

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

2. Gomphidae^{1,2)}

By

Syoziro ASAHINA

Takadanobaba 4-4-24, Shinjuku-ku, Tokyo, 169 Japan

Abstract Ten species of northern Vietnamese dragonflies of the family Gomphidae are recorded and illustrated. Two species, *Asiagomphus xanthenatus acco* and *Leptogomphus uenoi*, are described as being new to science.

In the second part of this series of reports, ten species of northern Vietnamese Odonata belonging to the family Gomphidae will be recorded and illustrated. One subspecies, *Asiagomphus xanthenatus acco* and one species, *Leptogomphus uenoi* will be described as being new to science.

Family Gomphidae

8. *Ictinogomphus clavatus* (FABRICIUS, 1775)

Specimens examined. 1 ♀, Cuc Phuong, 370 m, Gia Vien, Ninh Binh Prov., 24-V-1995, M. OWADA leg.; 1 ♀, Cuc Phuong, 160 m, Gia Vien, Ninh Binh Prov., 27-V-1995, A. SAITO leg. (at light); 1 ♀, Deo Thung Khe, 700 m, Mai Chau, Hoa Binh Prov., 29-IV-1995, M. SATÔ leg.

This is a well known East Asiatic species ranging extensively in the Far Eastern areas. Based mainly on the structure of the male penile organ, FRASER (1939) split this group of dragonflies into several genera, and placed this Far Eastern species under a new genus, *Sinictinogomphus*, consisting of a single species, *S. clavatus* (FABRICIUS).

In fact, "*clavatus*" shows a unique elongate shape even in the nymphal stage, but I still adhere to the name *Ictinogomphus*.

As compared with Japanese specimens, the present Vietnamese females are

1) This study is supported by the Grant-in-aid No. 06041116 for Field Research of the Monbusho International Scientific Research Program, Japan.

2) Part 1 of this series was published in Bull. natn. Sci. Mus., Tokyo, (A), 21: 219–229 (1995).

smaller (h.w. length 44–45 mm against 49–50 mm of Japanese females) and the black stripes on the antefrons is very much narrowed.

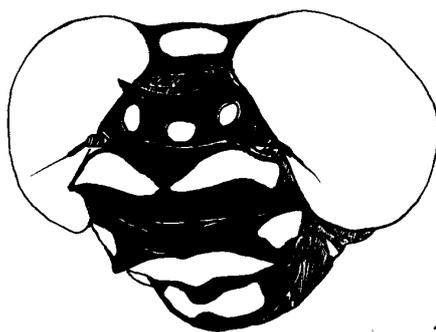
9. *Ictinogomphus pertinax* (SELYS, 1854)

(Fig. 1)

Specimens examined. 1 ♀, Cuc Phuong, 370 m, Gia Vien, Ninh Binh Prov., 26–V–1995, S. UÉNO leg.; 1 ♂ (teneral), Mt. Tan Vien, 300–400 m, Ba Vi, Ha Tay Prov., 15–X–1995, H. KURAHASHI leg.; 1 ♂, Thon 4, Thinh Hung, Yen Binh, Yen Bai Prov., 30–IX–1995, H. KURAHASHI leg.

The female specimen now brought to record is quite identical with Japanese specimens taken at Kôchi, Shikoku Island. The characteristic minute spines on the occipital ridge are illustrated (Fig. 1).

The male specimens are slightly darker in the body markings and are smaller in size, hindwing length 38 mm and pterostigma 5 mm against h.w. length 42 mm, pt. 6 mm of a specimen taken at Kôchi, Shikoku, Japan.



1

Fig. 1. *Ictinogomphus rapax*, ♂; head, oblique frontal.

10. *Gomphidia kruegeri fukienensis* CHAO, 1955

Specimen examined. 1 ♂, Ban Him Bon, 440 m, Xa Pa Ha, Muong Lay, Lai Chau Prov., 8–V–1995, Y. NISHIKAWA leg.

The nominotypical subspecies *G. kruegeri kruegeri* MARTIN, 1904, was taken in Tonkin, but the present male specimen seems rather to agree with *G. k. fukienensis* CHAO! More material is badly needed.

11. *Asiagomphus xanthenatus acco* subsp. nov.

(Figs. 2–9)

Specimens examined. 1 ♂ (Holotype), Cuc Phuong, 440 m, Gia Vien, Ninh Binh Prov., 27–V–1995, S. UÉNO leg.; 1 ♀ (Allotype), Cuc Phuong, 400 m, Gia

Vien, Ninh Binh Prov., 27-V-1995, S. UENO leg.

