894) (Oinainisa).

*Macroglossa vacillans* Walker, *List Lepid. Ins. Brit. Mus.* xxxi. p. 27 (1864) (Timor).

Type: ♂, Oinainisa, Dutch Timor, November—December 1891. W. Doherty coll.

†315. *Macroglossa* *pseudogyrans* Rothsch. = *Macroglossum* *vacillans* (Walk.).

*Macroglossa vacillans* Walk., *loc. cit. antea*.

Type: ♂, Dili, Portuguese Timor, May 1892. W. Doherty coll.

316. *Macroglossum* *lepidum* R. & J. = *Macroglossum* *lepidum*.

*Macroglossum lepidum* Rothschild & Jordan, *Nov. Zool.* vol. xxii. p. 287. pl. xx. f. 5 (1915) (Nias).

Type: ♂, North of Island of Nias.

We have not heard of any others besides the type.

317. *Macroglossum* *castaneum* R. & J. = *Macroglossum* *castaneum*.

*Macroglossum castaneum*, Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 640. No. 576. pl. iii. f. 16 (1903) (Florida Island).

Type: ♂, Florida Island, Solomon Islands, January 1901. A. S. Meek coll.

1 ♀ from Choiseul Island, Solomon Islands, from A. S. Meek, has been received at Tring since 1903.

318. **Macroglossum insipida papuanum** R. & J. = *Macroglossum insipida papuanum*.

*Macroglossum insipida papuanum* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 642. No. 579b. pl. iii. f. 9 (1903) (Fergusson Island).

Type : ♂, Fergusson Island, D'Entrecasteaux Islands, October—November 1894. A. S. Meek coll.

Since 1903 the series at Tring has received 3 ♂♂, 1 ♀ of this form from Kuranda, Cairns, Queensland ; and Astrolabe Bay, N.E. New Guinea ; from P. F. Dodd and C. Wahnes.

319. **Macroglossum insipida poecilum** R. & J. = *Macroglossum poecilum*.

*Macroglossum insipida poecilum* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 643. No. 579c. pl. iii. f. 17 (1903) (Loo Choo Islands).

Type : ♂, Loo Choo Islands (Riu Kiu Islands).

We have received, since 1903, a third ♂ from Mt. Maropok, Dent Province, British North Borneo, from the Van de Poll collection, and have come to the conclusion that *poecilum* is a distinct species and **not** a subspecies of *insipida*.

320. **Macroglossum unguis** R. & J. = *Macroglossum unguis*.

*Macroglossum unguis* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 643. No. 581. pl. iii. f. 7 (1903) (Buru).

Type : ♂, Kayeli, Buru, Moluccan Islands, March 1897. W. Doherty coll.

We have received 1 ♂, 1 ♀ of this species since 1903, from Sawangan, North Celebes ; and Tomia, Toekan Bessi Islands ; from H. Kühn.

321. **Macroglossum stigma** R. & J. = *Macroglossum stigma*.

*Macroglossum stigma* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 644. No. 583. pl. iv. f. 15 (1903) (Dorey).

Type : ♂, Dorey, Dutch New Guinea, April 1897. W. Doherty coll.

1 ♀ from Oetakwa River, Snow Mts., Dutch New Guinea, from A. S. Meek, has come to hand since 1903.

322. **Macroglossum melas** R. & J. = *Macroglossum melas*.

*Macroglossum melas* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 646. No. 585. pl. iii. f. 19 (1903) (Little Kei).

Type : ♂, Little Kei, Kei Islands. H. Kühn coll.

We have received a ♀ from N.E. New Guinea (German New Guinea), from C. Wahnes, since 1903.

323. **Macroglossum moriolum** R. & J. = *Macroglossum moriolum*.

*Macroglossum moriolum* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 122. No. 15 (1916) (Vella Lavella).

Type : ♀, Vella Lavella, Solomon Islands, March 1908. A. S. Meek coll.

324. **Macroglossum mediovitva** R. & J. = *Macroglossum mediovitva*.

*Macroglossum mediovitva* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 647. No. 587. pl. iv. f. 16 (1903) (Okinawa).

Type : ♂, Okinawa, Loo Choo Islands, August 1891. Dr. Fritze coll.

325. **Macroglossum albigutta albigutta** R. & J. = *Macroglossum albigutta albigutta*.  
*Macroglossum albigutta albigutta* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 647. No. 588a.  
 pl. iii. f. 2 (1903) (Guadalecanar).  
 Type: ♀, Guadalecanar, Solomon Islands, March 1901. A. S. Meek coll.  
 The type remains unique.
326. **Macroglossum albigutta floridense** R. & J. = *Macroglossum albigutta floridense*.  
*Macroglossum albigutta floridense* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 647. No. 588b  
 (1903) (Florida Island).  
 Type: ♀, Florida Island, Solomon Islands, January 2nd, 1901. A. S. Meek coll.  
 Since 1901 the Tring collection has added 6 ♂♂, 3 ♀♀ to the series from  
 Arawa, Bougainville, Solomon Islands; from A. S. Meek.
327. **Macroglossa dohertyi** Rothsch. = *Macroglossum dohertyi*.  
*Macroglossa dohertyi* Rothschild, *Nov. Zool.* vol. i. p. 67. pl. v. f. 2 (1894) (Amboyna).  
 Type: ♂, Amboyna, Moluccan Islands, February 1892. W. Doherty coll.  
 Since 1903 a second ♂ has come to hand from British New Guinea.
328. **Macroglossum hirundo vitiense** R. & J. = *Macroglossum hirundo vitiense*.  
*Macroglossum hirundo vitiense* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 649. No. 590b  
 (1903) (Fiji).  
 Type: ♂, Fiji. Received from Messrs. Staudinger and Bang-Haas.
329. **Macroglossa lifuensis** Rothsch. = *Macroglossum hirundo lifuensis*.  
*Macroglossa lifuensis* Rothschild, *Nov. Zool.* vol. i. p. 67 (1894) (Lifu).  
 Type: ♂, Lifu, Loyalty Islands. Received from Watkins and Doneaster.
- †330. **Ramphoschisma scottiarum** Feld. = *Macroglossum hirundo errans* (Walk.).  
*Ramphoschisma scottiarum* Felder, *Reise Novara Lepid.* t. 75. f. 8 (1874) (Australia).  
*Macroglossa errans* Walker, *List Lepid. Ins. Brit. Mus.* Part viii. p. 96. No. 21 (1856) (Moreton Bay).  
 Type: ♀, Rockhampton, ex Museum Godeffroy ex coll. Felder.
- †331. **Macroglossa belinda** Pag. = *Macroglossum hirundo errans* (Walk.).  
*Macroglossa belinda* Pagenstecher, in Chun, *Zoologica*, vol. x. p. 19. No. 22 (1900) (New Britain).  
*Macroglossa hirundo* Walk., *loc. cit. antea*.  
 Type: ♀, Kinigunong, New Britain. Carl Ribbe coll.
332. **Macroglossum rectans** R. & J. = *Macroglossum rectans*.  
*Macroglossum rectans* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 650. No. 591. pl. iv. f. 8  
 (1903) (Little Kei).  
 Type: ♂, Little Kei, Kei Islands, November 9th, 1897. H. Kühn coll.

†333. *Macroglossa inconspicua* Rothsch. = *Macroglossum prometheus inusitata*.*Macroglossa inconspicua* Rothschild, *Nov. Zool.* vol. i. p. 68 (1894) (Humboldt Bay).*Macroglossa inusitata* Swinh., *Cat. Lepid. Het. Orf.* vol. i. p. 6. No. 20 (1892) (Dorey).

Type: ♀, Humboldt Bay, N.E. Dutch New Guinea, September—October 1892. W. Doherty coll.

1 ♀, from Kuranda, Cairns, Queensland; from P. F. Dodd, has been added to the series at Tring since 1903.

334. *Macroglossum nubilum* R. & J. = *Macroglossum nubilum*.*Macroglossum nubilum* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 652. No. 593. pl. iv. f. 17 (1903) (Milne Bay).

Type: ♂, Milne Bay, British New Guinea, January 1899. A. S. Meek coll.

The Tring Museum, since 1903, has received 2 ♂♂ of this species from Kuranda, Cairns, Queensland; from P. F. Dodd.

335. *Macroglossum variegatum* R. & J. = *Macroglossum variegatum*.*Macroglossum variegatum* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 653. No. 594. pl. iii. f. 13 (1903) (Cherrapunji).

Type: ♂, Cherrapunji, Assam, ex coll. Swinhoe.

We have added to the Tring series of this species, since 1903, 11 ♂♂, 9 ♀♀, from Perak, Malay Peninsula; and North Nias, Island of Nias; from W. Doherty ex coll. Elwes; and the Van de Poll collection.

†336. *Macroglossa kiushiensis* Rothsch. = *Macroglossum saga* (Butl.).*Macroglossa kiushiensis* Rothschild, *Nov. Zool.* vol. i. p. 66 (1894) (Kiushiu).

Type: ♀, Kiushiu, Japan. Received from Alfred Wailley.

337. *Macroglossum fritzei* R. & J. = *Macroglossum fritzei*.*Macroglossum fritzei* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 694. No. 597. pl. iii. f. 4 (1903) (Okinawa).

Type: ♀, Okinawa, Loo Choo Islands, July 4th, 1891. Dr. Fritze coll.

This appears to be unique.

338. *Macroglossum adustum* R. & J. = *Macroglossum adustum*.*Macroglossum adustum* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 122. No. 14 (1916) (Vella Lavella).

Type: ♂, Vella Lavella, Solomon Islands, March 1908. A. S. Meek coll.

339. *Macroglossum semifasciata nigellum* R. & J. = *Macroglossum semifasciata nigellum*.*Macroglossum semifasciata nigellum* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 122. No. 13 (1916) (Java).

Type: ♂, Java. Piepers coll.

340. **Macroglossum eichhorni** R. & J. = *Macroglossum eichhorni*.

*Macroglossum eichhorni* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 658. No. 604. pl. iii. f. 14 (1903) (Guadalupe).

Type: ♀, Guadalupe, Solomon Islands, March 1901. A. S. Meek coll.

The Tring Museum, since 1903, has received 8 ♂♂ 2 ♀♀ of this fine species from Isabel, Bougainville, and New Georgia Islands, Solomon Islands; from A. S. Meek.

341. **Macroglossum corythus platyranthum** R. & J. = *Macroglossum corythus platyranthum*.

*Macroglossum corythus platyranthum* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 660. No. 605a. pl. 4. f. 1 (1903) (Okinawa).

Type: ♂, Okinawa, Loo Choo Islands, August 1891. Dr. Fritze coll.

5 ♂♂, 1 ♀ have come to hand, since 1903, from Ikebata Oshima, Loo Choo Islands.

342. **Macroglossa pylene** Feld. = *Macroglossum corythus pylene*.

*Macroglossa pylene* Felder, *Sitz. Ber. Akad. Wiss. Wien*, vol. xliii. p. 29 (1861) (Amboyna).

Type: ♀, Amboyna. Doleschall coll. ex coll. Felder.

†343. **Macroglossa moluccensis** Rothschild = *Macroglossum corythus pylene* Feld.

*Macroglossa moluccensis* Rothschild, *Nov. Zool.* vol. i. p. 67 (1894) (*partim*; Batjan).

*Macroglossa pylene* Felder, *loc. cit. antea*.

Type: ♂, Batjan, Northern Moluccan Islands.

About 20 specimens have been added to the Tring Museum, since 1903, from Waigeu Island; Sorong, Dutch New Guinea; Sudest Island, Louisiade Islands; Mount Kebea, S.E. New Guinea; Stephansort, N.E. New Guinea; Ceram, and Batjan, Moluccan Islands; from E. Stresemann, J. Waterstradt, A. E. Pratt, and Kunzmann.

344. **Macroglossum corythus xanthurus** R. & J. = *Macroglossum corythus xanthurus*.

*Macroglossum corythus xanthurus* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. 662. No. 605e (1903) (Larat).

Type: ♂, Larat, Tenimber Islands. H. Kühn coll.

345. **Macroglossum corythus fuscicauda** R. & J. = *Macroglossum corythus fuscicauda*.

*Macroglossum corythus fuscicauda* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 663. No. 605g (1903) (Lifu).

Type: ♂, Lifu, Loyalty Islands. Received from Watkins and Doncaster.

346. **Macroglossum amoenum** R. & J. = *Macroglossum amoenum*.

*Macroglossum amoenum* Rothschild & Jordan, *Nov. Zool.* vol. xxiii. p. 121. No. 11 (1916) (Banka Island).

Type: ♀, Sungei Liat, Banka Island.



347. **Ramphoschisma rectifascia** Feld. = *Macroglossum passalus rectifascia*.

*Ramphoschisma rectifascia* Felder, *Reise Novara Lepid.* t. 75. f. 7 (1874) (Ceylon).

Type : ♀, Rambodde, Ceylon. Nietner coll. ex coll. Felder.

348. **Macroglossum augarra** Rothschild. = *Macroglossum augarra*.

*Macroglossum augarra* Rothschild, *Nov. Zool.* vol. xi. p. 438. No. 8 (1904) (Owgarra).

Type : ♀, Owgarra, Aroa River, British New Guinea, May 1903. A. S. Meek coll.

This appears to be still unique.

349. **Macroglossum meeki** R. & J. = *Macroglossum meeki*.

*Macroglossum meeki* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 666. No. 611. pl. iv. f. 2 (1903) (Milne Bay).

Type : ♂, Milne Bay, British New Guinea, February 1899. A. S. Meek coll.

This is still unique.

350. **Macroglossum spilonotum** R. & J. = *Macroglossum spilonotum*.

*Macroglossum spilonotum* Rothschild & Jordan, *Nov. Zool.* vol. xix. p. 134. No. 6 (1912) (Mt. Goliath).

Type : ♂, Mt. Goliath, Snow Mountains, Dutch New Guinea, February 1911. A. S. Meek coll.

The series at Tring consists of 5 ♂♂.

351. **Macroglossum phocinum** R. & J. = *Macroglossum phocinum*.

*Macroglossum phocinum* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 668. No. 613. pl. iii. f. 1 (1903) (Guadalcanar).

Type : ♀, Guadalcanar, Solomon Islands, March 1901. A. S. Meek coll.

So far no further specimens besides the 2 recorded in 1903 have been found.

352. **Macroglossum micacea albibase** Rothschild. = *Macroglossum micacea albibase*.

*Macroglossum micacea albibase* Rothschild, *Nov. Zool.* vol. xii. p. 79. No. 4 (1905) (Bougainville).

Type : ♂, Bougainville Island, Solomon Islands, April—May 1904. A. S. Meek coll.

Since 1905, 1 ♂, 1 ♀ from Vella Lavella, Solomon Islands, from A. S. Meek, have reached Tring. The series from Bougainville consists of 6 ♂♂, 3 ♀♀.

The following 6 types have been omitted from their proper sequence.

†353. **Tylognathus scriptor** Feld. = *Aleuron iphis* (Walk.).

*Tylognathus scriptor* Felder, *Reise Novara Lepid.* t. 82. f. 4 (1874) (Amazons).

*Enyo iphis* Walker, *List Lepid. Ins. Brit. Mus.* Part viii. p. 116. No. 8 (1856) (Brazil).

Type : ♀, Amazons. Bates coll. ex coll. Felder.

†354. **Daphnis angustans** Feld. = *Deilephila placida placida* (Walk.).

*Daphnis angustans* Felder, *Reise Novara Lepid.* t. 76. f. 6 (1874) (Moluccas).

*Darapsa placida* Walker, *List Lepid. Ins. Brit. Mus.* Part viii. p. 186. No. 8 (1856) (Sumatra).

Type : ♂, Moluccas. Lorquin coll. ex coll. Felder.

355. *Daphnis protrudens* Feld. = *Deilephila protrudens*.

*Daphnis protrudens* Felder, *Reise Novara Lepid.* t. 76. f. 7 (1874) (Moluccas).

Type : ♀, Moluccas. Lorquin coll. ex coll. Felder. (In the *Erklärung der Tafeln*, lxxv. bis cvii. in *Reise der Novara*, Felder gives the locality of *protrudens* as Cape of Good Hope (Trimen), but on the specimen is the usual circular blue label in Felder's writing, "Moluce (Type) Lorquin.")

A ♀ from Cape York Peninsula, Queensland, has been added to the Tring series since 1903.

356. *Philampelus dolichoides* Feld. = *Ampelophaga dolichoides*.

*Philampelus dolichoides* Felder, *Reise Novara Lepid.* t. 76. f. 8 (1874) (Darjeeling).

Type : ♀, Darjeeling, Sikkim. Stoliezka coll. ex coll. Felder.

1 ♂, 2 ♀♀ have been added to the series at Tring since 1903, from the Malay States, etc. ; from Messrs. Staudinger and Bang-Haas, and H. J. Elwes.

357. *Sphinx myron* Cram. = *Ampeloeca myron*.

*Sphinx myron* Cramer, *Pap. Exot.* vol. iii. fasc. xxi. p. 91. pl. cexlvii. f. C (1779) (Virginia).

Type : ♂, Virginia, United States of North America, ex coll. J. C. Sylvius Van Lennep ex coll. Felder.

†358. *Sphinx choerilus* Cram. = *Darapsa pholus* (Cram.).

*Sphinx choerilus* Cramer, *Pap. Exot.* vol. iii. fasc. xxi. p. 91. pl. cexlvii. f. A (1779) (Virginia).

*Sphinx pholus* Cramer, *Pap. Exot.* vol. i. fasc. viii. p. 137. pl. lxxxvii. f. B (1776) (West Indies ?).

Type : ♂, Virginia, United States of North America, ex coll. J. C. Sylvius Van Lennep ex coll. Felder.

†359. *Callioma drucei* Rothsch. = *Xylophanes ploetzi* (Moeschler).

*Callioma drucei* Rothschild, *Nov. Zool.* vol. i. p. 73 (1894) (Rio Demerara).

*Choerocampa* (?) *ploetzi* Moeschler, *Verh. Zool. Bot. Ges. Wien*, vol. xxvii. p. 350. t. 4. f. 35 (1876) (Surinam).

Type : ♀, Rio Demerara, British Guiana. Received from Watkins and Doncaster.

The Tring Museum, since 1903, has received 1 ♂ of this rare species from La Vuelta, Caura River, Venezuela, from S. M. Klages.

360. *Theretra rufescens* Rothsch. = *Xylophanes rufescens*.

*Theretra rufescens* Rothschild, *Nov. Zool.* vol. i. p. 75. t. vi. f. 11 (1894) (British Guiana).

Type : ♀, Rio Demerara, British Guiana. Received from Watkins and Doncaster.

2 ♂♂ of this species have been received at Tring, since 1903, from Fonte Boa, Upper Amazons ; and La Oroya, Rio Inambari, S.E. Peru ; from S. M. Klages and G. Ockenden.

361. **Xylophanes porcus continentalis** R. & J. = *Xylophanes porcus continentalis*.

*Xylophanes porcus continentalis* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 686. No. 631b (1903) (Rio Dagua).

Type: ♂, Rio Dagua, Columbia. W. Rosenberg coll.

We have received 17 ♂♂ of this species since 1903, from Huatuxeo, Vera Cruz, Mexico; Tuis and Juan Vinas, Costa Rica; Zamora, Ecuador; Caracas, Venezuela; and Sapueay and Patino Cué, Paraguay; from Percy Lathy, William Schaus, O. T. Baron, Watkins and Doncaster, and W. Foster.

362. **Darapsa schausi** Rothsch. = *Xylophanes schausi*.

*Darapsa schausi* Rothschild, *Nov. Zool.* vol. i. p. 84 (1894) (Petropolis).

Type: ♂, Petropolis, Rio de Janeiro. W. Schaus coll.

363. **Xylophanes schausi serenus** R. & J. = *Xylophanes schausi serenus*.

*Xylophanes schausi serenus* Rothschild & Jordan, *Nov. Zool.* vol. xvii. p. 454. No. 47 (1910) (Allianca).

Type: ♂, Allianca, below San Antonio, Rio Madeira, Brazil, November—December 1907. W. Hoffmanns coll.

364. **Xylophanes juanita** R. & J. = *Xylophanes juanita*.

*Xylophanes juanita* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 687. No. 634 (1903) (Paso San Juan).

Type: ♂, Paso San Juan, Vera Cruz, Mexico, ex coll. Schaus.

The type and a ♀ from Bogota have been added to the Tring Museum since 1903.

365. **Pergesa fusimacula** Feld. = *Xylophanes fusimacula*.

*Pergesa fusimacula* Felder, *Reise Novara Lepid.* p. 8. t. 76. f. 4 (1874) (Brazil).

Type: ♀, Brazil, ex coll. Felder.

We have added, since 1903, 5 ♂♂, 1 ♀, to the Tring Museum from Maroni, French Guiana; and La Oroya, Rio Inambari; and La Union, Rio Huacamayo, S.E. Peru; from E. Le Moutt and G. R. Oekenden.

366. **Xylophanes undata** R. & J. = *Xylophanes undata*.

*Xylophanes undata* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 688. No. 637 (1903) (Chuchuras).

Paratype: ♀, Chuchuras, Peru. Received from Messrs. Staudinger and Bang-Haas. (This is also paratype of *Goneryo irrorata* Rothsch. *nom. praeoc.* Type of both names in coll. Staudinger in Mus. Berlin.)

Since 1903 the Tring series has been increased by 11 ♂♂, 4 ♀♀, from Juan Vinas, Costa Rica; Muzo, Columbia; Fonte Boa, Upper Amazons, and La Union, Rio Huacamayo; and La Oroya, Rio Inambari, Peru; from W. Schaus, A. L. Fassl, S. M. Klages, and G. R. Oekenden.

367. **Xylophanes rhodina** R. & J. = *Xylophanes rhodina*.

*Xylophanes rhodina* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 689. No. 638. pl. ii. f. 13 (1903) (Chiriqui).

Type: ♂, Chiriqui, Panama.

We have received 2 ♂♂ of this species since 1903, also from Chiriqui; from Messrs. Staudinger and Bang-Haas.

368. *Xylophanes media* R. & J. = *Xylophanes media*.

*Xylophanes media* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 691. No. 642. pl. ii. f. 1 (1903) (Aroa, Venezuela *loc. err.*, Rio Demerara).

Type: ♀, Rio Demerara, British Guiana. Received from Watkins and Doncaster. In our "Revision" in 1903 we erroneously stated that this specimen was from Aroa, Venezuela.

Since 1903, 2 ♂♂ have been received at Tring from Santo Domingo, Carabaya, and La Oroya, Rio Inambari, S.E. Peru; from G. R. Oekenden.

369. *Xylophanes guianensis* Rothschild. = *Xylophanes guianensis*.

*Xylophanes guianensis* Rothschild, *Nor. Zool.* vol. i. p. 77 (1894) (British Guiana).

Type: ♀, Christianburg, British Guiana. W. Ellacombe coll. Received from Watkins and Doncaster.

We have added to the Tring series 4 ♂♂, 3 ♀♀, since 1903, from Kouron, and Maroni, French Guiana; Chiriqui, Panama; Zamora, Ecuador; and Georgetown, British Guiana; from E. Le Mout, O. T. Baron, and the Rev. Whitford.

370. *Sphinx anubus* Cram. = *Xylophanes anubus*.

*Sphinx anubus* Cramer, *Pap. Exot.* vol. ii. fasc. xi. p. 46. pl. cxxviii. f. C (1777) (Surinam).

Cotype: ♀, ex coll. J. C. Sylvius Van Lennep ex coll. Felder.

371. *Xylophanes amadis meridanus* R. & J. = *Xylophanes amadis meridanus*.

*Xylophanes amadis meridanus* Rothschild & Jordan, *Nor. Zool.* vol. xvii. p. 459. No. 7 (1910) (Merida).

Type: ♂, Merida, Venezuela, May 1900. Brieno coll.

†372. *Theretra staudingeri* Rothschild. = *Xylophanes amadis cyrene* (Druce).

*Theretra staudingeri* Rothschild, *Nor. Zool.* vol. i. p. 76 (1894) (Chiriqui).

*Choerocampa cyrene* Druce, *Biol. Centr. Amer. Lepid. Hel.* vol. i. p. 11. No. 13. t. i. f. 5 (1881) (Chiriqui).

Type: ♂, Chiriqui, Panama. Received from Messrs. Staudinger and Bang-Haas.

2 ♂♂, 5 ♀♀ have reached Tring, since 1903, from Juan Vinas, Costa Rica; and Chiriqui, Panama; from W. Schaus, and Watkins.

373. *Theretra stuarti* Rothschild. = *Xylophanes amadis stuarti*.

*Theretra stuarti* Rothschild, *Nor. Zool.* vol. i. p. 665 (1894) (Rio Cachyaco).

Type: ♀, Rio Cachyaco Iquitos, Peruvian Amazons. C. Maxwell Stuart coll.

Since 1903 the Tring Museum has received 5 ♂♂, 3 ♀♀ of this form from Rio Songo, Buenavista; and Prov. Sara, East Bolivia; and Chanchamayo and Rio Tabaconas, Peru; from A. E. and F. Pratt, Messrs. Staudinger and Bang-Haas, José Steinbach, and A. H. Fassl.

374. *Xylophanes acrus* R. & J. = *Xylophanes acrus*.

*Xylophanes acrus* Rothschild & Jordan, *Nor. Zool.* vol. xvii. p. 458. No. 5 (1910) (Chiriqui).

Type: ♂, Chiriqui, Panama. Received from Messrs. Staudinger and Bang-Haas.

1 ♂ has been added to the collection at Tring from Juan Vinas, Costa Rica; from W. Schaus.

375. **Xylophanes cosmius** R. & J. = *Xylophanes cosmius cosmius*.

*Xylophanes cosmius* Rothschild & Jordan, *Nov. Zool.* vol. xiii. p. 183. No. 12 (1906) (La Union).

Type: ♂, La Union, Rio Huacamayo, Carabaya, S.E. Peru, 2,000 ft., November 1904. G. R. Oekenden coll.

We have received, since 1906, 5 ♂♂ of this species from Yahuar Mayo and La Union, Rio Huacamayo, S.E. Peru; and Rio Tabaconas, N. Peru; from A. E. and F. Pratt, G. R. Oekenden, and H. and C. Watkins.

376. **Xylophanes cosmius obscurus** R. & J. = *Xylophanes cosmius obscurus*.

*Xylophanes cosmius obscurus* Rothschild & Jordan, *Nov. Zool.* vol. xvii. p. 455. No. 48 (1910) (Allianca).

Type: ♀, Allianca below San Antonio, Rio Madeira, Brazil, November—December 1907. W. Hoffmanns coll.

Since 1910 we have received 1 ♀ of this form from Manaos, Brazil; from Rev. A. Miles Moss.

377. **Xylophanes oekendeni** Rothsch. = *Xylophanes oekendeni*.

*Xylophanes oekendeni* Rothschild, *Nov. Zool.* vol. xi. p. 439. No. 9 (1904) (Santo Domingo).

Type: ♂, Santo Domingo, Carabaya, S.E. Peru, 6,000 ft., October 1902. G. R. Oekenden coll.

This appears to be still unique.

378. **Xylophanes rhodochlora** R. & J. = *Xylophanes rhodochlora*.

*Xylophanes rhodochlora* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 700. No. 653 (1903) (Santo Domingo).

Type: ♂, Santo Domingo, Carabaya, S.E. Peru, 6,000 ft., June 1902. G. R. Oekenden coll.

14 ♂♂, 1 ♀ have been added to the series at Tring from Santo Domingo, and the Rio Sincuri, S.E. Peru; from G. R. Oekenden.

379. **Xylophanes rhodotus** Rothsch. = *Xylophanes rhodotus*.

*Xylophanes rhodotus* Rothschild, *Nov. Zool.* vol. xi. p. 440. No. 10 (1904) (Santo Domingo).

Type: ♂, Santo Domingo, Carabaya, S.E. Peru, 6,000 ft., July 1902. G. R. Oekenden coll.

380. **Xylophanes resta** R. & J. = *Xylophanes resta*.

*Xylophanes resta* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 702. No. 656 (1903) (Merida).

Type: ♂, Merida, Venezuela. Briceno coll.

12 ♂♂, 2 ♀♀ have reached Tring, since 1903, from Merida, Venezuela; Tucuman; and Santo Domingo, Carabaya, S.E. Peru; from G. R. Oekenden, José Steinbach, and Briceno.

381. **Xylophanes fosteri** R. & J. = *Xylophanes fosteri*.

*Xylophanes fosteri* Rothschild & Jordan, *Nov. Zool.* vol. xiii. p. 182. No. 10 (1906) (Sapucay).

Type: ♂, Sapucay, Paraguay, October 4th, 1903. W. Foster coll.

One ♀ has been added to the original pair, also from Sapucay, December 1904. W. Foster.

382. *Xylophanes dolius* R. & J. = *Xylophanes dolius*.

*Xylophanes dolius* Rothschild & Jordan, *Nov. Zool.* vol. xiii. p. 183. No. 11 (1906) (Zamora).

Type: ♂, Zamora, Ecuador, 3,000—4,000 ft. O. T. Baron coll.

†383. *Theretra perviridis* Rothsch. = *Xylophanes clara* (Druce).

*Theretra perviridis* Rothschild, *Nov. Zool.* vol. i. p. 77. t. v. f. 12 (1894) (Aroa).

*Choerocampa clara* Druce, *Entom. Mo. Mag.* vol. xiv. p. 249 (1878) (Paraguay).

Type: ♂, Aroa, Venezuela. Received from Watkins and Doncaster.

Since 1903 we have received 4 ♂♂, 3 ♀♀ of this rare species from Georgetown, and Potaro, British Guiana; La Union, Rio Huacamayo, S.E. Peru; Bucnavista, East Bolivia; Sapueay, Paraguay; and Joinville, Sta Catharina; from Rev. Whitford, S. M. Klages, G. R. Ockenden, José Steinbach, and W. Foster.

†384. *Theretra olivacea* Rothsch. = *Xylophanes isaon* (Boisd.).

*Theretra olivacea* Rothschild, *Nov. Zool.* vol. i. p. 77 (1894) (Sao Paulo).

*Choerocampa isaon* Boisduval, *Spec. Gen. Lepid. Het.* vol. i. p. 272. No. 65 (1875) (Brazil).

Type: ♂, Sao Paulo, Brazil.

3 ♂♂, 2 ♀♀ have been added to the Tring series since 1903, from Rio Grande do Sul.

385. *Xylophanes pyrrhus* R. & J. = *Xylophanes pyrrhus*.

*Xylophanes pyrrhus* Rothschild & Jordan, *Nov. Zool.* vol. xiii. p. 185. No. 15 (1906) (Santo Domingo).

Type: ♂, Santo Domingo, Carabaya, S.E. Peru, 6,500 ft., January 1903. G. R. Ockenden coll.

The series at Tring consists of 46 ♂♂, 10 ♀♀, from Sto Domingo, Tinguri, La Oroya, and Oconeque, S.E. Peru; and Merida, Venezuela; from Briceno and G. R. Ockenden.

386. *Xylophanes chiron lucianus* R. & J. = *Xylophanes chiron lucianus*.

*Xylophanes chiron lucianus* Rothschild & Jordan, *Nov. Zool.* vol. xiii. p. 184. No. 13 (1906) (Santa Lucia).

Type: ♀, Santa Lucia, West Indies. Selwyn Branch coll.

387. *Xylophanes chiron cubanus* R. & J. = *Xylophanes chiron cubanus*.

*Xylophanes chiron cubanus* Rothschild & Jordan, *Nov. Zool.* vol. xiii. p. 185. No. 14 (1906) (Cuba).

Type: ♂, Holguin, Cuba. Tollin coll.

The series at Tring at present consists of 27 ♂♂, 7 ♀♀, from Holguin and Bayate, Santiago da Cuba, and Eastern Cuba; all from Tollin.

388. *Chaerocampa hystrix* Feld. = *Phanoxylla hystrix*.

*Chaerocampa hystrix* Felder, *Reise Novara Lepid.* t. 76. f. 5 (1874) (Amazons).

Type: ♂, Amazons. Bates coll. ex coll. Felder.

The Tring Museum has received, since 1903, 4 ♂♂ from Macas, E. Ecuador; Rio Jurua, Amazons; and Tefé, Amazons; from Messrs. Staudinger and Bang-Haas, and the Museo Goeldi.

389. *Deilephila wilsoni* Rothsch. = *Celerio wilsoni*.

*Deilephila wilsoni* Rothschild, *Nov. Zool.* vol. i. p. 83 (1894) (Hawaii).

Type : ♀, Hawaii, Hawaiian Islands (Sandwich Islands) (Scott Wilson coll.).  
In our " Revision " this specimen was erroneously stated to be a ♂.

1 ♂ has been received at Tring, since 1903, from Hawaii; from H. Fruhstorfer.

390. *Celerio calida hawaiiensis* R. & J. = *Celerio calida hawaiiensis*.

*Celerio calida hawaiiensis* Rothschild & Jordan, *Nov. Zool.* vol. xxii. p. 290. No. 12 (1915) (Hawaii).

Type : ♀, Mauna Kea, Hawaii, Hawaiian Islands (Sandwich Islands). Henry Palmer coll.

391. *Celerio euphorbiae conspicua* R. & J. = *Celerio euphorbiae conspicua*.

*Celerio euphorbiae conspicua* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 720. No. 674e (1903) (Beirut).

Type : ♂, Beirut, Syria. Received from Mons. Alfred Wailly.

19 ♂♂, 17 ♀♀ and 2 larvae have been added to the Tring series from Haifa and Beirut, Syria; from F. Lange and others.

†392. *Sphinx daucus* Cram. = *Celerio lineata lineata* (Fabr.).

*Sphinx daucus* Cramer, *Pap. Exot.* vol. ii. fasc. xi. p. 41. pl. cxxv. f. D. (1777) (N. America).

Cotype : ♀ ex coll. J. C. Sylvius van Lennep ex coll. Felder.

393. *Chaerocina dohertyi* R. & J. = *Chaerocina dohertyi*.

*Chaerocina dohertyi* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 742. No. 692. pl. vi. f. 5 (1903) (Kikuyu).

Type : ♂, Kikuyu Escarpment, British East Africa, 6,500—9,000 ft., March 1901. W. Doherty coll.

†394. *Panacra pseudovigil* Rothsch. = *Hippotion velox* (Fabr.).

*Panacra vigil* Rothschild, *Nov. Zool.* vol. i. p. 80 (1894) (hab. ?).

*Sphinx velox* Fabricius, *Entom. Syst.* vol. iii. Part 1. p. 378. No. 68 (1793) ( ? ).

Type ♂, hab. ?

395. *Panacra lifuensis* Rothsch. = *Hippotion velox* (Fabr.) ab. *lifuensis*.

*Panacra lifuensis* Rothschild, *Nov. Zool.* vol. i. p. 79 (1894) (Lifu).

Type : ♀, Lifu, Loyalty Islands. Received from Watkins and Doncaster.

†396. *Panacra griseola* Rothsch. = *Hippotion velox* (Fabr.) ab. *griseola*.

*Panacra griseola* Rothschild, *Nov. Zool.* vol. i. p. 80 (1894) (Lifu).

*Sphinx velox* Fabricius, *loc. cit. antea*.

Type : ♂, Lifu, Loyalty Islands. Received from Watkins and Doncaster.

397. *Panacra rosea* Rothsch. = *Hippotion velox* (Fabr.) ab. *rosea*.

*Panacra rosea* Rothschild, *Nov. Zool.* vol. i. p. 79. pl. vi. f. 14 (1894) (Lifu).

Type : ♀, Lifu, Loyalty Islands. Received from Watkins and Doncaster.

398. *Hippotion commatum* R. & J. = *Hippotion commatum*.

*Hippotion commatum* Rothschild & Jordan, *Nor. Zool.* vol. xxii. p. 290. No. 13. pl. xx. f. 3 (1915) (Rook Island).

Type: ♂, Rook Island, Papuan Islands, July 1913. A. S. Meek coll.

399. *Hippotion aporodes* R. & J. = *Hippotion aporodes*.

*Hippotion aporodes* Rothschild & Jordan, *Nor. Zool.* vol. xix. p. 135. No. 7 (1912) (Bibianaha).

