

VI. Calopterygina collected by Mr. BUCKLEY in Ecuador and Bolivia. By R. M'LACHLAN, F.R.S., &c.

[Read February 6th, 1878.]

THE *raison d'être* of this short paper consists in the recent acquisition by me of a small collection of dragonflies (and a few *Planipennia*) captured by Mr. Buckley at Intaj, in Ecuador, of which a large proportion are *Calopterygina*. On previous occasions I had received from him a few examples from the same Republic and from that of Bolivia, taken on former expeditions. The majority of the specimens proved to pertain to undescribed species, or to interesting varieties of already-known forms; hence it appeared to be of scientific value to incorporate a notice of the whole in a short memoir, as an incentive to him and to future travellers to pay more attention to these neglected insects. The discovery of the magnificent *Euthore mirabilis*, herein described, is in itself a proof of the richness of the Northern Andes, and another species (*Lais imperatrix*) is scarcely less important.

All the species are peculiarly characteristic of the regions whence they come, and thus neotropical in aspect.

Some of the species from Ecuador (received formerly) have already been described, or alluded to, by my friend and colleague Baron de Selys-Longchamps, in the "Troisièmes Additions au Synopsis des Caloptérygines," published in 1873; and as an acknowledgment, on my part, of the exactitude of his method of describing, I have adopted the same (with trifling modifications) in the present paper. The number of new species herein described is only six, and three of these add to the rapidly-increasing forms of the genus *Cora*, which could only claim one species in 1854, but of which eleven are now known.

Lais imperatrix, n. sp.

♀. Of large size. A true *pterostigma* in the posterior wings. Wings broad; postcostal area with three more or less complete rows of somewhat regular cellules.

Wings hyaline, but having a slight reddish appearance in consequence of the reticulation being *wholly bright red*, excepting the entire marginal nervure, which is black. Pterostigma very small, slightly longer than broad ($\frac{3}{4}$ mm. long), brown, between two blackish nervules in very mature individuals, slightly dilated on its lower edge. 32—34 antecubital nervules in the anterior wings.

Bright metallic green above and on the sides; labrum somewhat chalybeous, with a large yellow spot on either side, clothed with black hairs. Basal two joints of antennæ yellow. Sides of thorax with four narrow yellow lines, which become almost entirely filled in with black in very mature examples. Under side of thorax varied with black and yellow, the black predominating in very mature examples. Legs deep black, the coxæ spotted and encircled with yellow. Abdomen bronzy-green above to near the end of the fourth segment, then passing into black with a violet tinge; sides of first and second segments yellow (but becoming blackish with scarcely a trace of yellow in very mature examples).

Length of abdomen (♀), 48—50 mm. Length of posterior wing, 41—43 mm.; breadth, 9—10 mm. Expanse of wings, 87—90 mm.

Hab.—Intaj, Ecuador.

Four ♀, all tolerably mature, but one more so than the others.

This magnificent species is the largest of the genus, exceeding *L. globifera*, and with broader wings. It is peculiar in structure, especially in having a true pterostigma in the posterior wings (whereas in other species it is altogether wanting), and there is a thickened nervule and slight constriction of the median nervure at the point where it should occur in the anterior wings. At first I hesitated as to the place of this species (being acquainted with the ♀ only), and was strongly inclined either to locate it in *Heterina*, or to form a new generic (or sub-generic) division for it. I believe, however, that it is really a *Lais* (and in this opinion am strengthened by that of Baron De Selys, to whom I communicated an example), but forming a special section, for no *Lais* hitherto known has any trace of a pterostigma in either pair of wings.

Euthore fasciata, Selys.

Two mature ♂ from Ecuador agree with a type from Venezuela excepting in unimportant particulars. The

size is very slightly smaller (posterior wing 29 mm.). The opaque white portion of the wing less extended inwardly, and somewhat creamy; in one example the dark band is narrower, and in the anterior wing finishes about four cellules before the pterostigma, hence the hyaline apical portion is somewhat more extended.

Euthore mirabilis, n. sp.

Nodus somewhat nearer to the base than to the pterostigma, which is brown, much dilated and surmounts 9—13 cellules; 43—50 antecubital and 51—54 postcubital nervules in the anterior wings.

