

EXPLANATION OF PLATE XIII.

- Fig. 1. *Frontodes* (g. n.) *brevicornis*, sp. n.
 Fig. 2. *Ancylocnemis* (g. n.) *fasciculata*, sp. n.
 Fig. 3. *Xiphaspis* (g. n.) *longiclavis*, sp. n.
 Fig. 4. Ditto. Antenna.
 Fig. 5. Ditto. Side view.
 Fig. 6. *Iphisomus manicatus*, sp. n.
 Fig. 7. *Rhytirrhinus lobaticollis*, sp. n.
 Fig. 8. Ditto. Side view of head and thorax.
 Fig. 9. *Enicoderus latifrons*, sp. n., ♂.
 Fig. 10. Ditto. Side view of head and thorax.
 Fig. 11. *Alcides liviformis*, sp. n.
 Fig. 12. *Systates sexspinosus*, sp. n., ♂.

XLIII.—*New Rhopalocera from Central Ceram.*

By GEORGE TALBOT, F.E.S.

[Plates XIV.—XIX.]

EARLY in 1919 Mr. J. J. Joicey sent three collectors to the East, in the persons of Messrs. Felix, Charles, and James Pratt. The two first-named had already had considerable experience of tropical collecting. It was decided that they should attempt to reach the higher slopes of the mountains in the interior of Ceram, and, if successful, to spend a few months making collections of Lepidoptera for the Hill Museum.

After much difficulty the three brothers established a camp on the Manusela Range at 6000 feet, and were able to start collecting in October. The first collection made during October and November contained a few striking novelties, and these we describe in the present paper. A much larger collection of about 15,000 specimens is on its way to us, and consists largely of moths.

Messrs. Pratt have recently left Ceram for Dutch New Guinea, where the search for Lepidoptera is to be carried on in an almost unknown territory.

The types of the forms here described are in the Hill Museum, Witley.

Troides procus, Roths., ♂. (Pl. XIV. fig. 1, ♂;
 Pl. XV. fig. 2, ♀.)

Troides procus, Rothschild, Nov. Zool. xxi. p. 262 (1914) (interior of Ceram), ♀.

The male of this magnificent species is the most interesting discovery made by Messrs. Pratt on Ceram. Although the colour and pattern exhibits a relationship to the *goliath* group

from New Guinea, the formation of the cell of the hind wing and the special pattern of the female seem sufficient to indicate the specific distinction of this form.

The cell of the hind wing is longer and narrower than in any other species of the group; upper discocellular longer, and middle and lower discocellular shorter than in other forms.

Upperside with general pattern of *goliath* group. *Fore wing* with green costal area as in *supremus*, but less green along upper part of cell and distally of this. Postdiscal and median green area as in *supremus*, its outer edge straighter and further from the margin, and less sharply defined. *Hind wing* with black marginal border wider than in other forms; green markings more extended than in *supremus*, the veins being more heavily marked, and the distal edge of the amber-coloured area being wider and extended round the apex; three postdiscal spots placed as in *supremus*, entirely green and mostly touching the vein-streaks of 4, 5, and 6; a green streak in cell along its lower edge.

Underside.—*Fore wing* as in *supremus*, but more greenish. *Hind wing* as in *supremus*, but green marginal area twice as broad, the veins more strongly edged with green distally, some green scaling along costal edge, cellule 2 nearly filled in with greenish yellow except for a small amber spot or streak. The postdiscal spots are placed a little further from the green margin than in *supremus* and are black edged with green.

Head, thorax, and abdomen as in allied forms. The scent-gland and hair are of the same colour as in *supremus*.

Length of fore wing 97–103 mm.

The ♀ measures 116 mm., but a specimen has been obtained which is said to measure 120 mm. (about $4\frac{3}{4}$ "), making an expanse of $9\frac{1}{2}$ inches. This is second only in size to *alexandra*, which has attained a maximum length of fore wing of 135 mm.

Described from 3 ♂♂ obtained on the Manusela Range, Central Ceram, 2500 feet, October and November.

We append some notes made by the collectors:—

“With regard to *O. procus*, the insect seems to be very rare, but is most easily obtained in the open country at the foot of Mount Moekele at 2500 feet. It is obviously not a coast insect, but is a fairly low form corresponding to the true *goliath*, *titan*, *supremus*, and *samson* forms in New Guinea. This is not the case with *joiceyi*, which is apparently only found in the steaming valleys surrounding the higher ranges, and we think it doubtful if it descends below 4000 feet. *O. rothschildi*'s limit is probably 5000 or even 6000 perhaps.

