

# BIOLOGIA CENTRALI-AMERICANA.

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## ZOOLOGIA.

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### Class INSECTA.

### Order LEPIDOPTERA.

### Suborder HETEROCERA.

### Fam. SPHINGIDÆ\*.

### Subfam. MACROGLOSSINÆ.

### AELLOPUS.

*Aellopus*, Hübner, Verz. bek. Schmett. p. 131 (1816).

Six species have been included in this genus, whereof four belong to South America and two to West Africa. It is doubtful, however, if the African forms are really congeneric, their narrow elongated bodies being very different from what is found in the American representatives of the genus. Of these latter two, or at most three, of the species are really distinct, the others being of doubtful value.

#### 1. *Aellopus tantalus*.

*Sphinx tantalus*, Linn. Mus. Lud. Ulr. p. 361<sup>1</sup>.

*Aellopos tantalus*, Hübn. Samml. ex. Schmett. ii. t. 157. f. 1-4<sup>2</sup>.

*Macroglossa tantalus*, Walk. Cat. viii. p. 88<sup>3</sup>.

*Sphinx titan*, Cr. Pap. Ex. ii. p. 73, t. 142. f. F<sup>4</sup>.

*Macroglossa annulosum*, Sw. Zool. Ill. iii. t. 132. f. 1<sup>5</sup>.

*Hab.* MEXICO<sup>3</sup>, Vera Cruz (*mus. Oxf.*), Cordova (*Rümeli*), Mazatlan (*H. Edwards*), Valladolid, Yucatan (*Gaumer*); BRITISH HONDURAS, river Sarstoon (*Blancaneaux*); GUATEMALA, Dueñas (*F. D. G. & O. S., mus. Oxf.*), Zapote, San Gerónimo, Coban (*Champion*); PANAMA (*Boucard, mus. D.*).—ANTILLES, Jamaica<sup>3</sup>, San Domingo<sup>3</sup>, &c.; COLOMBIA, Santa Marta (*mus. D.*); ECUADOR (*mus. D.*); VENEZUELA<sup>3</sup>; GUIANA, Surinam<sup>4</sup>; AMAZONS, Para<sup>3</sup>; BRAZIL<sup>5</sup>, Rio (*mus. D.*).

\* In the arrangement of this family I have in a great measure followed that propounded by Mr. Butler in his paper on the Sphingidæ (Trans. Z. S. ix. p. 511 *et seqq.*).

This species seems to have an uninterrupted range over a very wide area. I am unable to detect any tangible specific characters whereby to separate the large series of specimens before me. It remains a question whether the insect described by Cramer as *Sphinx fadus* is really distinct from *A. tantalus*. The figure, it is true, shows no abdominal white band on the upper surface; but this, I think with Boisduval, is probably due to the greasy state of Cramer's specimen. I have a Mexican example in this condition, which is not separable from others in the normal state. Mr. Butler keeps the two insects separate, but gives no reasons for so doing. Boisduval, in his latest work on the Sphingidæ (Sp. Gén. des Lép. Hét. i. p. 358, 1874), was strongly of the opinion that *Macroglossa tantalus*, *M. titan*, and *M. fadus* were only varieties of a single species.

### EUPYRRHOGLOSSUM.

*Eupyrrhoglossum*, Grote, Pr. Ent. Soc. Phil. v. p. 42 (1865).

A purely Neotropical genus containing two species, both of which are found within our fauna.

#### 1. *Eupyrrhoglossum sagra*.

*Macroglossum sagra*, Poey, Cent. Lep. dec. 2<sup>1</sup> (fide Butler).

*Macroglossa sagra*, Walk. Cat. viii. p. 89<sup>2</sup>; Boisd. Sp. Gén. des Lép. Hét. i. p. 360<sup>3</sup>.

*Eupyrrhoglossum sagra*, Butl. Trans. Z. S. ix. p. 531<sup>4</sup>.

*Hab.* PANAMA, Chiriqui (*Arcé, mus. D.*).—CUBA<sup>1 3</sup>; COLOMBIA<sup>2</sup>; ECUADOR (*mus. D.*); UPPER AMAZONS (*mus. D.*); BRAZIL<sup>2 3</sup>.

A wide-ranging southern species, of which I have as yet seen only a single Central-American specimen, which was taken near Chiriqui.

#### 2. *Eupyrrhoglossum ceculus*.

*Sphinx ceculus*, Cr. Pap. Ex. ii. p. 80, t. 146. f. G<sup>1</sup>.

*Macroglossa ceculus*, Walk. Cat. viii. p. 88<sup>2</sup>; Boisd. Sp. Gén. des Lép. Hét. i. p. 359<sup>3</sup>.

*Macroglossum fasciatum*, Sw. Zool. Ill. iii. t. 132. f. 2<sup>4</sup>.

*Macroglossa corvus*, Boisd. Lép. Guat. p. 66<sup>5</sup>?

*Hab.* MEXICO<sup>2</sup>; GUATEMALA, El Jicaro and Cubilguitz (*Champion*); NICARAGUA<sup>5</sup>; PANAMA, Chiriqui (*Arcé, mus. D.*).—COLOMBIA<sup>3</sup>; ECUADOR (*mus. D.*); TRINIDAD (*mus. D.*); GUIANA, Surinam<sup>1</sup>, Cayenne<sup>3</sup>; AMAZONS, Para<sup>2</sup>; BRAZIL<sup>2 3 4</sup>.

A species closely allied to the last, but easily recognized by the greater width of the yellow fascia on the secondaries and the absence of the yellow margin. *M. corvus* is a name proposed by Boisduval for a specimen said to have come from Nicaragua<sup>5</sup>. I believe it belongs to this species, but am not certain on the point.

## PERIGONIA.

*Perigonia*, Walker, Cat. Het. viii. p. 100 (1856).

Mr. Butler enumerates nine species of this genus, of which *P. ilus* is but a synonym of *P. lusca*; and others he names seem to rest on very doubtful authority. Three closely allied species are found within our region, whereof two have an extensive range in South America, the third being also found in Cuba.

1. *Perigonia lusca*.

*Sphinx lusca*, Fabr. Sp. Ins. ii. p. 140<sup>1</sup>.

*Perigonia lusca*, Butl. Trans. Z. S. ix. p. 532<sup>2</sup>.

*Perigonia interrupta*, Walk. Cat. xxxi. Suppl. p. 29<sup>3</sup>.

*Perigonia ilus*, Boisd. Lép. Guat. p. 66<sup>4</sup>.

*Hab.* MEXICO<sup>3</sup>; GUATEMALA<sup>3</sup> (*Sallé*); NICARAGUA, Chontales (*Belt*); PANAMA (*Boucard, mus. D.*).—ANTILLES, San Domingo<sup>3</sup>; COLOMBIA (*mus. D.*); ECUADOR (*mus. D.*).

According to Mr. Butler<sup>2</sup> *P. interrupta*, Walk.<sup>3</sup>, belongs here. As regards *P. ilus*, Boisd., I have, through Mons. C. Oberthür's kindness, had an opportunity of examining the type, and have no hesitation in referring it to *P. lusca*.

2. *Perigonia restituta*.

*Panacra restituta*, Walk. Cat. xxxi. Suppl. p. 32<sup>1</sup>.

*Perigonia restituta*, Butl. Trans. Z. S. ix. p. 532<sup>2</sup>.

*Hab.* MEXICO (*Hartweg*<sup>1 2</sup>), Cordova (*Rümeli*).—VENEZUELA; ECUADOR (*mus. D.*); AMAZONS, Para<sup>2</sup>.

In this species, of which I have examined the type, the median yellow spot of the secondaries, so conspicuous in both *P. lusca* and *P. stulta*, is much reduced in size, being a small round spot instead of a band as in the allied species. No specimen has yet been sent from any part of Central America south of Mexico.

3. *Perigonia stulta*.

*Perigonia stulta*, Herr.-Sch. Samml. aussereur. Schmett. f. 106<sup>1</sup>; Schmett. Ins. Cuba, p. 20<sup>2</sup>.

*Hab.* PANAMA, Chiriqui (*Arcé, mus. D.*).—CUBA<sup>2</sup>.

A single specimen in my collection agrees with Herrich-Schäffer's figure of this species<sup>1</sup>. The orange belt of the secondaries extends along the whole costal half from the base to the apex, thus differing from *P. lusca* and *P. restituta*.

## PACHYGONIA.

*Pachygonia*, Felder, Reise d. Nov. Zool. ii. Lep. Th. iv. t. 75 (1868).

This genus contains about five species, of which three occur in Central America—two

being peculiar to the State of Panama, and one ranging to Para at the mouth of the Amazons. All are Neotropical.

### 1. *Pachygonia subhamata*.

*Perigonia subhamata*, Walk. Cat. viii. p. 102<sup>1</sup>.

*Pachygonia caliginosa*, Feld. Reise d. Nov. Zool. ii. Lep. Th. iv. t. 75. f. 10<sup>2</sup>.

*Hab.* MEXICO<sup>1</sup> (*mus. Oxf.*), Cordova (*Rümeli*); PANAMA, Chiriqui (*mus. Staudinger*).—VENEZUELA<sup>1</sup>; AMAZONS<sup>2</sup>, Para<sup>1</sup>.

### 2. *Pachygonia hoppferi*. (Tab. I. fig. 1.)

*Pachygonia hoppferi*, Staud. Verh. zool.-bot. Ges. Wien, 1875, p. 118<sup>1</sup>.

*Hab.* PANAMA, Chiriqui (*Ribbe, Arcé, Mus. D.*).

Differs from *P. subhamata* in having the pink bands on the secondaries more distinct and wider apart.

### 3. *Pachygonia ribbei*, sp. n. (Tab. II. fig. 2.)

Brown, paler beneath: primaries glossy greyish brown from the base to beyond the middle, several indistinct ochreous streaks along the costal margin; an ochreous spot close to the apex, but not touching the costal margin: secondaries dark brown, paler at the base, and slightly ochreous at the anal angle: head, thorax, and abdomen brown above and pale ochreous beneath. Exp.  $2\frac{1}{2}$  inches.

*Hab.* PANAMA, Chiriqui (*Ribbe*).

Differs from the other species of this genus in having the bands of the secondaries smaller and duller.

## UNZELA.

*Unzela*, Walker, Cat. viii. p. 161 (1856).

One species only of this genus is as yet described. It has a very wide distribution, ranging from North America to South-east Brazil.

### 1. *Unzela japix*.

*Sphinx japix*, Cr. Pap. Ex. i. t. 87. f. C<sup>1</sup>.

*Unzela japix*, Walk. Cat. viii. p. 162<sup>2</sup>; Butl. Trans. Z. S. ix. p. 535<sup>3</sup>.

*Tylognathus japys*, Boisd. Sp. Gén. des Léop. Hét. i. p. 293<sup>4</sup>.

*Hab.* UNITED STATES<sup>1 2</sup>.—PANAMA, Chiriqui (*Ribbe*), Rio Chagres (*mus. Staudinger*).—GUIANA, Surinam<sup>4</sup>; BRAZIL<sup>4</sup>, Rio<sup>2 3</sup>.

I have only seen one specimen of this species from Central America, which was taken near Chiriqui.



## PROSERPINUS.

*Proserpinus*, Hübner, Verz. bek. Schmett. p. 132 (1816).

This genus contains five species, of which one occurs in Central America, two in North America, and two in the south of Europe. The species are all small.

1. *Proserpinus terlooii*.

*Proserpinus terlooii*, H. Edwards, Proc. Cal. Acad. Sci. 1875, p. 4<sup>1</sup>.

*Pterogon terlooii*, Strecker, Lep. Rhop. et Het. i. p. 125, t. xiv. f. 3<sup>2</sup>.

