

A NOTE ON THE ODONATA (INSECTA) FROM KHASI HILLS, MEGHALAYA,
WITH DESCRIPTION OF A NEW SPECIES

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ABSTRACT

This paper is based on a small collection of Odonata collected from Khasi Hills, Meghalaya. A total of 18 species and sub-species are reported, of which one, *Anisopleura lieftincki* is described as new and three others reported for the first time from the area.

INTRODUCTION

Most of the work on the Odonata fauna of Khasi Hills (Meghalaya) are done by Laidlaw (1915, 1917a and 1917b); Fraser (1933, 1934, and 1936); Kennedy (1936); Varshney (1971); Lieftinck (1977) and Lahiri (1975, 1976, 1977a, 1977b and 1979). Consequent to these studies so far only 58 species and subspecies are reported, along with some interesting informations. During the course of present study on a small collection of Odonata collected by one of us (S. K. Ghosh), altogether 18 species and subspecies are recognised, of which one is new to science, and other three species and subspecies are reported for the first time from the area, thus bringing number of known species to 62. Most of the species agree fairly well with the available descriptions and differences are recorded under each species.

Suborder : ZYGOPTERA

Superfamily : COENAGRIOIDEA

Family : PLATYCNEMIDIDAE

1. *Calicnemia pulverulans* Selys
(Fig. 1, A)

Calicnemia pulverulans Selys, 1886. *Mem. Ccur.*,
38 : 133.

Material examined : 1 ♂, 1 ♀, Khasi Hills, along the road from Mawsamai to Shella, 26.5.1979, coll. S. K. Ghosh and G. K. Srivastava and 1 ♀, Khasi Hills, around Dawki Road from Pynursla to Pamshutia, 27.5.1979, coll. S. K. Ghosh and G. K. Srivastava.

Measurements :

| | Abdomen | Forewing | Hindwing |
|--------|------------|----------|----------|
| Male | : 31.00 mm | 23.00 mm | 22.00 mm |
| Female | : 29.50 mm | 24.00 mm | 23.00 mm |

Distribution : North Bengal, Sikkim and Western Himalaya ; first time recorded from the Khasi Hills.

Remarks : Pterostigma in the male reddish brown, covers $1\frac{1}{2}$ cells ; 19 to 20 postnodal nervures in forewings and 17 in hindwings. Anal appendages entirely black, a small black spine (Fig. 1, A) present nearer to base on the superior anal appendages. In female labium pale yellow, its outer margin black ; labrum yellow with a small black spot in the centre ; ante and postclypeus yellow, a "T" shaped black marking present at the outer margins of postclypeus ; 16 to 18 postnodal nervures in forewings and 15 to 16 in hindwings. A small paired yellowish marking