Paratype: ♂, Bibianaha, Gold Coast, West Africa, 70 miles N.W. of Dimkwa, 700 ft., October 23rd, 1909. H. G. F. Spurrell coll.

400. *Hippotion aurora* R. & J. = *Hippotion aurora aurora*.

*Hippotion aurora* Rothschild & Jordan, *Nor. Zool.* vol. ix. Suppl. p. 812. No. 771 (1903) (Diego Suarez).

Type: ♀, Diego Suarez, Madagascar. Received from Mons. H. Donckier. We received a ♂ from Diego Suarez from Mons. Donckier some years later.

401. *Hippotion dexippus* Fawc. = *Hippotion dexippus*.

*Hippotion dexippus* Fawcett, *Proc. Zool. Soc. Lond.* 1915, vol. i. p. 108. No. 100. pl. ii. f. 25 (Kedai).

Type: ♂, Kedai, British East Africa, November 25th, 1911. W. Feather coll. The following 2 types were omitted from their correct sequence.

402. *Hippotion diyllus* Fawc. = *Pergesa diyllus*.

*Hippotion diyllus* Fawcett, *Proc. Zool. Soc. Lond.* 1915, vol. i. p. 109. No. 101. pl. ii. f. 23 (Kedai).

Type: ♂, Kedai, British East Africa, November 25, 1911. W. Feather coll.

†403. *Theretra crossi* Rothsch. = *Hippotion irregularis* (Walk.).

*Theretra crossi* Rothschild, *Nor. Zool.* vol. iii. p. 22. No. 3 (1896) (Assaba).

*Pergesa irregularis* Walker, *List Lepid. Ins. Brit. Mus.* Part viii. p. 152. No. 4 (1856) (W. Africa).

Type: ♂, Assaba, Niger. Dr. Cross coll.

We have received 8 ♂♂, 7 ♀♀ of this species since 1903, from Agberi, Niger; East Nigeria; Bitye, Ja River, Camaroons; Abonga River, Gaboon; Upper Congo; and Entebbe and Kampala, Uganda; from Dr. Anson, G. L. Bates, Rev. Bentley, Sir F. Jackson, and Colonel Rattray.

404. *Theretra radiosa* R. & J. = *Theretra radiosa*.

*Theretra radiosa* Rothschild & Jordan, *Nor. Zool.* vol. xxiii. p. 263. No. 32 (1916) (Goodenough).

Type: ♂, Goodenough Island, D'Entrecasteaux Islands, 2,500—4,000 ft. May 1913. A. S. Meek coll.

The Tring series contains 6 ♂♂, 11 ♀♀.

†405. *Theretra lifuensis* Rothsch. = *Theretra clotho celata* (Butl.).

*Theretra lifuensis* Rothschild, *Nor. Zool.* vol. i. p. 78 (1894) (Lifu).

*Chacrocampa celata* Butler, *Proc. Zool. Soc. Lond.* 1872, p. 472 (Cape York).

Type: ♂, Lifu, Loyalty Islands. Received from Watkins and Doncaster.



406. *Theretra incarnata* R. & J. = *Theretra ineurnata*.

*Theretra incarnata* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 770. No. 723. pl. vi. f. 12 (1903) (Sumba).

Type : ♀, Sumba Island, Malay Archipelago. Native coll.

†407. *Theretra obliterata* Rothsch. = *Theretra jugurtha* (Boisd.).

*Theretra obliterata* Rothschild, *Nov. Zool.* vol. i. p. 75 (1894) (Sierra Leone).

*Chaerocampa jugurtha* Boisduval, *Spec. Gen. Lepid. Het.* vol. i. p. 256. No. 39 (1875) (Senegal).

Type : ♂, Sierra Leone.

3 ♂♂, 1 ♀ have been added to the Tring series since 1903, from Prestea, inland from Sekondi, Gold Coast : Bitye, Ja River, Camarouns ; and Entebbe, Uganda ; from Colonel Rattray and L. G. Bates.

408. *Theretra cajus perkeo* R. & J. = *Theretra cajus perkeo*.

*Theretra cajus perkeo* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 781. No. 735a (1903) (Ogrugu).

Type : ♂, Ogrugu, Niger.

The Tring Museum has received 9 ♂♂, 7 ♀♀ of this form, since 1903, from Gambaga, Gold Coast ; Lagos, Nigeria ; Kaolak, Senegal ; and Konakry, French Guinea ; from Dr. Bury, G. Melou, and others.

†409. *Panacra buruensis* Rothsch. = *Theretra brunnea* (Semper).

*Panacra buruensis* Rothschild, *Nov. Zool.* vol. vi. p. 69. No. 7 (1899) (Mt. Mada).

*Chaerocampa brunnea* Semper, *Schmett. Philip.* vol. ii. p. 400. No. 40. t. 52. f. 1 (1896) (S.E. Mindanao).

Type : ♀, Mt. Mada, Buru, Moluccan Islands. Dumas coll.

4 ♂♂ have been added to the Tring series since 1903, from Biagi, Mamberé River, British New Guinea ; Ninay Valley, Arfak Mts., and Mt. Goliath, Snow Mts., Dutch New Guinea ; from A. S. Meek and A. E. Pratt.

410. *Theretra insignis kuehni* R. & J. = *Theretra insignis kuehni*.

*Theretra insignis kuehni* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 786. No. 741b (1903) (Dammer).

Type : ♂, Dammer Island, Lesser Sunda Islands, Malay Archipelago, December 27th, 1898. H. Kühn coll.

†411. *Panacra natalensis* Rothsch. = *Theretra orpheus orpheus* (Herr.-Sch.).

*Panacra natalensis* Rothschild, *Nov. Zool.* vol. i. p. 79. t. 5. f. 13 (1894) (Natal).

*Chaerocampa orpheus* Herrich-Schaeffer, *Ausseeur. Schmett.* f. 104 (Cape of Good Hope).

Type : ♂, Natal.

412. *Theretra orpheus intensa* R. & J. = *Theretra orpheus intensa*.

*Theretra orpheus intensa* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 788. No. 743c (1903) (Comoro Islands).

Paratype : ♂, Grande Comore, Comoro Islands, 1894. L. Humblot coll.

Since 1903 we have received 3 ♂♂ of this form from Grand Comoro Island, from G. F. Leigh.

413. *Theretra orpheus scotinus* R. & J. = *Theretra orpheus scotinus*.

*Theretra orpheus scotinus* Rothschild & Jordan, *Nov. Zool.* vol. xxii. p. 294. No. 7. pl. xx. f. 6 (1915) (Nigeria).

Paratype: ♂, Ilesha, South Nigeria. (Captain L. E. H. Humfrey coll.)  
Exchanged from the British Museum.

†414. *Panacra butleri* Rothsch. = *Rhyncholaba acteus* (Cram.).

*Panacra butleri* Rothschild, *Nov. Zool.* vol. i. p. 80 (1894) (Asia Orientalis).

*Sphinx actaeus* Cramer, *Pap. Exot.* vol. iii. fasc. xxi. p. 93. pl. ccxlviii. f. A (1779) (Samarang, Java).

Type: ♀, As. Or. Coll. Carstanjen = v.

415. *Rhagastis rubetra* R. & J. = *Rhagastis rubetra*.

*Rhagastis rubetra* Rothschild & Jordan, *Nov. Zool.* vol. xiv. p. 95. No. 7 (1907) (Nias Island).

Type: ♂, Island of Nias.

416. *Rhagastis confusa* R. & J. = *Rhagastis confusa*.

*Rhagastis confusa* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 795. No. 753. pl. xiv. f. 12 (1903) (Khasia Hills).

Type: ♂, Khasia Hills, Assam. Received from Watkins and Doneaster.

14 ♂♂, 4 ♀♀ have been added to the Tring series since 1903, from Sikkim and Darjeeling; from F. Möller and Otto Möller ex coll. Elwes.

†417. *Metopsilus aurantiacus* Rothsch. = *Rhagastis castor* (Walk.).

*Metopsilus aurantiacus* Rothschild, *Nov. Zool.* vol. i. p. 78 (1894) (hab. ?).

*Pergesa castor* Walker, *List Lepid. Ins. Brit. Mus.* viii. p. 153. No. 5 (1856) (Java).

Type: ♀, hab. ?, ex coll. Felder.

418. *Chaeroacampa lunata* Rothsch. = *Rhagastis lunata lunata*.

*Chaeroacampa lunata* Rothschild, *Nov. Zool.* vol. vii. p. 274. No. 3. pl. vi. f. 8 (1900) (Khasia Hills).

Type: ♂, Khasia Hills, Assam. Received from Watkins and Doneaster.

We have added 2 ♂♂ from Khasia Hills, Assam, to the Tring series since 1903.

419. *Rhagastis lunata sikkimensis* R. & J. = *Rhagastis lunata sikkimensis*.

*Rhagastis lunata sikkimensis* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 797. No. 755b (1903) (Sikkim).

Type: ♂, Sikkim, May 22, 1889. G. Pilcher coll.

420. *Metopsilus albomarginatus* Rothsch. = *Rhagastis albomarginatus albomarginatus*.

*Metopsilus albomarginatus* Rothschild, *Nov. Zool.* vol. i. p. 78 (1894) (Khasia Hills).

Type: ♂, Khasia Hills, Assam. Received from Watkins and Doneaster.

10 ♂♂, 3 ♀♀ have been received at Tring since 1903, from Gopaldhara, Rungron Valley, Sikkim; Darjeeling, Sikkim; and Shillong, Assam; from W. K. Webb, F. Möller, and H. Fruhstorfer.

421. **Rhagastis albomarginatus everetti** R. & J. = *Rhagastis albomarginatus everetti*.

*Rhagastis albomarginatus everetti* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 799. No. 758b (1903) (Kina Balu).

Type : ♀, Mount Kina Balu, North Borneo. A. Everett coll.

†422. **Theretra catori** Rothsch. = *Cechenena aegrota* (Butl.) ♀.

*Theretra catori* Rothschild, *Nov. Zool.* vol. i. p. 75 (1894) (N. Borneo).

*Pergesa aegrota* Butler, *Proc. Zool. Soc. Lond.* 1875, p. 246, No. 19 (Silhet).

Type : ♀, N. Borneo. D. Cator coll.

†423. **Daphnis chimaera** Rothsch. = *Cechenena aegrota* (Butl.) ♂.

*Daphnis chimaera* Rothschild, *Nov. Zool.* vol. i. p. 86. t. 6. f. 16 (1894) (Borneo).

*Pergesa aegrota* Butler, *loc. cit. antea*.

Type : ♂, Borneo.

1 ♀ of *Cechenena aegrota* has come to hand since 1903, from Malay Peninsula.

†424. **Philampelus orientalis** Feld. = *Cechenena helops* (Walk.).

*Philampelus orientalis* Felder, *Reise Novara Lepid.* t. 77. f. 1 (1874) (Java).

*Philampelus helops* Walker, *List Lepid. Ins. Brit. Mus.* Part viii. p. 180. No. 12 (1856) (Natal !*loc. err.*).

Type : ♀, Java (Van de Capellen), ex coll. Felder.

We have received 1 ♂, 4 ♀♀ of this species since 1903, from Lakimpoor, Assam ; Central Sumatra, and Perak ; from H. Stevens and others.

425. **Cechenena helops papuana** R. & J. = *Cechenena helops papuana*.

*Cechenena helops papuana* Rothschild & Jordan, *Nov. Zool.* vol. ix. Suppl. p. 802. No. 762b (1903) (Milne Bay).

Type : ♂, Milne Bay, British New Guinea, November 1898. A. S. Meek coll.

7 ♂♂, 2 ♀♀ of this form have been added to the Tring series since 1903, from Biagi, Mambare River, British New Guinea ; and Oetakwa River, Snow Mts., and Ninay Valley, Arfak Mts., Dutch New Guinea ; from A. S. Meek and A. E. Pratt.

†426. **Theretra striata** Rothsch. = *Cechenena minor* (Butl.).

*Theretra striata* Rothschild, *Nov. Zool.* vol. i. p. 76 (1894) (Japan).

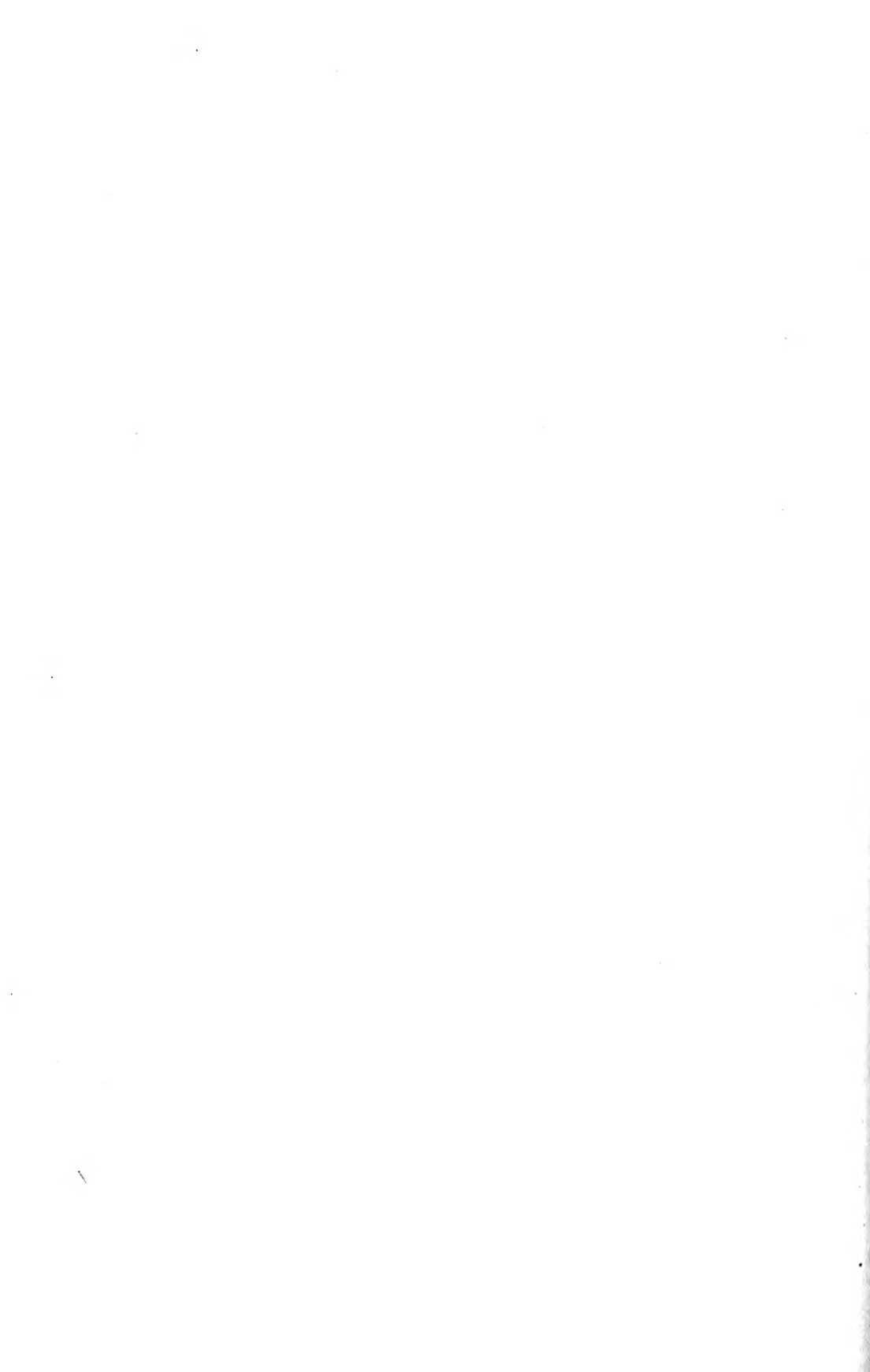
*Chaerocampa minor* Butler, *Proc. Zool. Soc. Lond.* 1875, p. 249. No. 30 (Masuri).

Type : ♂, Japan.

3 ♂♂, 1 ♀ have been received at Tring since 1903, from Sikkim ; from O. Möller ex coll. Elwes.

Of the 426 **types** recorded in this list, 15 are **cotypes** or **paratypes** and 66 are types of synonyms.

Those marked with a † before the number are synonyms. The name on the left after the number is the name under which the insect was described, that on the right in italics is the correct name.





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British Ornithologists' Union and Wollaston Expeditions in  
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No. II.

ON NEW GENERA AND SPECIES OF *LEPIDOPTERA PHALÆNÆ*, WITH THE CHARACTERS OF TWO NEW FAMILIES.

BY SIR GEORGE F. HAMPSON, BART.

## AMATIDÆ.

299c. *Paramelisa dollmani* n. sp.

♂. Head and tegulæ creamy white, the latter orange-yellow at base and tips, the antennæ brown, white at base, thorax pale red-brown tinged with grey; abdomen with the two basal segments red-brown tinged with grey, the basal segment with minute subdorsal orange-scarlet spots, the other segments white, the 4th to 6th with subdorsal orange-scarlet bands edged with black behind, the 7th segment edged with orange-scarlet behind, the anal segment orange; pectus and fore femora behind orange-yellow, the fore tibiae and tarsi tinged with red-brown, the mid and hind femora orange above with some scarlet at extremities, the tibiae at extremities and tarsi, except at base, tinged with red-brown; ventral surface of abdomen white, with some scarlet and orange-yellow at base, a ventral series of small blackish spots, the anal tuft orange-yellow below (the tuft of hair at extremity of abdomen worn off). Forewing pale red-brown tinged with grey, the termen white towards tornus. Hindwing white, slightly tinged with red-brown. Underside of forewing with the costa whitish towards base, the whole area below the cell and vein 4 white; hindwing white.

♀. Head orange-yellow behind, the tegulæ, thorax, and two basal segments of abdomen dark red-brown, the last with scarlet line at base, the 4th, 5th, and 6th segments grey-brown in front of the bands, and the two terminal segments grey-brown, the 3rd, 4th, and 5th segments with some orange-yellow on dorsum, and the 6th with scarlet spot, the anal tuft tipped with orange; pectus brown; wings uniform dark red-brown, tinged with grey above and below.

*Hab. N.-W. Rhodesia*, Solwezi (H. Dollman). 1 ♂, 1 ♀ type. *Exp.* ♂ 38, ♀ 44 mill.

p. 178. *Xanthyda* n. n.

The type of *Hyda* Wlk. is *singularis*, and the name has priority over *Chrysostola* Herr. Schâff. 1856.

745a. *Dinia invittata* n. sp.

*Dinia aeagrus* Druce, *Biol. Centr. Am. Het.* i. p. 63 (part) nec Cram.

Head, thorax, and abdomen black, the last with the lateral fringes of hair and the anal tuft except at base crimson, the tegulae and patagia with some metallic blue, and the abdomen with slight metallic blue dorsal streak on basal segments; coxae of male white. Forewing hyaline, the veins, base, and margins black; a strong oblique black discoidal bar conjoined to the costal fascia; the terminal band with slightly waved inner edge, slightly widening to apex in male, broadly in female. Hindwing hyaline, the veins and a broad terminal band black, the latter with waved inner edge.

*Hab.* Mexico, Guerrero. Tetetlapa (H. H. Smith), 1 ♂, 1 ♀ type, Godman Salvin Coll. *Exp.* ♂ 38, ♀ 40 mill.

Differs from *D. aeagrus* in the forewing being without the crimson stripe on inner margin.

## LITHOSIADAE.

## Nolinae.

61g. *Nola holoscota* n. sp.

♀. Head and thorax dark red-brown irrorated with grey-white, the palpi slightly irrorated, the antennae blackish; abdomen grey suffused with brown; pectus whitish at sides; legs red-brown, the tarsi ringed with white; ventral surface of abdomen blackish brown. Forewing dark red-brown irrorated with silvery grey; an indistinct darker brown bar from costa near base; tufts of raised scales in the cell before middle and in its extremity; antemedial line indistinct, dark, angled outwards to the tuft of raised scales in end of cell and very oblique towards costa and inner margin; postmedial line indistinct, dark, bent outwards below costa, then very slightly waved, oblique below vein 4; an indistinct, rather diffused, red-brown subterminal line defined on outer side by silvery grey scales, excurved below costa, then waved. Hindwing grey suffused with cupreous brown, the cilia red-brown with a fine pale line at base.

*Hab.* Natal, Karkloff (Platt), 1 ♀ type. *Exp.* 26 mill.

## NOCTUIDAE.

## Agrotinae.

272a. *Euxoa albiorbis* n. sp.

♂. Head and thorax white mixed with dark brown and red-brown, the tegulae with black line at middle, the patagia with fringe of black scales tipped with white at base; antennae with the shaft white, the branches brown; abdomen white suffused with red-brown, leaving white segmental lines towards extremity; pectus, legs, and ventral surface of abdomen white tinged with brown, the tarsi ringed with white. Forewing white mixed with dark brown, suffused with red-brown except on marginal areas, the terminal area more suffused with dark brown; double subbasal black bars filled in with white from costa and cell; antemedial line double, black filled in with white, crenulate; claviform

minute, defined by black, acute at extremity; orbicular pure white defined by black and with some black scales in centre, elongate elliptical; reniform with blackish centre and white annulus defined by black; an indistinct sinuous blackish medial line; postmedial line black defined on outer side by white, bent outwards below costa, then dentate, oblique below vein 4; subterminal line white, defined on inner side by blackish towards costa, and by dentate black marks from below vein 6 to below 2, dentate at veins 7, 6, 4, 3, 2; a lunulate black terminal line; cilia white tinged with red-brown. Hindwing silvery white; traces of a dark discoidal striga and of postmedial and subterminal lines; a fine dark terminal line; the underside with the costal area irrorated with brown, a blackish discoidal point and postmedial shade from costa to discal fold.

*Hab. S. Palestine, El Faikhari (Austen), 2 ♂ type. Exp. 30 mill.*

#### Hadeninae.

1536a. *Hyssia malaphaea* n. n.

*Hyssia sminthistis* Hmpsn., *A.M.N.H.* (S) xii, p. 593 (1913) nec Hmpsn. 1905.

#### ZENOBIANAE.

3264a. *Hypoplexia mictochroa* n. sp.

Antennae of female bipectinate with short branches to near apex.

♀. Head and thorax purplish red mixed with whitish and black, a black line behind the tegulae; antennae black barred with white above; palpi black-brown; abdomen dark brown tinged with grey, the basal crest purplish red; pectus, legs, and ventral surface of abdomen black-brown, the tarsi ringed with white. Forewing purplish red mixed with some black and white, the veins streaked with leaden grey; double subbasal black striae from costa, a slight diffused mark below the cell and oblique shade above inner margin; ante-medial line black defined on inner side by white, oblique, waved; claviform minute, defined by black; orbicular purplish red, with whitish annulus defined by black except above; postmedial line white defined on inner side by black, and with large patches of black suffusion before it beyond the cell and below vein 3, bent outwards below costa, then slightly waved, oblique below vein 4, some white points with black between them beyond it on costa; subterminal line white, reduced below vein 6 to points on the veins defined on inner side by blackish, excurved at vein 6; a terminal series of slight black lunules; cilia dark leaden grey, chequered with purplish red at tips. Hindwing glossy fuscous brown tinged with grey; a curved blackish postmedial line; cilia whitish at base, with blackish line at middle and purplish pink tips. Underside of forewing fuscous, the inner area whitish, the costa and termen irrorated with reddish and whitish, the postmedial line black, arising below costa and incurved below vein 4; hindwing whitish tinged with purplish pink and irrorated with black, a black discoidal spot and curved postmedial line.

*Hab. Natal, Pinetown (Platt), 1 ♀ type. Exp. 36 mill.*

p. 466. *Palluperina* n. n.Type.  
*dumerili*

*Luperina* Boisds., *Ind. Meth.* p. 77 (1829), non descr.; nec *Luperina* Boisds., *Gen. and Ind. Meth.* p. 113 (1840) type *leucophaea* = *Pachetra* Guen. (1852) type *leucophaea* v. *Cat. Lep. Phal.* vol. v. p. 203.

3946a. *Athetis melanomma* n. sp.

♂. Head and thorax rufous mixed with some whitish, the antennae white tinged with rufous, the palpi blackish, the 2nd joint at extremity, and the 3rd joint whitish; abdomen whitish suffused with red-brown; pectus, legs, and ventral surface of abdomen red-brown mixed with white, the tibiae at extremities and the tarsi ringed with white. Forewing rufous irrorated with a few white scales; a dark subbasal line from costa to submedian fold, excurved below costa; antemedial line dark, oblique towards costa, then indistinct and waved, orbicular a small round black spot defined by white scales; reniform faintly defined by brown, and with some whitish points on its outer edge, a sinuous brown line from it to inner margin; postmedial line dark, excurved to vein 4, then oblique, and with slight black points beyond it on the veins except towards costa; subterminal line slight, dark defined on outer side by white scales, angled outwards below vein 7; a terminal series of blackish striae. Hindwing whitish suffused with red-brown; an indistinct dark discoidal spot and curved postmedial line; cilia white tinged with red-brown; the underside white, the costal area slightly irrorated with red-brown, and the apical half of terminal area more thickly irrorated, a dark-brown discoidal lunule and postmedial line excurved below costa and incurved below vein 3.

**Natal**, Durban (Platt), 1 ♂ type. *Exp.* 38 mill.

4110a. *Hypoperigea medionota* n. sp.

*Hadjina atrinota* Hmps., *Cat. Lep. Phal. B.M.* viii. p. 528. ♀ (nec ♂).

Head and thorax red-brown mixed with grey and some blackish, the antennae pale ochreous; abdomen ochreous tinged with rufous, the basal crest with some blackish; pectus and legs ochreous tinged with rufous, the tibiae and tarsi banded with black. Forewing red-brown mixed with grey; a black subbasal line from costa to submedian fold, slightly angled outwards below costa; antemedial line double black, waved, and rather oblique; claviform defined by black; orbicular and reniform defined by black and with their centres defined by black, the former round, a black mark between their lower parts; a diffused wavy red-brown medial line; postmedial line double, black, bent outwards below costa, then rather oblique, minutely dentate, and with minute black points beyond it on the veins, some white points beyond it on costa; subterminal line whitish, defined on inner side by diffused red-brown, slightly excurved below costa and at middle; the terminal area more suffused with red-brown; a terminal series of black points and a striga in submedian interspace. Hindwing whitish suffused with fuscous brown, the base and inner margin whiter; a fine dark terminal line; cilia white tinged with red-brown; the underside whitish, the costal half and termen except towards tornus irrorated with red-brown, a dark postmedial line from costa to vein 5.

**Hab. Br. E. Africa**, Eb. Urru (Betton), 2 ♀ (type *atrinota* ♀); Nairobi (Anderson), 2 ♂, 4 ♀ type. *Exp.* 28-32 mill.

4162. *Monodes hypophæa* n. n.

*Monodes hyposcota* Hmps., nec. *Eriopyga hyposcota* Hmps., *Cat. Lep. Phal. B.M.* v. p. 349, pl. xc. f. 9 (1903), which is a *Monodes*.

4681a. *Arenostola diamesa* n. sp.

♂. Head and thorax whitish, the head and tegulae except at base suffused with rufous, the antennae red-brown, the frons and palpi dark brown; abdomen whitish suffused with red-brown; pectus, legs, and ventral surface of abdomen dark red-brown, the tarsi ringed with white. Forewing grey-white slightly tinged with rufous, the inner half and interspaces of costal area towards apex irrorated with black, the veins of costal area and beyond the cell whitish; a blackish fascia below the cell and vein 4 to towards termen, diffused below; a black discoidal point and small subterminal spots below veins 6 and 2; a blackish terminal line; cilia white with a dark line through them. Hindwing whitish suffused with fuscous, the base paler; cilia white; the underside white tinged with fuscous, the costal area and terminal area to vein 2 irrorated with blackish.

*Hab. Zululand*, Eshowe (Platt), 1 ♂ type. *Exp.* 28 mill.

4812a. *Callyna polychroa* n. sp.

♂. Head and thorax black-brown tinged with leaden grey and irrorated with a few white scales, the back of head ochreous tinged with rufous; abdomen black-brown, the anal tuft brownish white except above; pectus, legs, and ventral surface of abdomen white mixed with dark brown, the fore tibiae and the tarsi blackish ringed with white. Forewing black-brown glossed with leaden grey, the costal area to end of cell and the cell ochreous tinged with rufous, at base extending to submedian fold, in which there is a slight black streak; a curved whitish subbasal striga from costa, the costal edge beyond it dark to the antemedial line, which is rufous defined on each side by whitish to median nervure and excurved below costa, then almost obsolete, represented by black and white scales and dentate; a small black spot below middle of cell; orbicular flesh-white, round, with a black spot between it and the reniform, which is represented by a rufous bar defined at side by flesh-white and with a minute black spot on its outer edge, its lower extremity produced to a small pure white spot; postmedial line oblique and defined on each side by white to vein 4, faint and rufous towards costa, then blackish, below vein 4 almost erect and formed by black points with minute dentate white marks on their outer side, a black streak beyond it above and below vein 5 to near termen, and the costal area beyond it rather darker with some white points on costa; a round, pure white apical spot, with a subterminal series of black points from it to vein 2 except at discal fold; a fine pale line at base of cilia. Hindwing pale brown with a cupreous gloss, the cilia white with a brown line at middle; the underside white irrorated with brown, the costal area suffused with brown towards apex, a brown discoidal spot and rather diffused postmedial line slightly angled outwards at vein 7, a faint subterminal line.

*Hab. Philippines*, Luzon, Mt. Makiling (Baker), 1 ♂ type. *Exp.* 38 mill.

4816b. *Callyna unicolor* n. sp.

♀. Head, thorax, and base of abdomen dark reddish-brown glossed with grey, the rest of abdomen grey suffused with brown, the antennae black, the

palpi irrorated with white; pectus, legs, and ventral surface of abdomen white suffused with brown, the tibiae white at extremities, the tarsi black ringed with white. Forewing glossy dark reddish-brown slightly irrorated with black; antemedial line slight, blackish, faintly defined on inner side by pale brown; orbicular and reniform large, faintly defined at sides by black, the former round, the claviform represented by a slight black mark; a faint oblique dark line from lower angle of cell to inner margin; postmedial line slight, black defined on outer side by pale brown, curved, dentate except at costa; a white subterminal striga from costa, diffused on outer side, then traces of a pale, waved subterminal line; a slight dark terminal line. Hindwing cupreous brown, the cilia with a whitish line at base and whitish tips; the underside white irrorated with red-brown, especially on costal area, the terminal area more suffused with red-brown except towards tornus, an indistinct, somewhat dentate red-brown postmedial line.

*Hab. Natal*, Durban (Platt), 1 ♀ type. *Exp.* 44 mill.

#### ERASTRIANAE.

##### 5028d. *Catoblemma goniaphora* n. sp.

♂. Head, thorax, and abdomen white mixed with some dark brown especially on head and tegulae, the antennae and palpi dark brown; pectus, legs, and ventral surface of abdomen white slightly irrorated with brown, the tarsi brown ringed with white, the anal tuft ochreous white. Forewing white suffused in parts with fulvous yellow to the postmedial line, the costa, postmedial and terminal areas black-brown mixed with some white; antemedial line fulvous yellow with dark striae at costa and inner margin, slightly waved, incurved below the cell; a slight white discoidal bar; postmedial line white defined on inner side by fulvous yellow, oblique and sinuous to vein 5, excurved to vein 3, then incurved and slightly waved; a faint, slightly waved, whitish subterminal line defined on inner side by the dark postmedial area, excurved below costa and at middle; a terminal series of small black lunules; cilia chequered whitish and black. Hindwing white tinged with brown; the underside with rather diffused curved dark postmedial and subterminal lines.

♀. Head, thorax, and abdomen dark brown mixed with some grey; forewing dark brown mixed with grey, the area to the postmedial line tinged with fulvous yellow, especially towards the postmedial line, the postmedial area blackish; hindwing dark brown tinged with grey, the cilia with a whitish line at base.

*Hab. Philippines*, Luzon, Los Baños (Baker), 1 ♂, 2 ♀ type. *Exp.* 18 mill.

##### 5580a. *Hiccoda roseitincta* n. sp.

♂. Head and thorax creamy white, the vertex of head with black streak, and the sides of frons with black points, the antennae black, the palpi black, white in front at base and the extreme tips white; abdomen pale rufous, the basal crest creamy white; pectus and legs white tinged with rufous, the tibiae and tarsi banded black and white. Forewing creamy white, the area beyond the cell suffused with pale pink except at costa, and the area beyond it tinged with pale olive to just before termen; some black striae from basal half of costa; a quadrate deep black patch in end of cell, extending to the costa, a curved

black mark below it in submedian interspace and a slight striga at inner margin ; postmedial line slight, black, excurved beyond the cell, then incurved and with some dark suffusion beyond it towards inner margin ; a fine terminal black line interrupted by white points at the veins and defined on inner side by white ; cilia black, chequered with white at tips. Hindwing white tinged with rufous ; a fine blackish terminal line ; cilia fuscous and white with a white line at base. Underside white tinged with rufous except on inner areas ; forewing with the costa fuscous toward base, a diffused fuscous patch in end of cell with the costa above it black, a black postmedial bar from the costa followed by some white points ; hindwing with small black discoidal spot and some black irroration on medial part of costa, traces of a curved postmedial line ; both wings with terminal series of black striae.

*Hab.* "Germ. E. Africa," Lulanguru (Carpenter), 1 ♂ type. *Exp.* 16 mill.

### PHLOGOPHORINAE.

#### 6200a. *Bombotelia ethiopica* n. sp.

♂. Head and thorax red-brown tinged with purplish grey, the vertex of head whitish, the tegulae with a few black scales and a black patch at base ; antennae grey tinged with brown ; palpi white at extreme tips ; abdomen bright red-brown, the basal crest fiery red, the others tipped with black ; tarsi black-brown ringed with white. Forewing bright red-brown suffused with purple grey, the terminal area less suffused ; a subbasal black point on costa ; antemedial line with oblique black bar from costa and double inwardly oblique deep chocolate brown line from discal fold to inner margin, the outer line very slightly sinuous and forming a minute black mark in the cell ; reniform with sap-green centre and white annulus slightly defined by black, narrow and constricted at middle ; an oblique bright red-brown medial line from cell to inner margin ; postmedial line double, blackish, the outer line oblique and defined on outer side by bright red-brown to vein 6, then indistinct, incurved at discal fold, below which there is a slight red-brown mark on it, incurved and waved below vein 4, slightly angled outwards at vein 1, where there is a black point on its inner side ; a conical chocolate-red mark below costa before the subterminal line, which is white slightly defined on outer side by blackish towards costa, then represented by white scales tinged with sap-green, incurved at discal fold, below which there is a chocolate-red mark on its inner side, oblique between veins 4 and 2, then slightly excurved ; a terminal series of chocolate-brown points and striae with some white scales on their inner side towards apex. Hindwing grey-white, the terminal half suffused with purple except towards costa and inner margin ; a subterminal whitish striga at vein 2 connected with a whitish mark on termen above tornus ; cilia deep purple-red, white at tips. Underside purple-red, the inner areas white ; forewing with the reniform white, the postmedial line dark defined on outer side by whitish, excurved to vein 4, then incurved, subterminal white striae above and below vein 7 ; hindwing slightly irrorated with blackish, a large black discoidal spot defined by white, the postmedial line indistinct, double, curved, and somewhat dentate, a triangular black-brown subterminal mark above tornus.

♀. Much darker brown, more strongly suffused with purple-grey; the under-side of hindwing with curved dark medial line and the postmedial line more distinct.

*Hab.* Natal, Durban (Platt), 1 ♂, 2 ♀ type. *Exp.* 26 mill.

6277a. *Chlumetia polymorpha* n. sp.

Antennae of male laminate and almost simple.

