

---

# A review of the Trinidad butterflies hitherto placed in the genus *Prepona* (Lepidoptera : Nymphalidae)

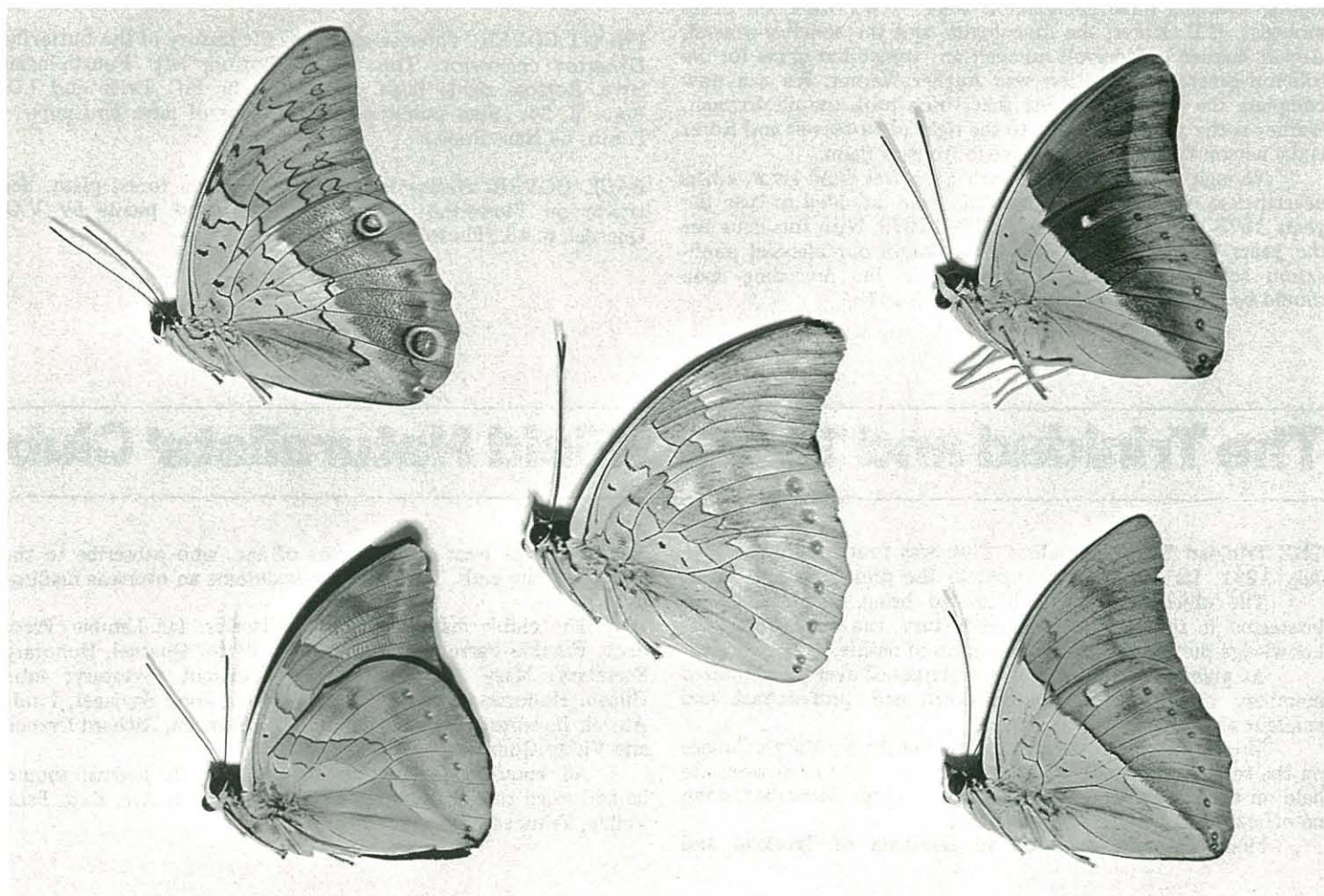
---

By Henry Papworth Zoology Department, Science Laboratories, South Road, Durham, England

## INTRODUCTION

Although the butterflies generally known as *Prepona* spp. are large and much collected, the relationships within the group and their nomenclature have been much confused (see e.g. Vane-Wright 1974). Five species are now known from Trinidad; four of these however, as shown below, must be transferred to

the genus *Archaeoprepona*. Furthermore, of the four species listed by Kaye (1921) and Barcant (1970) only one specific name remains unchanged. It seems that the common names of these species are more stable than the scientific ones, and one aim of this paper is to provide a stable set of scientific names for future use.