*Hab.* MEXICO, Mazatlan<sup>1 2</sup> (*Baron Terloo*).

This species is closely allied to the European *P. proserpina*, Pall. Mr. Henry Edwards informs me that two specimens of this species are in the collection of Dr. H. Behr, of San Francisco. These were taken in the Sierra Madre, in the State of Sinaloa, by the late Baron Terloo.

## CALLIOMMA.

*Calliomma*, Walker, Cat. viii. p. 108 (1856).

About eight species are placed in this genus by Mr. Butler, of which three occur in Central America, the others being found only in South America.

1. *Calliomma licastus*.

*Sphinx licastus*, Cr. Pap. Ex. iv. t. 381. f. A<sup>1</sup>.

*Calliomma licastus*, Walk. Cat. viii. p. 110<sup>2</sup>.

*Calliomma parce*, Lucas in R. de la Sagra's Hist. Cuba, vii. p. 291, t. 17. f. 2<sup>3</sup> (ex Fabr.).

*Hab.* BRITISH HONDURAS, Belize (*Blancaneaux*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*mus. Staudinger*).—ANTILLES<sup>2</sup>, Cuba<sup>3</sup>; ECUADOR (*mus. D.*); GUIANA, Surinam<sup>1</sup>.

This species has a wide range, and, so far as I can see, does not vary to any extent. Mr. Butler has enumerated three species in his Catalogue closely allied to *C. licastus*; but I think them of very doubtful value. The specimens from Ecuador in my collection do not vary in the least from the Central-American ones.

2. *Calliomma thorates*.

*Oreus thorates*, Hübn. Zutr. ff. 525, 526<sup>1</sup>.

*Pergesa thorates*, Walk. Cat. viii. p. 151<sup>2</sup>.

*Calliomma thorates*, Butl. Trans. Z. S. ix. p. 540<sup>3</sup>.

*Hab.* MEXICO, Oaxaca<sup>2 3</sup>; GUATEMALA, Polochic valley (*F. D. G. & O. S., mus. Oxf.*) PANAMA, Chiriqui (*Arcé, mus. D.*).—ANTILLES<sup>1</sup>, Haiti<sup>2</sup>, St. Vincent<sup>3</sup>, &c.; COLOMBIA<sup>3</sup>; ECUADOR (*mus. D.*)

I have a large number of examples before me of this wide-ranging species; the specimens from Ecuador are generally smaller than those from Central America. I have not yet seen an example from any locality south of Ecuador.

3. **Calliomma adalia**, sp. n. (Tab. II. fig. 1.)

Primaries olive-green, crossed from the costal margin to the inner margin by five brown lines, the first two near the base, the third beyond the end of the cell, the fourth a waved line close to the third, the fifth nearest the outer margin; a short waved line from the apex to the middle of the fifth line; an indistinct brownish patch near the anal angle, extending upwards along the outer margin: secondaries dark brown, abdominal margin and anal angle greenish; fringes white: head, thorax, and abdomen olive-green, beneath pale ochreous. Exp. 2.5 in.

*Hab.* PANAMA, Chiriqui (*mus. Staudinger*).

Very distinct from any other species.

ENYO.

*Enyo*, Hübner, Verz. bek. Schmett. p. 132 (1816).

This genus is allied to the preceding, and differs principally by the shorter and more robust body and dentated margins of the wings. With one exception, it is a purely Neotropical genus. I much doubt, however, *E. cinnamomea*, Herr.-Schäff., described from Australia, being really from that region.

1. **Enyo lugubris**.

*Sphinx lugubris*, Linn. Mant. p. 537; Drury, Ill. Ex. i. p. 61, t. 28. f. 2<sup>1</sup>; Abbot & Smith, Nat. Hist. Lep. Ins. Georg. i. p. 59, t. 30<sup>2</sup>.

*Enyo lugubris*, Hübn. Zutr. ff. 595, 596; Walk. Cat. viii. p. 113<sup>3</sup>.

*Sphinx camertus*, Cr. Pap. Ex. iii. t. 225. f. A<sup>4</sup>.

*Hab.* NORTH AMERICA<sup>2</sup>.—MEXICO, Mazatlan (*H. Edwards*), Cordova (*Rümeli*); GUATEMALA (*F. D. G. & O. S., mus. Oxf.*), Coban (*Champion*); HONDURAS<sup>3</sup>; NICARAGUA, Chontales (*Belt, mus. Oxf.*); PANAMA, Chiriqui (*Ribbé*).—ANTILLES<sup>1</sup>, Cuba (*mus. D.*), Haiti<sup>3</sup>; VENEZUELA<sup>3</sup>; COLOMBIA<sup>3</sup>; ECUADOR (*mus. D.*); GUIANA, Surinam<sup>4</sup>; AMAZONS, Santarem<sup>3</sup>; BRAZIL, Rio<sup>3</sup>.

This species seems to have an immense range, from Georgia to South Brazil. I cannot detect any good specific characters whereby to separate the large series of specimens before me. Mr. Butler considers it doubtful whether *E. camertus* is distinct from *E. lugubris*. I do not think there can be any doubt that they belong to but one species. Specimens in my collection from Cuba are very much smaller, but in other respects do not differ in any way from the type. The redder tint mentioned by Mr. Butler as peculiar to *E. camertus* occurs in specimens from many of the above localities. I do not think that any value can be attached to it.

## 2. *Enyo danum*.

*Sphinx danum*, Cr. Pap. Ex. iii. t. 225. f. B<sup>1</sup>.

*Thyreus danum*, Boisd. Léop. Guat. p. 67<sup>2</sup>.

*Enyo danum*, Butl. Trans. Z. S. ix. p. 541<sup>3</sup>.

*Hab.* GUATEMALA<sup>2</sup>; PANAMA, Chiriqui (*mus. Staudinger*).—ANTILLES, San Domingo<sup>3</sup>; ECUADOR (*mus. D.*); PERU<sup>3</sup>; BOLIVIA<sup>3</sup>; GUIANA, Surinam<sup>1</sup>.

This is a well-marked species, easily distinguished from its allies by the pale yellow patch on the abdominal margin of the secondaries.

## 3. *Enyo gorgon*.

*Sphinx gorgon*, Cr. Pap. Ex. t. 142. f. E<sup>1</sup>.

*Sphinx lyctus*, Cr. Pap. Ex. t. 225. f. F<sup>2</sup>.

*Thyreus lyctus*, Boisd. Léop. Guat. p. 68<sup>3</sup>.

*Enyo lyctus*, Walk. Cat. viii. p. 115<sup>4</sup>.

*Hab.* MEXICO (*mus. Oxf.*); BRITISH HONDURAS, river Sarstoon (*Blancaneaux*); NICARAGUA<sup>3</sup>; PANAMA, Chiriqui (*Arcé, mus. D.*).—ECUADOR (*mus. D.*); GUIANA, Surinam<sup>1 2</sup>; BRAZIL<sup>4</sup>.

## ALEURON.

*Aleuron*, Boisdual, Léop. Guat. p. 71 (1870).

Mr. Butler places three species in this genus.

## 1. *Aleuron chloroptera*.

*Sphinx chloroptera*, Perty, Del. Anim. Ar. Bras. t. 31. f. 3<sup>1</sup>.

*Enyo chloroptera*, Walk. Cat. viii. p. 118<sup>2</sup>.

*Aleuron chloroptera*, Boisd. Léop. Guat. p. 71<sup>3</sup>; Sp. Gén. des Léop. Hét. i. p. 206<sup>4</sup>.

*Hab.* GUATEMALA<sup>3</sup>; HONDURAS<sup>2</sup> (*mus. Brit.*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Ribbé*).—GUIANA, Cayenne<sup>4</sup>; BRAZIL<sup>1</sup>.

A wide-ranging southern species, of which I have as yet seen only three Central-American specimens.

## 2. *Aleuron iphis*.

*Enyo iphis*, Walk. Cat. viii. p. 116<sup>1</sup>.

*Tylognathus iphis*, Boisd. Sp. Gén. des Léop. Hét. p. 295<sup>2</sup>.

*Tylognathus scriptor*, Feld. Reise d. Nov. Zool. ii., Lep. Th. iv. t. 82. f. 4<sup>3</sup>.

*Hab.* PANAMA, Chiriqui (*Arcé, mus. D., Ribbé*).—GUIANA, Surinam<sup>2 3</sup>; AMAZONS<sup>3</sup>; BRAZIL<sup>1</sup>.

I have only seen two specimens of this species from Central America; and none has been as yet sent from any locality north of Panama.

## GONENYO.

*Goneny*, Butler, Trans. Z. S. ix. p. 543 (1877).

Mr. Butler states that this genus differs from *Enyo* in the form of the palpi, and also from *Callenyo* in the more highly developed palpi, the length of the abdomen, the undulation of the outer margin of primaries, &c. I must say that I find the differences between many of these genera of Sphingidæ so slight that I much doubt their value; and had I time to work out all the characters of the different genera, I feel sure some of them would have to be given up for want of definite characters.

1. *Goneny carinata*.

*Enyo carinata*, Walk. Cat. viii. p. 117<sup>1</sup>.

*Goneny carinata*, Butl. Trans. Z. S. ix. p. 543<sup>2</sup>.

*Hab.* PANAMA, Chiriqui (*mus. Staudinger*).—PARA<sup>1 2</sup>.

## HEMEROPLANES.

*Hemeroplanes*, Hübner, Verz. bek. Schmett. p. 133 (1816).

This genus is allied to *Enyo*, from which it differs as follows:—The wings are much broader, the body much larger and more robust, and the antennæ longer and more slender. It is a Neotropical genus, two of the four known species being found in Central America.

1. *Hemeroplanes triptolemus*.

*Sphinx triptolemus*, Cr. Pap. Ex. t. 216. f. F<sup>1</sup>.

*Calliomma triptolemus*, Walk. Cat. viii. p. 111<sup>2</sup>.

*Madoryx triptolemus*, Boisd. Sp. Gén. des Lép. Hét. i. p. 154<sup>3</sup>.

*Hab.* GUATEMALA, Coban (*Champion*); PANAMA, Colon (*Boucard, mus. D.*).—ECUADOR (*mus. D.*); GUIANA, Surinam<sup>1</sup>, Cayenne<sup>3</sup>; AMAZONS, Para<sup>2</sup>, Ega<sup>2</sup>; BRAZIL<sup>2</sup>.

This species seems to have a very extended range, though I have only seen two specimens from Central America; they do not appear to differ in any respect from the South-American form.

2. *Hemeroplanes oiclus*.

*Sphinx oiclus*, Cr. Pap. Ex. t. 216. f. C<sup>1</sup>; Merian, Ins. Surinam, t. 39<sup>2</sup>.

*Madoryx oiclus*, Boisd. Sp. Gén. des Lép. Hét. p. 151<sup>3</sup>.

*Hab.* BRITISH HONDURAS, Belize (*Blancaneaux*); GUATEMALA (*Boucard, mus. D.*).—GUIANA, Surinam<sup>1 2</sup>, Cayenne<sup>3</sup>.

I have only seen two specimens, both of which are in bad condition; but I have no doubt they are of this species.

## Subfam. CHÆROCAMPINÆ.

## CHÆROCAMPA.

*Chærocampa*, Duponchel, Hist. Lép. Fr. ii. Suppl. p. 159 (1835).

The species of this genus are widely distributed over the globe, Asia being the head quarters of the genus. Mr. Butler enumerates seventy-nine species in his paper on the Sphingidæ. I have described six from Central America, making eighty-five described species; some of these, however, are of very doubtful value.

1. *Chærocampa trilineata*.