♂. Head and thorax fuscous black mixed with some grey-white; lower part of frons white; palpi purplish red mixed with some white, the tips white; abdomen purplish red and white, the basal segment sap-green and white, black segmental lines, the anal tuft fuscous at tip; pectus whitish; legs fuscous and whitish, the tarsi black, the tibiae at extremities and tarsal joints ringed with white; ventral surface of abdomen sap-green with some white at base and purple-pink at middle. Forewing black suffused with leaden-grey, the medial area beyond and below the cell grey tinged with purplish, the postmedial and terminal areas below vein 4 olive-brown; antemedial line black slightly defined on inner side by whitish to median nervure, then double and filled in with red-brown, minutely waved, incurved below submedian fold, a white point just beyond it in the cell; reniform white, its centre defined by sap-green, narrow; a slight, somewhat waved blackish medial line, excurved just beyond the reniform, which it touches above and below, then oblique; postmedial line double filled in with whitish, the inner line black, the outer less distinct, oblique and slightly sinuous to discal fold, then inwardly oblique and excurved above vein 1, an oblique, slightly waved, pale line beyond it from costa to discal fold, an oblique black fascia from it in discal fold to termen below vein 4; subterminal line indistinct, dark, slightly waved, some white before it between veins 4 and 2, and some white suffusion beyond it at apex; a waved black terminal line; cilia grey-brown with a waved black line at middle and chequered with blackish at tips. Hindwing purplish fuscous, the terminal half of vein 2 with alternating black and whitish marks; cilia whitish with strong dark reddish-brown line at middle. Underside of forewing fuscous, the costal area red-brown irrorated with white, the terminal area irrorated with white, postmedial line with oblique white striga from costa, bent outwards below costa, then double, fuscous filled in with whitish and obliquely curved, an indistinct, slightly waved, dark red terminal line: hindwing white mixed with purplish red, a black discoidal spot, minutely waved blackish medial and postmedial lines and double subterminal line, a waved black terminal line.

*Ab.* 1. Abdomen pinkish rufous except at base, the anal tuft sap-green, the forewing with the outer half of medial area whitish tinged with pinkish red, the lower half of terminal area tinged with green.

♀. Forewing more variegated, with whitish tinged with rufous and with sap-green at costa and lower half of termen.

*Ab.* 2. Forewing with semicircular black patch on inner area from near base to near tornus.

*Ab.* 3. Forewing with the medial area beyond and below the cell white tinged with pink, the inner half of postmedial and terminal areas pale rufous.

*Hab.* Transvaal, White R. (Cooke), 1 ♀; Natal, Durban (Platt), 3 ♂, 3 ♀ type. *Exp.* 22-24 mill.



*C. lichenosa* will almost certainly belong to this section, and possibly also *C. cana*; the specimen from the Transvaal recorded as the former, in very bad condition, belongs to this species.

#### SARROTHRIPINAE.

##### 6576a. *Giaura plumbeofusa* n. sp.

♀. Head and thorax grey-white tinged with red-brown, the tegulae with fuscous line near tips, the antennae black-brown; abdomen whitish suffused with red-brown; pectus and legs white, the tibiae and tarsi suffused with red-brown; ventral surface of abdomen ochreous. Forewing whitish strongly suffused with leaden-grey, the basal costal area rufous; a curved red-brown subbasal line from costa to vein 1, defined on outer side by ochreous white; a narrow ochreous white antemedial band traversed by a slight dark line and defined on outer side by crimson-red, slightly excurved to submedian fold, then rather oblique; a semicircular ochreous white patch on postmedial part of costa; postmedial line double, red-brown, represented by two slightly waved lines near the inner edge of the costal patch, then obsolete and arising again from below the outer edge of the patch, filled in with ochreous, angled inwards at discal fold, excurved at middle, then slightly waved; subterminal line ochreous defined on each side by fuscous, slightly excurved below vein 7; a fine dark terminal line; cilia brown with an ochreous line at base. Hindwing ochreous white tinged with red-brown; a fine dark terminal line to vein 2. Underside of forewing greyish tinged with brown, the costa and inner area white; hindwing ochreous white.

*Hab.* **Gold Coast**, Bibianaha (Spurrell), 1 ♀ type. *Exp.* 24 mill.

#### GENUS *Nolatypa* nov.

Type: *N. phoenicolepia*.

Proboscis fully developed; palpi obliquely upturned to about middle of frons and moderately scaled, the 2nd joint slightly fringed with hair behind at extremity, the 3rd short; frons smooth; eyes large, round; antennae of male with fasciculate cilia; thorax clothed almost entirely with scales and without crests; abdomen smoothly scaled and without crests; tibiae slightly fringed with hair. Forewing with the apex rounded, the termen evenly curved and not crenulate; the rough scaling slight; veins 3 and 5 from near angle of cell; 6 from below upper angle; 7 from angle; 8, 9, 10 stalked; 11 from cell. Hindwing with veins 3, 4 from angle of cell; 5 fully developed from above angle; 6, 7 from upper angle; 8 anastomosing with the cell to near middle.

In key differs from *Gyrtonides* in the forewing having vein 7 from the cell and 8, 9, 10 stalked.

##### 6621a. *Nolatypa phoenicolepia* n. sp.

♂. Head, thorax, and abdomen grey mixed with black; palpi mostly white, with some black on 2nd joint at sides; pectus and ventral surface of abdomen mostly white. Forewing grey mixed with fuscous and black and some purplish red, especially on outer half of medial area; a diffused black streak below basal

part of cell; an oblique black subbasal streak from costa; antemedial line black, excurved from below costa to submedian fold, then incurved and excurved above inner margin; medial line black, slightly excurved in the cell; reniform large, defined by black; postmedial line black, angled outwards beyond upper angle of cell, then obliquely curved to below angle of cell and erect to inner margin; an oblique series of three black spots from apex to beyond the angle of the postmedial line; a terminal black line forming minute wedge-shaped marks at the veins; cilia with a series of blackish points near base. Hindwing grey suffused with fuscous brown, the cilia rather whiter, with a series of obscure fuscous spots near base. Underside white irrorated with fuscous; forewing with the disk suffused with fuscous, the postmedial line diffused, excurved just beyond the cell; hindwing with rather diffused fuscous discoidal annulus, curved postmedial line and faint subterminal shade.

*Hab.* "Germ. E. Africa," Lulanguru (Carpenter), 1 ♂ type. *Exp.* 24 mill.

#### VESTERMANNIANAE.

##### 7014*b*. *Goniccalpe heteromorpha* n. sp.

♂. Head and thorax glossy golden rufous; the metathoracic crest black tipped with white; antennae grey-brown; palpi yellowish white with some fuscous at sides; abdomen golden rufous, yellowish white at base, the crest on 3rd segment black tipped with white, the anal tuft black at extremity, the genital tuft white with some rufous at extremity; pectus and three basal segments of ventral surface of abdomen yellowish white; legs whitish, the tibiae tinged with rufous and grey-brown. Forewing glossy golden rufous; a blackish subbasal point in the cell; antemedial line fuscous defined on inner side by whitish, oblique, waved; reniform defined by blackish, small, elliptical; postmedial line blackish defined on outer side by whitish, oblique to below vein 6, then inwardly oblique; a subterminal series of black points, the point below vein 7 further from termen. Hindwing yellowish white, the terminal area suffused with brown to vein 2. Underside of forewing whitish, suffused with brown except on inner area; hindwing with slight brown suffusion in the interspaces at termen to vein 2.

♀. Head, thorax, and forewing suffused with silvery grey and with hardly any rufous tones, and sparsely irrorated with black scales, the reniform filled in with rufous, the postmedial line less distinct and incurved at submedian fold. The male has the antennae ciliated, the anal tuft not forked, the forewing with the termen oblique below vein 4 but not waved; the female has a forked anal tuft and the termen of forewing waved below vein 4.

*Hab.* Natal, Pinetown (Platt), 2 ♂, 1 ♀ type. *Exp.* 24 mill.

#### FAMILY Somabrachidae.

Proboscis and palpi absent; frons with pointed conical corneous process, channelled and slightly ribbed below and with corneous plate below it; antennae of male bipectinate with long branches to apex; fore femora very short, with curved corneous spine on outer side from extremity, the mid and hind tibiae without spurs. Forewing with vein 1 *a* forked with 1 *b*, 1 *c* absent, veins 2, 3, 4, 5 at intervals, 5 from just above angle of cell; 6 from below middle of disco-

cellulars in *S. aegrota* Klug, from just below upper angle of cell in *S. infuscata* Klug; 7 from angle; 8, 9 stalked, 10 absent; 11 from cell. Hindwing with vein 1 *a* absent, 1 *b* and *c* present; veins 2, 3, 4, 5 at intervals; 6, 7 shortly stalked; 8 coincident with the cell and vein 7 throughout; the costal and inner areas very narrow; the frenulum short and non-functional.

Female wingless.

Larva smooth and much resembling those of the *Epichnopterygidae* (Heterogyndidae), to which the family is closely allied, forming a cocoon below the soil.

In key differs from the *Megalopygidae* in the hindwing having veins 6, 7 shortly stalked and 8 coincident with the cell and vein 7 throughout, instead of vein 6 being widely separated from 7, and 8 anastomosing with the cell to middle or near extremity, then separate; and in having the female wingless.

In the *Megalopygidae* the frons has no process, the forelegs are normal, the forewing has vein 6 from above the middle of discocellulars, 7 and 8 bent downwards and stalked from 9 and 10, the frenulum may be fully developed, non-functional, or absent. The larvae are thickly clothed with long spatulate hairs and form a cocoon attached to the food-plant.

GENUS **Somabrachys**.

*Brachysoma* Aust., *Le Nat.* ii. p. 284 (1880) nec *Dej. Col.* 1821 . . . *codeti* (?) = *aegrota* Klug  
*Somabrachys* Kirby, *Cat. Het.* p. 930 (1892) . . . . . *codeti*

Type

For synonymy of species v. *Oberth. Et. Lép. Comp.* v. pp. 227-301 (1911) and xii. pp. 376-428 (1916), and *Jordan, Nov. Zool.* xxiii. pp. 350-58 (1916).

The range of the genus is from Morocco, Algeria, and Tunis, to Egypt and Palestine.

FAMILY **Teragridae**.

*Teragra* Wlk., 1855, is older than *Arbeta* Moore.

GENUS **Stenagra** nov.

Type: *S. multipunctata*.

Antennae of female serrate; head, thorax, and abdomen clothed with rough hair. Forewing very narrow, the apex rounded, the termen obliquely curved, the inner margin lobed near base; vein 3 from before angle of cell, 5 from above angle; the discocellulars very oblique and the upper angle of cell produced; vein 6 from the angle; 7, 8, 9 stalked, 7 from far beyond 9; 10, 11 from cell. Hindwing with vein 3 from before angle of cell; 5 from well above angle; 6, 7 strongly stalked to near apex; 8 connected with the cell by an oblique bar towards its extremity.

**Stenagra multipunctata** n. sp.

♀. Head, thorax, and abdomen red-brown tinged with grey; legs more rufous. Forewing red-brown strongly suffused with purple-grey; a small antemedial black spot below the cell, a rather triangular spot in the cell above origin of vein 2, a spot on upper part of discocellulars, an obliquely curved post-medial series of seven black spots from costa to below vein 2 near its base, the

spot at discal fold larger, a subterminal series of five small spots, erect to vein 4, then oblique, and a minute spot below vein 3, a minute subapical spot, all slightly defined by pale grey. Hindwing pale red-brown with a purplish gloss.

*Hab.* **N. Nigeria**, Baro (Macfie), 1 ♀ type. *Exp.* 26 mill.

***Selagena albicilia* n. sp.**

♂. Head and thorax pure white, the head with ridge of rufous scales between antennae, the tegulae with some bright rufous scales at tips, the patagia mostly bright rufous; antennae dark red-brown; abdomen dark greyish brown mixed with some white, the crests on basal segments and the anal tuft bright rufous; pectus and legs pure white with a few dark brown scales; ventral surface of abdomen white, obscurely banded with brown. Forewing rufous with some white at base of costal and inner areas; some irregular marks formed by raised metallic black scales in the submedian fold below middle of cell and bars on each side of the discocellulars; the area beyond the cell with four obscure waved brown lines, with some black scales on them from below costa to vein 5; obscure black spots before termen above and below vein 7 and an elongate mark below vein 6. Hindwing black-brown with a slight cupreous gloss; cilia pure white, pale rufous at base. Underside black-brown with a slight cupreous gloss.

*Hab.* **Br. C. Africa**, Mt. Mlanje (Neave), 1 ♂ type. *Exp.* 32 mill.

***Arbelodes bisinuata* n. sp.**

♂. Head and thorax dark reddish brown mixed with grey, the frons dark reddish brown; abdomen glossy ochreous whitish suffused with brown, the basal crest with dark reddish brown tip. Forewing grey suffused and irrorated with dark reddish brown; obscure rounded antemedial reddish brown spots in and below the cell, separated by a pale streak in submedian fold extending to below end of cell; vein 2 with a pale streak on it; a rounded reddish brown spot with faint pale outline at end of cell and another below it above inner margin; subterminal line dark brown, incurved below vein 7, then oblique to vein 4, then excurved; a terminal series of slight dark points; cilia with an ochreous tinge at base. Hindwing glossy ochreous whitish tinged with reddish brown.

*Hab.* **Br. C. Africa**, Mt. Mlanje (Neave), 1 ♂ type. *Exp.* 30 mill.

Nearest to *A. obliquifascia* Hmps.

***Arbelodes minima* n. sp.**

♂. Head, thorax, and abdomen black, white, and pale ochreous; frons, palpi, pectus, legs, and ventral surface of abdomen ochreous white, the tibiae and fore tarsi with some black hairs. Forewing black mixed with rufous and some grey-white, the basal area with more whitish; indistinct slightly waved black antemedial and medial lines; a black discoidal spot; a more distinct slightly waved black line just beyond the cell, with the area between it and the medial line mostly rufous; an indistinct black subterminal line, incurved and waved between veins 6 and 4, where there is some rufous beyond it. Hindwing black-brown with a leaden grey gloss, the cilia ochreous yellow. Underside black-brown with a leaden grey gloss.

*Hab.* **Br. C. Africa**, Mt. Mlanje, Luchenya R. (Neave), 1 ♂ type. *Exp.* 18 mill.

**Metarbela laguna n. sp.**

♂. Head and thorax pale red-brown mixed with some dark brown and grey; abdomen whitish suffused with reddish brown, the basal crests darker at tips. Forewing pale rufous, the inner area, a triangular patch from lower angle of cell to inner margin, and the terminal area except towards costa whitish irrorated with brown; a series of dark brown striae from costa; an antemedial dark striga from median nervure with obscure rounded spots defined on outer side by whitish below it above and below vein 1; an oblique dark striga in lower part of cell confluent at median nervure with the reniform discoidal mark defined by blackish, indented on outer side at middle and excised above where it is confluent with two of the dark striae from costa; the triangular whitish patch with an elliptical dark mark on it from submedian fold to inner margin, and a small spot on the margin below the postmedial line, which forms a U-shaped mark from costa to vein 6, is excurved below veins 4 and 3 and ends below vein 2; an elliptical dark brown subterminal mark from vein 7 to 3, a small spot below vein 3, and a rather pear-shaped mark from vein 2 to tornus; a terminal series of minute rather triangular dark spots; cilia whitish. Hindwing whitish suffused with reddish brown, the cilia whitish.

*Hab. Gold Coast, Bibianaha (Spurrell), 1 ♂ type. Exp. 28 mill.*

Nearest to *M. arcifera* Hmps.

**Metarbela bipuncta n. sp.**

♂. Head and thorax pale rufous with a few dark hairs; abdomen dark reddish brown with greyish segmental lines, the base pale rufous with the basal crest tipped with black, the anal tuft pale rufous tipped with blackish; antennae with the branches dark brown. Forewing with the basal area pale rufous with some dark irroration on costa and inner margin, extending on costa to apex and on inner margin to tornus, the triangular terminal area from median nervure obliquely to apex and tornus dark purplish brown; two small silvery white spots with some black suffusion between them below basal half of vein 2; a pale subterminal line, curving inwards from below vein 4 to inner margin; a fine pale line at base of cilia. Hindwing glossy dark reddish brown, the costal area whitish to beyond middle; cilia white at tips. Underside uniform red-brown.

*Hab. Br. C. Africa, Mt. Mlanje (Neave), 1 ♂ type. Exp. 30 mill.*

Nearest to *M. cymophora* Hmps.

**Metarbela cremorna n. sp.**

♂. Head and thorax creamy white, the head and tegulae with some brown mixed; abdomen glossy yellowish white faintly tinged with brown, the anal tuft red-brown at extremity; antennae with the branches pale rufous; frons dark brown at side; forelegs with the fringe of hair on outer side tinged with brown; ventral surface of abdomen yellowish white. Forewing creamy white irrorated with a few dark brown scales, the costal area tinged with rufous, expanding on postmedial area to vein 3; postmedial line slight, blackish, crenulate, incurved between veins 7 and 5, bent inwards and almost obsolete at vein 2, and represented by two striae at inner margin; subterminal line indicated by some blackish scales; a terminal series of minute black spots. Hindwing creamy

white with a faint rufous tinge. Underside creamy white, the hindwing with the costal edge rufous.

*Hab. Gold Coast*, Kumasi (Sanders), 1 ♂ type. *Exp.* 32 mill.

Nearest to *M. dialeuca* Hmpsn.

***Metarbela vau-alba* n. sp.**

♂. Head, thorax, and abdomen rufous mixed with some ochreous and brown, the large bifid anal tuft deeper rufous; antennae with the branches black streaked with whitish above; pectus, legs, and ventral surface of abdomen tinged with grey. Forewing rufous tinged in parts with brown; a large indistinct oblique discoidal lunule defined by brown, confluent with a yellowish white, V-shaped mark on extremity of median nervure and base of vein 2; indistinct, slightly waved, and closely approximated brown postmedial and subterminal lines, slightly incurved at discal fold; a terminal series of small triangular red-brown marks on the veins; cilia grey-brown with a fine brown line at middle. Hindwing rufous finely irrorated with brown; cilia grey-brown with whitish tips. Underside deep rufous.

*Hab. Br. C. Africa*, Mt. Mlanje (Neave), 1 ♂ type. *Exp.* 30 mill.

Nearest to *M. nubifera* B. Baker.

***Metarbela costistrigata* n. sp.**

♂. Head blackish mixed with grey, the antennae black, the shaft irrorated with white and the branches streaked with white above; thorax and abdomen grey-white mixed with black-brown. Forewing grey-white suffused with fuscous brown, the terminal area rather darker and irrorated with blackish; a series of black bars from costa from near base to the postmedial line; an antemedial black mark in submedian interspace, forking below the fold; black bars before and beyond the discocellulars, forming an incomplete, V-shaped mark; a hoop-shaped black mark on inner area below end of cell, filled in with black irroration and with a white bar on its outer side; postmedial line black, inwardly oblique to vein 6, then erect and ending at vein 2; a terminal series of whitish striae in the interspaces with small dark spots before them to vein 3; cilia grey at base, chequered blackish and white at tips. Hindwing greyish suffused with fuscous brown, the cilia darker. Underside uniform greyish suffused with fuscous brown.

*Hab. Transvaal*, Johannesburg (Feltham), 1 ♂ type. *Exp.* 28 mill.

Nearest to *M. albitorquata* Hmpsn.

***Teragra tristicha* n. sp.**

♂. Head, thorax, and abdomen bright rufous, the last with a slight golden gloss except the dorsal crests and anal tuft; lower part of frons black-brown at sides. Forewing bright rufous; a series of slight black marks below costa from near base to near apex; a narrow rufous vitta faintly defined by black in terminal half of lower part of cell, indenting a rounded discoidal spot distinctly defined by black; a black antemedial line from cell to inner margin, dentate inwards at submedian fold and vein 1; a waved black line from origin of vein 2 to inner margin; some blackish suffusion below lower end of cell; three silvery white points defined by black just below middle of vein 2, with another below them above inner margin and sometimes a slight mark before it on the margin;

a waved black subterminal line, incurved between veins 6 and 5; some slight black irroration before termen; cilia pale with a darker line at middle. Hindwing pale red-brown with a slight golden gloss; cilia yellowish white at tips. Underside red-brown, the inner area of forewing whitish.

*Hab. Br. C. Africa*, Mt. Mlanje (Neave), 3 ♂ type. *Exp.* 34 mill.

Nearest to *T. neurosticta* Hmps. n.

#### *Teragra althodes* n. sp.

♂. Head and thorax fulvous yellow, with a ridge of deep rufous scales between the antennae and some marks on tegulae and patagia, the frons with some deep rufous at side; abdomen silky yellowish white, with some deep rufous in the dorsal crests and at sides; pectus and legs yellowish white mixed with some deep rufous, the forelegs deep rufous. Forewing silky yellowish white, the area below and beyond the cell with numerous deep rufous lines formed by striae, the costal area and cell with minute deep rufous and chocolate-brown spots; three strong, deep, rufous bars below basal half of cell; a small chocolate-brown discoidal spot. Hindwing glossy yellowish white tinged with rufous, the terminal area faintly striated with rufous. Underside yellowish white tinged with rufous, both wings with series of small rufous spots on the costa and the terminal area striated with rufous.

*Hab. Transvaal*, White R. (Cooke), 1 ♂ type. *Exp.* 40 mill.

Nearest to *T. simillima* Hmps. n., and much resembles *Altha* (Arbela), *tegula* Dist.

#### FAMILY Engyophlebitidae.

Proboscis and palpi absent; frons rounded; antennae of male bipectinate with long branches on basal third, then ciliated; fore tibiae with the process on inner side as long as the tibiae, the mid and hind tibiae without spurs. Forewing with vein 1 *a* forming a fork with 1 *b*, 1 *c* in male anastomosing with 1 *b* towards termen, then separating or becoming coincident with it to termen, in female separate throughout; veins 2 and 3 at intervals long before angle of cell; 4, 5 from angle of cell in male, 5 from just above angle in female; 6 from far below upper angle; 7 from upper angle; 8, 9 coincident; 10 from towards angle of cell; 11 from about middle of cell; the cell with an almost obsolete veinlet in discal fold met by a recurved veinlet from beyond origin of vein 3 towards which it is strongly developed, the discocellulars very strongly angled. Hindwing with veins 1 *a*, *b*, *c* present; the cell very long and rounded at extremity; veins 2 and 3 at intervals from long before angle of cell; 4, 5 coincident; 6 from far below upper angle; 7 from angle; 8 coincident with the cell and vein 7 throughout; the female with forked veinlet in the cell; the male with the costa strongly lobed at middle; frenulum fully developed.

In key differs from the *Megalopygidae* in the hindwing having vein 8 coincident with the cell and vein 7 throughout instead of anastomosing with the cell to middle or to near extremity, then separate, and from the *Somabrachidae* in having vein 6 from far below the angle of cell instead of shortly stalked with it, and in having the female winged.

It is closely allied to the *Cossidae* of the *Zeuzera* group and the larvae are certain to be wood-borers.

GENUS *Engyophlebus*

	Type.
<i>Eulaphonotus</i> Feld., <i>Reis. Nov.</i> p. 4 (1874) non descr. . . . .	<i>myrmeleon</i>
<i>Engyophlebus</i> Karsch, <i>Ent. Nachr.</i> xxvi. p. 2 (1900) . . . . .	<i>myrmeleon</i>

*Engyophlebus myrmeleon*.

*Eulaphonotus myrmeleon* Feld., *Reis. Nov.* pl. 82. f. 9 (1874) ♀.  
*Engyophlebus obesus* Karsch, *Ent. Nachr.* xxvi. p. 3 (1900) ♂.

Gold Coast; S. Nigeria; C. Colony.

## ZYGAENIDAE.

## Himantopterinae.

*Doratopteryx steniptera* n. sp.

♀. Head, tegulae, and abdomen fulvous orange, the thorax dark reddish brown, the anal tuft fulvous and brown; antennae black-brown; pectus and legs dark reddish brown. Forewing semihyaline sparsely clothed with brown scales, the costa and veins dark reddish brown, the area below the cell fulvous orange to beyond middle. Hindwing expanding somewhat near base, then very narrow, with traces of a lobe at three-fourths; the basal fourth fulvous orange, the rest of wing dark reddish brown.

*Hab.* "Germ. E. Africa," Usambara (Legros), 1 ♀, Usagara Distr., Kilossa (Neave), 1 ♀ type. *Exp.* 20 mill.

Near *D. zopheropa* B. Baker.

*Semioptila trogoloba* n. sp.

♂. Head, thorax, and abdomen fulvous orange; antennae black-brown; legs brown. Forewing fulvous orange to near end of cell, its outer edge then excurved and slightly waved to termen above tornus; the apical area, costa, extremity of median nervure, vein 3 and vein 2 towards tornus black-brown; a rounded fulvous orange spot beyond the discocellulars. Hindwing expanding moderately to the lobe, the outer edge of which is strongly excised below the tail; fulvous orange to the lobe, then black-brown with a large fulvous orange lunule before the excised part of extremity of the lobe; cilia long.

♀. Metathorax dark brown; abdomen dorsally suffused with chocolate-brown, ventrally black-brown, the anal tuft dark brown and greyish; forewing with the outer edge of the fulvous orange area diffused and indefinite, the terminal area greyer brown in the interspaces and diffused to the origin of vein 2 in the cell and below it above vein 2.

*Hab.* Br. C. Africa, Ruvo Valley (Neave), 1 ♂ type, Mt. Mlanje (Neave), 2 ♂, 1 ♀. *Exp.* 22-26 mill.

Differs from *S. papilionaria* Wlk. in the strongly excised outer edge of the lobe of the hindwing.

*Semioptila dolicholoba* n. sp.

♂. Head, thorax, and abdomen fulvous orange, the last dorsally suffused with chocolate-brown except the terminal segment; antennae black-brown; legs brown. Forewing fulvous orange below costa to near end of cell, in the



cell to origin of vein 2 and below vein 2 to termen, the costa and rest of wing dark brown, leaving a little orange above base of vein 2 and at termen extending to just below vein 2: a round fulvous orange spot beyond the discocellulars; cilia brown to near tornus. Hindwing gradually expanding to the large lobe, the outer edge of which is again gradually rounded off to the rather short and broad tail; fulvous orange to the lobe, then black-brown with a large, somewhat elliptical fulvous orange spot on the lobe, its inner edge produced inwards to a spur above vein 4.

*Hab.* **Br. C. Africa**, Mt. Mlanje (Neave), 7 ♂ type. *Exp.* 24-26 mill.

Differs from *S. papilionaria* Wlk. in the hindwing gradually expanding to the lobe, the outer edge of which is gradually rounded off to the tail.

**Semioptila latifulva** n. sp.

♂. Head, thorax, and abdomen fulvous orange; antennae black-brown; pectus, legs, and ventral surface of abdomen dark brown. Forewing fulvous yellow to near end of cell and from thence to termen at vein 2, the costa, terminal part of median nervure, and apical area dark brown; a round fulvous yellow spot beyond the discocellulars; cilia dark except at tornus. Hindwing expanding slightly near base, then narrowing into a long slender tail; fulvous yellow to one half, then dark brown with a short yellow streak above inner margin at two-thirds, when it expands slightly into traces of a lobe.

*Hab.* "**Germ. E. Africa**," Usangu Distr., Ft. Kifulufulu (Neave), 2 ♂ type. *Exp.* 30 mill.

Near *S. hilaris* Rebel.

**Anomoeotes phaeomera** n. sp.

♀. Head, thorax, and abdomen fulvous yellow; antennae black-brown. Forewing thinly scaled; the costal, apical, and terminal areas pale brown, the apical area expanding into upper angle of cell and beyond the cell to vein 4, the terminal area narrowing to tornus and with dentate inner edge; the veins brown; the basal area, except towards costa, fulvous yellow to origin of vein 2 defined on outer side by a pale brown band from the costal area to vein 2; the interspaces between the yellow area and the brown terminal area white, narrow in the cell and broad below it. Hindwing thinly scaled, white, the basal area tinged with fulvous yellow, the veins towards termen, the termen, and cilia tinged with brown.

*Hab.* **Cameroons**, Ja R., Bitje (Bates), in Coll. Rothschild; **Angola**, Ambriz Monteiro), 1 ♀ type. *Exp.* 36 mill.

**Staphylinochrous ruficilia** n. sp.

♂. Head, thorax, and abdomen deep brownish rufous; antennae black-brown, the shaft bright fulvous red above on basal half. Forewing thinly scaled; fulvous red to middle of costa, and thence with rather diffused oblique outer edge to inner margin near tornus; the rest of wing red-brown with the veins and a fine terminal line darker, the costa more rufous, the cilia rufous with some brownish at tips. Hindwing fulvous red, the terminal area suffused with reddish brown from apex to vein 2; cilia fulvous at base, brownish at tips.

*Hab.* **Cameroons**, Ja R., Bitje (Bates), 2 ♂ type. *Exp.* 24-28 mill.

**Staphylinochrous euryphaea** n. sp.

♂. Head, thorax, and abdomen fulvous orange, the last with the anal tuft dark brown; antennae dark brown. Forewing fulvous orange, the costal area and the terminal area very widely dark brown, the latter expanding into end of cell and beyond the cell to vein 4, then narrowing to near tornus and extending along the inner margin to beyond middle. Hindwing fulvous orange, the terminal area dark brown, rather broadly so at apex and narrowing to a point at tornus.

*Hab.* **Gold Coast**, Kumasi (Sanders), 1 ♂ type; Aburi (Johnson), 1 ♂; **Cameroons**, Ja R., Bitje (Bates), in Coll. Rothschild. *Exp.* 26 mill.

**Staphylinochrous flavida** n. sp.

♀. Head, thorax, and abdomen fulvous yellow, the last with the anal tuft greyish fuscous; antennae black-brown; legs reddish brown. Forewing fulvous yellow to near end of cell, the outer edge of the yellow area almost straight and erect from costa to tornus, the rest of wing semihyaline greyish fuscous. Hindwing fulvous yellow to beyond the cell, the rest of wing semihyaline greyish fuscous, rather broad at costa, narrowing to a point on termen above tornus, its inner edge almost straight.

*Hab.* **Uganda**, Entebbe (Minchin), 1 ♀ type. *Exp.* 40 mill.

**Staphylinochrous holotherma** n. sp.

♀. Head, thorax, and abdomen fulvous orange, the serrations of antennae dark brown. Wings uniform fulvous orange; thinly scaled.

*Hab.* **Br. E. Africa**, S. Kakumega Forest, Yala R. (Neave), 1 ♀ type. *Exp.* 40 mill.

**Thermochrous melanoneura** n. sp.

*Anomocates nigrovenosus* Butl., *P.Z.S.* 1895. p. 266; nec Butl. 1893.

♂. Head and thorax ochreous white mixed with brown; antennae dark brown; abdomen whitish tinged with fulvous; pectus and legs reddish brown. Wings ochreous white, the costa, veins, and a fine terminal line black-brown.

♀. Abdomen deeper fulvous; wings tinged with fulvous yellow.

*Hab.* **Br. C. Africa**, Fwambo (Carson), 2 ♂, 1 ♀ type. *Exp.* ♂ 30, ♀ 34 mill.

**ZYGAENINAE.****Neurosymphloca postrosea** n. sp.

♀. Head and thorax black, the tegulae orange at sides, the patagia white; abdomen dull white, suffused with orange-yellow, except on two basal segments, a black segmental line at extremity; fore coxae with orange-yellow spot in front. Forewing thinly scaled, dull white to middle, then black-brown; a triangular black-brown patch on costa from near base to the dark terminal area, its apex just below the cell; a large black spot below middle of submedian fold, not extending below vein 1; slight orange-yellow streaks on basal part of median nervure and vein 1; the outer edge of the white area excurved below the cell; a white patch with some orange-yellow in centre on the discocellulars and a

subterminal spot below vein 4. Hindwing rosy red with a slight orange tinge; the costal area white to beyond middle; a black-brown terminal band to vein 1, expanding into a large apical patch and into a patch at vein 2. Underside of forewing with some orange-yellow suffusion below the cell on basal area, in middle of cell, and above vein 1 beyond middle; hindwing with the red extending to the costa.

*Hab.* Natal, Pinetown (Leigh), 1 ♀, Durban (Gueinzins, Gooch, Burrows), 5 ♀ type. *Exp.* 30-34 mill. Probably belongs to the sect. *Euctenia*.

#### **Neurosymploca hyalina** n. sp.

♂. Head and thorax dull brown mixed with whitish; antennae black-brown; frons white; abdomen pale fulvous yellow, the anal tuft with black mixed; pectus and legs white and dark brown. Forewing thinly scaled; pale dull brown, the costal edge black-brown; diffused white patches below the cell at base and middle, the latter rather quadrate. Hindwing thinly scaled, white tinged with dull brown, the cilia darker brown. Underside uniformly tinged with dull brown.

*Hab.* Natal, Maritzburg, 2 ♂ type. *Exp.* 30 mill. Belongs to the sect. *Euctenia* Feld. (non. descr.) with the antennae of male bipectinate.

#### **Neurosymploca meterythra** n. sp.

♂. Head, thorax, and abdomen black-brown, the frons at sides, palpi, and tegulae at sides orange-yellow, the patagia at base and tips and the metathorax behind crimson-red; femora on inner side and ventral surface of abdomen orange-yellow. Forewing dull purplish rufous, the costal edge and cilia black; a small crimson spot with some black below it below base of costa, and a subbasal spot above vein 1 with some black on its outer edge; a black and crimson point in middle of cell and small crimson spots defined by black below middle of cell and on the discocellulars. Hindwing orange-scarlet, the inner margin suffused with black; a narrow terminal black band, its inner edge slightly incurved below vein 2. Underside of forewing dull scarlet to just beyond the cell.

*Hab.* Natal, Maritzburg, 2 ♂ type. *Exp.* 30 mill. Nearest to *N. pagana* Kirby, in which species, however, and also in *N. caffra* Linn., the forewing has vein 7 stalked with 8, 9.

#### **Neurosymploca conjuncta** n. sp.

♂. Head, thorax, and abdomen black, glossed with silvery blue, the tegulae orange-yellow at sides, the femora above and tibiae below yellow, the abdomen with lateral yellow spots on 2nd segment. Forewing black glossed with metallic blue, the greater part of wing occupied by orange-yellow patches defined by white; the basal area yellow from just below costa to just above inner margin, separated by a sinuous blue-black line from a medial yellow patch from below costa to above inner margin, quadrate to median nerve and below the cell, expanding into a conical patch to near tornus; the medial patch conjoined to a large round discoidal yellow spot, which again is conjoined near its lower edge to a lunulate subterminal patch between veins 8 and 3. Hindwing rosy red;

a slight black spot at upper angle of cell; a narrow black terminal band, expanding at apex and into slight triangular marks at veins 2 and 1.

*Hab. Pondoland*, Nggeleni (Swinny), 1 ♂ type. *Exp.* 32 mill. Nearest to *N. lateralis* Jord.

***Pycnoctena melaenella* n. sp.**

Antennae of male bipectinate with long branches somewhat dilated at extremity.

♂. Head, thorax, and abdomen black. Forewing black, the cell except towards base, a fascia below it, and the interspaces beyond the cell semihyaline. Hindwing semihyaline, sparsely clothed with fuscous scales, the veins and cilia black.

*Hab. Brazil*, Minas Geraes, 1 ♂ type. *Exp.* 16 mill.

***Phacusa chalcobasis* n. sp.**

♀. Head, thorax, and abdomen black, the tegulae golden cupreous, the meta-thorax irrorated with golden cupreous scales, the abdomen tinged with blue-green and with golden cupreous segmental bands, except at extremity; frons pale rufous; proboscis whitish rufous; pectus, with golden cupreous patches below the wings. Forewing black glossed with greenish blue; a golden-cupreous patch at base, except at inner margin; a short hyaline streak above middle of cell, fasciae above and below discal fold in the cell towards its extremity, fasciae on medial area above and below submedian fold, the lower extending to towards termen, and elliptical spots beyond the cell above and below vein 4. Hindwing black with a slight purple gloss; a large hyaline patch on inner area from near base to near tornus, a spot beyond the cell above vein 3 and slight spot above vein 4.

*Hab. Sumatra*, 1 ♂ type. *Exp.* 38 mill.

***Phacusa manilensis* n. sp.**

♀. Head, thorax, and abdomen fuscous black, the last dorsally suffused with blue; antennae with a slight bluish gloss; proboscis whitish. Forewing fuscous black; a short hyaline streak above middle of cell, a wedge-shaped patch in the cell towards its extremity, with elongate marks below it above and below submedian fold, and elongate spots beyond the cell above veins 6, 4, 3. Hindwing fuscous black; hyaline marks on medial area in the interspaces below the cell, extending above inner margin to near tornus, a spot beyond the cell above vein 3 and slight spot above vein 4.

