

ODONATA (INSECTA) FAUNA OF CALCUTTA AND  
SURROUNDINGS

*By*

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(With 6 Text-figures)

No comprehensive work is available so far on the Odonata fauna of Calcutta and surroundings, except a few by Laidlaw (1916, 1919 & 1922), Fraser (1933, 1934 & 1936), Bhasin (1953), Lahiri & Mitra (1972) and Mitra and Lahiri (1974 & 1975). Recently Mitra *et al.* (1976) have published a list of twenty two species of Libelluloid Odonates from Calcutta. Keeping this in view a detailed survey of this area (Text-fig. 1) was made by one of the authors (Raja Ram). As a result of this a large number of specimens of Zygoptera and Anisoptera have been accumulated in addition to collection present in the Zoological Survey of India. The present study reveals the occurrence of 50 species of Odonata belonging to two suborders, spread over 8 families and 34 genera. Of these, 9 species have shown extended distribution, and been recorded for the first time from Calcutta and environs and one species is a new record from India. Besides above 9 other species recorded from Calcutta are also included.

SYSTEMATIC ACCOUNT

Order : ODONATA

Suborder : ZYGOPTERA

Family : PLATYCNEMIDIDAE

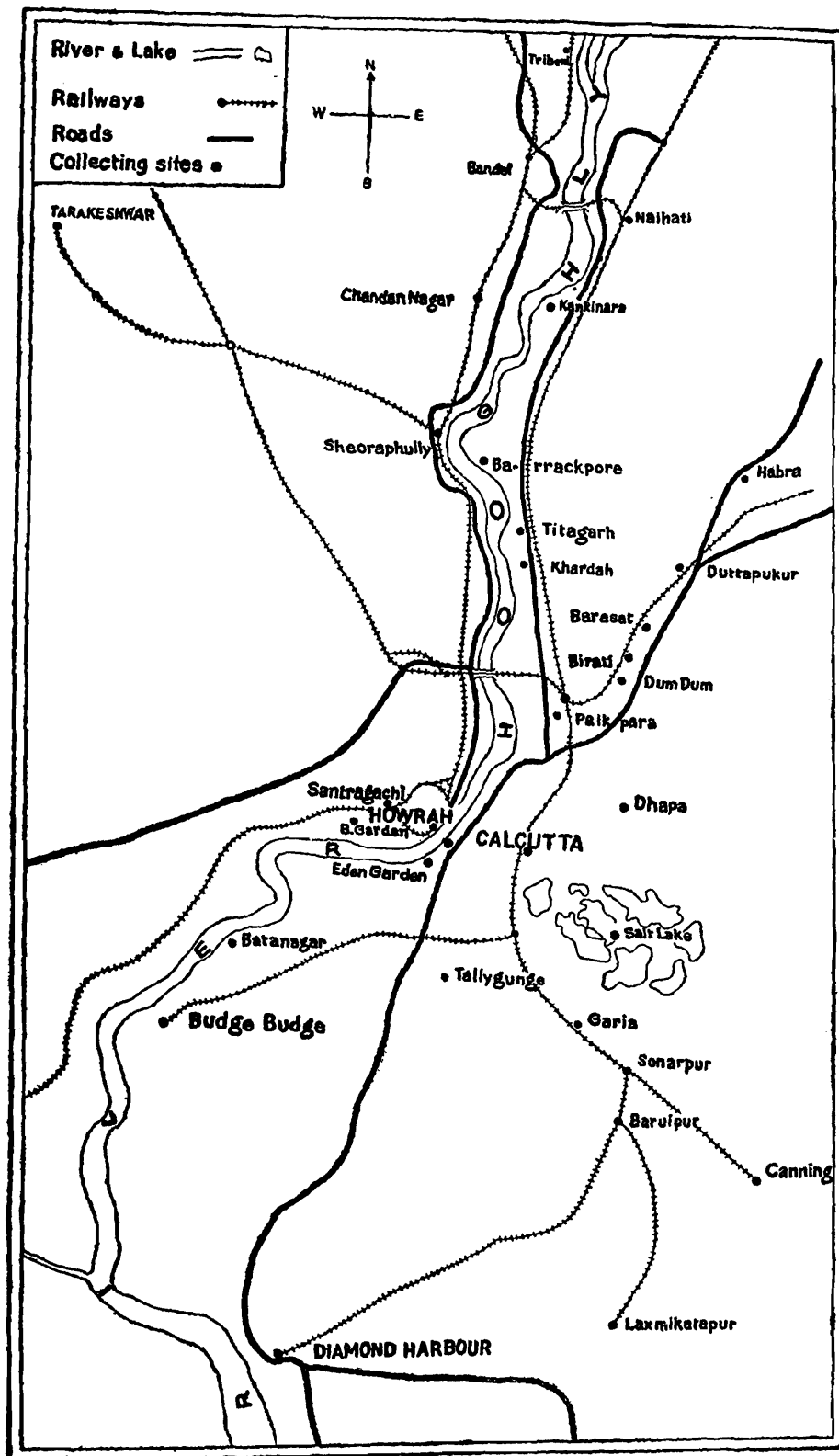
1. *Copera marginipes* (Rambur)

1842. *Platycnemis marginipes* Rambur, *Ins. Neurop.*, : 240 ; 1933. *Copera marginipes*, Fraser, *Fauna Brit. India*, 1 : 192-197.

*Material* : 1 ♂, Banglagram, Batanagar, 24 Parganas, 30. x. 1974, Raja Ram coll. and 1 ♀, Dum Dum, 24 Parganas, 18. x. 1975, D. R. Maulick coll.

*Distribution* : India [Himachal Pradesh, Madhya Pradesh, Uttar Pradesh, West Bengal (Jalpaiguri)], widely distributed throughout

Southern Asia, Sondoic Islands, Lower Burma, Sri Lanka, Java and Siam.



Text-fig. 1. Map of the area showing collection sites.

*Remarks* : Specimens were collected under dense shadow of Bamboo and Banana plantation near small temporary monsoon ponds, alongwith *Copera annulata*. It is first time recorded from Calcutta and its surroundings,

2. *Copera annulata* (Selys)

1863. *Psilocnemis annulata* Selys, *Bull. Acad. Belg.*, (2) 16 : 172.; 1933. *Copera annulata*, Fraser, *Fauna Brit. India*, 1 : 203-206.

*Distribution* : India [Assam, Himachal Pradesh, Manipur, South India, West Bengal (Botanical Garden, Howrah)] and extended from Eastern India to Malaysia. Present recorded from Hooghly and 24 Parganas (West Bengal).

*Remarks* : Specimens agree fairly well with the published description of the species, except for the following : Postnodal nervures varies from 10-16 in the fore wings and 9-14 in the hind wings. This species also prefers shadow near permanent or temporary water bodies.

Family : COENAGRIONIDAE

3. *Pseudagrion microcephalum* (Rambur)

(Text-fig. 2 A-I)

1842. *Agrion microcephalum* Rambur, *Ins. Neurop.*, 259 ; 1916. *Pseudagrion microcephalum*, Laidlaw, *Rec. Indian Mus.*, 12 : 23-24 ; 1933. Fraser, *Fauna Brit. India*, 1 : 278-280.

*Distribution* : Throughout the plains of India, Burma, Sri Lanka and extending to Australia. Material of this species studied from Hooghly, Howrah, and 24 Parganas (West Bengal).

*Remarks* : A common species near permanent and temporary monsoon ponds in and around Calcutta. The male specimens of this species exhibit a wide range of variation in the markings of head, thorax and on 2nd abdominal segment.

4. *Pseudagrion australasiae* Selys

(Text-fig. 3 A-C)

