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### V.—New races and aberrations of *Heliconius*

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V.—New Races and Aberrations of *Heliconius*.  
 By J. J. JOICEY, F.E.S., and W. J. KAYE, F.E.S.

[Plates V. & VI.]

THE races and aberrations here described are all in the collection of Mr. J. J. Joicey at Witley. It will be noted that we have kept *cydno* as a species, and not treated it as a form of *melpomene* as Dr. Eltringham has maintained in his valuable paper in the Trans. Ent. Soc. 1916, pp. 101–148. While we think his contention is possibly sound, we prefer for the present to keep *cydno* as a separate species, on account of the constant red markings on the underside. If ultimately *cydno* should be definitely proved to be conspecific with *melpomene*, one would expect this red marking on the underside to occasionally occur in *melpomene* races and forms in other geographical areas outside Colombia and adjacent portions of Venezuela. Southwards these forms are unknown; only to the north, in Central America, are they further to be met with. The two forms *erato* and *melpophylla*—the one a subspecies of *erato*, the other a subspecies of *melpomene*—are of more than ordinary interest in the extraordinarily close resemblance they bear to one another, although of a complicated pattern. It is very curious to note that it is the yellow transverse band that has displaced a portion of the streaking in the *erato* form, but has filled up a vacant space

in the *melpomene* form. Thus, without the yellow band the *erato* form becomes *erythraea* as known from French Guiana and the Lower Amazon, and the *melpomene* form similarly becomes *tyche* from the same regions. Yet these two, while probably sufficiently alike on the wing, are obviously different.

*Heliconius numata numata*, ab. *melanopors*, J. & K.  
(Trans. Ent. Soc. 1916).

Fore wing above sienna-brown and black. Inner margin broadly black. Basal half of wing dark sienna-brown, with a large black wedge-shaped mark within the cell directed towards base. A large black discoidal patch and two smaller patches above and below vein 3 close to cell. Transverse band of the same colour as the basal area, but slightly paler. Three subapical spots also of the same colour, and an indication of similar marginal dots. Hind wing above similarly coloured to fore wing. The whole of the outer marginal half of wing black, forming a convex area on its upper edge. A rather small brown spot at apex within the black area.

*Hab.* French Guiana, Nouveau Chantier.

This is a parallel form to *melanops*, but of the colouring of *maavors*. The occurrence in French Guiana of both these forms is of great interest, as the theory at once suggests itself that possibly *arcuella* (a subspecies of *aristiona*) and with it all the forms usually associated with *aristiona* are all conspecific with *numata*. The drawings by our friend Dr. Eltringham of the genital clasps of *numata* forms (Trans. Ent. Soc. 1916, pl. xiii. figs. 4-6) and *aristiona* forms (id. pl. xiv. figs. 3-9) are sufficiently close to offer no difficulty to such a possibility.

*Heliconius numata talboti*, J. & K., subsp. n.

Fore wing above with the basal area dark ochreous. Costa black. A large round black blotch within the cell and a wedge-shaped black mark running to base. A very slender curved black streak along vein 1. A narrow, yellow, transverse, irregular band from within the cell to vein 2, stopping some distance short of tornus and embracing a large roundish black blotch between veins 2, 3. A black blotch above this is almost merged in the black ground-colour of the apical half of the wing. An indication of a yellow transverse band from costa beyond cell to meet the first band at vein 2. Two or three yellow subapical patches much suffused with black. A trace of a row of yellowish marginal dots.

Hind wing above dark ochreous, with a tinge of yellowish

beyond the cell. A broad black marginal band containing ill-defined pairs of whitish streaks; the dots on cilia clear white. Across the centre of wing is a black macular band terminating with a yellow spot enclosed by black. Some faint yellow scaling between the black spots composing the band.

*Hab.* N. Peru, Rentema Falls, Upper Marañon, 1000 ft.; Chinchipe River, 6000 ft., September 1912; Charape, 4000 ft. (*A. & E. Pratt*).

6 ♂♂, 1 ♀.