*Hab. Philippines*, Luzon, Manila, 1 ♀ type. *Exp.* 34 mill.

***Phacusa nicobarica* n. sp.**

Forewing with veins 5, 6 stalked; 7, 8 stalked or coincident, arising from 10. Head, thorax, and abdomen black glossed with metallic blue-green; antennae slightly glossed with blue-green; proboscis pale. Forewing black suffused with metallic blue-green; a short hyaline streak above middle of cell, a wedge-shaped patch in end of cell bisected by the discal fold, fasciae on medial area below the cell above and below the submedian fold, the lower extending to towards

termen, and elongate spots beyond the cell above veins 6, 5, 4, 3, with a slight spot above base of vein 2. Hindwing black glossed with blue-green; a large hyaline patch on inner area from near base to near tornus intersected by dark streaks on the veins, and elongate spots beyond the cell above and below vein 4 with a slight streak above vein 5.

*Hab. Nicobars* (Rogers), 2 ♂, 3 ♀ type. *Exp.* 26-30 mill.

***Illiberis endocyanea* n. sp.**

♀. Head, thorax, and abdomen black-brown glossed with metallic blue, the last very strongly suffused with metallic blue on dorsum, the anal tuft brownish ochreous; antennae suffused with metallic blue; proboscis pale rufous. Forewing hyaline, the veins and margins black-brown; the basal area, the costal area to middle, and the inner area below submedian fold black-brown, the last with a rounded patch of metallic blue suffusion at middle; a slight metallic blue spot at base of cell, a strong slightly curved black-brown discoidal bar; the black-brown on termen slightly expanding at apex. Hindwing hyaline, the veins, margins, costal area and cell black-brown, leaving a hyaline streak in lower part of cell from near base. Underside with the costal area of forewing and the costal area and cell of hindwing glossed with metallic blue.

*Hab. Assam* (Badgley), 4 ♀ type. *Exp.* 32-36 mill.

***Artona flaviciliata* n. sp.**

♀. Head and thorax black, the former suffused with silvery blue, the palpi, sides of frons, genae, dorsal and lateral spots on tegulae, spots at base of patagia and a short streak behind them yellow; antennae white before tips; abdomen chrome-yellow with a black band on penultimate segment; pectus yellow and brown; legs yellow and blackish, the tarsi blackish ringed with yellow; ventral surface of abdomen with blackish bands, obsolescent towards the band on penultimate segment. Forewing black-brown; a chrome-yellow streak below base of costa and short medial fascia below costa, a wedge-shaped patch below base of cell, a small spot below base of vein 2 with an elongate spot below it, an elliptical spot beyond upper angle of cell and triangular spot beyond lower angle; cilia yellow except at base. Hindwing chrome-yellow; a black fascia in the cell; a black terminal band expanding on apical area, its inner edge angled inwards at discal fold to the fascia in the cell, and slightly angled inwards at vein 2; cilia yellow except at base.

*Hab. Sikkim, Raitdong* (Tibet Exp.), 1 ♀ type. *Exp.* 26 mill.

Differs from *A. fulvida* Butl. in the cilia being yellow except at base.

***Artona digitata* n. sp.**

♀. Head and thorax black, the head glossed with silver, the palpi white, a white streak above the eyes, the tegulae with dorsal and lateral white spots, the patagia and sides of metathorax with white streaks; abdomen black banded with pale yellow, the anal tuft white at extremity; pectus, coxae, and femora white, the tibiae pale yellow, the tarsi banded fuscous and yellow; ventral surface of abdomen white except the anal segment. Forewing black; a yellowish white streak below base of costa and wedge-shaped patch below the cell, a short streak below middle of costa, another below base of vein 2 with a rather longer

streak below it, a trifid spot beyond upper angle of cell and bifid wedge-shaped spot beyond lower angle indented by dark streaks on the veins. Hindwing black-brown; a yellowish white fascia below the cell, expanding into and just beyond the lower angle of cell, and a fascia on vein 1 from base to beyond middle; cilia whitish at tips.

*Hab.* **Burma**, Tenasserim, Dawnat Hills, 1 ♀ type. *Exp.* 20 mill.

Differs from *A. zebraica* Butl. in the forewing having the spots beyond the cell indented by dark streaks on the veins.

#### *Artona phaeoxantha* n. sp.

♀. Head, thorax, and abdomen dark red-brown, the frons with a silvery leaden gloss, the eyes surrounded by yellow, the palpi yellow and brown, the tegulae edged with orange-yellow, strongly at sides, the patagia slightly edged with orange-yellow, and the metathorax strongly suffused with orange-yellow, the abdomen with orange-yellow bands, narrow on ventral surface; pectus and legs red-brown and orange-yellow. Forewing dark red-brown; a subbasal orange-yellow streak below the costa and wedge-shaped patch below the cell, an elongate spot below middle of costa and another below the submedian fold beyond middle, a large rounded spot beyond upper angle of cell conjoined basally to a triangular spot beyond lower angle. Hindwing dark red-brown; an orange-yellow fascia below the cell, expanding into and just beyond lower angle of cell, and conjoined at base to a streak on vein 1 extending to beyond middle.

*Hab.* **Madras**, Shevaroy Hills (Morris), 1 ♀ type. *Exp.* 22 mill.

Closely allied to *A. valceri* Moore, from Java.

#### *Tasema fulvithorax* n. sp.

Head, tegulae, and patagia black-brown, the dorsum of thorax fulvous yellow; abdomen fulvous yellow with some black-brown hair at base, and the three terminal segments black-brown; antennae black with a slight leaden gloss; legs fulvous suffused with black-brown; ventral surface black-brown. Wings uniform black-brown, slightly semihyaline.

*Hab.* **Br. C. Africa**, Ft. Mangoche (Neave), 1 ♂, 1 ♀, Mt. Mlanje (Neave), 2 ♂, 1 ♀; **Portuguese E. Africa**, Kola Valley (Neave), 2 ♂, 1 ♀ type. *Exp.* ♂ 18, ♀ 22 mill.

Differs from *T. titaca* Druce in having the dorsum of thorax fulvous yellow.

#### *Metanycles flavibasis* n. sp.

Head and thorax black with a slight bluish gloss; the shoulders with an orange-yellow stripe; abdomen orange-yellow, the two basal segments and two terminal segments black-brown with a slight bluish gloss; antennae with some yellow on shaft above towards tips, the branches tipped with yellow to beyond middle; frons, palpi, and fore coxae orange-yellow; legs yellow, the femora black-brown on outer side; ventral surface of abdomen and the anal tuft below orange-yellow. Forewing black with a blue-green gloss; the basal area orange-yellow except at inner margin, its outer edge oblique to middle of costa, the costal edge yellow to beyond middle; cilia ochreous except at base. Hindwing hyaline tinged with brown, the costal area and termen suffused with

brown, some yellowish at base of costa, the veins dark; cilia pale at tips. Underside of forewing with the yellow diffused into ochreous white extending to end of cell and on inner area to near termen; hindwing with the costal area yellow to beyond middle.

*Hab. Br. C. Africa*, Ruo Valley (Neave), 1 ♀, Mt. Mlanje (Neave), 8 ♂, 5 ♀ type. *Exp.* ♂ 16, ♀ 18 mill.

**Clelea microphaea** n. sp.

♂. Head, thorax, and abdomen dark brown with a faint purplish gloss, the pectus, legs, and ventral surface of abdomen paler brown. Wings uniform dark red-brown with a faint purplish gloss.

*Hab. Corea*, Gensan (Leech), 1 ♂ type. *Exp.* 14 mill.

**Clelea syriaca** n. sp.

♂. Head, thorax, and abdomen dark reddish brown with a slight cupreous gloss, the palpi paler. Forewing uniform dark reddish brown with a slight cupreous gloss, the cilia whitish except at base. Hindwing dark red-brown, the cilia whitish except at base.

*Hab. N. Syria*, Shar-Deresy, 1 ♂ type. *Exp.* 20 mill.

GENUS **Sthenoprocris** nov.

Type: *S. malgassica*.

Proboscis and palpi minute; frons smooth and without prominence; antennae of male bipectinate with rather long branches to apex; build slender, the abdomen long; mid and hind tibiae with minute terminal pairs of spurs. Forewing long and narrow, the apex rounded, the termen obliquely curved; the cell long; vein 2 from about three-fourths length of cell; 3 from well before angle; 4 from angle; 5 from well above angle; 6, 7, 8 well separated; 9, 10 stalked; 11 from cell. Hindwing narrow, the apex and termen rounded; vein 2 from about half length of cell; 3 from well before angle; 4 from angle; 5 from well above angle; 6 from well below upper angle; 7, 8 coincident.

**Sthenoprocris malgassica** n. sp.

♂. Black-brown, the thorax with orange-yellow band behind the head.

*Hab. Madagascar*, Tananarive, type ♂ in Coll. Rothschild. *Exp.* 20 mill.

GENUS **Chalconycles**.

*Chalconycles* Jordan, *Entom.* xl, p. 123 (1911) . . . . . <sup>710</sup>*vetulina*

Sect. I.—Hindwing with veins 3 and 5 stalked.

(1) **Chalconycles albipalpis** n. sp.

♂. Head, thorax, and abdomen black-brown slightly glossed with blue; lower part of frons at sides and palpi dull white, the latter with the 3rd joint tinged with yellow; pectus, legs below, and ventral surface of abdomen dull white, the pectus in front and coxae fulvous yellow. Forewing black-brown

glossed with leaden grey. Hindwing black-brown; the area below the cell hyaline, extending to just above inner margin towards base and below vein 3 to near termen.

*Hab.* **Ivory Coast**, Bingerville (G. Melou), type ♂ in Coll. Rothschild. *Exp.* 20 mill.

There is in B.M. another species of this section from Sierra Leone not in good enough condition to describe.

Sect. II.—Hindwing, with veins 3 and 5 from the cell.

(2) **Chalconycles chloauges.**

*Adscita chloauges* Holl., *Psych.* 1893, p. 374.

*Hab.* **Gaboon.**

(3) **Chalconycles vetulina.**

*Chalconycles vetulina* Jord., *Entom.* xl. p. 124 (1911).

*Hab.* **Uganda.**

(4) **Chalconycles anhyalea** n. sp.

♂. Head, thorax, and abdomen black-brown, slightly glossed above with metallic blue, the antennae white at tips; the genital tufts white tinged with fulvous; wings uniform black-brown, the forewing with a slight leaden grey gloss.

*Hab.* **Cameroons**, Ja R., Bitje (Bates), type ♂ in Coll. Rothschild. *Exp.* 20 mill.

**Saliunca fulviceps** n. sp.

♀. Head and tegulae golden orange, the antennae black glossed with blue except at base; thorax and abdomen black glossed metallic blue-green; pectus in front golden orange; ventral surface of abdomen yellowish white except the two terminal segments. Forewing black-brown suffused with purple-blue, the cell and area just beyond it with a greenish tinge. Hindwing black-brown suffused with purple-blue, the interspaces of inner area to the median nervure and vein 2 hyaline.

*Hab.* **Br. E. Africa**, N. Kavirondo, Maramas Distr. (Neave), 1 ♀ type. *Exp.* 30 mill.

Differs from *S. ventralis* Jord. in the head and tegulae being golden orange and not the thorax.

**Saliunca cyanea** n. sp.

♀. Head black suffused with brilliant metallic blue; thorax golden orange, the patagia blue-black except the upper edge; abdomen black suffused with brilliant metallic blue; pectus and ventral surface of abdomen golden orange; legs black glossed with blue. Forewing uniform black suffused with brilliant metallic blue. Hindwing black suffused with brilliant metallic blue, the costal area broadly suffused with purple; the interspaces below the cell and vein 1 to near end of cell hyaline.



*Hab.* **Uganda**, Semliki Valley, Buamba Forest (Neave), 1 ♀ type. *Exp.* 30 mill.

Differs from *S. styx* Fabr. in the forewing being brilliant metallic blue, the thorax more golden.

***Saliunca metacyanea* n. sp.**

♂. Head black glossed with blue; thorax golden fulvous; abdomen black strongly suffused with metallic blue; legs black. Forewing uniform deep iron-brown, with a faint purple gloss. Hindwing black strongly suffused with metallic blue, the lower part of cell, the interspaces below it, and spots above bases of veins 4, 3, 2 hyaline. Underside suffused with purple-blue.

*Hab.* **Br. C. Africa**, Mt. Mlanje (Neave), 1 ♂ type. *Exp.* 38 mill.

Differs from *S. styx* Fabr. in the hindwing being brilliant metallic blue.

***Saliunca aenescens* n. sp.**

♂. Head dark brown glossed with bronze; thorax golden fulvous; abdomen dark bronze-brown; legs bronze-brown. Forewing uniform bronze-brown. Hindwing bronze-brown, the lower part of cell and the interspaces below the cell thinly scaled.

♀. Head and abdomen black glossed with blue.

*Hab.* **Br. E. Africa**, Mt. Kenya, 5,000 ft. (Neave), 1 ♀, Victoria Nyanza, Kerenge (Betton), 1 ♂ type; **Uganda**, Chagwe, Mabira Forest (Neave), 1 ♂, 1 ♀. *Exp.* 28-32 mill.

Differs from *S. styx* Fabr. in the forewing being uniform bronze-brown and the hindwing having no hyaline.

***Saliunca cyanothorax* n. sp.**

♀. Head, thorax, and abdomen black suffused with brilliant metallic blue, the tegulae and patagia except at extremities golden orange; pectus and ventral surface of abdomen golden orange; legs dark brown. Forewing black suffused with brilliant metallic blue shading to purple on terminal area. Hindwing black suffused with brilliant metallic blue shading to purple on costal area, the interspace below the cell to vein 2 and the interspace below vein 1 hyaline.

*Hab.* **Uganda**, Toro, Daro Forest (Neave), 1 ♀ type. *Exp.* 26 mill.

Differs from *S. cyanea* Hmps. in the dorsum of thorax being black suffused with metallic blue.

***Saliunca sapphirina* n. sp.**

♀. Head, thorax, and abdomen black glossed with brilliant metallic blue, the base of tegulae golden fulvous; pectus golden fulvous at sides; legs black-brown. Forewing uniform black strongly suffused with brilliant metallic blue. Hindwing black strongly suffused with brilliant metallic blue, the lower part of cell, the interspaces below it, and spots above bases of veins 4, 3, 2 hyaline.

*Hab.* **Uganda**, Toro, Daro Forest (Neave), 1 ♀ type. *Exp.* 34 mill.

Differs from *S. cyanothorax* Hmps. in the tegulae and patagia being black suffused with metallic blue, with only the base of the tegulae golden orange; the hindwing with the hyaline extending into and beyond the cell.

*Saliunca chalconota* n. sp.

♀. Head, thorax, and abdomen black suffused with deep metallic blue, the metathorax golden cupreous; pectus at sides with golden cupreous spots. Forewing black suffused with brilliant metallic blue, the end of cell and area just beyond it with a more purple tinge. Hindwing black suffused with brilliant metallic blue, the end of cell and area just beyond it with a more purple tinge; the interspaces below the cell and above base of vein 2 hyaline sparsely clothed with hair-like black scales. Underside suffused with deep purple-blue.

*Hab.* Uganda, E. Busoga, Jiuja (Neave), 1 ♀ type. *Exp.* 36 mill.

Differs from *S. homochroa* Holl. in the wings being suffused with brilliant metallic blue.

*Saliunca cyanopsis* n. sp.

♂. Head, thorax, and abdomen black strongly suffused with brilliant metallic blue, the base of patagia and the metathorax with white spots; hind coxae with some white; ventral surface of abdomen with sublateral white stripes except at extremity. Forewing fuscous brown with a bluish grey gloss, the costal area to just beyond the cell and the inner area to middle suffused with brilliant metallic blue; a white stripe in submedian interspace from base to near origin of vein 2; an elliptical white spot in middle of cell; a large round white discoidal spot; the interspaces of terminal area with elongate white spots between vein 8 and the submedian fold, the spot above vein 2 longer. Hindwing glossy fuscous-brown; a white discoidal spot bisected by the dark discocellulars; the inner area below submedian fold white with vein 1 dark, and a hyaline patch above it below base of cell.

♀. Head, thorax, and abdomen without the white markings; forewing black suffused with brilliant metallic blue-green, the white markings absent except the discoidal spot; hindwing black slightly shot with metallic blue-green; the whole inner area below the cell hyaline from near base to towards termen, underside of both wings suffused with metallic blue, the hindwing with slight white discoidal spot.

*Hab.* N. W. Rhodesia, Solweri (H. Dollman), 1 ♂, 1 ♀ type. *Exp.* ♂ 42, ♀ 38 mill.

A bred series of both sexes in Coll. Dollman.

*Saliunca meridionalis* n. sp.

♂. Head, thorax, and abdomen black suffused with metallic blue-green, the frons white, the antennae with the shaft above towards tips and the branches above on inner side white, the patagia with white spots at base, the abdomen with dorsal white spots on two basal segments, traces of spots on four following segments, subdorsal spots and sublateral bars on 2nd to 6th segments. Forewing black suffused with metallic blue-green; a white fascia in submedian fold from near base to middle, a round white discoidal spot and smaller rather elongate spot between veins 3 and 2. Hindwing black suffused with metallic blue-green, shading to purple on costal area to near apex; a wedge-shaped hyaline fascia below the cell and rather elliptical white discoidal spot. Underside with a more purple tinge, the hindwing with some white in base of cell and the inner margin suffused with white.

♀. Head, thorax, and abdomen without any of the white markings; forewing with the white discoidal spot only; hindwing with the hyaline fascia obsolescent and without the white discoidal spot or white on underside.

Ab. 1 ♀. Forewing with the discoidal spot obsolescent.

Ab. 2, ♂, ♀. Hindwing without hyaline fascia below the cell.

*Hab.* **Br. C. Africa**, Mt. Mlanje (Neave), 8 ♂, 12 ♀ type; **Portuguese E. Africa**, Ruo Valley (Neave), 4 ♂, 3 ♀; **Mozambique**, Beira (Sheppard), 1 ♂, 3 ♀. *Exp.* 30-38 mill.

Differs from *S. difformis* Jord. in being black suffused with metallic blue-green instead of brown suffused with bronze-green and purple; the male with white dorsal spots on the abdomen, the female with a white discoidal spot. The sexes were taken in copula by Mr. Neave in Portuguese E. Africa, and by Mr. Sheppard at Beira.

#### *Saliunca cupreitincta* n. sp.

♂. Head, thorax, and abdomen black-brown suffused with metallic blue-green, the patagia with white spots at base, the abdomen with subdorsal and sublateral white spots on 2nd to 6th segments. Forewing black-brown suffused with purple, with a slight cupreous gloss to end of cell, the area beyond it suffused with dull blue-green; a round white discoidal spot and obsolescent spot between veins 3 and 2. Hindwing black-brown suffused with purplish blue; an obsolescent white discoidal spot. Underside suffused with bluish purple; forewing with the spot between veins 3 and 2 distinct and elliptical; hindwing with the discoidal spot distinct, a slight white streak in base of submedian fold and the inner margin suffused with white.

Ab. 1. Forewing of male with the spot between veins 3 and 2 obsolete.

♀. Patagia, abdomen, and wings without the white markings.

*Hab.* **Br. E. Africa**, Makindu (Neave), 3 ♂, 2 ♀ type, Simba (Neave), 1 ♂, Voi (Betton), 2 ♀; Ankole (Neave), 4 ♀. *Exp.* 28-40 mill.

The sexes were taken in copula by Mr. Neave; possibly an aberration of *S. difformis* Jord., the male without the white fascia in the submedian fold of forewing and the hyaline fascia of the hindwing.

#### *Saliunca esmeralda* n. sp.

♂. Head, thorax, and abdomen black suffused with metallic blue-green, the antennae with the shaft brilliant metallic green above, the abdomen with sublateral white spots on 2nd to 6th segments. Forewing blackish strongly suffused with brilliant metallic blue-green; a round white discoidal spot and spot between veins 3 and 2. Hindwing blackish suffused with blue-green; the interspaces below the cell with hyaline streaks; an obsolescent white discoidal spot. Underside suffused with metallic blue-green, the forewing with slight white streak below vein 2, the hindwing with the discoidal spot distinct.

Ab. 1. Forewing without the white spot between veins 3 and 2; hindwing without the white discoidal spot on underside.

*Hab.* **N. Nigeria**, Banchi Prov. Panyam (G. T. Fox), 1 ♀; **Uganda**, Entebbe (Cowdey), 1 ♀ type. *Exp.* 40 mill.

**Saliunca chlorotica** n. sp.

♂. Head and thorax black-brown glossed with metallic green, the proboscis fulvous yellow; abdomen black-brown slightly glossed with green; pectus, legs, and ventral surface of abdomen black-brown glossed with green. Forewing black-brown glossed with metallic green; a round white spot on discocellulars and rather more elliptical spot below end of cell. Hindwing black-brown glossed with metallic green, the area below the cell hyaline to just above inner margin and towards termen. Underside of forewing with the spot below end of cell rather reduced and less well defined; hindwing with somewhat diffused white spot on the discocellulars.

*Hab.* **French Congo**, Fort Crampel, 2 ♂ type in Coll. Rothschild. *Exp.* 26-28 mill.

**GENUS Caffricola** nov.

*Crameria auctorum*, nec Hübner.

Type: *C. cloeckneria*.

Proboscis aborted and not functional; palpi porrect, not reaching beyond the frons and thickly scaled; frons smooth; eyes large, round; antennae of both sexes bipectinate with rather long branches to apex; tibiae with all the spurs present. Forewing with the apex rounded, the termen evenly curved; all the veins present and given off at about equal distances from the cell. Hindwing with veins 2, 3, 4 well separated; 5 from middle of discocellulars; 6, 7 separate; 8 free.

**Caffricola cloeckneria**.

*Bombyx cloeckneria* Stoll, *Cram. Pap. Exot.* iv. pl. 348. f. A. (1781); Kirby, *Cat. Lep. Hel.* p. 81.

*Hab.* **Gazaland; Transvaal; Zululand; Natal; Cape Colony.**

**CHALCOSIANAE.****Isbarta unicolor** n. sp.

♂. Head, thorax, and abdomen ochreous brown tinged with red-brown, the branches of antennae rather redder brown, the ventral surface of abdomen with white segmental lines. Forewing ochreous brown uniformly suffused with red-brown. Hindwing ochreous brown tinged with red-brown, the costal half more strongly suffused with red-brown. Underside uniformly suffused with red-brown.

*Hab.* **Borneo**, Sarawak, Kuching (Lewis), 1 ♂ type. *Exp.* 40 mill.

**Pintia dolichoptera** n. sp.

♂. Head and thorax chocolate-brown suffused with metallic blue-green; abdomen deep metallic greenish blue; frons at sides and palpi at base whitish; pectus chocolate-brown and blue-green, with some white below base of wings; coxae, femora, and ventral surface of abdomen white tinged with brown; tibiae and tarsi red-brown, the former suffused with blue-green above. Forewing produced at apex and with the termen oblique, chocolate-brown; the costa to middle, the median nervure, and base of vein 2, vein 1, and the inner margin

to beyond middle streaked with metallic blue-green; an oblique postmedial series of four elongate white spots irrorated with brown from below the costa to above vein 3, and a minute spot above base of vein 6. Hindwing deep metallic blue, the costa chocolate brown, the cilia dark brown. Underside of forewing chocolate-brown, the costa metallic blue-green to beyond middle with some white below it towards base, the submedian interspace white to beyond middle with oblique outer edge, the postmedial spots white; hindwing chocolate-brown with some blue-green suffusion on costa and inner margin, a white fascia irrorated with brown in the cell, the submedian interspace suffused with white, and white spots beyond the cell above veins 5 to 2.

*Hab. Philippines*, Manila (Ledyard), 1 ♂ type. *Exp.* 50 mill.  
Nearest to *P. hecabe* Roths.

*Campylotes burmana* n. sp.

♀. Head, thorax, and abdomen black-brown suffused with leaden blue, the coxae, femora, and tibiae below orange-yellow, the abdomen with lateral series of orange-yellow spots, the ventral surface orange-yellow with black segmental lines. Forewing black-brown with leaden blue suffusion along the veins, discal and submedian folds, and on inner margin; a scarlet fascia below basal half of costa bisected by a dark streak on vein 6 except towards base; a scarlet fascia in upper part of middle of cell; orange-yellow streaks above and below the submedian fold and below vein 1 to beyond middle; a small wedge-shaped orange-yellow streak in lower part of cell beyond its middle; orange-yellow spots in upper and lower parts of cell towards its extremity, spots beyond the cell below costa and above veins 6, 5, 2, obliquely placed postmedial spots below costa and above vein 7, the former minute; a curved subterminal series above veins 8, 7, 6, 4, 3, 2, the spot above 7 minute, and short streaks above and below submedian fold. Hindwing black-brown, the veins, discal and submedian folds tinged with blue, the termen suffused with metallic blue; scarlet fasciae in the cell above and below discal fold, and scarlet and yellow fasciae above and below submedian fold, and on inner area above and below vein 1*a* to beyond middle; elongate scarlet marks beyond the cell above and below vein 6, and spots above veins 5, 3, 2; a yellow streak below costa towards apex, and a subterminal series of nine yellow spots, the spot below vein 6 minute.

*Hab. Burma*, S. Kyen Hills, 6,000 ft. (Watson), 1 ♀ type. *Exp.* 80 mill.

Differs from *C. splendida* Elwes in the wings having the crimson-red markings replaced by scarlet, those on the inner area of the forewing being orange-yellow and on the hindwing scarlet and yellow.

*Amesia viriditincta* n. sp.

♂. Head and thorax black-brown, the frons with white points at sides above and below, the vertex of head with slight white streak and the eyes with white lines behind, the tegulae and patagia with some white scales on their edges; abdomen fuscous black glossed with blue-green; small white spots below the eyes, the pectus and abdomen with white and metallic blue marks at sides, the tibiae slightly streaked with white. Forewing black-brown; the basal area obliquely with slight diffused white and blue marks; small obliquely placed chrome-yellow antemedial spots below costa and above and below submedian

fold, with two spots beyond them in the cell; an oblique chestnut-red medial line from subcostal nervure to vein 1, incurved just below the cell and with the veins and submedian fold beyond it streaked with chestnut-red to near termen; a blue and white striga from costa before middle; small white spots below middle of costa, in upper end of cell, beyond the cell in discal fold, a strongly curved postmedial series from below costa to below vein 2, and a curved subterminal series with the spot above vein 2 rather farther from the termen and the spot below submedian fold much farther. Hindwing fuscous black suffused with metallic blue-green, the costal area, cell to origin of vein 2, a fascia below the cell, and the terminal area to submedian fold more strongly suffused, and the inner area very slightly suffused; two small white spots in end of cell, a curved postmedial series from below costa to above vein 2, and a subterminal series on veins 6 to 2. Underside dark chocolate-brown with the inner areas suffused with metallic blue, the white spots placed on diffused blue marks, the forewing with two yellow antemedial spots below costa and two in the cell, the hindwing with slight yellow antemedial spot below costa and a larger spot in upper part of middle of cell.

*Hab. Formosa*, Horisha (H. J. Elwes), 1 ♂ type. *Exp.* 80 mill.

Differs from *A. sanguiflua* in the hindwing being suffused with blue-green extending to the base, except on inner area, instead of brilliant blue almost confined to the terminal area.

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A CONTRIBUTION TO THE KNOWLEDGE OF THE NEUROPTEROUS  
INSECTS OF ALGERIA.

BY R. F. LONGINUS NAVAS, S.I.

THE following list is the result of the study of a small collection of Neuroptera collected in the year 1913 by Lord Rothschild and Dr. Ernst Hartert, and in the year 1914 by the same Dr. Hartert and his assistant, Mr. Carl Hilgert. All the species are interesting and worthy of mention, at least for the localities. All the specimens are in my collection, presented to me by Dr. Hartert, to whom I offer here my warmest thanks.

## FAMILY MYRMELEONIDAE.

TRIBE *Myrmeleonini* Banks.

1. *Morter alternans* Brull. var. *fasciata* Nav. Ain Sefra, South Oran, May 1-18, 1913 (W. R. et E. H.); Oued Nça, M'zab country, April 16-30, 1914 (E. H. et C. H.)

2. *Loperus fedschenkoi* MacLachl. El Alia, between Touggourt and Guerrara, April 12, 1914 (E. H. et C. H.); Oued Nça, M'zab country, April 16-30, 1914 (E. H. et C. H.); Ain Sefra, South Oran, May 1-18, 1913 (W. R. et E. H.).

TRIBE *Pignatellini* Nav.3. *Mesonemurus* gen. nov.

Similis *Macronemuro* Latr.

Caput antennis fortibus, thorace brevioribus, clava forti, insertione haud latius diametro primi articuli distantibus.

Abdomen cylindricum, in ♀ alis brevius, in ♂ alis multo longius, tertio segmento leviter inflato; cercis cylindricis, octavo abdominis segmento multo brevioribus.

Pedes fortes; calcaribus primo tarsorum articulo longioribus; tarsis articulo primo vix longiore secundo, 2-4 brevibus, subaequalibus, quinto praecedentibus simul sumptis longitudine subaequali.

Alae angustae; angulo cubiti aperto; area apicali paucis vel nullis venulis gradatis instructa.

Ala anterior linea plicata anteriore et posteriore indicatis.

Ala posterior area radialis 2 venulis internis, linea plicata anteriore indicata; ♂ nulla pilula axillari.

A *Macronemuro* differt praecipue brevitate cercorum in ♂ et primi articuli tarsorum, numero venularum radialium internarum in ala posteriore et praesentia lineae plicatae in eadem ala.

The type of the new genus is the following species.

4. *Mesonemurus harterti* sp. nov. (fig. 1).

Caput (fig. 1, *a*) fulvum; fascia inter antennis, alia transversa in vertice, duobus punctis in occipite et stria media longitudinali, interdum interrupta (♂), nigris; oculis fuscis; palpis fulvis, ultimo articulo labialium externe macula nigra notato; antennis thorace brevioribus, clava forti, fulvis, fusco annulatis.

Prothorax (fig. 1, *a*) paulo longior quam latior (♀), vel subaeque longus ac latus (♂). fulvo-testaceus, pilis lateralibus fulvis; superne fascia bina longitudi-

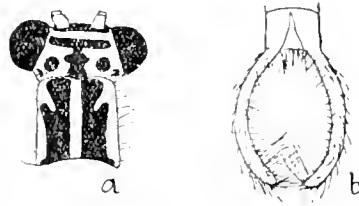


FIG. 1.—*Mesonemurus harterti* Nav.

a. Head and prothorax. b. End of abdomen. (In Coll. Navas.)

nali, ad sulcum transversum externe angulate emarginata, fusca. Meso- et metathorax subtoti fuscis, striis longitudinalibus parum completis fulvo-testaceis.

Abdomen subtotum fuscum, striis dorsalibus brevibus vel obsoletis testaceis; cinereo dense pilosum, in ♂ segmentis 2-4 densius longiusque; in ♀ alis brevius, in ♂ eisdem longius; cercis ♂ (fig. 1, *b*) cylindricis, arcuatis, fulvis, nigro longiter pilosis, ultimo segmento abdominis longioribus; lamina subgenitali ♂ longa, acuta, longiter pilosa.

Pedes fortes, fulvi, dense fusco punctati; fusco dense longiterque setosi; albido pilosi; femoribus superne subtotis fuscis; ealcaribus testaceis, anterioribus duos primos, posterioribus primum tarsorum articulum superantibus; tarsorum articulis apice nigris.

Alae angustae, hyalinae, subacutae; area apicali paucis venulis gradatis; reticulatione plerumque fusca, fulvo varia, eubito subtoto fusco; stigmatate fulvo, interne puncto fusco limitato.

Ala anterior 6 venulis radialibus internis; sectore radii 6 ramis; duabus striis obliquis fuscis, rhegmali seu externa longiore et distinctiore, cubitali brevioris; cubito partim anguste fusco marginato.

Ala posterior nullis venulis limbatis; duabus venulis radialibus internis, interdum tribus; sectore radii 5-6 ramis; proeubito subtoto fulvo; cubito a basi usque ad divisionem et ulterius in ramo anteriore, toto fusco.

	♂	♀
Long. corp. . . . .	38 mm.	24 mm.
Long. al. ant. . . . .	23 „	23.5 „
Long. al. post. . . . .	20.5 „	21 „
Long. cere. . . . .	3 „	„

From the Oued Nça, M'zab country, April 16-30, 1914 (E. H. et C. H.).



5. **Macronemurus platycercus** sp. nov. (fig. 2).

Etym. From Gr. πλατύς *large* and κέρκος *tail*; allusion to the relative shortness and width of the cerci of ♂.

Fulvus, fulvo-ferrugineo mistus.

Caput (fig. 2, a) facie, palpis et duobus primis articulis antennarum flavis; vertice plaga lata, occipite linea transversa, fuscis; palporum labialium ultimo articulo fusiformi elongato, acuto, externe fusco notato; antennis ferrugineis, vix fulvo annulatis.

Thorax flavus, fusco longitudinaliter striatus. Prothorax (fig. 2, a) paulo latior quam longior, antrorsum leviter angustatus; disco linea media longitudinali pone sulcum, punctis ante sulcum et stria obliqua utrimque prope marginem



FIG. 2.—*Macronemurus platycercus* ♂ Nav.

a. Head and prothorax. b. End of abdomen, from side. (In Coll. Navás.)

posteriorem, fuscis. Pili laterales albi. Meso- et metanotum tribus striis longitudinalibus fuscis, interruptis, media in duas tresve divisa.

Abdomen fulvum, pallido breviter pilosum; inferne fusco-ferrugineum; superne linea media longitudinali fusco-ferruginea; cercis ♂ fuscis fuscoque pilosis (fig. 2, b), latitudine abdominis paulo longioribus, sublaminaribus, arcuatis.

Pedes flavo-fulvi, fusco setosi; apice tibiatarum et articularum tarsorum fusco; calcaribus testaceis, modice arcuatis, duos primos tarsorum articulos aequantibus aut superantibus.

Alae hyalinae, irideae, acutae; margine externo sub apicem leviter concavo; stigmate pallido, vix sensibili; reticulatione fulvo-pallida, ad venularum insertionem fusco punctata; area apicali serie venularum gradatarum instructa. Pili fusci, densiusculi, tenues.

Ala anterior 7 venulis radialibus internis; sectore radii 8-9 ramis.

Ala posterior una venula radialis interna; sectore radii 9-10 ramis.

Long. corp. ♂ . . . . .	28 mm.
Long. al. ant. . . . .	22 „
Long. al. post. . . . .	20.6 „

From Hammam R'irha, North Algeria, May 30, 1913 (W. R. et E. H.).

TRIBE **Neuroleini** Nav.

6. **Neuroleon algericus** Nav., *Bull. Soc. Hist. Nat. Nord Afrique*, 1913, p. 216, f. 3.

From the Oued Nça, M'zab country, April 16-30, 1914 (E. H. et C. H.); Aïn Sefra, South Oran, May 1-18, 1913 (W. R. et E. H.).

The type in the Vienna Museum being incomplete and the slender shape

of the wings very remarkable, I give here the measurements of the specimens. Length, 21 mm.; breadth of the frontwing at the pterostigma, 3.5 mm.; of the hindwing at the same place, 2.9 mm.

TRIBE *Megistopini* Nav.

7. *Megistopus flavicorvis* Ross.

From Hammam R'irha, May 30, 1913 (W. R. et E. H.). A Mediterranean species, to my knowledge not previously recorded from Algeria.

TRIBE *Gymnoleini* Nav.

8. *Maracanda stigmalis* Nav.

Oued Nça, M'zab country, April 16-30, 1914 (E. H. and C. H.).

TRIBE *Creoleini* Till.

9. *Creoleon aegyptiacus* Rambur.

From Aïn Sefra, South Oran, May 1-18, 1913 (W. R. and E. H.).

10. *Mauroleo* gen. nov.

SIMILIS *Creoleoni* Till.

Caput antennis longis, fere thorace longioribus; clava haud forti; insertione minus latitudine primi articuli distantibus.

