

## A new *Callicera* (Diptera: Syrphidae) from the northwest Himalaya

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ABSTRACT. *Callicera christiani* sp. nov. is described and illustrated from Himachal Pradesh, India. Notes on related taxa are provided along with a key to Oriental species of the genus. The genus *Chrysotoxum* is transferred to the tribe Syrphini with remarks on its relationships.

### Introduction

Ever since *Bibio aenea* Fabricius was placed in his monotypic genus *Callicera* by Panzer (1809), the affinities of this somewhat atypical genus and of its 18 described species have remained uncertain. Initially relegated to the Chrysotoxinae (Verrall, 1901; Kertész, 1910; Brunetti, 1923) along with a motley assortment of other genera belonging to many distinct tribes of Syrphidae (*Chrysotoxum* Meigen—Syrphinae; *Argentinomyia* Lynch Arribálzaga—Microdontinae; *Psarus* Latreille—? Psarini, *Sphecomomyia* Latreille—Milesiini, both Eristalinae), *Callicera* is now assigned to a distinct tribe, Callicerini, closely allied to the Cheilosini and Volucellini, in the subfamily Eristalinae (Curran, 1928, 1931; Sack, 1932; Hull, 1949; Coe, 1964; Wirth *et al.*, 1965; Thompson, 1972, 1980; Knutson *et al.*, 1975; Thompson *et al.*, 1976).

Thompson (1972: 113) suggested that *Notiocheilosia* Thompson [only species: *nitescens* (Shannon & Aubertin)] was apparently referable to the Callicerini despite the presence of a basal arista, the only unconfirmable character with that tribe. Later (Thompson, 1980), he confirmed this tentative tribal assignment and even considered

*Notiocheilosia* as the sister-group of *Callicera*. However, only future extensive studies on the phylogeny of the Eristalinae on a world basis and critical reevaluation of the currently excessive tribal splitting in the subfamily can offer solutions to such problems. Perhaps, both *Callicera* and *Notiocheilosia* may have to be restored to the Cheilosini, the tribe being redefined with broader limits to incorporate such obviously apotypic (?) and abnormal genera with peculiar geographic distributions.

The presence of an isolated Cheilosini (here used inclusive of Callicerini) genus like *Notiocheilosia* in the Chilean Subregion of the Neotropical Region, in a tribe predominantly Holarctic in distribution (see Thompson, 1972: 101, 194), is a distribution pattern not unknown, as Vockeroth (1969: 29), for example, demonstrated in some genera of Syrphini. The Neotropical fauna of Cheilosini (including Callicerini) is limited to five genera and nine species only (Thompson *et al.*, 1976: 68-69, 88). Besides the "relict" *Notiocheilosia* occurring in Chile and Patagonia (Argentina), and *Rhingia nigra* Macquart extending south to Colombia and Brazil, the other species reach their southern limits in Mexico (*Callicera poultoni* Verrall extends to El Salvador—Thompson 1980: 208). Perhaps the now extinct ancestor of

*Notiocheilosia* entered South America using the Pliocene land bridge down the Andes and later became isolated in Chile and gradually diverged into the present *Notiocheilosia*. Only further collections of Cheilosini (if present) on the Andean mountains can reveal clues to this interesting question.

The genus *Chrysotoxum* was clubbed with *Callicera* in the "Chrysotoxinae" apparently on the strength of the similar porrect antennae, even though the disposition of the arista, and many other characters, did not justify this error. Verrall (1901: 639), however, doubted this placement and felt *Chrysotoxum* may be related to *Syrphus* Fabricius or to *Xanthogramma* Schiner. Recent workers agree on its present assignment to the Syrphinae, but still (like *Callicera*), maintain the peculiar genus in a separate tribe, the Chrysotoxini. Vockeroth (1969: 12) suggested that though "they are superficially rather distinct from the Syrphini, . . . the male terminalia are extremely similar to those of *Syrphus* and of *Epistrophe*, and inclusion of *Chrysotoxum* in the Syrphini may eventually be necessary." During my recent revision of Indian Syrphini (Ghorpadé, 1981), I found that species of *Chrysotoxum* were very close to those of *Dasysyrphus* Enderlein and that these two genera were evidently sister-groups. Species of *Chrysotoxum* run out to *Dasysyrphus* in my key to Oriental genera of Syrphini. Further, the similar male terminalia, the peculiar yellow facial patches, black median stripe, facial profile, grey mesonotal stripes, and stigmal darkening in the wing, also suggest a clear affinity. *Chrysotoxum* species apparently possess atypical characters such as the porrect, elongate antenna and the peculiar, wasp-like abdominal markings. I, therefore, feel it unnecessary to retain *Chrysotoxum* in a distinct tribe and consider its present transfer to the Syrphini justifiable. Similarly, the ultimate inclusion of the aberrant Callicerini in the Cheilosini (with redefined limits and diagnostic characters) may also be anticipated.

