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# THE JAPANESE ÆSCHNIDÆ.

By

K. OGUMA.

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## Family ÆSCHNIDÆ.

Subfamily ÆSCHNINÆ.

Genus *Anax* LEACH

LEACH, Edinb. Encycl. IX, p. 137 (1815); SELYS, Monog. Lib. Eur. p. 115 (1840); SELYS et HAGEN, Rev. Odon. p. 109 (1850); RAMB, Ins. Nevr. p. 182 (1842); TÜMPEL, Geradfl. p. 47 (1901); NEEDHAM, N. Y. St. Mus. Bull. 47, p. 437 (1901); MARTIN, Coll. Zool. d. Selys. Aesch. pp. 5, 9 (1908).

### 1. *Anax parthenope* SELYS

*Aeschna parthenope* SELYS, Bull. Acad. Belg. VI, p. 389 (1839).

*Anax parthenope* SELYS et HAGEN, Rev. Odon. p. 111 (1850); BUCHECKER, Syst. Ent. p. 13 t. 23 (1876); MARTIN, Coll. Zool. p. Selys. Aesch. p. 21, f. 15 (1908).

### *Anax parthenope julius* BRAUER

*Anax julius* BRAUER, Verh. Zool.-Bot. Ges. Wien XVII, p. 508 (1865); KIRBY, Cat. Odon. p. 85 (1890).

*Anax parthenope* MATSUMURA, Thous. Ins. Jap. Suppl. I. Pl. VIII, f. 2 (1903).

*Anax parthenope race julius* SELYS, Ann. Soc. Ent. Belg. XXVII, p. 116 (1883); MARTIN, Coll. Zool. d. Selys, Aesch. p. 21, f. 16 (1908)

Nom. Jap.: *Gin-yamma*.

Loc.—Hokkaido (South), Honshu, Shikoku, Kiushu, Riukiu and Formosa.

### 2. *Anax nigrofasciatus* OGUMA n. sp.

Length of the abdomen; ♂ 49–53 mm., ♀ 49 mm.

Length of the hind wing; ♂ 45–49 mm., ♀ 45 mm.

Length of the pterostigma; ♂ 5 mm., ♀ 4.5 mm.

The form nearly like the preceding species, but distinguished from it by the following characters:

1. The frontal marking deep black, T-shaped as in the case of *Aeschna*.
2. The thorax grass green, with two black stripes along the lateral sutures at the side, these being connected together above the coxa.
3. Legs entirely black, excepting a very small part on the first femur and trochanter.

4. The colouration of the abdomen very bright, the lateral longitudinal markings to each segment broken in the middle.
5. ♂. The upper anal appendages very broad in the middle, the terminal spine broad and triangular shaped.
6. ♀. The anal appendages lanceolate, the outer sides of them scarcely, while the inner sides strongly curved.

Nom. Jap: *Kurosujî-gin-yamma*.

Loc.—Honshu (Tokio, UCHIDA; Okayama, SATAKE).

This species not so uncommon in Honshu, especially in Okayama, from where I gained many specimens through the kindness of my friend Mr. S. SATAKE.

### 3. *Anax guttatus* BURMEISTER

*Aeschna guttata* BURMEISTER, Handb. Ent. p. 840 (1839).

*Anax guttata* BRAUER, Reise d. Novara, p. 62 (1866).

*Anax magnus* RAMBUR, Ins. Nevr. p. 188 (1842).

*Anax guttatus* KIRBY, Cat. Odon. p. 84 (1890); MARTIN, Coll. Zool. d. Selys. Aesch. p. 23, f. 17 (1908).

Nom. Jap.: *Ô-gin-yamma*.

Loc.—Riukiu (Miyake-jima, Okinawa, KUROIWA); Formosa (MATSUMURA).

One male and one female specimens have been studied; they have abdomens obscurely coloured resulted by ill preservation, but sufficient enough to identify them by the other peculiarities. My specimens studied have the following measurements:

Abdomen; ♂ 57-61 mm., ♀ 59 mm.

Hind wing; ♂ 49-52 mm., ♀ 53 mm.

### Key to the species of *Anax*.

- A. Frontal black marking not reached to the eyes ..... *A. parthenope*.  
 AA. Frontal black marking reached to the eyes, assuming T-form.  
 B. Thorax with two black stripes on the pleura ..... *A. nigrofasciatus*.  
 BB. Thorax without black stripes on the pleura, the T-shaped marking on the frons often very faint ..... *A. guttatus*.

### Genus *Anaciaeschna* SELYS

SELYS, Mitt. Mus. Dresd. III, p. 317 (1787); KIRBY, Cat. Odon. p. 86 (1890); MARTIN, Zool. Coll. d. Selys, Aesch. pp. 8, 30 (1908).

### 4. *Anaciaeschna jaspidea* BURMEISTER

*Aeschna jaspidea* BURMEISTER, Handb. Ent. II, p. 840 (1839).

*Anax jaspidea* BRAUER, Reise d. Novara. p. 63 (2866).

*Anaciaeschna jaspidea* KIRBY, Cat. Odon. p. 86 (1899).

*Anacisieschna jaspidea* MARTIN, Coll. Zool. d. Selys, Aesch. p. 30, f. 24, 25 (1908).

Nom. Jap.: *Tobiuro-yamma*.

Loc.—Formosa.

### Genus *Aeschna* FABRICIUS

FABRICIUS, Syst. Ent. p. 424 (1775); SELYS, et HAGEN, Rev. Odon. p. 112 (1850); BUCHECKER, Syst. Ent. p. 13 (1876); TüMPPEL, Geradfl. p. 48 (1901); MARTIN, Coll. Zool. d. Selys, Aesch. pp. 8, 33 (1908).

#### 5. *Aeschna juncea* LINNEUS

*Libellula juncea* LINNEUS, Syst. Nat. I, p. 544 (1758).

*Aeschna juncea* SELYS, Monogr. Lib. Eur. p. 106 (1850); SELYS et HAGEN, Rev. Odon. p. 116 (1850); BUCHECKER, Syst. Ent. p. 14, t. 25 (1876); TüMPPEL, Geradfl. p. 48 t. IX (1901); MARTIN, Coll. Zool. d. Selys, Aesch pp. 34, 82, f. 29 (1908); MATSUMURA, Jour. Coll. Agr. Tohoku Imp. Univ. Vol. IV, Pl. I, p. 10 (1911).

Nom. Jap.: *Ruri-hoshi-yamma*.

Loc.—Sakhalin (KOMURA, OGUMA).

#### *Aeschna juncea angustistyla* OGUMA n. subsp.

Among the collection made in Sakhalin by the author, I found 2 individuals of *A. juncea*, which have some characters to be distinguishable from the typical form. These are as follows:

1. Size a little larger, but the pterostigma rather shorter, not longer than 4 mm., while in the type always a little longer than 4 mm.
2. Membranula white, only the distal part of it being faintly smoked. In the typical *juncea*, the membranula entirely black.
3. The costa pale greenish yellow, while that of the typical form deep citron yellow.
4. Upper anal appendages slender and long, assuming the form somewhat like that of next species, but have no dentation on the distal part of them.