*Heliconius numata silvaniformis*, J. & K., subsp. n.

Fore wing above with the basal half ochreous. A very heavy black nail-shaped blotch within the cell. Costa black. A heavy black curved band along vein 1. A large, square, black discoidal blotch joined to the black costal stripe. Space between basal black blotch and discoidal black blotch yellow suffused with ochreous. Beyond discoidal blotch is a transverse yellow band much broken up on its outer edge. Two large black blotches between veins 2, 3 and 3, 4, and touching one another. A heavy black wedge-shaped blotch running up from outer margin touches the upper of the two black blotches at the lower angle. Apex black, with three yellow spots, the two upper ones almost contiguous.

Hind wing above ochreous, with a rather narrow black transverse band. A black marginal band almost uniting with transverse band between veins 3, 4 and thence completely to apex, containing two or three pairs of small yellow spots. A series of marginal yellowish-white dashes.

*Hab.* Lower Amazon, Para, Jan.-March, 1914 (*A. Hall*).

This insect strongly recalls *silvana diffusa*, from which it may be separated by the heavy black pointed blotch in cell, *silvana* having instead a small round blotch only. Dr. Eltringham has treated *silvana* and *numata* as conspecific, but we cannot follow this for the present.

*Heliconius ignotus*, J. & K., sp. n.

Fore wing above with the basal half brownish ochreous. A large black wedge-shaped basal streak joined (or sometimes separate) to a large roundish black patch. Costa black and a large black discoidal patch united with the black thorax. A rather narrow discal yellow band ending quite pointedly just beyond vein 2 close to outer margin. In the middle of this band just beyond cell between veins 3, 4 is a rather small black spot, and below vein 3 is a larger black spot.

Sometimes the yellow of the band is extended inwards into the cell and embracing the lower black spot between veins 2, 3. Apex completely black.

Hind wing above brownish ochreous, with very irregular black marginal band, much the heaviest on the inner half. A transverse row of rather elongated wedge-shaped black spots, the last spot merging with the outer margin and curved up towards costa. No yellow terminal spot.

Palpi with first and second joints white below and base of antennæ with white points.

Expanse 78-86 mm.

*Hab.* N. Peru, Charape, 4000 ft. (*A. E. & F. Pratt*, 1912).

*Heliconius aristiona pratti*, J. & K., subsp. n.

A small dark race of *H. aristiona* resembling *aristiona aristiona*.

Fore wing above with a large discal area chestnut ochreous extending towards base along costal and median veins. A heavy black streak along inner margin, sometimes stopping halfway. A very heavy black wedge-shaped area within the cell. Discoidal black spot heavy, joined to narrow costal black stripe. A heavy black spot close to cell between veins 2, 3 and a much smaller one between veins 3, 4. Chestnut-ochreous projection of discal band above vein 3 rather narrow.

Hind wing black, with a commencement of a dark chestnut-ochreous (or slightly reddish) marginal band. Inside this is a triangular patch of the same colour.

Expanse 33 mm.

*Hab.* N. Peru, Charape, 4000 ft. (*A. E. & F. Pratt*, 1912).

It is possible this is an altitudinal race, taking the place of *aristiona aristiona*.

*Heliconius clysonimus apicalis*, ab. *semirubra*, J. & K., ab. n.

Fore wing above as in typical *clysonimus apicalis*.

Hind wing with a narrow transverse red band rather less than half the width of the normal form even at its widest between veins 2, 3; thence outwardly the band is reduced and gradually merges into the black ground-colour. From vein 2 to inner margin the band is only traceable.

*Hab.* Colombia, slopes of Choco, 5200 ft., Sept. 1909.

*Heliconius aristiona indecisa*, J. & K., subsp. n.

Fore wing above with the base to vein 2 brownish ochreous; the costa black, a large black blotch pointed towards base, and a large black discoidal blotch joined to the black costa. A diffuse black curved streak along vein 1 and a small blackish suffused yellow spot at tornus. Ground-colour of apical area of wing black. Beyond the cell is a short yellow band ending at vein 4 and a long elongate yellow spot between veins 3, 4. Three apical yellow patches suffused in the interspaces with dull reddish brown.

