

Records of the Northern Vietnamese Odonata
Taken by the Expedition Members from
the National Science Museum, Tokyo

4. Libellaginidae, Euphaeidae, Calopterygidae and
Amphipterygidae^{1,2)}

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Abstract Eleven species of northern Vietnamese dragonflies are recorded in the fourth part of this series. They are classified into four families, Libellaginidae (one), Euphaeidae (three), Calopterygidae – Caliphaeinae (one), Calopterygidae – Calopteryginae (five), and Amphipterygidae (one).

In the fourth part of this series of reports, eleven species of northern Vietnamese Odonata belonging to four zygopterid families will be recorded. Six of them are included in the family Calopterygidae, three in the Euphaeidae, and the remaining two in the Libellaginidae and the Amphipterygidae, respectively.

Family Libellaginidae

40. *Rhinocypha (Aristocypha) fenestrella* RAMBUR

Rhinocypha fenestrella RAMBUR, 1842, Ins. Nevropt., p. 236. — FRASER, 1934, Fn. Brit. Ind., Odonata, 2, pp. 17–20.

Rhinocypha (Aristocypha) fenestrella: ASAHINA, 1985, Chocho, 8(11), pp. 12–15, 17, figs. 32–39, 51–53 (Thailand).

Aristocypha f. fenestrella: VAN TOL & ROZENDAAL, 1995, pp. 94–95 (Vietnam: E 332, 335, 340–342, 370–371).

Specimens examined. 1 ♀, Pac Po, 340 m alt., Cao Bang Prov., 2–X–1994, A. SAITO leg.; 1 ♂, Tam Dao, 930 m alt., Vinh Phu Prov., 19–V–1995, Y. NISHIKAWA leg.; 1 ♂, Ao Vua, 220 m alt., Ba Vi, Ha Tay Prov., 27–IV–1995, M. SATÔ leg.; 1 ♂, Mt. Tan Vien, 390 m alt., Ba Vi, Ha Tay Prov., 27–IV–1995, Y. NISHIKAWA leg.; 1 ♂, Xuan Nha, 850 m alt., Moc Chau, Son La Prov., 30–IV–

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1995, M. OWADA leg.; 1♂, Xuan Nha, 850 m alt., Moc Chau, Son La Prov., 30-IV-1995, M. SATÔ leg.; 3♂, Xuan Nha, 850 m alt., Moc Chau, Son La Prov., 30-IV-1995, S. UÉNO leg.; 1♂, Ban Him Bon, 440 m alt., Pa Ha, Muong Lay, Lai Chau Prov., 7-V-1995, Y. NISHIKAWA leg.; 1♂, Ban Him Bon, 440 m alt., Pa Ha, Muong Lay, Lai Chau Prov., 8-V-1995, Y. NISHIKAWA leg.; 2♂, Ban A Chia, 890 m alt., Hung Nga, Muong Lay, Lai Chau Prov., 8-V-1995, M. OWADA leg.; 2♂, Ban A Chia, 890 m alt., Hung Nga, Muong Lay, Lai Chau Prov., 8-V-1995, A. SAITO leg.; 3♂, 2♀, Ban A Chia, 890 m alt., Hung Nga, Muong Lay, Lai Chau Prov., 8-V-1995, M. SATÔ leg.

Probably a very common species in northern Vietnam.

Family Euphaeidae

41. *Euphaea ochlacea* SELYS

Euphaea ochlacea SELYS, 1859, p. 443, ♂, "Le Mont Ophir, à Malacca". — WILLIAMSON, 1904, pp. 181-182, "Siam (coll. U. S. N. M.)." — ASAHINA, 1985, Chocho, 8 (12), pp. 22-25, figs. 15-20 (Thailand).

Euphaea o. ochlacea: VAN TOL & ROZENDAAL, 1995, pp. 97-100 (E 322, 336, 340-342).

Specimens examined. 1♂, Ban Him Bon, 440 m alt., Pa Ha, Muong Lay, Lai Chau Prov., 7-V-1995, A. SAITO leg.; 2♂, Ban A Chia, 890 m alt., Hung Nga, Muong Lay, Lai Chau Prov., 8-V-1995, A. SAITO leg.; 2♂, 1♀, Ban A Chia, 890 m alt., Hung Nga, Muong Lay, Lai Chau Prov., 8-V-1995, A. SHINOHARA leg.; 1♂, Ban A Chia, 890 m alt., Hung Nga, Muong Lay, Lai Chau Prov., 8-V-1995, M. OWADA leg.

