

XLVI.—On Two small Collections of Neuroptera from Ta-chien-lu, in the Province of Szechuen, Western China, on the frontier of Thibet. By ROBERT M'LACHLAN, F.R.S. &c.

FOR the materials from which this paper has been drawn up I am indebted to my good friend Mons. René Oberthür, of Rennes, who obtained them from his collectors in the above-mentioned locality. Ta-chien-lu is situated, I believe, at a considerable elevation. The number of new forms in such comparatively small collections is remarkable and significant. In several respects the affinities are with Japan rather than with the Himalayas, notwithstanding the nearer proximity of the latter.

TRICHOPTERA.

Fam. Phryganeidæ.

Neuronina (Holostomis) regina, M'Lach.

Holostomis Maclachlani, White, var. *regina*, M'Lach. Journ. Linn. Soc., Zool. xi. pp. 103, 104.

Nearly a quarter of a century has passed since I indicated the Japanese form of the Himalayan *H. Maclachlani* as probably a distinct species and suggested the name *regina* for it. Since then I have received and seen many examples of both forms from their respective habitats, and they keep themselves thoroughly distinct so far as coloration is concerned. I am now disposed to attach little importance to the apparently narrower wings in the Japanese insect. Of the common origin of the two forms there can be no doubt, but they appear to me now entitled to rank as species; and I am the more confirmed in this view because in the collection from Ta-chien-lu there is a single male which in colour conforms to the Japanese condition and not to the Himalayan. In wing-contour it is the same as the Himalayan (but so also are some examples from Japan). If any differences exist in the anal parts they are only very slight and remain to be detected.

Fam. Limnophilidæ.

Halesus amplus, sp. n.

Body fuscous above, ochraceous beneath. Head above and pronotum clothed with fuscous hairs, those on the front and

pleuræ ochraceous. Antennæ strong, shorter than the wings, brown, with yellowish annulations, and the basal joint is dingy yellowish. Palpi yellowish or testaceous. Legs testaceous, with not very numerous stout black spines on the tibiæ; on the anterior and intermediate tibiæ each spine arises from a black spot; tips of the tibiæ and of each tarsal joint black.

Anterior wings long, rather narrow, elliptical at the apex, the membrane finely granulose, and clothed, as are the veins, with fine short blackish hairs; on the postcostal region these hairs are long and strong, and there is a dense fringe of blackish hairs at the base of the costal margin. The ground-colour is smoky greyish (brownier in the female), closely sprinkled with minute pale points, and on each side of the veins these points alternate in an irregular manner with darker spaces (especially on the apical sectors); on the lower edge of the cellula thyridii and on the lower edge of the postcosta is an interrupted blackish line; at the termination of the postcostal cellules is a rather conspicuous rounded pale spot. Neuration scarcely darker than the ground; discoidal cell very long and narrow, leaving only a short footstalk, apical cells all long, the first longer than those succeeding, oblique at its base, second to fourth nearly equal.

Posterior wings pale smoky grey, slightly iridescent; at the base of the costal margin are tufts of long silky pale hairs, and there is a fringe of similar hairs on the anal margin. Neuration pale, the anal sectors darker.

In the male the margin of the last dorsal segment is somewhat raised and excised in the middle, and proceeding therefrom is a black thickened portion produced into a rounded knob on either side and deeply excised in the middle. Superior appendages small and not prominent, ear-shaped or broadly sickle-shaped, yellowish, with pale hairs (intermediate appendages doubtful). Inferior appendages arising nearly contiguously from each side of the middle of the margin of the last ventral segment; viewed ventrally they are short, flattened, the inner edge deeply excised in its apical half and clothed with long yellowish hairs (concolorous with the appendages themselves); all the inner parts concealed.

In the female the margin of the last dorsal segment is slightly produced triangularly. Appendices flattened, sub-triangular, their outer surface excavated. Side-pieces of last ventral segment small. Vulvar scale large, prominent, and yellow, consisting of two broad oblong side-lobes, rounded externally, and a contiguous middle lobe in the form of a long acute triangle of equal length with the side-lobes.