Hind wing above brownish ochreous, with a black transverse toothed band and a small yellow spot close to margin just above vein 6. A black marginal band, with pairs of yellowish-white dots between the veins on the margin.

Fore wing below with three pairs of white subapical dashes lying on an ochreous narrow apical band, which is continued down the outer margin.

*Hab.* Upper Orinoco.

*Heliconius numata superioris*, ab. *translata*, J. & K., ab. n.

A transitional form uniting *numata superioris* with *numata numata*, ab. *mavors*.

Fore wing above with the basal half sienna-brown. A large black discoidal blotch extended to costa and united with an irregular black half-band from lower discocellular to outer margin. A light brown postdiscal band. Two or three yellow spots forming apical band and three submarginal yellow dots.

Hind wing above sienna-brown, with a broad black transverse band united at outer margin, where a yellow spot is enclosed, with a broad black marginal band. A series of short yellowish dashes close to margin, conspicuous at centre and lessening towards base and apex.

*Hab.* Middle Amazon, Manaos, Jan.—Mar. 1914 (*A. Hall*).

*Heliconius erato eratophylla*, J. & K., subsp. n.

Fore wing above black, with a large basal area red, only the veins showing black. A heavy red transverse discal band from costa to near tornus, separated from the red basal area by little more than an average of 2 mm.

Hind wing above black, with a broad transverse yellow band and six red streaks crossing it. These are only just

traceable on the yellow band, but are clear and distinct at origin, at base, and beyond the yellow band. Below there is a seventh red streak between veins 7 and 8, this area above being occupied with the brand.

*Hab.* Peru, Tarapoto.

1 ♀.

The resemblance between this *erato* race and the next following *melpomene* race is truly remarkable, and one of the closest of the close "pairs" to be found amongst the two divisions of the *Heliconius*.

*Heliconius melpomene melpophylla*, J. & K., subsp. n.

Fore wing above black, with a large basal area red and only the veins showing black. A heavy red transverse discal band from costa to near tornus, connected on the costa with basal red area and almost united again at the median vein. Outer margin of discal band not sharply defined as in *erato eratophylla*.

Hind wing above black, with a broad transverse yellow band, slightly scalloped on its outer margin and followed by six nail-headed streaks which commence close to yellow band, but in no case touching. A small red basal area contiguous to the yellow transverse band above and a slight indication of a red streak along the upper edge of band, especially towards apex.

*Hab.* ?, without doubt Peru.

1 ♀.

This form doubtless flies with *eratophylla* and serves as its model or mimic.

*Heliconius erato erato*, ab. *cybelellus*, J. & K., ab. n.

Fore wing above black, with a large red basal area which is greatly extended along costa and within the cell. This is followed by a sharply cut (both interiorly and exteriorly) transverse yellow band.

Hind wing black.

Expanse 78 mm.

*Hab.* Lower Amazon, Serpa, Jan.-Mar. 1914 (*A. Hall*).

This curious form is a development out of *amalfreda*, in which the group of yellow spots are compressed into a well-defined band.



*Heliconius sympho primularis*, ab. *deflava*, J. & K., ab. n.

Fore wing above black, with a strong dark blue gloss on basal half. A large subdiscal yellow band commencing within the cell remote from discocellulars and terminating at tornus. A narrow postdiscal band from costa to vein 4, tapering greatly towards margin, concave on its outer edge, and slightly indented on its inner margin.

Hind wing above black, the basal half with a strong dark blue gloss. A broad marginal band of yellowish grey crossed with short black lines on and between the veins.

Expanse 70 mm.

*Hab.* Ecuador, Paramba.

2 ♂♂, 1 ♀.

The ♂ we figure is the extreme form of the three, the other ♂ and ♀ are more intermediate. Typical *primularis* occurs at Paramba, Ecuador, so this darkened form is there only as an aberration, even if it occurs as a race elsewhere.