♂: Hindwing length 39 mm, abdomen 45 mm. A mature specimen. Body gives an impression of strong built and very darkly tinted patterns.

Ground colour of head deep black (Fig. 2), only the base of mandible being spotted with yellow, otherwise the top of frons striped with yellow; a low ridge wearing long hairs recognizable behind lateral ocelli.

Pterothorax deep black with three yellow stripes at the side: an L-shaped one on mesothoracic episternum, a broad one on mesothoracic epimeron, and a third one on the hinder area of metathoracic epimeron including metapostepimeron (Fig. 2).

Wings hyaline, all the triangles free, but the anal triangle is four-celled, showing a characteristic feature of the genus.

Legs all deep black coloured.

Abdomen (Fig. 3) mainly black-coloured, but the basal two segments are mostly yellowish, which may be a pattern characteristic of this species. This yellowish part continues to the broad yellow area of the metepimeron. Posteriorly on abdominal segments, yellowish spots present only on the 6th, 7th and 9th ones.

Caudal appendages (Figs. 4-5) unique, the superior one being sharply pointed and provided with a median spine. The inferior appendage widely opened.

Accessory genitalia (Fig. 6) showing the unique but characteristic style of the genus *Asiagomphus*.

♀: Hindwing length 43 mm, abdomen 48 mm. Body rather bulky or elongate in appearance. Ground colour of body deep black with distinct yellowish pattern.

Head entirely deep shining black, only a narrow stripe on frons being yellow. Behind lateral ocelli, unique ridges present as if eyebrows (Fig. 7).

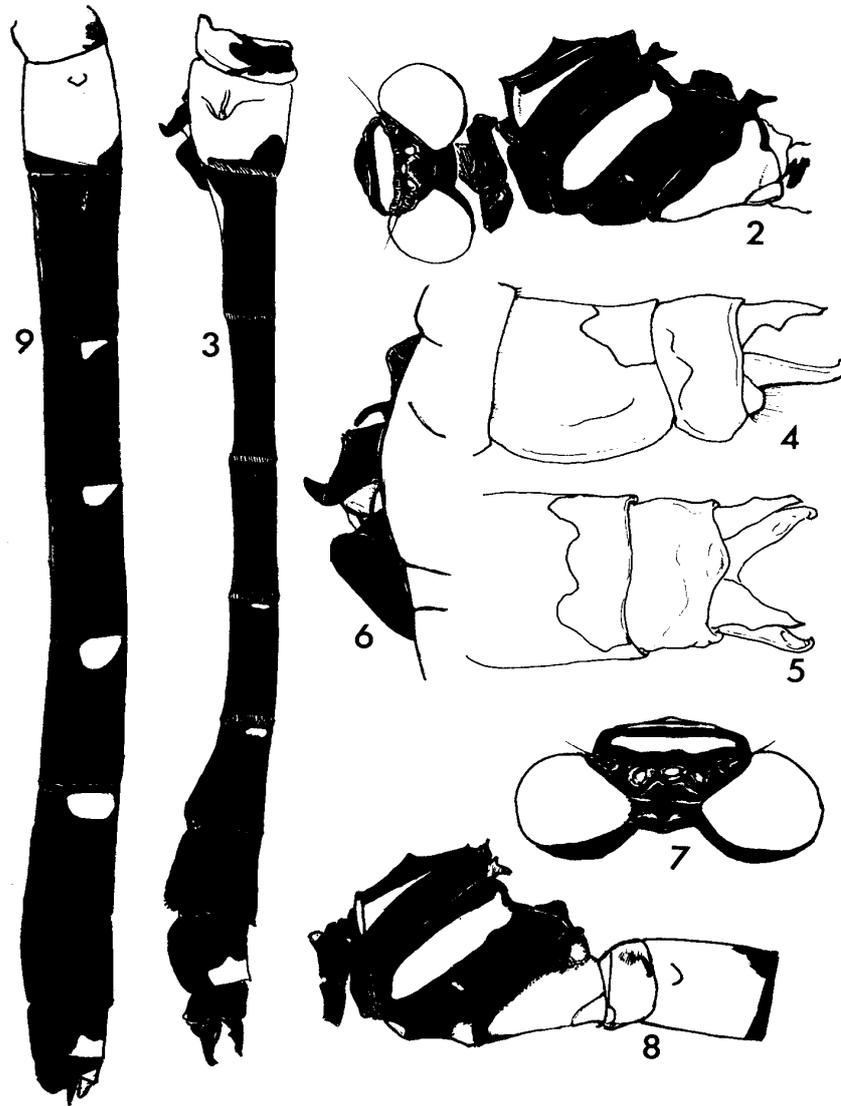
Pterothorax black, L-shaped antehumeral stripe, a broad stripe on mesothoracic epimeron, and nearly whole of metathoracic epimeron bright yellow. Very small round spots at the dorsal end of metepimeron and metathoracic infraepisternum also pale-coloured (Fig. 8).