♂. Wings dilated in the middle; the base up to somewhat beyond the end of the quadrilateral, and the costal margin up to the nodus, smoky-hyaline; the apical border from beneath the pterostigma smoky-brown; *all the rest of the wing dark opaque orange-red (or vermillion)*, the outer edge of this portion extremely oblique. Labrum with two large brownish-yellow spots, a spot on each cheek, and four between the eyes, of the same colour. Prothorax with two large spots, and the lateral margins, of the same colour. Thorax with six brownish-yellow lines on either side. Legs black; the femora brownish internally. Abdomen bronzy-black, paler towards the base; segments 1—4 with a brownish-yellow line on each side, and a vestige of the same on the fifth.

♀. Wings hyaline, tinged with smoky-brownish; in the anterior wings there is a *large* (nearly equilateral) *triangular opaque orange-red spot* placed so that the nodus is above the middle of its base (the costal margin remaining hyaline), externally with a narrow smoky line not touching its edge in very mature individuals; in the posterior wings there is a similar spot, but the colour is changed to reddish-brown, margined externally by smoky-brown; the other characters as in the ♂.

Length of abdomen: ♂, 38—42 mm.; ♀, 34—35 mm. Length of posterior wing: ♂, 28—32 mm.; ♀, 33 mm. Expanse: ♂, 62—68 mm.; ♀, 69—70 mm.

Hab.—Intaj, Ecuador, 6 ♂ and 6 ♀, all mature.

Although there are other *Odonata* that, through the presence of metallic colours, may rival this in beauty, there exists, so far as I know, none with the same deep opaque orange-red coloration.

The reticulation of the wings is more dense than in other species of *Euthore*.

THORE.

Of this genus I have received from Ecuador a large number of examples of the *gigantea* group that are extremely puzzling. It is evident that much local variation exists, yet at the same time I do not think it possible to decide as to which are species or which only varieties, without strict local observations of their habits, for if it be found that the most striking forms occur together in the same locality, and yet keep separate *inter se*, that evidence will go far to prove we are dealing with species and not merely varieties.

Thore gigantea, Selys.

In three ♂ now in my collection the dark terminal portion of the wings commences at the nodus, but there is a somewhat triangular median internal prolongation towards the base, thus extending within the nodus.

Thore procera, Selys (race of *gigantea*, according to Selys).

In his "Troisièmes Additions," p. 34, De Selys enumerates several forms from Ecuador, obtained by me from a former collection made by Mr. Buckley. I have since received many additional examples. The forms are alluded to as Nos. 1 to 4, and I propose to make some remarks upon them consecutively.

No. 1.—The dark portion of the wings in the ♂, commencing at from ten to twelve cellules after the nodus in the examples seen by De Selys. In a longer series this form shows modifications, inasmuch as the dark portion varies in its point of commencement from the nodus itself to about twelve cellules after it. Among these there appear to me to be two forms, differing in size and apparent breadth of wing. In the larger the length of the posterior wings is from 40 to 45 mm., in the smaller from 35 to 38 mm., and the neurulation in this smaller form appears to be less dense as regards the small intermediate supplementary sectors in the dark apical portion as seen in immature examples. The female varies considerably in the breadth of the dark band, and I am unable to apply the examples of this sex to the larger and smaller

males. The best character whereby to separate *gigantea* and *procera* appears to be, that in the latter the inner edge of the dark portion of the wings of the ♂ is nearly regular, whereas in the former it is produced towards the base, but whether this will stand the test of minute application may be doubtful.

No. 2.—Only especially remarkable as a ♀ with the colours of the ♂ as in No. 1. Certainly nothing more than an abnormal and accidental condition.

No. 3 is the normal ♀.

No. 4—in which the dark portion of the wings commences midway between the nodus and the pterostigma—I am not able to re-examine.

Thore picta, Rambur (*Saundersii*, Selys, *olim*; cf. Appendice au “Troisièmes Additions,” p. 65).

Two ♂ from Ecuador, of which one was formerly seen by De Selys, and referred doubtfully to this species. (“Troisièmes Additions,” p. 36.) They are remarkable for their great size, and for the fact that in one the dark terminal portion of the wings is not preceded by a milky-white band; in the example above alluded to, the length of the posterior wing is 44 mm.; another, from the same locality (immature), is somewhat smaller (posterior wing 40 mm.), and shows indications of the white band.

Thore boliviana, n. sp.

♂. Distinct from described forms in the coloration of the wings. In the anterior wings the base is hyaline up to the end of the quadrilateral, and also on the costal margin to the nodus, but the wing up to midway between the nodus and pterostigma is opaque ochreous-yellow, excepting the costal margin (as far as the principal sector), which becomes somewhat milky; the rest of the wing brownish-black, with brilliant purple and green reflections, the inner edge of this dark portion slightly concave. The posterior wings similarly coloured, only that the ochreous part is suffused with smoky-brown, but leaving a not well-defined paler band, of which the inner edge commences at the nodus and is continued in a very oblique manner, the outer edge formed by the inner edge of the dark apical portion, hence the band is cuneate, broad on the costa, and reduced to a point on the inner margin: about fifty antecubital nervules in the anterior wings.

