

**PHAENANDROGOMPHUS CHAOI SPEC. NOV.
A NEW DRAGONFLY FROM GUANGDONG
PEOPLE'S REPUBLIC OF CHINA
(ANISOPTERA : GOMPHIDAE)**

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P. chaoi sp. n. (♂ holotype, ♀ allotype, Dawu Ling (Ridge), Xing-yi, Guangdong, China, 4-VII-1988) is described and illustrated. This species is compared with *P. tonkinicus* (Fraser, 1926) of its nearest allies. The types are deposited in the Research Institute of Entomology, Zhongshan University.

PHAENANDROGOMPHUS CHAOI SPEC. NOV.

Material. — **Holotype** ♂ and **allotype** ♀ : Dawu Ling (Ridge), Xing-yi, Guangdong, China, 4-VII-1988.

Etymology. — The new species is dedicated to Professor Dr H.-f. Chao, Fuzhou, China.

MALE. — Abdomen (including appendages) 42 mm, hind wing 32 mm.

Head. — Labium pale yellow, its anterior border, the inner margin of paraglossa and palpi brownish. Labrum pale yellow, its anterior third black. Anteclypeus yellow, bordered with black laterally and subanteriorly. Postclypeus black. Frons yellow, margined with black above at base and at the anterior margin in front. Vertex and occiput black. Occipital region as in figure 1 ; the median portion slightly swollen, smooth and impressed (Fig. 1).

Pterothorax. — Colour pattern as in figure 2. Antehumeral stripe broadly confluent below with the collar stripe, which is interrupted in the middle. Humeral stripe incomplete, made up of an upper spot and a narrow line below.