Legs entirely black, femora armed with strong spines.

Abdominal segments 1 and 2 almost entirely pale yellow, but the posterior-most area of the second segment is darkened as shown in Fig. 9. Distal abdominal segments all shining black, being provided with paired yellow dorsal spots on segments 4-7 and 9, respectively. Final segment and minute epiproct provided dorsally with rather ambiguous pale spot.

Since the abdominal end of the specimen examined is strongly compressed, exact feature of the genital lobe was not ascertained.

Remarks. At first, this couple of dragonflies gave me quite an embarrassing impression, i.e., the deeply black-coloured dumpy body of the male insect and a



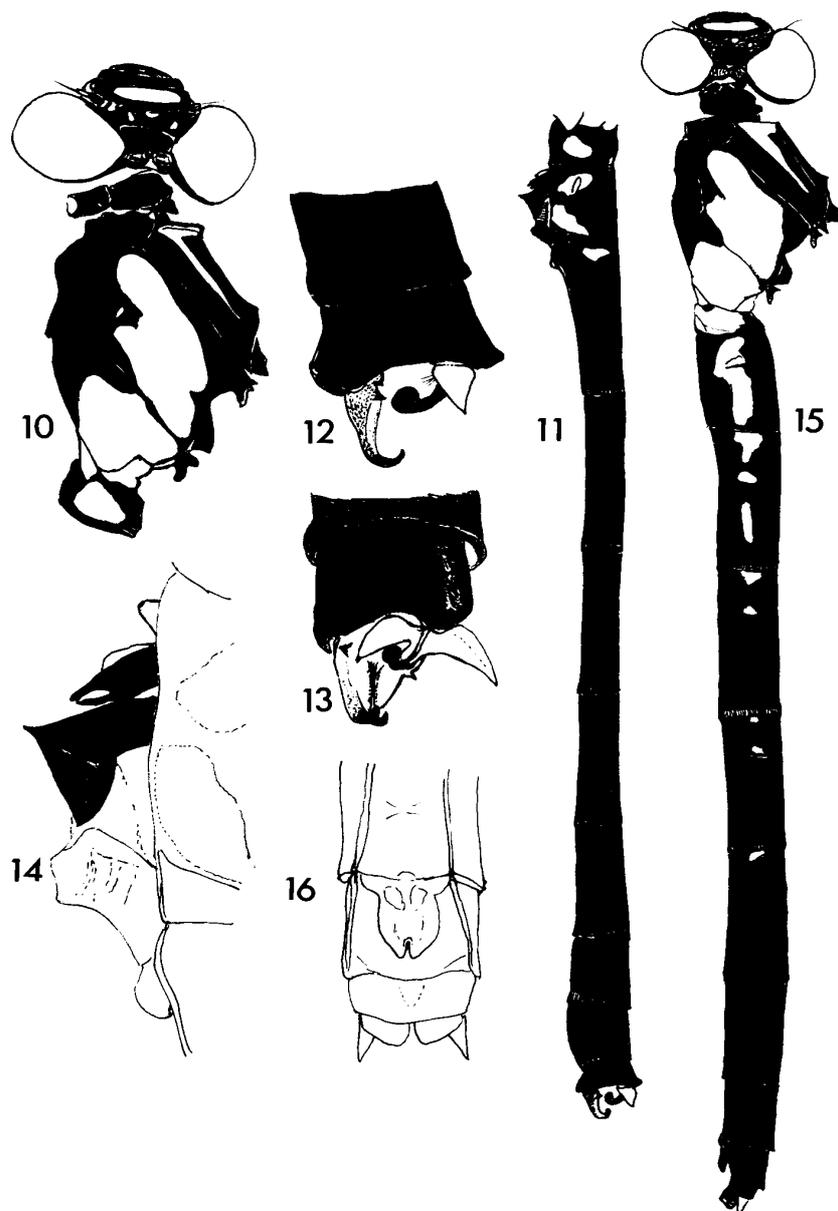
Figs. 2-9. *Asiagomphus xanthenatus acco* subsp. nov., ♂ ♀. — 2, ♂ Head and thorax; 3, ♂ abdomen, lateral; 4, ♂ caudal appendages, lateral; 5, ♂ same, dorsal; 6, ♂ accessory genitalia, lateral; 7, ♀ head, dorsal; 8, ♀ thorax and two proximal segments of abdomen, lateral; 9, ♀ abdomen, lateral.

