

NOTES ON A COLLECTION OF DRAGONFLIES (ODONATA) FROM SIAM.

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The collection, from which these notes have been compiled, was made by Mr. (now Sir Walter) Williamson, C.M.G., F.Z.S., to whom I am indebted for the opportunity of reporting on it.

It is probably the largest collection of dragonflies ever collected at one time within Siamese limits and comprises 2,890 specimens, representing 33 genera and 55 species. Unfortunately Mr. Williamson's native collectors were unable to discriminate between rare and common species, and as they acted under orders to collect everything, the bulk of the collection falls under the latter heading.

This method of dealing with native collectors appears to be the only feasible way, unless one is able to be present and constantly supervise their work. There is always, however, the hope of something good turning up amongst a mass of common material.

The nature of the material suggests that all species were collected at or a little above sea-level, and it is to be noted that, with few exceptions, all the species are common to the plains of India and Burma, more especially to the former; thus only 16 species are unknown from continental India and of these 11 are known from Burma.

The collection was made from September 1923 to February 1924.

SYSTEMATIC.

Suborder ANISOPTERA.

1. *Tetrathemis platyptera* Selys.

1 male from Nong Khor, near Sriracha, S. E. Siam, 19.IX. This specimen has the yellow markings decidedly broader than in Indian forms and is equivalent to specimens, in this respect, which I have received from the N. Shan States, Burma. They probably represent a local race.

2. *Potamarcha obscura* (Ramb.).

12 specimens from Bangkok, C. Siam, 12.X and 26.XII; Pak Nam Poh, C. Siam, 8-13.I; and Hua Hin, S. W. Siam, 23.IX.

3. *Orthetrum sabina* Drury.

116 specimens from Hua Hin, S. W. Siam, 23.IX; Khao Sabab, near Chantabun, S. E. Siam, 2-6.II; Bangkok, C. Siam, 22-

23.II and 27.XII; Muak Lek, E. Siam, 21.XI; Den Chai, 4-5.XII, and the lower slopes of Doi Suteb, near Chiangmai (both N. Siam), 17.XII; Nong Khor, Sriracha, S. E. Siam, 17-20.XI; and Pak Jong, E. Siam, 23.X.

4. *Orthetrum pruinsum* (Ramb.).

26 specimens from Pak Jong, E. Siam, 25.XI; Den Chai, N. Siam, 4-6.XII; Bangkok, C. Siam, 7.X; Nong Khor, near Sriracha, S. E. Siam, 19.XI; Khun Tan, N. Siam, 12.XII; and Muak Lek, E. Siam, 19-21.XI.

5. *Orthetrum chrysis* Selys.

11 specimens, all from Nong Khor, near Sriracha, S. E. Siam, 19.XI.

6. *Orthetrum glaucum* (Brauer).

7 specimens from Khun Tan, N. Siam, 12.XII.

7. *Brachydiplax sobrina* Ramb.

A single male from Nong Khor, near Sriracha, S. E. Siam, 18.XI, appears to answer to the description of this species, a common one in India, but it may be an aberrant specimen of the following species.

8. *Brachydiplax farinosa* Selys.

3 specimens from the same locality as the last, 20.XI. A common species in Lower Burma.

9. *Brachydiplax chalybea* (Brauer).

27 specimens from Bangkok, C. Siam, 12.X, 17-20.I, 22.II and 27.XII; and Khao Sabab, near Chantabun, S. E. Siam, 30.XI. Recently specimens have been sent to me from the lower Irrawady and Brahmaputra.

10. *Acisoma panorpoides panorpoides* Ramb.

117 specimens from Bangkok, C. Siam, 17-20.I; and Khao Sabab, near Chantabun, S. E. Siam, 25.II and 30.XI.

11. *Diplacodes trivialis* (Ramb.).

196 specimens from Bangkok, C. Siam, 22-30.IX, 12.X, 21.XII, 17-20.I and 22.II; Sriracha, S. E. Siam, 10.II; Pak Nam Poh, C. Siam, 8-13.I; lower slopes of Doi Suteb, near Chiangmai, N. Siam, 18.XII; Hua Hin, S. W. Siam, 23.IX; Nong Khor, near Sriracha, 19.XI, and Khao Sabab, Chantabun, 5.II, both S. E. Siam.