"With *procus* it is interesting to note that the male bears a delicate perfume which is hard to define. It is not like any particular flower, yet is distinctly pleasant to the human sense. Perhaps the best way to describe it is as the scent emanating from a hothouse of living plants. This characteristic is perhaps not peculiar to *procus*, but we have never noticed it before in any others. Perhaps it has been overlooked, as the scent is only perceptible on placing the wings to the nostrils. There is no smell noticeable in *priamus* and *helenæ*."

Papilio weiskei stresemanni, Roths., ♀. (Pl. XVI. fig. 3.)

Papilio weiskei stresemanni, Roths. Lep. of B.O.U. & Woll. Exp. p. 4, pl. i. fig. 15 (1915) (Central Ceram), ♂.

The female of this interesting form is a little more differentiated from the male than is the female of the type form.

Upperside.—Ground-colour paler than in the male. *Fore wing* with spots more greenish, the subapical costal spot without a tinge of blue, the discal spot in cellule 3 smaller and sometimes absent. *Hind wing* without any blue tint, markings green; submarginal spots much larger, the anterior spot round and buff-coloured.

Underside: not much paler than in the ♂. *Fore wing* with submarginal spots buff-coloured.

Length of fore wing 38–42 mm.

Described from a series collected in Central Ceram, Mount Manusela, 6000 feet, October and November.

Delias joiceyi, sp. n. (Pl. XVII. figs. 6–7, ♂, fig. 8, ♀; Pl. XVIII. figs. 9–12, ♀.)

♂. *Upperside*.—*Fore wing* grey-white, narrowly edged with black except on inner margin. *Hind wing* bluish white, fringes black, some black scaling at the anal angle.

Underside.—*Fore wing* black. A subapical row of five yellow lunulate spots placed in cellules 3–7, the two near the costa only divided by the vein and larger than the others. A basal cell-streak of dark greenish yellow composed of short hair, and mixed with this are some white scales which extend a little beyond the basal streak and along the costa to within a short distance of the subcostal. The inner margin (cellule 1a) is white to near the outer angle, which is margined by a thin white line reaching to vein 2; there is some white scaling in the basal half of cellule 1b, and a short white streak at extreme base of the median. *Hind wing*

with black ground-colour. A long red basal streak below the costal, and a little beyond it a red spot forming the first of a postdiscal band which is placed almost as in *negrina*, Fabr. This band is composed of seven spots; the second and third are curved or comma-shaped, the fourth \angle -shaped or slightly so, the fifth is placed more inward and separated from the fourth, its upper end generally touching the end of the cell, its lower end joined to the sixth spot which is nearly straight, and which is slightly separated from the seventh spot, this last spot is curved and ends in a point at the submedian. Base of wing in præcostal area powdered with yellow scales which extend between cell and lower proximal end of basal streak, into the cell at base and more thickly at its middle and upper end, and over the whole of the inner margin to near the anal angle. This yellow powdered area is bordered distally by a white band which is sharply defined along its outer edge; this band extends from vein 6 to near the submedian, fills the base of cellule 5, to a less extent the base of 4, does not fill the end of cell, fills the base of 2, and extends proximally a little beyond vein 2. The outer margin is broadly bordered with yellow and is connected with the basal yellow area by some scattered scales at the anal angle.

The pattern of the hind wing thus described is very similar to what is seen in *negrina* as regards the basal streak and the red postdiscal band which lies in a broad curved band of black ground-colour. The fore wing too is similar, but has much less white scaling and much smaller yellow spots to the subapical band.

Head black, with yellow hair; palpi black, fringed with yellow and black hair; antennæ black; thorax black, with grey hair above and yellow hair below; abdomen white, with dorsum black on basal half.