very elongate and much yellowish tinted body of the female. I am now regarding them as a new subspecies belonging to the *personatus* or *xanthenatus* group of the genus *Asiagomphus*.

This interesting subspecies is dedicated to Dr. Akiko SAITO, who earnestly collected dragonflies during the expedition, after her name of endearment, Akko.

12. *Davidius fruhstorferi* MARTIN, 1904

(Figs. 10–16)

Davidius fruhstorferi MARTIN, 1904, Mission Pavie, Névroptères, p. 215, "Tonkin (2♂5♀)".? *Davidius fruhstorferi guizhouensis* CHAO et LIU, 1990, pp. 278–279, fig. 5–15–6 (p. 279).*Specimens examined.* 1♂, 1♀, Ban Khoang, 1,400 m, Sa Pa, Lao Cai Prov., 12–V–1995, S. UÉNO leg.; 1♂, Mt. Tam Dao, 950 m, Vinh Phu Prov., 20–

Figs. 10–16. *Davidius fruhstorferi*, ♂ ♀. — 10, ♂ Head and thorax; 11, ♂ abdomen, lateral; 12, ♂ caudal appendages, lateral; 13, same, obliquely dorsal; 14, ♂ accessory genitalia, lateral; 15, ♀ body pattern; 16, ♀ valvula vulvae, ventral.

V-1995, M. SATÔ leg.

Davidius fruhstorferi MARTIN was first described by René MARTIN (1904, p. 215) from "Tonkin", hence the present specimen from Lao Cai Province should be closest to the nominotypical subspecies. I once studied a female "Tonkin" specimen preserved in the British Museum collection, and gave an illustration of the valvula vulvae, which is very much extended and almost reaches the end of the 9th sternite (ASAHINA, 1955, p. 296, fig. 14). This fact was cited by CHAO in his 1990 Handbook (p. 279, fig. 5-15-6, No. 10). The same part of the present specimen is illustrated herewith (Fig. 16), which is a little shorter than but rather similar to CHAO's illustration (fig. 5-15-6, No. 9) of the same part of *D. fruhstorferi guizhouensis* CHAO et LIU from Guizhou, Southwest China. Further studies of this group of dragonflies based on satisfactory material are needed for clarifying the northern Vietnamese and southwestern Chinese faunas.

This species is a small-sized, very dainty insect, with both the wings suffronated from the base to the level of the triangle. The thoracic pattern is unique for this group of *Davidius*, and the abdominal segments are almost entirely jet black. For the body pattern and the caudal appendages, as well as the accessory genitalia, refer to the illustrations presented herewith (Figs. 10-16).

13. ?*Davidius trox* NEEDHAM, 1931

(Figs. 17-22)

Davidius trox NEEDHAM, 1931, Peking nat. Hist. Bull., 5 (4)[1930/1931], pp. 4-5, fig. 5 (♀ v.v.), (Type 1 ♀, Coll. D. C. GRAHAM, U.S. Natn. Mus.), "Szechuan". — ZHOU, 1986, Odonatologica, 15, pp. 135-136, figs. 1-3 (anal app. and gen. hamul.), "4♂, 1♀, Luku, Yunnan (1♂ allotype)". — CHAO, 1990, Gomph. Drag. China, pp. 280-281, fig. 5-15-8 (p. 281), "♂♀, Yunnan, Sichuan".

Specimens examined. 1♂, Ban Khoang, 1,400 m, Sa Pa, Lao Cai Prov., 12-V-1995, M. SATÔ leg.