*Chærocampa trilineata*, Walk. Cat. xxxi. Suppl. p. 30<sup>1</sup>.

*Hab.* NICARAGUA, Chontales (*Belt*).—VENEZUELA<sup>1</sup>; TRINIDAD (*mus. D.*).

I have only seen one specimen of this species from Central America, which agrees in all respects with the type. The Trinidad specimens are small and darker in colour, but do not differ in any other respect.

2. *Chærocampa libya*. (Tab. II. fig. 5.)

*Chærocampa libya*, Druce, Ent. Monthl. Mag. xiv. p. 249<sup>1</sup>.

*Hab.* NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui<sup>1</sup> (*Arcé, mus. D.*).

The specimen from Nicaragua differs from the type, the orange band of the posterior wing being slightly narrower and more clouded with black.

3. *Chærocampa lælia*. (Tab. II. fig. 4.)

*Chærocampa lælia*, Druce, Ent. Monthl. Mag. xiv. p. 249<sup>1</sup>.

*Hab.* MEXICO (*mus. Staudinger*); PANAMA, Chiriqui<sup>1</sup> (*Arcé, mus. D.*).

I have as yet only seen three specimens of this species. It is nearly allied to *C. libya*, but is smaller, the primaries much paler and narrower, the orange fascia of the secondaries much wider, the black margin being very narrow and not reaching the apex. It resembles *C. neoptolemus* (Cr.) from Surinam, but wants the well-defined red band of the secondaries.

4. *Chærocampa porcus*.

*Oreus porcus*, Hübn. Ex. Schmett. ii. t. 162.

*Darapsa porcus*, Walk. Cat. viii. p. 187.

*Hab.* PANAMA, Chiriqui (*mus. Staudinger*).—ECUADOR (*mus. D.*).

5. *Chærocampa salvini*. (Tab. I. fig. 2.)

*Chærocampa salvini*, Druce, Ent. Monthl. Mag. xiv. p. 249<sup>1</sup>.

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*Hab.* GUATEMALA <sup>1</sup>, Las Nubes (*Salvin, mus. D.*); NICARAGUA, Chontales (*Belt, mus. Oxf.*); PANAMA, Chiriqui (*mus. Staudinger*).

The specimen figured is the type from Guatemala. The only other examples known to me are in the Hope collection at Oxford and in that of Dr. Staudinger.

#### 6. *Chærocampa anubus*.

*Sphinx anubus*, Cr. Pap. Ex. t. 128. f. F<sup>1</sup>.

*Chærocampa anubus*, Butl. Trans. Z. S. ix. p. 562<sup>2</sup>; Boisd. Sp. Gén. des Lép. Hét. i. p. 266<sup>3</sup>.

*Hab.* NICARAGUA, Chontales (*Belt, mus. Oxf.*); PANAMA, Chiriqui (*mus. Staudinger*).—GUIANA, Surinam <sup>1</sup>, Cayenne <sup>3</sup>; BRAZIL <sup>2</sup>, Rio.

The only Central-American specimens of this species that I have seen are in the Hope collection at Oxford.

#### 7. *Chærocampa tersa*.

*Sphinx tersa*, Linn. Mant. p. 538<sup>1</sup>; Drury, Ill. i. p. 61, t. 28. f. 3<sup>2</sup>.

*Chærocampa tersa*, Walk. Cat. viii. p. 131<sup>3</sup>.

*Hab.* NORTH AMERICA <sup>3</sup>, Maryland <sup>2</sup>.—MEXICO <sup>3</sup>, Mazatlan (*H. Edwards*), Cordova (*Rümeli*); BRITISH HONDURAS, Belize (*Blancaneaux*); GUATEMALA, Dueñas (*F. D. G. & O. S., mus. Oxf.*), Coban (*Champion*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Arcé, mus. D.*).—ANTILLES, Jamaica <sup>2</sup>, San Domingo <sup>3</sup>, &c.; ECUADOR (*mus. D.*); TRINIDAD (*mus. D.*); PARAGUAY (*mus. D.*); BRAZIL <sup>3</sup>.

I have a large series of this wide-ranging species before me. In Guatemala it seems to be a scarce insect; I have only seen two specimens from that locality. Those from Paraguay are the smallest I have seen, but do not differ in any specific characters that would enable me to separate them.

#### 8. *Chærocampa crotonis*.

*Chærocampa crotonis*, Walk. Cat. viii. p. 133<sup>1</sup>; Boisd. Sp. Gén. des Lép. Hét. i. p. 170<sup>2</sup>.

*Hab.* NICARAGUA <sup>2</sup>; PANAMA, Chiriqui (*mus. Staudinger*).—VENEZUELA <sup>1</sup>.

#### 9. *Chærocampa aristor*. (Tab. I. fig. 7.)

*Chærocampa aristor*, Boisd. Lép. Guat. p. 69<sup>1</sup>; Sp. Gén. des Lép. Hét. i. p. 270<sup>2</sup>.

*Chærocampa aristor*, Butl. Trans. Z. S. ix. p. 563<sup>3</sup>.

*Hab.* GUATEMALA <sup>1</sup>.—COLOMBIA <sup>1 2</sup>; VENEZUELA <sup>3</sup>.

For the pleasure of figuring this species I am indebted to Mons. C. Oberthür's kindness in allowing me to have the type specimen from his collection for that purpose. I must, however, remark that its presence in Central America requires confirmation, as it rests solely on the authority of Boisdual, who included it in his paper on the

Lepidoptera of Guatemala, a work full of inaccuracies as regards the localities of the species mentioned.

10. **Chærocampa titana.** (Tab. I. fig. 6.)

*Chærocampa titana*, Druce, Ent. Monthl. Mag. xiv. p. 249<sup>1</sup>.

*Hab.* PANAMA, Chiriqui<sup>1</sup> (*Arcé, mus. D.*).

This species is allied to *C. aristor*. I have only seen a single specimen of it.

11. **Chærocampa belti.** (Tab. I. figg. 3, 4.)

*Chærocampa belti*, Druce, Ent. Month. Mag. xiv. p. 248<sup>1</sup>.

*Hab.* NICARAGUA, Chontales<sup>1</sup> (*Belt*).

A second specimen of this fine insect is in the Hope collection at Oxford, to which it was presented by the late Mr. Belt. The species is nearly allied to *C. virescens*, Butler.

12. **Chærocampa nitidula.**

*Chærocampa nitidula*, Clemens, Journ. Ac. Phil. 1859, p. 151<sup>1</sup>; Butl. Trans. Z. S. ix. p. 564<sup>2</sup>.

*Chærocampa lævis*, Grote & Robinson, Ann. Lyc. N. Y. viii. p. 356, t. 14. f. 1<sup>3</sup>.

*Hab.* MEXICO<sup>1</sup>, Mirador<sup>2</sup>; GUATEMALA, Las Mercedes (*Champion*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Ribbé*).—ECUADOR (*mus. D.*).

The specimens in my collection from Ecuador are small, but in other respects do not differ from the type. They are the only ones I have seen from South America.

13. **Chærocampa cyrene**, sp. n. (Tab. I. fig. 5.)

Primaries rich brown, a pale pinkish-brown band crossing the middle of the wing from the inner margin to the costal margin just above the apex, all the veins showing, and marked by small brown dots as in *C. nitidula*; secondaries dark brown, crossed by a broad pale brown fascia rather below the middle. Underside reddish brown, thickly speckled with dark brown. Head, thorax, and upper part of abdomen dark brown; underside and apex reddish brown. Exp. 4½ inches.

*Hab.* PANAMA, Chiriqui (*Arcé, mus. D.*).

I have only seen a single example of this species; it is quite unlike any with which I am acquainted, but nearest *C. nitidula*.

14. **Chærocampa versuta.**

*Chærocampa versuta*, Clemens, Journ. Ac. Phil. 1859, p. 152<sup>1</sup>.

*Hab.* MEXICO<sup>1</sup>.

I have never seen specimens of this species; and Mr. H. Edwards informs me that it is quite unknown to him.



### 15. *Chærocampa chiron*.

*Sphinx chiron*, Drury, Ill. i. t. 26. f. 3<sup>1</sup>.

*Chærocampa chiron*, Butl. Trans. Z. S. ix. p. 565<sup>2</sup>.

*Hab.* NICARAGUA, Chontales (*Belt, mus. Oxf.*); PANAMA, Chiriqui (*mus. Staudinger*).  
—BRAZIL<sup>2</sup>, Monte Video<sup>2</sup>.

This species seems to me to be only a red form of *C. nechus*. Mr. Butler informs me that he has received fresh specimens of both species in the same collection.

### 16. *Chærocampa nechus*.

*Sphinx nechus*, Cr. Pap. Ex. t. 178. f. B<sup>1</sup>.

*Chærocampa nechus*, Butl. Trans. Z. S. ix. p. 565<sup>2</sup>.

*Hab.* MEXICO<sup>2</sup> (*mus. D.*); PANAMA, Chiriqui (*Arcé, mus. D.*).—ECUADOR (*mus. D.*); PARAGUAY (*mus. D.*); EAST INDIES<sup>1</sup>.

Cramer's locality is without doubt erroneous.

### 17. *Chærocampa falco*. (Tab. I. fig. 8.)

*Chærocampa falco*, Walk. Cat. viii. p. 132<sup>1</sup>.

*Chærocampa fugax*, Boisd. Léop. Guat. p. 70<sup>2</sup>.

*Hab.* MEXICO<sup>1 2</sup> (*Hartweg*); HONDURAS<sup>2</sup>.

I have examined Boisdual's type; it differs slightly from Walker's, but not, in my opinion, in any way sufficient to justify its being considered a distinct species. The figure is taken from Boisdual's type.

### 18. *Chærocampa ceratomioides*.

*Chærocampa ceratomioides*, Grote & Robinson, Ann. Lyc. N. Y. viii. p. 358, t. 14. f. 2<sup>1</sup>; Butl. Trans. Z. S. ix. p. 565<sup>2</sup>.

*Hab.* MEXICO, Mirador<sup>1</sup>, Cordova (*Rümeli*); PANAMA, Chiriqui (*Arcé, mus. D.*).—VENEZUELA<sup>2</sup>; BRAZIL, Rio<sup>2</sup>; PARAGUAY (*mus. D.*).

A very wide-ranging species. The Central-American specimens are larger and darker in colour than those from the south.

## DEILEPHILA.

*Deilephila*, Ochsenheimer, Schmett. Eur. iv. p. 42 (1816).

This genus is very widely distributed, being found in the Nearctic, Neotropical, and and Palæarctic Regions. Twenty-two species are enumerated by Mr. Butler in his Catalogue, one only being found in Central America.

### 1. *Deilephila lineata*.

*Sphinx lineata*, Fab. Syst. Ent. p. 541<sup>1</sup>.

*Sphinx daucus*, Cr. Pap. Ex. ii. t. 125. f. D<sup>2</sup>.

*Deilephila lineata*, Butl. Trans. Z. S. ix. p. 568<sup>3</sup>.

*Hab.* NORTH AMERICA<sup>2</sup>.—MEXICO, Mazatlan (*H. Edwards*), Oaxaca<sup>3</sup> (*Hartweg, mus. B.*).  
—ANTILLES, Jamaica, Haiti, &c.; COLOMBIA; ECUADOR (*mus. D.*).

The only Central-American specimen with which I am acquainted is one in the British Museum.

### PHILAMPELUS.

*Philampelus*, Harris, Amer. Journ. Sc. xxxvi. p. 299 (1839).

Nineteen species are placed in this genus by Mr. Butler, several of them being of very doubtful value. I quite agree with him that *P. eacus* and *P. cissi* are only varieties of *P. pandorus* and *P. satellitia*. Sixteen species are found in the Neotropical, and three in the Ethiopian Region.