12. *Diplacodes nebulosa* (Fabr.).

8 specimens from Bangkok, C. Siam, 12.X; Nong Khor, near Sriracha, S. E. Siam, 14-20.XI. The black apices of the male wings in these specimens are much blacker than usual.

13. *Indothemis limbata limbata* (Selys).

3 specimens from Nong Khor, near Sriracha, S. E. Siam, 17-20.XI. The species does not appear to be nearly as common as the subspecies *sita*, recently differentiated by the late Mr. Campion. *I. sita* is found in Ceylon and in Coorg, S. India.

14. *Crocothemis servilia* (Drury).

401 specimens from Bangkok, C. Siam, 21.IX, 12.X, 26.XII, 20.I and 28.II; Sriracha, S.E. Siam, 10.II; Den Chai, N. Siam, 6.XII; Pak Nam Poh, C. Siam, 8-13.I; lower slopes of Doi Suteb, Chiangmai, N. Siam, 18.XII; Khao Sabab, Chantabun, S.E. Siam, 2-6.II; and Muak Lek, E. Siam, 21.IX.

15. *Neurothemis fluctuans* (Fabr.).

127 specimens from the same localities and on the same dates as the last. Many of these are subadult and present all grades of colouring from a faint straw tinting of the wings to deep chestnut brown. There are two forms of the female, the heteromorph being by far the commoner; andromorphs are however by no means rare.

16. *Neurothemis fulvia* Drury.

38 specimens from Pak Jong, E. Siam, 25.XI; Bangkok, C. Siam, 7.X; and Nong Khor, near Sriracha, S. E. Siam, 17-20.XI.

17. *Neurothemis tullia tullia* (Drury).

48 specimens from Bangkok, C. Siam, 22-30.IX, 12.X and 30.XI; and Hua Hin, S. W. Siam, 23.IX.

18. *Neurothemis tullia feralis* (Burm.).

369 specimens from Bangkok, C. Siam, 17-20.I, 28.II and 27.XII; Pak Nam Poh, C. Siam, 8-13.I; lower slopes of Doi Suteb, Chiangmai, N. Siam, 18.XII; Khao Sabab, Chantabun, 2-6.II, and Sriracha, both S. E. Siam, 10.XI. This species appears to be far more common than its near relation *tullia tullia*, and it is to be noted that the two rarely occur together, Bangkok being, in the present case, the only locality which synchronizes.

19. *Brachythemis contaminata* (Fabr.).

361 specimens from the same localities as *C. servilia*. In

addition, from Nong Khor, near Sriracha, 17.XI, and Chantabun, both in S. E. Siam, 2.6.II.

20. *Trithemis aurora aurora* (Burm.).

421 specimens from Pak Jong, E. Siam, 20-24.II and 25.XI; Den Chai, N. Siam, 4-6.XII; Bangkok, C. Siam, 7.X; and Muak Lek, E. Siam, 21.XI.

21. *Trithemis festiva* (Fabr.).

18 specimens from the same localities as the last, also from Khao Sabab, Chantabun, S. E. Siam, 1-2.II.

22. *Trithemis pallidinervis* (Kirby).

7 specimens from Bangkok, C. Siam (west bank), 26.XII and 21.IX; Pak Nam Poh, C. Siam, 8-13.I; and the lower slopes of Doi Suteb, Chiangmai, N. Siam, 17.XII.

23. *Tholymis tillarga* (Fabr.).

26 specimens from Bangkok, C. Siam, 12.X and 12.XII; Pak Nam Poh, C. Siam, 8-13.I; Khao Sabab, Chantabun, S. E. Siam, 5.II; Nakon Srithamaraj and Koh Samui, S. W. Siam, 18-30.XI; Den Chai, N. Siam, 4.XII.

24. *Pantala flavescens* (Fabr.).

24 specimens from Pak Jong, E. Siam, 25.XI; Bangkok, C. Siam, 12.X; lower slopes of Doi Suteb, Chiangmai, N. Siam, 17.XII; Bight of Bandon, Pen. Siam, 18-30.XI; and Muak Lek, E. Siam, 22-XI.

25. *Rhyothemis phyllis phyllis* Sulz.