These specimens are closely similar to those of Thailand and Malaysia.

42. *Euphaea guerini inouei* ASAHINA

(Fig. 12)

Euphaea guerini: ASAHINA, 1969, p. 7, ♂♂ ♀♀ (South Vietnam).

Euphaea guerini inouei ASAHINA, 1977, p. 178, figs. 40-42, ♂♂ ♀♀, "♂, Thao Balba near Dalat, S. Vietnam, 31. III. 1962; ♀ Tay Ninls, S. Vietnam, 1. V. 1958; 9♂2♀ Blao, Dalat and Ban Methout, S. Vietnam, all leg. Inoue".

Specimens examined. 3♂, Ban Khuoi Han, 230 m alt., Xa Ngu Lao, Cao Bang Prov., 30-IX-1994, A. SAITO leg.; 1♀, Ban Khuoi Han, 230 m alt., Xa Ngu Lao, Cao Bang Prov., 30-IX-1994, M. OWADA leg.

The males of this subspecies have distinctly abbreviated black band on the forewing (see ASAHINA, 1977, p. 177, fig. 50), and the vesicle of penile organ has broadly rounded lateral angle (see ASAHINA, 1977, p. 175, fig. 40).

43. *Euphaea guerini guerini* RAMBUR (?)

(Figs. 1-2, 11)

Euphaea guerini RAMBUR, 1842, pp. 229-230, "de la Cochinchine, collection de M. Guerin". — SELYS, 1853, p. 53, "Cochinchine (coll. de Selys)"; 1854, pp. 179-181, pl. 14, fig. 2, "La Cochinchine; décrite d'après le type de M. Rambur, etc." — MARTIN, 1904, p. 218 [partim?], "Cochinchine (Annam, Tonkin, Cambodge)".

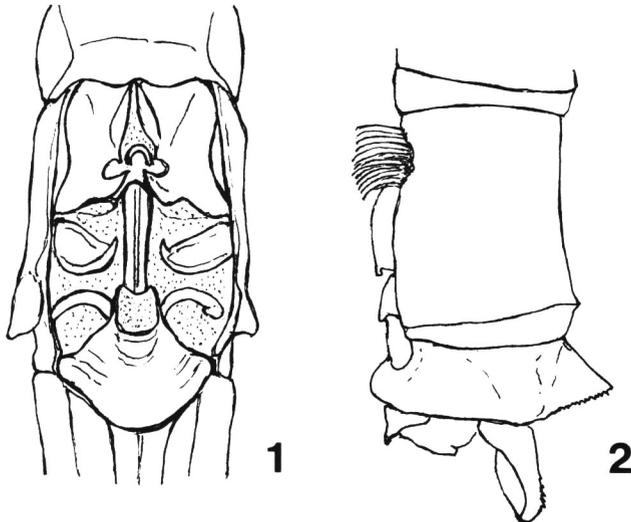
Euphaea guerini guerini: ASAHINA, 1977, p. 173 (figs. 30-33 on p. 174).

Specimens examined. 2♂, Tam Dao, 950 m alt., Vinh Phu Prov., 23-IV-1995, M. SATÔ leg.; 3♂, 1♀, Tam Dao, 950 m alt., Vinh Phu Prov., 20-V-1995, M. SATÔ leg.

The present specimens, all taken by Dr. SATÔ, are rather small-sized, very dark-coloured individuals, and are considered to belong to the *guerini* group, not to the *inouei* group which is characterized by the diminished dark area of the wings.

In the male forewings, the black area is recognized as a very broad stripe, whose proximal hyaline area is practically absent, so that the proximal 4/5 of the wing is uniformly darkened. The hind wings are entirely darkened in all of the present specimens (Fig. 11). These features recall the case of an Annamese male specimen, illustrated in my 1977 paper (p. 167, fig. 2, and p. 177, fig. 52, in coll. Mus. Paris).

The male accessory genitalia of the present Tam Dao specimens are shown in



Figs. 1-2. *Euphaea guerini guerini* RAMBUR, ♂. — 1. Accessory genitalia of the second abdominal segment, ventral, showing the shape of vesicula seminalis which is laterally pointed. — 2. Last two segments of abdomen, showing the lateral brush-bundle.