TOP left: *Prepona omphale* Hbn. ABOVE left: *Archaeoprepona demophon* L. CENTRE: *Archaeoprepona demophon* Hbn. ssp. *ilmatar*. TOP right: *Archaeoprepona meander* Cr. ABOVE right: *Archaeoprepona amphemachus* F.



The other aim is to draw attention to an additional Trinidad species recently captured: *Archaeoprepona meander* Cr. (not to be confused with the Banded King Shoemaker, *A. amphimachus* Fab. which until now was known as *P. meander*). Clive Urich has taken one specimen of this species, and there are two in the Angostura-Barcant collection. During the months of August and September 1980 Mr. D.I. Watkins and I took six examples of this species and saw several more.

The nomenclature used here is that suggested by Professor H. Descimon of Marseilles, France, the leading expert on this group who is preparing a revision of it.

## METHODS

### (a) Collection

Adult *Prepona* are among the most powerful flying butterflies. They are colloquially known in Trinidad as the 'King Shoemakers' and, together with the 'Blue Shoemakers' (*Anaea* sp.) and 'Grape Shoemaker' (*Historis odius orion* Fab.), are categorised by Barcant (1970) as 'Sap-suckers' because they are attracted to the exudates of wounded trees and fallen, rotting, fruit. Butterfly collectors utilise these habits to trap these otherwise elusive insects. About half of the specimens caught during the study period were obtained from fruit traps. These essentially consist of a cylindrical net suspended above a dish of rotting fruit such as mangoes or plantain. Sap-suckers, satyrids, brassolids and Morphos are attracted to the bait and, having fed, fly upwards into the net from which they seldom escape. The remaining specimens were netted in flight. On August 20, 1980 David Watkins and I chanced upon a fall of mangoes on Morne Catherine. At least fifteen *Prepona* butterflies of four species, including *A. meander* were feeding.

### (b) Genitalia Preparations

Male genitalia are more diagnostic in structure, and easier to prepare, than those of females. The following procedure was used. For males the posterior third of the abdomen (three to four segments) was removed and transferred to 10% KOH 80° C for four hours. With fine forceps the hard chitinous genital armature was freed from the surrounding soft body tissue. Once cleared of surplus tissue the specimen was placed in weak acetic acid (2%) for five minutes. It was then washed in several changes of tap-water (slightly acidic). Gradual dehydration through a series of alcohols of increasing strength was followed by clearing in xylene. It was in this medium that the drawings were made. The specimens were finally stored in cedar-wood oil.

## REVIEW OF TRINIDAD *PREPONA* AND *ARCHAEOPREPONA*

The old genus of *Prepona* is divided into two genera on the following characters:

### *Prepona*

- i. Male hindwing hair tufts light.
- ii. Middle segment of labial palp four times length of basal segment.
- iii. Antennae red at tip.
- iv. Femur, tibia and tarsus of hindlegs about same length.
- v. Mace-like sub-uncal projection of male genitalia.

### *Archaeoprepona*

- i. Male hindwing hair tufts black.
- ii. Middle segment of labial palp three times length of basal segment.
- iii. Antennae black at tip.
- iv. Femur, tibia and tarsus of hindlegs unequal in length.
- v. Lobed sub-uncal projection of male genitalia.

There is a variety of opinion as to what status to accord these two divisions. Rydon (1971) erected two new tribes the *Archaeopreponini* and the *Preponini* (the latter including the genus *Agrias*). On the other hand, recent synoptic works (e.g. Lewis 1974, Smart 1976) consider the differences subgeneric. Here, I follow Descimon and recognise the two genera, *Prepona* and *Archaeoprepona*.

Apart from the male of *P. omphale*, the uppersides of all species are very similar. The useful distinguishing characters are to be found on the underside (see plate).

### 1. *Prepona omphale* Hubner 'Purple King Shoemaker'

The name *omphale* is probably correct for this species. It is one of a group of five closely related species which Professor Descimon is revising, and specimens will be sent to him to confirm this identification. Kaye (1921) and Barcant (1970) list this species as *P. laertes demodice* Godt.

It is easily distinguished from the *Archaeoprepona* spp. by the eye-spots on the upper and undersides of the hindwing. These occur at the lower end of the wing towards the tornus, there being two on the underside and one on the upperside (see photograph). The male occurs in two colour morphs. In the more common morph there is an iridescent royal blue band running parallel to, but nearer the costa than, the usual turquoise band. The other male form is similar to the female and is a typical *Prepona*.