Length of body, ♂ 15, ♀ 16 millim. Expanse, ♂ 52, ♀ 56 millim.

One male, one female.

A large insect, with no parallel amongst strictly European forms. In contour of wings it resembles the European *Stenophylax concentricus*, M'Lach. et auct. (nec Zett.), but is larger and darker.

Stenopsyche griseipennis, M'Lach.

Three males and one female.

This identification is based on the supposition that one species, varying much in size and in intensity of colour, extends from the Himalayas, through North China, to Japan and the Loo-Choo Islands, a point that requires an exhaustive study to decide. The examples here under consideration have the anterior wings very darkly marbled and the posterior very opaque white, with broad fuliginous apex; some examples from Sikkim &c. in the Himalayas are similar in this respect; the smoky apex of the posterior wings appears to be only a matter of degree. At the most I think these can only be local forms, not perhaps sufficiently differentiated for specific distinction.

NEUROPTERA PLANIPENNIA.

Fam. Panorpidæ.

Panorpa dicerus, sp. n.

Body pale orange-yellow, with black markings as follows:— on the head is a large spot in which the ocelli are placed, continued as a fine line between the basal joints of the antennæ and expanded into a triangle on the front below them; rostrum with two lines gradually convergent towards the apex; a line on either side of the body commencing on the prothorax and continued to the end of the fifth abdominal segment, broadest on the basal segments.

Antennæ and palpi black. Legs greyish yellow, with short blackish pubescence; tips of tarsal joints blackish, the last two joints of the intermediate and posterior tarsi nearly wholly blackish; spurs piceous; claws testaceous, with three or four long comb-like teeth within.

Wings moderate, subobtuse, dusky hyaline, the extreme apex pale fuliginous; otherwise without markings, save that the pterostigma is yellowish and rather long. Subcosta not extending to the pterostigma in either pair. Neuration black, but the

transverse nervules appear whitish in certain lights, as also does the base of the furcation of the upper cubitus.

Abdomen short, with fine silky whitish pubescence; all the segments to the fifth transverse. Third dorsal segment slightly produced into a rounded flap in its middle, apparently covering a cavity in the anterior portion of the fourth; sixth segment as long as the fourth and fifth united, oblong, the middle of its posterior end above is *produced into two short, strong, cylindrical, obtuse, slightly divergent horns*; seventh longer than the sixth, obconical, curved upwards, excised and narrowed at its base above; eighth about the length of the seventh, narrowly obconical, straight; cheliferous segment short, the lateral pieces strongly rounded, the chelæ shorter than the segment, turned inwards and crossing; on the inner edge of each is a tooth about the middle, after which the apical portion is excised, and there are probably one or two inner teeth at the extreme base; appendages flattened, closely applied to the edges of the rounded side-lobes, gradually dilated to near the apical portion, which is oblique inwardly, the inner edge with a fringe of rather strong distant black hairs (the whole cheliferous segment is more dusky in colour than those preceding it, and on its inner, or upper side if extended, is an appearance as of two long yellow hairy processes, damaged in the individual before me).

Expanse, ♂ 30 millim.

Only one individual is before me, remarkable for its pale colours and the conformation of the margin of the sixth segment.

Fam. Ascalaphidæ.

Idricerus exilis, sp. n.

Body slaty cinereous. Head above very densely clothed with long black hairs directed forward in a tuft between the antennæ; on the front is a dense tuft of blackish hairs, directed upwards, below the antennæ; below this the hairs are cinereous, mixed with black at the sides; clypeus and labrum yellow; palpi testaceous; mandibles piceous at tip. Antennæ wholly black (including the capitate club). Thorax above with cinereous hairs, mixed with blackish on the sides; pleuræ and breast with dense long whitish silky hairs. Legs reddish; tarsi black; on the anterior tibiæ beneath is (male only?) a dense cushion of pale ochreous hairs occupying the whole length; spurs black, those on the posterior tibiæ about as long as the first two tarsal joints; claws strong, black, rather longer than the terminal tarsal joint. Abdomen with

sparse long blackish hairs, moderately stout in male, its cinereous ground varied by a broad velvety-black annulation at the posterior end of each segment above (only to third segment beneath); on the side of the posterior margin of each dorsal segment is a short reddish line (scarcely visible on the terminal segments and probably altogether discoloured in examples in bad condition); terminal dorsal segment produced above, with a tuft of long blackish hairs; terminal ventral segment obtusely triangular on each side, with long blackish hairs.

