

LXII.—*List of the Neuroptera collected by Mr. E. E. Austen on the Amazons &c. during the recent Expedition of Messrs. Siemens Bros. Cable S.S. 'Faraday,' with Descriptions of several new Species of Odonata (Dragonflies).* By W. F. KIRBY, F.L.S., F.E.S., &c.

[Plates XII. & XIII.]

MR. AUSTEN informs me that the Dragonflies are among the most abundant and conspicuous insects on the Amazons. He obtained a fair number of species, seven of which I have ventured to describe as new in the present paper. I have also included in this paper two species captured by Mr. Austen in St. Vincent, Cape Verd Is., and have taken the opportunity of describing two more Amazonian species previously in the collection of the British Museum, which Mr. Austen did not meet with, though they seem to be not uncommon in localities which he visited. Probably different species are found at different times of year. The St. Vincent species, and the Amazonian species here described, though not obtained by Mr. Austen, are distinguished by being placed in brackets, which was thought better than noticing them separately or placing them in footnotes.

Nearly all the Dragonflies obtained were Libellulinae, though one or two representatives of other families were brought home.

Among the few captures of other groups of Neuroptera were one or two interesting species of Ephemerae.

*Table of Captures.*

	St. Vincent.	Amazons.	New.
ODONATA.			
Libellulidæ:			
Libellulinae .....	2	34	6
Æschnidæ:			
Gomphinae .....	....	2 (P)	1
Æschmianæ .....	....	5	
Agriionidæ:			
Cœnagriioninæ—			
Pseudostigmatina..	....	1	
Normostigmatina..	....	4	
<hr/>			
Other families of Neuroptera.			
Ephemeraidæ.....	....	2	
Termitidæ.....	....	1	
Osmylidæ .....	....	1	

One or two species taken on board the S.S. 'Faraday' are marked (*F.*) after the locality.

## Order NEUROPTERA.

### Suborder O D O N A T A (DRAGONFLIES).

#### Libellulidæ.

##### *LIBELLULINÆ.*

#### Genus THOLYMIS, Hagen.

##### *Tholymis citrina.*

*Tholymis citrina*, Hagen, Stett. ent. Zeit. xxviii. p. 218 (1867).

Below Breves, Island of Marajo (*F.*), Jan. 12, 1896.

A single dark-coloured (adult) male specimen.

Hagen described this species from Cuba. The specimens previously in the British Museum collection were all received from the Lower Amazon district (Pará, Santarem, Tapajos), but none of them are so highly coloured as the specimen from Breves.

#### [Genus PANTALA, Hagen.

##### *Pantala flavescens.*

*Libellula flavescens*, Fabricius, Ent. Syst. Suppl. p. 285 (1798).

Porto Grande, St. Vincent, Cape Verd Is., Dec. 26, 1895.

One specimen of this almost cosmopolitan species. There are specimens in the British Museum from Pará and Santarem, though Messrs. Austen and Cambridge do not appear to have met with it on the Amazons.]

#### Genus TRAMEA, Hagen.

##### *Tramea abdominalis.*

*Libellula abdominalis*, Rambur, Ins. Névr. p. 37 (1842).

Santarem, Jan. 30, 1896.

Two specimens.

There are also specimens in the British Museum from Pará, "Brazil" (Rio?), Jamaica, Santa Lucia, and Grenada.

##### *Tramea basalis.*

*Libellula basalis*, Burm. Handb. Ent. ii. p. 852. n. 25 (1839).

Santarem, Jan. 28; Manaos, Feb. 2; Mosqueiro, March 6, 1896.

Four specimens obtained.

Previously in the British Museum from Pará and Fernando Noronha.

*Tramea brasiliiana.*

*Tramea brasiliiana*, Brauer, Verh. zool.-bot. Ges. Wien, xvii. p. 812 (1867).

Obydos, Feb. 2, 1896.

One specimen.

The specimens previously in the British Museum are from "Brazil" (Rio?) and Pará.

Genus TAURIPHILA, Kirb.

*Tauriphila iphigenia.*

*Tramea iphigenia*, Hagen, Stett. ent. Zeit. xxviii. p. 230 (1867), xxx. p. 262 (1869).

Obydos (F.), Feb. 2, 1896.

Previously in the Museum from Pará and the Tapajos.

*Tauriphila nycteris.*

*Tauriphila nycteris*, Karsch, Berl. ent. Zeitschr. xxxiii. p. 351 (1890).

A fine male from Obydos, Feb. 2, 1896.

The legs in both sexes are rufo-testaceous, and the abdomen is without black spots towards the extremity. In the male the ferruginous space on the hind wings resembles that of *Tramea basalis*; in a female from Brazil (Rio?) it is narrower. Karsch describes a female from Bahia. The male has 15 antecubital cross-nervules on the fore wings, the female only 13.

Genus MIATHYRIA, Kirb.

*Miathyria marcella.*

*Libellula marcella*, De Selys, Ramon de la Sagra, Hist. Cuba, Ins. p. 452 (1857).

Santarem, Jan. 27-31; Obydos, Feb. 2; Manaos, Feb. 14, 1896.

Appears to be a very common species on the Lower Amazons, especially at Santarem (E. E. A.). Mr. Austen did not meet with *M. pusilla*, Kirb., which I am now inclined to think is synonymous with *M. simplex*, Ramb.

[*Miathyria flavescens*, sp. n. (Pl. XIII. fig. 2.)

Long. corp. 31-34 millim.; exp. al. 50-56 millim.; long. pter. 1.50 millim.