No males were caught and the genitalia are not figured. It is possible that the Trinidad specimens are a subspecies distinct from the mainland South American form. Le Moutt (1932) described a subspecies *trinitensis* of *Prepona pseudojoyceyi* Le Moutt from Trinidad. Since *pseudojoyceyi* is a synonym of *omphale*, the name *trinitensis* is available for a Trinidad subspecies of *omphale*. However, in view of the unconfirmed identity of *omphale* and the doubtful value of this (and many other of Le Moutt's) subspecies, it would be best not to use this sub-specific name at this time.

*P. omphale* has also been recorded from Tobago.

### 2. *Archaeoprepona demophon* Linnaeus 'King Shoemaker'

This is the same specific name as that used by Kaye and Barcant. The species is easily distinguished from similar Trinidadian species by the fairly uniform fawn-coloured underside, which in fresh specimens is marked with chestnut (see photograph). The male genitalia are quite different from closely allied species. The aedeagus is distinctive. Of the general armature the head of the uncus is dorsally covered with short spikes — see figures. There is no sub-species named from Trinidad.

### 3. *Archaeoprepona demophoon* Hubner (ssp. *ilmatar* Fruhstorfer) 'Silver King Shoemaker'

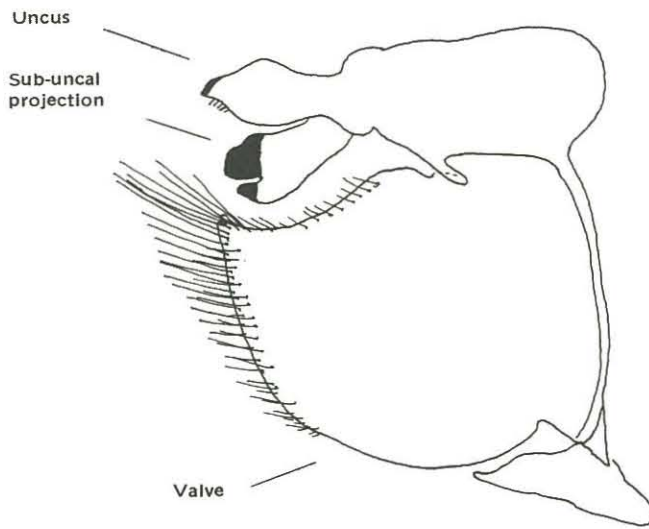
Listed by Barcant as *Prepona antimache* Hbn. Certainly the most common species on the island during 1980, and the only one for which the subspecies has been definitely ascertained. It is, however, at best a weakly differentiated subspecies and probably best not used. The underside, which is similar to that of *Prepona omphale*, is silver-grey scalloped with narrow black markings, but lacks the eye-spots. In the male genitalia the sub-uncal projection is not bifid as it is in *A. meander*; the uncus itself has a small backwardly projecting hook and the aedeagus is distinctive. See Figs 1 — 2.

### 4. *Archaeoprepona amphimachus* Fabricius 'Banded King Shoemaker'

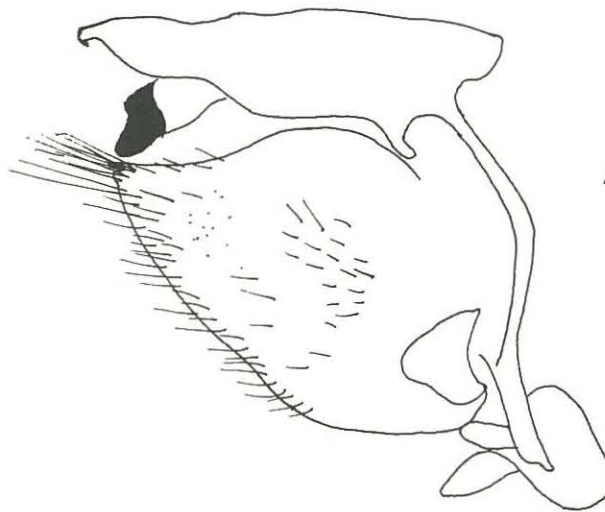
This is the correct name for the species previously known as *Prepona meander* Cr. (Kaye 1921) or *P. meander* Fruhst. (Barcant 1970). The underside is diagonally divided into a light brown and a dark brown area. The male genitalia of this and the following species are very similar. No differences could be found in the sub-uncal projections, valvular morphology or any of the general armature structure. However, on examination of the aedeagus