### 1. *Philampelus vitis*.

*Sphinx vitis*, Linn. Mus. Lud. Ulr. p. 354<sup>1</sup>.

*Eumorpha elegans Jussieuæ*, Hübn. Samml. ex. Schmett. i. t. 170. f. 1, 2<sup>2</sup>; ii. t. 163. f. 3, 4.

*Philampelus vitis*, Butl. Trans. Z. S. ix. p. 574<sup>3</sup>.

*Hab.* MEXICO<sup>3</sup> (*Boucard, mus. D.*); COSTA RICA, Irazu (*Rogers*); PANAMA, Chiriqui (*mus. Staudinger*).—ANTILLES, Jamaica<sup>3</sup>, San Domingo<sup>3</sup>; ECUADOR; PARAGUAY; ARGENTINE REPUBLIC (*mus. D.*).

This appears to be a wide-ranging common southern species; but as yet I have only seen four specimens from Central America, which do not differ in any respect from the large series of southern specimens before me.

### 2. *Philampelus linnei*.

*Philampelus linnei*, Grote & Robinson, Proc. Ent. Soc. Phil. v. pp. 157, 179, 182, t. 3. f. 3.

*Sphinx vitis*, Cr. Pap. Ex. iii. t. 268. f. E.

*Philampelus vitis*, Walk. Cat. viii. p. 176<sup>1</sup>.

*Hab.* MEXICO<sup>1</sup>, Cordova (*Rümel*); GUATEMALA, San Gerónimo (*Champion*); PANAMA, Chiriqui (*Ribbé*; *Arcé, mus. D.*), Colon (*Boucard, mus. D.*).—ANTILLES, San Domingo<sup>1</sup>, Cuba (*mus. D.*); COLOMBIA, Manaure (*mus. D.*); ECUADOR (*mus. D.*); TRINIDAD (*mus. D.*); GUIANA.

Walker in his Catalogue places this very distinct species with *P. vitis*<sup>1</sup>. The Cuban specimens are the smallest I have seen, but do not differ in any other respect. I have not seen an example from any locality south of Ecuador. *P. vitis* has a much more southern range.

### 3. *Philampelus typhon*.

*Sphinx typhon*, Klug, Neue Schmett. Mus. Berl. Heft i. t. 3. f. 1<sup>1</sup>.

*Philampelus typhon*, Walk. Cat. viii. p. 177<sup>2</sup>.

*Hab.* MEXICO<sup>1 2</sup>, Oaxaca (*Deppe, mus. Oxf.*).

Of this fine species I have only seen the specimen in the Hope collection at Oxford ; its nearest ally is *P. linnei*.

### 4. *Philampelus pandorus*.

*Daphnis pandorus*, Hübn. Samml. ex. Schmett. ii. t. 161. f. 3, 4.

*Philampelus pandorus*, Walk. Cat. viii. p. 174<sup>1</sup>.

*Hab.* NORTH AMERICA<sup>1</sup>.—MEXICO, Cordova (*Rümeli*); GUATEMALA, Coban (*Champion*); PANAMA, Chiriqui (*Ribbé*).—ANTILLES, Jamaica (*mus. D.*).

A very variable species, closely allied to *P. lycaon* (Cr.).

### 5. *Philampelus satellitia*.

*Sphinx satellitia*, Linn. Mant. i. p. 539<sup>1</sup>; Drury, Ill. i. t. 29. f. 1<sup>2</sup>.

*Philampelus satellitia*, Butl. Trans. Z. S. p. 576<sup>3</sup>.

*Hab.* BRITISH HONDURAS<sup>3</sup>; NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Ribbé, Arcé, mus. D.*).—ANTILLES, Jamaica<sup>3</sup>; COLOMBIA, Antioqua (*mus. D.*); ECUADOR (*mus. D.*).

This species is the largest of the genus ; its nearest ally is *P. lycaon*.

### 6. *Philampelus anchemolus*.

*Sphinx anchemolus*, Cr. Pap. Ex. t. 224. f. C<sup>1</sup>.

*Philampelus anchemolus*, Walk. Cat. viii. p. 178<sup>2</sup>; Butl. Trans. Z. S. ix. p. 577<sup>3</sup>.

*Hab.* MEXICO, Mazatlan (*H. Edwards*); PANAMA, Chiriqui (*mus. Staudinger*).—GUIANA, Surinam<sup>1 2</sup>; RIO JANEIRO<sup>3</sup>.

Very closely allied to *P. satellitia*.

### 7. *Philampelus labruscæ*.

*Sphinx labruscæ*, Linn. Mus. Lud. Ulr. p. 352; Clerck, Icones Ins. t. 47. f. 3.

*Philampelus labruscæ*, Walk. Cat. viii. p. 178<sup>1</sup>.

*Hab.* MEXICO<sup>1</sup> (*Boucard, mus. D.*).—ANTILLES, Jamaica<sup>1</sup>, San Domingo<sup>1</sup>; CUBA (*mus. D.*); COLOMBIA<sup>1</sup>; ECUADOR (*mus. D.*); VENEZUELA<sup>1</sup>; ARGENTINE REPUBLIC (*mus. D.*).

This species occurs in Mexico ; but as yet I have not seen a specimen from any other

part of Central America. In South America it is common, and ranges over a very wide tract of country.

### PACHYLIA.

*Pachylia*, Walker, Cat. viii. p. 189 (1856).

Six species have been described, all peculiar to Tropical America, three (as far as I know) being found in Central America.

#### 1. *Pachylia ficus*.

*Sphinx ficus*, Linn. Mus. Lud. Ulr., ex Clerck, Icones Ins. t. 49. f. 2<sup>1</sup>.

*Pachylia ficus*, Butl. Trans. Z. S. ix. p. 578<sup>2</sup>.

*Hab.* MEXICO<sup>2</sup>; BRITISH HONDURAS, Belize (*Blancaneaux*); GUATEMALA, Coban (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Irazu (*Rogers, van Patten, mus. D.*); PANAMA, Chiriqui (*mus. Staudinger*).—ANTILLES, San Domingo; ECUADOR (*mus. D.*); TRINIDAD (*Mus. D.*).

This insect varies to a considerable extent—some specimens having all the markings dark and well defined, whilst in others they are almost wanting; but I cannot detect any character of specific value by which to separate the large series of specimens before me.

#### 2. *Pachylia darceta*, sp. n. (Tab. II. fig. 4.)

Uniform dull brown, paler beneath; primaries with some slight undulating brown bands beyond the middle, two straight brown bands near the base, and a brown spot at the end of the cell; secondaries brown, rather paler at the base; abdomen, antennæ, and legs brown. Exp. 4 $\frac{3}{4}$  inches.

*Hab.* PANAMA, Chiriqui (*mus. Staudinger*).

This species resembles *Nephele æquivalens*, Walk., from West Africa.

#### 3. *Pachylia syces*.

*Enyo syces*, Hübn. Verz. bek. Schmett. p. 132.

*Sphinx ficus*, Cram. Pap. Ex. iv. t. 394. f. D.

*Pachylia syces*, Butl. Trans. Z. S. ix. p. 578.

*Pachylia inornata*, Clem. Journ. Ac. Phil. 1859, p. 159.

*Hab.* MEXICO, Cordova (*Rümeli*); BRITISH HONDURAS, Belize (*Blancaneaux*); PANAMA, Chiriqui (*Ribbé*).—ECUADOR (*mus. D.*); UPPER AMAZONS (*mus. D.*); PARAGUAY (*mus. D.*).

This species is easily distinguished from the former one by having the secondaries uniform dark brown.

#### 4. *Pachylia resumens*.

*Pachylia resumens*, Walk. Cat. viii. p. 190<sup>1</sup>; Herrich-Schäffer, Samml. auss. Schmett. ii. f. 556.

*Hab.* HONDURAS<sup>1</sup>; NICARAGUA, Chontales (*Belt, mus. Oxf.*); PANAMA, Chiriqui (*Ribbé; Arcé, mus. D.*).—ANTILLES, San Domingo<sup>1</sup>; ECUADOR (*mus. D.*); BRAZIL, Rio<sup>1</sup>.

This is the smallest species of the genus, and easily distinguished from the two preceding species by the primaries wanting the light spot at the apex.

### Subfam. *AMBULICINÆ*.

#### AMBULYX.

*Ambulyx*, Walker, Cat. viii. p. 120 (1856).

Twenty-three species are placed in this genus, five of which are described from Tropical America, three only as yet being found in Central America.

#### 1. *Ambulyx strigilis*.

*Sphinx strigilis*, Linn. Mant. i. p. 538; Cr. Pap. Ex. ii. t. 106. f. B<sup>1</sup>.

*Ambulyx strigilis*, Walk. Cat. viii. p. 121<sup>2</sup>.

*Hab.* PANAMA (*mus. Staudinger*).—ANTILLES, San Domingo<sup>2</sup> (*mus. D.*); BRAZIL, Rio Janeiro<sup>2</sup>.

#### 2. *Ambulyx gannascus*.

*Sphinx gannascus*, Stoll, Pap. Ex. t. 35. f. 3, 3B<sup>1</sup>.

*Ambulyx gannascus*, Butl. Trans. Z. S. ix. p. 581<sup>2</sup>.

*Hab.* GUATEMALA, San Isidro (*Champion*); NICARAGUA, Chontales (*Belt, mus. Oxf.*); PANAMA, Chiriqui (*Arcé, mus. D.*).—ANTILLES, Jamaica<sup>2</sup>.

The locality Cape of Good Hope given by Stoll<sup>1</sup> is, without doubt, a mistake. The specimens before me agree well with his figure. I have not seen an example from any locality south of Panama.

#### 3. *Ambulyx rostralis*.

*Ambulyx rostralis*, Boisd. Lép. Guat.<sup>1</sup> p. 68; Feld. Reise d. Nov. Zool. ii., Lep. Th. iv. t. 77. f. 6<sup>2</sup>; Butl. Trans. Z. S. ix. p. 581<sup>3</sup>.

*Hab.* NICARAGUA<sup>1</sup>.—COLOMBIA<sup>1</sup>; ECUADOR (*mus. D.*); AMAZONS<sup>2 3</sup>; BRAZIL<sup>3</sup>.

I have, through the kindness of Mons. C. Oberthür, examined the type of this species. The specimens from Ecuador agree with it in all respects. Boisdual's is the only authority for its occurrence in Central America.

#### 4. *Ambulyx sexoculata*.

*Ambulyx sexoculata*, Grote, Ann. Lyc. N. Y. viii. p. 204<sup>1</sup>.

*Hab.* GUATEMALA (*mus. Brit.*).—BRAZIL<sup>1</sup>.

This species is allied to *A. rostralis* and *A. gannascus*.

#### Subfam. SMERINTHINÆ.

##### SMERINTHUS.

*Smerinthus*, Latreille, Hist. Nat. Ins. iii. p. 431 (1802).

About six species are placed in this genus, two being found in Central America.

#### 1. *Smerinthus ophthalmicus*.

*Smerinthus ophthalmicus*, Boisd. Ann. Soc. Ent. Belge, xii. p. 67<sup>1</sup>; Strecker, Lep. Rhop. & Het. pt. 7, t. 7. ff. 4, 5<sup>2</sup>; Butl. Trans. Z. S. ix. p. 592<sup>3</sup>.

*Hab.* N. AMERICA, California<sup>2</sup>.—MEXICO<sup>1 3</sup> (*mus. Brit.*).

#### 2. *Smerinthus saliceti*. (Tab. I. fig. 9.)

*Smerinthus saliceti*, Boisd. Sp. Gen. des Lép. Hét. p. 35<sup>1</sup>.