Eyes connected by a moderately long suture. Head testaceous, sometimes greenish above, frontal tubercle and upper part of clypeus metallic blue; mandibles blackish; occipital triangle cupreous. Thorax black, with a broad green band on each side, obsolete in front; pleura green, separated into spots and bands by broad black stripes on the sutures. Abdomen black, with two orange stripes, interrupted by the carinæ and incisions on each side, the upper ones narrow, the lower ones broad (these are frequently nearly obliterated in the males). Legs rufo-testaceous towards the base and blackish at the extremity, clothed with long slender hairs; the hind femora furnished with short blunt tubercles beneath, and the middle femora with short sharp serrations. Anal appendages as long as the last segment, much arched, slightly thickened and hairy towards the extremity; middle appendage very broad and flattened towards the base and pointed at the extremity, as long as the lateral ones. Abdomen slenderest in the middle, somewhat thickened towards the extremity.

Wings hyaline, tinged with greenish yellow; fore wings with 10-11 antenodal cross-nervules (the last not continuous) and 5-6 postnodals; pterostigma dark brown, equally long on the fore and hind wings; sectors of the arculus distinctly stalked; triangle free, followed by two rows of cells, only increasing towards the hind margin; one subtriangular space, sometimes divided by a vertical nervule on one side; nervures fuscous, membranule small, whitish. Claws bifid.

The female varies somewhat in the colour of the wings, which are more deeply tinged with sulphur-yellow than in the male, especially towards the anal angle of the hind wings, whereas the tips of the wings are of a more smoky colour, the centre of the wings being sometimes clear hyaline. The appendages on the four hind legs have more of the appearance of short stiff bristles than in the male.

*Hab.* Santarem (Bates).

Described from three males and three females.

I take the opportunity of describing this very distinct species in the present paper, though it was not among Mr. Austen's captures.]

## Genus DIASTATOPS, Rambur.

### *Diastatops dimidiata*.

*Libellula dimidiata*, Linn. Syst. Nat. (ed. x.) i. p. 545. n. 14 (1758).

Pará, Jan. 10 (*E. E. A.*); W. end of Paraná de Buyassu, Jan. 17, 1896 (*H. W. Marsh*).

Previously in the Museum from Pará.

*Ann. & Mag. N. Hist.* Ser. 6. Vol. xix.

*Diastatops obscura.*

*Libellula obscura*, Fabr. Syst. Ent. p. 422. n. 10 (1775).

West end of Paraná de Buyassu, Jan. 15; Manaos, Feb. 11.

"The patch at the base of the hind wing and the abdomen (except tip) brilliant scarlet when alive" (*E. E. A.*). Both this and the following, which Mr. Austen always found together and thinks are the same species \*, are very abundant.

*Diastatops pullata.*

*Libellula pullata*, Burm. Handb. Ent. ii. p. 854. n. 34 (1839).

West end of Paraná de Buyassu, Jan. 15 and 18; Manaos, Feb. 11, 1896.

## Genus ZENITHOPTERA, de Selys.

*Zenithoptera fasciata.*

*Libellula fasciata*, Linn. Syst. Nat. i. p. 545. n. 12 (1758).

Pará, Jan. 4; Obydos, Feb. 2; Mosqueiro, Rio de Pará, March 7, 1896.

*Zenithoptera americana.*

*Libellula americana*, Linnæus, Syst. Nat. (ed. x.) i. p. 545. n. 16 (1758).

Manaos, Feb. 11; Gurupá, Feb. 22, 1896.

"This species settles on the tips of dead twigs, from 5 to 10 feet from the ground, droops its wings downwards and forwards, and thus looks exactly like a tuft of dead leaves. The insects will remain motionless in this way for several minutes." (*Note by E. E. A.*, Feb. 22, 1896.)

## Genus PERITHEMIS, Hagen.

*Perithemis lais.*

*Perithemis lais*, Perty, Del. Anim. Art. p. 125, pl. xxv. fig. 2 (1834).

Pará, Jan. 7, 1896.

One specimen only in Mr. Austen's collection.

"Fairly common, but very difficult to catch; fond of settling on grass-blades projecting from pools" (*E. E. A.*).

*Perithemis Austeni*, sp. n.

(Pl. XII. fig. 4 ♂, fig. 5 ♀.)

Long. corp. 24 millim.; exp. al. 38 millim.; long. pter. 2.2-3 millim.

\* This is also Mr. M'Lachlan's opinion.

Closely allied to *P. bella*, Kirb., but slightly larger. The male is tinged with deep orange-yellow, with only the apical area of the fore wings subhyaline; the pterostigma (which is longer on the hind wings than on the fore wings) is red, bordered below with a black line; the triangle of the fore wings is sometimes traversed and sometimes open, and is followed by 2 or 3 cells, and there are 3 cells in the subtriangular space.

In the female the wings are hyaline, the anterior wings with the nodus marked with black and followed by a slight yellow suffusion, and the lower subcostal space slightly and brokenly tinged with yellow; the hind wings are hyaline, with a yellow suffusion, with no brown shade in the middle, extending from a little beyond the triangle nearly to the pterostigma or the costa, and to the level of its middle on the inner margin. The triangle on the fore wings is open, and the subtriangular space consists of one cell only.

In most other characters this insect agrees with *P. bella*; but the series of *P. bella* from Santarem and the five specimens of *P. Austeni* from Manaos appear to exhibit fairly constant characters.

Manaos, Feb. 10 and 11, 1896.

### Genus TRITHEMIS, Brauer.

#### *Trithemis pulla*.

*Libellula pulla*, Burm. Handb. Ent. ii. p. 855. n. 41 (1839).

*Trithemis pulla*, Kirb. Ann. & Mag. Nat. Hist. (6) xiv. p. 263 (1894).

Pará, Jan. 10; Breves, Jan. 13; Gurupá, Jan. 23; Santarem, Jan. 30; Obydos, Feb. 2; Mosqueiro, March 7, 1896.

One of the commonest of the Amazonian Dragonflies.