♀. *Upperside*.—*Fore wing* with black ground-colour. A red submarginal band which extends from the subcostal to the inner margin in most specimens, but may stop at vein 3. It varies from pale orange in some specimens to brick-red in the majority. The three anterior spots are wedge-shaped, their points placed proximal and their outer edges placed transversely to the apex; spots 4–6 are less wedge-shaped and are placed nearly parallel with the outer margin, the sixth being nearer the margin; the seventh spot is oblong and closer to the margin than the others, and it is sometimes divided; the last spot is minute and placed below the submedian. Most specimens show some red scales at the end of the cell, forming one or two small spots or one discocellular

spot. Basal half of wing at vein 2 powdered with pale yellow scales which are mixed with short dark green hair. *Hind wing* black. Basal half from cell to submedian and distally to vein 3 powdered with pale yellow; this area covered with yellowish-green hair. Base of cellule 7 powdered with yellow, præcostal area and cellule 8 white. Inner margin white, with some yellow scaling near the base. Two thin and curved red lines are placed in cellules 4 and 5 in the submarginal area; a small spot of scattered red scales may be present in cellule 3; all this red scaling may be absent. A few scattered yellow scales may be placed on the margin in cellule 6.

Underside.—*Fore wing* black, with subapical band orange-red; some yellow scaling along the outer margin, but variable in extent; yellow basal scaling in the cell; inner margin grey-white to vein 1 α , but not reaching the end of this vein. *Hind wing* as in the male, the post-discal red band generally more heavily marked. Slight variations occur in the pattern, but these are common to both sexes.

Head black, with yellow hair; palpi black, fringed with yellow and black hair; antennæ black; thorax greenish yellow above, lighter yellow below; abdomen black, powdered with yellow, ventral surface white mixed with yellow.

Length of fore wing, ♂ 32–38, ♀ 31–38 mm.

Hab. Central Ceram, Mount Manusela, 6000 feet, October and November.

The collectors note that "most of the females of this species were taken at 6000 feet, and most of the males at 5000 feet." The males were more difficult to obtain than the females. "On the wing the female is remarkably like the South American *Pereute*."

This striking form of *Delias* is the first known in which the female has a red band on the upperside. It is allied to *negrina*, Fabr., from Australia, and to *dohertyi*, Roths., from Jobi and Biak Islands.

Described from a small series of both sexes.

Delias manuselensis, sp. n. (Pl. XIX. figs. 13–17.)

♂. *Upperside*.—*Fore wing* white; costa narrowly edged with black, outer margin narrowly bordered with black from apex to vein 3, distal ends of veins 2–7 black. *Hind wing* white.

Underside.—*Fore wing* white; apex and outer margin broadly dull purplish-bronze to below vein 2, and bearing near the margin a row of six white spots; the anterior two

or three spots are tinged with yellow, all are rounded, the upper three being more ovate, the lower spot much smaller than the others; the distal margin of the dark area is invaded by white in cellule 4; costa narrowly purplish bronze; some grey and yellow scaling at the base. *Hind wing* deep purplish-bronze; a submarginal series of six pale yellow spots which are rounded and slightly pointed distally, their points sometimes touching the margin; cellule 8 powdered with yellow; inner margin to the submedian sparsely powdered with yellow; a white discal spot formed of some loosely placed white scales along the outer edge of the lower discocellular.

Head grey-black; palpi black, with black and white hair; antennæ black; thorax black, with grey hair above and below, sides with some yellow hair; abdomen black, powdered with white, especially at sides and on ventral surface, claspers white.

♀. *Upperside*.—*Fore wing* white with blackish-brown apical half; costa narrowly black; base greyish to vein 2 and merging anteriorly into the outer greyish powdering of the apical area; apical area reaching to the submedian and bearing a series of six submarginal white spots, the fourth and fifth the larger, and the sixth smaller; the greyish powdering distally cuts off a white patch outside the end of cell, this patch being indented distally, its lower part forming a tooth in cellule 4. *Hind wing* grey, formed by a thin layer of white scales on a blackish-brown ground; this colouring is darker distally and leaves a more or less extent of black ground-colour in the distal area; a narrow marginal border of grey-white, deeply crenulate on its inner edge.

Underside.—*Fore wing* as above, but dark apical half more sharply defined; base powdered with grey along costa and below the cell, base of cell powdered with yellow. *Hind wing* as in the ♂.

Head and appendages, thorax, and abdomen as in ♂.

Length of fore wing, ♂ 26–29, ♀ 26–31 mm.

Hab. Central Ceram, Mount Manusela, 6000 feet, October and November.

Described from 5 ♂♂ and 7 ♀♀.

This distinct species appears to be allied to *momea*, Bdv., from Java, and to *nysa*, Fabr., from Australia.