*Hab.* MEXICO<sup>1</sup>.

I have only seen the type specimen of this species, kindly lent me by Mons. C. Oberthür to figure. It is nearly allied to *S. ophthalmicus*, but a much smaller species.

#### Subfam. SPHINGINÆ.

##### AMPHONYX.

*Amphonyx*, Poey, Cent. Lep. Cuba (1832).

This genus is closely allied to *Acherontia*, from which it mostly differs in having longer and narrower wings, more slender antennæ, and semitransparent hind wings.

#### 1. *Amphonyx duponcheli*.

*Amphonyx duponcheli*, Poey, Cent. Lep. Cuba<sup>1</sup>; Butl. Trans. Z. S. ix. p. 599<sup>2</sup>.

*Macrosilia antæus* (part.), Walk. Cat. viii. p. 200<sup>3</sup>.

*Hab.* PANAMA, Chiriqui (*Arcé, mus. D.*).—ANTILLES, Jamaica<sup>2 3</sup>, San Domingo<sup>2 3</sup>, Cuba<sup>1</sup> (*mus. D.*), Trinidad (*mus. D.*).

I have not seen specimens of this species from any locality north of Panama.

#### 2. *Amphonyx medor*.

*Sphinx medor*, Cr. Pap. Ex. iv. t. 394. f. A<sup>1</sup>.

*Amphonyx medor*, Butl. Trans. Z. S. ix. p. 599<sup>2</sup>.

*Hab.* MEXICO<sup>2</sup>, Jalapa (*Höge*), Valladolid, Yucatan (*Gaumer*).—ECUADOR (*mus. D.*); GUIANA, Surinam<sup>1</sup>.

Allied to the preceding species, but altogether darker in colour.

BIOL. CENT.-AMER., Heter., Vol. I., August 1881.

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### 3. *Amphonyx rivularis*.

*Amphonyx rivularis*, Butl. P. Z. S. 1875, p. 11<sup>1</sup>; Trans. Z. S. ix. p. 599, t. 94. f. 6.

*Hab.* NICARAGUA, Chontales (*Belt, mus. Oxf.*); PANAMA, Chiriqui (*Arcé, mus. D.*).—AMAZONS, Ega<sup>1</sup>.

This species is easily distinguished from all other members of the genus by the green shade of the primaries.

### 4. *Amphonyx cluentius*.

*Sphinx cluentius*, Cr. Pap. Ex. i. t. 78. f. B<sup>1</sup>.

*Hab.* PANAMA, Chiriqui (*mus. Staudinger*).—GUIANA, Surinam<sup>1</sup>; BRAZIL, Rio (*mus. D.*).

I include this species on Dr. Staudinger's authority.

## ANCERYX.

*Anceryx*, Walk. Cat. viii. p. 222 (1856).

This genus, as restricted by Mr. Butler, contains two closely-allied species, both belonging to the Neotropical Region. One only of these occurs within our limits.

### 1. *Anceryx alope*.

*Sphinx alope*, Drury, Ill. Nat. Hist. i. t. 27. f. 1<sup>1</sup>.

*Hab.* PANAMA, Chiriqui (*Ribbé*).—ANTILLES, Jamaica<sup>1</sup>; ECUADOR (*mus. D.*); S.E. BRAZIL (*mus. D.*).

I have only seen a single example of this species from Central America, taken near Chiriqui. It agrees in all respects with a large series of specimens from Ecuador.

## ISOGNATHUS.

*Isognathus*, Felder, Wien. ent. Mon. vi. p. 187 (1862).

Mr. Butler places nine species in this genus, all being found in South America, one only as yet having been recorded from Panama.

### 1. *Isognathus scyron*.

*Sphinx scyron*, Cr. Pap. Ex. iv. t. 301. f. B<sup>1</sup>.

*Hab.* PANAMA, Chiriqui (*mus. Staudinger*).—GUIANA, Surinam<sup>1</sup>.

I have not seen a Central-American specimen of this species, but include it on the authority of Dr. Staudinger.

## DILOPHONOTA.

*Dilophonota*, Burmeister, Abhandl. naturf. Gesellsch. Halle, p. 69 (1855).

Very close to the two preceding genera. It contains about eleven species, six of which occur within our region.



### 1. *Dilophonota ello*.

*Sphinx ello*, Linn. Mus. Lud. Ulr. p. 351; Drury, Ill. Nat. Hist. i. t. 27. f. 3.

*Anceryx ello*, Walk. Cat. viii. p. 224.

*Hab.* MEXICO, Mazatlan (*H. Edwards*), Cordova (*Rümeli*), Jalapa (*Höge*); GUATEMALA, Mirandilla, Coban (*Champion*); COSTA RICA, Irazu, Cache (*Rogers*); PANAMA, Chiriqui (*Arcé, mus. D.*).—ANTILLES, San Domingo &c., Trinidad (*mus. D.*); COLOMBIA (*mus. D.*); ECUADOR (*mus. D.*); ARGENTINE REPUBLIC (*mus. D.*).

This species ranges over a very wide tract of country. It does not vary to any extent, and is easily distinguished from the nearly allied species by its pale anterior wings.

### 2. *Dilophonota omphaleæ*.

*Anceryx omphaleæ*, Boisd. Lep. Guat. p. 72<sup>1</sup>.

*Dilophonota omphaleæ*, Butl. Trans. Z. S. ix. p. 603<sup>2</sup>.

*Hab.* MEXICO<sup>2</sup> (*Hartweg*); NICARAGUA<sup>1</sup>; PANAMA, Chiriqui (*Arcé, mus. D.*).—ANTILLES, San Domingo<sup>2</sup>.

This species is very close to *D. ænotrus*; in fact, I think it is hardly distinct. Boisduval does not mention it in his last work on the Sphingidæ.

### 3. *Dilophonota ænotrus*.

*Sphinx ænotrus*, Cr. Pap. Ex. iv. t. 301. f. C<sup>1</sup>.

*Dilophonota ænotrus*, Butl. Trans. Z. S. ix. p. 603<sup>2</sup>.

*Hab.* MEXICO (*Hartweg*<sup>1</sup>); PANAMA, Chiriqui (*mus. Staudinger*).—ANTILLES, San Domingo<sup>2</sup>, Trinidad (*mus. D.*); ECUADOR (*mus. D.*); ARGENTINE REPUBLIC (*mus. D.*).

### 4. *Dilophonota obscura*.

*Sphinx obscura*, Fabr. Syst. Ent. p. 538<sup>1</sup>.

*Anceryx obscura*, Walk. Cat. viii. p. 226<sup>2</sup>.

*Erinnyis sthenos*, Hübn. Samml. ex. Schmett. iii. t.<sup>3</sup>

*Hab.* MEXICO<sup>1</sup>, Mazatlan (*H. Edwards*); PANAMA, Chiriqui (*mus. Staudinger*).—ANTILLES, San Domingo<sup>2</sup>.

Mr. Butler states that the examples of this species from San Domingo are paler than those from Mexico.

### 5. *Dilophonota rhæbus*.

*Anceryx rhæbus*, Boisd. Lep. Guat. p. 72<sup>1</sup>.

*Dilophonota domingonis*, Butl. P. Z. S. 1875, p. 258<sup>2</sup>.

*Hab.* MEXICO<sup>1</sup>; BRITISH HONDURAS<sup>1</sup>.—ANTILLES, San Domingo; ECUADOR (*mus. D.*).

Mr. Butler placed Boisduval's species with *D. obscura*. Through the kindness of M. C. Oberthür, I have examined the type and find, without doubt, that *D. domingonis* is the same as *D. rhæbus*.

### 6. *Dilophonota caicus*.

*Sphinx caicus*, Cr. Pap. Ex. ii. t. 125. f. F<sup>1</sup>.

*Anceryx caicus*, Walk. Cat. viii. p. 228<sup>2</sup>.

*Hab.* HONDURAS<sup>2</sup>; PANAMA, Chiriqui (*Arcé, mus. D.*).—ANTILLES, San Domingo<sup>2</sup>; ECUADOR (*mus. D.*); GUIANA, Surinam<sup>2</sup>.

I have only seen a single specimen from Central America.

### MACROSILA.

*Macrosila*, Walker, Cat. viii. p. 198 (1856).

Mr. Butler restricts this genus to two species, one of which occurs in our district.

#### 1. *Macrosila incisa*.

*Macrosila incisa*, Walk. Cat. viii. p. 205<sup>1</sup>.

*Hab.* PANAMA, Chiriqui (*Arcé, mus. D.*).—BRAZIL, Rio<sup>1</sup>.

My example from Chiriqui is paler than the Brazilian specimens.

### PROTOPARCE.

*Protoparce*, Burmeister, Abhandl. naturf. Gesellsch. Halle, p. 63 (1855).

In this genus Mr. Butler places twenty-three species. It is closely allied to *Macrosila*, the chief difference being the much wider anterior wings.

#### 1. *Protoparce rustica*.

*Sphinx rustica*, Fabr. Syst. Ent. p. 540<sup>1</sup>; Cr. Pap. Ex. iv. t. 301. f. A<sup>2</sup>.

*Macrosila rustica*, Walk. Cat. viii. p. 199<sup>3</sup>.

*Sphinx chionanthi*, Smith & Abbot, Lep. Ins. Georg. i. t. 34<sup>4</sup>.

*Hab.* NORTH AMERICA<sup>4</sup>.—MEXICO<sup>3</sup>, Mazatlan (*Forrer*); BRITISH HONDURAS, Belize (*Blancaneaux*); GUATEMALA (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Arcé, mus. D.*).—ANTILLES, San Domingo<sup>3</sup>, Trinidad (*mus. D.*); ECUADOR (*mus. D.*); GUIANA, Surinam<sup>2</sup>, Brazil<sup>3</sup>.

The larva of *P. rustica* is described and well figured in Smith and Abbot's work on the insects of Georgia.

#### 2. *Protoparce ochus*.

*Sphinx ochus*, Klug, Neue Schm. Heft i. t. 3. f. 2<sup>1</sup>.

*Macrosila instita*, Clemens, Journ. Ac. Phil. 1859, p. 164<sup>2</sup>.

*Hab.* MEXICO<sup>1</sup>, Cordova (*Rümeli*), Jalapa (*Höge*); HONDURAS<sup>2</sup>; GUATEMALA, San Isidro (*Champion*); COSTA RICA, Irazu (*Rogers*).

This fine species is quite unlike any other. It is best placed with the *P. carolina* group. I have never seen a specimen from any locality south of Costa Rica.

### 3. *Protoparce carolina*.

*Sphinx carolina*, Linn. Mus. Lud. Ulr. p. 346<sup>1</sup>; Drury, Ill. Nat. Hist. i. t. 25. f. 1<sup>2</sup>; Abbot & Smith, Nat. Hist. Lep. Georg. t. xxxiii.<sup>3</sup>; Walk. Cat. viii. p. 216<sup>4</sup>.

*Hab.* NORTH AMERICA<sup>2 3</sup>.—MEXICO<sup>4</sup>, Mazatlan (*H. Edwards*), Cordova (*Rümel*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Arcé, mus. D.*).—ANTILLES, San Domingo<sup>4</sup>, Cuba (*mus. D.*), Trinidad (*mus. D.*); ECUADOR (*mus. D.*); S.E. BRAZIL<sup>4</sup> (*mus. D.*).

The larva and pupa of *P. carolina* are well figured by Abbot and Smith<sup>3</sup>.

### 4. *Protoparce jamaicensis*.

*Protoparce jamaicensis*, Butl. Trans. Z. S. ix. p. 608<sup>1</sup>.