#### *Trithemis Erichsoni*.

*Trithemis Erichsoni*, Kirb. Ann. & Mag. Nat. Hist. (6) xiv. p. 263 (1894).

*Libellula unimaculata*, Erichs. Schomb. Brit. Guiana, iii. p. 584 (1848).

Breves, Lower Amazons, Jan. 13; W. end of Paraná de Buyassu, Jan. 18 and 19; Gurupá, Lower Amazons, Jan. 23 and Feb. 22; Manaos, Feb. 2; Mosqueiro, Rio de Pará, March 10.

Many specimens.

#### *Trithemis umbrata*.

*Libellula umbrata*, Linn. Syst. Nat. (ed. x.) i. p. 545. n. 13 (1758).

Gurupá, Jan. 23; Santarem, Jan. 30; Obydos, Feb. 2;

Macapá, Feb. 25; Chaves, Feb. 27; Breves, March 1; Mosqueiro, Rio de Pará, March 6, 1896.

Several specimens of this common and rather variable species.

[Genus CROCOTHEMIS, Brauer.

*Crocothemis erythræa*.

*Libellula erythræa*, Brullé, Expéd. de Morée, iii. (1) p. 102, pl. xxxii. fig. 4 (1862).

Porto Grande, St. Vincent, Cape Verd Is., Dec. 26, 1895.

Three fine males and one female. A well-known South-European species.]

Genus ORTHEMIS, Hagen.

*Orthemis ferruginea*.

*Libellula ferruginea*, Fabricius, Syst. Ent. p. 423. n. 19 (1775).

Breves, Jan. 13; W. end of Paraná de Buyassu, Jan. 16; Obydos, Feb. 2; Manaos, Feb. 11.

The specimen (male) from Breves bears a label—"Colour of living insect: thorax plum-purple, abdomen deep scarlet. Only found over swampy ground; common, but very wary and difficult to catch.—E. E. A."

A common species throughout the warmer parts of America.

Genus ANATYA, Kirb.

*Anatya guttata*.

*Libellula guttata*, Erichs. Schomb. Brit. Guiana, iii. p. 584 (1848).

*Anatya anomala*, Kirb. Trans. Zool. Soc. Lond. xii. p. 338, pl. liii. fig. 9, pl. lvii. fig. 7 (1889).

W. end of Paraná de Buyassu, Jan. 19, 1896; Gurupá, Feb. 22, 1896.

A damaged pair, taken *in coitô*, from the first locality; one specimen from the latter.

Genus URACIS, Ramb.

*Uracis imbuta*.

*Libellula imbuta*, Burm. Handb. Ent. ii. p. 850. n. 9 (1839).

Two miles below Pará (the commonest species), Jan. 7; Breves, Jan. 13, 1896.

The male of this species is pulverulent blue, with the head black and only the lower mouth-parts testaceous, but the occipital triangle is smooth and red. The wings are tipped

with brown nearly to the base of the pterostigma. The female is dark blackish brown, with only the thorax slightly mottled with testaceous; the head is almost wholly testaceous. The neururation varies considerably, but the triangles of all the wings are always traversed; the number of cross-nervules in the lower basal cell varies and also the presence or absence of supratrangular nervules. In the specimens from Breves the brown tip of the fore wings is narrower than in those from Pará; there are four males and one female from Pará and a pair (♂ ♀) from Breves.

This species is intermediate between *U. quadra*, Ramb., and *U. fastigiata*, Burm., in the width of the dark tips to the wings, but differs from both by its uniform unspotted colour. The British Museum possesses a series of specimens from Trinidad which I refer provisionally to *U. quadra*. The abdomen is spotted in both sexes, the apex of the wing is but slightly browned, there are no supra-triangular nervules, but there are two nervules in the lower basal cell on the fore wings and three on the hind wings, and the triangle of the hind wings, which is traversed, corresponds with the arculus, whereas it is generally rather shorter in *U. imbuta*.

There seem to be several very closely allied species of *Uracis*, or else a number of imperfectly segregated varieties. There are several specimens in the Museum which I can neither include in the described species, nor separate on characters tangible enough to admit of the insects being described as distinct without a larger amount of material.

It should be noted that Rambur's figure of *U. quadra*, though unsatisfactory and inaccurate, represents the triangle of the hind wings as followed by three rows of cells, increasing. No specimen of *Uracis* before me has more than two.

*Uracis Siemensi*, sp. n. (Pl. XII. fig. 3.)

Long. corp. 32 millim.; exp. al. 55 millim.; long. pter. 3 millim.

*Male*.—Pulverulent blue; head and face greenish yellow, occiput black above, vertex blue-black to before the ocelli; mandibles and sutures of the mentum black. Upper anal appendages as long as the eighth segment, pointed and rather sharply curved upwards; lower appendage about two thirds as long as the others, and truncated at the extremity.

Wings rather narrow, yellowish hyaline; pterostigma blackish, rather thick, covering nearly three cells. Fore wings with 12–13 antenodal cross-nervules (the last not con-



tinuous) and 9–10 postnodal cross-nervules (9 on the right side, 10 on the left), the first not continuous. Fore wings with the triangles rather small, very oblique, traversed, and extending considerably beyond those of the hind wings; subtriangular space composed of three cells; triangle followed by one row of three cells, and then by several rows of two cells, increasing beyond the middle; no supra-triangular nervules; lower basal cell with 2–3 cross-nervules. Hind wings with the triangle small, open, not extending to the arculus, and followed by a single row of cells, increasing; no supra-triangular nervules; 4 cross-nervules in the lower basal cell.

*Female*.—Like the male, but testaceous, the thorax and pleura lined with black, and transversely with ripple-like brown markings from the central carina of the thorax to below the uppermost black line on the pleura; about the middle of the pleura are two black spots. Abdomen with all the carinae black and with black blotches on the sides towards the extremity of segment 4 and those following it; the hinder segments have the dark space increasing till it covers a large part of the segments above as well as at the sides.

