

REPORT ON A COLLECTION OF DRAGONFLIES (ODONATA) FROM THE ANDAMAN ISLANDS.

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(Plate XXIV.)

The collection, which although small, is an important one, was made by the late Dr. N. Annandale during the months of November and December 1923, and numbers 17 specimens, representing 8 genera and 9 species.

The time of the year was not propitious for dragonfly collecting otherwise the numbers taken would probably have been much larger. In spite of this, however, among the material there are 3 new species and 2 new sub-species, or, in other words, more than half of the total number taken are new to science. From this we may gather that the Odonate fauna of the Andamans is characteristic and largely entogenic.

It bears close affinities to the Malaysian fauna.

I have been able to trace only a single previous reference to dragonflies from this region, *viz.*,—*Azuma vittata* (Burm.), Selys, *Bull. Acad. Belg.* XXXI, p. 531, 1875. There are, however, in the British Museum collection some specimens of *Micromerus* labelled by R. Martin as varieties of *M. lineatus* Burm.

SYSTEMATIC.

1. *Orthetrum sabina* (Drury) 1773.

A common species ranging from the Philippines, throughout southern Asia, Mesopotamia, Asia Minor to North Africa. Found also in Australia and New Guinea.

Three males and one female, summit of Mt. Harriet, 1190 ft., 30. XI. 23. Andamans, Sta. 3. I. All true to type.

2. *Orthetrum pruinatum neglectum* (Ramb.) 1842.

A common species distributed throughout India, Indo-China, Ceylon and south China.

A single female, Andamans, Sta. 2, I, 29. XI. 23. Does not differ from specimens I have examined from India, Burma and Ceylon.

3. *Diplacodes trivialis* (Ramb.) 1842.

Also a common species with wide distribution. Ranges from Japan, Australia and the Philippines throughout southern Asia to north Africa.

Represented in the present collection by 1 male and 2 females, from the summit of Mt. Harriet, 1190 ft., 30. XI. 23, and from "Small artificial pond at Aberdeen, 7. XII. 23, vegetation at edge. N. A."

Not differing in any way from type.

4. **Pantala flavescens** Fabr.

A cosmopolitan species. It is not uncommon to find this insect adopting crepuscular habits, and concerning the specimens in the present collection Dr. Annaudale remarks,—“ Flying over open grassy places when the sun had set.”

5. **Micromerus andamanensis**, sp. nov.

(Plate XXIV, fig. 5.)

A single male, Andamans, Sta. 6, I, “ Rocky pool below waterfall, fluttering over surface of pool, ca. 500 ft., W slopes of Mt. Harriet ” 30. XI. 23.

Male. Abdomen 16 mm. Hindwing 20 mm.

Head. Eyes dove grey, rest of head black with yellow markings as follows :—2 finely linear spots at base of epistome, larger oval spots on outer side of each posterior ocellus, similar postocular spots and a fine linear spot on hinder border of occiput.

Prothorax black marked with yellow laterally.

Thorax black, marked with golden or greenish yellow as follows :—two small greenish yellow spots on alar sinus, the middorsal carina finely yellow, fine yellow humeral lines incomplete above but the upper ends represented by a yellow spot lying obliquely on each side of the alar sinus. Laterally two oblong irregular spots between the sutures, the anterior one golden yellow, the posterior greenish yellow, the upper anterior three-fourths of metepimeron golden yellow.

Legs black, hinder tibiae pulverulent white on flexor surface.

Wings hyaline, forewings tipped broadly with black, metallic blue by reflected light, 4 mm. in extent, hindwings enfumed at apices ; pterostigma black ; 5 to 6 antenodal nervures in all wings.

Abdomen golden yellow marked with black as follows :—segment 1 narrowly black at base, more broadly on the sides, segment 2 with a broad dorsal stripe expanded at base and apex of segment, and a broad black stripe low down on sides not reaching apical border of segment, 3 to 6 with broad middorsal stripes of black expanded at apical border where it forms a narrow apical ring, 7 similar but a sub-dorsal stripe runs forward on either side from the apical ring nearly as far as base of segment, 8 to 10 entirely black.

Anal appendages stilette shaped, tapering to a point, twice the length of segment 10, incurved gently but the apices not meeting. Inferior short and thick, less than half the length of superiors.

Differs from all other species by the beautiful metallic blue of apices of forewings in addition to the abdominal markings.

6. **Lestes praemorsa andamanensis**, subsp. nov.

(Plate XXIV, fig. 9.)

A single female taken over a jungle stream flowing from reservoir, at base of Mt. Harriet, over rocky bed, Andamans, Sta. 2, I, 29. XI. 23.

This new sub-species is of the same size as *praemorsa praemorsa* and differs only by not having segment 10 marked with blue, and by the securiform metallic markings on dorsum of thorax more pronounced and somewhat different in shape, the middle lobe having a serrated hinder margin (fig. 9).

7. *Pseudagrion andamanicum*, sp. nov.

(Plate XXIV figs. 6—8, 10, 11.)

One pair from the same locality as last.

Male. Abdomen 25 mm. Hindwing 17 mm.

Head. Labium white, rest of head azure blue marked with black, a small spot in front and one on either side of middle ocellus, a narrow ragged transverse stripe at level of posterior ocellus, and finally a narrow black bordering to the hinder part of the large postocular spots. Eyes bluish above changing to greenish yellow beneath and capped with a diffuse cloud of brown.

Prothorax blue with the usual *Pseudagrion* black markings.

Thorax azure blue, marked with black as follows:—a narrow middorsal stripe and somewhat narrower humeral ones, which latter do not quite reach the upper margin of thorax, a small black spot on middle of first lateral suture and a smaller one on upper part of postero-lateral suture.