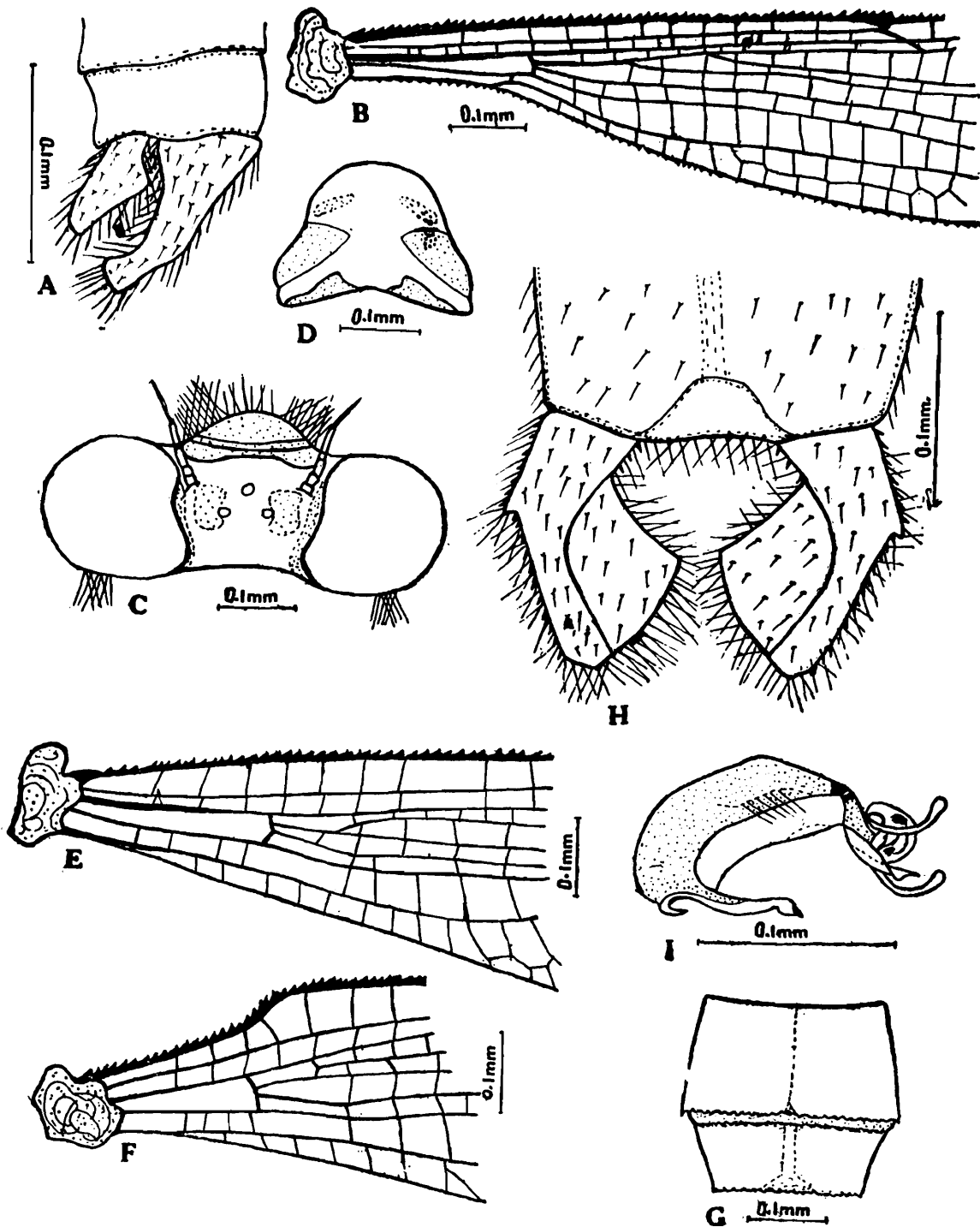


Fig. 1. A-H. A—Lateral view of anal appendages of *Calicnemia pulverulans* Selys.
 B—Basal portion of hindwing of *Philoganga montana* (Selys).
 C—I—*Anisopleura lieftincki* sp. nov. C—dorsal view of head ; D—dorsal view of prothorax ;
 E—basal portion of forewing ; F—basal portion of hindwing ; G—dorsal side of 10th
 abdominal segment ; H—Anal appendages dorsal view and I—Prophallus (Penis).

present at the basi-dorsal sides of the 1st to 6th abdominal segments in the female.

Specimens of this species are common and found resting on the ferns and other mixed forest vegetation on the hill slopes, adjacent to the water falls inbetween Pynursla to Pamshutia.

2. *Coeliccia bimaculata* Laidlaw

Coeliccia bimaculata Laidlaw, 1914, *Rec. Indian Mus.*, 8 : 341.

Material examined : 1 ♂, Shillong, Botanical Garden, 20.5.1979, coll. *S. K. Ghosh and G. K. Srivastava* and 1 ♀, Khasi Hills around Dawki Road from Pynursla to Pamshutia, 27.5.1979, coll. *S. K. Ghosh and G. K. Srivastava*.

Measurements :

Abdomen Forewing Hindwing

Male :

(teneral specimen) 38.00 mm 24.00 mm 23.00 mm

Female :

(incomplete) — 25.00 mm 24.00 mm

Distribution : India : Tura and Garo Hills ; first time recorded from the Khasi Hills.

Remarks : In the male pterostigma light brown in colour, covers $1\frac{1}{2}$ cells and its distal end very oblique, nervure RIV+V arising proximal to subnode while 1Rlll arising at the subnode ; 18 postnodal nervures in forewings and 15-16 in hindwings.