Fig. 1, which proves their close similarity to the illustrations given by VAN TOL and ROZENDAAL (1995, p. 102) on the basis of Vietnamese *E. guerini* (figs. 20–21).

I believe that geographical variation of the species *E. guerini* should be revised in future based on sufficiently ample materials from the whole areas of the Indochinese Peninsula.

In the female, the pterothoracic and abdominal patterns are very much darkened in the single specimen examined.

Measurements:— ♂ hindwing length 27–28 mm, abdomen 34–36 mm.

♀ hindwing length 28 mm, abdomen 30 mm.

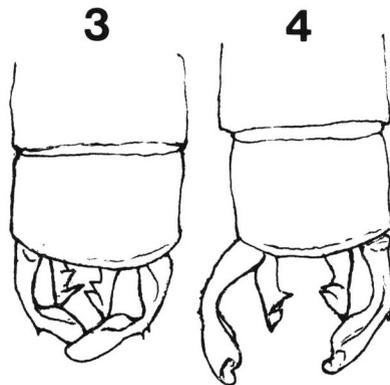
Family Calopterygidae – Caliphaeinae

44. *Caliphaea confusa* SELYS

(Figs. 3–4)

Caliphaea confusa SELYS, 1859, p. 440, ♂, “Le Nepaul, par Hardwicke, Mus. Brit.” — KIRBY, 1890, p. 108, “Nepal”. — LAIDLAW, 1917, pp. 30–31, pl. 2, fig. 1 (wings) (discussion). — MORTON, 1928, p. 111, (Yunnan), “apparently common, represented by a long series of both sexes”. — FRASER, 1929, pp. 596–597, fig. 2 (wings), ♂ ♀; 1934, pp. 149–151, fig. 44, “Bengal, Nepal, Assam”; 1943, p. 86, fig. 4 (Shillong, Assam, Fletcher) [larva]. — KLOTS, 1947, p. 11, “Szechuan Prov., Mt. Omei, 3♂ 1♀.” — ASAHINA, 1965, p. 6, “3♂ Godavari, Nepal”; 1976, Kontyû, Tokyo, 44, pp. 396–397, “Coll. Asahina: 1♂ Shillong, Assam, 9. V. 1928, leg. Fraser ex coll. St. Quentin; 3♂ Godavari, Kathmandu, 24. V. – 4. VII. 1964, leg. R. Kano; 4♂ ditto, 10. VI. – 10. VII. 1963, leg. A. Hara; 1♂ ditto, 20. IV. 1968, leg. T. Kumata”.
Caliphaea sp. (*confusa*?): ASAHINA, 1976, Kontyû, Tokyo, 44, p. 397, “1♂ Tonkin” (coll. Mus. Paris (see ASAHINA, 1975, p. 256, “This last specimen was a female of a *Caliphaea* species!”)).
Notholestes elwesi MACLACHLAN, 1877, p. 32, “Darjeeling...”. — KIRBY, 1890, p. 111, “Darjeeling...”.

Specimens examined. 1♂, 1♀, Mt. Phang Si Pang, N ridge 1,950 m alt.,



Figs. 3–4. *Caliphaea confusa* SELYS, ♂♂; caudal appendages.

Hoang Lien Son Mts., Lai Chau Prov., 11-V-1995, A. SAITO leg.; 1 ♂, Mt. Phang Si Pang, N. ridge 1,950 m alt., Hoang Lien Son Mts., Lai Chau Prov., 17-V-1995, M. SATÔ leg.

The three specimens recorded above agree well with the species “*confusa*”, and our present males in particular coincide with those described from Yunnan in the structure of the distal part of inferior appendages (Figs. 3–4).

In the female specimens, peculiar minute distal spines on both sides of the mesostigmal plates are rather short, and in this character they are allied to the specimens taken from Kuatun, Fukien Province.

Family Calopterygidae – Calopteryginae

45. *Vestalis smaragdina smaragdina* SELYS

Vestalis smaragdina SELYS, 1879, pp. 362–363, “Kasyia Hills (Bengale) en octobre par M. Atkinson (coll. Selys)”.

