

could first turn its black into yellow, and then the yellow to white; although, I should add, that in this particular case I fancied the black had never come through yellow at all, but direct from the *Pieris* black, and that from white; but, at any rate, in such an instance as that of *G. cleopatra* and *G. rhamnii*, I hoped to reduce the red flush and spots, respectively displayed by them, to the ground yellow, and then this yellow to the type colour of the genus, as shown by the lowest forms. Again, in species displaying so many colours as the *Vanessæ* do, it would be most interesting to find the lineal order of these, although, no doubt, some would be collateral, and not all unilineal.

Then, again, regarding the statement I have already quoted (p. 155, above), that the *same markings differently coloured* in allied species might be expected to yield a common colour on treatment with retrogressive reagents, it appeared to me that a crucial instance would be afforded by the species of *Catocala*, e.g., *nupta* and *fraxini*. Was the blue of *fraxini*, I asked, evolved *via* the red of *nupta* (or *vice versa*), or are not these two colours more probably collaterally divergent? In the first case one might expect this result:—*fraxini*, blue reduces to red: this to "x" *nupta*, red reduces to "x"; but in the second case, both the blue of *fraxini* and the red of *nupta* might be reduced by a common reagent (or by different reagents) to a common colour. An analogous instance to that of these *Catocalæ* is afforded by the two species, *Euchloë cardamines* and *E. eupheno*, in which latter the ground colour is bright yellow, and the tip orange. By thus applying this principle to all genera that display the same markings in different colours, I hoped to discover the actual order of coloric evolution in each species, and the genetic relationship to all the others.

Such were my expectations as regards retrogressive reagents. It will appear that they have been only partly realised, since I have not succeeded in destroying highly evolved colours, step by step, but have never obtained more than *one* retrogressive change.

That the above-stated opinions may be viewed in their proper light, I must again remind my readers that I have simply been quoting to them from notes written out *before I had made a single experiment*. I trust that I have not been unduly prolix in so doing, but it seemed to me that greater coherence and unity would thus be given to my paper than could obtain, did I omit all reference to my previous anticipations, and plunge directly into the experimental results. Moreover, the speculations I had indulged in of obtaining those *progressive* modifications appear to me to carry a moral and a warning, only illustrating once more the utter futility of relying on any *à priori* hypothetical views,—however probable they may seem,—without subjecting them to the test of experiment. Hypotheses certainly are

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indispensable; no coherent line of work can be pursued without them; and to grope blindly through a number of disconnected experiments without any clear notion of what we expect to find, or what we are looking for, is to work wastefully, half-uselessly, and stupidly. But hypotheses are valuable only as schemes of working, and utterly illusory without actual verification. Without further comment, however, we will now proceed to consider the actual experiments, and their results.

(To be continued.)

## DESCRIPTIONS OF SOME NEW SPECIES OF CHINESE RHYNCHOTA.

By W. L. DISTANT.

I PREVIOUSLY described (*ante*, p. 90) three new species of Cicadidæ, contained in a small collection, placed in my hands by Mr. J. H. Leech. The following descriptions refer to other novelties from the same source, and we may confidently anticipate considerable accession to the number of known species of the order, when the Chinese insect fauna is more available for study.

### HETEROPTERA.

Fam. PENTATOMIDÆ.

Subfam. ASOPINÆ.

#### ✓ NEOGLYPUS OPULENTUS, n. sp.

Ochraceous, thickly covered with dark punctures, and more or less shaded with metallic green; connexivum ochraceous, with a black spot on each side of the segmental sutures. Body beneath and legs pale ochraceous, some small sternal discal spots and the stigmata black. Antennæ dark ochraceous, with the apical halves of the third, fourth, and fifth joints black; joints (excluding basal) almost subequal in length. Head with the lateral margins distinctly recurved; pronotal angles strongly produced into obtuse spines, straight, and directed outwardly. Pronotum and scutellum very coarsely punctate. Corium finely punctate. Long., 20 mm. Exp. pronot. angl., 11½ mm.

Hab. Chang Yang. (Pratt.)

Allied to the only other described species of the genus, *N. viridicatus*, Dist., from Japan, but differing by the obtuse pronotal angles, &c.

Subfam. PENTATOMINÆ.

#### ✓ TROPICORIS ILLUMINATUS, n. sp.

Very dark purplish brown, with the following yellow markings:—A short oblique fascia on each anterior lateral area of the pronotum, and a small central spot on disk of same, the apex of the scutellum, a spot in each lateral angle, and a central longitudinal fascia to same. Connexivum ochraceous, with large blackish spots. Body beneath ochraceous; some central sternal spots, the under side of pronotal angles, stigmata, and a

series of large marginal spots blackish. Legs dark ochraceous, tibiae with a central pale annulation, tarsi pale luteous, with their apices pitchy; rostrum blackish, with the base paler. Antennae blackish, with the fourth joint longest. Pronotum thickly and coarsely punctate, with the lateral angles strongly produced, their anterior margins rounded and serrated, their extreme apices terminating in a short obtuse spine. Scutellum coarsely punctate. Corium thickly and finely punctate. Rostrum long, and reaching the penultimate segment of the abdomen. Long., 16 mm. Exp. pronot. angl., 10 mm.