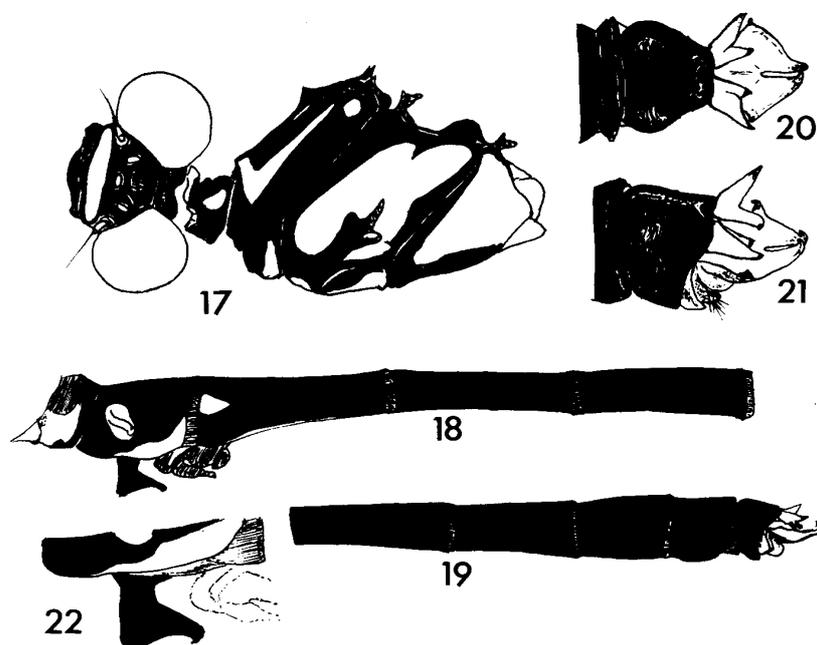
This species has been known from Yunnan and Sichuan based on rather poor material. Unfortunately, the single Vietnamese specimen available for the present study is not in a good condition, either, but I am going to give some illustrations (Figs. 17-22) based on this male specimen.

14. ?*Stylogomphus chunliuae* CHAO, 1954

(Figs. 23-27)

Stylogomphus chunliuae CHAO, 1954, Acta ent. sin., 4, p. 58, 10 figs., ♂♀; 1990, Gomph. Drag. China, pp. 257-259, 10 figs., "Fujian".

Specimens examined. 1♂, 1♀, Ban Khoang, 1,400 m, Sa Pa, Lao Cai Prov., 12-V-1995, M. OWADA leg.



Figs. 17–22. *Davidius trox*, ♂. — 17, Head and thorax; 18, proximal five segments of abdomen, lateral; 19, distal five segments of abdomen, lateral; 20, caudal appendages, dorsal; 21, same, oblique lateral; 22, accessory genitalia, lateral.

The present material is in a teneral state and badly compressed, hence no precise drawings of the female valvula vulvae have been prepared.

♂: Hindwing length 28 mm, abdomen 35 mm. A teneral specimen. Ground colour of the body black, with yellow markings as shown in accompanying drawings; bases of wings coloured orange yellowish to the triangles.

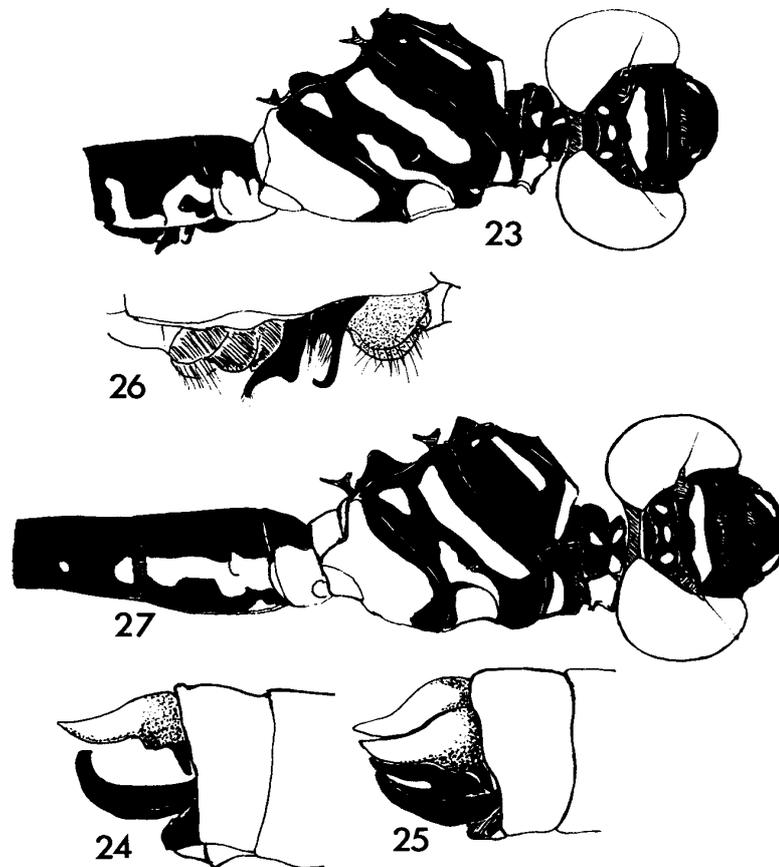
Head (Fig. 23) black, median area of antefrons more or less paler; paired spots on labrum and a broad stripe on frons yellow. In lateral view, three spots are recognizable on prothoracic tergite; coxae of prolegs entirely yellow. The colour pattern of the pterothorax is rather complicated as shown in Fig. 23. A minute yellowish spot present above the yellow stripe of episternum 2. In the metathorax, the yellow of episternum is divided into upper and lower parts.