Wings vitreous, with watery-blue iridescence, rather narrow, the inner margin slightly dilated before the termination of the cubiti; anal angle of anterior wings rounded, followed by a slight excision. Neuration wholly black, except at the extreme base and a short space at the base of the radius, which are yellowish (including the membranous attachments); pterostigma small, blackish fuscous, with two included nervules in the anterior and three in the posterior; postpterostigmatic area commencing with two rows of cellules, then going on to three and then to four, the cellules of the marginal series the smallest, those of the lower series the largest; about thirty-seven costal nervules before the pterostigma; four or five rows of cellules between the lower cubitus and the inner margin.

Length of body (♂) 34 millim. Expanse of wings 85 millim.; length of anterior wing 41 millim., greatest breadth 10 millim.; length of posterior wing 32 millim.

One male.

Apparently more closely allied to the Japanese *I. japonicus*, M'Lach., than to the North-Indian *I. decrepitus*, Walk., and *I. Elwesii*, M'Lach.

Fam. Chrysopidæ.

Chrysopa dasyphlebia, sp. n.

Body wholly very pale green, without markings of any kind. Head above with an elevated somewhat semicircular space, divided by a longitudinal median impressed line with an excavation on either side. Antennæ shorter than the wings, slender, whitish, a short straight hair at the apex of each joint excepting those towards the base; basal joint comparatively short, somewhat bulbous. Palpi whitish. Eyes deep black (in dead examples). Pronotum longer than broad, slightly narrowed anteriorly, with an impressed median longitudinal line, and a transverse sulcus posteriorly, sparingly

clothed with rather long whitish hairs, and there are similar hairs, but denser, on the abdomen. Legs whitish, clothed with concolorous hairs; tarsi slightly yellowish; claws testaceous, much dilated at the base, the apical portion slender, much curved, extending beyond the dilated portion.

Wings broad, subacute; in the anterior pair the costal area is narrow at the base, but the costal margin soon becomes gradually rounded and the area correspondingly broad; the margins with a dense fringe of whitish (or yellowish-white) hairs, and there are long divaricating hairs on the neuriation; this latter is wholly pale green, with the following exceptions—in the anterior wings the veins in the costal area at the base are dusky blackish at their upper-ends, and two or three small veins at the end of the postcostal region are incrassate and dusky blackish (but not always so); in the posterior wings the costal veinlets are blackish towards the base (in some examples there is an appearance as of long dusky spaces on the subcosta, but not of a decided nature); in both pairs of wings the sector does not run quite parallel with the radius, and the two series of gradate nervules are also not parallel; in the anterior wings there are ten to twelve nervules in the inner and ten to fifteen in the outer series; thirty to thirty-five costal nervules before the pterostigmatic area (this latter very faintly yellowish); dividing nervule of the third cubital cellule extending to rather more than half its length (but varying) and about one third beyond the insertion of the superposed nervule.

Expanse 36–46 millim.

I have seventeen examples before me.

In general form, pale colour, and very hairy margins and neuriation this species bears some analogy to the much smaller European *Ch. alba*, L.; but I think there is no real affinity, on account of the differing arrangement of the neuriation. It also recalls species of the genus *Leucochrysa*, M'Lach.*; but in that genus, as defined by me, the labrum is excised, the antennæ are much longer than the wings, and the divided portion of the third cubital cellule is more or less triangular (not oval).