As both of two individuals, caught in Sakhalin, being the male, it may be a question whether the female would have any distinct characteristics as compared with the type.

#### 6. *Aeschna nigroflava* MARTIN

*Aeschna nigroflava* MARTIN, Coll. Zool. d. Selys, Aesch. p. 38 f. 33, t. 11, f. 5 (1908).

Nom. Jap.: *Ô-ruri-hoshi-yamma*.

Loc.—Hokkaido.

Comparing the specimens collected in Hokkaido with the type, I found a remarkable difference in the colouration between them, inspite of the details,

with which this species may be distinguished from the others, being just identical. In a series of my specimens, all of the markings on the thorax and abdomen are clear bluish green or blue, imbedded in deep brownish ground colour, and never yellow as to be seen in the original description and coloured figure of MARTIN. I doubt, if Mr. MARTIN misunderstood the colouration by examining the specimens, on which some changes had already taken place. For I have frequently examined this species in its living state, and the colour was always bluish green or blue as I have now mentioned above.

Female specimens, also obtained in the same locality, have nearly the same colouration with the male, but more or less fainter. The anal appendages lanceolate, much more slender than that of *juncea*. Very common in Hokkaido. The measurements of examined specimens are as follows.

Abdomen; ♂ 55-57 mm., ♀ 52-64 mm.

Hind wing; ♂ 50-52 mm., ♀ 47-52 mm.

Pterostigma; ♂ 3.5 mm., ♀ 4 mm.

### 7. *Aeschna mixta* LATREILLE

*Aeschna mixta* LATREILLE, Hist. Nat. Crust. Ins. XIII, p. 7 (1805); SELYS et HAGEN, Rev. Odon. p. 122 (1850); BUCHECKER, Syst. Ent. p. 14, t. XXVI (1876); KIRBY, Cat. Odon. p. 87 (1890); TÜMPEL, Geradfl. p. 49, t. VIII (1901); MARTIN, Coll. Zool. d. Selys, Aesch. pp. 42, 84 (1908).

Nom. Jap.: *Mudara-yamma*.

Loc.—Hokkaido (?), North Honshu (Aomori).

### 8. *Aeschna melanictera* SELYS

*Aeschna melanictera* SELYS, Ann. Soc. Ent. Belg. XXVII, p. 119 (1883); KIRBY, Cat. Odon. p. 89 (1890); MARTIN, Coll. Zool. d. Selys, Aesch. pp. 64, 80, f. 61 (1908).

Nom. Jap.: *Yabu-yamma*.

Loc.—Honshu (Tokio, OGUMA), Kiushu.

### 9. *Aeschna martini* SELYS

*Aeschna martini* SELYS, Ann. Soc. Ent. Belg. XLI (1897); MARTIN, Coll. Zool. d. Selys, Aesch. pp. 72, 81, f. 70, 71, t. I, f. 4 (1908).

Nom. Jap.: *Martin-yamma*.

Loc.—Honshu (Yokohama, MARTIN).

### 10. *Aeschna arundinacea* SELYS

*Aeschna arundinacea* SELYS, Nevr. d. l'Asie sept., Soc. Ent. Belg. (1872); SELYS, Ann. Soc. Ent. Belg. XXVII, p. 117 (1883).

Nom. Jap.:

Loc.—Honshu?

**Key to the species of *Aeschna*.**

- A. Thorax with a pair of broad yellowish or bluish green bands on frons; running from just below the scapulae to the collar.
- B. The last abdominal segment of the male with a tubercle above.
- C. Abdomen with a transverse yellow stripe to each of segments 3-7.  
..... *Ae. melanictera*.
- CC. Abdomen without such stripes, another kinds of markings to each of segments 3-7.
- D. The black T-shaped marking on the frons diffuses to the face.  
♂. Upper anal appendages with five or more small dentes near the tip on the dorsal surface ..... *Ae. nigroflava*.
- DD. The black T-shaped marking on the frons not diffuses to the face, strictly retracted above, ♂ upper anal appendages without any dentation ..... *Ae. juncea*.
- E. Membranula black, ♂ upper anal appendages broad .....  
..... *Ae. juncea juncea*.
- EE. Membranula white, ♂ upper anal appendages much more slender ..... *Ae. juncea angustistyla*.
- BB. The last abdominal segment of the male without tubercle .....  
..... *Ae. arundinacea*.
- AA. Thorax without broad bands on the frons.
- B. Anal triangle of the hind wing hyaline ..... *Ae. mixta*.
- BB. Anal triangle of the hind wing deeply coloured with brown .....  
..... *Ae. martini*.

Genus ***Austroaeschna*** SELYS

SELYS, Ann. Soc. Ent. Belg. XXVII, p. 23 (1883); MARTIN, Coll. Zool. d. Selys, Aesch. p. 7 (1908), p. 88 (1909).

**11. *Austroaeschna milnei*** SELYS

*Aeschna Milnei* SELYS, Ann. Soc. Ent. Belg. XXVII, p. 120 (1883); KIRBY, Cat. Odon. p. 89 (1890).

*Austroaeschna Milnei* MARTIN, Coll. Zool. d. Selys, Aesch. pp. 107, t. IV, f. 13 (1909).

Nom. Jap.: *Miln-yamma*.

Loc.—Honshu (Inawashiro, Tokio, UCHIDA; Kioto, SUZUKI; Arima, KÔ-MURA).

Genus ***Boyeria*** MACLACHLAN

MACLACHLAN, Ann. Nat. Hist. XVII, p. 424 (1896); MARTIN, Coll. Zool. d. Selys, Aesch. pp.

5 (1908), 124 (1909).

*Fonscolombia* SELYS, Ann. Soc. Ent. Belg. XXVII, p. 124 (1883).

## 12. *Boyeria maclachlani* SELYS.

*Fonscolombia maclachlani* SELYS, Ann. Soc. Ent. Belg. XXVII, p. 126 (1883); KIRBY, Cat. Odon. p. 92 (1890).

*Boyeria MacLachlani* MARTIN, Coll. Zool. d. Selys, Aesch. p. 127, f. 123 (1909).

Nom. Jap.: *Koshiboso-yamma*.

Loc.—Honshu, Kiushu (KOBAYASHI).

### Genus *Jagoria* KARSCH

KARSCH, Ent. Nachr. XV, p. 238 (1889); MARTIN, Coll. Zool. d. Selys, pp. 6 (1908), 130 (1909).

## 13. *Jagoria pryeri* MARTIN

*Jagoria Pryeri* MARTIN, Coll. Zool. d. Selys, Aesch. p. 134, f. 131, 132 (1901).