Superfamily : AGRIOIDEA

Family : CHLOROCYPHIDAE

3. *Rhinocypha spuria* Selys

Rhinocypha spuria Selys, 1879. *Bull. Acad. Belg.*, (2) 42 : 388.

Material examined : 1 ♂, Forest around Mawsamai Cave, Cherrapunji, 25.5.1979, coll. *S. K. Ghosh and G. K. Srivastava*.

Distribution : India : Meghalaya (Shillong), Nagaland (Naga Hills) ; Burma : Kalaw, Southern Shan States and Chin Hills.

4. *Rhinocypha quadrimaculata hemihyalina* Fraser

Rhinocypha quadrimaculata hemihyalina Fraser, 1921. *Mem. Dept. Agric. Inda (Ent.)*, 7 : 64.

Material examined : 1 ♂, Khasi Hills along the road from Mawsamai to Shella, 26.5.1979, coll. *S. K. Ghosh and G. K. Srivastava*.

Distribution : Meghalaya (Shillong) and Nagaland (Naga Hills).

Family : AMPHIPTERYGIDAE

5. *Philoganga montana* (Selys)

(Fig. 1, B)

Anisoneura montana Selys, 1859. *Bull. Acad. Belg.*, (2) 7 : 445.

Philoganga montana Kirby, 1890. *Cat. Odon.*, : 111.

Material examined : 1 ♂, Khasi Hills, Pynursla, 27.5.1979, coll. *S. K. Ghosh and G. K. Srivastava*.

Measurements :

Abdomen Forewing Hindwing

Male : 47.00. mm 47.00 mm 45.00 mm

Distribution : West Bengal (Darjeeling), Assam (Nowgong) and Meghalaya (Shillong).

Remarks : Agress with the description of the species except the following : Labrum greenish yeliow ; occiput black ; sides of the ocelli brownish yellow. The specimen was collected from the side of a hill stream nearby the hill slope, covered with mixed forest. However, this is the second record of the species since the publication of *Fauna of India* (1934).

Family : EUPHAEIDAE

6. *Allophaea ochracea* (Selys)

Euphaea ochracea Selys, 1859. *Bull. Acad. Belg.*,
(2) 7 : 443.

Allophaea ochracea Fraser, 1929. *J. Bombay nat. Hist.*
Soc. 33 : 288-289.

Material examined : 2 ♂♂, Khasi Hills
along the road from Mawsamai to Shella,
26.5.1979, coll. S. K. Ghosh and G. K. Sri-
vastava.

Distribution ; Assam (Cachar), Meghalaya
(Shillong), Burma, Malacca and Thailand.

Genus : *Anisopleura* Selys 1853

Genus *Anisopleura* Selys, 1853 includes
montane and submontane stream breeding
species, and rest on the branches of tree
and bushes bordering the streams with rapid
currents, clear water and stony beds. Its
distribution is confined to Western Himalaya,
West Bengal, Sikkim, Assam and Upper
Burma (Fraser, 1934 ; St. Quentin, 1937 ;
Sahni, 1965 and Kumar and Prasad 1981). So
far a total of 6 species are known from the
Indian subcontinent. Of those *Anisopleura*
lestoides Selys and *A. comes* Selys, most
commonly occur in these areas, while *A.*
subplatystyla Fraser is known from Shillong,
Meghalaya and *A. vallei* from Cherapunji,
Khasi Hills. The 5th Indian species *A. kusumi*
Sahni, is reported from Bhowali (Nainital)
and the last one *A. furcata* Selys is recorded
from Upper Burma.

In the present paper a male specimen of
this genus was collected from Khasi Hills,
along the road from Mawsamai to Shella is
described here as a new species. It is an
incomplete specimen, its 6th to 9th abdomi-
nal segments are missing. The remaining
portions of the specimen shows all the

distinguishing taxonomic characters and on
the basis of these characters it has been
described as a new species. A key from the
known Indian species of the genus *Aniso-
pleura* Selys is given below.