N.B.—Dr. Gerstäcker, in describing some new species of Chrysopidæ from Japan (Mitth. nat. Ver. Neu-Vorpommern und Rügen, 1893), has a "*Nothochrysa*" *robusta*, which he compares with "*N.*" *pallida*, Schn., and "*N.*" *bipunctata*, Burm. But these two species have nothing whatever to do

* *Protochrysa*, Kolbe, Arch. f. Naturgesch. 1888, Band i. p. 174, = *Leucochrysa*, M'Lach. Trans. Ent. Soc. Lond. 1868, p. 208.

with the genus *Nothochrysa*, M'Lach.; neither, I think, has *N. robusta*, nor probably others described in the same paper. *Nothochrysa* is distinguished by its excised labrum, by the third cubital cellule being divided longitudinally into two more or less oblong parts, by the short stout antennæ, and generally robust form, all of which characters are absent in *Chrysopa pallida*, Schn.

Chrysopa punctilabris, sp. n.

Body green. Head above with a triangular excavated space bounded by raised edges; front whitish green, with nine conspicuous more or less oval black spots, viz. one between the basal joints of the antennæ, two on each side of the genæ placed obliquely, one on each side of the clypeus, and one on each side of the labrum. Palpi black, the joints pale at base and apex, the terminal almost wholly black. Antennæ shorter than the wings, slender, slightly testaceous, the basal joint green, bulbous. Pronotum transverse (broader than long), with two deep transverse sulci and a raised ridge between them, spotless. Legs whitish, with fine blackish hairs; tarsi slightly testaceous; claws testaceous, strongly dilated at the base internally. Abdomen clothed with whitish hairs.

Wings oval, moderately broad, subacute, all the margins densely fringed, and the neuration with strong blackish (whitish in certain lights) divaricating hairs; costal area broad, with 28 to 32 nervules before the slightly yellowish pterostigmatic space. Neuration green, varied with black as follows:—the costal nervules, those below the radius at their upper end, nearly all the basal nervules, those between the cubiti at one or both ends, some of the axils of the marginal furcations, and the gradate nervules; sector nearly parallel with the radius, and the two gradate series (seven to nine in each on the anterior wings) are also nearly parallel; dividing nervule of the third cubital cellule extending to about half its length and about one third beyond the insertion of the superposed nervule.

Expanse 28–34 millim.

Four examples.

Possibly of the group of *Ch. 7-punctata*. Should be easily recognized by the nine spots on the front, the presence of those on the labrum being exceptional.

PSEUDO-NEUROPTERA.

Fam. Ephemeridæ.

Ephemera pictiventris, sp. n.

♀ *subimago*. Head and thorax above opaque whitish, more tinged with yellowish beneath. Eyes black, and they are connected by a black band. Antennæ having the second joint black, those succeeding slightly paler. A black line extends on each side along the thorax from below the eyes to the root of the anterior wing, and on each side of the mesothorax there is a large round-oval black spot below the black line. Legs yellowish white; anterior femora with a dusky line internally, and dusky externally towards the apex; the corresponding tibiæ and tarsi dusky, the latter almost blackish, intermediate and posterior tarsi having the terminal joint dusky. Abdomen yellow, each segment above having a complete crescentic black marking, becoming more elliptical on the apical segments; venter with an oblique black streak on the sides of each segment, becoming straighter and more parallel on the antepenultimate and penultimate. Setæ black, the two outer with yellow basal joint; clothed with fuliginous hairs, which become longer and more dense on approaching the apex.

Wings opaque whitish, the costal margin as far as the radius tinged with yellowish. Neuration black, but yellow at the extreme base; the anal reticulation pale.

♀ *imago*. Head and thorax shining yellow; a broad black band connecting the eyes. Antennæ having the second and third joints black, the bristle whitish. Pronotum with a broad oblong black spot on either side. Mesonotum shining fuliginous in front, a black line in the sulcus that bounds the raised median portion; a black spot on the sides contiguous to the posterior angle of the pronotum; an elongate spot on the sides above the root of the anterior wings; a curved blackish streak on the sides above the intermediate legs, appearing as if trifid or quadrifid posteriorly, and there are blackish markings above the posterior legs. Legs yellow; anterior femora blackish on the edges, the tibiæ and tarsi wholly black; intermediate and posterior tarsi dusky. Abdomen yellow, with black crescentic markings above as in the *subimago*, but broader and more intense, and the sides of each dilated and connected with the oblique black lines on the ventral surface, which are also more intense and complete. (Setæ wanting.)