Wings hyaline, basal parts pale orange to the level of triangles. Post-nodal cross-veins 14, pterothorax palely darkened.

Abdomen slender, almost entirely deep black except for basal two segments (♂). Distal part of abdomen including cerci entirely black.

Since the present specimen is badly compressed, the superior appendages are laid unnaturally close (Fig. 25), but as shown in Fig. 24, the superior one which is pale-coloured has a very thick base and a sharp strong spine directed downwards. Inferior appendage coloured deep black, and the divided lobes run parallel to each other.

Hamulus anterioris ending in a sharp hook, while the hamulus posterioris is



Figs. 23–27. *Stylogomphus chunliuae*, ♂ ♀. — 23, ♂ Head, thorax and two proximal segments of abdomen; 24, ♂ caudal appendages, lateral; 25, same, oblique lateral; 26, ♂ accessory genitalia, lateral; 27, ♀ head, thorax and three proximal segments of abdomen, lateral.

shallowly divided and with longer posterior branch (Fig. 26).

♀: Hindwing length 30 mm, abdomen 32 mm. A teneral specimen strongly compressed, so that the valvula vulvae could not be examined.

Head pattern almost the same as that in the male, a low transverse ridge present behind median ocellus. The yellow pattern of prothoracic tergite and the thoracic patterns are the same as those of the male.

Abdomen almost entirely shining black, the yellow pattern of three abdominal segments as shown in Fig. 27, distal segments entirely black. Cerci, supraanal plate and paraprocts shining black.

Subgenital plate not examined, though CHAO (1990) illustrated a short one for a Fujian specimen of *S. chunliuae*.

Remarks. Although our Vietnamese specimens are closest to *Stylogomphus chunliuae* CHAO (1954), the following discrepancies can be recognized:

- 1) In CHAO's drawings (p. 258, fig. 1), a pair of small processes are shown

in front of the median ocellus at the top of the frons. This feature cannot be detected in ours.

2) CHAO's figure 3 (male caudal appendages) does not accord with our specimen; in ours, the superior appendages are not upcurved and provided with a basal spine directed downwards.

3) In CHAO's figures 5–7 showing the genital hamulus, the hamulus posterioris is not similar in shape to that of our specimen, though this is perhaps due to a different angle of view.

Thus, our present pair coincide with *S. chunliuae* in many essential points, though there are some discrepancies. It is to be hoped that a final decision can be drawn by future investigations.

15. *Leptogomphus divaricatus* CHAO, 1984

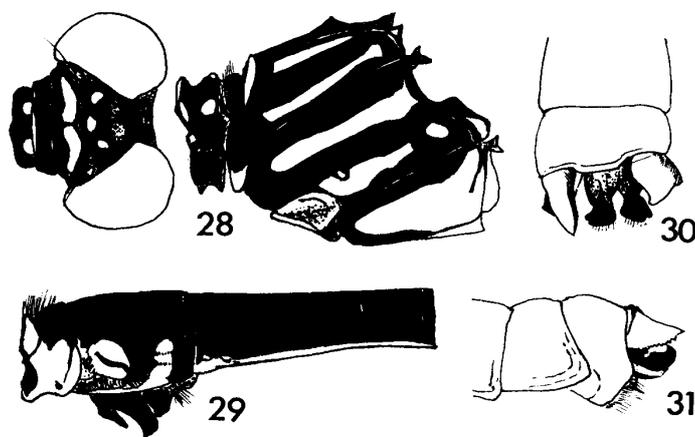
(Figs. 28–31)

Leptogomphus divaricatus CHAO, 1984, Wuyi Sci. J., 4, p. 152, 156–157, figs. 4–11 (p. 153). — CHAO & LIU, 1990, Gomphid. Drag. China, pp. 290–291, 8 figs., ♂ (Holotype), 11. VI. 1959, 2 ♀ (1 ♀ Allotype), “Jin-gen-tao, Jian-nin County, Fukien”.

