

THE STATUS OF "PAPILIO HIPPARCHUS" STAUDINGER
(PAPILIONIDAE)

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ABSTRACT. The holotype male and only known specimen of "*P. hipparchus*" is critically examined for the first time since its description a century ago. Although traditionally accorded species status solely on the basis of Staudinger's original description and figure, this specimen in fact represents a morph of *Protesilaus phaon* Boisduval.

Additional key words: *Protesilaus phaon*, Colombia, taxonomy.

"*Papilio hipparchus*" Staudinger (1884) (type locality Cauca [Colombia]) has been one of the most confusing members of the "lysithous-related group" of swallowtail butterflies. Munroe (1961) placed this group in a subgenus of *Eurytides* Hübner. Hancock (1983) accorded the group generic status as *Protesilaus* Swainson. Irrespective of this difference, both authors included the following taxa: *asius* (Fabricius), *microdamas* (Burmeister), *thymbraeus* (Boisduval), *belesis* (Bates), *branchus* (Doubleday), *ilus* (Fabricius), *lysithous* (Hübner), *ariarathes* (Esper), *harmodius* (Staudinger), *trapeza* (Rothschild & Jordan), *xynias* (Hewitson), *phaon* (Boisduval), *euryleon* (Hewitson), *pausanias* (Hewitson), *protodamas* (Godart), *hipparchus* (Staudinger), *kumbachi* (Vogeler), and *chibcha* (Fassl). It has since been demonstrated that *illuminatus* (Niepelt), *dospassosi* (Rütimeyer) and *huanucana* (Varea deLuque) also belong to this group (Johnson et al. 1986a, 1986b).

Protesilaus hipparchus has been traditionally accorded species status solely on the basis of Staudinger's original description and figure of the type. This holotype (in the Staudinger collection at the Zoologisches Museum der Humboldt Universität zu Berlin [ZMH]) has not been examined by twentieth century students of Papilionidae (Rothschild & Jordan 1906, Jordan 1907, D'Almeida 1965, D'Abrera 1981, Hancock 1983). Based on original descriptions, Hancock (pers. comm.) speculated that *P. hipparchus*, *P. chibcha* and *P. kumbachi* represent aberrations.

As part of our ongoing review of some papilionid groups, and as aid to colleagues preparing a synonymic list of South American Papilionidae, we obtained the type (male) of *P. hipparchus* for study. It is described below, and dorsal and ventral surfaces, attached labels, and Staudinger's original figure are illustrated (Fig. 1) as well as relevant

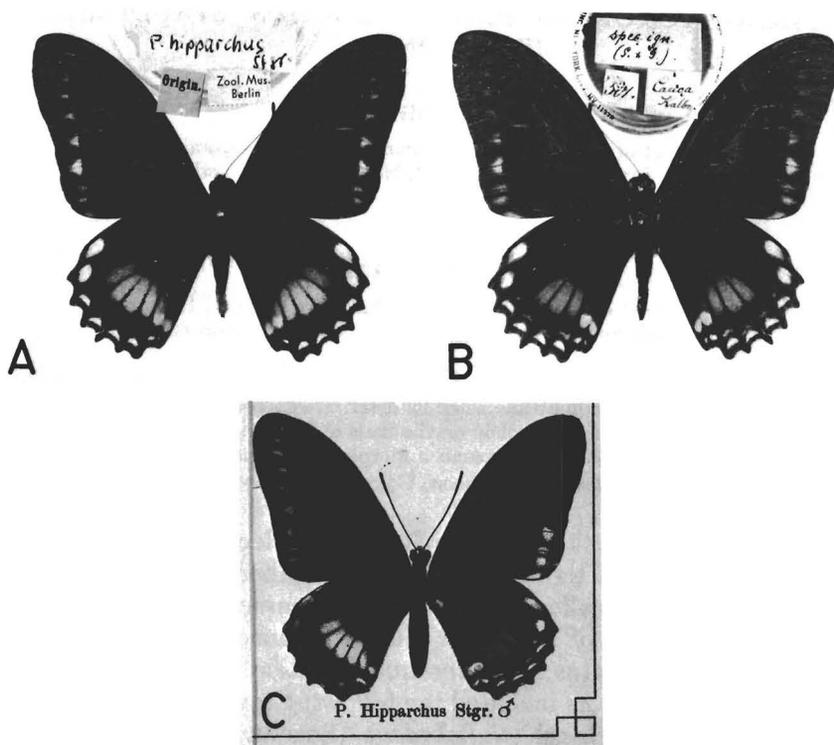


FIG. 1. Recent photograph of holotype male *Papilio hipparchus* Staudinger. A, Upper-surface; B, Under-surface. C, Photograph of Staudinger's (1888) painted figure of *P. hipparchus* showing upper-surface on left, and under-surface on right.

genitalic characters (Fig. 2). Genitalic characters of *Protesilaus* have been reviewed in detail elsewhere (Johnson et al. 1986a, 1986b). As noted by these and other studies (Munroe 1961, Hancock 1983, Beutalspacher & Howe 1984), the valval harpe provides the most diagnostic characters.