Wings hyaline, iridescent. In the anterior pair the subcostal area is faintly tinged with yellowish; the only markings are a blackish nodal dot on the subcosta, a smaller one below it on the sector, and a third at the point of furcation of the cubitus. Neuration black, passing into yellowish white at the extreme base and in the anal region; in the pterostigmatic region are two rows of irregular cellules. Posterior wings without markings, the basal portion of the subcosta conspicuously deep black.

Length of body, ♀ 14–17 millim., of setæ 18 millim. Expanse 39–46 millim.; length of anterior wing 19–22 millim.

Two female subimagos, one female imago.

Apparently nearly allied to *E. japonica*, M'Lach.; the male is a desideratum.

O D O N A T A.

Subfam. *LIBELLULINA*.

Pantala flavescens, F.

Many examples.

Sympetrum scoticum, Douov.

One female.

The wings at the base deep yellow as far as the basal area and on the anal border, which colour is continued in a less intense degree along the costal margin to beyond the nodus. The neuration is somewhat aberrant, inasmuch as the last antenodal nervule is continued into the subcostal area in all the wings except the left posterior. I find this condition not uncommon in the species, and it is usually asymmetrical.

Thecadiplax ardens, sp. n.

Closely allied to *Th. erotica*, Selys, but larger. Differs principally as follows:—The two shining black spots on the top of the front are usually (not always) united into a short transverse band. On the thorax above is a cuneiform (or triangular) black band in which is placed the dorsal carina; the humeral black band is broader, and the lower branch of the divided portion of this band above the legs is curved and connected with a complete oblique black line, in which is placed the mesothoracic spiracle; another oblique black line occupies the metathoracic suture (these two lines usually con-

nected by a black thread at the spiracle). In the male there is a triangular lateral blackish spot on the sides of segments 4 to 7; in the female these spots are much larger and occur on segments 3 to 7, and are confused with the blackish underside; in this sex segments 8 to 10 are wholly black, excepting a reddish spot on each side of 8, and with paler margins above on 9 and 10. Genitalia apparently not differing from those of *Th. erotica*, and the appendages not appreciably different; in both species (and probably also in the allies) the superior appendages are bifid at the upturned tips, and there are one or two minute denticulations below the tips. In the female the vulvar scale is perhaps more deeply divided and the two obtuse apical side-lobes broader.

In the wings the pterostigma is longer (3 to 3½ millim.); ten antenodal nervules in the anterior wings of the male, nine in the female.

Length of abdomen, ♂ 29 millim., ♀ 26½–27 millim.
Length of posterior wing, ♂ 33 millim., ♀ 32–33 millim.

Two males, four females.

Although these examples (especially the females) vary somewhat *inter se*, it seems to me that they form either a distinct species or a marked local race.

Libellula basilinea, sp. n.

Closely allied to *L. quadrimaculata*, L.; differs especially as follows:—In the anterior wings are *two blackish streaks at the base, viz. one in the subcostal area extending to slightly beyond the arculus, the other occupying the whole of the median area*. In the posterior wings there is a streak in the subcostal area; the triangular spot is comparatively small, deeply excised beneath, deep black, and *not reticulated with yellow*.

Abdomen *beneath deep black, with seven isolated marginal subquadrate yellow spots*, that on the second segment small, the others large, but gradually decreasing to the eighth segment; these spots are reproduced on the sides of the dorsal surface, but are there more elongate.

One pair (♂ ♀).

As an additional character it may be stated that the costal margin as far as the median vein is yellow for the whole length of the wing, even in the postpterostigmatic area; in *L. quadrimaculata* this sometimes exists as far as the nodus, but not often beyond it.