Kertész's (1910) world catalogue of Syrphidae included seven species of *Callicera*, all Palaearctic

except one from North America. Verrall (1913), de Meijere (1919), Curran (1928, 1931) and Coe (1964) described almost all of the seven known Oriental species—*aenea* (Fabricius), *doleschallii* Verrall, *nitens* Coe, *robusta* Coe, *sackenii* Verrall, *sanguensis* Coe, *sumatrensis* de Meijere (= *pendleburyi* Curran)—and Curran (1931) and Coe (1964) provided keys. Besides *aenea* (recorded also from Taiwan), seven other species (*bertolonii* Rondani, *loewi* Verrall, *porrii* Rondani, *roserii* Rondani, *rufa* Schummel, *spinolae* Rondani, *yerburyi* Verrall) are Palaearctic, three—*erratica* (Walker), *duncani* Curran, *montensis* Snow—are Nearctic, and one (*poultoni* Verrall) is Neotropical. Again, curiously similar to *Chrysotoxum* (this genus has one species, *continuum*\* Bezzi, on the eastern highlands of Africa) *Callicera* has not entered the Afrotropical or Australian Regions. The New World species have been revised lately by Thompson (1980), and, though both the Palaearctic (Sack, 1932) and Oriental (Coe, 1964) species have been reviewed, more detailed revisions like that by Thompson are required.

*Callicera* is undoubtedly associated intimately with pine trees (*Pinus* spp.). In the Indian Subregion, five species of *Pinus* (*excelsa*, *gerardiana*, *kesiya*, *merkusii*, *roxburghii*) occur, mainly on the Himalaya, Khasi hills and the hills in Nagaland, Manipur and Burma. The distribution of *Callicera* is, evidently, in close concordance with that of the pine forests. The immatures apparently live in waterfilled rot-holes in pine trees and are peculiar in structure (Coe, 1938, 1939, 1941; Dixon, 1960). The adult flies apparently have a restricted flight period and are thus rarely collected, many species being known in only one sex, or by a single specimen. Observations of adult habits are also wanting, perhaps the only other recorded data being that of Col. J.H. Yerbury (Verrall, 1913: 327-328) in upper Scotland. However, the 42 specimens (mostly males) of *C. sumatrensis* collected by H.M. Pendlebury in

\* not *continuum* (Smith & Vockeroth, 1980: 495). The name was misspelled in Bezzi (1915: 118), as is evident by the correct spelling in the "List of the known Ethiopian Syrphidae" (Bezzi, 1915: 5) at the beginning of the same work.

consecutive years in the Malay peninsula and northern Borneo suggests that large series could be obtained of this rare genus, scarce in museum collections, by carefully planned trips to appropriate habitats during the right season.

***Callicera christiani* sp. nov.**

(Figs. 1 & 2)

The following description gives characters by which this new species differs from its most closely related species, *Callicera nitens* Coe, and follows the same format used by Coe (1964), for the sake of uniformity.

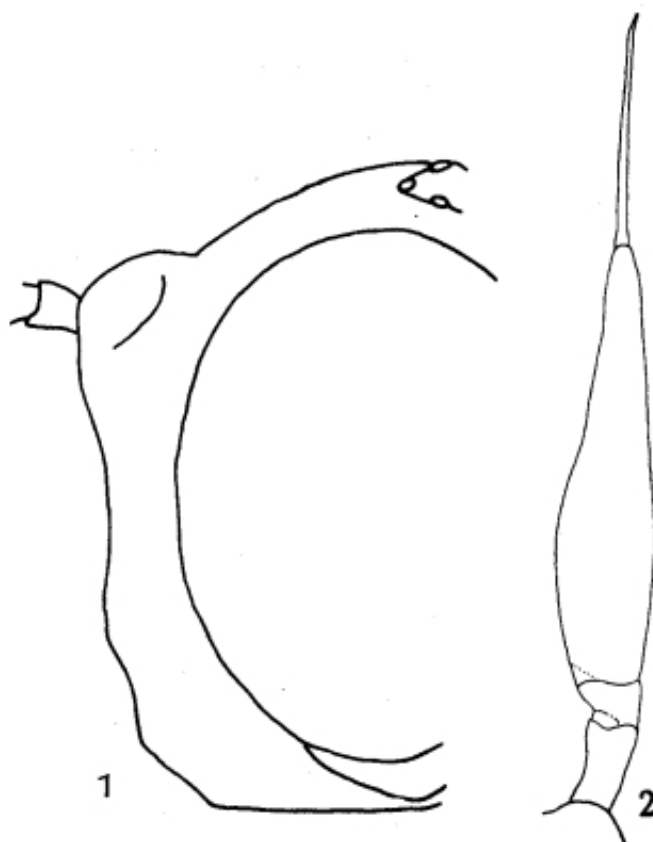
**FEMALE.** Length (exclusive of antennae), 16.0 mm.; wing-length, 13.0 mm. Eyes only 1.25-1.50 times as widely separated at level of antennae as at level of front ocellus. Face medially devoid of pale yellow dusting, as a stripe from base of antennae to tubercle. Antenna shining only on apical margin of first and basal margin of second segments.