*Oligoaeschna Pryeri* MARTIN, d. t. II, f. 8 (1908).

Nom. Jap.: *Sarasa-yamma*.

Loc.—Hokkaido (MATSUMURA, KOMURA, OGUMA, &c.), Honshu (Iwashiro, UCHIDA; Kyoto, SUZUKI), Kiushu (Hikosan, TAKAHASHI).

The female of this species, which was unknown to MARTIN at the time of his publication, has the same pattern with the male, but the colour being yellow instead of green. Wings yellowish at the base and at the distal side of the nodus, the former very deep in colour, extending to the end of the median space, sometimes these two coloured parts being connected together at the costal and subcostal areas. Anal appendages inconspicuous, scarcely longer than the last abdominal segment. The measurements as follows:

Abdomen; ♀ 41–45 mm.

Hind wing; ♀ 37–40 mm.

Pterostigma; ♀ 3.5 mm.

Very common in Sapporo in the early summer, but it seems to be rare in the southern part of Japan.

### Genus *Aeschnophlebia* SELYS

SELYS, Bull. Acad. Belg. V, p. 742 (1883); SELYS, Ann. Soc. Ent. Belg. XXVII, p. 122 (1883); KIRBY, Cat. Odon. p. 94 (1890); MARTIN, Coll. Zool. d. Selys, Aesch. p. 7 (1908), p. 137 (1909).

## 14. *Aeschnophlebia longistigma* SELYS

*Aeschnophlebia longistigma* SELYS, Ann. Soc. Ent. Belg. XXVII, p. 123 (1883); KIRBY, Cat. Odon. p. 94 (1890); MARTIN, Coll. Zool. d. Selys, Aesch. p. 138, f. 135, 136 (1909).

Nom. Jap.: *Ao-yamma*.

Loc.—Hokkaido (MATSUMURA, OGUMA), Honshu (Tokio, Gifu).

The specimens studied are 2 females and 3 males, the length of the pterostigma of the former is 6 mm. as SELYS described, while in the latter none of 3 exceeds 5 mm. The shape of the upper anal appendage rather like that of *Ae. optata* drawn in the MARTIN's work, in spite of the other characteristics being entirely identical with *Ae. longistigma*.

**15. *Aeschnophlebia optata* SELYS**

*Aeschnophlebia optata* SELYS, Ann. Soc. Ent. Belg. XXVII, p. 122 (1883); KIRBY, Cat. Odon. p. 94 (1890); MARTIN, Coll. Zool. d. Selys, Aesch. p. 139, f. 137 (1909).

Nom. Jap.: *Yoshi-yamma*.

Loc.—Hokkaido, Honshu.

**16. *Aeschnophlebia anisoptera* SELYS**

*Aeschnophlebia anisoptera* SELYS, Ann. Soc. Ent. Belg. XXVII, p. 123 (1883); KIRBY, Cat. Odon. p. 94 (1890); MARTIN, Coll. Zool. d. Selys, Aesch. p. 140, f. 138 (1909).

Nom. Jap.: *Neaka-yoshi-yamma*.

Loc.—Honshu (Tokio, OGUMA).

To distinguish this species from other two members of *Aeschnophlebia*, the prolongation of the subcostal vein in the hind wing seems not to be constant, for I have one female specimen, in which that prolongation of the vein can be found only on the right wing. By *Ae. longistigma*, likewise, the prolongation of that vein is very variable, some having it on four wings, while some only on the fore wing, and in a rare case all the four wings entirely free from the prolonged subcosta. By this reason, I used none of these characteristics in the following key.

Species of *Aeschnophlebia* are not so common in Japan. Investigations of this genus remain still incomplete owing to the lack of specimens.

**Key to the species of *Aeschnophlebia*.**

- A. Thorax without black bands on each side, frontal band broad, pterostigma over 5 mm. .... *Ae. longistigma*.
- AA. Thorax with bands on each side.
  - B. The lateral band broad, one in number ..... *Ae. optata*.
  - BB. The lateral band divided into 2 narrower ones ..... *Ae. anisoptera*.

**Genus *Gynacantha* RAMBUR**

RAMBUR, Ins. Nevr. p. 209 (1842); KIRBY, Cat. Odon. p. 94 (1890); MARTIN, Coll. Zool. d. Selys, Aesch. pp. 8 (1908), 167 (1909).



**17. *Gynacantha hyalina* SELYS**

*Gynacantha hyalina* SELYS, Ann. Soc. Esp. Nat. Hist. XI, p. 17 (Sep.) (1882); Ann. Soc. Ent. Belg. XXVII, p. 127 (1883); Comp. Soc. Ent. Belg. p. 5 (Sep.) (1888); MATSUMURA, Thous. Ins. Jap. I, t. 7, f. 5 (1903); MARTIN, Coll. Zool. d. Selys, Aesch. p. 198, f. 203 (1909).

*Acanthagyna hyalina* KIRBY, Cat. Odon. p. 95 (1890).

Nom. Jap.: *Katori-yamma*.

Loc.—Honshu, Shikoku, Kiushu and Riukiu.

**18. *Gynacantha rosenbergi* BRAUER**

*Gynacantha rosenbergi* BRAUER, Verh. Zool.-Bot. Ges. Wien, XVII, p. 295 (1867); SELYS, Ann. Soc. Ent. Belg. XXVII, p. 127 (1883); MARTIN, Coll. Zool. d. Selys, Aesch. p. 191, f. 196 (1909).

*Acanthagyna rosenbergi* KIRBY, Cat. Odon. p. 95 (1890).

Nom. Jap.: *Riukiu-katori-yamma*.

Loc.—Riukiu.

**19. *Gynacantha basiguttata* SELYS**

*Gynacantha basiguttata* SELYS, Ann. Soc. Esp. Nat. Hist. XI, p. 18 (Sep.) (1882); MARTIN, Coll. Zool. d. Selys, Aesch. p. 192, f. 197 (1909).

*Acanthagyna basiguttata* KIRBY, Cat. Odon. p. 95 (1890).

Nom. Jap.: *Mon-katori-yamma*.

Loc.—Riukiu.

**20. *Gynacantha saltatrix* MARTIN**

*Gynacantha saltatrix* MARTIN, Coll. Zool. d. Selys, Aesch. p. 194, f. 199 (1909).

Nom. Jap.: *Hime-katori-yamma*.

Loc.—Formosa (MATSUMURA).

Of these four species of *Gynacantha*, *G. hyalina* is the most common insect, having a wide distribution to the northern part of the middle Japan. It may be only one representative of this genus, that inhabits low latitude. The other three species have been recorded only from South-Japan, and two of them *G. basiguttata* and *G. rosenbergi*, are known to me only by SELYS' collection.