Legs black; the inner side of the femora greyish or whitish, excepting at the tips.

Length of abdomen, 42 mm. Length of posterior wing, 36 mm. Expanse of wings, 77 mm.

Chairo, Bolivia. One mature ♂.

Apparently intermediate between *T. picta* and *T. Batesi*: remarkable for the wings being nearly entirely opaque ochreous before the dark apical portion.

Thore æquatorialis, Selys (race? of *albovittata*
according to De Selys).

Since the type was described I have received three other examples from Intaj (all females), that appear to belong here. All are rather larger (posterior wing 40 mm.). One is mature, without a vestige of the milky band; the others immature, as indicated by the pterostigma, which is pale brown. In these immature examples the milky band is clearly visible, especially on the posterior wings, and is margined externally by smoky greyish-brown; its position and direction as in the type of *æquatorialis* and not as in *albovittata*. The pterostigma surmounts from six to nine cellules. The ♂ of this species (or race) is still a *desideratum*.

Cora dualis, n. sp.

Wings rather broad; nodus placed much nearer to the base of the wing than to the origin of the pterostigma, which is dark brown, short ($2\frac{1}{2}$ mm. long), very thick, surmounting 4—5 cellules; 32—35 antecubital and 45—47 postcubital nervules in the anterior wings; 4—5 sectors interposed between the first and second sector of the triangle; the second of the triangle longly and regularly trifurcate.

♂. Wings hyaline, the posterior margin faintly tinged with yellowish, with the appearance of a *whitish spot on the anterior margin just beyond the nodus*, caused by the neuration at that point being milky white, instead of black like all the rest. Labrum and cheeks brownish-yellow; nasus with a brownish-yellow spot on either side; upperside of head with four brown spots (in two rows) anteriorly, and the posterior margin with a narrow brown continuous line; basal two joints of antennæ yellowish above. Prothorax with two very large lateral spots, and a small median, brownish-yellow; its lateral margins

yellow. Thorax bluish (yellowish in some examples), with five broad black lines on either side of the central carina. Legs black; femora yellowish internally, excepting at the tips. Abdomen black, the basal four segments bronzy; first segment with a large yellow spot on either side, second with a broad lateral line, third and fourth with a yellow lateral spot at the anterior end (occasionally visible as a point on the fifth), followed by a narrow line, not extending to the posterior margin. The tenth segment with a very prominent median tubercle.

♀. Wings tinged with yellowish all over; no whitish spot; pterostigma pale brown; markings of the head and prothorax as in the ♂. Thorax black, with five broad golden-yellow lines on either side. Abdomen marked as in the ♂, and with a large yellow spot (sometimes indistinct) on either side of the ninth segment.

Length of abdomen, ♂ 45—47 mm., ♀ 39 mm. Length of posterior wing, ♂ 37—39 mm., ♀ 37 mm. Expanse of wings, ♂ 81—85 mm., ♀ 83 mm.

Hab.—Intaj, Ecuador, 3 ♂ and 2 ♀.

This very large and distinct species appears to me to combine the characters of *Cora* and *Thore*, differing from others of the genus *Cora* in (apart from its large size) the more shortly-petiolated wings, the position of the nodus, the greater number of interposed supplementary sectors, the more strongly-curved ends of the sectors, &c.; and the whitish spot beyond the nodus in the ♂ may be taken as representing the milky band so common in *Thore*. Also, it should be remarked, that the wings of *T. beata* are not much more dilated than those of *C. dualis*.

Considering the existence of such species as *C. dualis*, *C. modesta*, *C. munda*, *C. terminalis*, all more or less approaching *Thore*, it might be advisable to change the sequence of the subdivisions of the "Légion" *Thore* from that of *Chalcopteryx*, *Thore*, *Euthore*, *Cora*, to *Chalcopteryx*, *Euthore*, *Thore*, *Cora*.

Cora munda, n. sp.

Nodus placed slightly nearer to the base of the wing than to the origin of the pterostigma, which is brown (brownish-ochreous in somewhat immature individuals), short ($2\frac{1}{2}$ mm. long) and very thick, surmounting about 4 cellules; 29—33 antecubital, and 29—31 postcubital nervules in the anterior wings; 2—3 sectors interposed

between the first and second sectors of the triangle; the second of the triangle longly and regularly trifurcate.