*Hab.* MEXICO, Cordova (*Höge*); PANAMA, Chiriqui (*mus. Staudinger*).—ANTILLES, Jamaica<sup>1</sup> (*mus. D.*).

A well-marked form of *P. carolina*, being always larger, and the secondaries with a pale brown instead of whitish ground-colour.

### 5. *Protoparce paphus*.

*Sphinx paphus*, Cr. Pap. Ex. iii. t. 216. f. B<sup>1</sup>.

*Hab.* PANAMA (*mus. Staudinger*).—GUIANA, Surinam<sup>1</sup>.

I have never seen this species, but include it here on the authority of Dr. Staudinger.

### 6. *Protoparce lucetius*.

*Sphinx lucetius*, Cr. Pap. Ex. t. 301. f. B<sup>1</sup>; Walk. Cat. viii. p. 221<sup>2</sup>.

*Hab.* PANAMA, Chiriqui (*Arcé, mus. D.*).—GUIANA, Surinam<sup>1</sup>; BRAZIL<sup>2</sup>.

I have only seen a single specimen of this insect. It is closely allied to the preceding species, from which it differs in having the anterior wings very much darker in colour, more thickly marked with black lines, and the posterior wings much blacker.

### 7. *Protoparce cingulata*.

*Sphinx cingulata*, Fabr. Syst. Ent. p. 545<sup>1</sup>.

*Sphinx convolvuli*, Drury, Ill. Nat. Hist. t. 25. f. 4 (nec Linn.)<sup>2</sup>.

*Sphinx cingulata*, Walk. Cat. viii. p. 215<sup>3</sup>.

*Hab.* MEXICO<sup>3</sup>, Mazatlan (*H. Edwards*), Cordova (*Rümel*); GUATEMALA, Pantaleon (*Champion*); COSTA RICA, Irazu (*Rogers*); PANAMA, Chiriqui (*Arcé, mus. D.*).—ANTILLES, Jamaica<sup>3</sup>, San Domingo, &c., Trinidad (*mus. D.*); COLOMBIA (*mus. D.*); ECUADOR (*mus. D.*).

This is a widely ranging species and varies to some extent in the colour of the secondary wings. In some specimens these wings are almost pink, in others greyish, closely resembling those of *P. convolvuli*, Linn.

## PSEUDOSPHEX.

*Pseudosphinx*, Burmeister, Abhandl. naturf. Gesellsch. Halle, p. 65 (1855).

1. *Pseudosphinx tetrico*.

*Sphinx tetrico*, Linn. Mant. i. p. 538<sup>1</sup>.

*Sphinx hasdrubal*, Cr. Pap. Ex. t. 246. f. F<sup>2</sup>.

*Macrosila hasdrubal*, Walk. Cat. viii. p. 202<sup>3</sup>.

*Sphinx asdrubal*, Poey, Cent. Lep. Cuba<sup>4</sup>.

*Hab.* BRITISH HONDURAS<sup>3</sup>, Belize (*Blancaneaux*); COSTA RICA, Irazu (*Rogers*); PANAMA, Chiriqui (*mus. Staudinger*).—ANTILLES, San Domingo<sup>3</sup>, Cuba<sup>4</sup>; BRAZIL<sup>3</sup> (*mus. D.*).

This species varies much in the colour of the primaries. I have before me a specimen from Costa Rica very much darker than any others, and observe it agrees well with the form Mr. Butler has described as *P. obscura*; but, in default of other differences, I do not see any good specific characters whereby to separate it from the rest of my series.

## DOLBA.

*Dolba*, Walker, Cat. viii. p. 229 (1856).

In this genus three species are placed, one of them being found in our country.

1. *Dolba hartwegii*.

*Dolba hartwegii*, Butl. P. Z. S. 1875, p. 259<sup>1</sup>; Ill. Lep. Het. pt. i. p. 3, t. 15. f. 3<sup>2</sup>.

*Hab.* MEXICO, Oaxaca<sup>1 2</sup> (*Hartweg*), Maltrata (*Höge*).

This species is closely allied to *Dolba fo* from India.

## DILUDIA.

*Diludia*, Grote & Robinson, Proc. Ent. Soc. Phil. v. p. 188 (1865).

Twenty-one species are included in this genus by Mr. Butler, nine being found in the Neotropical Region, three of them occurring within our country; the others are widely distributed over the globe, seven occurring in the Oriental, four in the Australian, and one in the Ethiopian Region.

1. *Diludia sesquiple*.

*Sphinx sesquiple*, Boisd. Lep. Guat. p. 73<sup>1</sup>; Feld. Reise d. Nov. Lep. t. 78. f. 5.

*Hab.* GUATEMALA<sup>1</sup>.

I have never seen this species.

2. *Diludia corallina*, n. sp. (Tab. II. fig. 3.)

Primaries greyish brown, thickly marked with yellowish-green scales, several indistinct waved brown bands crossing the wing from the costal to the inner margin; secondaries dark brown, crossed in the middle by two greyish bands: abdomen greyish, tinged with yellow. Exp. 4 $\frac{3}{4}$  inches.

*Hab.* MEXICO, Cordova (*Rümeli*); GUATEMALA, San Isidro (*Champion*).

Allied to *D. rufescens*, Butl., but smaller and much greyer in colour.

### 3. *Diludia lichenea*.

*Macrosila lichenea*, Walk. Cat. viii. p. 204<sup>1</sup>.

*Diludia lichenea*, Butler, Trans. Z. S. ix. p. 614<sup>2</sup>.

*Hab.* MEXICO, Cordova (*Höge*).—BRAZIL<sup>1 2</sup>.

The Mexican example agrees well with the type in the British Museum.

## SPHINX.

*Sphinx*, Linnæus, Syst. Nat. i. 2, p. 796 (1766).

Seventeen species are included in this genus, which is widely distributed over the globe.

### 1. *Sphinx leucophæata*.

*Sphinx leucophæata*, Clemens, Journ. Ac. Phil. 1859, p. 168<sup>1</sup>; Butl. Trans. Z. S. ix. p. 618<sup>2</sup>.

*Hab.* MEXICO<sup>2</sup>, Oaxaca (*Hartweg*).

I have not seen Clemens's species; but, from the description, should judge it to be the same as *S. lugens*. This opinion is shared by Mr. H. Strecker, who says, in his 'Lepidoptera Rhopalocera and Heterocera,' that it is quite unknown to American entomologists.

### 2. *Sphinx lugens*.

*Sphinx lugens*, Walk. Cat. viii. p. 219<sup>1</sup>.

*Sphinx andromedæ*, Boisd. Lep. Guat. p. 74<sup>2</sup>.

*Hab.* MEXICO, near the city (*Höge*), Oaxaca<sup>1</sup> (*Hartweg*); BRITISH HONDURAS<sup>2</sup>.

Mr. Butler says of this insect—"Although coming from the same locality as the preceding, and very like it in its general characters, I believe this species to be quite distinct. It is altogether shorter, broader, and darker, and has the pale bars of secondaries much narrower and whiter." I think it very doubtful whether Clemens's species is distinct; the specimens of *S. lugens* I have examined in the Oxford Museum vary to some extent.

### 3. *Sphinx justiciæ*.

*Sphinx justiciæ*, Walk. Cat. viii. p. 220<sup>1</sup>.

*Sphinx merops*, Boisd. Lep. Guat. p. 73<sup>2</sup>.

• *Hab.* MEXICO<sup>2</sup>, Cordova (*Rümelin*); BRITISH HONDURAS<sup>2</sup>; COSTA RICA, Irazu (*Rogers*); PANAMA, Chiriqui (*Ribbé*; *Arcé, mus. D.*).—BRAZIL, Rio<sup>1</sup>.

This is a common species in Central America, but becomes scarce south of Panama. Through the kindness of Mons. C. Oberthür I have had an opportunity of examining Boisduval's type of *S. merops*, and find that it must without doubt be referred to *S. justiciæ*.

### 4. *Sphinx lanceolata*.

*Sphinx lanceolata*, Feld. Reise d. Nov. Lep. t. 78. f. 3<sup>1</sup>.

*Hab.* MEXICO<sup>1</sup>; GUATEMALA<sup>1</sup>.

I have never seen a specimen of this fine species.

## CERATOMIA.

*Ceratomia*, Harris, Sill. Journ. xxxvi. p. 293 (1839).

1. *Ceratomia amyntor*.

*Agrilus amyntor*, Hübn. Samml. ex. Schmett. iii. t.

*Ceratomia amyntor*, Butl. Trans. Z. S. ix. p. 621<sup>1</sup>.

*Hab.* NORTH AMERICA<sup>1</sup>.—MEXICO<sup>1</sup> (*mus. Brit.*).

## Fam. CASTNIIDÆ.

## CASTNIA\*.

*Castnia*, Fabricius, Syst. Glossat. sec. Illig. Mag. vi. p. 270 (1807).

Sixty-eight species are included in this genus, all being found in the Neotropical Region. Sixteen species occur in our country, two or three of these being of doubtful origin, their occurrence in Central America requiring confirmation.

Prof. Westwood gives very minute details of the structure of this genus in his paper, but does not seem to have found sufficient characters to warrant him in adopting the separate genera proposed by Boisduval for the several rather distinct-looking forms included in it.

1. *Castnia dædalus*.

*Papilio dædalus*, Cr. Pap. Ex. i. p. 1, t. i. f. A, B<sup>1</sup>.

*Castnia dædalus*, Westw. Trans. L. S. ser. 2, Zool. i. p. 167<sup>2</sup>.

*Papilio cyparissius*, Fabr. Gen. Ins. Mant. p. 257<sup>3</sup>.

*Hab.* PANAMA, Chiriqui (*Arcé, mus. D.*).—ECUADOR (*mus. D.*); GUIANA, Surinam<sup>1</sup>; UPPER AMAZONS (*mus. D.*).

Apparently a common species in Guiana and the Amazons valley; thence it spreads to the State of Panama, where, however, it would appear to be less abundant, a single specimen only having come under my notice. It appears to be unknown in South Brazil.

2. *Castnia veraguana*.

*Castnia veraguana*, Westw. Trans. L. S. ser. 2, Zool. i. p. 168, t. 30. f. 1<sup>1</sup>.

*Hab.* PANAMA, Veraguas<sup>1</sup> (*Arcé, mus. Oxf.*).

This very fine species is allied to *C. cacica*, from which it differs in several particulars pointed out by the describer. The only specimen with which I am acquainted is the type now in the Oxford Museum. This was sent some years ago to Messrs. Godman and Salvin from the State of Panama by their collector Arcé.

\* In the arrangement of this genus I have to a great extent followed that of Prof. Westwood in his paper on this genus (Trans. Linn. Soc. ser. 2, Zool. i. p. 155 et seqq.).



### 3. *Castnia cacica*.

*Castnia cacica*, H.-Schäffer, Aussereur. Schm. f. 143<sup>1</sup>; Westw. Trans. L. S. ser. 2, Zool. i. p. 169<sup>2</sup>.

*Castnia procera*, Boisd. Sp. Gén. des Lép.-Het. i. p. 503<sup>3</sup>; Westw. Trans. L. S. ser. 2, Zool. i. p. 169<sup>4</sup>.

*Hab.* GUATEMALA<sup>2,3</sup>, Polochic valley (*Salvin*<sup>2</sup>, *mus. Oxf.*), San Juan (*Champion*); NICARAGUA, Chontales (*Belt*<sup>2</sup>, *mus. Oxf.*); COSTA RICA (*Van Patten*, *mus. D.*); PANAMA, Chiriqui (*Ribbé*, *Arcé*, *mus. D.*); Bugaba, 800 to 1500 feet (*Champion*).—COLOMBIA<sup>1</sup>.

This species has a wide range in Central America, as will be seen above. In South America it is restricted to the valley of the Magdalena.