Vestalis smaragdina smaragdina: ASAHINA, 1985, Tombo, Tokyo, 28, pp. 9–10, figs. 11–16 (on p. 8) (Thai specimens 7♂, 4♀).

Specimens examined. 1♂, 1♀, Sa Pa, 800–1,200 m alt., Lao Cai Prov., 6–X–1995, H. KURAHASHI leg.

This is a widely distributed South Asian species, known to range to Bengal, Nepal, Assam, Burma and Thailand. From the West Chinese area, *V. smaragdina vulata* RIS (1912) has been recorded.

46. *Vestalis gracilis gracilis* (RAMBUR)

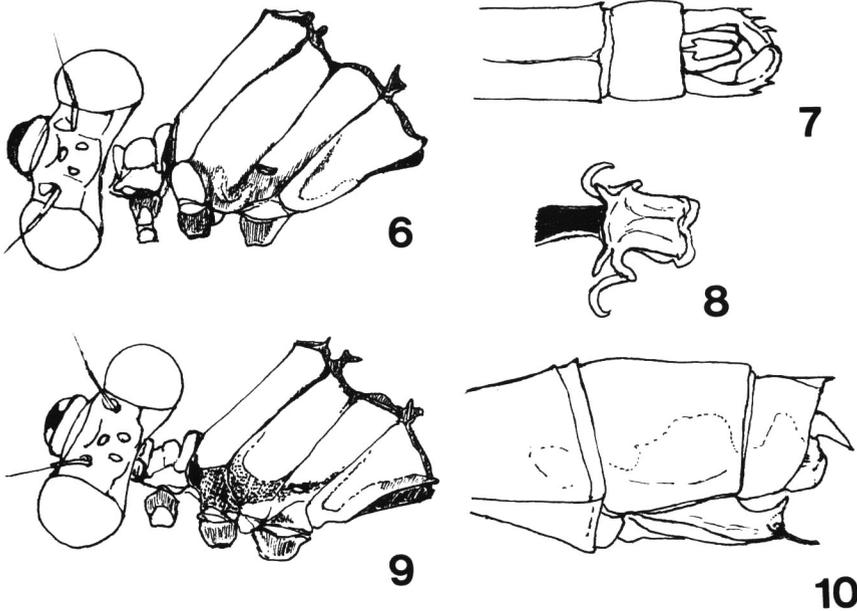
Vestalis gracilis gracilis: ASAHINA, 1985, Tombo, Tokyo, 28, pp. 14–15, figs. 32–36, 55–56, ♂♂ ♀♀ (Thailand).

Specimen examined. 1♂, Dong Hung Tien Son, 750 m alt., Ban Bo, Phong Tho, Lai Chau Prov., 10–V–1995, M. SATÔ leg.

A common South Asian species known to occur from western India to Assam, Burma, Thailand and other Indochinese areas.



Fig. 5. *Mnais andersoni* MACLACHLAN, ♂; distal part of penile organ, ventral view.



Figs. 6-10. *Calopteryx coomani* (FRASER). — 6, ♂, Head and thorax; 7, ♂, distal abdominal segments, dorsal; 8, ♂, terminal part of penile organ; 9, ♀, head and thorax; 10, ♀, distal abdominal segments.

47. *Mnais andersoni* MACLACHLAN

(Fig. 5)