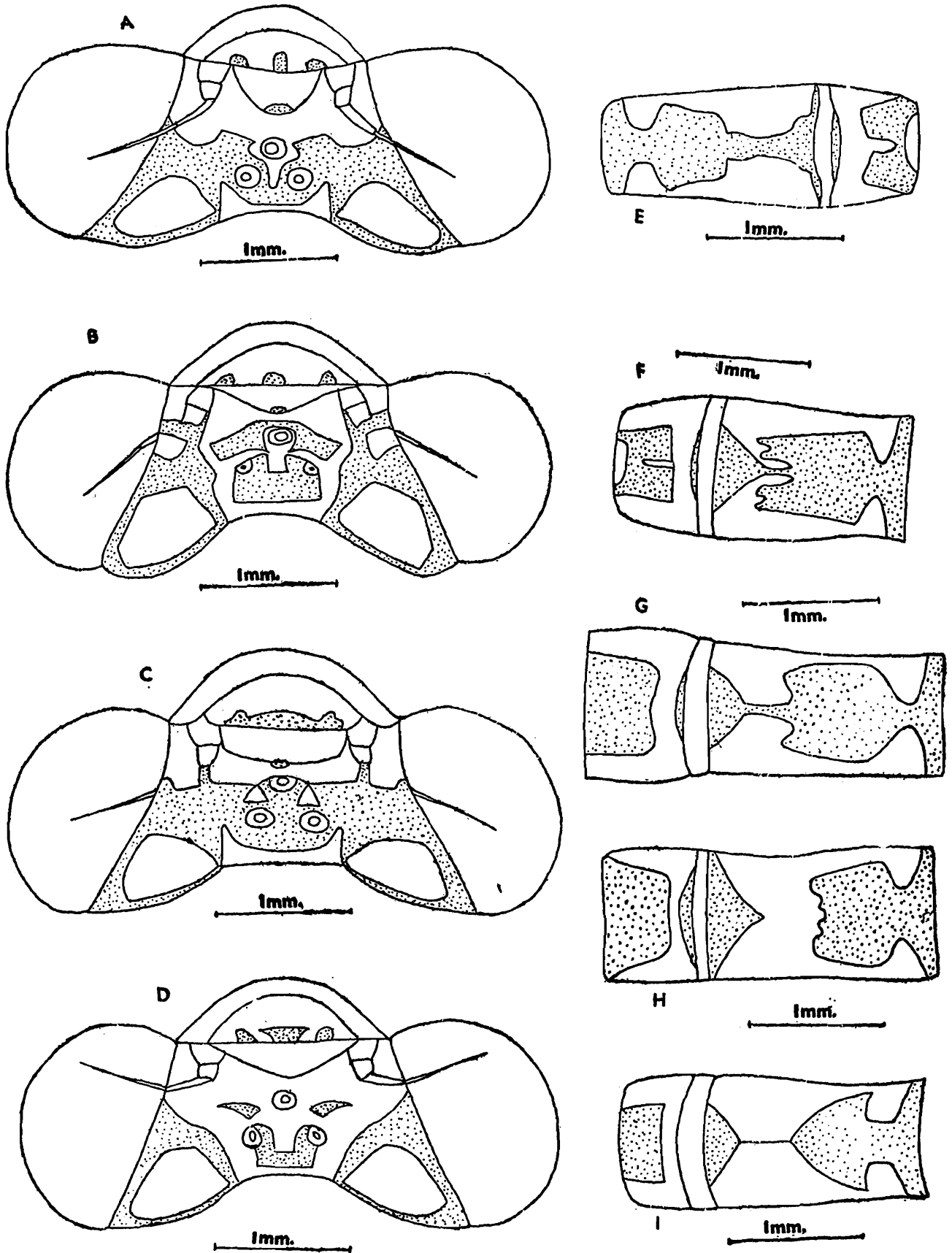
1916. *Pseudagrion australasiae*, Laidlaw, *Rec. Indian Mus.*, 12 : 21-23 ; 1919. Laidlaw, *Rec. Indian Mus.*, 16 : 192 ; 1933. *Pseudagrion bengalense* Fraser, *Fauna Brit. India*, 1 : 282-284 ; 1954. *Pseudagrion australasiae*, Lieftinck, *Treubia*, 22 : 1-202.

*Distribution* : India [Assam, West Bengal (Calcutta)], Burma and extending into Malaysia. Material of this species presently studied from Howrah (West Bengal).

*Remarks* : Head markings similar to Java specimens (Fraser, 1933). Postclypeus with comparatively larger black spots. Small black spot in the middle of the vertex is replaced by crown shaped marking

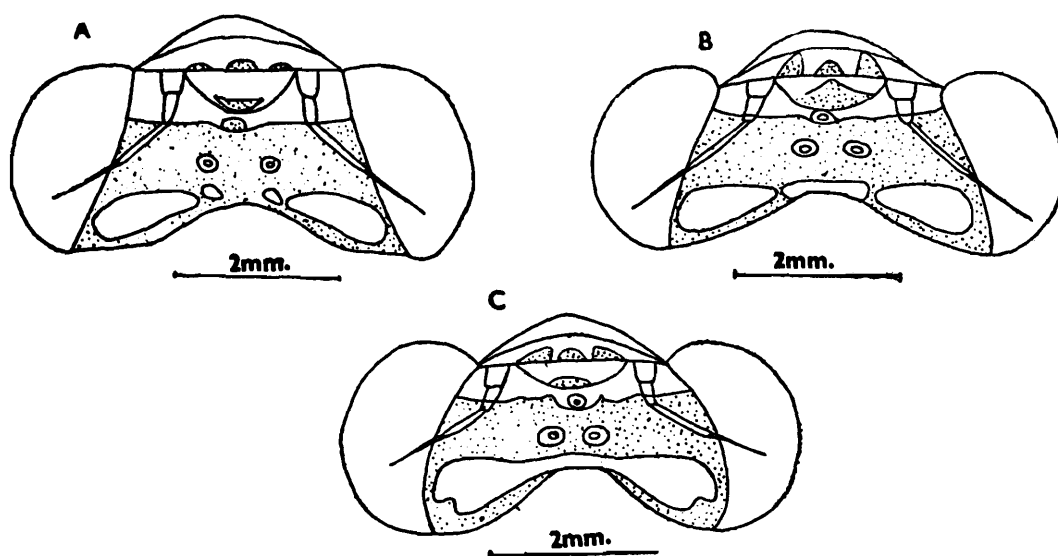
In a male specimen postnodal nervures varies 11-12 in the fore wing and 9-10 in the hind wing. It commonly occurs at its breeding places during the month of November and December.

A study of the type material present in Zoological Survey of India revealed some differences with descriptions in Fraser (1933) namely,



Text-fig. 2. (A-I) *Pseudagrion microcephalum* (Rambur); (A-D) Head markings; (E-I) Abdominal markings.

3 small basal black spots on postclypeus and a spot on the middle of the vertex.



Text-fig. 3. (A-C) Head markings of *Pseudagrion australasiae* Selys

### 5. *Pseudagrion decorum* (Rambur)

1842. *Agrion decorum* Rambur, *Ins. Neurop.* : 258 ; 1916. <sup>1</sup>*Pseudagrion decorum*, Laidlaw, *Rec. Indian Mus.*, 12 : 24 ; 1933. Fraser, *Fauna Brit. India*, 1 ; 286-289.

**Distribution.** : India [Coorg, Himachal Pradesh, Nilgiris, (Ootacamund) Uttar Pradesh, West Bengal (Darjeeling and Jalpaiguri)], Burma and Sri Lanka. Material of this species presently studied from Howrah and 24 Parganas (West Bengal).

**Remarks** : Markings on head, thorax and 2nd and 10th abdominal segments are very much variable even in the specimens collected from the same locality. Detailed intraspecific variation of the species will be published separately. This is one of the most common species and frequents near permanent water bodies during August to November.

### 6. *Pseudagrion spencei* Fraser

1922. *Pseudagrion spencei* Fraser, *Mem. Dep. Agric. India ent. Ser.*, 7 (7) : 47-48 ; 1933. Fraser, *Fauna Brit. India*, 1 : 292-294.

**Material** : 1 ♂, Santragachi, Howrah, 26. xii. 1976, *Raja Ram* coll.

**Distribution** : India [Bihar, Madhya Pradesh, West Bengal (Jalpaiguri)] and Pakistan (Lower Sind).

*Remarks* : It is an extremely rare species in this area and was collected while it was perching on the vegetation within water body. It is recorded for the first time from Calcutta and environs.

### 7. *Pseudagrion rubriceps* Selys

1876. *Pseudagrion rubriceps* Selys, *Bull. Acad. Belg.*, (2) 42 : 510 ; 1933. Fraser, *Fauna Brit. India*, 1 : 296-299.

*Distribution* : Widely distributed in the plains and submontane area of continental India [Himachal Pradesh, Madhya Pradesh, Uttar Pradesh and West Bengal (Calcutta)] except desert tract and Burma. Material of this species presently studied also from Hooghly, Howrah and 24 Parganas (West Bengal).

*Remarks* : Males exhibit wide range of variation in markings on head, thorax and abdominal segments. A male specimen collected from Sheoraphully (Hooghly) bears identical marking on 2nd abdominal segment as in Coorg specimen (Fraser, 1933).

### 8. *Ceriagrion coromandelianum* (Fabricius)

1798. *Agrion coromandelianum* Fabricius, *Ent. Syst. Suppl.* : 287 ; 1916. *Ceriagrion coromandelianum*, Laidlaw, *Rec. Indian Mus.*, 12 : 132 ; 1919, Laidlaw, *Rec. Indian Mus.*, 16 : 190 ; 1933. Fraser, *Fauna Brit. India*, 1 : 315-316.

*Distribution* : Throughout India, Sri Lanka, Burma, Malaysia, Indo-China and South China. Material of this species presently studied from Calcutta, Howrah and 24 Parganas (West Bengal).

*Remarks* : Large number of males and females are very common at permanent and temporary monsoon ponds. It is also attracted towards electric light during night.

### 9. *Ceriagrion cerinorubellum* (Brauer)

1865. *Pyrrhosoma cerinorubellum* Brauer *Verh. zool. bot. Ges. Wien.*, 15 : 511 ; 1933. *Ceriagrion cerinorubellum*, Fraser, *Fauna Brit. India.*, 1 : 326-328.