The specimens before me differ from H.-Schäffer's figure in wanting the white spot at the end of the discoidal cell of the primaries. Through the kindness of Mons. C. Oberthür, I have been enabled to examine the type of Boisduval's *C. procera*, and find that it does not differ in any respect from *C. cacica*, except in wanting the white discoidal spot; and I cannot but think that it is a mistake on the part of Herrich-Schäffer in inserting this spot, and believe his figure to have been taken from a rubbed specimen. I have now before me a considerable number of examples from widely different localities, and do not find the slightest trace of the spot referred to. In some specimens recently received from Bugaba, traces of three ill-defined marginal red spots are present on the primaries. The red band and the spots on the secondaries vary to some extent: in some specimens before me the band is narrow and the spots quite small and distinct; in others the former is much wider, and the spots almost joined together, forming a marginal band instead of a row of spots.

### 4. *Castnia icarus*.

*Papilio icarus*, Cram. Pap. Ex. i. t. 18. f. A, B<sup>1</sup>.

*Castnia icarus*, Dalman, Monogr. p. 10<sup>2</sup>; Boisd. Lep. Guat. p. 75<sup>3</sup>; Walk. Cat. i. p. 19<sup>4</sup>.

*Hab.* GUATEMALA<sup>3</sup>.—GUIANA, Surinam<sup>1</sup>; BRAZIL<sup>2,4</sup>, Maranhão.

The only authority for the statement that this species occurs in Central America appears to be Boisduval, and therefore requires confirmation, the species being a southern one.

### 5. *Castnia atymnius*.

*Castnia atymnius*, Dalman, Monogr. p. 12<sup>1</sup>; Walk. Cat. i. p. 17<sup>2</sup>; Boisduval, Sp. Gén. des Lép.-Het. i. p. 528<sup>3</sup>; Westw. Trans. L. S. ser. 2, Zool. i. p. 172<sup>4</sup>.

*Castnia spixii*, Perty, Del. An. Art. Bras. t. xxxi. f. 3<sup>5</sup>.

*Castnia salasia*, Boisduval, Sp. Gén. des Lép.-Het. i. p. 529.

*Hab.* MEXICO, Cordova (*Rümel*); GUATEMALA<sup>3</sup>, Cahabon, Panima, Senahu, and San Juan in Vera Paz (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*), Irazu (*Rogers*); PANAMA, Chiriqui (*Arcé*, *mus. D.*), Veraguas (*Boucard*, *mus. D.*), Colon (*Boucard*, *mus. D.*).—ECUADOR and S.E. BRAZIL<sup>1,2,4</sup> (*mus. D.*).

This species varies greatly, some specimens before me from Costa Rica being almost  
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without the white band on the primaries. But I cannot detect any difference of specific importance which would enable me to separate my large series of specimens. Prof. Westwood, in his paper on the genus *Castnia*<sup>4</sup>, divides the species into three forms; but I am unable to do so, having specimens that completely connect them all together. *Castnia salasia* of Boisduval agrees in all respects with this species. I have compared the type with a large number of specimens, and cannot detect the slightest difference.

#### 6. *Castnia futilis*. (Tab. IV. fig. 5.)

*Castnia futilis*, Walker, Cat. vii. p. 1581<sup>1</sup>.

*Hab.* NICARAGUA (*Delattre*); COSTA RICA (*Van Patten*), Irazu (*Rogers*); PANAMA, Chiriqui, Veraguas (*Arcé, mus. D.*), Bugaba, 800 to 1500 feet (*Champion*).

This species is very distinct from *Castnia atymnus*, though Prof. Westwood considers it the same in his memoir on this genus, stating that the type in the British Museum is only a rubbed and faded specimen of *C. atymnus*. Having before me a long series of specimens in the finest condition, I find that *C. futilis* differs in many respects from *C. atymnus*, and that it must be retained as a distinct species. A Costa-Rican example is figured.

#### 7. *Castnia licus*.

*Papilio licus*, Fabr. Ent. Syst. iii. t. 47<sup>1</sup>; Drury, Ins. i. t. 16. f. 1, 2<sup>2</sup>; Cramer, iii. t. 223. f. A, B<sup>3</sup>. *Castnia licus*, G. R. Gray, Trans. Ent. Soc. ii. p. 143; Walker, Cat. i. p. 18<sup>4</sup>, vii. p. 1582<sup>5</sup>; Westwood, Trans. Linn. Soc. ser. 2, Zool. i. p. 173<sup>6</sup>.

*Hab.* NICARAGUA, Chontales (*E. M. Janson, mus. D.*); COSTA RICA (*Van Patten, mus. D.*).—ECUADOR<sup>6</sup> (*mus. D.*); EAST PERU and BOLIVIA (*mus. D.*); GUIANA, Surinam<sup>2 3</sup>; TRINIDAD (*mus. D.*); AMAZONS, Para<sup>4 6</sup>, Santarem (*mus. D.*), Ega<sup>4 6</sup>; BRAZIL<sup>4 6</sup>.

This species seems to be a scarce insect in Central America. Van Patten only obtained a single example from Costa Rica, and some years later Janson sent one from Chontales in very poor condition. Both specimens agree well with the southern ones before me; but as yet they are the only examples I have seen from our country.

#### 8. *Castnia inca*.

*Castnia inca*, Herr-Schäff. Samml. aussereur. Schm. f. 488, 489<sup>1</sup>; Walk. Cat. i. p. 24<sup>2</sup>; Hopffer, Neue Schmett. Heft ii. t. 4. f. 2<sup>3</sup>; Westwood, Trans. Linn. Soc. ser. 2, Zool. i. p. 171. *Castnia clitarcha* ♂, Westwood, loc. cit. p. 176, t. 30. f. 1.

*Hab.* MEXICO<sup>1 2 3</sup>, Cordova (*Höge*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Senahu (*Champion*); HONDURAS<sup>2</sup>.—VENEZUELA<sup>2</sup>.

All the specimens I have seen agree well with Herrich-Schäffer's figures. The male of Westwood's *C. clitarcha* belongs to this species.

9. **Castnia clitarcha.** (Tab. III. fig. 7.)

*Castnia clitarcha*, Westw. Trans. Linn. Soc. ser. 2, Zool. i. p. 176, t. 30. f. 2.

*Hab.* PANAMA (*Salvin, mus. Oxf.*), Chiriqui (*Ribbe, mus. Staudinger*), Bugaba, 800 to 1500 feet (*Champion*).

The specimen figured by Prof. Westwood as the male of this species, I believe to be the male of *Castnia inca*. The true male of *C. clitarcha* now figured is a much larger insect, agreeing much more closely with the female. It has the outer margins of the secondaries black instead of orange, as in that species. *C. clitarcha* appears to have a very limited range in Central America; as yet I have only seen specimens from Chiriqui.

10. **Castnia chelone.**

*Castnia chelone*, Hopff. Neue Schmett. Heft ii. t. v. f. 1, 2<sup>1</sup>.

*Hab.* MEXICO<sup>1</sup>.

I have never seen specimens of this species; but it appears to be allied to *C. mygdon* from North Brazil.

11. **Castnia viryi.**

*Castnia viryi*, Boisd. Sp. Gén. des Lép.-Hét. i. p. 515, t. 2. f. 3<sup>1</sup>.

*Hab.* MEXICO<sup>1</sup>; PANAMA, Volcan de Chiriqui (*Trotsch, mus. Staudinger*).

I have seen several specimens of this species; it is clearly the northern form of *C. evalthe*, which does not occur in our country.

12. **Castnia diva.** (Tab. IV. fig. 3.)

*Castnia diva*, Butler, Lepid. Exot. t. 17. f. 1, 2<sup>1</sup>; Westw. Trans. Linn. Soc. ser. 2, Zool. i. p. 187<sup>2</sup>.

*Castnia tricolor*, Felder, Reise Nov. Zool. Bd. ii. Lep. t. lxxix. f. 3<sup>3</sup>; Boisdual, Sp. Gén. des Lép.-Hét. p. 531<sup>4</sup>.

*Hab.* GUATEMALA, Zapote (*Champion*); NICARAGUA, Chontales (*Belt and Janson, mus. D.*); PANAMA, Chiriqui (*Arcé, mus. D.*), Volcan de Chiriqui 2000 to 3000 feet (*Champion*).—COLOMBIA<sup>3</sup>.

This fine species is generally distributed throughout Central America. The specimens from the Volcan de Chiriqui differ from the type in several respects; the primaries are of a much darker colour, and almost without the metallic spots; the orange marginal band of the secondaries is almost wanting, being broken up into two or three spots close to the apex. Some specimens recently obtained by the British Museum from Colombia agree best with those from Chiriqui. I think it quite probable that the more southern form may prove to be a distinct species; but upon that point I do not at present feel certain, not having as yet a good series for comparison. I have figured a Chiriqui example, showing its difference from the more northern form, already figured in Mr. Butler's 'Lepidoptera Exotica.'

13. **Castnia zagræa.** (Tab. IV. figg. 1, 2.)

*Castnia zagræa*, Felder, Reise d. Novara, Zool. B. ii. t. 79. f. 2<sup>1</sup>; Westwood, Trans. Linn. Soc. ser. 2, Zool. i. p. 189<sup>2</sup>.

*Gazera zagræa*, Boisdual, Sp. Gén. des Lép.-Hét. p. 543.

*Hab.* CENTRAL AMERICA (*Salvin, mus. Felder*)<sup>1</sup>; PANAMA<sup>2</sup>, Chiriqui (*Ribbe, mus. Staudinger*); Bugaba 800 to 1500 feet, Boqueron 1000 feet (*Champion*).

This fine species resembles *Papilio ascolius*, Felder, in its general coloration. The specimens figured, I believe to be sexes; but only having two examples, I am unable to determine this point with absolute certainty. Dr. Staudinger's specimen is a female, and agrees well in all respects with Dr. Felder's figure.

14. **Castnia salvina.**

*Castniu salvina*, Westwood, Trans. Linn. Soc. ser. 2, Zool. i. p. 190, t. 32. f. 1<sup>1</sup>.

*Hab.* PANAMA, Veraguas (*Salvin, mus. Oxf.*<sup>1</sup>).

This species is very closely allied to *C. colombina*, Boisd., the only difference being the black margin of the secondaries. The only specimen known to me is the type in the Oxford Museum:

15. **Castnia linus.**

*Papilio linus*, Cram. Pap. Exot. iii. t. 257. f. A<sup>1</sup>.

*Castnia linus*, Walk. Cat. i. p. 32<sup>2</sup>.

*Castnia heliconioides*, Herr-Schäff. Samml. aussereur. Schm. t. 4. f. 15<sup>3</sup>; Westwood, Trans. Linn. Soc. ser. 2, Zool. i. p. 192<sup>4</sup>.

*Gazera linus*, Boisd. Sp. Gén. des Lép.-Hét. p. 544<sup>5</sup>.

*Hab.* GUATEMALA<sup>2</sup>.—COLOMBIA (*mus. D.*); ECUADOR (*mus. D.*); GUIANA, Surinam<sup>1</sup>; AMAZONS, Santarem (*mus. D.*); NORTH BRAZIL<sup>3 4</sup> (*mus. D.*).

My only authority for including *Castnia linus* in our fauna is the specimen in the British Museum, said to be from Guatemala. As it is a southern species, I feel doubtful if it should be admitted without further confirmation of its occurrence within our limits.