Specimens examined. 1♂, Mt. Tam Dao, 930 m (at the basin of a waterfall), Vinh Phu Prov., 24–IV–1995, Y. NISHIKAWA leg.; 2♂, Ao Vua, 100 m, Ba Vi, Ha Tay Prov., 27–IV–1995, M. OWADA leg.

Rather large-sized gomphid, hindwing length 38–40 mm, abdomen 45–46 mm.

All the three males are at a very teneral stage and strongly pressed in the envelopes, but are quite close to CHAO's description of *L. divaricatus* from Fujian. For the body pattern and caudal appendages, refer to Figs. 28–31.



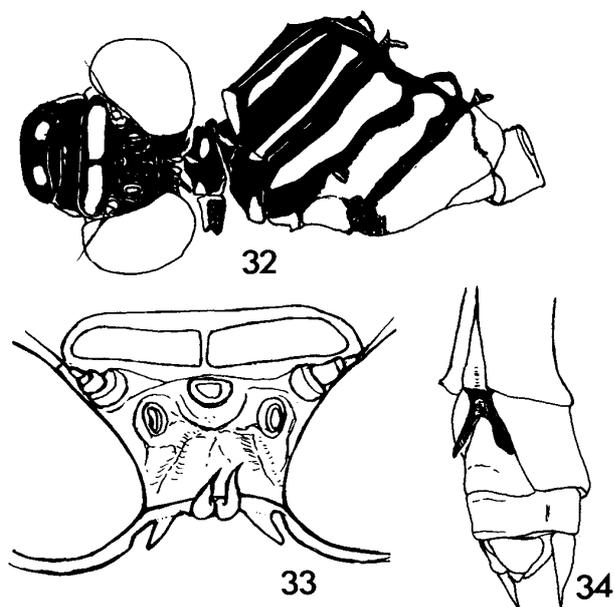
Figs. 28–31. *Leptogomphus divaricatus*, ♂. — 28, Head and thorax; 29, proximal three segments of abdomen showing genital hamuli, lateral; 30, caudal appendages, dorsal; 31, ditto, lateral.

16. *Leptogomphus uenoi* sp. nov.

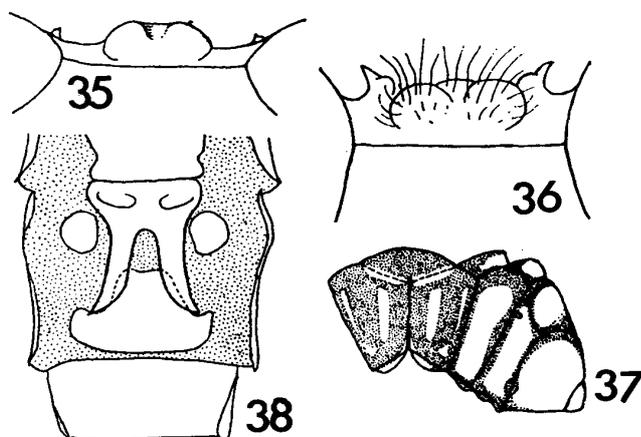
(Figs. 32–34)

Specimen examined. 1 ♀, Ban Khoang, 1,450 m, Sa Pa, Lao Cai Prov., 14–V–1995, S. UENO leg.

The present somewhat teneral specimen is quite a problematical one! From the features of the head pattern, the pterothoracic stripes (Fig. 32), and the valvula vulvae which are still poorly sclerotized (Fig. 34), it comes close to *L. celebratus* CHAO (1982) (Figs. 37–38) described from Hainan Island.



Figs. 32–34. *Leptogomphus uenoi* sp. nov., ♀. — 32, Head and thorax; 33, dorsal view of head, enlarged; 34, valvula vulvae, ventral (somewhat deformed).