*Distribution* : India [Assam, Himachal Pradesh, South India (Coorg), Uttar Pradesh, West Bengal], Borneo, Burma, Sri Lanka, Java, Malaysia and Sumatra. Material of this species presently studied from Hooghly, Howrah and 24 Parganas (West Bengal).

*Remarks* : It is very colourful and always confined only to temporary as well as permanent water bodies.

10. *Coenagrion dyeri* (Fraser)

1919. *Agriocnemis dyeri* Fraser, *Rec. Indian Mus.*, 16 : 451-52 ; 1933. *Coenagrion dyeri* Fraser, *Fauna Brit. India*, 1 : 413-415.

*Material* : 1 ♀, 9. viii. 1975, 1 ♂, 1 ♀, 28. ix. 1975, 1 ♀, 22. xi. 1976, 2 ♂ ♂, 1 ♀, 12. xii. 1976, 6 ♂ ♂, 1 ♀, 28. xii. 1976 and 6 ♂ ♂, 2 ♀ ♀, 29. xii. 1976, Santragachi, Howrah, *Raja Ram* coll.

*Distribution* : India [Himachal Pradesh, Madhya Pradesh throughout Peninsular India, Uttar Pradesh and Western Ghat].

*Remarks* : It is first time recorded from West Bengal. During the month of November and December, it is very common at Santragachi and can be seen in the green grass and bushes and sometimes far away from the water bodies. The male specimens of the species differ from the published description in the following. They are smaller in body length as well as in wing expanse. Postnodal nervures vary from 7-8 in the fore wing and 5-6 in the hind wings. Thorax, femora and abdomen in some of the fully mature specimens are heavily pruinosed.

11. *Ischnura senegalensis* (Rambur)

1842. *Agriion senegalensis* Rambur, *Ins. Neurop.*, 276 ; 1916. *Ischnura senegalensis*, Laidlaw, *Rec. Indian Mus.*, 12 : 129 ; 1933. Fraser, *Fauna Brit. India*, 1 : 348-351.

*Distribution* : India [Himachal Pradesh, Manipur, Maharashtra, Rajasthan, Uttar Pradesh, West Bengal], Burma, Sri Lanka and extends eastwards as far as Malaysia. Philippines, Japan and westwards throughout the African continent. Material of this species presently studied from Hooghly, Howrah and 24 Parganas (West Bengal).

*Remarks* : This is one of the most common species on both, permanent and temporary water bodies. Emergence was recorded in the morning hours in a large scale, gradually increasing with the rise of temperature during winter (November and December). Specimens have been observed to remain in copula for hours together.

12. *Ischnura forcipata* Morton

1907. *Ischnura forcipata* Morton, *Trans. ent. Soc. Lond.*, : 306 ; 1933. Fraser, *Fauna Brit. India*, 1 : 354-357.

*Distribution* : Baluchistan, Quetta, and Northern India. Material of this species presently studied from Calcutta (West Bengal).

*Remarks* : It is rare species in this area,

### 13. *Ischnura rufostigma rufostigma* Selys

1876. *Ischnura rufostigma* Selys, *Bull. Acad. Belg.*, (2) **41** : 283 ; 1916. Laidlaw, *Rec. Indian Mus.*, **12** : 130 ; 1919. Laidlaw, *Rec. Indian Mus.*, **16** : 175 ; 1933. Fraser, *Fauna Brit. India*, **1** : 362-364. 1977 ; *Ischnura rufostigma rufostigma*, Lahiri, *Rec. zool. Surv. India*, **72** : 413.

*Distribution* : India [Assam, Bihar, Himachal Pradesh, Kashmir, Madhya Pradesh, Manipur, Uttar Pradesh, West Bengal (Calcutta)] and Burma. Material of this species presently studied from Howrah and 24 Parganas (West Bengal).

*Remarks* : This species is commonly found near temporary and permanent monsoon ponds. It was also observed at electric light during night.

### 14. *Ischnura aurora aurora* (Brauer)

1858. *Agrion delicatum* Hagen. *Verh. Zool.-bot. Ges. Wien*, **8** : 479 ; 1865. *Agrion aurora*, Brauer, *Verh. zool.-bot. Ges. Wien*, **15** : 510 ; 1915. *Ischnura aurora*, Ris, *Nova caledonia, Zool.*, **2** : 4, 67 ; 1931. Fraser, *Rec. Indian Mus.*, **33** : 448 ; 1954. *Ischnura aurora aurora* Lieftinck, *Treubia*, **22** : 74.

*Distribution* : India [Himachal Pradesh, Punjab, South India, Uttar Pradesh], Australia, Borneo, Burma, Sri Lanka, Malaysia, New Guinea, Philippines, Samoa and Sondaic Archipelago. Material of this species presently studied from Howrah (West Bengal).

*Remarks* : Differs from published description by having 6 postnodal nervures in fore wing and 5 in the hind wing.

### 15. *Enallagma parvum* Selys

1876. *Enallagma parvum* Selys, *Bull. Acad. Belg.*, (2) **41** : 537 ; 1919. Laidlaw, *Rec. Indian Mus.*, **16** : 184 ; 1933. Fraser, *Fauna Brit. India*, **1** : 376-378.

*Material* : 2 ♂♂, 1 ♀, Banglagram, Batanagar, 24 Parganas., 30. x. 1974, Raja Ram coll. and 2 ♂♂ Santragachi, Howrah, 31. vii. 1975, Raja Ram coll.

*Distribution* : India [West Bengal (Darjeeling), Gujarat, Madhya Pradesh, Manipur, Uttar Pradesh], Burma and Ceylon.

*Remarks* : It is recorded for the first time from Calcutta and surroundings.

### 16. *Agriocnemis lacteola* Selys

1877. *Agriocnemis lacteola* Selys, *Bull. Acad. Belg.*, (2) **43** : 144 ; 1933. Fraser, *Fauna Brit. India*, **1** : 381-383.

*Material* : 3 ♂♂, Kumra, Habra, 24 Parganas, 10. x. 1974, D. R. Maulick coll. and 5 ♂♂, Langalpara, Sonarpur, 24 Parganas, 15. x. 1975, Raja Ram and D. R. Maulick coll.

**Distribution** : India [Assam, Bihar, Sikkim and West Bengal (Hasi-mara and Jalpaiguri)].

**Remarks** : This species is recorded for the first time from this area.

### 17. *Agriocnemis splendidissima* Laidlaw

1919. *Agriocnemis splendidissima* Laidlaw, *Rec. Indian Mus.*, **16** : 180-82 ; 1933. Fraser, *Fauna Brit. India*, **1** : 392-94.

**Material** : 1 ♀, Devendrapur, Hooghly, 24. iii. 1976, *K. K. Ray* coll. and 1 ♀, Santragachi, Howrah, 26. xii. 1976, *Raja Ram* coll.

**Distribution** : India [Madhya Pradesh, Maharashtra and Western Ghat].

**Remarks** : It is first time recorded from West Bengal. Specimen differs from published description in respect of its longer size (abdomen 21 mm.) and having 8 postnodal nervures in fore wing and 6 in the hind wing.

### 18. *Agriocnemis pygmaea* (Rambur)

1842. *Agrion pygmaea*, Rambur. *Ins. Neurop.* : 278 ; 1933. *Agriocnemis pygmaea*, Fraser, *Fauna Brit. India*, **1** : 398-401.

**Distribution** : India [Assam, Himachal Pradesh, Madras, Malabar, Manipur, Nicobar, Punjab, Rajasthan, Uttar Pradesh, West Bengal (Calcutta)], Australia, Burma, Sri Lanka, China, Formosa, Java, Malaysia, Manila, North Guina, Philippines, Singapore and Seychelles. Material of this species presently studied from Howrah and 24 Parganas (West Bengal).

**Remarks** : It is one of the most commonly distributed damselfly in the area near water-bodies. Though, sometimes it is also observed away from the water bodies. Specimens of this species are commonly seen attracted towards electric light during night.

### 19. *Onychargia atrocyana* Selys

1865. *Onychargia atrocyana* Selys, *Bull. Acad. Belg.* (2) **20** : 416 ; 1933. Fraser, *Fauna Brit. India*, **1** : 417-418.

**Distribution** : Throughout the wet and montane areas of India [Assam, North Coorg, Malabar, Paralai, Anaimalai Hills, West Bengal]. Material of this species presently studied from Hooghly and Howrah (West Bengal).

**Remarks** : On few occasions specimens of this species were observed to follow trains for some distance,

Family : LESTIDAE

20. *Platylestes platystyla* (Rambur)

1842. *Lestes platystyla* Rambur, *Ins. Neurop.*, : 254 ; 1933. *Platylestes platystyla*, Fraser, *Fauna Brit. India*, 1 : 59-62.

*Distribution* : India [West Bengal (Calcutta)], Burma and Iraq.

*Remarks* : Postnodal nervures varies 11-12 in the fore wing and 10-11 in the hind wing. Three spots present on postclypeus.