**Key to the species of *Gynacantha*.**

- A. Wing with a reddish brown patch at the base ..... *G. basiguttata*.
- AA. Wing without such marking, but more or less saffron at the base.
  - B. Size large, abdomen 69–79 mm., the fork of *R*s begins below the pterostigma ..... *G. rosenbergi*.
  - BB. Size smaller, abdomen shorter than 52 mm., the fork of *R*s begins far before the pterostigma.
  - C. Abdomen nearly 40 mm., pterostigma clear brown .... *G. saltatrix*.

CC, Abdomen nearly 50 mm., pterostigma yellow or dark ... *G. hyalina*.

### Key to the genera of *Aeschninae*.

- A. No anal triangle in both sexes ..... *Anax*.  
 AA. Anal triangle found in the male.  
 B. Radial sector simple.  
 C. Median space reticulated ..... *Boyeria*.  
 CC. Median space free from cross nervures ..... *Jagoria*.  
 BB. Radial sector bifurcated.  
 C. Radial sector supplement detached widely from radial sector, the space between these two nervures contains many rows of cells.  
 D. *M*<sub>2</sub> strongly curves beyond the pterostigma, like that of *Anax* ..... *Anaciaeschna*.  
 DD. *M*<sub>2</sub> curves normally, curving point lies before the pterostigma.  
 E. Anal triangle consisted of 2 cells, tenth abdominal segment of the female roundish ..... *Aeschna*.  
 EE. Anal triangle consisted of 3 cells, tenth abdominal segment of the female has a long process ..... *Gynacantha*.  
 CC. Radial sector supplement straight, parallel with the radial sector, the space between these two nervures contains only one row or sometimes two rows of cells.  
 D. Subcostal nervure exceeds the nodus at least in the fore wing ..... *Aeschnophlebia*.  
 DD. Subcostal normal ..... *Austroaeschna*.

### Subfamily CORDULEGASTRINÆ.

#### Genus *Anotogaster* SELYS.

SELYS, Synop. Gomph. p. 82 (1854); Monogr. Gomph. p. 322 (1857).

#### 21. *Anotogaster sieboldii* SELYS

*Cordulegaster Sieboldii* SELYS, Synop. Gomph. p. 88 (1854); Monog. Gomph. p. 545 (1857).

*Anotogaster Sieboldii* SELYS, Ann. Soc. Ent. Belg. XXVII, p. 155 (1883); MATSUMURA, Thôus. Ins. Jap. I, t. VIII, f. 11 (1903); WILLIAMSON, Proc. U. S. Nat. Mus. XXXII, p. 276, f. 4 (1907).

Nom. Jap. .... *Oni-yamma*.

Loc.—Sakhalin (?), Hokkaido, Honshu, Shikoku, Kiushu, Riukiu, Formosa.

This species is one of the most common and widely distributed species in Japan, although known uncertainly from Sakhalin. They are found always in woods,

especially along brooks, prowling about up and down in the air for their preys.

Genus *Chlorogomphus* SELYS

SELYS, Symop. Gomph. p. 79 (1854); Monogr. Gomph. p. 311 (1857); WILLIAMSON, Proc. U. S. Nat. Mus. XXXIII, pp. 274, 277 (1907).

**22. *Chlorogomphus brevistigma* OGUMA n. sp.**

Length of the abdomen; 63 mm.

Length of the hind wing; 57 mm.

Length of the pterostigma; 3.5 mm.

♀. Head: black, a horizontal streak on the frons, upper clypeus and labium yellow.

Thorax: black, with three broad yellow bands on each side, each of them being nearly equal in width; more one narrow yellow streak along the anterior margin of the first band and just beneath the scapula. Wings hyaline, a small part at the base tinted with saffron, median space with one or two cross nervures, the triangle of the hind wing rather narrower than that of the other species of the same genus found in Japan, but somewhat wider than that of *C. magnificus*, being crossed by three nervures, of which the middle is in three-rayed form, each arm being attached to each side of the triangle as in the case of *Epitheca*. Nervures black, pterostigma black and short. Legs black, excepting the coxa, trochanter and the basal half of the first femur, these parts being yellow.

Abdomen: black, segments 1-8 with each a yellow tranverse stripe near the hind margin, that on the first segment reduced into two elongated dots on the sides, not traversing the dorsum, on the second segment with one more stripe, dissecting the segment in the middle and that stripe widens downwards gradually and then bends anteriorly, on the third segment also a yellow stripe, but far narrower; the segments 9 and 10 entirely black. Anal appendages small, shorter than the last segment, black.

Nom. Jap: *Hiroba-yamma*.

Lœc.—Formosa (MATSUMURA).

♀. Unknown.

**23. *Chlorogomphus brunneus* OGUMA n. sp.**

Length of the abdomen; 58 mm.

Length of the hind wing; 52 mm.

Length of the pterostigma; 4 mm.

♀. Head: black, with colour patterns like those of the preceding species, but the colour being heavy ochre yellow instead of light yellow.

Thorax: having the colouration as the preceding species, but the scapulae black. Wings deep violet brown and distal one third in both wings, hind margin of the hind wing and the centers of the cells paler in colour, costal space and the apex being deeper in colour. Nervures black, the median space with 2 or 3 cross nervures, triangle of the hind wing with 2 cross nervures, assuming three-rayed form, pterostigma black. Legs black, partly coloured like that of the preceding species.

Abdomen: black with stripes of the same fashion as that of the preceding species, but the colour deep ochre and a stripe on the segment 3 is very faint. Anal appendages short, inconspicuous.

Nom. Jap.: *Karasu-yamma*.

Loc.—Formosa (UCHIDA).

♂. Unknown.

### Key to the species of *Chlorogomphus*.

- A. Four wings transparent ..... *Ch. brevistigma*.  
 AA. Four wings deeply brown coloured ..... *Ch. brunneus*.

### Genus *Orogomphus* SELYS

SELYS, Bull. Acad. Belg. XLVI, p. 681 (1878); WILLIAMSON, Proc. U. S. Nat. Mus. XXXIII, pp. 274, 277 (1907).

#### 24. *Orogomphus suzukii* OGUMA n. sp.

Length of the abdomen; 63 mm.

Length of the hind wing; 48 mm.

Length of the pterostigma; 4 mm.

♂. Head: black, the frontal streak and upper clypeus light yellow, labium straw yellow.

Thorax: black, three broad yellow stripes on each side, and a narrow streak at the anterior part of the first stripe beneath the scapula, which is on the hindmost part of the last epimeron, beside these a small yellow spot near the base of the wing. Wing narrow, like that of *Anotogaster* in shape, transparent, nervures black, the median space contains 2 cross nervures, the triangle of the hind wing crossed by one nervure, pterostigma narrow and black, membranula pale grey. Legs black, all the coxae and trochanters and a small part of the femur in the first leg yellow.

Abdomen: slender and long, black, with each a transverse yellow stripe at the hind margins of 2 to 7 segments, as in *Ch. brevistigma*, but the 3rd segment

without the middle stripe and the stripe of the 7th segment being very broad. The last segment with a roundish yellow spot on the sternum. Upper anal appendages stout, shorter than the last segment, with a large tooth near the tip, and it seems to be bifurcated. The lower appendage deeply divided, longer than the upper, each of the arms with a short dent close to the tip.