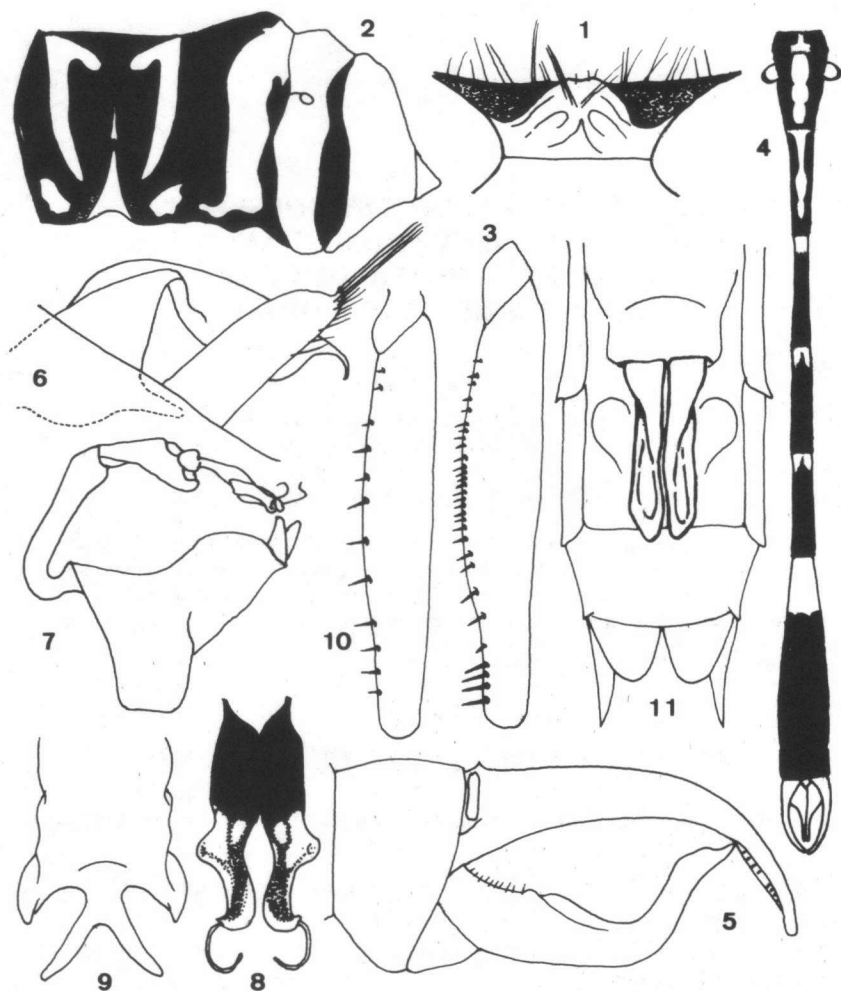


Fig. 1-11. *Phaenandrogomphus chaoi* sp. n. : — (1) occipital of ♂, dorsal view ; — (2) pterothorax of ♂ ; — (3) metafemur of ♂, external view ; — (4) abdomen of ♂, dorsal view ; — (5) anal appendages of ♂, right view ; — (6) right posterior hamulus, right view ; — (7) penis, right view ; — (8) penis, ventral view ; — (9) apex of penis, ventral view ; — (10) metafemur of ♀, external view ; — (11) apex of ♀ abdomen, ventral view.

Lateral sides broadly yellow, with a black band extending over the upper 2/3th along the first lateral suture and with a complete black band along the second lateral suture.

Legs black, with the anterior two pairs of femora yellow on the inner side, but the yellow is limited to the distal half on the mesofemora. Metafemora marked with yellow on the outer side, black at the ends; furnished with numerous spines on the outer side, the four distal spines longer and regular (Fig. 3).

Wing membrane hyaline. Pterostigma brownish black, covering 4-5, 5 underlying cells, well braced. Anal triangle 4 celled. Anal loop of hind wing made of one large cell.

Nodal index : $\frac{12 | 18 || 18 | 12}{13 | 12 || 13 | 13}$

Abdomen. — Black, with yellow markings as in figure 4. Segments 1-3 with yellow middorsal bands, broadest at base of segment 3. Segments 4-6 yellow basal rings only, occupying 1/6 or 1/7 of the length. Segment 7 with the entire basal 2/3 conspicuously yellow. Segment 8-10 wholly black. Anal appendages entirely orange-yellowish, shaped as in figure 5.

Genitalia. — Anterior hamulus large and unique, bending posteriorly, the hind branch hidden by lateral tergum of 2nd segment (Fig. 6). The basal segment of the penile organ enormously produced, with two conjugate and slender conical processes on tips (Fig. 7). Seen from the dorsal view the distal segment of penis with its distal part concaved inside oppositely and with two longer flagella on the blunt tip (Fig. 8). Seen from ventral view (Fig. 9) the apex of penis vesicle is more slender than in *P. tonkinicus* (Fraser).

FEMALE. — Addomen 42 mm, hind wing 34 mm. Resembles closely to the male.

Head. Basal black strip of frons broader than in male, its median prolongation into the sulcus almost meeting the opposed anterior black band, so as to enclose a pair of contacted oval green spots on the crest. The occiput is furnished with flat black spines on either side behind the eye-margin. The spines are very small and upwardly directed. Median portion of the occipital plate slightly swollen as in male.

Legs black; the inner side of mesofemora with the distal 1/3 green. Metafemora furnished with 12 spines on the outer side, the basal two very short (Fig. 10).

Wings diffusely tinged with yellow. Pterostigma brown, covering 5-5, 6 underlying cells; membranula vestigial. Anal loop two celled.

Nodal index : $\frac{14 | 17 || 17 | 13}{13 | 13 || 13 | 12}$

Abdomen. — Cerci and tubercula orange-yellow. Vulvar scale dark brown, of large size, straight parallel-sided and strongly ridged longitudinally, extending beyond the apex of segment 9 (Fig. 11).

DISCUSSION

The genus *Phaenandrogomphus* was established by LIEFTINCK (1964) to house a single Malayan species, *P. asthenes* Lieftinck, 1964. Later three other oriental *Onychogomphus* species have been transferred to this genus, e.g. *O. tonkinicus* Fraser, 1926 and *O. aureus* Laidlaw, 1922 by LIEFTINCK (1969) and *O. dingavani* Fraser, 1924 by CHAO (1990).

The present new species comes near *tonkinicus* in its size, colours, shape of male hamulus and anal appendages. However, it differs obviously from *tonkinicus* by having incomplete humeral stripes, apex of penis being concaved inside oppositely, penis vesicle being more slender, female occiput with only one swollen tubercle in the median portion and vulvar scale being longer, its rounded apex exceeding the apex of the 9th segment.

ACKNOWLEDGEMENT

We wish to thank Dr S. ASAHINA who kindly provided valuable references.

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