Suborder : ANISOPTERA

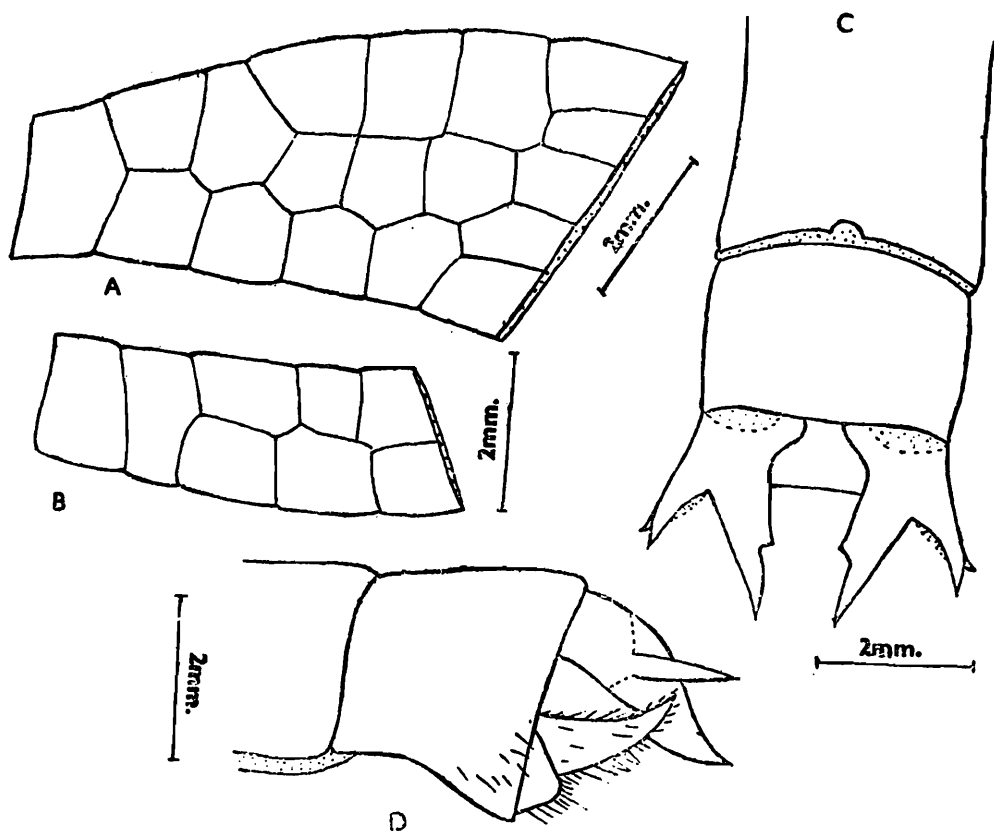
FAMILY : GOMPHIDAE

21. *Macrogomphus montanus* Selys

(Text-fig. 4 A-D)

1869. *Macrogomphus montanus* Selys, *Bull. Acad. Belg.*, (2) 28 : 171 ; 1922. Laidlaw, *Rec. Indian Mus.*, 24 : 377-378 ; 1934. Fraser, *Fauna Brit. India*, 2 : 345-346.

*Distribution* : India [West Bengal (Calcutta)] and Bangladesh (Sylhet). Material of this species presently studied from 24 Parganas (West Bengal).



Text-fig. 4. (A-D) *Macrogomphus montanus* Selys : (A-B) Right and left hind wings showing cells in between nervures Cuii and 1A ; (C) Anal appendages—dorsal view ; (D) Anal appendages—lateral view.

*Remarks* : Specimen agrees well with the Fraser (1934) description, except as follows : labrum yellow at sides, lateral sides of prothorax

and middle of posterior lobe yellow, 2 cubital nervures present in the left hind wing. Cuii and IA parallel in the left hind wing, whereas much divergent in the right wing (5 celled) (Text-fig. 4 A-B).

## 22. *Ictinogomphus rapax* (Rambur)

1842. *Diastomma rapax* Rambur, *Ins. Neurop.*, : 169 ; 1922. *Ictinus rapax*, Laidlaw, *Rec. Indian Mus.*, 24 : 373-374 ; 1934. Fraser, *Fauna Brit. India*, 2 : 373-376.

*Distribution* : Throughout India, Burma, Sri Lanka and Malaysia, except in desert area. Material of this species presently studied from Calcutta and Howrah (West Bengal).

*Remarks* : This species was observed to return to the same perching place, over the water body on being disturbed for several times. On one occasion a male was observed to repeat this behaviour for five times, and ultimately on the sixth attempt the specimen itself got struck by the stone.

Study of a large series of specimens reveal venational variation as follows : anal triangle 5-7 celled, discoidal cell in hind wing 2-4 celled, hypertrigone 1-3 celled, anal loop varies from 3-5 cells, discoidal field starts with 3-4 cells in the fore wing and 3-5 in the hind wing.

## 23. *Ictinogomphus pertinax* Selys

1854. *Ictinus pertinax* Selys, *Bull. Acad. Belg.*, 21 (2) : 88 ; 1934. Fraser, *Fauna Brit. India*, 2 : 377-378.

*Material* : 1 ♂, Santragachi, Howrah, 10. viii. 1975, *Raja Ram* coll.

*Distribution* : Burma, China, Indochina, and Malaysia.

*Remarks* : Specimen agrees with Fraser's description (1934) but differs in the followings : Anal triangle 5 celled, lanceolate stripe on the dorsum of 2nd abdominal segment is reaching upto the apex of the segment and touching the suture. This is the first record of this species from India.

## 24. *Ictinogomphus angulosus* Selys

1854. *Ictinus angulosus* Selys, *Bull. Acad. Belg.*, 21 : 92 ; 1934. Fraser, *Fauna Brit. India*, 2 : 378-379.

*Distribution* : India (Calcutta).

## Family : AESHNIDAE

25. *Anax imperator* Leach

1815. *Anax imperator* Leach, *Edinb. Encycl.*, 9 : 137 ; 1936. Fraser, *Fauna Brit. India*, 3 : 136-138 ; 1974. Mitra & Lahiri, *Entomologist's Rec. J. Var.*, 86 : 74.

*Distribution* : India [West Bengal (Calcutta) N. W. Provinces, Mussoorie] extending from the British Isles across Europe to Central Asia and South-wards to central and North Africa.

26. *Anax guttatus* (Burmeister)

1839. *Aeshna guttata* Burmeister, *Handb. Ent.*, 2 : 840 ; 1936. *Anax guttatus*, Fraser, *Fauna Brit. India*, 3 : 140-142 ; 1942, Lieftinck, *Treubia*, 18 (3) : 591-592.

*Distribution* : Extends from Seychelles to Samoa in the Pacific, common throughout the plains of India except in desert areas [Coorg, Nilgiris, Malabar, Annaimallai Hills, Madras, Waltair, Assam, West Bengal (Calcutta)].

27. *Hemianax ephippiger* (Burmeister)

1839. *Aeshna ephippiger* Burmeister, *Handb. Ent.*, 2 : 840 ; 1936. *Hemianax ephippiger*, Fraser. *Fauna Brit. India*, 3 : 147-149 ; 1974. Mitra & Lahiri, *Entomologist's Rec., J. Var.* 86 : 74.

*Distribution* : India [Maharashtra, Rajasthan, South India, Uttar Pradesh, West Bengal (Calcutta)], South Europe to North Asia. Material of this species presently studied from Howrah and 24 Parganas (West Bengal).

28. *Anaciaeschna jaspidea* (Burmeister)

1839. *Aeshna jaspidea* Burmeister, *Handb. Ent.*, 2 : 840 ; 1936. *Anaciaeschna jaspidea*, Fraser, *Fauna Brit. India*, 3 : 152-154.

*Distribution* : India [Coorg, Nilgiris and West Bengal (Hasimara, Duars, Calcutta)], extending to Pacific Islands.

*Remarks* : Specimens examined exhibit certain differences with Fraser (1936), such as yellow tinge present in the subcostal region of the hind wing instead of costal region and absent in centre. One specimen collected from Horticulture Garden, Calcutta further differs in vesicle and occiput being deep brown instead of yellow.

29. *Gynacantha rammohni* Mitra & Lahiri

1975. *Gynacantha rammohni* Mitra & Lahiri, *Entomologist's Rec. J. Var.*, 87 : 148-149.

*Distribution* : India [West Bengal (Calcutta)].

30. *Acanthagyna dravida* (Lieftinck)

1960. *Gynacantha dravida* Lieftinck, *Mem. Soc. Ent. Ital.*, **38** : 252-253 ; 1972. *Acanthagyna dravida* Lahiri & Mitra, *J. Bombay nat. Hist. Soc.*, **69** (2) : 438-439.

*Distribution* : India [Bihar, Coimbatore, Coorg, Malabar, Meghalaya, Nilgiris, Orissa and West Bengal (Calcutta, Darjeeling, Singla, Mangpo)].

Family : CORDULIIDAE

31. *Epophthalmia vittata vittata* Burmeister

1839. *Epophthalmia vittata* Burmeister, *Handb. Ent.*, **2** : 845 ; 1936. *Epophthalmia vittata vittata*, Fraser, *Fauna Brit. India*, **3** : 194-196.