39 specimens from Bangkok, C. Siam, 30.XI, 12.X, 17-20.X, 26.XII, and 23.II; Sriracha, S. E. Siam, 10.II; Pak Nam Poh, C. Siam, 8-13.I; Khao Sabab, Chantabun, S. E. Siam, 2-6.II; and lower slopes of Doi Suteb, Chiangmai, N. Siam, 17.XI.

26. *Urothemis signata signata* (Burm.).

37 specimens from Sriracha, S. E. Siam, 10.II; Bangkok, C. Siam, 21.IX, 12.X, 30.X, 26.XII and 28.II; Pak Nam Poh, C. Siam, 8-13.I; lower slopes of Doi Suteb, Chiangmai, N. Siam, 18.XII; and Khao Sabab, Chantabun, S. E. Siam, 5.II.

27. *Aethriamanta aethra* Ris.

2 males, one adult, one subadult from Bangkok, C. Siam, 21.IX. 23 and 10.II.23, collected by Sir Walter Williamson.

The subadult agrees entirely with the description of the

type, which is a slightly teneral or subadult male from, I believe, Sumatra. The adult from Bangkok has the thoracic and abdominal markings obsolete, the thorax being lightly pruinose over black which gives it a purplish tinge, the abdomen densely pruinose from segments 2 to 6, these being pale whitish blue; remaining segments black, but these may have altered from decomposition. This is the first record of the species from continental Asia.

28. *Macrodiplax cora* (Brauer).

A single male from Bangkok, C. Siam, 30.X.23.

29. *Anax guttatus* Burm.

2 males from Hua Hin, S. W. Siam, 23.IX; and Nakon Sri-thamaraj, Pen. Siam, 20.XI.

30. *Ictinus melaenops* Selys.

3 males from Bangkok, C. Siam, 22-30.IX. This species replaces *I. rapax* Ramb. in Siam.

31. *Gomphidia abbotti* Will.

A single male from Khao Sabab, Chantabun, 3.II. The type comes from Siam, but I have received a male from Mergui, Lower Burma. The present specimen is true to type.

32. *Burmagomphus vermiculatus* (Mart.).

A single female from Den Chai, N. Siam, 5.XII.23.

Abdomen 26 mm. Hindwing 24 mm.

Head. Labium a dirty yellow; labrum broadly bordered and traversed at its middle, the black enclosing two large oval greenish yellow spots, very narrowly bordered with black at base; ante- and post-clypeus black, the latter with an obsolete spot of yellow at its middle and a larger spot against the eyes; frons black in front, greeny white above, broadly bordered at its base with black, this sending a tongue forward to meet the black on front of frons; vertex black; occiput brown, with a medial robust yellow spine on its hinder border. Eyes green.

Prothorax black with a large lateral spot of yellow behind and a spot on the coxae of forelegs.

Thorax black marked with yellow as follows:—a complete mesothoracic collar, antehumeral bayonet-shaped stripes similar to those of *B. pyramidalis*, which are almost confluent below with a spot on the middle coxae, lastly a tiny upper humeral spot. Later-

ally greenish yellow with a black stripe on the first lateral suture, broadening over the spiracle and broadly broken above, a broad stripe on the second lateral suture which bifurcates to enclose a small yellow spot.

Wings evenly enfumed, pterostigma dark reddish brown, over 3 cells, braced; nodal index $\frac{9-12}{8-9} \mid \frac{12-9}{9-8}$; a single row of cells in anal area of forewing, 3 rows in the hind, the first postanal cell here entire. Trigone of forewing with its distal side bent; 2 rows of discoidal cells in forewing as far as node; *Cui* and *Cuii* only a little divergent in the hindwing; no basal antenodal nervure; sectors of arc not approximated; *Miii* sinuous in the forewing; the first and fifth, the primary antenodals in all wings.

Abdomen cylindrical, black marked with yellow as follows:—segment 1 with an apical dorsal spot, its apex directed basad, its sides broadly yellow, segment 2 with the dorsal carina striped with yellow from apex to base, where it is confluent with a very broad lateral spot, segment 3 very similar but the carinal yellow not extending as far as the apex of segment, laterally the yellow tapers apicad and is finely divided by a black transverse suture, segment 4 without any yellow on the carina, and the lateral yellow more restricted, 5 with a narrow basal ring confluent with a quadrate lateral spot, beyond which is a linear lateral stripe, 6 similar to 5 but the lateral stripe absent, 7 with only its basal third yellow, 9 with a narrow apical ring covering one fourth of the segment, 10 with a fine basal ring. Anal appendages short, black.