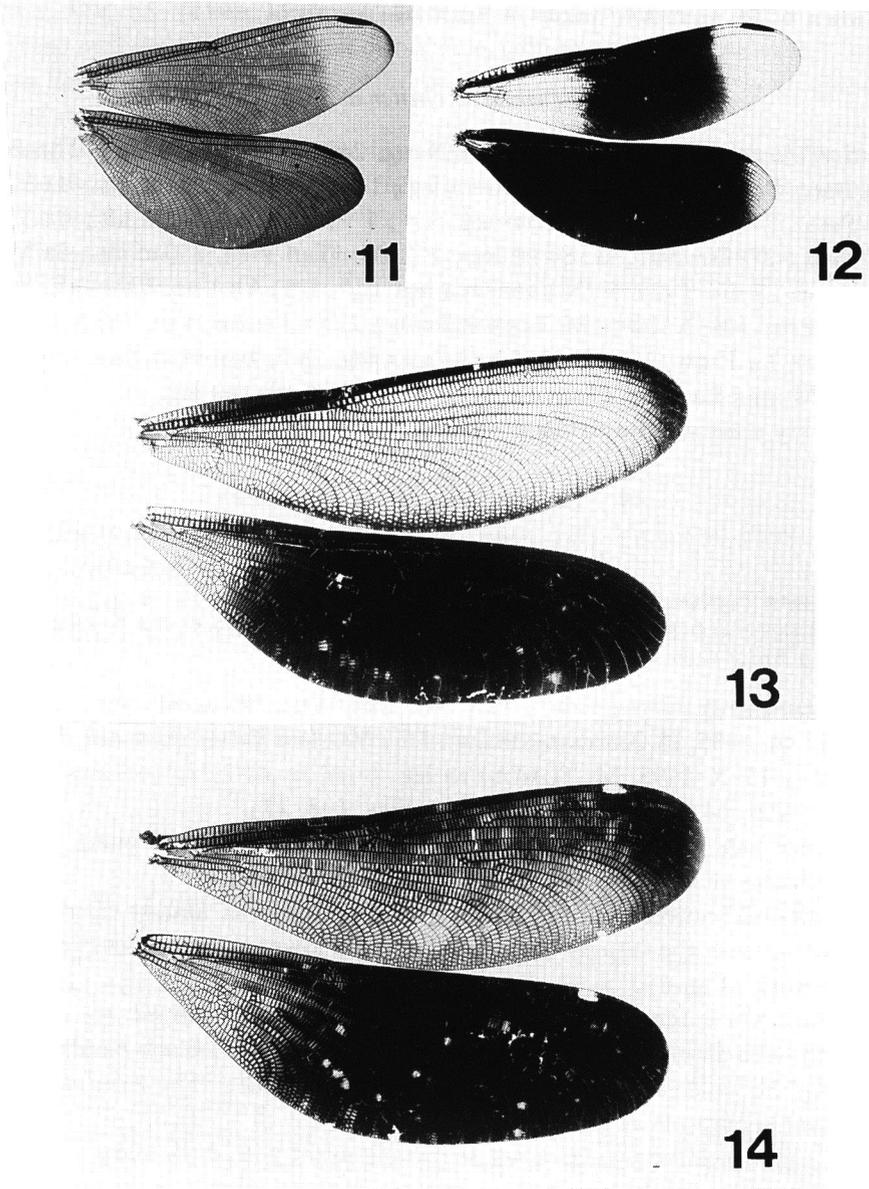
Mnais andersoni MACLACHLAN, 1873, Bull. Acad. r. Belg., (2), 35, p. 472, "Yunnan". — ASAHINA, 1961, p. 211, "Doi Suthep"; 1975, p. 8, fig. 29 (♂ total figure), fig. 29 (wings), "3 ♂ all hyaline-winged, Chiangmai area, N. Thailand".

Mnais earnshawi (1♂) and *andersoni* (3♂): FRASER, 1932, p. 288, figs. 18-19, 28-29, "two adult males and one female, Pang Tawn, Chiangmai, N. Siam, 2. 5. 31".

Specimens examined. 2♂, 1♀, Tam Dao, 910m alt., Vinh Phu Prov., 21-IV-1995, S. UÉNO leg.; 1♀, Tam Dao, 910m alt., Vinh Phu Prov., 22-IV-1995, M. SATÔ leg.; 1♀, Tam Dao, 910m alt., Vinh Phu Prov., 23-IV-1995, Y. NISHIKAWA leg.; 2♀, Tam Dao, 910m alt., Vinh Phu Prov., 12-V-1995, M. SATÔ leg.

In the males, the pterostigmata are always long (3 cell-length) and dark reddish, while in the females, they are short (2 cell-length) and pale brownish coloured, but in one female taken by NISHIKAWA, the pterostigmata are dark reddish and 2.5 cell-length.

The penile organ of one male specimen was checked (Fig. 5). It seems to coincide with the drawings made by myself on the basis of the male lectotype



Figs. 11-14. Wing venation. — 11. *Euphaea guerini guerini* RAMBUR, ♂, Tam Dao; hindwing length 28 mm. — 12. *Euphaea guerini inouei* ASAHINA, ♂, Thailand. — 13. *Calopteryx coomani* (FRASER), ♂. — 14. *Calopteryx coomani* (FRASER), ♀.

specimen of *M. andersoni* taken in Yunnan (ASAHINA, 1975).