*Heliconius erato amphitrite*, ab. *unipuncta*, J. & K., ab. n.

Fore wing black, with a large bright red discal patch. Lying just outside cell, but contiguous to it along vein 6, is a conspicuous central black spot.

Hind wing black. No blue gloss to either fore or hind wing.

*Hab.* S.E. Peru, Tirapata.

*Heliconius erato rubrizona*, J. & K., subsp. n.

Fore wing black, with a narrow discal red band from costa to near tornus, where it ends rather pointedly. The outer edge considerably broken and indented, especially at vein 4. A small inconspicuous black discal dot.

Hind wing black, with two faint red basal dots.

*Hab.* Lower Amazon, Santarem.

*Heliconius cydno flaveola*, J. & K., subsp. n.

Fore wing black, with a very dark blue gloss. A somewhat rectangular-shaped yellow spot lying within the outer half of cell and joined to a broad curved yellow band running from costa to tornus.

Hind wing black, with a dark blue gloss; no trace of any marginal spots.

*Hab.* Venezuela, Mocotone.

This subspecies of *cydno* strongly recalls *cydno broneus*, Stich., from Peru and Ecuador. It is practically identical on the fore wing and only different on the hind wing by the absence of white spots on the margin. Such a form might easily occur with *broneus* as an aberration; but, on the other hand, it might as likely occur as a race and be comparable to *cydno zelinde*, which is practically an identical form, but white-banded instead of yellow. This latter occurs as a race in some western valleys of Colombia, such as the Rio San Juan and Rio Dagua.

*Heliconius elevatus perchlora*, subsp. n.

Fore wing above black, with a large part of the basal half of the wing red. On inner margin a red streak detached from the large red area. Adjoining the red area within and above the cell is a large roundish yellow discal area extending down beyond vein 2, where it is suffused with black scaling.

Hind wing with streaking rather heavier than in *elevatus elevatus*.

Hind wing below like *elevatus elevatus*, except that the peculiar streak inside the costal vein is more strongly yellow and considerably extended.

*Hab.* Bolivia.

The locality is very vague, but the specimen suggests that its origin is correct, as it matches *H. melpomene penelope*, a typical Bolivian form.

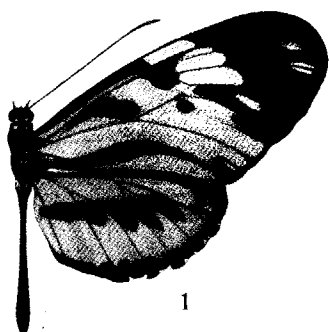
EXPLANATION OF THE PLATES.

PLATE V.

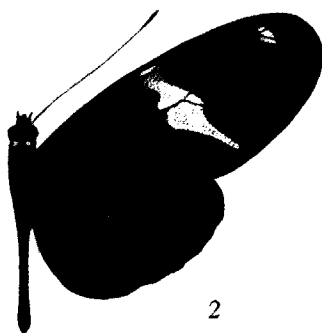
- Fig. 1.* *Heliconius aristiona indecisa*.
- Fig. 2.* — *clissonimus apicalis*, ab. *semirubra*.
- Fig. 3.* — *numata talboti*.
- Fig. 4.* — *aristiona pratti*.
- Fig. 5.* — *ignotus*.
- Fig. 6.* — *numata superioris*, ab. *translata*.
- Fig. 7.* — — *silvaniformis*.
- Fig. 8.* — *numata numata*, ab. *melanopors*.

PLATE VI.

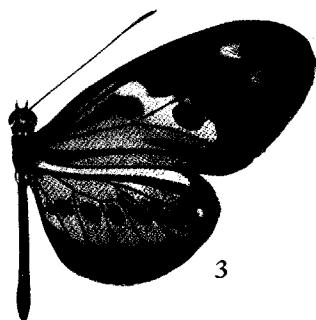
- Fig. 1.* *Heliconius melpomene melpophylla*.
- Fig. 2.* — *erato eratophylla*.
- Fig. 3.* — *cydno flaveola*.
- Fig. 4.* — *erato erato*, ab. *cybelellus*.
- Fig. 5.* — *elevatus perchlora*.
- Fig. 6.* — *sapho primularis*, ab. *deflava*.
- Fig. 7.* — *erato rubrizona*.
- Fig. 8.* — — *amphitrite*, ab. *unipuncta*.