Wings clearer hyaline and the pterostigma brown; otherwise as in the male.

Gurupá, Jan. 23 and Feb. 22, 1896.

Two males; a female from Pará was previously in the collection.

Allied to *U. infumata*, Rambur, but in the latter species the wings are banded with purplish brown, and the anal appendages are yellow.

### Genus MACROTHEMIS, Hagen.

#### *Macrothemis celeno* (?).

*Libellula celeno*, De Selys, Sagra, Hist. Cuba, Ins. p. 454 (1857).

Pará, Jan. 5; W. end of Paraná de Buyassu, Jan. 13, 1896.

Four males and one female. They agree fairly well with the published descriptions of *M. celeno*; but, in the absence of specimens from Cuba, I cannot feel absolutely certain of the correctness of the identification.

### Genus RHODOPYGIA, Kirb.

#### *Rhodopygia cardinalis*.

*Libellula cardinalis*, Erichs., Schomb. Brit. Guiana, iii. p. 583 (1848).

Gurupá, Jan. 23, 1896.

"Thorax and abdomen of same colour, a brilliant scarlet"  
(*E. E. A.*).

One specimen only.

Previously in the Museum from Pará.

Genus NEOCYSTA, Kirb.

*Neocysta attenuata.*

*Libellula attenuata*, Erichs., Schomb. Brit. Guiana, iii. p. 583 (1848).

Pará, Jan. 3 and 5; W. end of Paran  de Buyassu,  
Jan. 15 and 16, 1896.

Both sexes obtained; the female differs little from the  
male, except that the thorax is dull green instead of red.

Genus CANNACRIA, Kirb.

*Cannacria Batesii.*

*Cannacria Batesii*, Kirb. Trans. Zool. Soc. Lond. xii. p. 341, pl. liii.  
fig. 1, pl. lvii. fig. 9 (1889).

Manaos, Feb. 14, 1896.

One specimen (*E. E. A.*).

Genus LEPTHEMIS, Hagen.

*Lepthemis vesiculosa.*

*Libellula vesiculosa*, Fabr. Syst. Ent. p. 421. n. 7 (1775).

Santarem, Jan. 23-31; Itacoatiara, Feb. 7; Manaos,  
Feb. 10; Mosqueiro, Rio de Par , March 8-10, 1896.

Several specimens. A widely distributed species through-  
out the warmer parts of America.

*Lepthemis h matogastra.*

*Libellula h matogastra*, Burmeister, Handb. Ent. ii. p. 857. n. 55 (1839).

Obydos, Feb. 2; Manaos, Feb. 14; Macap , Feb. 25;  
Mosqueiro, March 7, 1896.

Previously in the Museum from Par  and Santarem.

Genus MESOTHEMIS, Hagen.

*Mesothemis attala.*

*Libellula attala*, De Selys, Sagra, Hist. Cuba, Ins. p. 445 (1857).

Obydos, Feb. 2; Parintins, Feb. 4; Itacoatiara, Feb. 7;  
Manaos, Feb. 14, 1896.

One specimen from each locality. The specimen from Parintins bears a note:—"In the forest, a considerable distance from the river."

### Genus ERYTHEMIS, Hagen.

#### *Erythemis peruviana.*

*Libellula peruviana*, Ramb. Ins. Névr. p. 81 (1842).

W. end of Paraná de Buyassu, Jan. 15 and 16; Santarem, Jan. 27 and 31; Manaos, Feb. 10; Macapá, Feb. 25.

All the males taken at the first locality were immature, resembling the female in coloration. Several fully-coloured males, however, were taken at Santarem, some of which are marked "Opposite shore to the town."

### Genus MICRATHYRIA, Kirb.

#### *Microthyria Cambridgei*, sp. n. (Pl. XIII. fig. 4.)

Long. corp. 34 millim.; exp. al. 62 millim.; long. pter. 3 millim.

*Male*.—Head: face buff, vertex chalybeous blue, mandibles and suture of mentum black; occiput ferruginous, spotted and streaked above and on the sides with yellow. Prothorax and pleura brassy green, a short slender yellow line in front on each side, a slender line (angulated downwards in the middle) below it, and two very broad straight yellow bands on the pleura, with a narrow one between them, the hindermost covering the whole of the hinder part of the pleura. Tegulae with a small yellow spot on each, and another in front. Interalary portion of the meso- and metathorax pulverulent blue, intersected by black sutures. Abdomen shining black; a transverse green mark on each side of the front of the second segment above; a short pointed longitudinal green stripe at the base on the sides of segments 3 and 4, a small orange spot on the sides of segment 5 at the base, an orange dot on the sides at the base of segment 6, and an oblong green blotch on each side of segment 7, separated above by the central carina. Legs black; femora yellow towards the base beneath. Wings hyaline, the tips rusty brown beyond the pterostigma; nervures black, pterostigma dark reddish brown. Fore wings with 11–12 antenodal cross-nervules, the last not continuous, and 7 postnodal cross-nervules, the two first not continuous. Triangle traversed, followed by two rows of cells, increasing to three beyond the middle, and terminating in four on the hind margin; subtriangular space

rather long, and consisting of three cells. Hind wings slightly tinged with deep yellow at the extreme base, fore wings scarcely at all. Upper ulnar appendages slender, as long as the last two segments, not much longer than the lower appendage.

Breves, Jan. 13, 1896.

One specimen only.

Differs from *M. didyma*, De Selys, and other allied species, in the first row of post-triangular cells being formed of two cells only, not three.

I have named this species after Mr. Pickard-Cambridge, who accompanied Mr. Austen in his journey.

*Micrathyria eximia*, sp. n. (Pl. XIII. fig. 3.)