Abdomen alis brevius (saltem in ♀).

Pedes mediocres; tibiis anterioribus brevioribus suis femoribus; calcaribus fere tres primos tarsorum articulos longitudine aequantibus; tarsorum articulo 1 brevi, 2-4 brevioribus, inter se aequalibus, 5 longo, praecedentibus simul sumptis subaequali.

Alae ad medium leviter dilatatae, manifeste longitudine inaequales, posteriore brevior; margine externo convexo; area apicali lata, serie venularum gradatarum instructa; linea plicata nulla.

Ala anterior sectore radii ultra divisionem cubiti orto; ramis cubiti inter se et cum margine posteriore parallelis; postcubito longo, margini posteriori cubiti parallelo et cum eo anastomosi obliqua conjuncto.

This genus differs from the genus *Creoleon* Till. (= *Creagris* Hag., nom praecoc.) by the form of the wings, which are broader, less acute, with the exterior margin convex, not emarginated, the hindwing plainly shorter than the frontwing, etc.

The type is the next species.

11. *Mauroleo turbidus* sp. nov.

Fulvus, fusco maculatus.

Caput facie straminea; vertice et occipite ferrugineo dense maculatis; oculis fuscis; palpis flavis, ultimo articulo labialium inflato, externe puncto fusco notato; antennis fuscis, fulvo anguste annulatis; duobus primis articulis flavis, superne stria fusca transversa signatis.

Prothorax paulo latior quam longior, superne bina stria longitudinali media

ferruginea; alia ad margines laterales pone sulcum transversum fusco-nigra. Meso- et metathorax abunde vageque fusco notati.

Abdomen fulvum, albido breviter pilosum; aliquot segmentis ad marginem posticum fusciscentibus; pilis spinulisve valvarum ♀ nigris.

Pedes fulvi, parce fusco punctati; apice tibiae ruri et articulorum tarsorum fusco-ferrugineo; albo pilosi; nigro longiterque setosi; calcaribus testaceis, parum curvatis, anterioribus tres primos, posterioribus duos primos tarsorum articulos superantibus.

Alae hyalinae, irideae, apice subacutae, ad tertium apicale leviter dilatatae; stigmatibus albo-flavido, anteriore majore distinctioreque; reticulatione fulvo-pallida, fusco striata; costa pallida.

Ala anterior area radialis 5-6 venulis internis; sectore radii 7-8 ramis; area cubitali simplice, angusta, ultima areola ad anastomosim divisa; area post-cubitali simplice, angusta; venis fusco striatis; venulis fuscis pallidisque, gradatis apicalibus fuscis; paucissimis ferrugineo vix sensibilibus limbatis.

Ala posterior brevior acutiorque; una venula radialis interna; sectore radii 8 ramis; area cubitali interna angusta, simplice, externa latiore, partim triareolata. Venae striatae, sed proclivis totus et pleraeque venulae pallidae.

Long. corp. ♀	.	.	.	.	.	.	25 mm.
Long. al. ant.	.	.	.	.	.	.	25.2 „
Long. al. post.	.	.	.	.	.	.	22.8 „

From the Oued Nça, M'zab country, April 16-30, 1914 (E. H. and C. H.).

## FAMILY CHRYSOPIDAE.

### TRIBE *Chrysopini* Nav.

#### 12. *Chrysopa vulgaris* Sehn.

Hammam R'irha, May 30, 1913 (W. R. and E. H.).

#### 13. *Chrysopa vulgaris* Sehn. var. *aequata* Nav.

Hammam R'irha, June 1, 1913 (W. R. and E. H.).

#### 14. *Chrysopa flavifrons* Brau. var. *nigropunctata* Ed. Piet.

Hammam R'irha, May 30, 1913 (W. R. and E. H.).

15. *Chrysopa euprepia* Nav., *Bull. Soc. Entom. Suisse*, 1916, xii. p. 361, pl. xxiv. f. 4.

Oued Nça, M'zab country, April 10-30, 1914 (E. H. and C. H.). New for Algeria; the type is from Tozeur, Tunisia.

#### 16. *Chrysopa pilosella* Nav.

Hassi Dinar, south of Touggourt, April 12, 1914 (E. H. and C. H.), Oued Nça, M'zab country, April 16-30, 1914 (E. H. and C. H.)

17. *Chrysopa genei* Ramb.

Hamman R'irha, May 30, 1913 (W. R. and C. H.).

18. *Chrysopa venosa* Ramb.

Oued Nçça, April 16-30, 1914 (E. H. and C. H.).

19. *Cintameva formosa* Brau.

Hamman R'irha, May 30, 1913 (W. R. and E. H.). Already recorded from Algeria by MacLachlan.

20. *Minva* gen. nov.

Genus Chrysopinorum.

Labrum antice truncatum. Antennae graciles, alis haud longiores.

Prothorax transversus.

Abdomen ♀ in ovipositorem acutum productum.

Pedes graciles; unguibus arcuatis, basi haud fortiter dilatatis.

Alae angustae; stigmatе sensibili, in utraque area, costali et subcostali venulis instructo; area procubitali haud angusta.

Ala anterior area costali haud fortiter dilatata; cubito prope basim incrassato de more; cellula tertia procubitali indivisa, seu sine venula divisoria; venulis gradatis in duas series dispositis.

Ala posterior postcubito seu ramo instructo; venulis gradatis una serie, externa.

The type is the next species.

21. *Minva punctata* sp. nov. (fig. 3).

Viridis.

Caput viridi-flavum; puncto nigro in media fronte, paulo ante antennis duobus in vertice, duobus in occipite; antennis articulo primo viridi, puncto nigro dorsali prope apicem internum; secundo articulo nigro, transverso; ceteris fuscis, basim versus fulvescentibus.

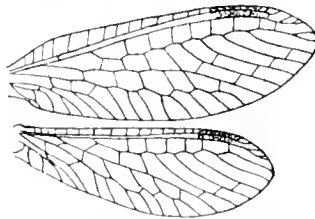


FIG. 3.—*Minva punctata* Nav., Wings.  
(In Coll. Navás.)

Prothorax fortiter transversus; pilis nigris; margine antico late rotundato; lateralibus parallelis; sulco transverso in tertio posteriore sito; striola fusca obliqua utrimque pone sulcum, prope margines laterales.

Abdomen viride, viridi pilosum; ovipositore ♀ acuto, basi breviter crassiore, subuliformi.

Pedes teretes, virides, nigro pilosi; femoribus pallidioribus; unguibus fuscis.

Alae (fig. 3) hyalinae, irideae, angustae, apice subacutae; reticulatione viridi; pilis fimbriisque brevibus, fuscis; stigmatе elongato, viridi-flavo.

Ala anterior venulis gradatis fere 2-4; sectore cubiti furcato; postcubito simplice.

Ala posterior venulis gradatis 3; una venula postcubitali.

Long. corp. ♀	. . . . .	6.5 mm.
Long. al. ant.	. . . . .	10 "
Long. al. post.	. . . . .	9.4 "

From Aïn Sefra, South Oran, May 1-18, 1913 (W. R. and C. H.).

TRIBE *Nothochrysinini* Nav.

22. *Rexa* gen. nov.

GENUS *Nothochrisinorum*.

Caput labro antice emarginato, lobis rotundatis; antennis haud alis longioribus.

Abdomen cylindricum, alis brevius.

Pedes teretes; tibia posteriore haud compressa neve sulcata; unguibus basi fortiter dilatatis.

Alae latae; stigmatе elongato, in area costali venulis destituto; venulis gradatis discalibus saltem in tres series dispositis.

Ala anterior cellula tertia procubitali in duas areolas, venula procubito et cubito subparallela, divisa; vena cubitali prope basim de more incrassata.

The type is the following species.

23. *Rexa lordina* sp. nov. (fig. 4).

Viridis.

Caput flavum, rubro tinctum; oculis in sicco fuscis; labro antice leviter emarginato, lobis lateralibus rotundatis, parum prominentibus; palpis fuscis, ad articulationes pallidis.

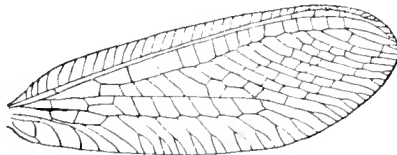


FIG. 4.—*Rexa lordina* ♀ Nav. Frontwing.  
(In Coll. Navás.)

Thorax superne fascia media longitudinali flava. Prothorax latior quam longior, antrorsum leviter angustatus.

Abdomen viride, viridi pilosum.

Pedes virides, fusco pilosi; apice femorum, tibiaram, tarsisque totis flavis.

Alae latae, apice elliptice rotundatae; hyalinae, irideae; reticulatione viridi; stigmatibus viridi pallido, parum sensibili.

Ala anterior (fig. 4) disco reticulato, venulis gradatis fere in quatuor series dispositis; ramis venulisque marginalibus fere furcatis; aliquot venulis prope basim fuscatis.

Ala posterior venulis costalibus et initio sectoris radii fuscato; venulis gradatis in tres series dispositis, media serie paucis venulis, extremis 9-10.

Long. corp. ♀ . . . . .	10 mm.
Long. al. ant. . . . .	13.5 „
Long. al. post. . . . .	12.2 „

From Hammam R'irha, May 30, 1913 (W. R. and E. H.).

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SOME NOTES ON THE GENUS *SURNICULUS*.

By E. C. STUART BAKER, F.L.S., F.Z.S.

IN Volume XX. of NOVITATES ZOOLOGICAE, p. 340 *et seq.*, Stresemann has dealt at some length with the genus *Surniculus*, but I cannot agree with all his conclusions.

He recognises only one species, *S. lugubris*, which he subdivides into four geographical races. (1) *S. l. lugubris*, Java, Bali, and Ceylon; (2) *S. l. brachyurus*, Malay Peninsula and Sumatra and Borneo; (3) *S. l. dicruroides*, N. India, Burma, and Siam; and (4) *S. l. velutinus*, Philippines.

In the first place there are, in my opinion, two distinct species, *Surniculus lugubris* and *Surniculus velutinus*. Superficially the adults of the two are very similar in general appearance, though the latter has a brighter, deeper blue gloss on the upper plumage than has the former and the underparts are a velvety black rather than a brown-black. In *velutinus* also the white fringes to the tail feathers are much more developed. The young are, however, entirely different, for whilst in the *lugubris* group the young are black profusely spotted with white, the young in the *velutinus* group are a rather bright rufous brown all over, with the white markings, if any, confined to the outer tail feathers. As *S. musschenbrocki* Rowley apparently belongs to the same group as *velutinus*, this takes priority and the latter becomes a subspecies of the former.

*Surniculus lugubris* varies considerably in size, as is shown in the accompanying table compiled from the collection in the British Museum collection:

	Wing Average.	Tail.	Specimens.
Northern India . . . . .	140.3 mm. (134-147)	106-133 mm.*	27
Assam . . . . .	138.6 mm. (133-144)	106-133 mm.	21
N. and Centr. Burma . . . . .	135.2 mm. (130-147)	109-133 mm.	9
S. Burma . . . . .	134.0 mm. (129-146)	109-133 mm.	17
Siam . . . . .	135.2 mm. (132-137)	112-130 mm.	8
Malay States . . . . .	126.1 mm. (117-143)	103-132 mm.	21
Java and Bali . . . . .	128.2 mm. (121-144)	115-136 mm.	9
Sumatra . . . . .	122.8 mm. (120-126)	99-135 mm.	3
Borneo . . . . .	123.6 mm. (121-126)	102-121 mm.	4
Palawan . . . . .	120.6 mm. (117-126)	105-115 mm.	12
Ceylon . . . . .	126.5 mm. (123-131)	126-141 mm.	9

The measurements of this cuckoo are very puzzling; roughly there seems to be a big northern form covering India, Burma, and Siam, and a small one inhabiting peninsular Burma and Siam, the Malay States, and the Islands, and this division is further confirmed by the comparative length of tail, which averages much shorter in the southern than in the northern form, and in the former, also, is squarer in shape.

Over nearly the whole area, however, individual birds are obtained which are absolutely at variance with these conclusions, and it is probable that *Surniculus*, which is known to be partially migratory, sometimes wanders very far

\* In the Tring Museum there are specimens with tails up to 147 mm.

from its normal habitat. Nepal, Sikkim, and Northern Burma are seldom visited by the small southern bird, and the islands, being well separated from the mainland, have equally few visitors from the north. Possibly, if we could examine locally *breeding* birds only our difficulties would mostly disappear.

There is, however, yet another means of differentiation which is to be found between the Continental and Island forms, and that is on the shape of the wings, a point I deal with later on. This confirms Stresemann's division of *brachyurus* from *lugubris*, and without it I do not think they could be divided.

The Ceylon bird seems to differ in having a much longer tail than the Malayan bird, in addition to having a different wing formula. It cannot, of course, be confounded with the much larger Northern Indian bird.

I cannot separate birds from Java, Bali, Sumatra, and Borneo. It is true that in the table given the Javan birds seem to average larger, but if we eliminate two big, long-tailed birds, with wings of 136 and 144 mm. respectively, the average at once comes down to about that of the others. These two birds, which also have the northern wing formula, may well be visitors only.

For the present I recognise the following species and subspecies:

### 1. *Surniculus lugubris*.

#### (a) *Surniculus lugubris lugubris*.

*Cuculus lugubris* Horsf., *Trans. Linn. Soc.* xiii. p. 179 (1820), Java.

*Cuculus albopunctatus* Drap., *Dict. Class. Hist. Nat.* iv. p. 570 (1823), Java.

*Type Locality.* Java.

A small bird with a wing (excluding two specimens) varying between 120 and 128 mm., average 123.8 mm. Tail between 99 and 135 mm.

The two excluded specimens are both Javan, with wings of 136 and 144 mm. and tails of 132 and 136 mm. respectively. These may be individuals which have migrated from the north. Javan, Sumatran, and Bornean birds are all practically the same in size, the wing averages for the three islands being 124, 122.8, and 123.6 mm. respectively. I can see no colour or structural differences, and retain them all under this name.

The wing formula in this race is: third and fourth primary equal or fourth longest; first primary comparatively small.

*Habitat.* Java, Bali, Sumatra, and Borneo.

#### ? *Surniculus lugubris barusarum*.

*Surniculus lugubris barusarum* Oberholser, *Smith. Misc. Coll.* vol. ix. No. 7. p. 5 (1912).

Oberholser describes this race as "resembling *lugubris* but smaller, with the bill at least relatively larger and with less white on the inner wing quills." "Tana Bala Island, Batu Island."

As no dimensions are given, it is quite impossible to say whether this is a distinct race or not. The extent of white on the wing quills is very variable, and probably this subspecies will have to be suppressed.

#### (b) *Surniculus lugubris minimus* subsp. nov.

*Type* ♂, 19.vi.07, W. P. Lowe Coll., British Museum, No. 1911. 11.16.127.

*Type Locality.* Iwahig, Palawan.

A very small bird, wing average only 120.6 mm. and varying between 117



and 126 mm. ; tail very square and short, between 105 and 115 mm. The under-surface is distinctly blacker than in *S. l. lugubris*. Wing formula as in that bird.

*Habitat.* Palawan.

(c) *Surniculus lugubris brachyurus*.

*Surniculus lugubris brachyurus* Stresemann, *Nov. Zool.* xx. p. 340 (1913), Pahang.

Similar to *S. l. lugubris* but rather larger, wing varying between 117 and 143 mm. and averaging 126.1 mm. Tail from 103 to 132 mm. The two smallest birds of the British Museum series and one in the Tring Museum seem to belong to the Javan form, with which they agree both in their short, square tails and the wing formula.

In this race the third primary is generally much longer than the fourth, the first primary is proportionately larger.

*Habitat.* Malay Peninsula, Salanga, and peninsular Burma and Siam.

(c) *Surniculus lugubris dicruroides*.

*Pseudornis dicruroides* Hodgson, *Journal As. Soc. Beng.* viii. p. 136 (1839).

This is the largest of all the races, having a wing varying between 129 and 147 mm. and with an average of 137.4 mm.

The wing formula is the same as in *S. l. lugubris*.

*Habitat.* I include under this name birds from the same area as that accepted by Stresemann, viz. Upper India, Assam, all Burma, and Siam north of the Peninsula, Hainan, and China.

(d) *Surniculus lugubris stewarti* subsp. nov.

*Type.* ♂ Legge Coll. British Mus. No. 98. 12.2.297.

*Type Locality.* Ceylon.

Intermediate in size between *C. l. lugubris* and *C. l. minima*; that is to say, about the same as *C. l. brachyurus*, with a wing average of 126.5 mm. and with a range from 123 to 131 mm. The tail is, however, longer both actually and comparatively. Bill from nostril to tip 13.5 to 14.1 mm., as against 15.5 to 17.0 mm. in *S. l. dicruroides*.

Wing formula: fourth primary longest, rarely equal to third.

*Habitat.* Ceylon, Travancore, and as far north as Karwar in the Bombay Presidency, where it is common.

2. *Surniculus musschenbrocki* Meyer.

(e) *Surniculus musschenbrocki musschenbrocki* Meyer, in *Rouley's Orn. Misc.* iii p. 164 (1878)

*Type Locality.* ? Batjan.

From the description of this cuckoo it appears to belong to the *velutinus* group rather than to *lugubris*. It is described as "*S. lugubris* (Horsf.) *similis sed major*. Underparts black, but velvety not glossy," "wing 140, tail 155, bill 19, tarsus 16," etc., etc.

Two female specimens in the Museum, both from Mt. Musarong, N. Celebes, agree with this description, but are smaller; wings 126 and 127 mm. and talis

126 and 125 mm. respectively. If measured to include the bony base they would measure 141 and 134 mm. The white on the edges of the tail feathers is very conspicuous, though not so much so as in *velutinus*.

The locality, Batjan, of the type is doubtful. Meyer says that it was collected by one of his hunters in that island and Salvadori (*Orni. del Pap.* i. p. 257 [1880]) has already pointed out the improbability of this locality.

*Habitat.* Indrulaman (S. Celebes), Mt. Musarong, N. Celebes (? Batjan).

(f) *Surniculus musschenbrocki velutinus* Sharpe.

*Surniculus velutinus* Sharpe, *Trans. Linn. Soc. Zool.* i. p. 320 (1877).

*Type Locality.* Philippines.

Adults similar to *S. lugubris*, but with a brighter, deeper blue gloss above and with the underparts a velvety black instead of brownish black. The edges of the rectrices are boldly margined with white.

Wing formula as in *S. m. musschenbrocki*, third and fourth primaries equal or the latter longest; second and fifth about equal.

The young bird is wholly brown without any spots instead of being similar to the adult but more profusely spotted as in the *S. lugubris* group.

It is a much shorter-tailed bird than *musschenbrocki*, this varying between 101 and 107 mm. only, whilst the wing ranges from 106 to 118 mm. and averages 114.1 mm.

*Habitat.* Philippines.

Before leaving this genus of cuckoo it is perhaps right to suggest another solution of the curiously contradictory measurements of the *Surniculus lugubris* group. Possibly there are two species found over a great portion of the area inhabited, one a small bird with a short tail and one a bigger one with a comparatively longer tail. Strong support is given to this suggestion by the fact that small birds in the north and large ones in the south generally have tails and wing formulae in agreement with their size rather than with the majority of birds found in those areas.

Again, in Ceylon and South India, which is separated by a wide area from any other in which *Surniculus* is common, the local race is much more consistent both in appearance and size than it is anywhere else.

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## THE PAPILIOS OF PARÁ.

BY THE REV. A. MILES MOSS, M.A., F.Z.S., F.E.S., BRITISH CHAPLAIN OF  
PARÁ AND THE AMAZON.

(PLATES II.—IV.)

## LIST OF THE PAPILIOS OF PARÁ.

## DIVISION I.—ARISTOLOCHIA PAPILIOS.

			<i>Revision, R. &amp; J..</i>
2.	Aeneas group.	<i>Papilio triopas.</i>	13.
	„ „	„ <i>aeneas marcius.</i>	20 <i>b.</i>
	„ „	„ <i>sesostris sesostris.</i>	23 <i>c.</i>
	„ „	„ <i>vertumnus diceros.</i>	30 <i>d.</i>
	„ „	„ <i>anchises thelios.</i>	35 <i>f.</i>
3.	Lysander group.	„ <i>aglaope.</i>	39.
	„ „	„ <i>lysander.</i>	40.
	„ „	„ <i>echemon echemon.</i>	41 <i>a.</i>
	„ „	„ <i>neophilus ecbolius.</i>	42 <i>d.</i>
4.	Polydamas group.	„ <i>polydamas polydamas.</i>	51 <i>f.</i>
	„ „	„ <i>belus belemus.</i>	56 <i>d.</i>
	„ „	„ <i>lycidas.</i>	58.
	„ „	„ <i>crassus.</i>	59.

## DIVISION II.—FLUTED PAPILIOS.

6.	Thoas group.	<i>Papilio thoas thoas.</i>	66 <i>e.</i>
	„ „	„ <i>androgeus androgeus.</i>	78 <i>b.</i>
9.	Anchisiades group.	„ <i>hyppason.</i>	87.
	„ „	„ <i>anchisiades anchisiades.</i>	95 <i>b.</i>
	„ „	„ <i>isodorus.</i>	96.
10.	Torquatus group.	„ <i>torquatus torquatus.</i>	102 <i>e.</i>

## DIVISION III.—KITE PAPILIOS.

14.	Lysithous group.	<i>Papilio pausanias pausanias.</i>	122 <i>c.</i>
	„ „	„ <i>ariarathes metagenes.</i>	131 <i>d.</i>
16.	Protesilaus group.	„ <i>protesilaus nigricornis.</i>	151 <i>g.</i>

THE *Revision of the American Papilios*, by Lord Rothschild and Dr. Jordan, published in August 1906, describes some 169 species, together with many geographical forms or subspecies. This is a large number for one genus, and is indicative of the wonderful lepidopterous wealth of the continent, especially in its tropical and sub-tropical regions. By comparison England possesses but a solitary representative of the genus in *P. machaon*, and the whole of Europe only four species.

This work, revealing an immense amount of labour, deals chiefly with the perfect insect and its range of distribution. In regard to early stages it is admitted that, in no fewer than 123 cases of the above number, the larvae had not then been noted, and nothing was known of the food-plants beyond what, for example, might be reasonably inferred by their close alliance to known species in Division I, associated with *Aristolochia*, or to the orange-feeders in Division II. A great province for original research is thus disclosed; and though there may be richer centres than Pará, I have found it no mean field for the investigation of the life-histories of the genus *Papilio*, as of many other lepidopterous families. Having settled here as Anglican Chaplain in March 1912, my observations cover the greater part of the seven years following that date. During this period 22 distinct species of *Papilio*, and the early stages of 18 of these, have been discovered in the immediate vicinity of the city; each larva, as it occurred, being carefully studied in association with its particular food-plants, figured in water-colours, and its identity disclosed by the subsequent rearing of the butterfly.

At the time of going to press, four species only, viz. *P. triopas*, *isodorus*, *pausanias*, and *protesilaus*, have baffled all my attempts to elucidate the mysteries surrounding their origins, and have occurred simply as odd specimens. Of *P. torquatus* I have thrice bred the female, and but very occasionally seen the male on the wing in Pará. Though doubtless most, if not all, of the species here dealt with occur on the adjacent islands, all have now been taken within three or four miles of the city in grounds more or less cultivated or in the neighbourhood of forest paths, the Utinga waterworks being a favourite resort.

In searching for the larvae of the *Aristolochia* Papilios, my first work was to acquaint myself with the range and extent of this Order of plant-life near Pará. This resulted in a discovery, hardly less interesting than that which I sought among the butterflies and their caterpillars, in that, of seven local species submitted to the authorities at South Kensington, four were found to be new to science, *vide* article in the *Journal of Botany*, vol. liii. (January 1915).

Among the so-called Fluted Papilios, larvae have been obtained from five or six species of *Citrus* (none strictly indigenous to the country), from *Fagara rhoifolia* (tamanqueira), and from four species of *Piper*. There are no Umbelliferae in Pará, but for the convenience of collectors I should like here to record the fact that I used frequently to take the larvae of *Papilio paeon* near Lima and in the interior of Peru, feeding on the parsnip, *Aracatcha csculenta*, as also on the extremely dissimilar bush *Psoralia glandulosa* (Leguminosae).

In the Kite Papilios I have only succeeded in tracing the antecedents of the tailless mimic *P. ariarathes*, several wild and cultivated species of Anonaceae being employed, especially *Anona muricata*, *araticu*, *Rollinia squamosa*, etc.

Among the butterfly baits, as distinct from food-plants proper, may be mentioned the *Zinnia* in gardens for *P. polydamas*, *thoas*, and *anchisiades*, while the mauve-flowering herb of the matto called *Psychotria colorata*, the white-tasselled *Inga stipulata* (chiehie), and the chrome-yellow blooms of *Palicourea grandifolia*, are all particularly attractive to the *Aristolochia* groups of Papilios in general.

As regards times of appearance in Pará, where the climatic conditions throughout the year are extraordinarily uniform—the average shade-temperature being about 80° F., and both wet and dry seasons being characterised by great atmospheric humidity—many Papilios are to be found in the larval and imaginal

states on the same day in any month of the year. This applies more especially to those of the *Aristolochia* Division, where there appears to be a constant succession of broods; while the same may be said of many other families among the diurnal and nocturnal lepidoptera of the district.

Not having come across a single case of seasonal dimorphism, I find it futile, in such instances at least, to record the dates of capture, though naturally I commenced by keeping all data.

According to the well-known habit, a habit which is none the less strange and difficult to account for when all outward conditions appear to be identical, the pupae of *Papilios* sometimes, but only rarely, in my experience, "stand over," the individual skipping a generation and commingling with the next on emergence. The utility of this custom, as a safeguard to the health and continuity of a species, would appear, however, to be a fine provision of nature.

Ordinarily with such butterflies as *P. anchises*, *lysander*, and *polydamas*, to instance three groups of Division I, the entire metamorphosis is accomplished in about 55 days, the egg hatching in 7 or 8, the larva being ready to pupate in 4 weeks, while another 19 days generally suffices for the pupal period. As pairing and egg-laying follow emergence without much loss of time, and the process is repeated, as many as six successive generations are thus shown to be possible in the course of the twelve months.

A noteworthy feature with the *Aristolochia* *Papilios* is that emergence from the pupal condition almost invariably takes place about 8 or 9 o'clock in the morning, seldom before 8 or after 11 a.m. No matter how near to the point of emergence an insect may be during the afternoon or evening, the semi-transparent pupa-shell always clearly predicting its advent, one may go to bed with the assurance that it will not emerge till next morning.

What the determining factors are, whereby these marvels of intuition are enabled to gauge the position of the sun, is a great puzzle, but it is at least obvious that light and heat have very little to do with it. I mention this advisedly, for I afterwards discovered that the *Papilios* of Division II were not thus controlled by any such minute considerations regarding the particular time of day when they might be expected to put in an appearance.

Sometimes they would emerge in the morning, but I remember *thoas* "coming out" after lunch one day, and on another occasion after eight in the evening; while with *hyppason* emergence would seem to take place, more often than not, well on in the afternoon or even late at night. It certainly seems most natural, and experience proves that with the majority of butterflies it is the normal habit, to emerge in the morning, while most night-flying moths emerge in the evening or during the night, but even here there appear to be exceptions.

Particular times, indeed, seem to be selected by different families of moths, *Sphingids* generally emerging between 6 p.m. and midnight, and *Notodonts*, as a rule, after midnight.

Reverting to the newly hatched *hyppason*, I record a note on its excessive restlessness, which on several occasions resulted in the hopeless battering of its wings before the fly was even dry enough to kill and set. Once this occurred in the dark between 9 p.m. and midnight with a female which emerged in a spacious, gauze-covered cage kept in a cool place, but which, after fully expanding her wings, became dissatisfied with her environment. On another occasion, about three in the afternoon, a limp-winged female of this species, which I took

at large in the matto, managed somehow to break all her pinions to pieces in the net before I could get her out.

Returning to the *Aristolochia Papilios* and their mode and time of flight, my experience, I believe, tallies with that of other observers, for I note that these butterflies often fly higher in the morning than later in the day; consequently fewer are seen at that time, unless specially drawn to flowers, and they are harder to catch. Probably from three to five in the afternoon is the time when one is likely to meet with the greatest number, though it is true that I have frequently made good captures earlier in the day.

Another feature of note with the butterflies of this Division is their almost total disregard at times for a wetting. The absence of sunshine and the approach of a thunderstorm with fairly heavy rain already falling seems to make no difference to them; and except at intervals, when the rain is at its worst in drenching torrents, seldom are such butterflies as the *Aristolochia Papilios* and *Heliconias* sent to their homes, if bent on feeding. Under these exact conditions I have repeatedly caught them, together with the dusk-loving *Caligos* and a belated *Morpho*, till half an hour before dark, 5.30 or 6 p.m. The comparative regularity of the afternoon rains throughout the year, and the steady warm temperature of the forest, even in its most shaded portions, are of course important factors to remember when we contrast the state of things in Pará with what we know to prevail in Europe.

Any one who has watched *Papilios* in their easy, graceful flight, circling round the fragrant blossoms of some forest-tree like those mentioned, and then noticed their change of demeanour when alarmed, with nervous alacrity and quickened pace making straight for some dark recess among the thick undergrowth where it is impossible to follow, will come to the conclusion that butterflies are not quite such foolish creatures as some people imagine, and that if there is one thing to match the iridescence of their wings and the elegance of their movements, it is their intelligence.

When feeding in such positions they are frequently out of reach, and it is sometimes worth the collector's time and patience to stop for an hour or two beneath a single tree. I have met with success occasionally by affixing my net to an inordinately long stick, and thus it was that I caught my first *triopas* and both sexes of *vertumnus*, wheeling round the golden blossom of a *Palicourea* tree, fully 15 or 20 feet above my head. Now and again, however, a butterfly will swoop down to be taken at closer quarters, as it momentarily settles upon a cool green leaf in the shade to digest its fill of nectar. On the other hand, I have never observed any of the *Aristolochia Papilios* at puddles of water or sipping the juices of less delectable substances, so pronounced a feature with the *Kite Papilios* and *Pieridae* and other groups of butterflies and moths on the head-waters of the Amazon in Peru.

Passing on to the question of oviposition in the *Aeneas* and *Lysander* groups, the eggs are laid singly, frequently on a fresh stem of the plant, sometimes on the adjacent stalk of another plant or dry stick, but still oftener on the under-surface of the tender leaves of the particular species of *Aristolochia* preferred.

This constitutes an ideal position for the young larva on emergence, for it is on such leaves that it at first subsists, and under their shade that it secures protection from sun and rain. As the larva advances, it consumes the crisper

leaves, and as a rule it is only when approaching maturity that one occasionally finds it resting on some other object close at hand or on the ground.

Though smaller insects in the main, it is a noteworthy fact that the ova of these two groups are distinctly larger than those of the *Polydamas* group and of a deeper yellow tone. They are somewhat irregularly ribbed with a wax-like substance, a considerable portion of which, with the shell, the newly hatched larva consumes for its first meal. It would seem that this material answers to a kind of concentrated meat-essence, which must come in very handy for the young caterpillar on those occasions when, through its mother's carelessness or inability, it has to take a long walk before it can reach such tender leaves as are designed for its after-nourishment. These newly hatched larvae are at first all much alike; and even in the succeeding instars up to full growth, as Plate II will show, the relationship between the two groups and between the individual species is an exceedingly close one.

In early days some of their fleshy tubercles are crested with a bunch of fine bristles, so characteristic of other lepidopterous families in later life; and it is highly probable that enlarged diagrams made under the lens at this stage would reveal specific differences which are not apparent to the eye.

I can find only eight of the red and black *Aristolochia Papilio*s in Pará. These vary considerably in their comparative abundance, and show partialities for some one or other species of *Aristolochia* and the degree of shade in which that plant happens to be growing; but both their ova and larvae are all quite easy to detect, if present and the plant be thoroughly examined.

The pupae have occasionally been found on the stems of the plant or attached to some object near; but, like the grubs of other lepidoptera, *Papilio* larvae are capable of taking a long walk, and generally wander far before pupating. These pupae, with slight differences in the matter of size, are all identical in design in every particular; and without having previously seen the caterpillar, it is impossible to distinguish between them, or do more than formulate a rough guess as to the precise identity, especially when the chrysalis found has been of the normal green description.

In six of the eight the pupae seem always to be emerald or blue-green, the dorsal area being touched with lemon yellow on head, thorax, edges of wing-cases, and the last two or three abdominal segments, giving them the appearance of seared leaves and rendering them inconspicuous. In the matter of design *lysander* and *aglaope* are also identical, but their colours are more variable, *lysander* being sometimes grey-green and yellow like the foregoing, or more often of a delicate lavender hue with mere touches of yellow on the dorsal area, while *aglaope* is generally darker or browner and more uniform in tone. By comparison with the pupa of *polydamas*, the thoracic hump in these eight cases is reduced to a mere bifid projection, and the wing-cases are less flanged-out laterally.

As I am chiefly concerned with the early stages, and in indicating those salient features which differentiate one species from another, I must refer readers in all cases to the *Revision* for a description of the perfect insects and their range of distribution.

## NOTES ON THE SPECIES.

N.B.—Though possibly incorrect from a strict morphological point of view, larvae are described as possessing 13 segments, the head being the first.

## DIVISION I.—ARISTOLOCHIA PAPILIOS.

## AENEAS GROUP.

**P. triopas.**

Apparently a rare species in Pará.

Two male butterflies only in the Utinga district: one at flowers on September 1st, 1914; the second, light brown in ground-colour, caught unwittingly. Early stages undiscovered.

The next eight species, though four are classed in the Aeneas group and four in the Lysander, show so many features in common that it seems best to begin by describing these, and then proceed to state wherein they differ as species under their specific headings.

As young larvae they all commence with a deep maroon colour, which generally clarifies and becomes rosier with advancing growth. In early days, and especially before moulting, even in the fourth instar, the skin appears taut and somewhat glossy. The specific markings, moreover, of the adult caterpillar, if they are anticipated at all, are in most cases vague and ill-defined.

For illustrations of this, compare the figures of the young of *aeneas*, *anchises*, *vertumnus*, and *neophilus* on Plate III with their adult forms on Plate II.

The head, legs, and hard or plated portions are in all cases black and glossy. From the earliest days, in common with all other *Papilio* larvae, they can, when disturbed, emit a pungent odour by throwing out a couple of snail-like yellow horns behind the head.

The pointed, fleshy tubercles, with which all these larvae are so prominently clothed, vary slightly in thickness and altitude as well as in colour in the different species, but very little in position. Indeed, a careful comparison of all the figures relating to these eight species—I can say nothing about *triopas*, never having seen either larva or pupa—reveals so many details in common between them that, judging of their classification simply from early stages, I confess to serious misgivings about the validity of dividing them up into two groups at all. In representatives of both, for example, there are a pair of dark lunular marks on the back of all the middle segments supporting the medio-dorsal line; in both again, when some of the dorsal tubercles are maroon or dark-coloured, they tend to be ochreous and light on segments 3, 8, 11, and 13, being invariably so in some species, inconstant in others. Compare *anchises* with all four of the Lysander group on Plate II. In *aeneas* the dorsal tubercles are light on 4 and 7 and sometimes 12 in addition to those above, and in *sesostris* they are only light on 8 and 11, but the same tendency is plainly discernible. Finally, the oblique yellow side-stripe from the dorsal tubercle on segment 8 to the base of segment 6, which constitutes so marked a feature in *aglaope*, *lysander*, and *neophilus*, is equally characteristic of *aeneas*; while with *anchises* and *echemon*, over which I have puzzled in vain to determine any constant and reliable differences, the position of this oblique stripe, though not defined, is always the lightest part of the lateral area.



By way of completing the description of this type of larva, let it be noted that, in addition to the dorsal tubercles, of which there are a pair on each segment after the second, another set, generally long and dark in colour, are situated about the middle of the sides of segments 3, 4, and 5.

There are also a couple of rows of short, thick, sub-spiracular tubercles, beginning on segment 2 behind the head, and terminating on segment 13 with what can only be described as a pair of light spots. The tubercles of the upper row, though variable in size and colour, are always more prominent than those beneath, and are generally largest and lightest on segments 2, 7, 11, and 12. Those just above the legs and claspers are mere red or maroon points, conspicuous only so far as they differ from the prevailing ground-colour.