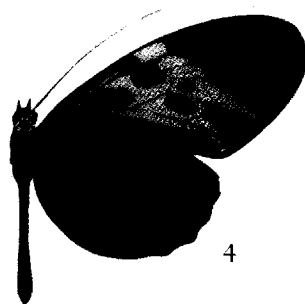
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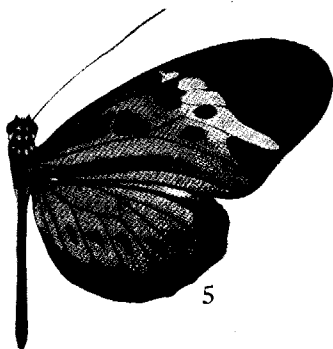
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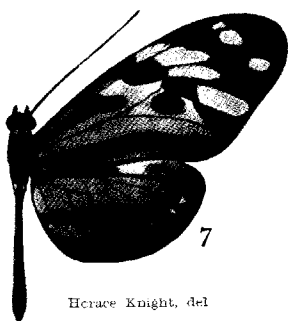
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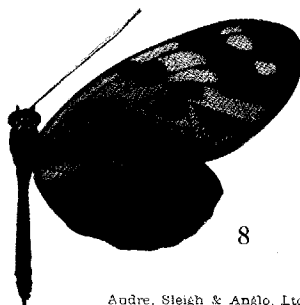
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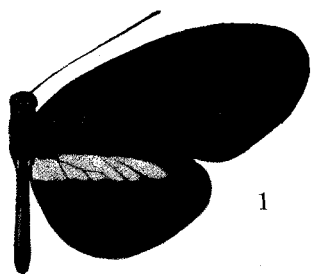


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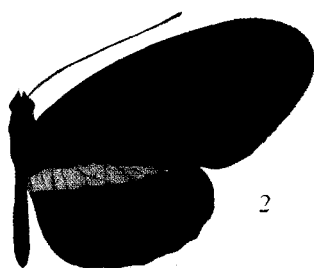
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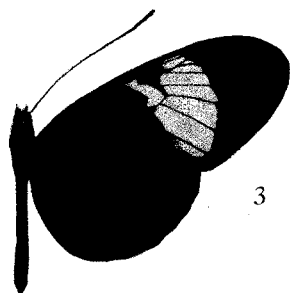
NEW FORMS OF *HELICONIUS*.



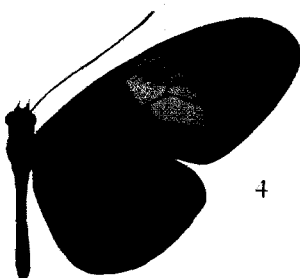
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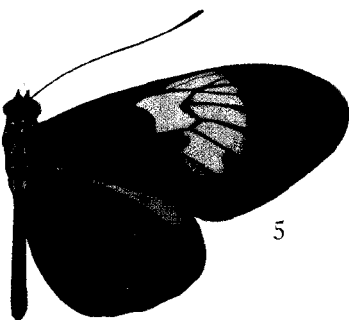
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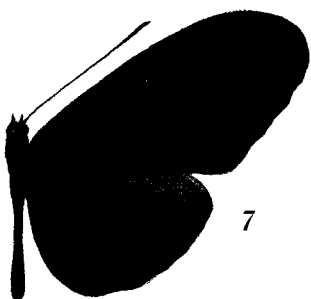
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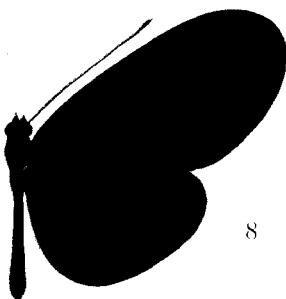
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