Long. corp. 22–26 millim.; exp. al. 36–37 millim.; long. pter. 2 millim.

*Male*.—Face pale yellow, inclining to greenish on the sides; antennal tubercle and centre of vertex metallic blue; mentum whitish, the medial line and the mandibles black. Prothorax and front of pleura metallic green; meso- and metathorax and hinder half of the pleura pulverulent blue; a broad pale yellow stripe, narrowed behind, on each side of the thorax above, and three more, partly interrupted, pale yellow stripes on each side, the uppermost narrow, slightly angulated, the others more or less obliterated by the pulverescence; tegulæ pale yellow. Legs black, front femora yellowish beneath towards the base. Abdomen black, thickened towards the base and tip, with yellow lateral stripes in front of segments 3–6; on segment 7 is a much larger one on each side, separated by the dorsal carina; sometimes there is also a lateral spot at the base of segment 8. Anal appendages as long as the ninth segment, upper appendages slightly curved downwards, of nearly equal thickness throughout; lower appendage scarcely shorter than the others. Wings clear hyaline; fore wings with 7–8 antenodal cross-nervures, the last not continuous, and 5–7 postnodals, the first two not continuous; triangle not traversed, followed by two rows of cells, only increasing to three on the hind margin; subtriangular space consisting of one cell only: hind wings with the triangle not traversed and the sectors of the triangle separated at the base. One cross-nervule in the lower basal cells; no supra-triangular nervules.

Obydos, Feb. 2, 1896.

Described from four specimens.

A very pretty little species, not closely allied to any other. A male from Pará was previously in the Museum collection.

I describe below an allied species from the Amazons which was not found by Mr. Austen:—

[*Micrathyria tibialis*, sp. n.  
(Pl. XIII. fig. 5 ♂, fig. 6 ♀.)

Long. corp. 23–25 millim.; exp. al. 40–42 millim.; long. pter. 2 millim.

*Male*.—Face yellow, tips of mandibles black, antennal tubercle and middle of vertex metallic blue-green. Thorax metallic blue-green; pleura yellow, with three metallic oblique bands; front of mesothorax with a bifid yellow mark on each side, conterminous with the yellow front of the pleura; interalary space pulverulent blue. Abdomen black, less thickened at base and tip than in *M. eximia*, with long lateral testaceous spots on segments 3–6, and the spots on segment 7 barely separated by the narrow black carina; anal appendages testaceous, black above at the base. Legs black, front femora yellow beneath; hind tibiae and sometimes a line on the others rufo-testaceous. Wings as in *M. eximia*, except that the marginal row of post-triangular cells is formed of four cells instead of three.

*Female* (apparently immature) with the antennal tubercles yellowish behind; thorax, pleura, and base of abdomen varied with rufo-testaceous and yellowish, the hinder part of the thorax with a mere trace of metallic colouring above; abdomen blackish brown, except at base, with the pale spots larger than in the male; anal appendages testaceous; legs blackish above, and mostly testaceous beneath, like the greater part of the underside of the body; hind tibiae testaceous. Wings as in the male, except that the pterostigma is paler testaceous.

*Hab.* Santarem (*Bates*).

Closely allied to *M. eximia*.]

*Micrathyria basalıs*, sp. n. (Pl. XII. fig. 1.)

Long. corp. 25 millim.; exp. al. 38 millim.; long. pter. 2 millim.

*Male*.—Face blackish or deep reddish brown, sometimes with the mentum narrowly bordered before and behind with yellow; clypeus metallic blue, with a pale yellow spot on each side; antennal tubercle metallic blue, bordered with yellow behind; occiput black, the hinder orbits mostly yellow; thorax and pleura brownish yellow, speckled with black, the sutures and carinae brown; two or three brown or blackish spots on the pleura under the fore wings; interalary space

greenish yellow ; abdomen testaceous yellow, with the sutures, the carinæ, and a lateral band bifid in front and interrupted on the hinder half of the segments, black ; the last four segments (except a short testaceous lateral line at the base of the first of these) wholly black, by the gradual widening of the black band over the dorsal carinæ, and the lateral black bands ; anal appendages a little longer than the ninth segment, yellow ; the lower appendage almost as long as the upper ones, and narrowly bordered with black. Wings hyaline, one cross-nervule on the lower basal cell ; triangles free ; no supra-triangular nervules : fore wings with 8-9 antenodal cross-nervules, the last not continuous, and 6-8 postnodals, the first two not continuous ; subtriangular space consisting of 3 cells (rarely 2) ; two rows of post-triangular cells, increasing ; base of fore wing stained with brown on the inner margin as far as the first cross-nervule : hind wings with the sectors of the triangle separated at the base ; base of hind wings stained with brownish testaceous for two fifths of the distance from the base to the triangle ; this space is traversed by thick black nervures, and is bordered with blackish.

*Female* (?) yellow, the lower border of the clypeus (broadest on the sides) and the mandibles and central line of the mentum black ; antennal tubercle and centre of vertex metallic blue ; a yellow spot in front of the eyes at the base of the antennal tubercle on each side. Thorax orange-yellow, with the carinæ reddish brown ; a large yellow spot in front above the angulated carina ; prothorax yellow above, with the sides black ; front of mesothorax yellow along the median line, and mottled with reddish brown on each side of it ; interalary space yellow, the sutures narrowly black and the sides spotted with black ; base of abdomen yellow, the sutures and carinæ at first reddish, but those at the end of the second segment and on the third segment black ; the remaining segments black, the fourth with a long yellow lateral stripe, broad at the base, the fifth with a long stripe, the sixth with a wedge-shaped one, and the seventh with a broad one, nearly meeting on the back. Anal appendages yellowish or buff. Legs black ; front femora beneath, and base of the other femora beneath, yellowish. Wings hyaline, stained with yellow at the base ; fore wings with 10 antenodal and 7-8 postnodal cross-nervules ; triangle of fore wings traversed ; otherwise the wings are as in the male.