The extreme similarity of the pupae, of which *sesostris* alone is figured (Plate III, fig. 7), has already been mentioned, and still further emphasises the close alliance of all these species to one another.

In the butterflies, the Aeneas group possesses touches of white in the black fringe between the veins especially of the hindwings, *anchises* and *vertumnus* showing this characteristic strongly also in the forewings of both sexes. In the Lysander group all four species are similarly adorned with pink in the fringes of the hindwing, while the female of *aglaope* possesses minute touches of the same colour in the black fringes of her forewings, visible only on the undersurface.

All the eight butterflies are black, inclining somewhat to brown in the females of *sesostris* and *anchises*, and to blue-black in the male of *anchises*, the male of *neophilus* being thinly scaled and semi-transparent between the cell and apex of the forewing. The forewings of the males are in all cases adorned with a patch of blue or green, and of the females with white, the precise position, shape, and colour of these marks being sufficiently distinct in almost every case to preclude any doubt as to the identity of the species. Similarly, on the hindwings the adornment of red spots, ever different in the two sexes and varying in tone of colour, form, and exact position with each species, is a sufficiently pronounced and constant feature, in conjunction with the fringe, to make identification certain in every case.

#### **P. aeneas marcius** (pl. ii. fig. 1, pl. iii. fig. 6).

A comparatively rare species in Pará, but evidently widespread.

*Localities.* Utinga, Murutueú, S. Joaquim, Ilha das Onças, etc.

Larvae on isolated plants of *Aristolochia burchelli* growing in heavy shade of matto. Females sometimes caught on the sunny paths, males more often in shaded and wet regions.

Egg with eight regular vertical ribs.

Captured female in muslin net, sleeved on the growing plant, will sometimes lay, but only sparingly, generally dying after feeding and battering her wings for three days, and retaining many healthy ova. From one thus reared the life-cycle was as follows :

Egg deposited afternoon of September 29th, 1915; hatched October 5th. First ecdysis October 11th, second on the 16th, third on the 22nd, fourth on the 29th, spun up on November 9th, pupated on the 11th, emerged a perfect male on the morning of November 28th, being 60 days in all.

Full-grown larva much like *aglaope*, but with light oblique stripe more

broken, sometimes with extra light spot below dorsal tubercle on segment 9, and more light ochre-coloured tubercles.

Pupa apple-green, grey-green dorsally, resembling green form of *lysander*. Male butterfly characterised by small, nearly round patch of iridescent emerald-green scales near inner margin of forewing, and four intensely brilliant crimson spots, grouped together in a triangle of deep magenta on the hindwing.

Abdominal sheath silvery brown with fine brown hair.

Female characterised by broad forewing, rounded at the apex, and possessing a large and much-suffused white patch invading the cell. Hindwing adorned with six well-developed crimson spots, which nevertheless lack the intensity of the male coloration.

**P. sesostris sesostris** (pl. ii. fig. 2, pl. iii. fig. 7).

A very elegant species, thought at first to be rare, but frequently observed since on all sides of Pará. The larvae, from which lovely fresh specimens of both sexes have been reared, have indeed been taken quite commonly, and have invariably been found feeding on *Aristolochia huberiana*, a new species closely allied to *consimilis*, and named at South Kensington after the late-lamented Director of the Pará Museum, Dr. Huber.

*Localities.* The Pará Bosque, Canudos, Utinga, Ilha das Onças, etc. Two forms of the full-grown larva are figured, the commoner being of a Naples yellow or ochreous tint, freckled with black, the other a pale maroon with deep maroon tubercles.

*Special features.* 1. The dorsal tubercles are thick and blunt, and of dark coloration, except those on segments 8 and 11, which are invariably light. 2. By way of compensation, the sides of these two segments, 8 and 11, are always the most heavily marked with black or dark maroon. 3. The dark tubercles are always darkest in front, and are given the appearance of added height by the dark streaks which obliquely lead up to them. 4. There is a black triangular patch on the anal flap, not noted in others of the group.

Male butterfly: forewing broad and of an intense velvety black, with a large and very brilliant patch of iridescent emerald-green scales near the base, zigzagged outwardly into three points. Hindwing uniformly black, some specimens only showing vestigial traces of one or even two brilliant crimson spots in the lowest part of the wing near the fringe. Four plain red spots are revealed on the undersurface. Abdominal sheath very broad and thickly lined with cream-white woolly scales, like a handsome fur cloak. Just above this lies a tuft of long silvery hair, which on setting readily opens out into the form of a beautiful plume.

Ground-colour of female dark brown rather than black, with an irregular and rather small cream-coloured patch, never white, situated near the inner margin of the forewing far below the cell. Hindwing adorned with four large cherry-red spots, coalescing to form a single patch near the outer margin, while two much smaller spots of the same colour are isolated at a distance, breaking the usual continuity.

**P. vertumnus diceros** (pl. ii. fig. 3, pl. iii. fig. 5).

Never an abundant species in Pará, both sexes having been taken as often as *aeneas*, and then generally at the flowers of *Inga* or *Palicourea*

*Localities.* Utinga, S. Joaquim, etc.

I have only taken the larva on *Aristolochia burchelli*, once finding three in the final instar on a small plant growing in an open sandy place, and on another occasion one in the fourth instar in the Utinga matto. In this stage it is plain maroon with very tall erect tubercles; after moulting a much greater change takes place in this species than with any others of the group, the ground-colour becoming nearly black and each segment adorned with a broad vertical belt of pale cadmium yellow, while the tubercles also are yellow. With its obvious alliance to *anchises* and comparative distance from *echemon*, it is little short of extraordinary that the larvae of these latter species should so closely resemble one another, and that *vertumnus* should be so entirely different in outward design and colour.

Male butterfly characterised by a large and somewhat square patch of dull glaucous green on the inner margin of the forewing; and on the hindwing three spots of unequal length in juxtaposition, forming a single patch of brilliant crimson, and possessing a violet and greenish phosphorescence, when viewed in certain lights. The spot nearest to the abdomen is the longest and most curved. Abdominal sheath, a lovely white fur cloak, like the former species, but not quite so large.

Forewing of female contains a broad, irregular, but very clearly defined patch of pure white in its centre, invading the cell. On the hindwing five spots coalesce to form a broad and conspicuous patch of cherry-red, with one big spot, and sometimes also a minute one of the same colour above. All four wings in both sexes are prominently marked with white in the fringes.

**P. *anchises thelios*** (pl. ii. fig. 4, pl. iii. fig. 4).

A very common species in Pará, both sexes of the butterfly occurring at flowers in the open or more shaded parts of the matto. The larva is very frequently taken at apparently any time of year, feeding on *Aristolochia longicaudata*, *burchelli*, and *lanceolatorata*, a new species, for which it shows a special preference.

As the larva is very variable, being sometimes of a washed-out ochreous tint, adorned with a faint grey design, and at others of a warm Naples yellow, heavily marked with black, grey, and maroon, the colour of its tubercles also varying from a plain red in some specimens to the approved combination of dark and light in others, it is as difficult to describe as it is to say wherein lies its essential difference from *echemon*. Both are darkest at their two extremities and lightest about the middle, sometimes suggesting the customary oblique stripe on segment 8. This stripe, however, is, I believe, a more constant and recognisable feature in *echemon*.

Butterfly characters: Apex of forewing somewhat rounded, especially in the female. Both sexes prominently adorned with white in the fringes of all four wings, the female occasionally showing an admixture of pink scales with the white in the lower part of the fringe of the forewing. Patch on forewing of male glaucous green and triangular, with one or two cream-coloured spots in its upper portion; on hindwing five lovely crimson spots of variable and unequal length, which, like the former species, are opalescent, turning blue when viewed sideways in the proper light. The female possesses a clearly defined, but not

very large round patch of white scales touching the cell, but rarely, if ever, invading it; and on the hindwing a uniform series of red and rather small spots.

#### LYSANDER GROUP.

##### **P. aglaope** (pl. ii. fig. 5, pl. iii. fig. 2).

Widespread and not really rare about Pará, but of spasmodic occurrence, the female being easily overlooked on account of its extreme likeness to the much commoner *lysander*, unless caught and critically examined.

*Localities.* Matto paths in Utinga, Souza, S. Joaquim, Sacramento, etc. The larva has generally been discovered singly, feeding on *Aristolochia longicaudata*, and occasionally on three of my newly discovered species, *A. huberiana*, *didyma*, and *mossii*.

Though a variety of the larva resembling *lysander* has been met with, it is usually a much handsomer and more variegated creature, possessing a deep purple colour and a uniform series of bright red tubercles. The oblique stripe running from the dorsal tubercle on segment 8 to the base of segment 6 stands out prominently in a rosy cream colour, and is generally supported by a series of more or less connected spots of the same tint, suggesting a parallel stripe on segment 9. In the *lysander*-like variety, however, these spots are absent, and are only represented by an elongated light base to the dorsal tubercles on segment 9. In this case also these tubercles are invariably dark, and light only on segments 3, 8, 11, and 13. When red, they tend to be light on these segments, and to be deepest in colour on segments 6 and 10, especially at their bases.

The medio-lateral tubercles on segments 3, 4, and 5 are dark, and the sub-spiracular row generally ochreous with reddish tips.

Butterfly characters: Forewing of male compared with *lysander* somewhat fuller, the patch on the inner margin being of oblong rather than triangular form, and of a delicate grey-blue colour with one or even two clear white spots in its upper part. Hindwing with five or six brilliant red spots, shorter and rounder than in *lysander* and more like those of its own female. Abdominal sheath lined with short cream-coloured down and bordered with some fine greyish hair.

Female: White patch in centre of forewing generally smaller than *lysander* and less often invading the cell; hindwing similar to that species with six or seven bright red spots. Fringes pink, not only in the hindwing of both sexes, but also on the undersurface of the forewing of the female, invariably marking the lower half in three or four places, and constituting an outstanding feature of difference between the two species in this sex.

##### **P. lysander** (pl. ii. fig. 6).

Always a common species about Pará, the butterfly occurring in all parts of the matto and on the islands, and the larva being very frequently taken on the outskirts of the city in more open places, feeding on *Aristolochia huberiana*. This larva is the duller of either group, varying from a mottled vinous brown to a pale ochreous grey. The oblique light side-stripe from segment 8 to 6 is always pronounced, and while the dorsal tubercles in the main partake of the general ground-colour, they are always light on segments 3, 8, 11, and 13. The sub-spiracular tubercles are also light on segments 2, 3, 4, 11, and 12, and the small points above the claspers are sometimes light.

Butterfly characters : Apex of forewing in male pointed, its uniformly blue patch on the inner margin being slightly variable in shape and extent, but generally forming an isosceles triangle.

Hindwing with four much-elongated and brilliant crimson spots.

Abdominal sheath much the same as in the former species.

Forewing of female somewhat thinly scaled in its outer half, a large and rather round white patch marking its centre and partly invading the cell. Hindwing, like the former, with a regular series of seven red spots. Invariably pink in the fringes of the hindwing of both sexes, but not to any appreciable extent in the forewing of either.

**P. echemon echemon** (pl. ii. fig. 7, pl. iii. fig. 3).

Less common than the last species about Pará, but to be obtained apparently at all times of year and in any part of the matto, both sexes of the butterfly occurring along with others of the two groups in paths and glades and at forest flowers.

The larva has been taken on *Aristolochia longicaudata* and *burchelli*, but more often, like *anchises*, on *A. lanceolatorata*, still further seeming to emphasise the kinship between two caterpillars which are almost identical, and adding to the difficulties of discrimination. See description of the larva of *anchises*, and compare figures.

Butterfly characters : Forewing of male much pointed at the apex, with outer margin slightly concave, giving it a narrow appearance. Blue patch same as in *lysander*, but larger, narrower, and more finely angled at its upper extremity. Hindwing with pink in fringe and four bright red spots. Abdominal sheath entirely dark, with fine long blue-black hair. Patch on forewing of female always below the cell, and, though white and encircled by grey scales in its lower half, is not round like *lysander*, but triangular or wedge-shaped like its own male. Hindwing with pink in the fringe and six red spots.

**P. neophilus ecbolius** (pl. ii. fig. 8, pl. iii. fig. 1).

This last species of the group, though apparently absent at times, is at others perhaps the most common in certain parts of the matto, such as S. Joaquim, the butterfly occurring in great plenty at flowers of *Psychotria colorata*. Both ova and larvae have been found sparingly, and always, so far as I can recollect, on *Aristolochia burchelli*. The larva is like a small strongly marked edition of *lysander*, but is of a prettier violet hue with rather more sharply pointed tubercles. These are all deep maroon, except the usual series, as in *lysander*, which, with the oblique side-stripe in the middle, are lemon-yellow rather than ochre. The four points above the elaspers remain dark.

Butterfly characters : Forewing of male, like *echemon*, much pointed at apex and slightly concave on the outer margin. Beyond cell semi-transparent, as though rubbed. An irregular blue-green patch on inner margin culminates above in two or three white and semi-transparent spots. On the hindwing, recalling *aeneas*, four crimson spots are enclosed in a magenta patch which springs from near the base. Abdominal sheath grey with fine hair.

Forewing distinctly fuller in female than male, but also inclining to trans-

parency. A white central patch is situated below the cell, sometimes invading it, and tapers off towards the apex.

The six spots on the hindwing are lighter pink than any yet described, more elongate and nearer to the base than the series marking the female of *lysander*. Hindwing of both sexes with pink in fringe, and small touches of the same in the lower part of the female's forewing.

#### POLYDAMAS GROUP.

##### *P. polydamas polydamas* (pl. iii. fig. 10).

Coming next to the Polydamas group, we reach that species itself, at once the commonest and most widespread of all the South American *Aristolochia* Papilios and the most damaging in its ravages upon the plant. It shows no special preference for any particular species of the Order, except perhaps the garden species known as *Sangué de Christo*.

The eggs are of a light straw yellow, ribbed vertically, and for a comparatively large butterfly distinctly small by comparison with those of the two previous groups. They are laid, usually five or more at a time, on the tender stalks and leaves; and small gregarious batches of the larvae may be found at any time of year in Pará in such positions, nibbling through the flowering stem and consuming buds and green capsules as well as leaves. Though not alone in its destructive propensity, to *polydamas* must be ascribed the reduction of many a plant and its failure to flower, a feature often noted with *Aristolochias*.

With advancing growth these larvae eat through thicker stalks, and remind one of slugs in more ways than one by their attempts at concealment during the day, and by their sleek grey appearance and pair of long fleshy tubercles branching from the sides of segment 2 behind the head. In the later stages especially its skin looks taut and glossy, and throughout it is variable in ground-colour and in the tint of its tubercles. By the particular arrangement and varied lengths of these, however, there is no mistaking its identity. Besides the pair on segment 2, the sub-spiracular tubercles on segments 6 and 11 are extra long and are capable of a quick twitching movement. All the tubercles are thin compared with those of the last two groups, and are generally light red in colour with black tips. Its pupa is either emerald green and lemon, or more often pale red-brown with the central abdominal segments relieved dorsally by cadmium yellow. The extension of the wing-cases gives a very broad and somewhat flattened appearance about the middle, and its thoracic hump is large and upright and slightly thrown back.

As already stated, the butterfly is more at home in the open sunny gardens and praças of the city than its allies of the shaded woodland, and may often be seen in company with *thous* and *anchisiades* over the flower borders.

##### *P. belus belemus* (pl. iii. fig. 9).

A species but rarely seen on the wing, but repeatedly occurring in the larval form in gregarious batches of a dozen or twenty at a time. Both ova and larvae in all stages of growth, at different times of year, have been taken in one place at Canudos on the north-eastern outskirts of Pará, and the larvae have invariably been found on bushy plants of *Aristolochia huberiana*, growing in sunny situations. Indeed, were these plants a little more numerous, and these large voracious-

larvae less destructive to the few that do exist, under conditions which this butterfly evidently regards as ideal, it might become a very common species hereabouts. Too often, however, have my choice hunting-grounds in this case been despoiled by the natives, who now and again have fits of tidiness, and, regarding everything growing in proximity to their huts and gardens as "matto," cut it down and burn it.

The egg of *belus* is small and light yellow like the previous species, and its larva plain black. Even in the fourth instar it is still very dark, a glossy black maroon in colour with no markings whatever, and possessing notably short tubercles. In the fifth instar a remarkable change takes place, the tubercles, though slender, becoming a prominent feature in their full development, with extensions like the horns of a snail on the sides of segment 2. It commences this stage with a vinous maroon ground-colour, a series of regular black marks on the dorsal area and a number of black lines obliquely adorning the sides. After about three days, and while still feeding, these colours change like a piece of fruit approaching maturity, the general tone gradually warming to a strong cadmium or Indian yellow fully 24 hours before the larva leaves its food-plant to prepare for pupation. While the head and hard plate on segment 2 remain as black as polished ebony, the black adornment of the body becomes lustrous and ruddy in character. Throughout this final instar the larva is possessed of a silky gloss, which with advancing growth and the clarification of the colour-design makes it a striking and handsome object. It was in this condition that I obtained my first set of 11 full-grown larvae, revelling in hot sunshine on the top of a thick bushy plant of *A. huberiana*; and subsequent experience with the larva of this species demonstrates the need of the sun-bath, for I lost nearly all when sleeved out on perfectly healthy plants, selected for safety in sheltered and, consequently, sunless positions. The pupa is brown, touched with reddish cadmium dorsally, and the thoracic hump is very tall, like a hood projected forwards. I once took it on the plant in nature, coloured grey-green and lemon.

The butterfly is more blue-black in comparison with the bronze colour of *lycidas* and varies but little in itself. The fine up-river variety with broad yellow patches on the forewing, answering to an occasional form of the female of *androgeus*, does not seem to occur in Pará.

#### *P. lycidas* (pl. iii. fig. 8).

A rare species locally, the butterfly having only once been caught on the Ilha das Onças, and bred on some three or four occasions from larvae found generally in couples, feeding on *A. huberiana* in four other localities close to Pará: Curro, Sacramento, Utinga, and Canudos. In the last-named place I once found a healthy, full-fed larva and 6 pupae spun up on a single bush; but 5 of these produced hymenopterous parasites, small yellow wasps with broad legs, which emerged from separate holes, about 5 or 6 from each pupa.

The larva, considering its close alliance, is extraordinarily different from the former species. When young it is yellow with dark tubercles and skin-marks. In the last instar it is pale grey and rather glossy, with dark maroon dorsal tubercles, except those on segments 3, 5, 8, and 13, which are distinctly longer than the rest and of a pale pink colour. Those on segments 6 and 7 are small, the pair of lateral tubercles on segment 2 behind the head are long, dark at

the tip, light and broad at the base, and on segments 3, 4, and 5 there are small pink side tubercles. Faint oblique lines mark the sides, the skin-folds below the spiracles are pale pink and the ventral surface black. The pupa in form appears to be identical with *belus*, but is always of a light lemon-green colour.

A butterfly which emerged in the breeding-cage at 12 noon on June 23rd 1914, grew to its full expanse of wing in six minutes.

**P. crassus** (pl. iii. fig. 11).

For long this species was a puzzle to me, the butterfly being taken or seen in all the open parts of the matto about Pará with sufficient frequency to justify the term "common," but never till 1917 could I trace the larva. At last it turned up in a big gregarious batch of some 30 to 40 glossy black caterpillars, exactly like *belus*, feeding on *Aristolochia didyma*, one of my new species, which occurs in no great abundance here, but for which *crassus* appears to show a partiality, as I have again found a number on the same plant.

Since then I have also succeeded in rearing a large brood from the ova of a captured female, which kindly consented to lay me about 80 eggs when sleeved out on a growing plant of *A. didyma* in my garden. As regards the larva, there is no *apparent* difference between it and *belus* up to the day when the colour changes prior to pupation; *crassus* then, in lieu of the rich cadmium belts of *belus*, assuming a pleasing steel-grey colour touched up with small patches of vermilion.

The pupa also in form appears to be identical with that of *belus*, and is only a degree lighter in general tone.

The species is once more a sun-lover, and in nature is probably often cradled above one's head in the tree-tops.

From its habits as well as its appearance throughout early stages it so closely repeats *belus* that, numerically regarded, it is surely misplaced, *lycidas* interrupting the natural sequence. There may be considerations of a more fundamental nature anatomically, upon which I cannot pronounce, but at least there are no such connecting links in the early stages of *lycidas* as those which are so clearly seen to obtain between *crassus* and *belus*.

As regards the butterfly, the extent and precise tone of the yellow scales which adorn the forewing of the male—the female being constant—make *crassus* a more varied, if less handsome, species than either of the others.

We come next in order to the FLUTED PAPILIOS, which in the Pará district are represented by 3 groups and 6 species: *thoas*, *androgeus*, *hyppason*, *anchisiades*, *isodorus*, and *torquatus*.

## DIVISION II.—FLUTED PAPILIOS.

### THOAS GROUP.

**P. thoas thoas** (pl. ii. fig. 9, pl. iv. fig. 3).

Always a common species in Pará, the butterfly frequenting the city gardens more than the matto, and the larvae and pupae being readily obtained by searching the small orange and lemon trees which abound in the vicinity. Food-plants: *Citrus*. e.g. locally both sweet and bitter orange, tangerine, lime, lima,



citron, "limão galego," "tamanqueira," *Piper aduncum*, and at least two other species, but only once on *Piper belmense*. Also a Rutaceous herb in gardens known as "aruda."

The egg of *thoas* is cadmium yellow and of moderate size, and is laid generally upon the upper surface of the freshest leaves, where it is easily detected.

As I have it on Dr. Huber's authority that the entire *Citrus* genus is an importation, and that some 400 years ago there was not a single orange or lemon of any species growing in South America, we are forced to the conclusion that the many different larvae which now feed on the leaves of *Citrus*, apparently by preference, were formerly restricted in their choice of diet afforded by nature to something less palatable. That a number of Papilios of the country, and other species like *Rothschildia betis* frequently taken in Pará on orange and lemon, should show an almost exclusive attachment to a department of plant-life which is not indigenous, is surely a fact strange enough to require an explanation. I once made the discovery of *thoas* feeding in nature on *Fagara rhoifolia* (*tamanqueira*), a thorny tree with leaves like the mountain ash, and smelling like lemon; and it was significant to learn that this natural alternative pabulum belonged to the same botanic Order—Rutaceae. Moreover, I had already taken the larvae of both *Rothschildia betis* and *ericina* feeding on the leaves of this tree, and the combination of circumstances not unnaturally suggests the theory that *Fagara rhoifolia* and its allies, together with various species of the Piperaceae Order, are the original food-plants of the present-day orange feeders.

While on the subject of food-plants, it is worth a passing mention that the larvae of almost all the Papilios yet found exhibit a certain predilection which they share in common. I refer to their partiality for odoriferous and even pungent-scented leaves, such as characterise *Aristolochia*, *Citrus*, *Fagara*, *Piper*, Umbelliferous plants like carrots and parsnips, and Anonaceae, all of which are pre-eminently endowed with essential oils of powerful odour. This particular adaptation of an extensive lepidopterous family to widely different representatives of the vegetable kingdom may, of course, be accidental, and have no real bearing upon their undoubted association as members of a great genus, but it is at least noteworthy and interesting.

Returning to *thoas*, the young white and yellow-brown larva clearly foreshadows the adult, except that it has more yellow in its composition, and up to the final instar is very oily looking. Both then, and even after, it bears a striking resemblance to a piece of freshly deposited bird's dung. When full-grown it is sometimes to be found on the branch, but is more usually to be seen resting fully exposed upon the upper surface of a leaf of its food-plant. Viewed at a certain angle from the front, it bears a distinctly snake-like and forbidding appearance, the thoracic segments being humped up and exhibiting a dark eye-like mark on either side.

In the North American *Papilio cresphontes* this snake-mimicry is carried to as great a pitch of perfection as in the Sphingid genus *Xylophanes*; and though I am unable to conceive how this can be attributed to "natural selection," such parallel instances, together with many others almost equally remote from one another, yet all obviously designed to imitate a small serpent, surely preclude the possibility of mere coincidence. Whatever the actuating cause, the effect without doubt is protection, the disguise being employed as a preventive measure against birds and lizards.

If the caterpillar of *thoas* is thus successful in warding off the foe by one or other of these diverse methods, the pupa is hardly less successful in its ability to look wooden and unattractive; for when formed on the trunk or branch of the orange tree where the larva has been feeding, it is lost in obscurity, not by being hidden with leaves, but by its perfect reproduction of the stump of a broken and half-decayed branch. It is not, however, immune from parasitic attack, and is often found as a discoloured shell full of holes, from which hymenoptera have emerged. These small yellow wasps may be identical with the species bred from *P. lycidas* and from the pupae of at least three other local *Papilio*s. In shape the pupa of *thoas* is moderately rotund, being swollen in the central abdominal segments and tapering considerably towards the anal extremity. By comparison with others it seems small for a butterfly with such an expanse of wing as *thoas* possesses, not to mention its tails. The "ears" are stout and are well projected forwards, and the thorax is surmounted by a short hump also pointing forwards.

The deep tone of Indian yellow which the butterfly is sometimes seen to possess, even when on the wing in Pará, is a feature worth noting; and I presume it is due to atmospheric humidity and sunlight. Experiment shows that the same deep tone may be produced in a light yellow specimen by killing it in an old and wet cyanide bottle. If left in the fumes of ammonia still longer, a much heavier tone approaching brown results. As this is not the case with other yellow butterflies, it is obvious in the present instance that its scales are particularly sensitive to colour change by chemical action, and possibly even during life by sunlight and moisture in combination.

Twice have I secured good varieties of *thoas*, one being so heavily blotched with black that it resembled a distinct species.

#### ***P. androgeus androgeus* (pl. ii. fig. 10, pl. iv. fig. 4).**

This is a very uncertain species in Pará, and at times appears to be entirely absent. Indeed, for a couple of years I had taken nothing but a single empty pupa-case on the trunk of a lemon tree at Marco da Legua. In the early part of 1914, however, the species turned up in sufficient force to reveal its life-history and furnish my collection with a perfect series of bred specimens of both sexes. Where it came from and whither it has since vanished is a mystery. I have, however, traced it along the railway lines leading both to Pinheiro and Bragança, and taken its larva on the isle of Cafezal and on another island beyond the Rio Guaná.

The egg, larva, and pupa of *androgeus* are constructed on lines very similar to *thoas*, but with certain well-marked specific differences. Indeed, almost all that I have said in description of that species and its habits, including its positions in nature, the measures resorted to for protection, and even its liability to the attack of the small yellow wasp, applies with equal force to *androgeus*.

Noteworthy characteristics are as follows:

Food-plants: *Citrus*, e.g. lima, lime, "*limão galego*," and tangerine, with special preference for the last and for young trees. Not found on Piper. Ova light green when first laid, quickly turning deep yellow; easily found on the freshest and tenderest leaves, sometimes five or more on a single bush. Young larva

very oily looking, but deep cadmium rather than ochreous white, the dark portions being glossed with blue. In the final instar whiter than *thoas*, the dark parts being olive-green instead of brown, with delicate touches of blue.

*Androgeus* generally grows to larger size, and always possesses a white patch in the form of a little fish set in the brown about the middle of each side. The pupa is longer and even more like dead wood, the thoracic bump being an enormously projected cowl in comparison with *thoas*. It is often adorned with a touch of green, simulating lichenous growth on dead wood.

Over a limited period both ova and larvae were freely obtained from the Souza and Utinga districts, and a fine series of the butterfly in both sexes was bred. The female was several times seen on bright mornings in the act of ovipositing. A friend who reared some of the larvae excelled my good fortune by producing three females with large patches of bright yellow in the bronze-green of the forewing, whereas my own specimens were only dusted with yellow scales. Since then, however, I have taken this form exclusively at Manáos, Porto Velho, and Iquitos, the species appearing to be commoner up-river.

#### ANCHISIADES GROUP.

Passing now to the next group, we reach in *P. hyppason* a very remarkable species. I am doubtful as to whether it is rightly placed in this group at all, for I can see no close features which it shares in common with *anchisiades*, and a good many, so far as its early stages are concerned, that connect it with the *Thoas* group. In fact, I would put it back over the fence, or give it the honour or a *Hyppason* group all to itself. As the early stages of *hyppason* were hitherto unknown, and I am now fully acquainted with them, perhaps I may be pardoned for stating my opinion. True, the butterfly of *hyppason* bears no outward resemblance to the yellow-and-black-tailed *Papilio*s which we have so recently been discussing, and from its general mimicry of such a butterfly as *lysander* any novice might be pardoned for placing it in the *Aristolochia* Division. In this, however, he would undoubtedly be wrong, for as sure as it is a *Papilio* at all it belongs to Division II. My arguments for placing it nearer to *thoas* than to *anchisiades* are as follows: 1. The egg is large, deep yellow, and deposited singly. 2. Its food-plant, in Pará at any rate, appears to be exclusively *Piper belemense*. 3. Its larva, unlike *anchisiades* which is brown and lives in large gregarious batches at the base of orange trees, etc., is of the "bird's dung" type, and in natural position as well as in colour and design it more reminds one of *thoas* and *androgeus*. 4. Its pupa similarly, differing from the squat and particoloured character of *anchisiades*, is possessed of well-developed "ears" and thoracic hump, again approximating more closely to the *thoas* type. Unfortunately, I omitted to figure the pupa of *anchisiades*, but it may be said to resemble a heavy edition of *torquatus* without the front projections. Compare the figures of larvae on Plate II and of pupae on Plate IV.

#### *P. hyppason* (pl. ii. fig. 11, pl. iv. fig. 5).

At certain times of year quite a common species about Pará, especially in the larval form in April and May, but not confined to these months.

Though it is impossible to give the exact times of appearance, I have noticed that a small percentage of pupae "stand over" for several months, while others

emerge within three weeks or so. Once the food-plant is known and the season rightly gauged, an expedition for the ova and larvae of *hyppason* is always well rewarded, even in localities where one never sees the butterfly on the wing.

From the first days of April to the middle of May 1913 I took as many as 40 ova and larvae of this species on all sides of Pará, the Guamá region, Murutucú, Utinga, Souza, Curro, and on the adjacent Ilha das Onças, but never on any other plant but *Piper belemense*. This, as its name indicates, is a local plant possessing large glossy leaves. It grows plentifully in almost every swampy district, and is easily rooted up to grow temporarily in a kerosene tin and serve as a food-supply for one's captured larvae. I find this to be much the best way in Pará for rearing most larvae associated with herbaceous plants, and invariably keep a stock of Aristolochias and small serviceable trees in the corner of my backyard and bathroom.

The egg of *hyppason* is large and yellow, and made to look even larger and deeper in tone by the imposition of a heavy, wax-like substance capping the top and studding the sides with three circular lobes, which protrude more than the usual vertical ribs.

It is invariably laid upon the mid-rib and upper surface of one of the tender green leaves, where it is easily detected; and the minute accuracy with which this butterfly always chooses the ideal spot upon which to deposit an egg is a very beautiful feature.

The young larva shortly after emergence consumes the greater portion of the egg-shell and its wax-like covering; it then takes to the leaf, and with increasing growth is found lower on the plant, eating the larger, darker, and more matured leaves.

Throughout the first four stages of its larval existence it is of the "bird's dung" design and coloration—a yellowish olive-brown with white on the posterior segments, the dorsal area being doubly intersected in the centre by a couple of oblique white stripes running parallel to each other, and adorned on the side with a broad spiracular white band. When young it has prominent tubercles crested with bristles. In the final stage some of the dorsal tubercles, though disproportionately small, are still visible; and the very oily appearance which it formerly possessed gives place to a velvety skin of the richest brown with minute touches of violet. All the light portions now partake of a delicate tone of lemon-yellow inclining to green towards the middle, and becoming creamy on approaching pupation. It always lives fully exposed upon the upper surface of a leaf, and in the final instar presents a very striking appearance. The pupa is like a piece of brown stick, rather long, uniformly tapered off to the anal extremity, surmounted by a stout thoracic hump, and only less prominently "eared" than *thoas*.

A varying amount of pure white and a touch of green mark the abdominal segments dorsally, and once I had a pupa which remained a bright grass green, a light yellow taking the place of white in the colour scheme. I never found the pupa at large, so that I cannot give its favoured situations, but they doubtless correspond to those chosen by *Papilio machaon* in the Broads of Norfolk and the Fens of Cambridgeshire. The entire cycle of changes from egg to butterfly is, like others of the genus, often accomplished in little more than 50 days.

Reverting to the young larvae, living as they do in such exposed positions upon the upper surfaces of smooth leaves with very little of a foothold of silk,

I am inclined to believe that many of them in nature get washed off their plants by the torrential rains experienced in this particular part of the world, and which, judging by the years 1912, 1913, and 1916, are by no means over till well through the month of May. If this really is the case, it is probably the main reason why comparatively few reach maturity, and the species is reckoned to be scarce. Moreover, there is associated with it a fairly large yellow-bodied hymenopterous parasite; I bred one from the pupa of the first larva of this species which I ever found, and I have not seen it since. Of course, at the time, I was left in the dark as to the identity of the larva which I had just figured.

In the butterfly a few salient features are worthy of note, and constitute important differences when contrasting *hyppason* with the black-and-red *Papilio*s of the *Aristolochia* groups: *e.g.*—

1. Patch on forewing of male yellowish rather than white, much broken up and suffused and tapering off towards the apex.

2. Forewing of male broad, hindwing in proportion reduced; red spots of a violet hue, appearing brick-red in certain lights.

3. Patch on forewing of female pure white, but much suffused by comparison with *lysander*.

4. Eight coloured patches on hindwing of female very unequal in length, the lower six being endowed with a lovely violet iridescence, the seventh sometimes and the eighth always being cream-coloured.

5. A red spot on base of undersurface of hindwing, and touches of white in fringe.

6. All black scales thicker in both sexes, giving greater opacity to the wings, specimens in consequence being very easily scratched and spoilt.

7. Neither sex is much subject to variation, save in the extent of the white or coloured patches.

8. The butterfly haunts exactly those parts of the matto where the *Aristolochia* species dwell, and has indeed often been taken in company with *lysander*, thus facilitating the deception.

#### **P. anchisiades anchisiades** (pl. ii. fig. 12, pl. iv. fig. 1).

A well-known species with a wide range of distribution, and as common in Pará as elsewhere.

Food-plants: Any species of *Citrus*, and once in nature, according to expectation, on *Fagara rhoifolia*, in July 1917.

The eggs, which are yellow and smaller than those of the three previous species, are found in a batch of 50 or more, compactly deposited on the under-surface of an orange or lemon leaf, generally within reach of the hand. Here at first the young larvae remain, living in a gregarious cluster and feeding chiefly by night.

At this period they are almost repulsive in their similarity to a mass of oily yellow maggots. As they grow, they become a green- or grey-brown, and are still exceedingly grub-like and oily in appearance. The full-grown larva is of a rich freckled brown, with small and ill-defined touches of white, and it no longer possesses a glazed surface. Generally before reaching this stage the whole batch betakes itself to the base of the tree-trunk, where, after spinning a slight silken foothold, the individuals repose side by side during the day,

and give the appearance of a large thick patch of some lichenous growth. When taking some of the number and the rest are disturbed, the scent emitted by their telescopic glands behind the head is unpleasantly powerful.

The pupae, though sometimes formed on the trunk or branches of an orange or lemon tree, are often found spun up on walls and palings. As the positions thus chosen at least admit of the growth of lichen, and as the pupa, though variable in tone and depth of colour, is generally grey-brown with bluish green abdominal segments, giving it a weathered look, it is admirably obscured and easily passed by without notice. In form it is thick and blunt, and, though rough, its "ears" and hump project very slightly.

The butterfly, as is well known, is dimorphic, especially in the extent, or in the entire absence, of the creamy patch on the forewing, and also in the degree of cream and lilac pink adorning the hindwing.

One of my Pará-bred specimens has some deep cadmium scales supporting the forewing patch. The fringe between the nervures is always narrow and white; and, though not properly tailed, the margin of the wing is prominently dentated.

#### **P. isodorus.**

Of this species I have nothing to record beyond the capture of a single undated butterfly in Pará, carelessly regarding it at the time as only a specimen of *anchisiades*. The large suffused white patch in the upper part of the forewing and the arrangement of the pink marks in the hindwing clearly show that it is not this.