Legs pale blue, all femora black on extensor surfaces.

Wings faintly enfumed, pterostigma dark brown; 11 to 12 postnodal nervures to forewings, 8 to 9 in the hind.

Abdomen blue marked with black as follows:—a small spot on dorsum of segment 1 extending nearly to apical margin, 2 with a narrow apical ring connected by a narrow neck to a rectangular dorsal spot, the basal half of the middorsal carina between this spot and base of segment finely black, segments 3 to 6 with middorsal longitudinal stripes expanding apically and then contracting again to join narrow apical rings, 7 nearly all black, 8 and 9 blue with moderately broad apical black rings, that on segment 8 double the width of the one on 9, 10 black dorsally.

Anal appendages. Superior as long as segment 10, black, blue within, deeply bifid at apices. Inferior shorter, sloping up towards the superiors, broad at base, tapering, dirty white in colour.

Female. Abdomen 27 mm. Hindwing 20 mm.

Head somewhat similar to that of male but the transverse stripe absent, 3 minute black spots at base of labrum and two large diffuse spots between the postocular spots. Ground colour bluish green in front, greenish above.

Prothorax greenish blue, marked similarly to the male.

Thorax. Ground colour of one female azure blue, of the other greenish, with diffuse golden brown middorsal and humeral fasciae, a small black point at upper end of humeral suture and another at upper end of 2nd lateral, the median point of the first lateral suture smaller than in the male.

Wings hyaline, 11 postnodal nervures in forewings, 9 in the hind; pterostigma pale brown.

Legs pale bluish green with black spines and a black stripe on extensor surfaces of femora.

Abdomen blue in one female, bluish green in the other, black markings similar to those of male. In one female, the black spot on dorsum of segment 2 is very restricted and diamond-shaped, the carina is, however, finely black throughout its length and a golden halo surrounds the marking, segment 8 broadly black with a narrow basal blue ring, 9 has a baso-dorsal black spot connected, or narrowly interrupted by the blue, to a narrow apical linear spot. Segment 10 wholly blue.

Anal appendages dirty blue, very small, conical.

This species is related to the *microcephalum* group.

8. *Caconeura verticalis andamanensis*, subsp. nov.

This interesting species differs from *C. verticalis verticalis* Selys by not having any transverse red stripe across the head, it agrees, however, in all other respects, size, nodal-index, etc. On the other hand, it agrees with *C. verticalis annandalei* Fras. in having the head entirely velvety black, but disagrees in its nodal-index, which is 16 postnodals for forewings and 14 for the hind.

This new sub-species thus shares the characters of the two others equally, and is in fact a link form, enabling us to trace the origin of *annandalei*. *C. verticalis* extends from Borneo to Burma. This new form is apparently confined to the Andamans, whilst *annandalei* crops up in the hills south of Madras and extends from thence to the Western Ghats, where it becomes very common. No intermediate forms, nor any of the three mentioned, are known to occur in North India, Assam or North Burma, so that it would appear that the species has spread directly across the Bay of Bengal.

9. *Drepanosticta annandalei*, sp. nov.

(Plate XXIV, fig. 12.)

One adult male, one teneral male and one very teneral female, from Mt. Harriet, 800 ft., S. Andamans. In deep jungle, at edge of stream, 3. XII. 23. coll. N. Annandale.

Male. Abdomen 32 mm. Hindwing 22 mm.

Head. Labium brown, labrum creamy white narrowly bordered with glossy black, rest of head matt black, except basal and penultimate segments of antennae which are white. Eyes dark olivaceous brown, paler below.

Prothorax dirty white with a large black lateral spot on each side.

Thorax dark blackish brown on dorsum, the middorsal carina and upper part of humeral suture paler, sides white with a diffuse longitudinal brown fascia traversing the sutures obliquely as far as posterior border of metepimeron.

Wings hyaline, rather falcate; 16 postnodal nervures in the forewing, 14 in the hind; pterostigma dark blackish brown; *ac* very oblique from before back, the anal bridge very oblique from behind forwards and meeting the underside of quadrilateral about its middle.

Legs white, the knees black, femora black on extensor surface, this spotted with white; posterior and middle tibiae with long hair-like spines gradually shortening towards distal ends of tibiae, anterior tibiae with similar spines on proximal half, but the distal ends furnished with a row of short, evenly sized, closely-set spines.

Abdomen white at sides, black on dorsum, the black not quite reaching base of segments but expanding apically to form thick rings; segment 8 with apical third and a fine dorsal stripe extending to the base black, 9 and 10 wholly black. Segments 7 to 10 shorten progressively.

Anal appendages of equal length, slightly longer than segment 10, the superior black, rather spatulate, curling inwards and downwards on themselves at about their middles, their apices nearly meeting. Inferior broad at base, tapering to a blunt point.

Female. Abdomen 25 mm. Hindwing 20 mm.

Colouring as for male but segment 8 is black in its apical half, 9 has the apical third black, 10 is all black. Anal appendages very minute, white.

Wings hyaline, postnodal nervures 14 to 16; pterostigma pale brown.

In the teneral male, the apices of all segments are ringed with white, the dorsal black band indicated by a mere clouding, segment 9 also has its basal half white and the appendages are of the same colour.

This species is distinguished from *D. carmichaeli* Laid. by its simple black and white colouring. As regards the Ceylon group, *tropica*, *montana*, *digna* and *hilaris*, I am of opinion that that they form a distinct group within the Legion *Platysticta*, probably having a generic value of their own in any case; they may be distinguished from the present species by the blue markings on segments 9 and 10, segment 9 in *annandalei* being marked with white, and 10 being wholly black.

From *D. hilaris*, from Burma, it may be distinguished by the totally different shape of the anal appendages.