W. end of Paraná de Buyassu, Jan. 16 ; Obydos, Feb. 2 ; Breves, March 1, 1896.

Differs a little from typical *Micrathyria* in the abdomen

being more gradually thickened at the base and only very slightly towards the tip, thus approaching *Trithemis*. The traversed cell of the fore wings in the female specimen from Breves might cause some doubt as to whether it is the true female of this species, but that one of three males from Pará, previously in the collection of the Museum, has also the triangles of the fore wings traversed by a nervure, though it does not differ otherwise from the other males of the species before me.

*Micrathyria attenuata*.

*Trithemis* (?) *attenuata*, Kirb. Trans. Zool. Soc. Lond. xii. p. 328, pl. liii. fig. 2 (1889).

Pará, Jan. 7, 8, and 10; W. end of Paraná de Buyassu, Jan. 16; Macapá, Feb. 25, 1896.

The types are from Santarem. Mr. Austen obtained several specimens of both sexes at Pará (one very brightly coloured female may have had its colours changed by cyanide), and a very dark specimen belonging to the variety with suffused wings, mentioned in the original description, from Paraná de Buyassu.

*Micrathyria venusta*, sp. n. (Pl. XIII. fig. 1.)

Long. corp. 35 millim.; exp. al. 57 millim.; long. pter. 3 millim.

*Male*.—Blue-black, face yellow, vertex purplish brown, lower mouth-parts yellowish brown, occiput black, the lower occipital part of the eyes bordered behind with a slender yellow line. Abdomen with some rather indistinct transverse testaceous markings towards the base, but the hinder part of the third segment and the front part of segments 4–7 with a longitudinal lateral testaceous stripe on each—that on the sixth is oblong and that on the seventh forms an even band across the basal upper half of the segment. Anal appendages testaceous, the upper one rather slender, pointed, and a little longer than the lower one, which is very broad and rounded at the extremity. Wings hyaline, crossed by a broad smoky-brown band, with the centres of the cells pale, from just before the level of the nodus nearly to the pterostigma; fore wings only slightly brownish at the base, but hind wings with a smoky-brown patch at the base as far as the triangle. Legs black, femora rufo-testaceous at the base and beneath. Fore wings with 10 antenodal cross-nervules, the last not continuous, and 10–11 postnodals; triangle traversed, followed by three rows of post-triangular cells,

interrupted by one or more rows of two, and increasing to four towards the hind margins ; no supra-triangular nervules, only one cross-nervule in the lower basal cell ; subtriangular space consisting of three cells.

Macapá, Feb. 25, 1896.

Possibly a large variety of *M. attenuata*, but in that species the band on the sixth segment of the abdomen meets on the back, and that on the seventh is smaller, and sometimes nearly obsolete. The large size of *M. venusta* gives it a superficial resemblance to *Trithemis umbrata*, Linn.

### Æschnidæ.

#### GOMPHINÆ.

#### Genus CYCLOPHYLLA, De Selys.

##### *Cyclophylla Calverti*, sp. n. (Pl. XII. fig. 2.)

Long. corp. 47 millim. ; exp. al. 57 millim. ; long. pter. 4 millim. ; long. append. anal. 2 millim.

*Male*.—Head green ; a reddish-brown band, expanded behind on each side, covering the antennæ and ocelli ; mentum bordered with yellow above, and the space between this and the mandibles ferruginous ; a yellow spot on each side above the base of the mandibles. Thorax reddish brown, with two green bands, very broad in front and narrowing and converging behind ; traces of a second band between this and the fore wings ; pleura with three green bands, the last the broadest ; below the middle they shade into yellow and ferruginous. Legs short, rufous ; femora greenish yellow beneath, and shortly serrated ; appendages of the second segment, and lateral lobes at the base of the abdomen large and conspicuous. Interlary space marked with a rather broad olive-green stripe, and with a conspicuous yellow spot between the bases of each pair of wings. Abdomen greenish brown at the base, and blackish from before the middle of the third segment ; fourth, fifth, and sixth segments with greenish lateral spots, that on the fourth largest ; seventh with a lateral green dash extending for nearly one third of its length ; eighth and ninth segments slightly expanded on the lower edges ; tenth segment rufo-testaceous ; upper appendages black, semicircular, slightly hairy, and incurved ; a strong tooth on the inner lower edge at one third of their length ; tips pointed, preceded by a blunt tooth, and a lobe between this and the point. Lower appendage short, semicircular, pointed at both ends. Wings hyaline, with a slight yellowish tinge, and



black neuration; pterostigma testaceous, between black nervures. Upper triangles and lower triangle of the fore wings traversed by one nervure each; lower basal cell with one cross-nervule; one supra-triangular nervule on all the wings: fore wings with 18-19 antenodal and 10-13 postnodal cross-nervules; hind wings with 13-14 antenodals and 12-13 postnodals. Triangle of fore wings followed by two rows of cells, increasing, that of hind wings followed by one row of 3, and then by several rows of 2, increasing. Hind wings deeply excised on the inner margin; inner marginal space consisting of 4 cells.

W. end of Paraná de Buyassu, Jan. 15, 1896.

Allied to *C. diphylla*, *gladiata*, and *sordida*, De Selys, but apparently distinct from either. Appears to approach the first in the spotting of the abdomen and the others in the markings of the thorax. I have named the species after Mr. Philip Calvert, of Philadelphia, in recognition of the useful work he is doing in the Odonata.

There are three more specimens of this genus from Pará, Breves, and Manaos, respectively, which may be new, but these are immature and in poor condition, so that it is not advisable to describe them in the absence of more and better specimens.