Hab. Chang Yang. (Pratt.)

This forms, with *T. davidi*, Sign., and *T. armandi*, Fallon, a third Chinese species of the genus.

### HOMOPTERA.

Fam. FULGORIDÆ.

Subfam. TESSARATOMINÆ.

*EUSTHENES PRATTI*, n. sp.

Body above dark chocolate-brown; lateral and anterior margins of pronotum and the connexivum dark olivaceous green; head and scutellum more or less suffused with the same colour; membrane bronzy brown. Body beneath rather paler in hue; lateral areas of the sternum, and an abdominal stigmatal fascia, bright olivaceous green; coxæ and tarsi brownish ochreous. Antennae with the first, second, and third joints blackish; fourth joint ochraceous, with the base narrowly blackish; second joint much longer than the third, and subequal in length to the fourth. Posterior femora in the male with a long spine beneath at base, and two shorter spines at apex. Long., ♂, 28 mm. Exp. pronot. angl., 13 mm.

Hab. Kiukiang and Chang Yang. (Pratt.)

This species is allied to *E. antennatus*, Dist.,\* by its elongate body and pale apical joint of the antennae, but in *E. pratti* this joint is black at the base, and the second joint is much longer than the third; the scutellum is also strongly transversely rugose, and its apex is broadly foveate. The colour is described from a *dry* specimen; when alive, the colour is bright greenish, as with other species of the genus.

Subfam. EURYBRACHYDINÆ.

*FRUTIS SINENSIS*, n. sp.

Head and thorax above and beneath dull ochraceous; abdomen bright sanguineous, with the anal appendage ochraceous; legs ochraceous, tibiae and tarsi fuscous. Tegmina dull ochraceous, and with a curved transverse impressed fascia of the same colour near apex. Wings very pale ochraceous, more or less suffused with creamy white. Long. excl. tegm., 20 mm. Exp. tegm., 58 mm.

Hab. North China. (From coll. Leech.)

\* From N. E. India. By a misprint, the dimensions of this species were given as "Long., 35 to 36 mm.," instead of 25 to 26 mm. (Trans. Ent. Soc. Lond., 1887, p. 357).

### DESCRIPTIONS OF NEW SPECIES OF PHYTOPHAGOUS COLEOPTERA RECEIVED BY MR. J. H. LEECH, FROM CHANG-YANG, CHINA.

By MARTIN JACOBY, F.E.S.

(Continued from p. 118.)

*APHTHONA VARIPES*, n. sp.

Below and the posterior femora piceous; above metallic blue; antennae and the four anterior legs fulvous; thorax scarcely visibly (or finely) punctured; elytra distinctly and closely semi-punctate-striate. Length,  $\frac{3}{4}$  line.

Head impunctate, the frontal elevations narrowly oblique, like the carina, distinctly raised; antennae scarcely extending to half the length of the body, fulvous, or with the terminal joints slightly darker, the second joint thickened, the third and fourth more elongate, nearly equal; thorax about one-half broader than long, the sides nearly straight, the anterior angles slightly thickened, the surface sparingly impressed with minute punctures; scutellum black; elytra rather strongly and closely punctured, the punctures arranged in somewhat regular rows, the posterior portion more obsolete punctate.

Very closely allied to *A. Bonvouloiri*, Allard, from Syria, but narrower and rather smaller, the antennae and legs less robust, and the elytral punctuation much closer and finer; from *A. modesta*, Weise, distinguished by the differently coloured legs, and the scarcely perceptible punctuation of the thorax; from *A. trivialis*, Weise, by the colour of the under side and that of the antennae. *A. chinensis*, Baly, differs by the colour of the antennae, the nearly quadrate thorax, and its larger size.

Many specimens.

*LUPEROCNEMUS*, Fairm.

This genus was described by Fairmaire in the Belgian Annals of 1888. The author has said nothing about the state of the anterior coxal cavities, nor given the length of the posterior tarsi, consequently it is impossible to come to a conclusion in regard to the systematic position of the genus. There are, however, two specimens contained in this collection, which answer entirely the description of Fairmaire's *L. xanthoderus*, and I consequently refer these insects to this species; the anterior coxal cavities are open, and the posterior tibiae have a distinct spine (Fairmaire describes them as unarmed); the first joint of the posterior tarsi is as long as the two following joints together. In spite of the distinctly incrassate posterior femora mentioned by the author, Fairmaire places his genus amongst the *Galerucinae*, which would put an end to all classification as far as the *Halticinae* are concerned, since this development of the posterior femora is the principal character by which this family may be separated from the *Galerucinae*; whether the insects have saltatorial powers or