48. *Neurobasis chinensis* (LINNÉ)

Specimens examined. 1♂, Nam Nang, 240 m alt., Kim Dong, Thach An, Cao Bang Prov., 3-X-1994, A. SAITO leg.; 1♂, Ao Vua, 200 m alt., Ba Vi, Ha Tay Prov., 27-IV-1995, A. SAITO leg.; 1♂, 1♀, Ao Vua, 200 m alt., Ba Vi, Ha Tay Prov., 27-IV-1995, M. SATÔ leg.; 1♀, Mt. Tan Vien, 250 m alt., Ba Vi, Ha Tay Prov., 27-IV-1995, Y. NISHIKAWA leg.; 1♂, 1♀, Ao Vua, 200 m alt., Ba Vi, Ha Tay Prov., 16-X-1995, M. TOMOKUNI leg.; 1♀, Truong Yen, 950 m alt., Moc Chau, Son La Prov., 1-V-1995, M. OWADA leg.; 1♂, Ban Him Bon, 440 m alt., Pa Ha, Muong Lay, Lai Chau Prov., 7-V-1995, A. SAITO leg.

A very common South Asian species.

49. *Calopteryx coomani* (FRASER)

(Figs. 6-10, 13-14)

Agrion coomani FRASER, 1935, Rec. Ind. Mus., 37, p. 331, "Tonkin 2♂".

Calopteryx coomani: ASAHINA, 1969, Jpn. J. Zool., 16, p. 9, "1♂ Saigon, ex coll. Nakahara", fig. 16 (on p. 8) (♂ caud. app.), pl. 1, fig. 11 (wings).

Specimens examined. 1♂, 1♀, Mt. Tan Vien, 500 m alt., Ba Vi, Ha Tay Prov., 15-X-1995, H. KURAHASHI leg.; 1♀, Mt. Tan Vien, 500 m alt., Ba Vi, Ha Tay Prov., 15-X-1995, M. TOMOKUNI leg.

♂: Abd. 64 mm, hindwing 50 mm (Figs. 6-8, 13).

Dorsal side of head shining bluish green; labrum black; labium, seen ventrally, whitish yellow with two blackish spots on mentum.

Prothorax entirely shining bluish green; pterothorax almost entirely of the same colour with the sutures black-lined and the lower areas of pleurites remaining yellowish (Fig. 6).

Coxae black, femoral and tibial spines very much developed.

Abdomen shining bluish green on entire dorsum with black caudal appendages (Fig. 7), which are short and of very simple structure. The terminal segment of the penile organ is as shown herewith (Fig. 8).

Wings broad; fore-wing rather semitransparent with dark margin (Fig. 13), i.e., minute cross-veinlets are making semitransparent effect, but the marginal line of the wings are much darkened. Pterostigma absent.

The median space of the wing-base is extremely short, and without any cross-vein in it!

Hindwing is of similar structure to the fore-wing, but is strongly darkened except for basal 1/6, which is reticulated as that of the fore-wing. Any trace of pterostigma cannot be recognized.

♀: Abd. 55–59 mm, hindwing 49–50 mm (Figs. 9–10, 14).

Head brilliant bluish green on dorsal side, labium pale yellowish except for its median dark portion (Fig. 9). Prothorax and pterothorax similarly coloured to those of the male, legs also.

Both wings are of similar structure, but darker tinted than those of the male, particularly in the fore-wings, and there are distinct whitish pseudo-pterostigma made of 5–6 minute cellules.

Abdomen dark brownish coloured except the first segment which is greenish! Terminal three segments (Fig. 10) swollen and brownish, more or less paler ventrally; there is a minute but sharp median spine at the end of the last segment. Cerci short and acutely ending. The stylus of the valve is long.

Family Amphipterygidae – Philoganginae

50. *Philoganga* sp.

Specimen examined. 1♂, Tam Dao, 930 m alt., Vinh Phu Prov., 25–IV–1995, A. SAITO leg.

Philogangids are peculiar robust-bodied damselflies ranging from Assam, Bengal, Burma and northern Thailand to Indochinese and South Chinese provinces.

Since our present material comprises only a single rather poor specimen, a detailed explanation and discussion will be made separately in future on the basis of all the material available at hand.