#### ÆSCHNINÆ.

Genus ANAX, Leach.

*Anax amazili*.

*Æschna amazili*, Burm. Handb. Ent. ii. p. 841. n. 19 (1859).

Santarem, Jan. 31; Mosqueiro, March 7, 1896.

A species new to the Museum collection.

Genus ÆSCHNA (Illiger).

*Æschna macromia*.

*Æschna macromia*, Brauer, Verh. zool.-bot. Ges. Wien, xv. p. 906 (1865).

Near Santarem (F.), Jan. 27, 1896.

Previously in the Museum from Santarem and the Tapajos.

Genus GYNACANTHA, Rambur.

I have been criticized for making *G. trifida*, Rambur, the type of this genus, although Baron De Selys Longchamps, in

1883, restricted that name to another section. I did so on the ground that De Selys, in Ramon de la Sagra's 'Histoire de l'Île de Cuba' (1857), quoted Rambur's definition of the genus, and described two species under it—*G. trifida*, Rambur, and *G. septima*, De Selys—an action which many entomologists would agree with me was tantamount to fixing *G. trifida* as the type of *Gynacantha*.

*Gynacantha trifida*.

*Gynacantha trifida*, Rambur, Ins. Névr. p. 210 (1842).

Mosqueiro, March 8, 1896.

Previously in the Museum from the Tapajos.

Genus ACANTHAGYNA, Kirb.

*Acanthagyna nervosa*.

*Gynacantha nervosa*, Rambur, Ins. Névr. p. 94 (1842).

Mosqueiro, March 8, 1896.

Four female specimens.

A widely distributed species in Tropical America.

*Acanthagyna subviridis*.

*Eschna subviridis*, De Selys, Rev. Odon. p. 129 (1850).

*Eschna viridis*, Rambur, Ins. Névr. p. 200 (1842).

Pará, Jan. 4.

Previously in the Museum collection from Pará and the Tapajos.

Agrionidæ.

CÆNAGRIONINÆ.

PSEUDOSTIGMATINA.

Genus MECISTOGASTER, Rambur.

*Mecistogaster linearis*.

*Agrion linearis*, Fabr. Gen. Ins. p. 249 (1776).

Forest, Santarem, Lower Amazons, Feb. 27, 1896 (captured by Mr. F. O. Pickard Cambridge).

A very common South-American species.

NORMOSTIGMATINA.

Genus CÆNONEURA, Kirb.

*Cænoneura sylvatica* (?).

*Neoneura sylvatica* (Hagen, MS.), De Selys, Mém. Cour. (9) xxxviii. p. 204 (1886).

Below Gurupá (*F.*), Jan. 24, 1896.

A single specimen, not fully coloured.

The type of *C. sylvatica* was received from Rio Janeiro.

### Genus MICRONYMPHA, Kirb.

#### *Micronympha fluviatilis.*

*Ischnura fluviatilis*, De Selys, Bull. Acad. Belg. (2) xli. p. 269 (1876).

Between Gurupá and Monte Alegre, Jan. 24 ; Macapá (*F.*), Feb. 25, 1896.

A common and widely distributed species in South America.

### Genus LEPTAGRION, De Selys.

#### *Leptagrion*, spp.

Gurupá, Jan. 23 ; Breves, March 1, 1896.

Two species, probably new ; but I do not wish to describe Coenagrioninæ at present, as the series in the British Museum is very poor.

The following species were obtained of other families of Neuroptera than the Odonata :—

### Ephemeridæ.

#### Genus CAMPSURUS, Eaton.

#### *Campsurus quadridentatus.*

*Campsurus quadridentatus*, Eaton, Trans. Ent. Soc. Lond. 1871, p. 58, pl. iii. fig. 13 (details).

Above Santarem (*F.*), Feb. 1, 1896.

Not previously in the collection of the Museum.

#### *Campsurus Picteti*, n. n.

*Palingenia dorsalis*, Pictet (nec Burm.), Hist. Nat. Ins. Névr., Ephem. p. 153, pl. xiii. fig. 5 (1845) ; Walker, List Neur. Ins. Brit. Mus. iii. p. 549. n. 5 (1853).

*Asthenopus dorsalis*, Eaton, Trans. Ent. Soc. Lond. 1871, p. 59.

*Campsurus dorsalis*, Eaton, Trans. Linn. Soc. Lond., Zool. (2) iii. p. 41 (1883).

Eighty miles below Breves, Jan. 11 ; above Santarem, Feb. 1, 1896.

Taken on the 'Faraday' on the night of Feb. 1, 1896, in numbers round the electric lights hanging over the stern.

One of the specimens has a mass of eggs adhering to the abdomen.

I have thought it necessary to rename this species, which is well described and figured by Pictet; for *Palingenia dorsalis*, Burm., is described as having three setæ as long as the body, and the head, thorax, back of abdomen, and nervures black. It can hardly be even congeneric with Pictet's insect.

### Termitidæ.

Genus TERMES, Linn.

*Termes dirus*.

*Termes dirus*, Burm. Handb. Ent. ii. p. 766. n. 8 (1839).

Obydos, Feb. 2, 1896.

Four winged specimens.

### Osmylidæ.

Genus OSMYLUS, Latr.

*Osmylus*, sp. (?).

A green species, apparently congeneric with *O. (?) longicornis*, Walker, from Georgia, with which it agrees in its setaceous antennæ.

Macapá, Feb. 25, 1896.

One specimen.

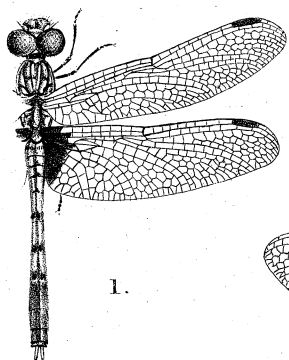
## EXPLANATION OF PLATES.