Thus the main points in *L. basilinea* are:—(1) The two lines at the base of the anterior wings; (2) the triangular

spot at the base of the posterior not reticulated with yellow; and (3) the black ventral surface, ornamented with very distinct isolated yellow marginal spots. These combined differences are arrived at after a comparison with about fifty examples of *L. quadrimaculata* from various parts of Europe, Northern Asia, and North America.

In size *L. basilinea* equals the largest *L. quadrimaculata*.

In the basal streaks *L. basilinea* has affinity with *L. angelina*, Selys, from Japan, but in the latter there is a large triangular blackish spot under the pterostigma in all the wings, the basal triangular spot of the hind wings is reticulated with yellow, and the abdomen has no clearly defined yellow spots; but there is sometimes an approach towards them to be seen in *L. quadrimaculata*.

I have compared the appendages and genitalia of the second segment and the vulvar scale, without finding appreciable differences between *L. quadrimaculata* and *L. basilinea*, and I am not sure that any such exist between *L. angelina* and *L. quadrimaculata*, though the genitalia of the second segment look rather different.

Having regard to the fact that the only two individuals in the collection are precisely similar in their essential characters, I can only arrive at the conclusion that they represent a condition equally worthy of specific rank as is *L. angelina* of Japan.

Orthetrum japonicum, Uhler, var. n. *internum*.

Differs from the typical *O. japonicum* as follows:—In the labium the middle lobe is wholly blackish and the side-lobes are broadly margined (sometimes nearly wholly) with the same colour. On the thorax the black band separating the two large yellow spaces on the sides is broader, without (at any rate in adult examples) any trace of containing a yellow line.

In the wings the pterostigma appears to be slightly narrower and more or less deep black in adult individuals; the triangle of the posterior wings apparently invariably traversed by a nervule (without any nervule in the type form).

Nine males and one female, all very adult.

These may represent a species distinct from *O. japonicum*, and the fact that the triangle of the posterior wings is apparently always traversed by a nervule (in one example the triangle of the anterior is traversed by two nervules) may be sufficient to separate it; but having in view the instability of this character in individuals of other species from one locality,

I think it prudent to consider the specimens as constituting only a local form or race.

Among European species *O. japonicum* closely resembles *O. brunneum* in size and general form, and *O. cancellatum* in the structure of the genitalia of the second segment.

Orthetrum melania, Selys.

One male.

The spot at the base of the posterior wings is slightly smaller than in Japanese examples; otherwise I see no difference.

Crocothemis servilia, Drury.

One female.

Agrionoptera (?), sp.

One male, very doubtfully pertaining to this genus, left for further consideration.

Subfam. *CORDULEGASTRINA*.

Cordulegaster pekinensis, Selys.

One pair (♂ ♀).

The male appears to agree sufficiently with the description, but is smaller (length of posterior wing 41 millim., of abdomen 50 millim.). The female agrees with the male in all essential characters: length of posterior wing 43 millim., of pterostigma $4\frac{1}{3}$ millim., of abdomen 54 millim.; 17 antenodal nervules in anterior wings.

De Selys queries the species as probably only a race of *luniferus*, Selys. The latter was from Moupin, in the same district as Ta-chien-lu; but the pair before me agree far better with *pekinensis*. The anal appendages of the male differ from those of the European *bidentatus* in having the upper (or submedian) tooth almost as pronounced as the lower. The anal triangle of the posterior wings has four cellules in *pekinensis* and three in *bidentatus*.

Subfam. *ÆSCHNINA*.

Æschna juncea, L.?

One female, doubtful in the absence of the male.

Subfam. CALOPTERYGINA.

Calopteryx Oberthüri, sp. n.

♂. Head, thorax, and abdomen above bright metallic green; clypeus somewhat metallic blue; labrum shining black; second joint of antennæ yellowish externally. Under mouth-parts, legs, pectus, ventral surface of abdomen, and anal appendages dull black. A pointed tubercle behind the eyes. Spines of legs closely placed and very long. Superior appendages much incurved, gradually incrassated to the apex, so that each forms an incurved obtuse club, dentate externally. Inferior appendages one third shorter, subcylindrical, slightly curved, the apex truncate.