♀. Wings hyaline, universally tinged with yellowish, which is more pronounced, and somewhat greenish on the anterior margin.

Nasus, labrum and cheeks piceous (yellowish or brownish in somewhat immature examples). Basal two joints of antennæ yellowish. Top of the head black with a large fulvous spot on either side anteriorly, connected with a similar one on either side of the vesicle; posterior margin with a continuous fulvous line dilated at either end. Prothorax varied with fulvous and black. Thorax brownish (golden-brown in immature examples), with black lines, none of which are very distinct excepting that placed on either side of the black dorsal carina. Legs black; femora brown internally, almost up to the tips. Abdomen bronzy-black with chalybeous and violet reflections; first and second segments almost entirely yellowish, the second black in the middle above; third to sixth with a yellow ring at the anterior end, sometimes almost interrupted above by a prolongation of the black ground; a yellow lateral line on the third and fourth segments in the mature insect, extending to the fifth in immature examples; an indication of a yellow spot on either side of the eighth and ninth segments.

Length of abdomen, 34—37 mm. Length of posterior wing, 32—34½ mm. Expanse of wings, 70—73 mm.

Hab.—Intaj, Ecuador, 3 ♀.

Apparently allied to *C. dualis*, but smaller, and with the colours somewhat different; the wings more strongly tinged, the neuration less complicated, the nodus nearer to the origin of the pterostigma (hence the number of antecubital and postcubital nervules is nearly equal). Through *C. dualis* it forms a good example of the gradual transition from *Thore* to *Cora*.

Cora terminalis, n. sp.

Nodus placed midway between the base of the wing and the origin of the pterostigma, which is dark brown (paler in the ♀), thick, 3 mm. long, its inner edge very oblique, surmounting 5 cellules; 34—37 antecubital and 29—33 postcubital nervules, in the anterior wings. Two sectors interposed between the first and second sectors of

the triangle, the second of the triangle longly and regularly trifurcate.

♂. Wings hyaline, anterior margin slightly tinged with greenish-yellow; *the apex* (from about the middle of the pterostigma) *brown*, slightly areolated with paler (in the posterior wings this brown portion forms only a rather large spot under the pterostigma).

Nasus, labrum, cheeks and orbits livid (possibly bluish in life); head otherwise black, with four bluish-grey spots between the eyes, two anteriorly and two posteriorly. Prothorax with two large brown spots. Thorax yellowish on the sides, varied with black (or, more properly, black with yellow lines), above black, the ante-humeral and humeral lines greenish, enclosing a black oval between them. Legs black; the base of the femora brown interiorly. Abdomen black; first segment broadly yellow on the sides; second with rather broad lateral lines; third with a yellow spot anteriorly followed by a very narrow lateral line; fourth with a similar spot, but with no line. Appendages distinctly denticulate externally.

♀. Wings entirely hyaline, very slightly tinged with yellowish; the anterior margin more distinctly greenish-yellow. Front nearly entirely piceous; the cheeks and orbits livid; prothorax with a brown spot on either side, and margined with brown. Thorax more distinctly yellowish, with black lines, the yellow predominating. Base of abdomen as in the ♂ (mutilated after the third segment).

Length of abdomen, ♂, 40 mm., ♀ ? Length of posterior wing, ♂, 35 mm.; ♀, 34 mm. Expanse of wings, ♂, 77 mm.; ♀, 76 mm.

Hab.—Unduavi, Bolivia, 1 ♂ and 1 ♀.

The ♂ is very distinct from all described species in consequence of the brown apex of the wings; the ♀ readily separable from that of *C. modesta* (with which it agrees in the position of the nodus) by its much larger size, different coloration of thorax, &c.

Cora inca, Selys.

One ♀ from Ecuador, thus referred by De Selys ("Troisièmes Additions," p. 40).

N.B.—It scarcely agrees with the description of the ♂ (from Quito), because the nodus appears to me to be

placed almost precisely midway between the base of the wing and the *origin* (not the *end*) of the pterostigma.

Note.—The following two species have been recorded from Ecuador and Bolivia respectively, but are not among those collected by Mr. Buckley:—

Heterina carnifex, Hagen.

Quito, Ecuador. Selys "Troisièmes Additions," p. 15.

Thore Victoria, M'Lachlan.

Bolivia. M'Lach. Ent. Month. Mag. vol. vi. p. 28; Selys "Secondes Additions," p. 25, ♂; *id.* "Troisièmes Additions," p. 33, ♀?



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