**Fam. ÆGERIIDÆ.**

This family has received very varied treatment of late years, having been shifted about from place to place by various authors, and has not as yet found, so far as I can see, any position better suited for it than immediately preceding the Zygænidæ, following after the Sphingidæ. To some extent I agree with Mr. Butler that in many respects the Ægeriidæ appear to be allied to the Pyralidæ, but in others they most certainly are not. The flight of these moths is very different, that of the former being very rapid, and in many of the species resembling that of the Sphingidæ. They generally fly in the hottest sunshine, whereas the Pyralidæ are almost exclusively evening and night fliers.

I do not consider the fact of the larvæ being internal feeders should be taken very much into account as regards the position of the perfect insect; otherwise I do not see any reason why we should not divide the whole of the Heterocera into two divisions, namely, those the larvæ of which are internal feeders, and those that are not. But in so doing we should be compelled to place together forms that are utterly distinct as perfect insects, and in no other way allied to each other; and I think that it is quite impossible to base a classification on the earlier stages of the Heterocera until we are acquainted with the larvæ of most of the exotic species of which at present we know next to nothing.

## SPHECIA.

*Sphacia*, Hübner, Verz. bek. Schmett. p. 127 (1816).

Six species are placed in this genus by Walker in his British Museum catalogue. They are very generally distributed over the globe, two species being found in the Palæarctic Region, three in the Oriental Region, and one in the Nearctic Region. A new species now described is the first recorded of this genus from the Neotropical Region.

1. *Sphacia championi*, sp. n. (Tab. V. figg. 4 ♂, 5 ♀.)

Male hyaline; primaries with the costal and inner margin black, the apex slightly shaded with golden yellow, a reddish-brown band at the end of the cell; secondaries hyaline, shaded with yellow, the fringe black, except on the inner margin, veins mostly black; palpi yellow beneath, reddish at the tips; antennæ reddish brown: thorax black, banded with brown and yellow; abdomen black with the segments banded with bright yellow; legs reddish yellow.

Female differs from the male in having the primaries almost all dark brown, excepting near the anal angle, where they are hyaline; in other respects the female agrees well with the male. Expanse of male  $1\frac{1}{4}$  inch; female  $1\frac{3}{5}$  inch.

*Hab.* GUATEMALA, near the city (*Champion*).

A male and female of this fine species were taken *in copulâ* by Mr. Champion on *Psidium guava*.

## ÆGERIA.

*Ægeria*, Fabricius, Illig. Mag. vi. p. 288 (1807).

This genus contains a large number of species which are very generally distributed. In Central America it is well represented by fourteen species.

1. *Ægeria tryphoniformis*. (Tab. V. fig. 3.)

*Ægeria tryphoniformis*, Walk. Cat. viii. p. 48<sup>1</sup>.

*Sesia tryphoniformis*, Boisd. Sp. Gén. des Lép.-Hét. i. p. 443<sup>2</sup>.

*Hab.* GUATEMALA, Panzos (*Champion*); PANAMA, Bugaba 800 to 1500 feet (*Champion*).—AMAZONS, Para, and Villa Nova<sup>1 2</sup>.

The specimens agree well with Walker's type. The figure is from a Guatemala example.

2. *Ægeria senta*, sp. n. (Tab. V. fig. 1.)

Primaries hyaline, the costal margin, discal mark, and outer margin black; secondaries hyaline, the fringe black: head, thorax, and abdomen black; antennæ black; palpi white beneath, black above; collar white; legs black, with tufts of blackish hair on the tibiæ. Expanse  $\frac{1}{2}$  inch.

*Hab.* GUATEMALA, Panzos (*Champion*).

A very small species, not nearly allied to any with which I am acquainted.

3. *Ægeria sellustiformis*, sp. n. (Tab. V. fig. 2.)

Primaries whitish hyaline, the costal margin and the apex black, the discal mark black; secondaries with the fringe only black: head, antennæ, and thorax blue-black; palpi white beneath, black above; legs black; tarsi banded with white. Expanse  $\frac{3}{4}$  inch.

*Hab.* PANAMA, Bugaba 800 to 1500 feet (*Champion*).

This species is allied to *Æ. producta*, but is a much larger insect.

4. *Ægeria ruficaudis*. (Tab. V. fig. 6.)

*Ægeria ruficaudis*, Walk. Cat. xxxi. p. 6<sup>1</sup>.

*Sesia ruficaudis*, Boisd. Sp. Gén. des Léop.-Hét. i. p. 451<sup>2</sup>.

*Hab.* PANAMA, San Feliz (*Champion*).—UPPER AMAZONS, Ega (*Bates*<sup>1 2</sup>).

The single specimen sent by Mr. Champion agrees well with Walker's type, but not with his description, as far as the wings are concerned.

5. *Ægeria deipyla*, sp. n. (Tab. V. fig. 8.)

Primaries hyaline, with a golden-yellow shade, the costal margin and the apex brown; discal band brown, edged with yellow, inner margin yellow; secondaries hyaline, the outer margin slightly banded with brown: head and thorax black, banded with yellow; palpi lemon-yellow; antennæ black above, beneath (excepting at the tips) reddish brown; abdomen black, with all the segments banded with yellow; the anal tuft black, tipped with white; beneath, the abdomen is bright yellow; legs pale yellow. Expanse  $\frac{3}{4}$  inch.

*Hab.* PANAMA, Bugaba, 800 to 1500 feet (*Champion*).

This species is not unlike *Æ. ichneumoniformis*, but differs in many respects.

6. *Ægeria producta*. (Tab. V. fig. 7.)

*Ægeria producta*, Walk. Cat. xxxi. p. 4<sup>1</sup>.

*Sesia producta*, Boisd. Sp. Gén. des Léop.-Hét. i. p. 449.

*Hab.* MEXICO<sup>1</sup>, Oaxaca (*Sallé*); PANAMA, Bugaba 800 to 1500 feet (*Champion*).

The type specimen is in poor condition. The species is allied to *Æ. rhyssæformis*, but still very distinct. The figure is taken from a Bugaba specimen.

7. *Ægeria læta*. (Tab. V. fig. 10.)

*Ægeria læta*, Walk. Cat. viii. p. 59.

*Sesia læta*, Boisd. Sp. Gén. des Léop.-Hét. i. p. 459.

*Hab.* GUATEMALA, San Gerónimo (*Champion*).

Walker's type is a very faded specimen, and without any locality; but it is without doubt the same as the Guatemala examples before me, one of which I have figured.

8. *Ægeria aurata*.

*Ægeria aurata*, H. Edwards, Papilio, i. p. 190.

*Hab.* PANAMA (*H. Edwards*).

Allied to *Æ. ceriiformis*, Led.

9. *Ægeria flava*.

*Ægeria flava*, H. Edwards, Papilio, i. p. 189.

*Hab.* PANAMA, Colon (*Mead*).

Size of *Æ. tipuliformis*.

10. *Ægeria guatemalena*, sp. n. (Tab. V. fig. 9.)

Hyaline: primaries slightly shaded with yellow near the base; the costal margin and apex brown; secondaries hyaline with the fringe brown in some lights; the wings are quite opalescent: head, palpi, and antennæ pale yellow beneath, above black; abdomen black, banded with yellow, the whole of the under surface pale yellow; legs yellow. Expanse  $1\frac{1}{10}$  inch.

*Hab.* GUATEMALA, San Gerónimo (*Champion*).

This species is allied to *Æ. cynipiformis* (Esp.), but is easily distinguished from that species by the opalescent colour of the wings, and the greater number of yellow bands on the abdomen.

11. *Ægeria tabogana*, sp. n. (Tab. V. fig. 16.)

Primaries dark brown, yellowish hyaline on the inner margin from the base to near the anal angle; secondaries hyaline, the outer margin slightly brown: head, thorax, and abdomen black, the back of thorax and the abdomen banded with yellow; antennæ black; palpi pale yellow; collar yellow; legs black above, yellowish white on the underside. Expanse  $\frac{3}{4}$  inch.

*Hab.* PANAMA, Taboga Island (*Champion*).

Mr. Champion only obtained a single specimen of this very distinct species.

12. *Ægeria ceres*, sp. n. (Tab. V. fig. 11.)

Primaries glossy black, greenish at the base, a small round hyaline spot beyond the cell near the anal angle; secondaries hyaline, the outer margin and fringe black: head, palpi, thorax, and abdomen black; anal tuft black; legs black, tarsi banded with yellow. Expanse  $\frac{3}{4}$  inch.

*Hab.* GUATEMALA, Totonicapan 8500 to 10,500 feet (*Champion*).

This species is very distinct. Only a single specimen has been sent.

13. *Ægeria proserpina*, sp. n. (Tab. V. fig. 13.)

Primaries glossy greenish black; secondaries dull black, the basal third hyaline: head, palpi, and antennæ black, the collar and underside of thorax reddish brown; upperside of thorax and all the legs black; abdomen wanting. Expanse  $\frac{3}{4}$  inch.

*Hab.* GUATEMALA, San Gerónimo (*Champion*).

A small species, very distinct from any with which I am acquainted. Only a single specimen was received.



14. ***Ægeria geliformis*.** (Tab. V. figg. 12 & 17, ♂ ♀.)

*Ægeria geliformis*, Walk. Cat. vii. p. 46<sup>1</sup>.

*Ægeria geliformis*, H. Edwards, Papilio, i. t. 4. f. 7, 7A, p. 208<sup>2</sup>.

*Sesia geliformis*, Boisd. Sp. Gén. des Lép.-Hét. i. p. 441<sup>3</sup>.

*Hab.* NORTH AMERICA, United States<sup>1 2 3</sup>.—MEXICO, Jalapa (*Höge*).

The type specimen of this species is in very bad condition, being much rubbed and worn, and the figure given by Mr. Edwards has far too much colour on the anterior wings. I have both sexes before me, and have figured them from fresh Mexican examples.

MELITTIA.

*Melittia*, Hübner, Verz. bek. Schmett. p. 128 (1816).

This genus is very generally distributed, its headquarters being Asia. The American species are rather smaller insects, and not nearly so thickly covered with scale-like hairs. In other respects they do not differ from their Asiatic allies.

About eighteen species of this genus are enumerated by Walker in his Catalogue, three only occurring in our country.

1. ***Melittia satyriniformis*.**

*Melittia satyriniformis*, Hübner, Samml. exot. Schmett. f. 453, 454, p. 17<sup>1</sup>; Boisd. Sp. Gén. des Lép.-Hét. i. p. 471<sup>2</sup>.

*Melittia pulchripes*, Walk. Cat. viii. p. 67<sup>3</sup>.

*Hab.* NORTH AMERICA<sup>2</sup>.—MEXICO, Valladolid in Yucatan (*Gaumer*); GUATEMALA, San Gerónimo (*Champion*).—VENEZUELA; LOWER AMAZONS<sup>3</sup>.

2. ***Melittia ceto*.**

*Melittia ceto*, Westw. Cab. Orient. Ent. 62, t. 30. f. 6<sup>1</sup>; Walk. Cat. viii. p. 66<sup>2</sup>.

*Hab.* NORTH AMERICA.—GUATEMALA, San Gerónimo (*Champion*); PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

This appears to be a rare insect. Mr. Champion has only sent two specimens.

3. ***Melittia butleri*, sp. n.** (Tab. V. fig. 15.)

Like *M. satyriniformis*, but with the primaries quite hyaline, the costal margin slightly black, the hair on the hind legs dusky brown, without red.

*Hab.* MEXICO, Oaxaca (*Sallé, mus. Brit.*).

A very distinct species.

TIRISTA.

*Tirista*, Walk. Cat. xxxi. p. 22 (1864).

This genus is allied to *Melittia* and to *Tarsa*. It only contains a single species.





Godman, Frederick Du Cane and Salvin, Osbert. 1879. "Insecta Lepidoptera Rhopalocera." *Biologia Centrali-Americana :zoology, botany and archaeology* 1, 1–32.

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