*Material* : 1 ♂, Indian Museum, Calcutta, 8. iv. 1941.

*Distribution* : Widely distributed throughout Peninsular India and Uttar Pradesh.

*Remarks* : This is the first record of the species from West Bengal. Differs from the available published descriptions in the following : Inner costal margin is yellow ; anal loop made up of 9 cells. In addition to this, three more specimens of this species present in earlier collection, without any locality labels were also studied. Their cubital nervures varies from 4-6 and anal loop 9-11 in numbers.

Family : MACRODIPLACTIDAE

32. *Macrodiplax cora* (Brauer)

1867. *Diplax cora* Brauer, *Verh. zool.-bot. Ges. Wien.* **17** : 20, 289 ; 1936. *Macrodiplax cora*, Fraser, *Fauna Brit. India*, **3** : 448-450 ; 1974. Mitra & Lahiri, *Entomologist's Rec. J. Var.*, **86** : 74 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : India [Coimbatore Plateau, Western Ghat, West Bengal (Calcutta)], widely distributed from the east coast of Africa Oceania and Australia, throughout Southern Asia. Material of this species presently recorded from Howrah and 24 Parganas (West Bengal).

33. *Aethriamanta brevipennis brevipennis* (Rambur)

1842. *Libellula brevipennis* Rambur, *Ins. Neurop.*, : 114 ; 1936. *Aethriamanta brevipennis brevipennis*, Fraser, *Fauna Brit. India*, **3** : 445-447 ; 1976. Mitra *et al.*, *Third all India, Congr. Zool.*, 64.

*Distribution* : India [Assam, South India (Coorg and Malabar), West Bengal (Calcutta)], Sri Lanka and Burma. Material of this species presently studied also from Howrah and 24 Parganas (West Bengal).

*Remarks* : This species is always found in the gardens with multi-coloured flowers.

### 34. *Urothemis signata signata* (Rambur)

1842. *Libellula signata* Rambur, *Ins. Naurop.*, : 117 ; 1839. *Libellula sanguinea*, Burm., *Handb. Ent.*, 2 : 858 ; 1936. *Urothemis signata signata*, Fraser, *Fauna Brit. India*, 3 : 442-444 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : India [Peninsular India, Eastern Uttar Pradesh, West Bengal (Calcutta)], Burma and Sri Lanka. Material of this species presently studied also from Hooghly and 24 Parganas (West Bengal).

*Remarks* : It is one of the commonest species in this area from June to October and found resting on the top of the twigs of the bushes. In few cases male specimens have blackish brown spots in the anal area of the hind wings, well separated as in the case of females forming distinct separate areas.

Family : LIBELLULIDAE

### 35. *Orthetrum sabina sabina* (Drury)

1770. *Libellula sabina* Drury, *Ill. Exot. Ins.*, 1 : 114-115 ; 1936. *Orthetrum sabina* Fraser, *Fauna Brit. India*, 3 : 300-302 ; 1974. Mitra & Lahiri, *Entomologist's Rec. J. Var.*, 86 : 74 ; 1976. *Orthetrum s. sabina*, Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : India [Assam, Bihar, Himachal Pradesh, Manipur, Punjab, Uttar Pradesh, West Bengal (Calcutta)], North East Africa, Eastward across Asia to Australia, Nepal and Pacific Islands. Material of this species presently studied also from Howrah and 24 Parganas (West Bengal).

*Remarks* : Very commonly occurring in the area.

### 36. *Orthetrum glaucum* (Brauer)

1865. *Libellula glauca* Brauer, *Verh. zool.-bot. Ges. Wien.* 15 : 1012 ; 1936. *Orthetrum glaucum*, Fraser, *Fauna Brit. India*, 3 : 307-309 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : Throughout India, Java, Philippines.

### 37. *Orthetrum triangulare triangulare* (Selys)

1878. *Libellula triangularis* Selys, *Mitth. Mus. Dresden.*, : 314 ; 1936. *Orthetrum triangulare triangulare*, Fraser, *Fauna Brit. India*, 3 : 305-307 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : India [S. India, all along the Himalayas, West Bengal (Calcutta)], Burma.

38. *Lathrecista asiatica asiatica* (Fabricius)

1798. *Libellula asiatica* Fabricius, *Ent. Syst. Suppl.*, : 283 ; 1936. *Lathrecista asiatica asiatica*, Fraser, *Fauna Brit. India*, 3 : 281-284 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

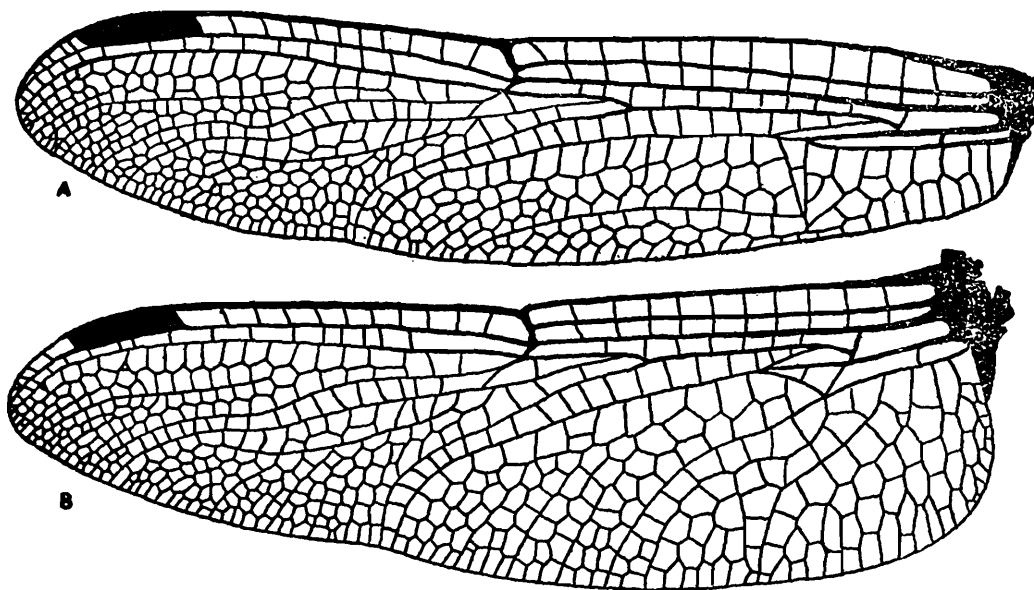
*Distribution* : India [Malabar, West Bengal (Calcutta)], Samoa, Sondaic Archipelago, Borneo, New Guinea, Philippines.

39. *Potamarcha obscura* (Rambur)

(Text-fig. 5 A-B)

1842. *Libellula obscura* Rambur, *Ins. Neurop.*, : 64 ; 1936. *Potamarcha obscura*, Fraser, *Fauna Brit. India*, 3 : 289-291.

*Distribution* : India [Himachal Pradesh, Madhya Pradesh, Uttar Pradesh, West Bengal (Calcutta)], widely distributed from Sri Lanka to Tibet and from west coast of India to Philippines and Formosa except



Text-fig. 5 (A-B) Fore and hind wings of *Potamarcha obscura* (Rambur).

desert areas. Material of this species presently also studied from Hooghly and 24 Parganas (West Bengal).

*Remarks* : Agrees fairly well with the description of the species. This species commonly occurs near residential area.

40. *Brachydiplax sobrina* (Rambur)

1842. *Libellula sobrina* Rambur, *Ins. Neurop.*, : 114 ; 1936. *Brachydiplax sobrina*, Fraser, *Fauna Brit. India*, 3 : 325-327 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : India [Assam, Himachal Pradesh, Maharashtra, Punjab, Uttar Pradesh, Western coast of India, Travancore, West Bengal (Calcutta)], Burma and Sri Lanka. Material of the species presently studied also from Hooghly, Howrah and 24 Parganas (West Bengal),

41. *Brachydiplax farinosa* Kruger

1902. *Brachydiplax farinosa* Kruger, *Stettin, ent. Ztg.*, **63** : 135 ; 1936. Fraser, *Fauna Brit. India*, **3** : 327.

*Material* : 1 ♂, Dattapukur, 24 Parganas, 8. ii. 1967, K. K. Ray coll. ; 2 ♂♂, Botanical Garden, Howrah, 18. ix. 1974, Raja Ram and S. Das coll. and 2 ♂♂, Batanagar, 30. x. 1974, Raja Ram coll.

*Distribution* : India [Assam, West Bengal (Jalpaiguri)], Burma, Malaysia and Sumatra. It is first time recorded from Calcutta and its environs.

42. *Brachydiplax chalybea chalybea* Brauer

1868. *Brachydiplax chalybea*, Brauer, *Verh. zool.-bot. Ges. Wien*, **18** : 173, 725 ; 1936. Fraser, *Fauna Brit. India*, **3** : 328-329 ; 1976. *Brachydiplax chalybea chalybea*, Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : India [Assam, West Bengal (Calcutta)], Burma, Java, Malaysia, Siam and Sumatra. Material of this species presently studied from 24 Parganas (West Bengal).