Hairs on thorax wholly yellowish white; pleura not greenish black—only black.

Hairs on tergum 3 brownish yellow ("tawny"), white on lateral margins, tergum 4 tawny haired, black haired triangularly in centre with bases reaching lateral margins and apex almost touching anterior margin of tergum, tergum 5 entirely black haired; sterna 1 and 2 with yellowish, slightly tawny, long hairs, sternum 3 similarly haired except black haired posteromedially, sterna 4 and 5 wholly black haired.

Coxae, trochanters and femora black, extreme tips of femora pale reddish; tibiae black medially, only variably reddish, especially at base; mixed black and white hairs on middle femora towards apical halves below (not at apices); middle tibiae with fringe of black hairs anteriorly also.

Stigma yellowish; squama with golden yellow fringe; halteres reddish yellow with a dark brown knob.



FIGS. 1-2. *Callicera christiani* sp. nov.: (1) head in profile; (2) antenna.

**SPECIMEN EXAMINED:**

Holotype ♀, **India:** HIMACHAL PRADESH: Manali, 1828 m, 10.x.1979 (K.D. Ghorpadé A 841) [KDG].

**REMARKS:**

This new species, known only by the single female specimen (as is *nitens* Coe, the most closely related species) is the first *Callicera* to be collected on the western Himalaya, which have a distinct Palearctic influence (see Mani, 1974), especially towards the northwest and at higher altitudes. All other Oriental species are known only from the eastern Himalaya, Burma and the Malayan Sub-region, with an isolated Palearctic one (*aenea*) from Taiwan. The single female of this new species was netted around noon as it, very conveniently, flew directly towards me and momentarily hovered in front with a distinct droning noise facilitating its surprisingly easy capture. I was collecting in a leafless apple orchard with some chir pines (*Pinus roxburghii*) on a cultivated hill slope above the hot sulphur spring at Vashisht on the banks of the River Beas.

*Callicera christiani* sp. nov. is named in honour of Dr F. Christian Thompson, Washington, D.C., U.S.A., in deep appreciation of his personal interest in and support of my research on the Syrphidae.

The key to Oriental species of *Callicera* provided below is modification of that given by Coe (1964), incorporating the new species as well as *aenea* (Fabricius), which is recorded from Taiwan, but, in my opinion, needs confirmation.

**Key to Oriental species**

- 1. First antennal segment at least twice as long as second (inner measurement)..... 2
- First antennal segment not nearly twice as long as second, usually subequal..... 5
- 2. Leg, except coxa and trochanter, entirely clear reddish orange (Naini hills, N.E. India; ♂♀).....*robusta* Coe
- At least tarsus partly blackish..... 3
- 3. Frons, thorax, scutellum and terga 3 and 4 glittering black..... 4
- Thorax and scutellum dull greenish black, tergum 2 dull black, terga 3 and 4 black, only moderately shining (E. Nepal; ♂).....*sanguensis* Coe
- 4. Tergum 4 tawny haired; hairs on mesonotum black posteriorly (E. Nepal; ♀).....*nitens* Coe
- Tergum 4 black haired posteriorly in a triangular patch; hairs on mesonotum wholly yellowish white (N.W. Himalaya; ♀).....*christiani* sp. nov.
- 5. Femur mainly blackish..... 6
- Femur reddish orange, darkened only at extreme base (N. Chin hills, Burma; ♂).....*doleschalli* Verrall
- 6. Third antennal segment quite thrice as long as first and second together (inner measurement) (N. Chin hills, Burma; ♂).....*sackeni* Verrall
- Third antennal segment only slightly longer than the first two together..... 7
- 7. Tergum 3 black haired; abdominal tip also black haired (Malaya, Sumatra, N. Borneo; ♂♀).....
- .....*sumatrensis* de Meijere
- Abdomen brownish yellow haired, even to the tip (Taiwan; Europe; ♂♀).....*aenea* (Fabricius)

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