I have described this specimen at length as examples are rare and this particular one differs in several respects from type, which however are not sufficient to warrant more than the rank of a variety. The type comes from Tonkin, but E. B. Williamson has described three males from Siam. (Proc. U. S. Nat. Hist. Mus. Vol. XXXIII. p. 301).

Suborder ZYGOPTERA.

33. *Neurobasis chinensis* (Linn.).

46 specimens from Pak Jong, E. Siam, 25.XI; Den Chai, N. Siam, 5.XII; Muak Lek, E. Siam, 21.XI; and Khao Sabab, Chantabun, S. E. Siam, 3.XI.

34. *Vestalis gracilis* Ramb.

216 specimens from Bangkok, C. Siam, 7.X; Nong Khor, near Sriracha, S. E. Siam, 17-20.XI; Pak Jong, E. Siam, 20-29.II; Khun Tan, N. Siam, 12.XII; and Khao Sabab, Chantabun, S. E. Siam, 1-3.II. Many of the specimens show a more or less brown enfumation of the wings, and some, a suspicion of darkening at the apices. They appear to resemble specimens from Ceylon which are distinctly racial in character.

35. *Pseudophaea masoni* Selys.

12 specimens from Pak Jong and Muak Lek, E. Siam, 25.XI and 21.XI; Bangkok, C. Siam, 7.X; and Den Chai, N. Siam, 5.XII. All specimens are of medium size. The species varies greatly in this respect, the largest specimens being nearly double that of the smaller ones. As a rule those found at high altitudes are decidedly larger than those from near sea-level, a character they share with several other members of the same genus.

36. *Rhinocypha biforata* Selys.

29 specimens from Bangkok, C. Siam, 7.X; Nong Khor, near Sriracha, S. E. Siam, 19.XI; Pak Jong and Muak Lek, E. Siam, 20-29.II, and 21.XI; and Khao Sabab, near Chantabun, S. E. Siam, 3.II. I have been unable to separate these specimens from typical specimens from Borneo. The species has a wide distribution (I have recently received several from Upper Burma). Its occurrence at sea-level, at Bangkok, is rather surprising, as the genus as a whole is montane or submontane.

37. *Micromerus lineatus* Burm.

1 pair from Den Chai, N. Siam, 5.XII. These specimens are typical; the type comes from Java. A comparison which I have been able to make between these specimens and others from Ceylon and Southern India proves that the latter are of subspecific rank.

38. *Lestes elata* Selys.

A single male from Den Chai, N. Siam, 5. XII, which does not differ from typical specimens from India. I believe this to be the eastern limit of its distribution so far as at present known.

39. *Lestes viridula* Ramb.

A single male from Den Chai, N. Siam, 5.XII. The remarks anent *elata* apply equally to this specimen.

40. *Ischnura senegalensis* Ramb.

111 specimens from Bangkok, C. Siam, 29-30.XI, 21.XII, 17-20.I and 28.II; Pak Nam Poh, C. Siam, 8-13.I; lower slopes of Doi Suteb, near Chiangmai, N. Siam, 18.XII; Khao Sabab near Chantabun, S. E. Siam, 6.II; Nong Khor, near Sriracha, S. E. Siam, 17-20. XI. An extremely common insect throughout the Oriental region and at all altitudes from sea-level to over 7,000 ft.

41. *Agriocnemis clauseni* Fras.

A single female from the Phya Thai district of Bangkok, C. Siam, 29.XI. The type comes from India and ranges through Burma to Siam.

42. *Agriocnemis femina* Brauer.

A single male from Bangkok, C. Siam, 17.I. A common species extending from the Brahmaputra basin to the Philippines.

43. *Agriocnemis pygmaea* Ramb.