Delias echidna, Hew., ♀. (Pl. XVI. figs. 4, 5.)

The female of this rare species does not appear to have been previously recorded. A specimen has existed for some years

in the Joicey Collection, taken by J. C. Kershaw in 1909 and bearing the locality "Amboina."

Upperside.—*Fore wing* black. An apical row of four white spots in cellules 4-7, the two middle spots larger than the others; basal area extending to vein 3 powdered with grey-white mixed with yellow. *Hind wing* black. Basal area to end of cell and between costa and a short distance from anal angle grey-white, whiter on inner margin.

Underside.—*Fore wing* black. An apical row of four yellow spots with an additional spot in base of cellule 7, outer edge of this band tinged with white; basal half of cell powdered with yellow, and some grey scaling along base of costa; white scaling along inner margin. *Hind wing* as in ♂, postdiscal black band broader than in ♂ but varying in width; black marginal border a little broader.

Length of fore wing 29-34 mm.

Described from a series obtained in Central Ceram, Mount Manusela, 3000-6000 feet, mostly at 3000 feet, October and November.

Delias duris, Hew.

Delias duris, Hew. Exot. Butt., 1. *Pieris*, no. 34, pl. v. fig. 34 (1861) (Ceram).

This species is subject to some variation, and the so-called seasonable forms referred to by Fruhstorfer in Seitz, *Macrolep.* ix. p. 128, are merely variations. The extreme form with the red discal area extended to join the submarginal red band is alone worthy of the name *aleria*, Fruh., as an aberration. There is no marked wet and dry season on the Mansuela Range, where this species was obtained in some number during the period of most rain—October and November.

Delias stresemanni, Roths.

Delias stresemanni, Roths. Nov. Zool. xxii. p. 110 (1915) (Central Ceram).

This species is subject to much variation. We have only one ♂ specimen, which agrees with the description of the single ♂ in the Tring Museum in having a "broad cloud-like whitish postmedian band," and even this is indistinct. There is in most of our specimens some yellow scaling on the inner margin of hind wing below. On the upperside the black margins vary slightly in width.

The ♀ exhibits most variation. We have no specimen in which the spots on the fore wing are entirely white, and at least the costal spot is yellow.

Ab. 1.—Upperside with the grey areas almost buff-colour.

Ab. 2.—Hind wing below with a cloudy narrow, white, and curved postdiscal band touching the cell.

Ab. 3.—Hind wing as in 2 but postdiscal band yellow, and some scattered yellow scaling in the cell; extended yellow scaling on the median area.

Ab. 4.—Hind wing as in 3, but with sharply defined yellowish-white band and dark basal area bearing scattered yellow scales.

Ab. 5.—Hind wing as in 4, but with dark yellow basal area.

The ab. 2 belongs to the typical form of ♂ described by Rothschild.

For the form in which the postdiscal band is entirely absent we propose the name *cenus*.

For abs. 3 and 4 we propose the name *mediofasciata*.

For ab. 5 we propose the name *basiflava*.

For ab. 1 we propose the name *lutea*.

Eribœa jupiter, ab. *rectifascia*, ab. nov.

The series of this species collected in Central Ceram do not differ from specimens found in New Guinea, but an interesting aberration seems to deserve a name, as it is possible that in Ceram this species may ultimately form a race.

♂ ♀. The discal band of the hind wing has lost most of the glaucous edging, so that the distal border is straight, and there is at most a few scattered blue scales beyond it.

3 ♂ ♂, 1 ♀, 2500–6000 feet.

Besides the above a series of 12 ♂ ♂ of *jupiter* were obtained by the collectors.

ERIBŒA PYRRHUS, Linn., and its Allied Forms.

The discovery of the *jupiter* form on Ceram is of great interest as previously only *pyrrhus*, L., was known from there, and is recorded by Rothschild (Nov. Zool. vol. xxii. p. 134, 1915) from Manusela at an elevation of 650 m. Ever since the revision of the *Charaxes* group by Rothschild and Jordan in 1898, *jupiter*, Butl., has been treated as a race of *pyrrhus*, L.

We have now to consider these as being two distinct species, and this view is further supported by the distribution.

We have examined the forms of the *pyrrhus* group in this new light, and our conclusion is that three species are represented. It must be said that at present no examination has been made of the genitalia, and the position of a few of the

forms, which are absent in the Joicey Collection, has been placed according to the description.