Nom. Jap.: *Hosomi-yamma*.

Loc.—Honshu (Kioto, SUZUKI).

♀. Unknown.

### Genus *Tachopteryx* SELYS

SELYS, Bull. Acad. Belg. VII, p. 551 (1859); KIRBY, Cat. Odon. p. 83 (1890).

#### 25. *Tachopteryx pryeri* SELYS.

*Tachopteryx Pryeri* SELYS, C. R. Soc. Ent. Belg. XXXIII (1889).

Nom. Jap.: *Gifu-yamma-tombo*.

Loc.—Honshu.

### Subfamily GOMPHINÆ.

### Genus *Ictinus* RAMBUR

RAMBUR, Ins. Nevr. p. 171 (1942); SELYS, Synop. Gomph. pp. 66, 67 (1954); SELYS, Monogr. Gomph. p. 263 (1857); KIRBY, Cat. Odon. p. 77 (1890); WILLIAMSON, Proc. U. S. Nat. Mus. XXXIII, pp. 272, 278 (1907).

#### 26. *Ictinus clavatus* FABRICIUS

*Aeschna clavata* FABRICIUS, Syst. Ent. p. 425 (1775).

*Diastatomma clavata* BURM. Handb. Ent. II, p. 832 (1839).

*Ictinus clavatus* SELYS, Synop. Gomph. p. 74 (1854); Monogr. Gomph. p. 285, t. XV, f. 3 (1857); Ann. Soc. Ent. Belg. XXVII, p. 115 (1883); MATSUMURA, Thous. Ins. Jap. I, t. VII, f. 1 (1903).

Nom. Jap.: *Uchiwa-tombo* or *Kuruma-yamma* (Popular name in Tokio).

Loc.—Honshu (South), Shikoku, Kiushu.

#### 27. *Ictinus fallax* SELYS.

*Ictinus fallax* SELYS, Synop. Gomph. p. 72 (1854); Monogr. Gomph. p. 279 (1857); Comp. Soc. Ent. Belg. p. 5 (Sep.) (1888).

Nom. Jap.: *Taiwan-uchiwa-tombo*.

Loc.—Riukiu, Formosa (MATSUMURA).

### Key to the species of *Ictinus*.

A. Face green, foliation yellow basally ..... *I. clavatus*.

AA. Face black, foliation entirely black ..... *I. fallax*.

Genus *Sieboldius* SELYS

SELYS, Synops. Gomph. p. 64 (1854); Monogr. Gomph. p. 243 (1857); WILLIAMSON, Proc. U. S. Nat. Mus. XXXIII, pp. 272, 285 (1907).

**28. *Sieboldius japonicus* SELYS**

*Sieboldius japonicus* SELYS, Synops. Gomph. p. 64 (1854); Monogr. Gomph. p. 244, t. XIII (1857); Ann. Soc. Ent. Belg. XXVII, p. 113 (1883); WILLIAMSON, Proc. U. S. Nat. Mus. XXXIII, p. 285, f. 11 (1907).

*Hagenius japonicus* MATSUMURA, Thous. Ins. Jap. I, t. VIII, f. 3 (1903).

Nom. Jap.: *Ko-omi-yamma*.

Loc.—Hokkaido (OGUMA), Honshu.

The specimen taken in Hokkaido (Sapporo) has a far smaller size than that of Honshu, and having only one cross nervure in the cubital space, as we see by the genus *Hagenius*.

Genus *Davidius* SELYS

SELYS, Bull. Acad. Belg. XLVI, p. 667 (1878); WILLIAMSON, Proc. U. S. Nat. XXXIII, pp. 273, 286 (1907).

**29. *Davidius nanus* SELYS**

*Hagenius* (?) *nanus* SELYS, Bull. Acad. Belg. XXVIII, p. 200 (1869); KIRBY, Cat. Odon. p. 75 (1890).

*Davidius nanus* SELYS, Ann. Soc. Ent. Belg. XXVII, p. 113 (1883).

Nom. Jap.:

Loc.—Japan (SELYS).

**30. *Davidius ater* HAGEN**

*Davidius* (?) *ater* HAGEN, SELYS, Bull. Acad. Belg. XLVI, p. 672 (1878); SELYS, Ann. Soc. Ent. Belg. XXVII, p. 113 (1883); KIRBY, Cat. Odon. p. 76 (1890).

Nom. Jap.:

Loc.—Tokio (HAGEN).

**31. *Davidius bicornutus* SELYS**

*Davidius bicornutus* SELYS, Bull. Acad. Belg. XLVI, p. 670 (1878); Cat. Odon. p. 76 (1890).

Nom. Jap.:

Loc.—Hokkaido (Sapporo).

Genus *Leptogomphus* SELYS

SELYS, Bull. Acad. Belg. XLVI, p. 443 (1878); WILLIAMSON, Proc. U. S. Nat. Mus. XXXIII,

pp. 273, 291 (1907).

**32. *Leptogomphus formosanus* MATSUMURA n. sp.**

Length of the abdomen; 45 mm.

Length of the hind wing; 38 mm.

Length of the pterostigma; 4 mm.

♀. Head: black, the frontal broad stripe, 2 spots of the labrum and a triangular spot at the base of the mandible greenish yellow, the lateral lobes of the labium pale yellow.

Thorax: the anterior part of the first lateral suture black, having two yellow stripes, the first one not reaching to the collar, the second one very faint and runs near the suture, the collar yellow. The posterior part broadly yellow, with black stripes at the sutures. Wings hyaline, pale brown in colour, pterostigma broad and dark brown. Legs black, coxæ yellow.

Abdomen: slender, long and black, but the 1st segment and the lower parts of the 2nd and 3rd segments yellowish, segments 3-7 with each a yellowish transverse streak, that of the 7th the broadest. Anal appendages short, not longer than the last segment, pale yellow.

Nom. Jap.: *Hoso-sanaye*.

Loc.—Formosa (MATSUMURA).

Only one female was collected by Prof. MATSUMURA in Formosa, and identified by himself as a new species to the scientific world.

**33. *Leptogomphus yayeyamensis* MATSUMURA n. sp.**

Length of the abdomen; ♂ 34-35 mm., ♀ 35-37 mm.

Length of the hind wing; ♂ 28-30 mm., ♀ 30-31 mm.

Length of the pterostigma; ♂ 2.5-3 mm., ♀ 2.5-3 mm.

Closely allied to the preceding species, but differs in the following points.

1. Size much smaller, as shown above.
2. Frontal yellow atripe is bisected in the middle by a narrow black line.
3. The yellow spots on the labrum large, somewhat parallelogram-shaped.
4. Beside the coxæ, the inner side of the first femur yellowish.

Nom. Jap.: *Hime-hoso-sanaye*.