Key to the Indian Species of the genus
Anisopleura Selys

- | | |
|---|---------------------------------|
| 1. Usually only one cubital nerv- ure in all the wings. | 2 |
| Several cubital nervures in all the wings. | 3 |
| 2. Superior anal appendages with short spine at the middle ... | <i>lestoides</i> Selys |
| Superior anal appendages with a stout spine present near the base ... | <i>kusumi</i> Sahni |
| Superior anal appendages sim- ple, cone-shaped, spine absent. ... | <i>A. vallei</i> st. Quentin |
| 3. Extreme apices of forewings of male dark brown | 4 |
| Extreme apices of forewings of male not marked with dark brown ... | <i>lieftincki</i> sp. nov. |
| 4. Superior anal appendages with- out spine ... | <i>comes</i> Selys |
| Superior anal appendages with short spine near the base ... | <i>subplatystyla</i> Fraser |

7. *Anisopleura lieftincki* sp. nov.

(Fig. 1, C-I)

Labium black, fringed with long black
hairs ; labrum brownish yellow, its middle
portion reddish yellow ; anteclypeus black ;
postclypeus reddish yellow ; face, frons and
occiput black ; a somewhat kidney shaped
bright yellow marking present on each side
inbetween ocelli and eye (Fig. 1, C). Both
ante and postclypeus and face fringed with
long black hairs ; eye black, posteriorly also

fringed with a bunch of long black hairs ; Prothorax black, anterior lobe with a small creamy yellow spot on the sides ; a broad approximately rounded bright yellow markings present on the sides of middle lobe (Fig. 1, D). Posterior lobe with a triangular light yellow markings on its sides. Thorax black, marked with a narrow antehumeral stripes on the sides ; mesopimeron and metapimeron with a long and broad greenish yellow stripes which covers first lateral suture ; a triangular pale yellow spot present on the ante-alar sinus. Legs medium sized, robust and black ; spines black and long ; first two pairs of femora marked with cream yellow stripe on its outer sides.

Wings hyaline (Fig. 1, E & F), narrow and equal in breadth ; bases of both fore and hindwings marked with pale saffron, extending upto node in costal and subcostal nervures in the forewings while in hindwings extends beyond two cells of the abrupt angulation. Dark brown marking at the apices of forewings absent. An abrupt outwards angulation in between 4th to 6th antenodal nervures present on the costal border of hindwings. 1A not clearly forked ; 4 cubital nervures in forewings and 4 to 5 in hindwings ; arc markedly angulated, separated at the origin and present between 3rd to 4th nervures in both the wings. Pterostigma long, narrow, yellow and covers 3 cells in forewings and $3\frac{1}{2}$ to 4 cells in hind wings, 17 to 20 postnodal nervures in the forewings and 17 to 18 in hindwings.

Abdomen (lacking 6th to 9th abdominal segments) black, marked with greenish yellow as follows : Segment 1st broadly at the lateral sides ; a fine mid-dorsal carinal stripe present on 2nd to 5th segments ; broad basal markings present dorsally on 2nd to 5th segment. A

fine stripe present on the lateral side of the segments 2nd to 5th.

Genitalia ; Prophallus medium sized, tubular and curved ; glans of prophallus long, dilated basally and become narrower posteriorly (Fig. 1, I). Flagella one pair, long, tubular with clubshaped apex.

Anal appendages black, some small robust spines present on the lateral margins ; several black long fine spines are also present throughout the anal appendages. Superior anal appendages very broad and overlap each other. In the middle portion of superior anal appendages a short pointed spine present which is slightly nearer to the base than the apex (Fig. 1, H). Inferior anal appendages rudimentary.

Holotype : 1 ♂, Khasi Hills, along the road from Mawsamai to Shella, 26.5.1979, Registration No. 3628/H13 coll. S. K. Ghosh and G. K. Srivastava. Holotype will be deposited to the National Collection of Zoological Survey of India, Calcutta.

Measurements :

| | <i>Abdomen</i> | <i>Forewing</i> | <i>Hindwing</i> |
|---|----------------|-----------------|-----------------|
| Male (lacking abdominal segment 6th to 9th) | — | 32.50 mm | 30.00 mm |

Comparison : *Anisopleura leifstincki* sp. nov. is closely related to *A. comes* and *A. subplatystyla* and can be easily separated from these two species by the complete absence of dark brown marking on the apices of forewing in the male. From *A. lestoides* and *A. kusumi* it can be distinguished by the presence of 4 to 5 cubital nervures in both the wings and clubshaped flagella (Male genitalia), while in *A. lestoides* and *A. kusumi* only one cubital nervure is present in both the wings and in

A. lestoides flagella are rounded at the apex, not clubshaped.

Family : CALOPTERYGIDAE

8. *Neurobasis chinensis chinensis* (Linn.)