The *Papilio hipparchus* Type (Figs. 1A, B, 2A)

Length of forewing (base to apex): 40.5 mm.

Upper-surface of wings: Ground blackish brown. Forewing submarginal markings gray, hued slightly yellowish; hindwing submarginal markings gray, hued slightly yellowish, medial band very dull gray-white (faintly tinged with pink, a trait which might not be considered worthy of mention had it not been emphasized in the original description and subsequent interpretations of authors).

Under-surface of wings: Ground blackish brown. Forewing submarginal markings gray-white, hued slightly yellowish caudad; hindwing submarginal markings gray-white, hued slightly yellowish, a slight reddish slash in each cell costad to M1 and basad to each submarginal marking; medial band a slight lightening of ground color, becoming more obsolescent costad to M2 (Fig. 1B and C exaggerate extent of this lightness); two anal

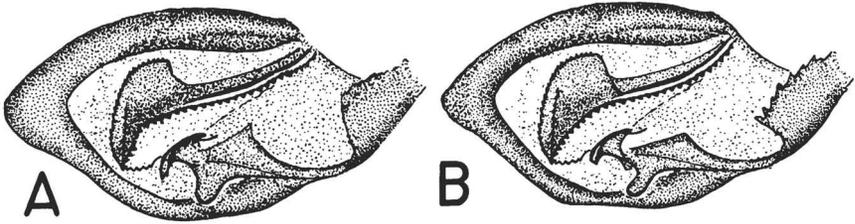


FIG. 2. Diagnostic features of male genitalia of *P. hipparchus* holotype (A), and representative male of *P. phaon phaon* (Colombia, AMNH), after Johnson et al. 1986a, 1986b (B). Each shows inner-lateral view of right valve.

markings yellowish distad, reddish centrad. Traces of red occur at base of both wings along the thorax.

Genitalia (Fig. 2A): Differing negligibly from nominate *P. phaon* (Fig. 2B).

DISCUSSION

The type of *P. hipparchus* does not represent a valid species, but rather, a morph of *P. phaon*. The genitalia are indistinguishable from *P. phaon*. *P. phaon* is highly variable as shown by the number of infraspecific names proposed for it (Rothschild & Jordan 1907:661–663, D’Abrera 1981:62). Early workers suggested that *P. hipparchus* should be associated with *P. euryleon*, probably as a sister species (Rothschild & Jordan 1906, Jordan 1907). This view probably resulted from Staudinger’s original description. There he states that the accompanying figure is not accurate in all details, and that *P. hipparchus* lacks particular wing markings of *P. euryleon*, a species belonging to a monophyletic group that includes *P. phaon*, *P. pausanias*, *P. protodamas*, and *P. illuminatus* (Johnson et al. 1986a, 1986b, K. S. Brown, pers. comm.). Jordan (1907) and Rothschild and Jordan (1906) speculated that the inaccuracies of the original figure involved (a) the frequency of red-spotting in the anal area of the hindwing under-surface, and (b) the extent of the under-surface medial band. The degree of these markings could constitute major differences between the wing patterns of *P. hipparchus* and *P. euryleon*. However, as indicated in our description above, (a) the red on the under-surface is indeed nearly absent, and (b) the medial band (shown in the Staudinger figure as a brown band proceeding costad to the discal cell [Fig. 1C]) is actually a simple lightening of the under-surface ground color extending across the entire wing. In both of these features, the type of *P. hipparchus* resembles morphs of *P. phaon* more than those of *P. euryleon*. The major error in the original figure concerns the extent of submarginal markings on the forewing upper-surface. While the original figure shows these extending only slightly costad (Fig. 1C), they actually extend costad to the apex, where they are darker caudad.

We do not know whether this morph represents a natural population of possible subspecific status or a one-time occurrence. Were it not for slight yellowish tinges to submarginal wing markings, and the almost imperceptible pinkish flush to the upper-surface medial hindwing band, *P. hipparchus* might be considered a "black-white" morph of *Protesilaus*. Such black-and-white phenotypes are reported to occur as mimics of black-and-white-marked papilionids of the tribe Troidini (Young 1971, K. S. Brown, pers. comm.). They include such *Protesilaus* as *P. illuminatus* Niepelt (Johnson et al. 1986b), *P. harmodius* female form *viginia* Rothschild & Jordan (D'Abbrera 1981), *P. phaon* male form *ulopos* Gray, and a tentative subspecies of *P. euryleon* from near Buga in the Cauca Valley of Colombia. Such mimicry probably also explains the unique black-white morph of recently described *Heraclides matusiki* Johnson & Rozycki (1986) (Papilionidae, Papilionini). Interpretation of *P. hipparchus* as not a black-white morph may follow only from the emphasis on red and yellowish markings in the original description, and its elaboration by subsequent authors without access to the type. There is no way to know if the type specimen has faded, but our experience indicates fading is unlikely. The type of Staudinger's "*Papilio diaphora*" (Johnson et al. 1985) is just as old, and suggests no fading when compared with recent specimens.

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