Loc.—Riukiu (Yayeyama, KUROIWA).

This species may be a local variety of the foregoing species, as the colour patterns are nearly the same except the points above enumerated.

**Key to the species of *Leptogomphus*.**

- A. Size large, frontal yellow part entire ..... *L. formosanus*.

AA. Size small, frontal yellow part bisected ..... *L. yayeyamensis*.

Genus **Gomphus** LEACH

LEACH, Edimb. Encycl. IX, p. 137 (1815); SELYS et HAGEN, Rev. Odon. p. 81 (1850); SELYS, Synops. Gomph. p. 25 (1854); Monogr. Gomph. p. 115 (1857); TÜMPPEL, Geradfl. p. 44 (1901); WILLIAMSON, Proc. U. S. Nat. Mus. XXXIII, pp. 275, 304 (1907).

*Aeshna* KIRBY, Cat. Odon. p. 64 (1890).

**34. *Gomphus melampus* SELYS**

*Gomphus melampus* SELYS, Bull. Acad. Belg. XXVIII, p. 182 (1864); Ann. Soc. Ent. Belg. XXVII, p. 112 (1883).

*Aeshna melampus* KIRBY, Cat. Odon. p. 68 (1890); MATSUMURA, Thous. Ins. Jap. I, t. VIII, f. 5 (1903).

Nom. Jap.: *Sanaye-tombo*.

Loc.—Honshu.

**35. *Gomphus unifasciatus* OGUMA n. sp.**

Length of the abdomen; ♂ 25 mm., ♀ 34 mm.

Length of the hind wing; ♂ 28 mm., ♀ 27–30 mm.

Length of the pterostigma; ♂ ♀ 2.5 mm.

Like the preceding species, but can be distinguished by the following characteristics.

1. Body more hairy than that of *melampus*, especially in the females.
2. The middle black stripe along the second lateral suture of the thorax ill defined, the 3rd stripe at the 3rd suture very narrow; apparently, therefore, there is only one stripe on the side, missing the short second one.
3. Anal appendages of the male very densely haired, the lower one being strongly incurved.
4. Vulvar scale of the female more deeply divided, the tips of the two arms blunt, not pointed as those of *melampus*.

Nom. Jap.: *Hitosuji-sanaye*.

Loc.—Hokkaido (Nayoro, KÔMURA), Honshu (Kioto, NOHIRA), Kiushu (Kagoshima, KOMAI).

**36. *Gomphus kurilis* SELYS**

*Gomphus kurilis* SELYS, Monogr. Gomph. p. 132, t. VIII, f. 1 (1857); Ann. Soc. Ent. Belg. XXVII, p. 110 (1883).

*Aeshna kurilis* KIRBY, Cat. Odon. p. 67 (1890).

Nom. Jap.: *Chishima-sanaye*.

Loc.—Chishima (SELYS).



**37. *Gomphus suzukii* MATSUMURA n. sp.**

Length of the abdomen; ♂ 24 mm., ♀ 28 mm.

Length of the hind wing; ♂ 30 mm., ♀ 31 mm.

Length of the pterostigma; ♂ ♀ 2 mm.

Head: black, the frons, both sides of the upper clypeus, middle part of the clypeus, distal margin of the labrum and labium pale yellow.

Thorax: greenish yellow in the male, yellow in the female, frontal part black, having 2 longitudinal yellow stripes, not extending to the collar, each side with a Y-shaped black marking. Wings hyaline, pterostigma deep brown. Legs black, the coxae and the inner parts of the first femora yellowish.

Abdomen: ♂ slender, black, with a transverse yellow stripe on each segment of 3-7. Each lower part of the 1st, 2nd and 3rd segments, the hind margin of the 2nd and the olleilet yellow. Upper anal appendages pale yellow, stout and cylindrical at the base, but the terminal halves suddenly becoming slender, sharply pointed, curved inwards and then reflexed at the extremities, an obtuse process to the outside near the base of each. Lower appendage divided into two, widely apart from each other, very short and blakish in colour.

♀. Similarly coloured to the male, but the yellow bands broader, the anal appendages yellow. Vulvar scale far shorter than the half of the 9th segment, roundly tipped.

Nom. Jap.: *O-ziro-sanaye*.

Loc.—Honshu (Tokio, UCHIDA; Kioto, SUZUKI).

**38. *Gomphus hakiensis* MATSUMURA n. sp.**

Length of the abdomen; .28 mm.

Length of the hind wing; 25 mm.

Length of the pterostigma; 3 mm.

♀. Allied to *G. suzukii* but differs from it as follows:

1. Head entirely black except the frons, that is yellow.
2. Thorax with two parallel black stripes to each side.
3. Pterostigma longer.
4. Abdomen with some broken linear yellow markings, which run along the long axis of the abdomen, on both sides of the segments.
5. Anal appendages black.
6. Vulvar scale longer than the 9th segment, with blunt tips.

Nom. Jap.: *Haki-sanaye*.

Loc.—Kiushu (Haki, MATSUMURA).

♂. Unknown.

**39. *Gomphus flavolimbatus* MATSUMURA n. sp.**

Length of the abdomen; 32 mm.

Length of the hind wing; 28 mm.

Length of the pterostigma; 3 mm.

♀. Form and colour like those of the preceding two species, but are distinguished in the following points:

1. Labrum with a pair of square yellow patches, the base of the mandible yellow.
2. Thorax with only one broad stripe on each side.
3. Abdomen with 2 transverse bands and on the side with long markings. Vulvar scale short, triangularly shaped, sharply pointed at the tip, provided with a median fissure.
4. Anal appendages yellowish white.

Nom. Jap.: *Hime-sanaye*.

Loc.—Honshu (Tokio, UCHIDA).

♂. Unknown.

**40. *Gomphus postocularis* SELYS**

*Gomphus postocularis* SELYS, Bull. Acad. Belg. XXVIII, p. 181 (1969); Ann. Soc. Ent. Belg. XXVII, p. 112 (1883).

*Aeshna postocularis* KIRBY, Cat. Odon. p. 69 (1890).

Nom. Jap.: *Ô-sanaye*.

Loc.—Hokkaido, Honshu.

**41. *Gomphus yayeyamensis* MATSUMURA n. sp.**

Length of the abdomen; 45 mm.

Length of the hind wing; 39 mm.

Length of the pterostigma; 4 mm.

♀. Head: black, except the frons and the base of the mandible, which are yellow; frontal tubercle with a pair of spines near the eyes.

Thorax: yellow, with black bands, the first of which on the frontal suture not reaching to the collar, the second on the shoulder, extending from the scapula to coxa and broad, the third on the second lateral suture, being very narrow and faint. Wings hyaline, pterostigma long and pale brownish. Legs deep black throughout.