References

- ASAHINA, S., 1961. Contributions to the knowledge of the odonate fauna of Central China. *Tombo, Tokyo*, 4: 1–17.
- 1965. The Odonata of Hong Kong. *Kontyû, Tokyo*, 33: 493–506.
- 1967. Notes on two amphipterygid dragonflies from Southeast Asia. *Dt. ent. Z.*, (N. F.), 14: 323–326.
- 1969. South Vietnam Odonata taken by Mr. Y. INOUE. *Jpn. J. Zool.*, 16: 1–18. 1 pl.
- 1975. A revisional study of the genus *Mnais* (Od. Calopterygidae). III. Southwest Chinese and Burmese representatives. *Kontyû, Tokyo*, 43: 1–12.
- 1976. Descriptions of one new genus and two new species of Caliphaeinae (Odonata, Calopterygidae) from Thailand, with taxonomic notes of the subfamily. *Ibid.*, 44: 387–402.
- 1977. On a small collection of the Odonata from Laos. *Ibid.*, 45: 165–181.
- 1985 a. A list of the Odonata recorded from Thailand. Part X. Libellaginidae. *Chocho*, 8(11): 2–19.
- 1985 b. Ditto. Part XI. Euphaeidae. *Ibid.*, 8(12): 18–38.
- FRASER, F. C., 1929 a. Indian dragonflies, Part XXXII. *J. Bombay nat. Hist. Soc.*, 32: 288–301.
- 1929 b. Ditto, Part XXXIII. *Ibid.*, 32: 576–597.
- 1932. Odonata. Vol. 1. *In the: Fauna of British India including Ceylon and Burma*. Taylor & Francis, London.

- FRASER, F. C., 1934. Odonata. Vol. 3. *In the: Fauna of British India including Ceylon and Burma.*
——— 1935. New Oriental dragonflies (Order Odonata). *Rec. Ind. Mus.*, 37: 321-333.
——— 1943. New Oriental odonate larvae. *Proc. r. ent. Soc. London*, (B), 12: 81-93.
- KIRBY, W. F., 1890. A Synonymic Catalogue of Neuroptera Odonata or Dragonflies. IX+202 pp.
- KLOTS, E. B., 1947. Chinese dragonflies (Odonata) in the American Museum of Natural History. *Am. Mus. Novit.*, (1341): 1-15.
- LAIDLAW, F. F., 1917. A list of the Odonata recorded from the Indian Empire with special reference to the collection of the Indian Museum. Part I. The family Calopterygidae. *Rec. Ind. Mus.*, 13: 23-40. pl. 1.
- MACLACHLAN, R., 1887. *Notholestes elwesi*, a new genus and species of Calopterygina. *Entomologist's mon. Mag.*, 24: 31-32.
- MARTIN, René, 1904. Liste des Névroptères de l'Indo-chine. *Mission Pavie, Zoologie, Névroptères*, 204-221.
- MORTON, K. J., 1928. Notes on the Odonata of Yunnan, with descriptions of new species. *Trans. ent. Soc. London*, 1928: 109-118.
- RAMBUR, M. R., 1842. Histoire naturelle des Insectes. Névroptères. 534 pp., 12 pls.
- RIS, F., 1912. Neue Libellen von Formosa, Südchina, Tonkin und den Philippinen. *Suppl. ent.*, (1): 44-85, 3 pls.
- SELYS LONGCHAMPS, Edm. de, 1853. Synopsis des Calopterygines. *Bull. Acad. r. Belg.*, (1), 20: 1-73.
——— 1854. Synopsis des Gomphines. *Ibid.*, (1), 21: 23-116.
——— 1859. Additions au Synopsis des Calopterygines. *Ibid.*, (2), 7: 437-451.
——— 1879. Quatrièmes additions au Synopsis des Calopterygines. *Ibid.*, (2), 47: 1-63.
- VAN TOL, J., & F. G. ROZENDAAL, 1995. Records of Calopterygidae from Vietnam, with descriptions of two new species (Zygoptera: Amphipterygidae, Calopterygidae, Chlorocyphidae, Euphaeidae). *Odonatologica*, 24: 89-107.
- WILLIAMSON, E. B., 1904. The dragonflies (Odonata) from Burma and Lower Siam. I. Calopteryginae. *Proc. U. S. natn. Mus.*, 28: 165-187.