9 specimens from Bangkok, C. Siam, 29.XI and 21.XII; lower slopes of Doi Suteb, near Chiangmai, N. Siam, 18.XII; Khun Tan, N. Siam, 12.XII, and Nong Khor near Sriracha, S. E. Siam, 17.XI. By far the commonest species of the genus, ranging widely throughout the Oriental region.

44. *Argiocnemis rubiola* Selys.

14 specimens from Bangkok, C. Siam, 21.XII; lower slopes of Doi Suteb, near Chiangmai, N. Siam, 18.XII; and Pak Nam Poh, C. Siam, 8-13.I. Nearly all the specimens are subadult or teneral, the abdomen presenting extensive red markings. The species still goes under a number of synonymous names, but Dr Ris is, I think, certainly correct in his surmise that *rubiola*, *rubescens*, races *intermedia* and *sumatrana*, *A. lunulata* and *nigricans* are all varying age stages of the same insect. So far as my own observations go, *Agriocnemis pygmaea*, *femina*, *clauseni*, *splendidissima*, *d'abreui* and *Argiocnemis rubiola* are all red in the subadult stage and all largely black and many pruinose in the very adult stage.

45. *Aciagrion hisopa* Selys.

A single male from the Phya Thai district of Bangkok, C. Siam, 29.XI.23.

46. *Aciagrion pallidum* Selys.

One female from the lower slopes of Doi Suteb, Chiangmai,

N. Siam, 17.XII.23. The species is locally common throughout India, Burma and Indo-China, frequenting long grass where it may be put up in hundreds.

47. *Pseudagrion microcephalum* Ramb.

38 specimens from Bangkok, C. Siam, 20.I and 28.II; Pak Nam Poh, C. Siam, 8-13.I; Nong Khor, near Sriracha, S. E. Siam, 17.XI; Muak Lek, E. Siam, 21.XI; and Den Chai, N. Siam, 4.XII. Frequents ponds and paddy fields in the same area as the last.

48. *Pseudagrion rubriceps* Selys.

4 specimens from Bangkok, C. Siam, 22-30.IX; and Den Chai, N. Siam, 4.XII: A riverine species found throughout India, Burma, Indo-China and Java. The Ceylon form is a distinct race.

49. *Pseudagrion pruinatum* Selys.

I place a single male (from Bangkok, C. Siam, 17.I.24) as belonging to this species; it agrees closely with the Selysian description. I have received similar specimens from Mergui, Lower Burma.

50. *Ceriagrion coromandelianum* (Fabr.).

7 specimens from Hua Hin, S. W. Siam, IX.23; Khao Sabab, near Chantabun, 3.II, and Nong Khor, near Sriracha, both S. E. Siam, 17.XI; Bangkok, C. Siam, 30.X. Has a similar distribution to *P. microcephalum*.

51. *Ceriagrion melanurum* Selys.

3 specimens from Hua Hin, S. W. Siam, IX.23. The species is not uncommon throughout Assam, Sikkim and N. Burma, and is essentially a montane or submontane species. Hua Hin is on the sea, but I am informed that there are hills quite close, so it is possible that the specimens were taken on the lower slopes of these.

52. *Ceriagrion erubescens* Selys.

3 males from Bangkok, C. Siam, 29.IX.23, and 23.II.24. Distributed throughout Lower Burma and Indo-China.

53. *Copera marginipes* Ramb.

27 specimens from Den Chai, N. Siam, 6.XII; Bangkok, C. Siam, 7.X; Nong Khor, near Sriracha, S. E. Siam, 18-20.XI; Khun Tan, N. Siam, 12.XII; and Khao Sabab, near Chantabun, S. E. Siam, 2-3.II. Widely distributed throughout Ceylon, India, Burma and Indo-China.

54. *Copera annulata* Selys.

7 specimens from Bangkok, C. Siam, 17-21.I and 22.II. This is a submontane species in India and Burma, so its occurrence at sea-level is surprising.

55. *Copera vittata* Selys.

A single male from Khun Tan, N. Siam, 12.XII. Has a similar distribution to *marginipes* but occurs at higher altitudes.

This list brings up the Siamese Odonate fauna to the neighbourhood of one hundred; probably about half the existing fauna are still unknown. It will be noted that all the species were collected during the months of September to February, so that with the exception of the first month, the least favourable part of the year was chosen for collecting, a circumstance which may account for the absence of rarer forms.