Libellula chinensis Linnaeus, 1758, *Syst. nat.*, 1 : 545.

Neurobasis chinensis Kirby, 1890, *Cat. Odon.*, : 102.

Neurobasis chinensis chinensis Fraser, 1934, *Fauna Brit. India Odonata*, 2 : 121-124.

Material examined : 1 ♂, Forest around Mawsamai cave, Cherrapunji, 25.5.1979 coll. S. K. Ghosh and G. K. Srivastava.

Distribution : India : South Kanara, Coorg, Malabar, Nilgiri, Wynaad, Palni Hills, Western Himalaya, Bihar, West Bengal, Assam, Manipur, Meghalaya, Mizoram ; Sri Lanka ; Nepal ; Burma ; Thailand ; Indochina ; Malaysia and Sumatra.

Suborder : ANISOPTERA

Superfamily : LIBELLULOIDEA

Family : LIBELLULIDAE

9. *Orthetrum sabina sabina* (Drury)

Libellula sabina Drury, 1770. *III. Exotic Ins.*, 1 : 114-115.

Orthetrum sabina sabina Lieftinck, 1954. *Treubia*, 22 (Suppl).

Material examined : 1 ♂, Shillong, Botanical Garden, 20.5.1979, coll. S. K. Ghosh and G. K. Srivastava.

Distribution : From Africa across Tropical Asia and Australia to Pacific Islands.

10. *Orthetrum glaucum* (Brauer)

Libellula glauca Brauer, 1865. *Verh. Zool. bot. Ges. Wien*, 15 : 1012.

Orthetrum glaucum Kirby, 1890. *Cat. Odon.*, 39.

Material examined : 2 ♂♂, Khasi Hills around Dawki road from Pynursla to

Pamshutia, 27.5.1957, coll. S. K. Ghosh and G. K. Srivastava.

Distribution : India : West coast, Western Himalaya, Manipur, Meghalaya, Arunachal Pradesh, Mizoram ; Sri Lanka ; Nepal ; Philippines and Java.

11. *Orthetrum triangulare triangulare* (Selys)

Libellula triangularis Selys, 1878, *Mitth. Mus. Dresden*, : 314.

Orthetrum triangulare triangulare Fraser, 1936. *Fauna Brit. India. Odonata*, 3 : 305-307.

Material examined : 1 ♀, Khasi Hills along road from Mawsamai to Shella 26.5.1979, coll. S. K. Ghosh and G. K. Srivastava and 2 ♂♂, on Dawki road from Pynursla to Pamshutia, 27.5.1979 coll. S. K. Ghosh and G. K. Srivastava.

Distribution : India : South Indian Hills, Western Himalayas, West Bengal, Arunachal Pradesh, Assam, Meghalaya, Mizoram ; Sri Lanka ; Nepal ; Burma and Vietnam.

12. *Palpopleura sexmaculata sexmaculata* (Fabricius)

Libellula sexmaculata Fabricius, 1787, *Mant. Ins.*, 1 : 338.

Palpopleura sexmaculata sexmaculata Fraser, 1936. *Fauna Brit. India Odonata*, 3 : 318-320.

Material examined : 1 ♀, Khasi Hills, on road from Samer to Kyrdem Kulai, 23.5.1979, coll. S. K. Ghosh and G. K. Srivastava.

Distribution : Throughout India ; Sri Lanka ; Nepal ; Tibet ; Malaysia ; Indochina and China.

13. *Crocothemis servilia servilia* (Drury)

Libellula servilia Drury, 1770. *Ill. Ex. Ins.*, 1 : 112-113.

Crocothemis servilia servilia Fraser, 1936. *Fauna Brit. India Odonata*, 3 : 345-347.

Material examined : 2 ♂♂, Shillong (Botanical Garden), 20.5.1979, coll. S. K. Ghosh and G. K. Srivastava ; 1 ♀, Khasi Hills on road from Sumer to Kyrдем Kulai, 23.5.1979, coll. S. K. Ghosh and G. K. Srivastava and 1 ♂, Forest around Mousamai cave, Cherrapunji, 25.5.1979, coll. S. K. Ghosh and G. K. Srivastava.