Wings long and comparatively narrow, the inner margin dilated in the middle; nodus placed slightly beyond the basal third. Colour deep black, with bluish reflexions (becoming green on the posterior wings), *the apical fourth* (rather less in posterior wings) *hyaline*, slightly smoky, sharply defined, but the margin of this hyaline space, especially in the posterior wings, is very narrowly blackish; the costal cellules to about halfway to the nodus with a long triangular subhyaline space, and there are pale dots for a corresponding length in the minute cellules of the base of the inner margin. Neuration wholly black; costal nervure not metallic; principal sector contiguous to the median for a short space. About 48 to 50 antenodal nervules in anterior wing.

♀. Head as in male, but the labrum, a spot on each side of it, and the under mouth-parts are yellow, the labium infuscated; pectus yellow, which colour is continued along the metathoracic suture, and the base of the abdomen at its sides beneath is also yellow. The metallic green of the abdomen above passing into bronzy after the fourth segment; ventral surface whitish pruinose; lateral margins of eighth and ninth segments narrowly yellow; appendages shorter than the tenth segment, black.

Wings: the portion that is black in the male is here smoky brown, and in the posterior wings there is an appearance of a broad darker band terminating the dark portion. Neuration reddish; a narrow elongate (3 millim.) whitish *false pterostigma* commencing at the termination of the dark portion of the wing (slightly before in the posterior), occupying only the costal area, which is scarcely perceptibly dilated thereby. About 40 antenodal nervules in the anterior wing.

Length of abdomen, ♂ 54-55 millim., ♀ 48-50 millim.

Length of posterior wing, ♂ 40–41 millim., ♀ 43–44 millim.

Seven males, four females.

A very remarkable species and the only one in the genus with the same sharp delimitation of the pale apical portion of the wings; at first sight it reminds one of a gigantic *Euphæa* rather than a *Calopteryx*. The female has a vague resemblance to *C. cornelia*, and in its elongate and comparatively narrow wings the species may be compared with *C. cornelia* and *C. atrata*, both Chinese and Japanese forms. All the examples before me are mature.

C. grandæva, Hag., described in 1853, remains known only by the probably immature female type. There are many points in the description opposed to identity with *C. Oberthürri* (notably the absence of a pterostigma).

Archineura incarnata, Karsch.

Echo incarnata, Karsch, Berl. ent. Zeit. xxxvi. 1891, = *Archineura basilactea*, W. F. Kirby, Ann. & Mag. Nat. Hist., January 1894 (very immature).

One male of this magnificent insect.

I marvel that Dr. Karsch did not draw any comparison with the American genus *Heterina* in the way of coloration, the carmine-red at the base of the wings existing only in that genus (with the allied *Lais pudica*) and in the species now under consideration; but of course it is only analogy. I am convinced that (as noticed by Karsch, Ent. Nachr. Heft vi. 1894) the type of *A. basilactea* is only an extremely immature example of the same species, and I am of opinion that the locality (Foo-Chow) given for it is erroneous, although it may have been brought to that port from the interior.

There is no connexion with *Sapho* as indicated by Kirby; but I doubt if the insect can be retained in *Echo* (which was unknown to Karsch, save by description). It is not necessary to go into minute details here; but the long, narrow, and only slightly dilated pterostigma is opposed to *Echo*, and the arrangement of the branches of the ramule, especially in the posterior wings, is conspicuously different. At present I retain Kirby's generic and Karsch's specific name.

Caliphæa consimilis, sp. n.

Head above metallic green, passing into blue, with a yellow spot on each side of the labrum and the second joint of antennæ yellow outwardly; back of head and under mouth-parts black. Thorax above metallic cupreous or green;

beneath (including coxæ and underside of trochanters) citron-yellow; an isolated metallic blue or green streak on the meta-thoracic pleuræ. Legs (excepting at base) black. Abdomen above bronzy green or purplish, segments 8 to 10 snow-white, pruinose; beneath black or with bluish pulverulence, underside of first segment yellow. Superior appendages about the length of the tenth segment, black, forcipate, thickened at the base, the apical half suddenly turned inward almost at a right angle, dilated and upturned at the tip; on the outer edge of the inturned portion are four to six denticulations. Inferior appendages black, only slightly shorter than the superior, subparallel, distant, flattened, their apices internally much dilated in a triangular manner, the upper edge oblique and finely denticulated, the lower angle perhaps forming a tooth (but from the manner in which the opposing apices are applied one to the other it is difficult to decide).