We are able to distinguish the three species as follows:—

E. jupiter, Butl.—Fore wing above with black basal area and with well-defined band. Hind wing beneath with the outer edge of discal white band straight. Abdomen black above in both sexes, beneath white in the ♂, black or blackish brown in the ♀. The fringe of hair on inner margin of hind wing blackish brown.

E. sempronius, Fabr.—Fore wing not black in basal area. The hind wing below with the two black discal lines farther apart, the outer one irregular, not curved so much as in *pyrrhus*, and not straight as in *jupiter*. Abdomen white or buff, in the ♀ brown beneath. Thorax not so dark above as in the other species, and but little darker than the abdomen. The fringe of hair on inner margin of hind wing is white.

E. pyrrhus, Linn.—The basal area of the fore wing with glaucous suffusion or entirely creamy- or greyish-white. Basal area of hind wing white or grey. On the hind wing beneath the black line along the outer edge of the reduced white discal band is curved inwards. Abdomen in both sexes mostly buff, dorsum generally darker, in the ♀ blackish beneath. The fringe of hair on inner margin of hind wing is grey-white or dusky.

The following classification of the forms of this group has been prepared in accordance with the preceding diagnoses:—

Eribœa pyrrhus pyrrhus, Linn. Amboina, Ceram.

— — *obiensis*, Roths. Obi.

— — *gilolensis*, Butl. Gilolo, Batjan.

— — *bandanus*, Roths. Banda.

— — *buruanus*, Roths. Buru.

— — *andrewsi*, Butl. Christmas I.

— — *lettianus*, Roths. Letti I.

— — *babbericus*, Fruh. Babber I.

— — *antigonus*, Fruh. Dammer I.

— *jupiter jupiter*, Butl. The whole of New Guinea, Bismarck I., New Hanover, Fergusson I., Trobriand I., Vulcan I., Aru I., Ceram.

— — *chlorus*, Fruh. Waigeu.

— — *glauca*, Joicey & Talb. Biak.

— — *attila*, Gr.-Sm. Guadalcanar.

— — *editha*, Ribbe. Bougainville.

— — *admiralitatis*, Roths. Admiralty I.

— — *watubela*, Roths. Kissui I.

— *sempronius sempronius*, Fabr. Queensland, N.W. Australia, New South Wales, Lord Howe I.

— — *seitzi*, Roths. Tenimber.

- Eribœa sempronius galaxia*, Butl. Timor.
 ——— *jovis*, Stgr. Sumbawa.
 ——— *scipio*, Roths. Sumba.
 ——— *romanus*, Fruh. Roma.
 ——— *aloranus*, Roths. Alor.
 ——— *kalaonicus*, Roths. Kalao.
 ——— *pyrrhulus*, Fruh. Wetter.

With the exception of the typical *jupiter* and *sempronius* the forms of this group are still rare, and some interesting results are to be expected from an exploration of the higher lands in the interior of the large islands.

Since this paper was prepared, another distinctly new *Delias* has been received from Ceram. This will be included in a second paper.

The illustrations accompanying this paper are excellently produced from photographs taken by Mr. H. Campbell, who is in charge of the photographic department of the Hill Museum.

EXPLANATION OF THE PLATES.

PLATE XIV.

- Fig. 1. Troides procus*, Roth., ♂.

PLATE XV.

- Fig. 2. Troides procus*, Roth., ♀.

PLATE XVI.

- Fig. 3. Papilia weiskei stresemanni*, Roth., ♀.
Fig. 4. Delias echidna, Hew., ♀. Underside.
Fig. 5. Ditto. Upperside.

PLATE XVII.

- Fig. 6. Delias joiceyi*, sp. n., ♂. Upperside.
Fig. 7. Ditto. Underside.
Fig. 8. Ditto, ♀. Upperside.

PLATE XVIII.

- Fig. 9. Delias joiceyi*, sp. n., ♀. Underside.
Figs. 10-12. Ditto, ♀. Showing variation.

PLATE XIX.

- Fig. 13. Delias manuselensis*, sp. n., ♂. Upperside.
Fig. 14. Ditto. Underside.
Fig. 15. Ditto, ♀. Upperside.
Fig. 16. Ditto. Underside.
Fig. 17. Ditto, ♀. Dark form.



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