43. *Brachythemis contaminata* (Fabricius)

1793. *Libellula contaminata* Fabricius, *Ent. Syst.*, **2** : 382 ; 1936. *Brachythemis contaminata*, Fraser, *Fauna Brit. India*, **3** : 365-366 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : India [Assam, Bihar, Himachal Pradesh, Madhya Pradesh, Punjab, Rajasthan, Uttar Pradesh and West Bengal (Calcutta)], Burma, Sri Lanka and extending east of China, Java, Formosa Philippines and Sumatra. Material of this species presently studied also from 24 Parganas (West Bengal).

*Remarks* : Very commonly observed fluttering over aquatic vegetation at permanent and temporary water bodies. It has also been observed and collected at electric light during night.

44. *Sympetrum hypomelas* (Selys)

1884. *Diplax hypomelas* Selys, *Annls. Soc. ent. Belg.*, **28** : 37 ; 1936. *Sympetrum hypomelas*, Fraser, *Fauna Brit. India*, **3** : 373-374.

*Distribution* : India [West Bengal (Calcutta), Assam, Sikkim], Burma, Tibet,

**45. *Acisoma panorpoides panorpoides* Rambur**

1842. *Acisoma panorpoides* Rambur, *Ins. Neurop.*, : 28 ; 1936. *Acisoma panorpoides panorpoides*, Fraser, *Fauna Brit. India*, 3 : 330-331 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : India [Assam, Himachal Pradesh, Madhya Pradesh, Manipur, Punjab, Uttar Pradesh, Western India, West Bengal (Calcutta)], Sri Lanka, Celebes, China, Japan, Java, Moluccan Islands, Sumatra and Taiwan. Material of the species presently studied from Howrah and 24 Parganas (West Bengal).

*Remarks* : It is very common and found near water bodies.

**46. *Diplacodes trivialis* (Rambur)**

1842. *Libellula trivialis* Rambur, *Ins. Neurop.*, : 115 ; 1936. *Diplacodes trivialis* Fraser, *Fauna Brit. India*, 3 : 336-338 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : India [Himachal Pradesh, Madhya Pradesh, Madras, Punjab, Manipur, Uttar Pradesh, West Bengal (Calcutta)], Australia, Burma, Sri Lanka, Nepal, and Seychelles. Material of this species presently studied also from Howrah and 24 Parganas (West Bengal.)

*Remarks* : Specimens of this species are common in this area during July to November. This can be seen near waterbodies as well as far away from the waterbodies at green vegetation.

**47. *Diplacodes nebulosa* (Fabricius)**

1793. *Libellula nebulosa* Fabricius *Ent. Syst.*, 2 : 379 ; 1936. *Diplacodes nebulosa*, Fraser, *Fauna Brit. India*, 3 : 335-336 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : India [Himachal Pradesh, Madhya Pradesh, Madras, Uttar Pradesh, West Bengal (Calcutta)], extended from western India. Sri Lanka to Australia and Southwards to Java. Material of this species presently studied from 24 Parganas (West Bengal).

*Remarks* : Specimens of this species are common in and around paddy fields, but sometimes they can be seen near water bodies with weeds and aquatic plants.

**48. *Crocothemis servilia servilia* (Drury)**

1770. *Libellula servilia* Drury, *Ill. Ex. Ins.*, 1 : 112-113 ; 1936. *Crocothemis servilia servilia* Fraser, *Fauna Brit. India*, 3 : 345-347 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : India [Bihar, Himachal Pradesh, Madhya Pradesh, Manipur, Punjab, Rajasthan, Uttar Pradesh, West Bengal (Calcutta)],

Australia, Nepal, Philippines and Sondaic Archipelago. Material of this species presently studied from 24 Parganas (West Bengal).

*Remarks* : Most commonly and easily available species. It is also attracted to electric light during night.

#### 49. *Crocothemis indica* Sahni

1965. *Crocothemis indica* Sahni, *Indian J. Ent.*, 27 (3) : 284-287 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : India [Uttar Pradesh and West Bengal (Calcutta)].

#### 50. *Bradinopyga geminata* (Rambur)

1842. *Libellula geminata* Rambur, *Ins. Neurop.*, : 90 ; 1936. *Bradinopyga geminata*, Fraser, *Fauna Brit. India*, 3 : 349-350 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : India [Madhya Pradesh, Uttar Pradesh, peninsular India and West Bengal (Calcutta)]. Material of this species presently studied also from Howrah and 24 Parganas (West Bengal).

*Remarks* : It is a garden species and always observed near the small cemented water tanks, cemented surface of walls, nallah, asbestos sheets, etc.

#### 51. *Neurothemis tullia tullia* (Drury)

1773. *Libellula tullia* Drury, *Ill. Exot. Ins.* 2 : 85 ; 1936. *Neurothemis tullia tullia*. Fraser, *Fauna Brit. India*, 3 : 360-362 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : India [Bihar, Bombay, Himachal Pradesh, Madhya Pradesh, Peninsular India, Punjab, Uttar Pradesh, West coast of India, West Bengal (Calcutta)]. Burma, Sri Lanka, Hongkong, Indo-china and Malacca. Material of this species presently studied also from Hooghly, Howrah and 24 Parganas (West Bengal).

*Remarks* : Medium sized beautiful species commonly available throughout this area during June to November.

#### 52. *Neurothemis intermedia intermedia* (Rambur)

1842. *Libellula intermedia* Rambur, *Ins. Neurop.*, : 91 ; 1936. *Neurothemis intermedia intermedia*, Fraser, *Fauna Brit. India* 3 : 357-358.

*Material* : 1 ♂, Baruipur, 24 Parganas, 18. ix. 1965, G. N. Saha coll.

*Distribution* : India [Bihar, Madhya Pradesh, Peninsular India, Punjab, Uttar Pradesh], Burma, Sri Lanka, Indo-China and Malacca.

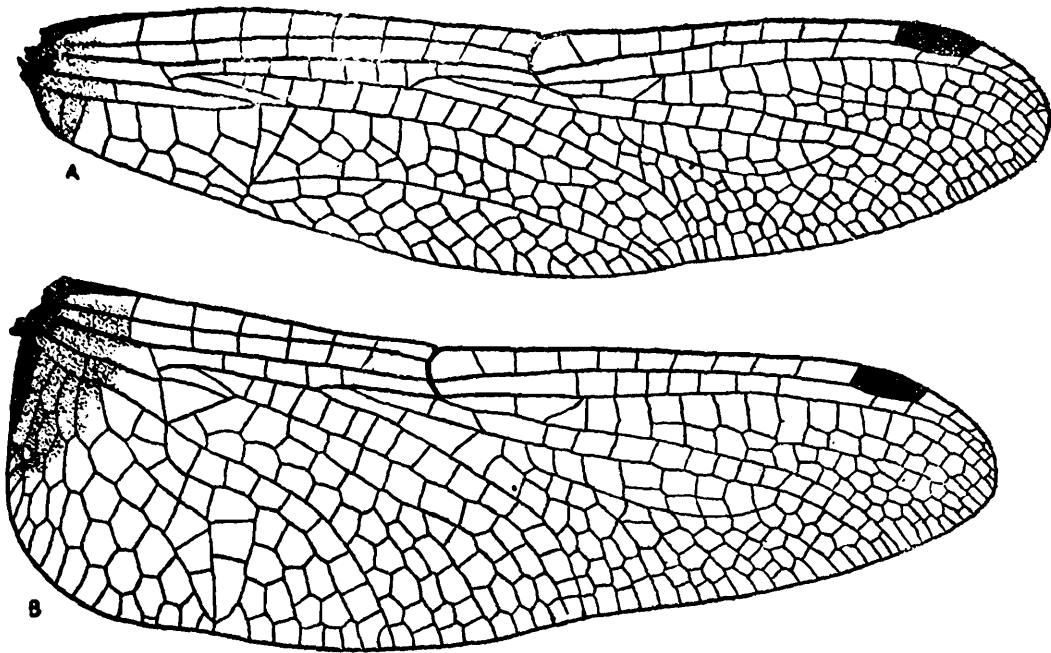
*Remarks* : It is first time recorded from West Bengal.

53. *Trithemis pallidinervis* (Kirby)

(Text-fig. 6 A-B)

1889. *Sympetrum pallidinervis* Kirby, *Trans. zool. Soc. Lond.*, 12 : 327 ; 1936. *Trithemis pallidinervis*, Fraser, *Fauna Brit. India*, 3 : 389-391 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : India [Assam, Bihar, Himachal Pradesh, Punjab, Uttar Pradesh, West Bengal (Calcutta)], Burma, Sri Lanka, Formosa and Philippine. Material of this species presently studied also from Howrah and 24 Parganas (West Bengal).



Text-fig. 6 (A-B) Fore and hind wings of *Trithemis pallidinervis* (Kirby).

*Remarks* : Very commonly occurs during May to September, either at permanent or temporary monsoon ponds. Sometimes it was also observed far away from the water bodies resting on the top of small vegetation or on the twigs of the bushes.