Distribution : From Mesopotamia to Japan, Philippines, Malaysia and Indonesia.

14. *Diplacodes trivialis* (Rambur)

Libellula trivialis Rambur, 1842. *Ins. Neurop.*, : 115.

Diplacodes trivialis Karsch, 1891. *Ent. Nachr.* 17 : 246.

Material examined : 1 ♂, Forest around Mawsamai cave, Cherrapunji, 25.5.1979, coll. S. K. Ghosh and G. K. Srivastava 1 ♀, Khasi Hills, along the road from Mawsamai to Shella, 26.5.1979, coll. S. K. Ghosh and G. K. Srivastava.

Distribution : From Seychelles across tropical Asia and from Australia to Western Pacific Islands.

15. *Trithemis festiva* (Rambur)

Libellula festiva Rambur, 1842. *Ins. Neurop.* : 92.

Trithemis festiva Brauer, 1868. *Verh. Zool.-bot. Ges. Wien.*, : 736.

Material examined : 1 ♂, Khasi Hills around Dawki road from Pynursla to Pamshutia, 27.5.1979, coll. S. K. Ghosh and G. K. Srivastava.

Distribution : From West Pakistan across Sri Lanka and from India to New Guinea.

16. *Trithemis pallidinervis* (Kirby)

Sympetrum pallidinervis Kirby, 1889. *Trans. zool. Soc. Lond.*, 12 : 327.

Trithemis pallidinervis Morton, 1907. *Trans. ent. Soc. Lond.*, : 804.

Material examined : 2 ♀♀, Khasi Hills on road from Sumer to Kyrдем Kulai, 23.5.1979, coll. S. K. Ghosh and G. K. Srivastava.

Distribution : Throughout India ; Sri Lanka ; Burma ; Formosa and Philippines.

17. *Pantala flavescens* (Fabricius)

Libellula flavescens Fabricius, 1798. *Ent. Syst. Suppl.*, : 185.

Pantala flavescens Hagen, 1861. *Syn. Neur. N. Amer.*, : 142.

Material examined : 1 ♂, 3 ♀♀, Barapani, 21.5.1979, coll. S. K. Ghosh and G. K. Srivastava ; 2 ♂♂, Khasi Hills on road from Sumer to Kyrдем Kulai, 23.5.1979, coll. S. K. Ghosh and G. K. Srivastava ; 1 ♂, 2 ♀♀, Forest around Mawsamai cave, Cherrapunji, 25.5.1979, coll. S. K. Ghosh and G. K. Srivastava and 3 ♂♂, Khasi Hills along the road from Mawsamai to Shella, 26.5.1979 coll. S. K. Ghosh and G. K. Srivastava.

Distribution : Cosmopolitan.

18. *Tramea basilaris burmeisteri* Kirby

Libellula chinensis Burmeister, 1839. *Handb. Ent.*, 2 : 852.

Libellula basilaris Hagen, 1862, *Peters, Reise n. Mossambique zool.*, 5 : 105.

Tramea burmeisteri Kirby, 1839. *Trans. zool. Soc. Lond.*, 12 : 316.

Tramea basilaris burmeisteri Fraser, 1936. *Fauna Brit. India Odonata*, 3 : 461.

Material examined : 1 ♀, Khasi Hills along the road from Mawsamai to Shella, 26.5.1979, coll. S. K. Ghosh and G. K. Srivastava.

Measurements :

Abdomen Forewing Hindwing

Female : (incomplete) 40.50 mm 39.50 mm

Distribution : India : Western Himalaya, Tamil Nadu, Karnataka, Madhya Pradesh, Bihar, West Bengal ; Sri Lanka ; Burma and

Malaysia ; first time recorded from the Khasi Hills.

Remarks : Discoidal cells in forewings traversed only once ; discoidal field in left forewing begins with 4 rows of cells while in right forewing and hindwings with 3 rows of cells ; nodal index $\frac{9-11\frac{1}{2}}{10-7} \frac{12\frac{1}{2}-9}{6-11}$

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