Abdomen: black, with a yellow ring near the proximal side on each segment of 3-7, the lower half of the second segment yellow, the dorsal part of the segment has a longitudinal yellow spot. The ninth segment with a yellow spot on each side, the distal halves of the 9th and 10th being also yellow. Anal appendages yellow.

Nom. Jap. : *Yayeyama-sanaye*.

Loc.—Riukiu (*Yayeyama, KUROIWA*).

♂. Unknown.

#### 42. *Gomphus melanops* SELYS

*Gomphus melanops* SELYS, Synops. Gomph. p. 29 (1854); Monogr. Gomph. p. 128 (1883); Ann. Soc. Ent. Belg. XXVII, p. 111 (1883).

*Aeshna melanops* KIRBY, Cat. Odon. p. 68 (1890).

Nom. Jap. : *Hime-yama-sanaye*.

Loc.—Honshu.

#### 43. *Gomphus pryeri* SELYS

*Gomphus pryeri* SELYS, Ann. Soc. Ent. Belg. XXVII, p. 111 (1883).

*Aeshna Pryeri* KIRBY, Cat. Odon. p. 68 (1890).

Nom. Jap. : *Kiïro-hime-yama-sanaye*.

Loc.—Honshu.

It is quite curious that I have never seen the male insect and SELYS has also described the female specimen. Two specimens in the cabinet of our University are also female.

#### 44. *Gomphus occultus* SELYS

*Platygomphus* (?) *occultus* SELYS, Bull. Acad. Belg. XLVI, p. 440 (1878); KIRBY, Cat. Odon. p. 70 (1890).

Nom. Jap. : *Megane-sanaye*.

Loc.—Riukiu.

### Remarks on Japanese *Gomphus*.

Eleven species of *Gomphus* are known from the Japanese empire as I have just mentioned above. Five of these are new to science and the rest were recorded by SELYS. Three of these new species were authorized by Prof. MATSUMURA, and they are curiously the female sex only.

In rational judgement they may be separated into two or three distinct genera, for instance, *Gomphus (kurilis)*, *Hemigomphus (suzukii)*, *Platygomphus (occultus)*, etc. but I am not able to find the data enough to make a decision to separate them, owing partly to the lack of materials, especially the male specimens, and partly to the want of literature.

I have therefore included them provisionally in one genus *Gomphus* in this paper, though some differences are clearly to be recognizable among them.

### Key to the species of *Gomphus*.

A. Face yellow ..... *G. kurilis*.

## AA. Face black.

## B. Size small, shorter than 50 mm. in length.

C. Occiput yellow ..... *G. postocularis*.

## CC. Occiput black.

D. The long yellow patches at the anterior part of the thorax not reaching to the collar.

E. Anal appendages yellowish.

F. Thorax with a Y-shaped black marking on each side ..... *G. suzukii*.FF. Thorax with one stripe on each side ... *G. flavolimbatus*.EE. Anal appendages black ..... *G. hakiensis*.

DD. The long anterior patches of the thorax connected with the collar.

E. Thorax with two lateral black stripes .... *G. melampus*.EE. Thorax with one lateral stripe ..... *G. unifasciatus*.

## BB. Size large, longer than 60 mm. in length.

C. ♀ with a spine in the middle part of the occiput.

D. Labrum entirely black ..... *G. melanops*.DD. Labrum with 2 yellow spots ..... *G. pryeri*.DDD. The proximal half of the labrum yellow ..... *G. occultus*.CC. ♀ without spine on the occiput ..... *G. yayeyamensis*.Genus *Lindenia* DE HAAN

DE HAAN, Bijd. Nat. Wetensch. I, p. 47 (1826).

*Onycogomphus* SELYS, Synops. Gomph. p. 11 (1854); Monogr. Gomph. p. 15 (1857); WILLIAMSON, Proc. U. S. Nat. Mus. XXXIII, pp. 275, 308 (1907).**45. *Lindenia viridicosta* OGUMA n. sp.**

Length of the abdomen; ♂ 40 mm., ♀ 40 mm.

Length of the hind wing; ♂ 33 mm., ♀ 35 mm.

Length of the pterostigma; ♂ ♀ 3.5 mm.

Head: black, frons above and two roundish spots on the labrum pale greenish yellow, the lower clypeus citron yellow.

Thorax: black, with yellow stripes as in the cases of other species of this genus, frontal yellow markings imbedded in a black part, on each side of the mediodorsal carina with a long yellowish stripe not jointed with the collar, the anterior half of the carina also yellow. Side yellow, with two black bands. Legs black, coxae yellow. Wings hyaline, nervures black, costa greenish, marginéd with very narrow black lines. Pterostigma dark brown, membranula

whitish.

Abdomen: slender, segment 7 a little and 8, 9 strongly dilatated in the male; black with a yellow transverse stripe on each segment of 3rd to 7th basally, that of the 7th the broadest, occupying nearly a half length of the segment. Segments 8th and 9th almost entirely black, only a faint yellow spot sometimes being recognizable on each side. The 10th segment yellow above, a dorsal long spot on the 3rd segment yellow. The hind margins of 1 and 2 segments and the olleilet yellow.

♂. Upper anal appendages tapered to the tips, curved moderately downwards and sharply pointed at the apex, long, as long as the last two segments, black.

The lower appendages longer than those of the uppers, projecting upwards between the uppers, having nearly the same width throughout, bluntly tipped, black.

♀. Anal appendages a little longer than the last segment, slender and light yellow. Vulvar scale very short.

Nom. Jap.: *Onaga-sanaye*.

Loc.—Honshu (Tokio, UCHIDA; Hiroshima, URAKAMI).

**46. *Lindenia formosana* MATSUMURA n. sp.**

Length of the abdomen; 43–46 mm.

Length of the hind wing; 37–38 mm.

Length of the pterostigma; 4–4.5 mm.

♂. Body coloured like *L. viridicosta*. Wings hyaline, slightly brownish suffused, pterostigma long and black, the nervures black, membranula smoky.

Anal appendages very conspicuous, the upper ones strongly curved inwards, directing to the anterior part, not sharply pointed. The lower long, each arm of it contiguous at the terminal half, while the anterior half not contacting with each other, making a slit between them. Both terminal parts of the upper and lower closely contacted with each other on their dorsal surfaces. In the lateral view, two appendages form an oblong closed room between them.

Nom. Jap.: *Taiwan-onaga-sanaye*.

Loc.—Formosa (MATSUMURA).

Three male specimens studied, female unknown.

Genus ***Nihonogomphus*** OGUMA n. g.

Type. ***Nihonogomphus viridis*** OGUMA

Allied to *Diastatomma* in form as well as in colouration, but considerably different from it in the structures of the venation and anal appendages.

In *Nihonogomphus*, the second anal vein of the hind wing attached to the proximal side of the subtriangle, nearly in the middle point, while in *Diasta-*

*tomma*, that vein is connected with the anal main nervure far proximally to the subtriangle.