54. *Trithemis aurora* (Burmeister)

1839. *Libellula aurora* Burmeister, *Handb. Ent.*, 2 : 859 ; 1936. *Trithemis aurora*, Fraser, *Fauna Brit. India*, 3 : 386-385.

*Distribution* : Throughout India, Sri Lanka, Burma, Java and Philippines. Material of this species presently studied from Calcutta, Howrah and 24 Parganas.

55. *Rhyothemis variegata variegata* (Linnaeus)

1763. *Libellula variegata* Linnaeus, *Amoenitates. Acad.*, 6 : 412 ; 1936. *Rhyothemis variegata variegata*, Fraser, *Fauna Brit. India*, 3 : 423-424 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.* : 64.

*Distribution* : India [Assam, Bihar, Himachal Pradesh, West Bengal (Calcutta)], Burma, Sri Lanka, Malaysia and Philippines. Material of

this species presently studied also from Hooghly, Howrah and 24 Parganas (West Bengal).

*Remarks* : It is also most commonly available in this area. A large number of specimens were observed fluttering about 6-7 metres above the ground near a permanent pond.

#### 56. *Zyxomma petiolatum* Rambur

1842. *Zyxomma petiolatum* Rambur, *Ins. Neurop.*, : 30 ; 1936. *Zyxomma petiolatum*, Fraser, *Fauna Brit. India*, 3 : 409-410.

*Distribution* : Throughout India, Burma and Sri Lanka Material of this species presently studied from Calcutta (West Bengal).

#### 57. *Tholymis tillarga* (Fabricius)

1798. *Libellula tillarga* Fabricius, *Ent. Syst. Suppl.*, : 285 ; 1936. *Tholymis tillarga*, Fraser, *Fauna Brit. India*, 3 : 411-413 ; 1974. Mitra and Lahiri, *Entomologist's Rec. J. Var.* 86 : 74 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : India [Himachal Pradesh, Madhya Pradesh, Punjab, Uttar Pradesh, West Bengal (Calcutta)], Australia, Burma, Sri Lanka, Madagascar and tropical Africa. Presently recorded from Hooghly, Calcutta and 24 Parganas (West Bengal).

*Remarks* : Commonly available at temporary and permanent water bodies. Specimens of this species were also observed at electric light during night.

#### 58. *Pantala flavescens* (Fabricius)

1798. *Libellula flavescens* Fabricius, *Ent. Syst. Suppl.*, 285 ; 1936. *Pantala flavescens*, Fraser, *Fauna Brit. India*, 3 : 414 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : Circumtropical and subtropical in distribution, India [Assam, Himachal Pradesh, Punjab, Uttar Pradesh, West Bengal (Calcutta)], Burma, Sri Lanka and Tibet. Material of this species presently studied also from Howrah and 24 Parganas (West Bengal).

#### 59. *Tramea basilaris burmeisteri* Kirby

1889. *Tramea burmeisteri* Kirby, *Trans. Zool. Soc. Lond.*, 12 : 316 ; 18.9. *Libellula chinensis*, Burmeister, *Handb. Ent.*, 2 : 852 ; 1936. *Tramea basilaris burmeisteri*, Fraser, *Fauna Brit. India*, 3 : 432-434 ; 1976. Mitra *et al.*, *Third All India Congr. Zool.*, : 64.

*Distribution* : India [Himachal Pradesh, Punjab, Rajasthan, Uttar Pradesh, West Bengal (Calcutta)], Burma, Sri Lanka and Malaysia. Material of this species presently studied from Hooghly (West Bengal).

SUMMARY

A total of 50 species of Odonata belonging to two suborders, 8 families and 34 genera have been recorded from Calcutta (West Bengal, India) and surroundings which includes nine species recorded for the first time from this area and one (*Ictinogomphus pertinax*) is a new record from India. Synonymy and distribution of another 9 species recorded from Calcutta are included. Some field notes and variations from the published description, have also been recorded. A key to the species and subspecies of adult dragonflies has also been provided.

*Key to the Odonates of Calcutta and its environs*

A key to 59 species of Odonates under 37 genera and 8 families known to occur in and around Calcutta is given below. Fraser (1933, '34, '36, '57) has been adopted with slight modification.

- |    |   |   |
|----|---|---|
| 1. | Head transversely elongated ; eyes well separated ; fore and hind wing more or less similar in shape and breadth. ...   | 2   |
|    | Head not prominently elongated transversely, eyes not well separated, meeting only at a point or broadly confluent. ...   | 23  |
| 2. | Veins IRiii+v arising nearer node than arc, no intercalated sectors at apical end of wing....   | 3   |
|    | Veins IRiii+v arising nearer arc than node ; variable number of intercalated sectors at the apical end of wing. ...   | 4   |
| 3. | Discoidal cell short ; anal vein separating from wing border either proximal to Ac or distal to Ac ; MA and IRiii zigzagged for greater part of their length. ... | 5   |
|    | Discoidal cell elongate ; anal vein separating from wing border proximal to Ac ; MA and IRiii mostly straight only zigzagged apically or not at all. ...          | 21  |
| 4. | Cuii at its origin only slightly arched towards the costa. Pterostigma nearly as broad as long, nearly squared. ...   |   |
|    |   | <p style="text-align: right;"><b>Platylestes Selys</b><br/>[<i>Platylestes platystyla</i> (Rambur)]</p> |
| 5. | Arc situated distal to the level of distal antenodal nervure, the junction of ab and IA markedly angulated. ...   | 6   |
|    | Arc situated at the level of distal antenodal nervure. ...  | 8   |
| 6. | Labrum non-metallic. ...  | 7   |
|    | Labrum metallic blue. ...   | <p style="text-align: right;"><i>A. pygmaea</i> (Rambur)</p>  |

7.	Abdomen whitish in colour. ...	<i>A. lacteola</i> Selys	
	Abdomen with heavy black marking. ...	<i>A. splendidissima</i> Laidlaw	
8.	ab arising from the hind border of the wing at the point where ac meets it. ...	...	9
	ab arising from the hind border of the wing more or less proximal to the point where ac meets it. ...	...	15
9.	A prominent ridge on the frons ; postocular coloured spots absent. ...	<b>Ceragrion</b> Selys...	10
	Ridge absent on the frons ; Pterostigma longer than broad. ...	<b>Pseudagrion</b> Selys...	11
10.	Abdomen bright red at base. ...	<i>C. cerinorubellum</i> (Brauer)	
	Abdomen citron yellow. ...	<i>C. coromandelianum</i> (Fabricius)	
11.	Face, frons and vertex blue or green and marked with black. ...	...	12
	Face, frons and vertex bright reddish-orange...	<i>P. rubriceps</i> Selys	
12.	Thorax pale blue on dorsal side. ...	<i>P. decorum</i> (Rambur)	
	Thorax blue on dorsal side. ...	...	13
13.	Superior anal appendages shorter than segment 10. ...	<i>P. australasiae</i> Selys	
	Superior anal appendages as long as segment 10. ...	...	14
14.	Superior anal appendages expanded on the inner side ; with 2 to 3 small spines near the base. ...	<i>P. microcephalum</i> (Rambur)	
	Superior anal appendages not expanded in the inner side, with a single robust spine near the base. ...	<i>P. spencei</i> Fraser	
15.	Pterostigma of the same colour and shape in fore and hind wings of male ; dorsal apical tubercle on segment 10 of male absent. ...	...	16
	Pterostigma differing in shape and size in fore and hind wings of male ; dorsal apical tubercle on segment 10 of male present. ...	<b>Ischnura</b> Charp.	18
16.	Female with a robust ventral apical spine on segment 8. ...	<b>Enallagma</b> Charp. ( <i>Enallagma parvum</i> Selys)	
	Female without a ventral apical spine on segment 8. ...	...	17
17.	Tarsal claw-hooks of equal length ; post ocular coloured spots absent. ...	<b>Onychargia</b> Selys ( <i>Onychargia atrocyana</i> Selys)	
	Tarsal claw-hooks unequal in length ; postocular coloured spots present ; only 8 to 10 post-nodal nervures in forewing. ...	<b>Coenagrion</b> Kirby [ <i>Coenagrion dyeri</i> (Fraser)]	