Doubtless it is an orange-feeder, and from its general similarity as a butterfly to its close ally it may sometimes have been passed by unnoted, but I am sure that it is not common.

#### TORQUATUS GROUP.

##### **P. torquatus torquatus** (pl. ii. fig. 13, pl. iv. fig. 2).

This last species of the Fluted Papilios in Pará appears to be very scarce locally, though doubtless abundant farther afield.

Twice only have I found the larva and once the egg, succeeding on each occasion in breeding a female. The egg and a young larva were found on the fresh green leaves of the lower boughs of a lemon tree in a garden near Souza, and the other larva was taken on a small tangerine during a hasty walk through the isle of Cafezal.

I several times caught the male in 1909 in the Perené district of Peru, and as it is lemon yellow and black, and not easily mistaken for anything else, I am much surprised to have noticed this sex of the butterfly on but three occasions in Pará. The female, being black like a small-tailed *anchisiades*, with a variable white patch on the forewing and a lilac splash on the hindwing, may, as with the former species, have possibly escaped special notice. All these black-and-red butterflies of Division II, in this case limited to the female sex, are popularly regarded as mimics of some of the *Aristolochia* Papilios, though the resemblances generally and in points of detail are less striking and wonderful than that presented by *hyppason* or *ariarathes*, hereafter described. For *torquatus* always

has tails (until they get broken off), and its male is always yellow and black, and so different to its own partner, that no one in advance would ever think of associating them together as one species.

The egg is small, greenish yellow, and deposited singly.

The young larva, unlike *anchisiades*, has prominent tubercles, and in its general colour and design bears points of resemblance to *thoas*. It is, however, possessed of a sufficient number of individual features to make discrimination certain at first glance. Even till later in life its arrangement of well-developed dorsal tubercles makes it very distinct from other species, as will be gauged by a comparison of the figures on Plate II. Like the others, it is glossy in surface until the last instar.

The pupa, like *anchisiades*, is of a pale greenish-grey colour, but more slenderly constructed and the anterior projections better developed.

### DIVISION III.—KITE PAPILIOS.

This third and last great Division of the Papilios is, strange to say, but poorly represented in Pará, only one of the true Kites, a subspecies of *protesilaus*, occurring here, and that with such rarity as to make one dubious about its origin.

Seeing that *protesilaus* and its long-tailed allies are many of them extremely common in different parts of the Amazon region at no great distance, I incline to the view that the mere handful of the species named, which have been taken in Pará, are stray immigrants, born and bred elsewhere over the river.

The interest attaching to the Division is, however, sustained and even heightened by the consideration that Pará does, at any rate, possess two other representatives in *pausanias* and *ariarathes*, butterflies which on first sight appear so heterogeneous as to have entirely lost their bearings.

#### LYSITHOUS GROUP.

##### *P. pausanias pausanias.*

Unfortunately I have here nothing to record up to date beyond the capture of a single specimen of the butterfly, taken flying with various *Heliconii* near the chief water-tank in Utinga. Of a sheeny blue-black with patches of lemon on its rounded forewing, it resembles no other Papilio that I know, least of all the Kites, but becomes, probably for some very good reason, the most striking mimic of a *Heliconius*.

This strange resemblance gains emphasis not only from its form and colour, but from the fact that its field of flight is so largely tenanted by several *Heliconii* of this particular form and colour; the assumed reason for it all being, of course, that these brilliant but lazily flying butterflies fear nothing on account of their acknowledged distastefulness to the predatory foes of their kind. It is averred that birds do not often eat butterflies, but except on those rare occasions when one has been privileged to witness the phenomenon, I imagine that the contention is just about as difficult to prove as to disprove. In any case, it cannot be denied that reptiles, like snakes and lizards, include these winged creatures in their bill of fare; and I recall the instance, some years ago in Peru, of a green

snake attacking no less formidable a mouthful than a male *Morpho didius*, as it sat sipping from a puddle in the road.

It would be interesting to know the early stages of *pausanias*, but as yet I have no notion as to what its larva feeds on, and it is evidently a rare species in Pará.

**P. ariarathes metagenes** (pl. iv. fig. 6).

A fairly common species about Pará, but more restricted to special times and seasons than some others. Though the butterfly has occasionally been netted in company with the *Aristolochia* Papilios in Utinga, the species has much more frequently been taken in the larval condition in the same place in April and May, sometimes in other months, such as February and June. It has also been taken in some numbers in such localities as Canudos, the road leading from Souza through S. Joaquim to Val de Caes, Pinheiro, and Mosqueiro.

If the last butterfly was noted for its mimicry of a *Heliconius*, and *hyppason* for its wonderful resemblance to *lysander*, the species before us now is not one whit less remarkable in its departure from the approved pattern of its close allies, and its adoption of the form, design, colour, and even locality of the tail-less black and red-spotted Papilios of Division I. In fact, we have in *ariarathes* of Division III and *hyppason* of Division II, in all outward appearances and even in considerable detail, perfect reproductions of the standard type of those butterflies in Division I. So close, indeed, are these resemblances that one would still be inclined to doubt the correctness of the classification, were it not a fact that in all three cases the larvae, pupae, and food-plants are utterly and entirely distinct from one another, and approximate to other standards. Of course this is all well known, but not until the early stages of many more species are unravelled will this strange problem of life show up in its proper proportions and admit of satisfactory treatment.

The egg of *ariarathes* is moderate in size, yellow in colour, ribbed vertically, and is laid singly, sometimes two or three on a plant, on the tender green leaves of several different species of Anonaceae, the "*Biriba*," *Rollinia squamosa*, the "*Graviola*," *Amona muricata* and *aratica*, and other wild species with less pungent-scented leaves.

The larva, though short and stumpy, and of entirely distinct outline from the *Aristolochia* caterpillars, has at least this in common with them, that throughout its stages it is prominently adorned with fleshy tubercles. These, however, are more erect, and differ greatly in their relative lengths and exact position.

As there is but little change of colour and design with the successive moults, the description of the full-grown larva may suffice. This is of a very deep, reddish-purple colour, with tiny touches of blue and pink above the claspers.

Sometimes in the last stage the ground-colour is lighter, freckled with purple touches, and showing a broad medio-dorsal band of olive-green, except on segment 9. This always possesses a broad transverse belt of strong lemon-yellow, and, as though in continuation but at a slightly oblique angle, a similar band of the same colour marks each side of segment 8. A narrower belt connects a prominent pair of orange-coloured tubercles on segment 3, while spots of lemon mark the sides of segments 2, 4, 5, and 6, and the last three. The length



of the dorsal tubercles at both extremities is very considerable, but they rapidly diminish in ratio towards the centre, being only minute points on 8 and 10, and unrepresented on 9. They are all very dark maroon except the first and last pairs, which are of a strong cadmium yellow and much angled outwards.

In the earlier instars its appearance is much the same, only less brilliant in blend of colours, and never oily looking as in the larvae of the Fluted Papilios. In full growth it is, like *hyppason*, a really beautiful object, with a sleek velvety skin, and always lies fully exposed upon the upper surface of a leaf.

The pupa is extremely different from every other Papilio that I know; very short, round and dumpy, with a long curved cremaster, a single prominent hump on the thorax, and no projecting "ears." I never found it in nature, but in captivity, except on one occasion, it has always been of a bright emerald-green colour.

As a butterfly, it is hard to say which of the *Aristolochia* set *ariarathes* most resembles, as in colour and scaling, though perhaps less dense, it most nearly repeats *hyppason*, the patch on the forewing of the male being various in shape and position and yellowish in colour. In the female only it is white, diffused, and central in position. In the hindwing also the red spots are definitely more red than pink or crimson, but in arrangement they revert more to the grouping as exhibited in the female of *aeneas*.

As it bears touches of white in the fringe of the hindwing it may, on all these considerations, be said most nearly to approach this butterfly. If any advantage is to be gained by looking like an *Aristolochia* Papilio, it is, I presume, on account of the recognised distastefulness of such butterflies. Certain it is that the pungent aroma of the *Aristolochia* plant is often imparted to the larva feeding on it, and can even be detected in the butterfly on emergence.

Among very important morphological differences, however, may be mentioned the curvature and neuration of the wings, which are true to the form adopted in Division III; and, still more obvious, the greatly diminished length of the legs and antennae, which at once strike the observant eye, and are no less characteristic of the Division.

#### PROTESILAUS GROUP.

##### **P. protesilaus nigricornis.**

As already announced, I have but to record this species and leave it. Two specimens alone have accrued to my collection from the large tank in Utinga, that justly-famed Pará locality where so many butterflies come for rest and refreshment.

Of my 22 Papilios, I estimate that I have taken, or at least seen, within a very few yards of this tank, 14 or 15 species, and I can scarcely doubt that it is the occasional rendezvous of the remainder, for presumably none of them live at any distance, and their access to the spot over the tree-tops is, for a butterfly, simplicity itself.

There are days when the forest is almost oppressive, not so much by its heat, as by its aspect of total desertion. A deathly stillness pervades all things; one sees no birds, no animals, hardly an insect of any kind; nothing is in motion, and, moreover, on such an occasion there is often nothing to break the quiet but one hollow, echoing sound, strangely repeated at intervals in the hidden

recesses of the wood. It is the bill of the toucan at work, hammering away at the bole of some lofty forest tree ; and away in the background all the while, though the ear becomes so satiated with the din as not to notice it, is the monotonous whistling or "churring" of a thousand cicadas, a concert which seems only to emphasise the impression of solitude.

But the forest after all is not dead ; it is but a dormitory of sleeping creatures well concealed and preparing for the morrow. Another day will come when the air itself is full of life ; and so far as butterflies are concerned, one is bewildered by their number. If not always caught or tracked to their haunts beyond those festooned giants, it is, at least, a pure joy to make one's way down to the tank, for its mesmeric attractions are all-embracing in the endless procession of aerial flights which are ever and anon mirrored in its still, dark waters.

## PLATE II.

1. *Papilio aeneas marcius*, full-grown.
- 2 a & b. ,, *sesostris sesostris*, ,,
3. ,, *vertumnus diceros*, ,,
- 4 a, b, & c. ,, *anchises thelios*, ,,
5. ,, *aglaope*, ,,
- 6 a & b. ,, *lysander*, ,,
7. ,, *echemon echemon*, ,,
8. ,, *neophilus ebolius*, ,,
9. ,, *thoas thoas*, full-grown but slightly reduced.
10. ,, *androgeus*, ,,
11. ,, *hyppason*, ,,
12. ,, *anchisiades anchisiades*, full-grown but slightly reduced.
13. ,, *torquatus torquatus*, 4th instar.

## PLATE III.

## ARISTOLOCHIA PAPILIOS.

1. *Papilio neophilus ebolius*, 3rd instar.
2. ,, *aglaope* ; variety like *lysander* (rare).
3. ,, *echemon echemon* ; hardly distinguishable from dark form of *anchises*.
4. ,, *anchises thelios*, 3rd instar.
5. ,, *vertumnus diceros*, 4th instar, showing no yellow stripes.
6. ,, *aeneas marcius*, 3rd instar.
7. ,, *sesostris sesostris*, pupa.
8. ,, *lycidas*.
  - a. 3rd instar.
  - b. 5th ,,
  - c. Pupa.
9. ,, *belus belemus*.
  - a. 4th instar.
  - b. 5th ,,
  - c. Showing colour change prior to pupation about 24 hours before spinning up.
  - d. Pupa.



PLATE II.

For explanation of figures, see p. 318.



1



2a



3



2b



4a



5



4b



6a



4c



6b



7



8



9



11



10



12



13

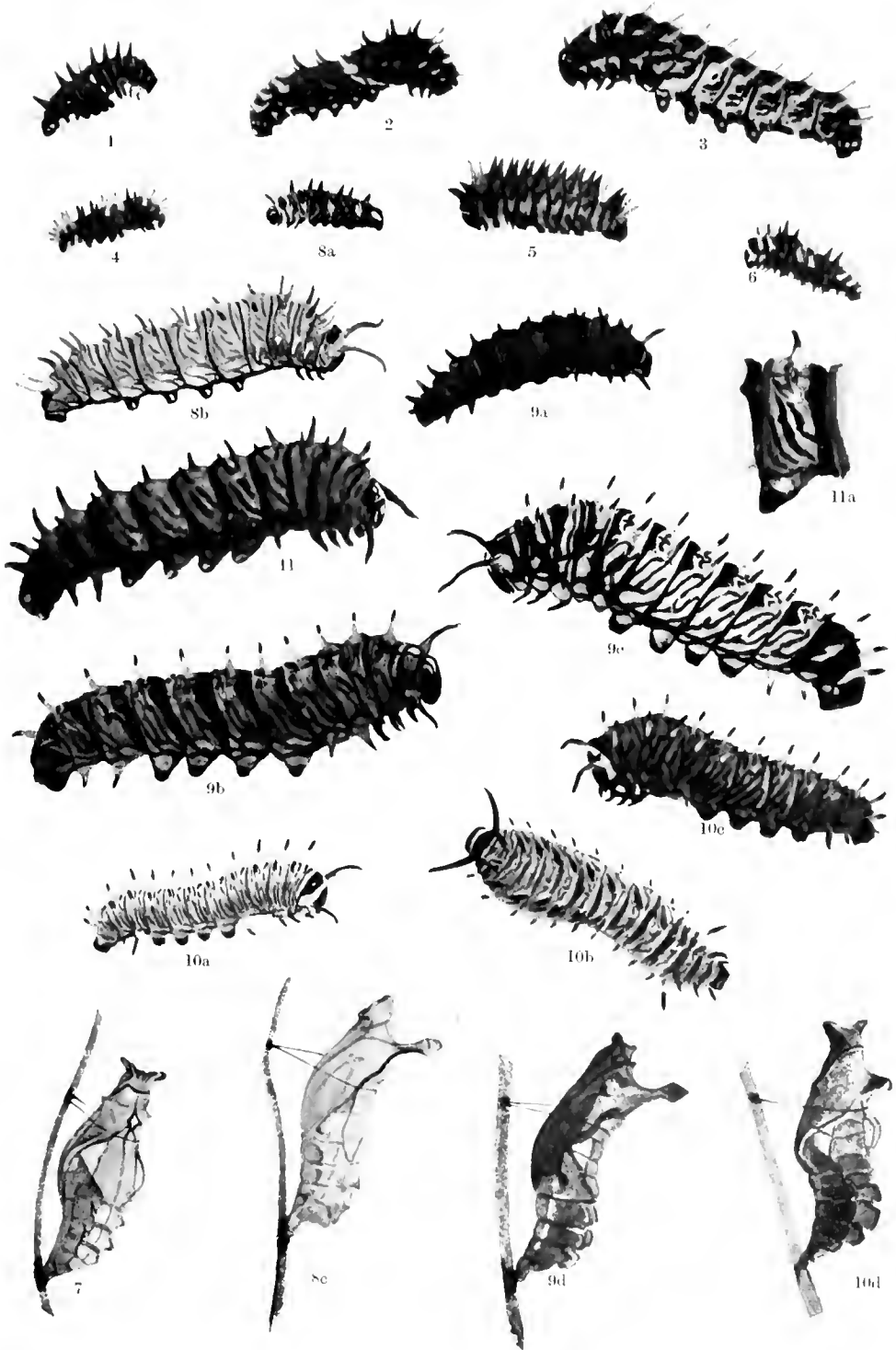


PLATE III.

For explanation of figures, see pp. 318, 319.



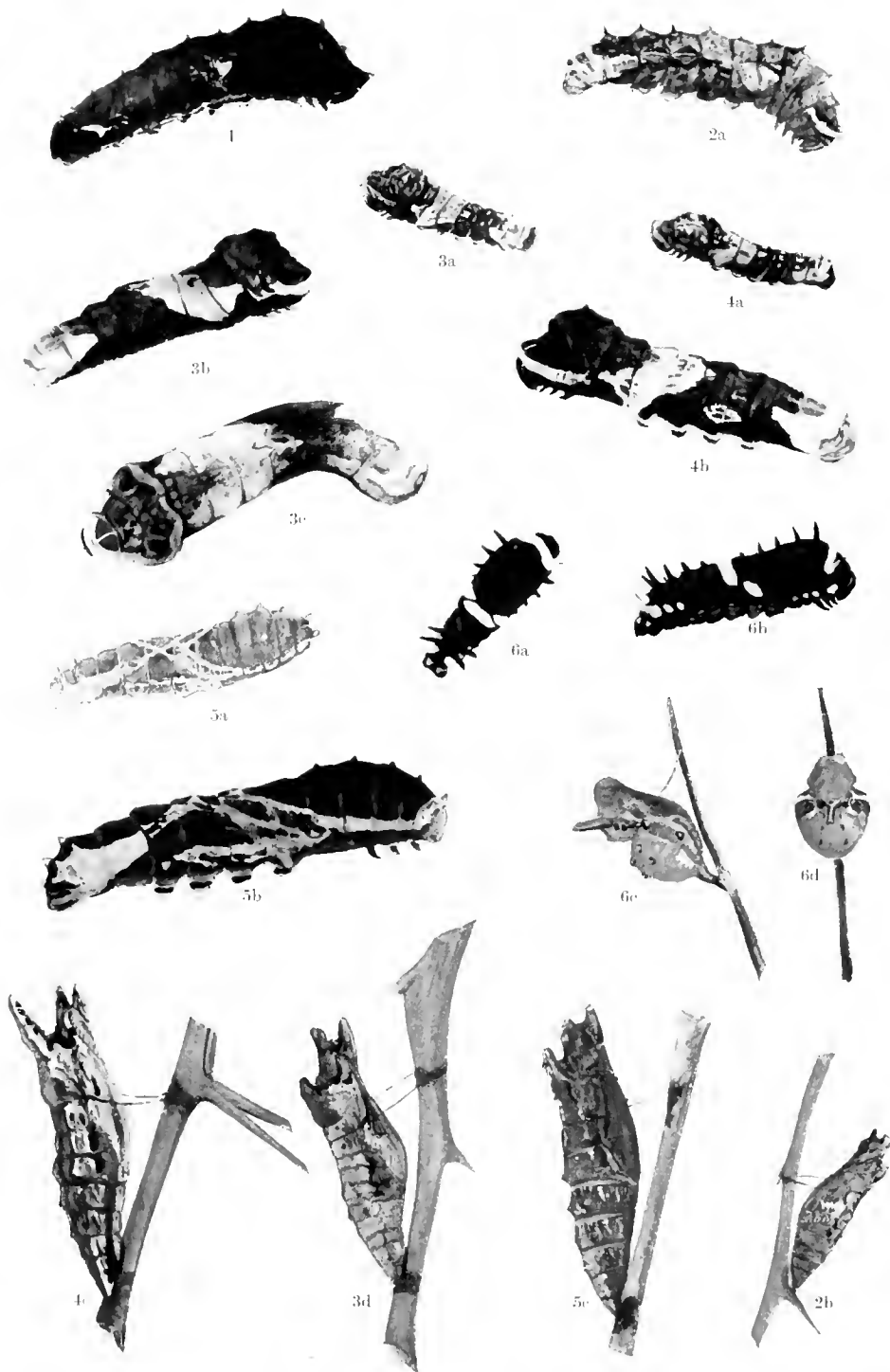














10. *Papilio polydamas polydamas*.  
 a. 4th instar.  
 b & c. 5th „  
 d. Pupa ; often emerald green and lemon in colour.
11. „ *crassus* ; a. 1st clasper segment magnified, showing colour change prior to pupation.

## PLATE IV.

## FLUTED PAPILIOS.

1. *Papilio anchisiades anchisiades*, final instar.  
 2. „ *torquatus torquatus*. a. Final instar.  
 b. Pupa.  
 3. „ *thoas thoas*. a. 4th instar.  
 b. 5th „  
 c. Dorsal view, showing “eyes.”  
 d. Pupa.  
 4. „ *androgeus androgeus*.  
 a. 3rd instar.  
 b. 5th „  
 c. Pupa.  
 5. „ *hyppason*. a. 4th instar.  
 b. At full growth.  
 c. Pupa.

## KITE PAPILIOS.

6. „ *ariarathes metagenes*.  
 a. 5th instar ; dorsal view.  
 b. At full growth.  
 c. Pupa ; rarely olive in colour.  
 d. Dorsal view of pupa, showing “eyes.”
-

## A GEOGRAPHICAL TABLE TO SHOW THE DISTRIBUTION OF THE AMERICAN PAPILIOS.

By W. J. KAYE, F.E.S.

THE table of papilios arranged geographically now published will draw attention to blanks and discrepancies in their distribution which call for further light. The table is based on the "Revision of the American Papilios," by Rothschild and Jordan, in *NOVITATES ZOOLOGICAE*, Vol. XIII. (1906). It was found to be impossible to make the table continuous from end to end; and although the utmost has been done to bring contiguous districts together for comparison, breaks were inevitable. I have thought it best to continue the United States down through Central America; Colombia; Ecuador; Peru; Bolivia; N. Argentina; crossing to Paraguay; N.E. Argentina; E.C. Argentina; Uruguay; S. Brazil, Rio Grande; S. Brazil, Sta Catharina; S. Brazil, Parana; S. Brazil, Sao Paulo; S. Brazil, Rio; C. Brazil, Goyaz and Matto Grosso; and N.E. Brazil, Bahia and Ceara. Though all this district is continuous, yet Goyaz and Matto Grosso do not fit in well, as N.E. Brazil is in many ways more like Rio, and it would be better to follow the maritime Brazilian States northwards. However, Goyaz and Matto Grosso must be fitted somewhere, but we are conscious of the impossibility of placing each area in a good position for comparison. A definite break is made at N.E. Brazil, as the Amazonian delta contains a different fauna, and also it is possible to take another larger area under review which is more or less continuous. For this purpose a start is made with Florida, continuing with the Bahamas, Cuba, Haiti, Jamaica, Grand Cayman, Porto Rico, Antigua, Guadeloupe, Dominica, Martinique, St. Lucia, St. Vincent, Grenada, Tobago, Triinidad, Venezuela North, Venezuela Orinoco, British Guiana, Dutch Guiana, French Guiana, Lower Amazon, Middle Amazon, and Upper Amazon. Then, as a region sharply divided off, the whole of the Pacific slope west of the Andes is treated separately, taking W. Colombia, W. Ecuador, W. Peru, and N.W. Chile. No *Papilio* occurs in the south-west of Chile, and only one—*archidamas*—in North Chile. The aridity of Western Peru and N. Chile has caused a lack of vegetation with an inevitable dearth of lepidoptera. In Western Ecuador the whole aspect is changed, due to the diversion of the cold Antarctic Ocean current out to the Galapagos Island, where again the aridity is greatly in evidence. With a rich vegetation Western Ecuador has quite a rich fauna, and we find no less than 11 species of *Papilio*. Western Colombia, also, is well represented with 13 species. One must remember, however, that Colombia stretches through more degrees of latitude and is a much larger country than Ecuador. In nearly every case the subspecies found on the west coast of whatever country are different to those on the eastern slope of the Andes. Western Ecuador even produces a species—*epenetus*—that is confined to the west. A comparison of these regions is appended:

	Species.		Species.
Colombia (West Coast) . . . . .	13	Peru (West Coast) . . . . .	1 ?
Ecuador       ,,       . . . . .	11	N. Chile       ,,       . . . . .	1



A comparison of the West Indian islands is interesting, but the paucity of the smaller islands is at once apparent. Much exploration, no doubt, remains to be done yet, for if St. Lucia has three species of *Papilio*, surely Martinique, Dominica, and Guadeloupe have as many? Again, if Cuba holds 13 species, Haiti must surely have as many if not more. Porto Rico may contain more than the four recorded species. It is possible that it may not now have as many, for the island is very highly cultivated and is densely populated. Jamaica has 6 species, and this is not likely to be increased, as the butterflies of the island are pretty well known. We have given a column to the small island of Grand Cayman because it produces a subspecies of its own of *andraemon*, but this is the only species there unless *polydamas* in some form or other occurs, which is most probable and likely. The fauna of Grenada entomologically is little known, and it is highly probable that in such a fertile and well-wooded island there is more than the one species—*polydamas*. Trinidad furnishes nine species of *Papilio*, and its near neighbour, Tobago, is so little worked that it is not certain whether a *papilio* occurs there at all. D. Longstaff does not record any species in his paper in the *Trans. Ent. Soc.* 1908. But it is highly probable that the widely spread *polydamas* occurs.<sup>1</sup> Starting with Florida (which is much like the West Indies in climate), a comparative list gives the following result:

	Species.		Species.
Florida . . . . .	7	Guadeloupe . . . . .	1
Bahamas . . . . .	2	Dominica . . . . .	1
Cuba. . . . .	13	Martinique . . . . .	1
Haiti . . . . .	9	St. Lucia . . . . .	3
Jamaica . . . . .	6	St. Vincent . . . . .	1
Grand Cayman . . . . .	1	Grenada . . . . .	1
Porto Rico . . . . .	4	Tobago . . . . .	1
Antigua . . . . .	1	Trinidad . . . . .	9

In the geographical table, following Trinidad comes Venezuela (North), but the Orinoco column can equally be compared, for Trinidad has species that are common to both regions. It is instructive to note that while the Orinoco region has 23 species, the northern area with the mountainous region gives 39 species. Trinidad in the south is like the Orinoco region, while in the north, owing to the range of hills (the continuation of the "silla" range in Venezuela), it is more like the North Venezuela fauna. Continuing the sweep of the coast-line from the Orinoco in turn, British, Dutch, and French Guiana are tabulated. These three areas are remarkably uniform for the numbers of species. Both Dutch and French Guiana have 27 species, while British has 26. The species, however, are not identical. For while *coelus* belongs only to French, *phosphorus* is only recorded from the British area; but as it occurs in the Lower Amazon, it may be expected to turn up in the intervening country. *Lycidas* is not yet recorded from British or French, while it is to be found on the Lower Amazon as well as in the Orinoco basin, besides Dutch Guiana. *Aristeus* is absent from British, but found in Dutch and French. *Callias* is not found in British or Dutch, but belongs to French Guiana and the Lower Amazon. Probably, when

<sup>1</sup> Since recorded.

our knowledge is more complete, it will be found that British and Dutch differ only from French by not having *coelus* or *callias*.

The Lower, Middle, and Upper Amazon cannot be compared properly, owing doubtless to our want of more knowledge from the Middle Amazon. Since Bates's time surprisingly little has been collected in this region, and it cannot be true that there are only 22 species in the middle area, while there are 26 in the Lower Amazon and 31 in the Upper Amazon. Such species as *aristeus* and *molops* are almost certain to occur, being found in the Guianas as well as the Lower Amazon. *Lycophron* is another species that one would expect from the Middle Amazon.

As a continuation of the West Indian chain and its papilionid figures, it is striking to see how poor Cuba is to the mainland. The Central American figures are even higher than those for the Guianas, due doubtless to variation in elevation, but are the same for North Venezuela. The Central American and the Venezuela-Guiana-Amazonian figures are placed in two columns for comparison:

	Species.		Species.
Venezuela, North . . . . .	30	Mexico, West . . . . .	34
Venezuela, Orinoco . . . . .	23	Mexico, East . . . . .	37
British Guiana . . . . .	26	Guatemala . . . . .	40
Dutch Guiana . . . . .	27	Honduras . . . . .	38
French Guiana . . . . .	27	Nicaragua . . . . .	31
Lower Amazon . . . . .	26	Costa Rica . . . . .	34
Middle Amazon . . . . .	22	Panama . . . . .	36
Upper Amazon . . . . .	31	Colombia, Muzo . . . . .	43
		Colombia, Sta Martha . . . . .	17 ?
		Colombia, Cauca Valley . . . . .	40
		Ecuador, E. Andes . . . . .	46
		N. Peru, E. Andes . . . . .	45
		C. Peru, Chanchamayo . . . . .	40
		S.E. Peru . . . . .	37
		Bolivia, Andes . . . . .	38
		N. Argentina . . . . .	10
		Paraguay . . . . .	22
		N.E. Argentina . . . . .	12
		E.C. Argentina . . . . .	6
		Uruguay . . . . .	9
		S. Brazil, Rio Grande . . . . .	17
		S. Brazil, Sta Catharina . . . . .	21
		S. Brazil, Parana . . . . .	23
		S. Brazil, Sao Paulo . . . . .	28
		S. Brazil, Rio . . . . .	27
		C. Brazil, Goyaz, Matto Grosso . . . . .	23
		N.E. Brazil, Bahia, Ceara . . . . .	10

The figures for the different areas of the Nearctic region clearly show the effect of climate on the papilios. The middle States of Canada have the poorest showing, with only 4 species. Eastern Canada is only one better with 5 species. But the Eastern United States have 7. In the much warmer

South-Eastern States there are 8. But Western Canada, with its much more equable climate, can show 9 species, and if *polyxenes* should occur it would be 10. California, even, can show no more than 9, as while it has *philenor* it lacks *nitra*, which belongs to Western Canada. California, again, has *indra*, which is lacking in Canada, but Canada in the extreme north-west has *machaon*.

Numbers of papilios in the Nearctic region :

	Species.		Species.
Canada, West . . . . .	9	U.S.A., Middle . . . . .	9
U.S.A., North-West . . . . .	8	Canada, East . . . . .	5
U.S.A., South-West . . . . .	9	U.S.A., North-East . . . . .	7
Canada, Middle . . . . .	4	U.S.A., South-East . . . . .	8

Taking the richest area—California—where there are 9 species or possibly 10, it is to be seen how poor it is compared with a country like Mexico, which produces 37. It is true, Mexico is a large unit to compare and covers many degrees of latitude, but even for a limited area the figures are high. Guatemala, which is quite a small country, has 40 species. It is clear the influence of the tropics is very marked, for in the hot Gulf States of North America, which are outside the tropic, there are no more than 9 species.

Ecuador, east of the Andes, is the richest area on the whole American continent. When one recollects that it has all the elements for Nature to produce her forms—uniform temperature whether high or low, and great variation of altitude and a damp atmosphere, it is not surprising. The areas where these conditions closely approximate the figures are much the same, as while E. Ecuador has 46 species, N. Peru, east of the Andes, has 45, and the Cauca valley of Colombia 40 species. The figures we give for the Sta Martha district of Colombia are probably well under the actual total at 17. It would be surprising if another ten or a dozen species are not added to the list when our knowledge is more complete. Again, there is only a record of 10 species from N. Argentina, and this must be well under the total, for in Paraguay there are 22 species. For N.E. Argentina there are only 12 species recorded, but this cannot apply to the hilly state of Misiones, but to the flat district. In the Brazilian State of Rio Grande do Sul there are 17 species, and as one goes northwards the total steadily increases till from the State of Sao Paulo there are 28 recorded species. Our knowledge of Goyaz and Matto Grosso is too small to give any accurate figures. The 23 species will doubtless be considerably augmented. One of the most astonishing outcomes of our compilation is that Bahia and Ceara give only 10 recorded papilios. Both *telus* and *androgeus* will almost certainly be added, but it would be difficult to forecast what other species might be found. The country to the north of Bahia is very little known entomologically. Even Pernambuco is hardly known. From the Heliconine forms found there it is clear they belong to the S.E. Brazilian types, with the transverse yellow bar in the hindwing.

Ordinary *Heliconius erato phyllis* occurs that is in no way different from *phyllis* over a vast area of S.E. Brazil. Similarly, *Heliconius melpomene burchalli* occurs which is characteristic of the country to the north-west of Rio. With the recorded papilios there is also a marked preponderance of the S.E. Brazilian element. There is, however, a total absence of representatives of the first two groups of *Aristolochia* papilios—the *ascanius* group and the *aeneas* group ; while

Rio has three representatives of the first and two of the second. But to emphasise the strong S.E. Brazilian character of the papilios one has only to look at the *torquatus* group of the second division or fluted papilios. Here the subspecies of *torquatus* is *polybius*, as in the south. *Hectorides* occurs, which is a wholly southern species, and *himeros*, another wholly southern species, occurs only in a slightly altered subspecies—*baia*. Another wholly southern species is *scamander*, and this occurs without even subspecific differences. In the *protesilaus* group it is curious no representative is recorded, and one might suspect the occurrence of one or two species. On the whole, there perhaps may not be much to be discovered, especially in the rather dry district of Ceara, but to the west of Pernambuco, with its more humid air, there must surely be species to be discovered, while to the south towards Bahia interesting discoveries will certainly be made.

\* *Note*.—Throughout this table: top name = species, lower name = subspecies.