Wings hyaline, faintly tinged with olivaceous. Neuration black; pterostigma oblong, 2 millim. long, covering two and a half to three cellules, black; 14 to 17 antenodal nervules in the anterior wing (many of the postnodal nervules are not coincident in the costal and subcostal areas); two nervules in the quadrilateral.

Length of abdomen 39 millim.; length of posterior wing 31 millim.

Two adult males.

N.B.—*Notholestes*, M'Lach. (Ent. Month. Mag. vol. xxiv. p. 31), 1887, = *Caliphæa*, Hag. (Selys, Add. Synop. Calop. p. 5), 1859, and *N. Elwesi*, M'Lach. (l. c. p. 32), = *C. confusa*, Hag. (l. c.). I have compared the typical examples of each; that of *C. confusa* is less mature. The pterostigma appears slightly broader and shorter in the type of *C. confusa*, but in all probability only in the way of individual variation (its paler colour is a result of immaturity).

C. consimilis is very similar, and the same description would apply almost equally well to either (the types of *consimilis* are still more mature), except that the inferior appendages appear to be formed in a different manner, and that there are two nervules in the quadrilateral instead of one.

In describing *Notholestes* as new I overlooked *Caliphæa*, on account of the latter having been placed in the "Légion Calopteryx," with which I venture to think it has no relationship; and I adhere to my original opinion that its affinities are with *Dictérias*. In the description of *Caliphæa* the words "Ailes petiolées jusqu'au niveau de l'arculus" are incorrect (cf. my description of *Notholestes*).

Subfam. *AGRIONINA*.*Erythromma tinctipennis*, sp. n.

♀. Head black above, with a bronzy greenish tinge on the sides, clothed with long blackish hairs in front; front reddish yellow, the clypeus above and the labrum (excepting its margin) black (but wholly yellow in one example). Labium yellow. Back of head black. Antennæ black; second joint yellow at apex. Eyes brown. Pronotum black, its hind margin raised in a bluntly triangular manner, its side-lobes carunculated and deep yellow. Thorax black above, with complete yellow humeral (or humeral and juxtahumeral combined) band; the sides and breast wholly yellow, leaving a uniform isolated black band below the humeral; interalar region spotted with yellow. Legs black; the inner tooth of the claws scarcely shorter than the outer. Abdomen stout, black above, with bronzy greenish tinge, except towards the apex; on each side of the anterior margin of segments 3 to 6 is a small somewhat semilunate yellow spot; on segment 3 this is continuous with the yellow sides. Sides of abdomen yellow, interrupted with black at the sutures; a black ventral line extending the whole length. Appendages small, conical, black; valvules and their appendages black.

Wings hyaline, *tinged with yellow*, which is more intense on the anterior half. Neuration black; pterostigma dusky yellow, covering about one and a half cellules, its outer edge oblique; 3 to 5 antenodal cellules; 15 to 17 postnodal nervules in anterior wings, 11 to 15 in posterior; poststigmatal nervules simple or occasionally furcate.

Length of abdomen 25-26 millim., of posterior wing 22-24 millim.

Three females.

XLVII.—*On Two new Neotropical Mammals.*
By OLDFIELD THOMAS.

WHEN describing last year in the 'Annals' a new *Geomys* from Guatemala, *G. grandis**, I referred with considerable doubt a specimen from Tehuantepec to the same form.

At the request of Dr. Merriam, who is engaged on a revision of the group, I have now re-examined this specimen,

* Ann. & Mag. Nat. Hist. (6) xii. p. 270 (1893).

Bibliography of the Neuropterida

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