Figs. 35–38. *Leptogomphus celebratus* (after CHAO, 1990, p. 289). — 35, Occiput, frontal; 36, occiput, dorsal; 37, prothoracic pattern; 38, 9th abdominal segment, ventral.

However, the curiously pointed median postoccipital processes (Fig. 33), which are on the occipital edge, are comma-shaped and rather upstanding. In addition, there are another pair of spines on their lateral sides, forming strong horns directed latero-posteriorly (Fig. 33).

Unfortunately, only a single specimen is available at present. In order to facilitate future researches, I am reproducing herewith CHAO's illustration of the same part of *L. celebratus* from Hainan Island (Figs. 35–38).

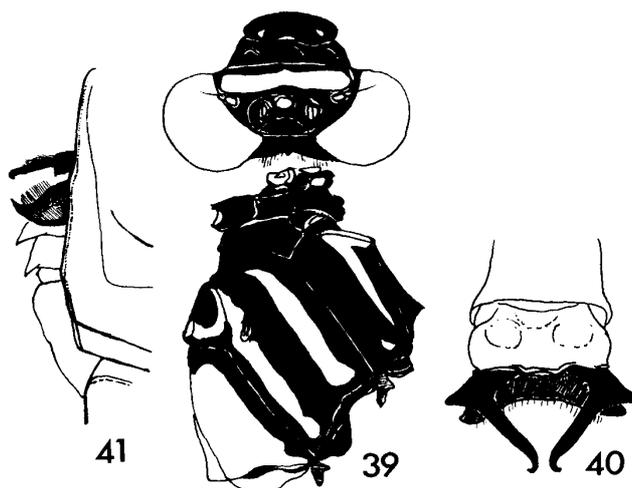
17. *Heliogomphus scorio* (RIS, 1912)

(Figs. 39–41)

Leptogomphus scorio RIS, 1912, pp. 72–73, figs. 12 a–b, 13, “1♂, 1♀, Tsa-Yiu-San, 1910, leg. Mell.”
Heliogomphus scorio: CHAO, 1954, pp. 227–230, figs. 321–331, “Fukien, Kwantung”; 1990, pp. 181–185, 19 figs., “Fujian, Guangdong, Guangxi”. — ASAHINA, 1988, pp. 690–691, figs. 2–6 (♀ head, prothorax, pattern, wing-base, valvula vulvae), “1♀, Tai Po Kau, Hongkong, leg. Dugeon; 1♂, Kwangtung, Mell leg. (coll. E. Schmidt)”.

Specimens examined. 1♂, Ban Khoang, 1,400 m, Sa Pa, Lao Cai Prov., 12–V–1995, S. UENO leg.

In 1988, I described and figured both the sexes of this species taken in the Hongkong area. The present male specimen agrees well with them, though the yellow patterns of the body markings decrease and the antehumeral yellow stripe becomes minimized to only an upper spot (Fig. 39).



Figs. 39–41. *Heliogomphus scorio*, ♂. — 39, Head and thorax; 40, caudal appendages, dorsal; 41, accessory genitalia, lateral.

References

- ASAHINA, S., 1955. Dragonflies. *Fauna and Flora of Nepal Himalaya*, 1: 291–300.
- CHAO, Hsiu-fu [ZHAO, Xiufu], 1954. Classification of Chinese dragonflies of the family Gomphidae (Odonata), Part II. *Acta ent. sin.*, 4: 23–82.
- 1984. Notes on gomphid dragonflies from Fujian Province, with descriptions of a new species and the nymphs of two known species (Odonata, Gomphidae). *Wuyi Sci. J.*, 4: 151–157.
- 1990. The gomphid dragonflies of China (Odonata, Gomphidae). *Fujian agric. Coll. Spec. Publ.*, (1): 1–486. Foochow.
- MARTIN, René, 1904. Liste des Névroptères de l'Indo-chine. *Mission Pavie, Zoologie, Névroptères*, 204–221.
- NEEDHAM, J. G., 1931. Additions and corrections to the manual of the dragonflies of China. *Peking nat. Hist. Bull.*, 5 (4): 1–10, 1 pl.
- RIS, F., 1912. H. SAUTER's Formosa-Ausbeute. *Suppl. ent.*, 1: 1–43, 2 pls.
- ZHOU, Wen-bao, 1986. Description of the male of *Davidius trox* NEEDHAM, 1931 (Anisopt. Gomphidae). *Odonatologica*, 15: 135–136.