18.	Body colour of male bright orange red ; abdominal segments 8 to 10 only black. ...	<i>I. rufostigma rufostigma</i> Selys	
	Body colour of males and Isochrome females blue or pale grass green. ...	...	19
19.	Abdominal segments 3 to 6 citron. ...	<i>I. aurora aurora</i> (Brauer)	
	Abdominal segments 3 to 6 black on dorsum....	...	20
20.	Segment 10 with blue spot on dorsum. ...	<i>I. forcipata</i> Morton	
	Segment 10 unmarked with blue ; abdominal segment 2 steely metallic blue on dorsal side. ...	<i>I. senegalensis</i> (Rambur)	
21.	Costal and posterior sides of discoidal cell equal or nearly so ; second segment of antennae as long as third. ...	<b>Copera</b> Selys...	22
22.	Legs bright orange to dull reddish in colour. ...	<i>C. marginipes</i> (Rambur)	
	Legs white in colour. ...	<i>C. annulata</i> (Selys)	
23.	Eyes meeting at a point or broadly confluent or zygopterous ovipositor lacking. ...	...	24
	Eyes confluent above. ...	...	29
24.	Discoidal cell, hypertrigone and subtrigone of fore wing traversed or reticulated. ...	...	25
	Discoidal cell, hypertrigone and subtrigone of fore wing entire. ...	...	28
25.	Superior anal appendage acute at apex. ...	<b>Ictinogomphus</b> Rambur...	26
26.	Face and femora yellow. ...	<i>I. angulosus</i> Selys	
	Face and femora black. ...	...	27
27.	Yellow ring on the 8th abdominal segment present. ...	<i>I. rapax</i> (Rambur)	
	Yellow ring on the 8th abdominal segment absent. ...	<i>I. pertinax</i> Selys	
28.	Discoidal cell of fore wing shorter than hind wing ; not more than 4 cells in anal triangle ; incomplete basal antenodal nervure ; 3 or more cells between IA and posterior margin of wings ; superior anal appendages of male with inner medial branch. ...	<b>Macrogomphus</b> Selys ( <i>Macrogomphus montanus</i> Selys)	
29.	Discoidal cells closely similar in fore and hind wings and traversed. ...	...	30
	Discoidal cells differing in fore and hind wings, not traversed. ...	...	34
30.	Base of hind wing without a notch, tornous of hind wing rounded in both sexes, anal triangle absent. ...	...	31
	Base of wing more or less deeply notched, tornous of hind wing angulated in male, anal triangle always present. ...	...	33

31. Segments 4-8 of abdomen with longitudinal supplementary ridge on the sides, only 2 rows of cells between origin of cuia and IA of hind wing, superior anal appendage of male obtuse at apex. ... **Anax** Leach 32  
 Segments 4-8 of abdomen without ridge, 3 rows of cells between origin of Cuia and IA of hind wing, superior anal appendages acuminate at apex. ... **Hemianax** Selys  
 [*Hemianax ephippiger* (Burmeister)]
32. Abdomen with orange coloured markings. ... *A. guttatus* (Burmeister)  
 Abdomen with blue coloured markings. ... *A. imperator* Leach
33. Nervure Riii making an abrupt curve towards and beneath outer end of Pterostigma, MA fusing with Riv+v well before posterior border of wing, Rspl forked shortly after its origin, superior anal appendage with apex prolonged and curved downwards abruptly ... **Anaciaschna** Selys.  
 [*Anaciaschna jaspidea* (Burm.)]  
 Pterostigma long and narrow, dentigerous plate of female ending in 2 long curved divaricate spines, segment 3 of abdomen nearly always constricted. ... **Acanthagyna** Rambur  
 [*Acanthagyna dravida* (Lieftinck)]  
 Pterostigma long and narrow, dentigerous plate of female provided with two long, straight styles with hairs at tip. ... **Gynacantha** Rambur  
 (*Gynacantha rammohni* Mitra & Lahiri)
34. Base of hindwing in male more or less angulated or notched; orillets present, tibiae of male with elongate lamina shaped keel on flexor surface. ... 35  
 Base of hindwing not angulated or notched but rounded in both sexes tibiae of male without keel. ... 36
35. Base of wings of female alone with dark brown costal rays; superior anal appendages poorly angulated on the outer side near the middle; frons with a single medial yellow spot in the notch. ... **Epopthalmia** Burmeister  
 [*Epopthalmia v. vittata* (Burm.)]
36. Sectors of arc separate from origin; feebly developed primary:antennodal present. ... 37  
 Sectors of arc fused at their origin; Primary antennodal absent. ... 39
37. Subtrigone in fore wing entire. ... **Aethriamanta** Kirby  
 [*Aethriamanta b. brevipennis* (Rambur)]  
 Subtrigone in fore wing 3 celled. ... 38

38.	Abdomen blood red.	...	<b>Urothemis</b> Brauer [ <i>Urothemis s. signata</i> (Rambur)]	
	Abdomen bright pale yellow.	...	<b>Macrodiplax</b> Brauer [ <i>Macrodiplax cora</i> (Brauer)]	
39.	Apex of loop in the wings open.	...	...	40
	Apex of loop in the wings closed.	...	...	41
40.	An opalescent white spot in the middle of the hind wings present.	...	<b>Tholymis</b> Hagen [ <i>Tholymis tillarga</i> (Fabr.)]	
	An opalescent white spot in the middle of the hind wings absent.	...	<b>Zyxomma</b> Rambur ( <i>Zyxomma petiolatum</i> Rambur)	
41.	Distal antenodal nervure in forewings complete.	...	...	42
	Distal antenodal nervure in forewings incomplete.	...	...	48
42.	Frons metallic above.	...	<b>Brachydiplax</b> Brauer	43
	Frons non-metallic above.	...	...	45
43.	Bases of both fore and hindwings darkbrown.	...	<i>B. chalybea chalybea</i> Brauer	
	Bases of both fore and hindwings uncoloured or rarely light pale yellow.	...	...	44
44.	8 to 9 antenodal nervures in forewings.	...	<i>B. farinosa</i> Kruger	
	only 7 antenodal nervures in forewings.	...	<i>B. sobrina</i> (Rambur)	
45.	Small sized species ; only 6 antenodal nervures in forewings.	...	<b>Acisoma</b> Rambur ( <i>Acisoma p. panorpoides</i> Rambur)	
	Medium sized species, not less than 12 antenodal nervures in forewings	...	<b>Orthetrum</b> Newman....	46
46.	Abdomen enormously swollen at base and then abruptly slimmed ; thorax and abdomen not pruinosed.	...	<i>O. sabina sabina</i> (Drury)	
	Abdomen variable, never very slimmed ; thorax and abdomen pruinosed.	...	...	47
47.	Large black triangular spots present at the base of hind wings.	...	<i>O. triangulare triangulare</i> (Selys)	
	Large black triangular spot absent at the base of hindwings.	...	<i>O. glaucum</i> (Brauer)	
48.	Lobes of prothorax with long hairs.	...	...	49
	Lobes of prothorax without long hairs.	...	...	51

49. Borders of discoidal field converging at the wing border; black marking on thorax present. ... **Sympetrum Newman**  
[*Sympetrum hypomelas* (Selys)]
- Borders of discoidal field diverging at wing border and begin with 2 row of cells. ... **Diplacodes Kirby... 50**
50. Apices of fore and hind wings tipped with black. ... *D. nebulosa* [Fabr.]
- Apices of fore and hindwings not tipped with black; anal appendages yellow. ... *D. trivialis* (Rambur)
51. Sectors of arc in forewings separated and divergent at the origin; black and golden yellow markings present on the wings. ... **Rhyothemis Hagen**  
[*Rhyothemis v. variegata* (Linnaeus)]
- Sectors of arc in forewings arising from common long stalk. ... 52
52. Discoidal field converging at wing border. ... 53
- Discoidal field parallel or divergent at wing border. ... 55
53. Nervure IRii present in between Rii and Riii. ... **Pantala Hagen**  
[*Pantala flavescens* (Fabr.)]
- Nervure IRii absent in between Rii and Riii. ... **Trithemis Brauer... 54**
54. Legs very long and spidery; pterostigma bicolourous. ... *T. pallidinervis* (Kirby)
- Legs normal length; pterostigma unicolourous; neuration crimson. ... *T. aurora* (Burmeister)
55. Pterostigma unequal in fore and hindwings; two large black spot surrounded by golden yellow markings present at the base of wings. ... **Tramea Hagen**  
(*Tramea basilaris burmeisteri* Kirby)
- Pterostigma equal in size in fore and hindwings. ... 56
56. Pterostigma bicolours (Black with white end). ... **Bradinopyga Kirby**  
[*Bradinopyga geminata* (Rambur)]
- Pterostigma unicolourous. ... 57
57. More than one cubital nervure present in all wings. ... **Neurothemis Brauer 58**
- only one cubital nervure present in all the wings. ... 59
58. Base of wings golden yellow; an opalescent white bands in the wings absent. ... *N. intermedia intermedia* (Rambur)
- Base of wings broadly black; an opalescent white band in the wings present. ... *N. tullia tullia* (Drury)

59. Red or pale yellow species ; basal or medial yellow marking present on wings. ... 60  
 variable coloured species ; base of wings rarely marked with red or pale yellow. ... 62
60. Broad reddish yellow medial marking present on the wings. ... **Brachythemis Brauer.**  
 [*Brachythemis contaminata* (Fabricius)]  
 Small basal yellow marking present at the base of wings. ... **Crocothemis Brauer...** 61
61. Anal appendages blood red. ... *C. servilia servilia* (Drury)  
 Anal appendages reddish brown with black base. ... *C. indica* Sahni
62. Only one row of cells present inbetween IRii and Rspl. ... **Lathrecista Kirby**  
 [*Lathrecista asiatica asiatica* (Fabricius)]  
 Two rows of cells present inbetween IRiii and Rspl. ... **Potamarcha Karsch**  
 [*Potamarcha obscura* (Rambur)]

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