CANADA, WEST.	U.S.A., N.-WEST.	U.S.A., S.-WEST.	CANADA, MIDDLE.	U.S.A., MIDDLE.	CANADA, EAST.	U.S.A., N.-EAST.	U.S.A., S.-EAST.
			<b>I. ARISTOLOCHIA PAPILIOS. I. Ascannus Group.</b>				
—	—	—	—	—	—	—	—
			<b>1. ARISTOLOCHIA PAPILIOS. II. Aeneas Group.</b>				
—	—	—	—	—	—	—	—
			<b>1. ARISTOLOCHIA PAPILIOS. III. Lysander Group.</b>				
—	—	—	—	—	—	—	—
			<b>1. ARISTOLOCHIA PAPILIOS. IV. Polydamas Group.</b>				
—	—	* { philenor { philenor	—	—	{ philenor { philenor	{ philenor { philenor	{ philenor { philenor
—	—	—	—	—	—	—	{ polydamas { polydamas
			<b>2. FLUTED PAPILIOS. V. Machaon Group.</b>				
bairdi nitra zelicaon	{ polyxenes { asterius bairdi — zelicaon indra { pergamus	{ polyxenes { asterius bairdi — zelicaon indra { pergamus	{ polyxenes { asterius	{ polyxenes { asterius	{ polyxenes { brevicauda	{ polyxenes { asterius	{ polyxenes { asterius
{ machaon* { alaska	—	—	{ machaon* { alaska	—	—	—	—
			* Only in northern areas				

CANADA, WEST.	U.S.A., N.-WEST.	U.S.A., S.-WEST.	CANADA, MIDDLE.	U.S.A., MIDDLE.	CANADA, EAST.	U.S.A., N.-EAST.	U.S.A., S.-EAST.
<b>2. FLUTED PAPILIOS. VI. Thoas Group.</b>							
—	—	—	—	{ thoas* { antocles	* Only extreme south	—	—
cresphontes	cresphontes	cresphontes	cresphontes	cresphontes	cresphontes	cresphontes	cresphontes
<b>2. FLUTED PAPILIOS. VII. Glaucus Group.</b>							
{ glaucus { canadensis rutulus daunus eurymedon	— rutulus daunus eurymedon	— rutulus daunus eurymedon	{ glaucus { canadensis	{ glaucus { glaucus — daunus eurymedon	{ glaucus { canadensis	{ glaucus { glaucus — — —	{ glaucus { glaucus — — —
<b>2. FLUTED PAPILIOS. VIII. Troilus Group.</b>							
{ troilus { troilus	{ troilus { troilus	{ troilus { troilus	{ troilus { troilus	{ troilus { troilus { palamedes { palamedes	{ troilus { troilus	{ troilus { troilus { palamedes { palamedes	{ troilus { texanus { palamedes { palamedes
<b>2. FLUTED PAPILIOS. IX. Anchisiades Group.</b>							
<b>2. FLUTED PAPILIOS. X. Torquatus Group.</b>							

2. FLUTED PAPILIOS. XI. Zagraeus Group.	—	—	—	—
2. FLUTED PAPILIOS XII. Scamander Group.	—	—	—	—
2. FLUTED PAPILIOS. XIII. Homerus Group.	—	—	—	—
<hr/>				
3. KITE PAPILIOS. XIV. Lysithous Group.	—	—	—	—
3. KITE PAPILIOS XV. Marcellus Group.	—	marcellus	—	marcellus
3. KITE PAPILIOS. XVI. Protesilaus Group.	—	—	—	—
3. KITE PAPILIOS. XVII. Thyastes Group.	—	—	—	—
3. KITE PAPILIOS. XVIII. Dolicaon Group.	—	—	—	—

MEXICO, WEST.	MEXICO, EAST.	GUATEMALA.	HONDURAS.	NICARAGUA.	COSTA RICA.	PANAMA.	COLOMBIA, MUZO, 'BOGOTA'
		<b>1. ARISTOLOCHIA PAPILIOS. I. Aescanius Group.</b>					
photinus alopius — montezuma	photinus — — montezuma	photinus alopius? — montezuma	photinus alopius? — montezuma	photinus alopius dars montezuma	photinus — — —	— — — —	— — — —
		<b>1. ARISTOLOCHIA PAPILIOS. II. Aeneas Group.</b>					
{ sesostris* { zestos — — — polyzelus { trichopus { iphidamas { iphidamas	{ sesostris* { zestos — — — polyzelus { polyzelus { iphidamas { iphidamas	{ sesostris { zestos { childrenae { childrenae { lycimenes { lycimenes	{ sesostris { zestos { childrenae { childrenae { lycimenes { lycimenes	{ sesostris { zestos { childrenae { childrenae { lycimenes { lycimenes	{ sesostris { zestos { childrenae { childrenae { lycimenes { lycimenes { erithalion { sadyattes	{ sesostris { tarquinius { childrenae { childrenae { lycimenes { lycimenes { erithalion { sadyattes	{ sesostris { tarquinius { childrenae { oedippus { lycimenes { erythrus { erithalion { sadyattes
		<b>1. ARISTOLOCHIA PAPILIOS III. Lysander Group.</b>					
{ arcas { mylotes	{ arcas { mylotes	{ arcas { mylotes	{ arcas { mylotes	{ arcas { mylotes	{ arcas { mylotes	{ arcas { mycale	{ neophilus { olivencius { arcas { arrippus

\* Only in the south





MEXICO, WEST.	MEXICO, EAST.	GUATEMALA.	HONDURAS.	NICARAGUA.	COSTA RICA.	PANAMA.	COLOMBIA, MUZO, "BOOTOA."
	{ palamedes leontis						
2. FLUTED PAPILIOS. VIII. Troilus Group.							
pharnaces	pharnaces	erostratus	erostratus (?)	erostratus (?)	erostratus (?)		
—	—	rogeri	—	—	—		
{ anchisiades idaeus	{ anchisiades idaeus	{ anchisiades idaeus	{ anchisiades idaeus	{ anchisiades idaeus	{ anchisiades idaeus	{ anchisiades idaeus isidorus chironis rhodostictus rhodostictus	{ anchisiades anchisiades isidorus brises rhodostictus nymphus
2. FLUTED PAPILIOS. IX. Anchisiades Group.							
torquatus	{ torquatus tolus	{ torquatus tolus (?)	{ torquatus tolus (?)	{ torquatus tolus (?)	{ torquatus tolimides	{ torquatus tolimides	{ torquatus orchamus
2. FLUTED PAPILIOS. X. Torquatus Group.							
2. FLUTED PAPILIOS. XI. Zagraeus Group.							
						{ ascolius zalates	{ ascolius ascolius bachus bachus
2. FLUTED PAPILIOS. XII. Scamander Group.							
						{ birchalli godmani	{ birchalli birchalli



MEXICO, WEST.	MEXICO, EAST.	GUATEMALA.	HONDURAS.	NICARAGUA.	COSTA RICA.	PANAMA.	COLOMBIA, MUZO, "BOGOTA."
{ agesilaus { fortis	{ agesilaus { neosilaus	{ agesilaus { neosilaus	{ agesilaus { neosilaus	?	?	{ agesilaus { eimeri	{ agesilaus { agesilaus { glaucolaus { glaucolaus { protesilaus { archesilaus { telesilaus { telesilaus
—	—	—	—	—	—	—	—
—	{ protesilaus { penthesilaus	{ protesilaus { macrosilaus	{ protesilaus { macrosilaus	{ protesilaus { macrosilaus	{ protesilaus { dariensis	{ glaucolaus { protesilaus { dariensis { telesilaus { dolius	—
—	—	—	—	—	—	—	—
{ marchandi { marchandi	{ marchandi { marchandi	{ marchandi { marchandi	{ marchandi { marchandi	{ marchandi { marchandi (?)	{ marchandi { panamensis	{ marchandi { panamensis	{ marchandi { panamensis
—	—	{ lacandones { lacandones	{ lacandones { lacandones (?)	{ lacandones { lacandones (?)	{ lacandones { lacandones (?)	{ lacandones { lacandones	{ dioxippus { lacandones { lacandones (?)
{ calliste { calliste	{ calliste { calliste (?)	{ calliste { calliste	{ calliste { calliste	{ calliste { calliste (?)	{ calliste { olbius	—	{ leucaspis { laniis
—	—	—	—	—	—	—	—
—	—	{ orabilis { orabilis salvini	{ orabilis { orabilis (?) salvini	{ orabilis { orabilis (?)	{ orabilis { orabilis	{ orabilis { orabilis	{ serville { acritus columbus
salvini (?)	salvini	—	—	—	—	—	{ dolicaon { hebrus

## 3. KITE PAPHILOS. XVI. Protesilaus Group.

## 3. KITE PAPHILOS. XVII. Thyastes Group.

## 3. KITE PAPHILOS. XVIII. Dolicaon Group.





		2. FLUTED PAPILIOS, VIII. Troilus Group.				
		2. FLUTED PAPILIOS, IX. Anchisiades Group.				
{ anchisiades { anchisiades	{ anchisiades { anchisiades { isidorus { brises (P) { rhodostictus { nymphius (P)	hyppason chiansiades { anchisiades { anchisiades { isidorus { flavescens	hyppason anchisiades { anchisiades { isidorus { isidorus	hyppason anchisiades { anchisiades { isidorus { isidorus	hyppason anchisiades { capys { isidorus { isidorus	{ anchisiades { capys
		2. FLUTED PAPILIOS, X. Torquatus Group.				
{ torquatus { orchamus (P)	{ torquatus { orchamus (P)	garleppi { interruptus { torquatus { torquatus	garleppi { interruptus { torquatus { torquatus	garleppi { interruptus { torquatus { torquatus	lamarchei { garleppi { garleppi { torquatus { torquatus	lamarchei
		2. FLUTED PAPILIOS, XI. Zagraeus Group.				
zagraeus	zagraeus { ascolius { ascolius { bachus { bachus	zagraeus zagraeus bachus { bachus (P) { chrysomelas	zagraeus zagraeus bachus { chrysomelas	zagraeus zagraeus bachus { chrysomelas	zagraeus zagraeus bachus { chrysomelas	
		2. FLUTED PAPILIOS, XII. Scamander Group.				
	{ birchalli { birchalli	xanthopleura (P)	xanthopleura	xanthopleura (P)	xanthopleura (P)	xanthopleura (P)





3. KITE PAPILIOS.		XVI. Protesilaus Group.	
( agesilaus ( agesilaus ( glaucolaus ( glaucolaus (?)	( agesilaus ( autosilaus ( glaucolaus ( glaucolaus ( molops ( haeterius ( protesilaus ( protesilaus ( telesilaus ( telesilaus (?)	( agesilaus ( autosilaus ? ( molops ( haeterius ( protesilaus ( protesilaus ( telesilaus ( telesilaus	( agesilaus ( autosilaus — ( molops ( haeterius ( protesilaus ( protesilaus ( telesilaus ( telesilaus ( telesilaus
( protesilaus ( leucones —	( protesilaus ( protesilaus ( telesilaus ( telesilaus	( protesilaus ( protesilaus ( telesilaus ( telesilaus	( protesilaus ( protesilaus ( telesilaus ( telesilaus ( telesilaus
3. KITE PAPILIOS. XVII. Thyastes Group.			
( marchandi ( panamensis (?) — — —	( thyastes ( thyastinus — ( lacandones ( diores ( leucaspis ( lamis	( thyastes ( thyastinus — ( lacandones ( diores ( leucaspis ( leucaspis	( thyastes ( zoros — ( lacandones ( diores ( leucaspis ( leucaspis
( serville ( acritus (?) — — ( dolicaon ( tromes (?)	( serville ( serville columbus — ? —	( serville ( serville — callias ( dolicaon ( deileon	( serville ( serville — — callias ( dolicaon ( deileon ( dolicaon ( deileon
3. KITE PAPILIOS. XVIII. Dolicaon Group.			



		<b>2. FLUTED PAPILIOS. V. Machaon Group.</b>					
		<b>2. FLUTED PAPILIOS. VI. Thoas Group.</b>					
{ thoas { brasiliensis { lycophron { lycophron { androgæus { laodocus	{ thoas { thoantiades { lycophron { lycophron —	{ thoas { brasiliensis { lycophron { lycophron —	{ thoas { brasiliensis { lycophron { lycophron —	{ thoas { brasiliensis { lycophron { lycophron { androgæus { laodocus			
		<b>2. FLUTED PAPILIOS. VII. Glaucus Group.</b>					
		<b>2. FLUTED PAPILIOS. VIII. Troilus Group.</b>					
		<b>2. FLUTED PAPILIOS. IX. Anchisiades Group.</b>					
{ anchisiades { capys	{ anchisiades { capys	{ anchisiades { capys	{ anchisiades { capys	{ anchisiades { capys	{ anchisiades { capys		
		<b>2. FLUTED PAPILIOS. X. Torquatus Group.</b>					
{ hectorides { torquatus { polybius	{ hectorides (P) —	—	—	{ hectorides —	{ hectorides —	{ hectorides { torquatus { polybius	





S. BRAZIL, RIO.	C. BRAZIL: GOYAZ, MATTO GROSSO.	N.-E. BRAZIL: BAHIA, CEARA.	COLOMBIA, W. COAST.	ECUADOR, W. COAST.	PERU, W. COAST.	N. CHILE, W. COAST.
<b>I. ARISTOLOCHIA PAPILIOS. I. Ascanius Group.</b>						
ascanius	—	—	—	—	—	—
agavus	—	—	—	—	—	—
{ chamissonia	{ chamissonia	—	—	—	—	—
{ chamissonia	{ diodorus	—	—	—	—	—
<b>I. ARISTOLOCHIA PAPILIOS. II. Aeneas Group.</b>						
dardanus	—	—	—	—	—	—
—	{ sesostris	—	—	—	—	—
—	{ sesostris	—	—	—	—	—
—	burchellanus	—	—	—	—	—
—	{ archises	—	—	—	—	—
nephalion	{ orbignyanus	—	—	—	—	—
—	nephalion	—	—	—	—	—
<b>I. ARISTOLOCHIA PAPILIOS. III. Lysander Group.</b>						
—	{ neophilus	—	—	—	—	—
—	{ eurybates	—	—	—	—	—
{ zacynthus	—	{ zacynthus	—	—	—	—
{ zacynthus	—	{ polymetus	—	—	—	—
—	—	—	—	{ timias	—	—
—	—	—	—	{ timias	—	—
—	—	—	—	{ timias	—	—
—	—	—	—	{ potone*	—	—
<b>I. ARISTOLOCHIA PAPILIOS. IV. Polydamas Group.</b>						
—	—	{ polydamas	—	—	—	archidamas
{ polydamas	{ polydamas	{ polydamas	?	?	?	—
{ polydamas	?	—	—	—	—	—
{ janira	{ (P) belus	—	—	—	—	—
—	{ cochabamba	—	—	—	—	—
—	{ (P) lycidas	—	—	—	—	—
crassus	?	?	—	—	—	—

\* Higher elevation than *timias timias*.



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<b>2. FLUTED PAPILIOS. XI. Zagraeus Group.</b>						
—	—	—	{ ascolius (daguanus	{ ascolius (rosenbergi	—	—
<b>2. FLUTED PAPILIOS. XII. Scamander Group.</b>						
{ scamander (grayi	?	{ scamander (grayi	—	—	—	—
<b>2. FLUTED PAPILIOS. XIII. Homerus Group.</b>						
{ cleotas (cleotas	{ aristeus (P) (dysmias	?	—	—	—	—
<b>3. KITE PAPILIOS. XIV. Lysithous Group.</b>						
protodamas f. choridamas	{ pausanias (pausanias	—	{ pausanias (cleombrotus	—	—	—
—	—	—	{ euryleon (pithonius (harmodius (xeniades	{ euryleon (haenschi (harmodius (xeniades	—	—
—	{ ariarathes (leuctra	—	—	—	—	—
lysithous f. platydesma f. harrisianus f. lysithous asius	—	lysithous f. oedipus  asius	—	—	—	—









FLORIDA.	BAHAMAS, NASSAU.	CUBA.	HAITI.	JAMAICA.	GRAND CAYMAN.	FORTO RICO.	ANTIOUA.
—	—	2. FLUTED PAPILIOS. XI. Zagraeus Group.	—	—	—	—	—
—	—	2. FLUTED PAPILIOS. XII. Scamander Group.	—	—	—	—	—
—	—	2. FLUTED PAPILIOS. XIII. Homerus Group.	—	—	—	—	—
—	—	—	homerus (?)	homerus	—	—	—
—	—	3. KITE PAPILIOS. XIV. Lysithous Group.	—	—	—	—	—
marcellus	—	3. KITE PAPILIOS. XV. Marcellus Group.	—	—	—	—	—
—	—	—	—	marcellinus	—	—	—
celadon (?)	—	celadon	—	—	—	—	—
—	—	—	zonaria	—	—	—	—
—	—	3. KITE PAPILIOS. XVI. Protesilaus Group.	—	—	—	—	—
—	—	3. KITE PAPILIOS. XVII. Thyastes Group.	—	—	—	—	—
—	—	3. KITE PAPILIOS. XVIII. Dolicaon Group.	—	—	—	—	—

GUADALOUPE.	DOMINICA.	MARTINIQUE.	ST. LUCIA.	ST. VINCENT.	GRENADA.	TOBAGO.	TRINIDAD.
—	—	1. ARISTOLOCHIA PAPILIOS.	I. Ascanius Group.	—	—	—	—
—	—	1. ARISTOLOCHIA PAPILIOS.	II. Aeneas Group.	—	—	—	{ sesostris { sesostris { anchises { eymochles
—	—	1. ARISTOLOCHIA PAPILIOS.	III. Lysander Group.	—	—	—	{ neophilus { parianus
{ polydamas { neodamas	{ polydamas { dominicus	1. ARISTOLOCHIA PAPILIOS.	IV. Polydamas Group.	{ polydamas { lucianus	{ polydamas { polydamas (?)	{ polydamas { polydamas (?)	{ polydamas { polydamas
—	—	2. FLUTED PAPILIOS.	V. Machaon Group.	—	—	—	—
—	—	2. FLUTED PAPILIOS.	VI. Thoas Group.	lycophon s.sp. (?) { androgeus { epidaurus	—	?	{ thoas { nealces
—	—	—	—	?	—	—	{ androgeus { androgeus

GUADALUPE,	DOMINICA	MARTINIQUE,	ST. LUCIA,	ST. VINCENT,	GRENADA,	TOBAGO,	TRINIDAD,
		2. FLUTED PAPILOS, VII. Glaucus Group.					
		2. FLUTED PAPILOS, VIII. Troilus Group.					
		2. FLUTED PAPILOS, IX. Anchisiades Group.				?	! anchisiades ! anchisiades
		2. FLUTED PAPILOS, X. Torquatus Group.					
		2. FLUTED PAPILOS, XI. Zagraeus Group.					
		2. FLUTED PAPILOS, XII. Scamander Group.					
		2. FLUTED PAPILOS, XIII. Homerus Group.					
		3. KITE PAPILOS, XIV. Lysithous Group.					

3. KITE PAPILOS.	<b>XV. Marcellus Group.</b>		
3. KITE PAPILOS.	<b>XVI. Protesilaus Group.</b>		{ agesilaus { autosilaus (?) { protesilaus { archesilaus (?)
3. KITE PAPILOS.	<b>XVII. Thyastes Group.</b>		
3. KITE PAPILOS.	<b>XVIII. Dolicaon Group.</b>		









	3. KITE PAPILIOS. XIV. Lysithous Group.			
( phaoon ( phaoon	( pausanias ( pausanias	( pausanias ( pausanias	( pausanias ( pausanias	( pausanias ( pausanias
( ariarathes ( evagoras ilus	( ariarathes ( ariarathes	( ariarathes ( ariarathes	( ariarathes ( metagenes	( ariarathes ( gayi
	3. KITE PAPILIOS. XV. Marcellus Group.			
arcesilaus				
	3. KITE PAPILIOS. XVI. Protesilaus Group.			
( agesilaus ( agesilaus ( glaucolaus ( glaucolaus (?)	( agesilaus ( autosilaus ( glaucolaus ( leucas ( molops ( haeterius ( protesilaus ( protesilaus ( telesilaus ( telesilaus	( agesilaus ( autosilaus ( glaucolaus ( leucas (?) ? ( protesilaus ( protesilaus ( telesilaus ( telesilaus	( agesilaus ( autosilaus ? ( protesilaus ( protesilaus ( telesilaus ( telesilaus	( agesilaus ( autosilaus ? ( protesilaus ( protesilaus ( telesilaus ( telesilaus
( protesilaus ( archesilaus ( telesilaus ( telesilaus				( molops ( haeterius ( protesilaus ( protesilaus ( telesilaus ( telesilaus
	3. KITE PAPILIOS. XVII. Thyastes Group.			
( serville ( acritus				( thyastes ( thyastinus
	3. KITE PAPILIOS. XVIII. Dolicaon Group.			
( dolicaon ( tromes	( dolicaon ( dolicaon	( callias ( dolicaon ( dolicaon	( callias ( dolicaon ( deileon	( callias ( dolicaon ( deileon

## ALGERIAN LEPIDOPTERA.

## EXPLANATION OF FIGURES ON PLATE I.

BY LORD ROTHSCHILD, F.R.S., PH.D.

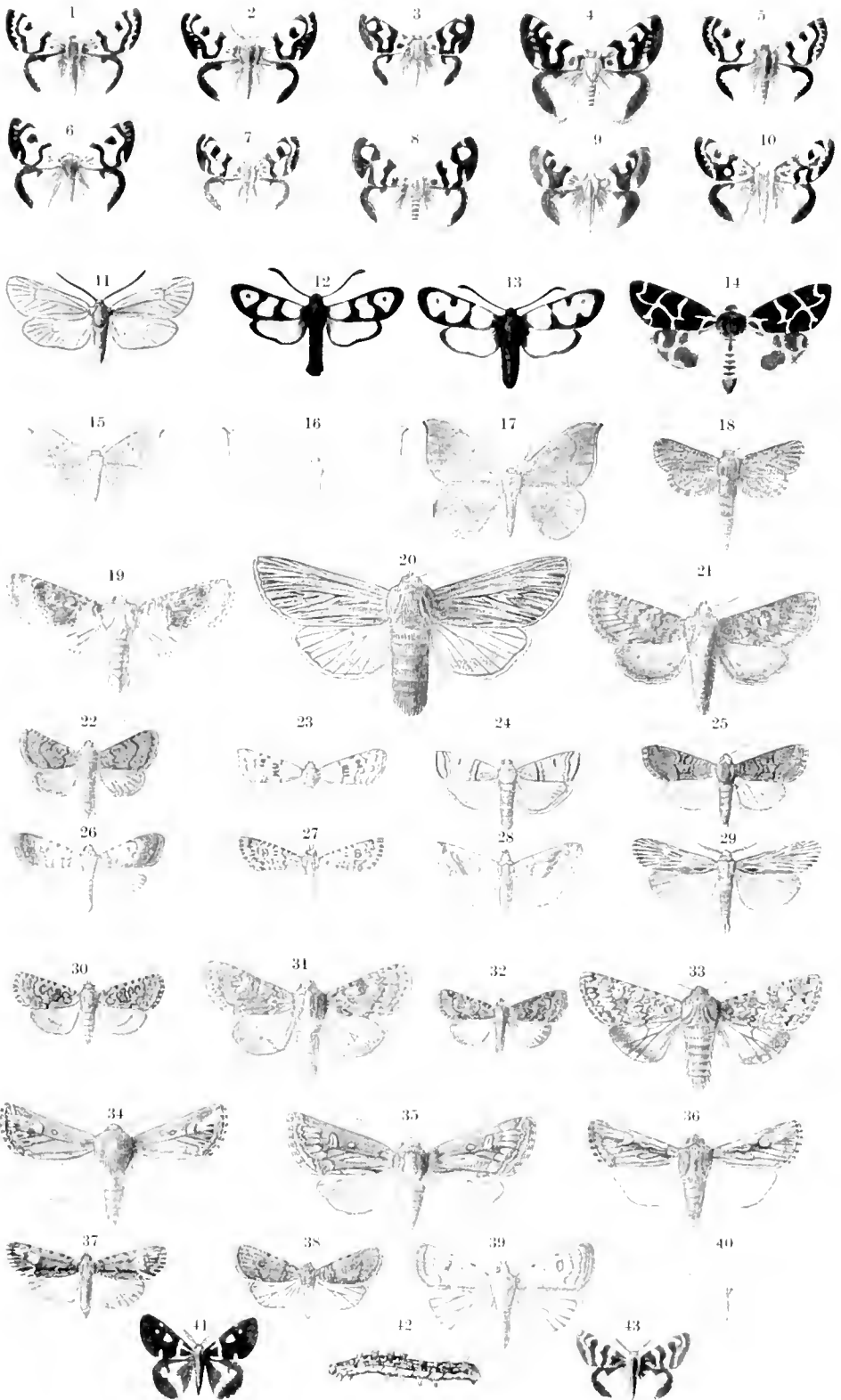
No.

- 1, 6. *Notolophus splendida isolatella* (Strand). *Nov. Zool.* xxiv. p. 353.
- 2, 3, 7, 8. *Notolophus dubia umbripennis* (Strand). *Nov. Zool.* xxiv. p. 353.
4. *Notolophus splendida splendida* (Ramb.). *Faun. Entom. Andal.* ii. pl. 15. ff. 3-6.
5. *Notolophus splendida turcica* (Led.). *Verh. Zool.-Bot. Ges. Wien*, 1852. p. 117.
- 9, 10, 43. *Notolophus dubia dubia* (Tauscher). *Mém. Soc. Nat. Moscou*, t. 13. f. 3. 1806. t. i.
42. *Notolophus d. dubia* larva.
41. *Notolophus algerica* (Luc.) ab. *josephina* (Aust.). *Le Naturaliste*, 1880. p. 212.  
For details of Algerian *Notolophus* see *Nov. Zool.* xxiv. pp. 350-5.
11. *Procris bellieri prasina* Rothsch. *Nov. Zool.* xxiv. p. 345.
- 12, 13. *Zygaena marcoua excelsa* Rothsch. *Nov. Zool.* xxiv. p. 340.
14. *Cymbalophora powelli* Oberth. ♀. *Bull. Soc. Entom. France*, 1910. p. 333.
- 15, 16. *Drepana binaria uncinula* (Borkh.) aberr. ? *Nov. Zool.* xxiv. p. 393.
17. *Drepana binaria uncinula* ab. *oranaria* Strand. Seitz, *Grossschmett. Erde*, vol. ii. p. 200.
18. *Dypsessa affinis* Rothsch. *Nov. Zool.* xxiv. p. 408.
19. *Antitype discalis* Rothsch. *Nov. Zool.* xix. p. 125.
20. *Hadula griseola* (Rothsch.) *Nov. Zool.* xx. p. 121.
21. *Antitype hagar* Rothsch. *Nov. Zool.* xix. p. 125.
22. *Metopocera morosa* Rothsch. *Nov. Zool.* xxi. p. 326.
23. *Oedibrya subplumbcola* (Culot) = *Catamecia cinnamomina* Rothsch. *Noct. & Géom. d'Eur.* p. 125 (1912); *Nov. Zool.* xxi. p. 336 (1914).
24. *Tephrys vcruculella aridella* Rothsch. *Nov. Zool.* xx. p. 136.
25. *Procus faroulti* (Rothsch.) = *Miana erratricula powelli* Oberth. *Nov. Zool.* xxi. p. 333 (1914); *Etud. Lépid. Comp. Fasc.* xvi. p. 135 (1919).
26. *Athetis approximans* Rothsch. *Nov. Zool.* xxi. p. 334.
27. *Oderernia precisa* (Warr.) = *Catamecia subperla* Rothsch. Seitz, *Grossschmett. Erde*, vol. iii. p. 23 (1909). *Nov. Zool.* xxi. p. 336 (1914).
28. *Eublemma ? sabulosa* Rothsch. (wrong genus). *Nov. Zool.* xx. p. 127.
29. *Surattha strioliger* Rothsch. *Nov. Zool.* xx. p. 135.
30. *Bryophila pseudoperla* Rothsch. *Nov. Zool.* xxi. p. 334.
31. *Antitype rosea* ab. *suffusa* Rothsch. = *Epunda concolor* Oberth. *Nov. Zool.* xxi. p. 330 (1914); *Etud. Lépid. Comp. Fasc.* xvi. p. 143 (1919).
32. *Bryophila bilineata* Rothsch. = *Bryophila rosinans* Oberth. *Nov. Zool.* xxi. p. 333 (1914); *Etud. Lépid. Comp. Fasc.* xvi. p. 10 (1919).
33. *Hadula cinnamomeogrisea* (Rothsch.) *Nov. Zool.* xx. p. 121.
- 34, 35. *Grammoscelis magnifica* (Rothsch.) *Nov. Zool.* xxi. p. 328.
36. *Lycophotia agrotina* (Rothsch.) *Nov. Zool.* xxi. p. 316.



PLATE I.

For explanation of figures, see pp. 356, 357.







No.

37. *Bryophila albomaculata* Rothsch. *Nov. Zool.* xxi. p. 333.
  38. *Athetis jacobsi* Rothsch. *Nov. Zool.* xxi. p. 335.
  39. *Athetis flavirena rufostigmata* Rothsch. *Nov. Zool.* xxi. p. 335.
  40. *Eublemma ernesti* Rothsch. *Nov. Zool.* xxii. p. 232.
-

## EXPLANATIONS OF PLATES V AND VI.

BY ERNST HARTERT.

PLATE V, FIG. 1.—*Sylvietta neumanni* Rothsch.*Sylvietta neumanni* Rothschild, *Bull. B.O. Club*, xxiii. p. 42, December 1908.

THIS peculiar bird is named in honour of Professor Oscar Neumann. In structure it appears to be a very typical *Sylvietta*, but its coloration is quite singular. Six specimens, four marked ♂, two ♀, were collected by Rudolf Graver in July, November, and December, at elevations of 1,900 and 2,000 m. in the primeval forests north-west of Baraka and west of Lake Tanganyika. The females are perfectly similar to the males, only a little smaller.

PLATE V, FIG. 2.—*Pachycephala moroka* R. & H.*Pachycephala moroka* Rothschild & Hartert, *Nov. Zool.* 1903. p. 106.

We described this species from a single unsexed specimen, obtained in the Moroka district, in the Owen Stanley Mountains, British New Guinea, between 3,000 and 6,000 feet. We did not see another specimen until Albert S. Meek obtained 3 males and 1 female at Owgarra, Angabunga River, in November 1904 and January 1905, at elevations between 6,000 and 8,000 feet. The sexes are alike. Cf. *Nov. Zool.* 1907, p. 472.

PLATE V, FIG. 3.—*Pachycephala tenebrosa* Rothsch.*Pachycephala tenebrosa* Rothschild, *Bull. B.O. Club*, xxix. p. 20. November 1911; Rothschild & Hartert, *Nov. Zool.* 1913. p. 508; Ogilvie-Grant, *Ibis*, 1915, Jubilee Supplement, p. 95.

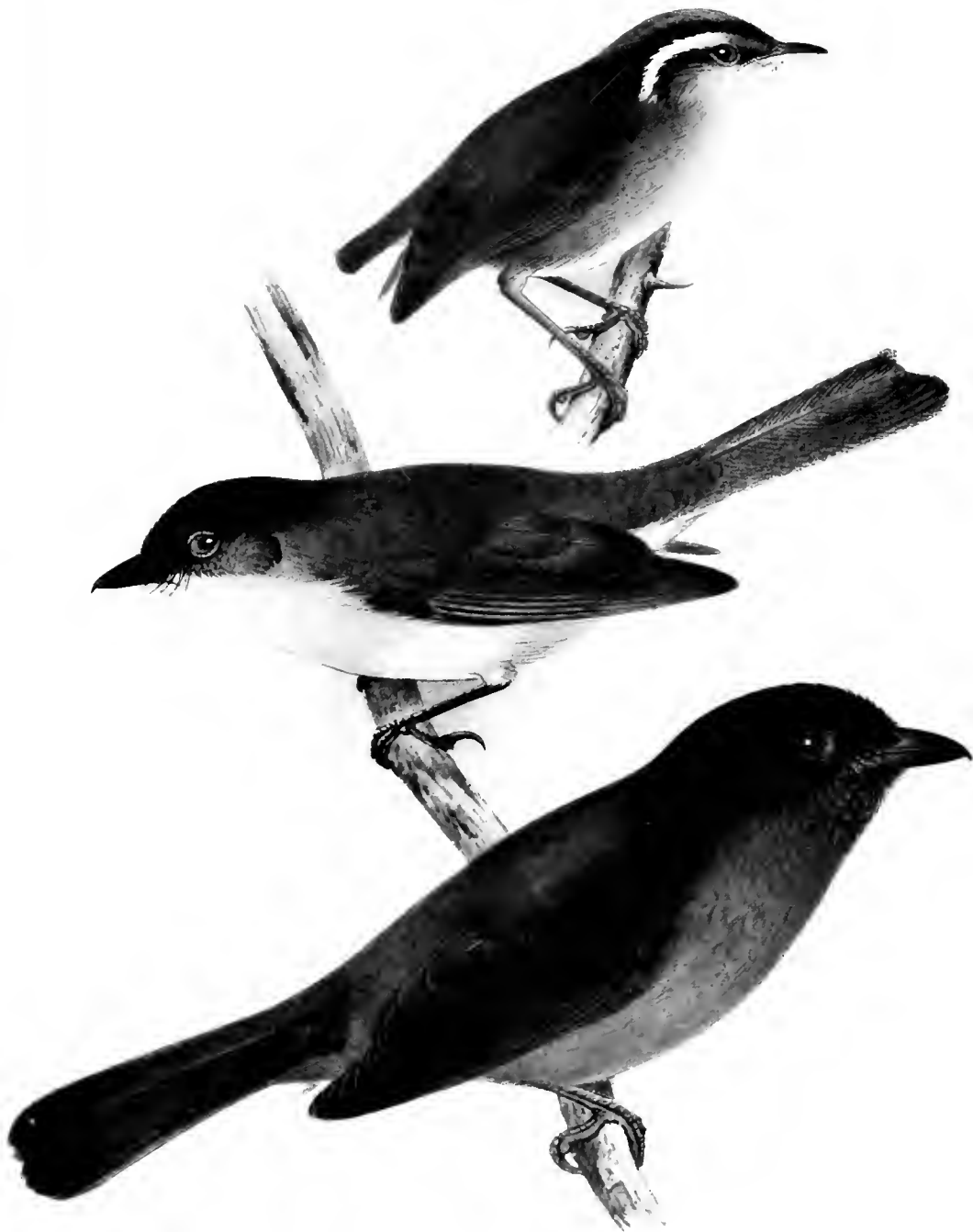
Meek and Eichhorn collected 9 specimens of this very soft-feathered, somewhat aberrant *Pachycephala* on Mount Goliath, east of the central part of the Snow Mountains, where the B.O.U. and Wollaston Expeditions collected. C. Boden Kloss collected a pair on the Utakwa River, 5,500 feet, in February 1913.

PLATE VI, FIG. 1.—*Melipotes ater* Rothsch. & Hart.*Melipotes ater* Rothschild & Hartert, *Bull. B.O. Club*, xxix. p. 13 (1911).

All we know of this most remarkable species are 3 skins collected by the German missionary, C. Keysser, on the Rawlinson Mountains, north of the Huon Gulf, about 1,500 m. high. Though only one was originally "sexed," there can be no doubt that one is a male and the two other females. They agree all three in colour, but the male is much larger than the two females.

PLATE VI, FIG. 2.—*Dicaeum nigrilore* Hart.*Dicaeum nigrilore* Hartert, *Bull. B.O. Club*, xv. p. 8 (October 1904).

John Waterstradt collected not less than 14 specimens, about 3,000 feet high, on Mount Apo, S. Mindanao, in October 1903. The bird must have been fairly common, and it is peculiar that Walter Goodfellow, who made larger collections on the same mountain, did not come across it.



H. Gronvold, del

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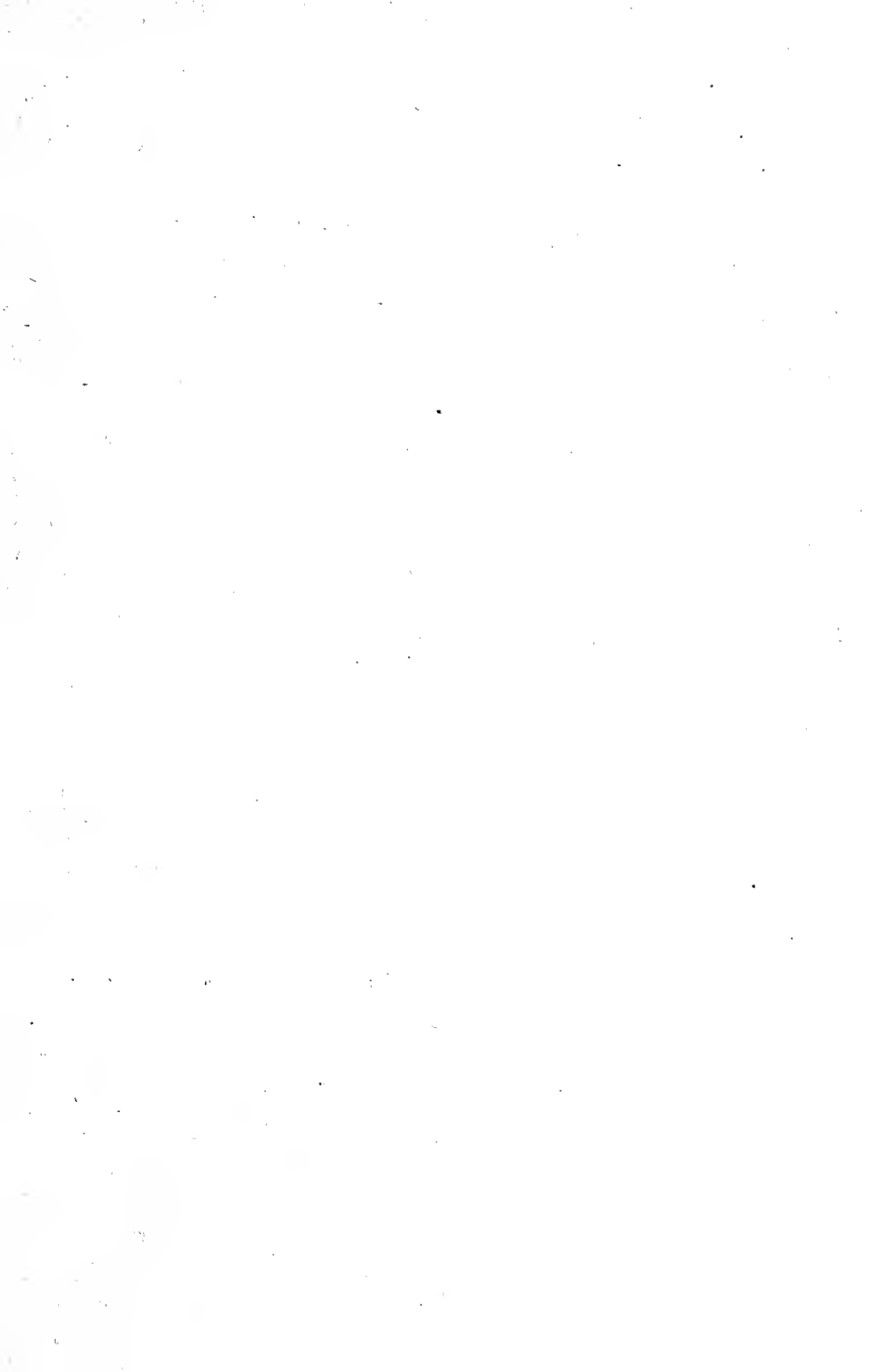


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---

A LIST OF THE CONTENTS of the first 25 volumes of *Novitates Zoologicae*, 1894–1918, arranged according to Subjects and Authors, is in course of preparation and will be ready for publication in the autumn.

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