In *Nihonogomphus*, upper anal appendages long, but the lower appendage, on the contrary, very short, hardly being one third of the upper, while in *Diastatomma* those of two appendages are nearly equal or the lower somewhat longer than the upper.

In *Nihonogomphus*, moreover, each arm of the fork rather diverges, ending in a roundish tip, but that of *Diastatomma* being nearly contiguous and ending in a sharp tip.

From the view of venation, it seems to be closely related to *Gomphus*, having no alliance to *Diastatomma*.

Leaving this view aside, however, none of the structures of the body, namely of head or abdomen, represents any resemblance to *Gomphus*, but to *Diastatomma*.

The structure of the anal appendages rather like that of *Longchampia* of KIRBY, or *Diastatomma* of SELYS, but all the triangles and subtriangles are entirely open, free from cross nervures as in *Nihonogomphus*.

From *Lindenia* this genus should be sharply distinguishable by the structure of the anal appendages and colour pattern.

On the account of the above mentioned characters I settle a new genus naming *Nihonogomphus*, on which I applied the Japanese name of Japan.

**47. *Nihonogomphus viridis* OGUMA n. sp.**

Length of the abdomen; 38 mm.

Length of the hind wing; 33 mm.

Length of the pterostigma; 3.5 mm.

♂. Head: light grass green, having a china-ware lustre, but the part where the ocelli stand black, the suture of the clypeus margined with black, broken in the middle, the labrum also black margined.

Thorax: light grass green, with a pair of broad black band on each shoulder, a black band at the mediodorsal carina, of which the anterior half green, a very narrow black stripe at the third lateral suture on each side, scapulae black. Legs short, entirely black. Wings hyaline, with black nervures, pterostigma chestnut brown, membranula very small, scarcely smoky coloured.

Abdomen: longer than the hind wings, black, with a broken green linear marking along the dorsal line on each of segments 1 to 5, and rings on the 4-7, the parts bearing these markings much swollen in the segments 1 and 2. The lower sides of 1 and 2 segments with each a green ocelllet and 3 partly green. The segment 7 slightly, 8 and 9 strongly dilated, on these dilated parts are large

greenish spots near the margin to each segment, the last segment being yellowish dorsally. Upper anal appendages nearly as long as the 9th segment, yellow, terminal one third curves inwards in almost right angles as that of *Diastatomma tricolor*, a small tubercle on the underside of its curving point. The lower appendage very short, blackish, not longer than the upper.

Nom. Jap.: *Ô-sanaye*.

Loc.—Honshu (Shinano, Hiroshima, URAKAMI; Kioto, SUZUKI).

An aberrant form of this species has been taken by Mr. M. SUZUKI in Kioto, that form firstly has a larger measurement, secondly yellow coloured in spite of green as the type and thirdly the wings are slightly tinged with pale saffron. The measurements are as follows.

Abdomen 40 mm., hind wing 35 mm., pterostigma 4 mm.

Four male specimens studied, the female unknown.

#### Genus *Diastatomma* BURMEISTER

BURMEISTER, Handb. Ent. II, p. 831 (1839); CHARP, Lib. Eur. p. 15 (1840).

#### 48. *Diastatomma cecilia* FOURCROY

*Libellula cecilia* FOUR., Ent. Par. II, p. 348 (1785).

*Aeschna serpentina*, CHARP., Hor. Ent. p. 25 (1825).

*Gomphus serpentinus* RAMB., Ins. Nevr. p. 348 (1842); SELYS et HAGEN, Rev. Odon. p. 93 (1840); TüMPPEL, Geradfl. p. 45, t. VI (1901).

*Ophiogomphus serpentinus* SELYS, Monogr. Gomph. p. 79 (1857).

*Ophiogomphus cecilia* BARTENEV, Zool. Anz. XXXV. p. 273 (1910).

*Diastatomma cecilia* KIRBY, Cat. Odon. p. 62 (1890).

Nom. Jap.: *Karafuto tombo*.

Loc.—Sakhalin (OGUMA).

#### Key to the Genera of Gomphinae.

- A. Basal antenodal absent.
  - B. Subtriangle crossed and supratrangular nervures present .... *Ictinus*.
  - BB. Subtriangle free, no supratrangular nervures.
    - C. Triangle of the hind wing crossed.
      - D. Size large, triangle of the fore wings crossed ... *Sieboldius*.
      - DD. Size small, triangle of the fore wing free from cross nervures ..... *Davidius*.
    - CC. Triangle of the hind wing free from cross nervures.
      - D. The lower anal appendage equal to or longer than the upper, and the arms of the lower contiguous.

- E. Anal appendages conspicuously long, longer than the last 2 abdominal segments ..... *Lindenia*,  
 EE. Anal appendages not so remarkable, much shorter than the last two segments ..... *Diastatomma*..  
 DD. The lower anal appendages equal to or shorter than that of the upper, each arm not contiguous.  
 E. Upper anal appendages pincers-shaped .....  
 ..... *Nihonogomphus*.  
 EE. Upper anal appendages diverge ..... *Gomphus*.  
 AA. Basal antenodal present, pterostigma without brace vein ... *Leptogomphus*..

\* \* \*

\*

## 摘 要

### 日 本 産 ヤ ン マ 科

日本ニ産スルヤンマ(蜻蛉)科 Aeschnidae ノ種類ハ、著者ノ研究ニ依レバ四十八種ニシテ、中一屬十五種ハ新屬並ニ新種トシテ、茲ニ始メテ學界ニ報告セラル、即チ次ノ如シ。

- |  |            |
|--|------------|
| 1. <i>Anax nigrofasciatus</i> OG.                | クロスダギンヤンマ  |
| 2. <i>Aeschna juncea angustistyla</i> OG.        |            |
| 3. <i>Chlorogomphus brevistigma</i> OG.          | ヒロバヤンマ     |
| 4. <i>Ch. brunneus</i> OG.                       | カラスヤンマ     |
| 5. <i>Orogomphus suzukii</i> OG.                 | ホソミヤンマ     |
| 6. <i>Leptogomphus formosanus</i> MATS.          | ホソサナエ      |
| 7. <i>L. yayeyamensis</i> MATS.                  | ヒメホソサナヘ    |
| 8. <i>Gomphus unifasciatus</i> OG.               | ヒトスヂサナヘ    |
| 9. <i>G. suzukii</i> MATS.                       | ヲジロサナヘ     |
| 10. <i>G. hakiensis</i> MATS.                    | ハキサナヘ      |
| 11. <i>G. flavolimbatus</i> MATS.                | ヒメサナヘ      |
| 12. <i>G. yayeyamensis</i> MATS.                 | ヤエヤマサナヘ    |
| 13. <i>Lindenia viridicosta</i> OG.              | ヲナガサナヘ     |
| 14. <i>L. formosana</i> MATS.                    | タイワンヲナガサナヘ |
| 15. <i>Nihonogomphus</i> (新屬) <i>viridis</i> OG. | ヲホサナヘ      |