### PLATE XII.

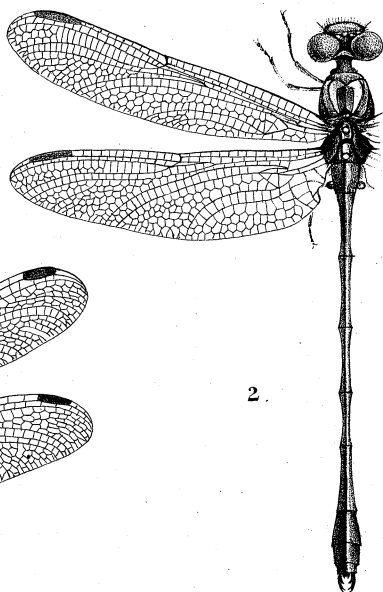
	Page
Fig. 1. <i>Micrathyria basalis</i> .....	610
Fig. 2. <i>Cyclophylla Calverti</i> .....	613
Fig. 3. <i>Uracis Siemensi</i> .....	605
Fig. 4. <i>Perithemis Austeni</i> , ♂ .....	602
Fig. 5. Ditto, ♀ .....	602

### PLATE XIII.

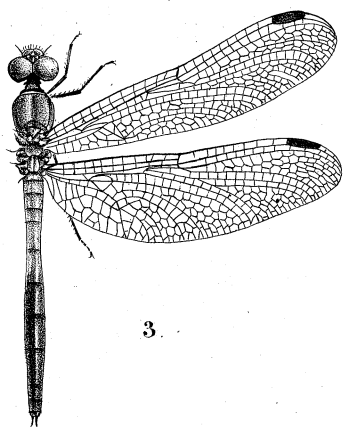
Fig. 1. <i>Micrathyria venusta</i> .....	612
Fig. 2. <i>Micrathyria flavescens</i> .....	600
Fig. 3. <i>Micrathyria eximia</i> .....	609
Fig. 4. — <i>Cambridgei</i> .....	608
Fig. 5. — <i>tibialis</i> , ♂ .....	610
Fig. 6. Ditto, ♀ .....	610



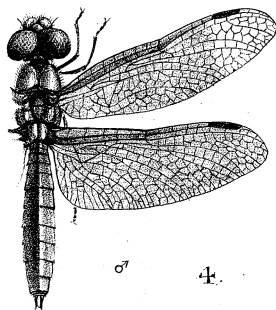
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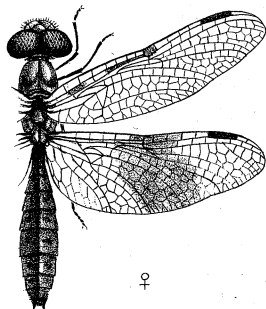


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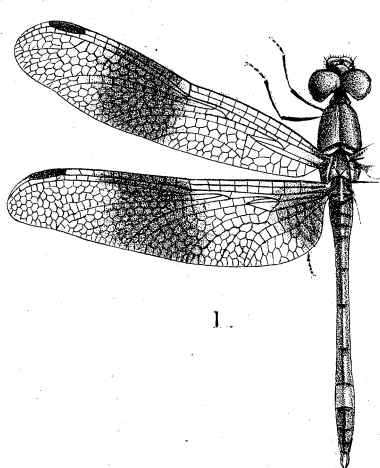
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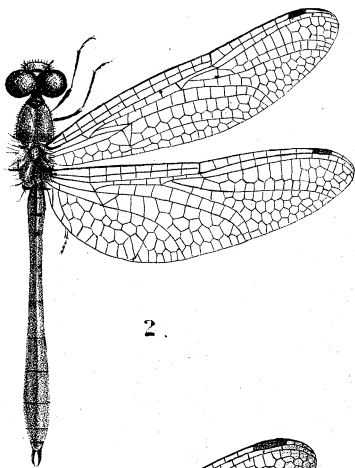


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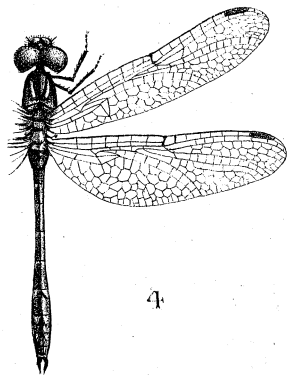
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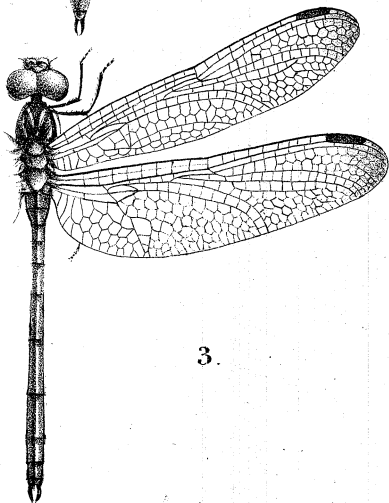
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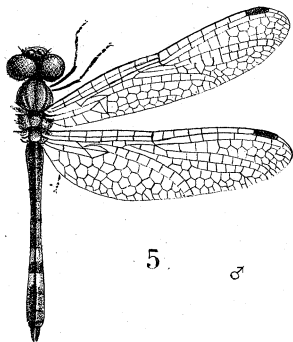
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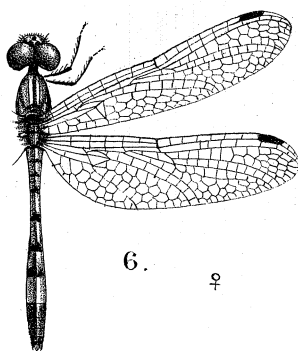


3.



5.

♂



6.

♀

# Bibliography of the Neuropterida

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