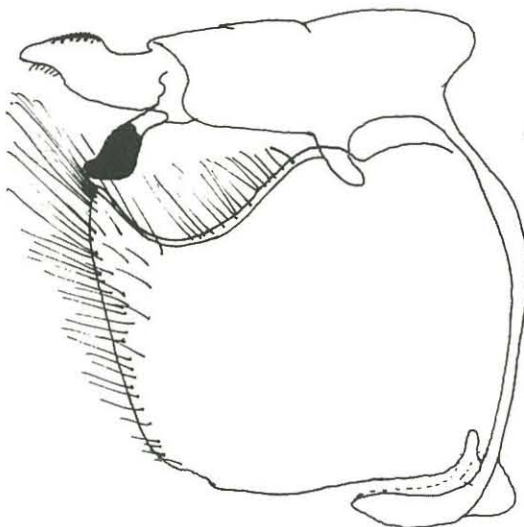
FIG. 1 MALE GENITALIA OF *Archaeoprepona* spp.  
 in lateral view with right valve and aedeagus removed.  
 (SCALE 1 cm = 0.5 mm)



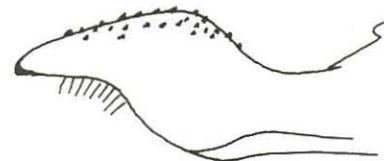
*A. meander* Cr. or  
*A. amphimachus* F.  
 (there is no significant  
 difference between these  
 two species).



*A demophon* Hbn.

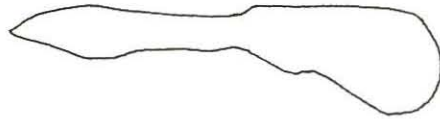


*A demophon* L.

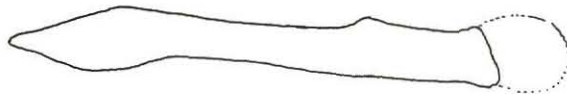


Head of uncus

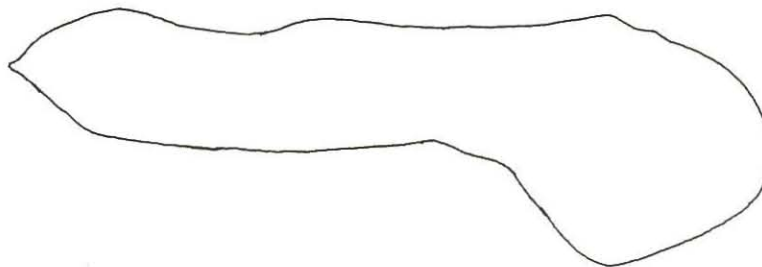
**FIG. 2. AEDEAGI** of *Archaeoprepona* spp.  
in lateral view.



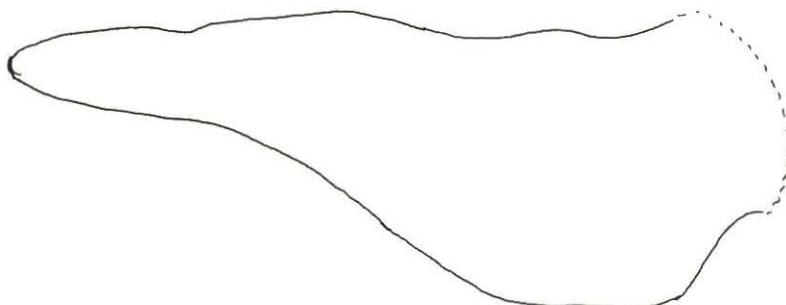
*A. amphimachus* Fab.  
length 2.75 mm.  
minimum width 0.25 mm.



*A. meander* Cram.  
length 3.2 mm.  
minimum width 0.35 mm.



*A. demophon* Hbn.  
length 5.0 mm.  
minimum width 0.75 mm.



*A. demophon* L.  
length 5.0 mm.  
minimum width 0.5 mm

a distinct difference is apparent (see drawing). The minimum width in the pale form is smaller and the length shorter.

5. *Archaeoprepona meander* Cramer

This, it should be noted, is the name used in the past for the 'Banded King Shoemaker'. It is, however, a distinct species with more contrasting light and dark brown areas, the latter being a deep chocolate brown, with a smaller more distinct pale mark near the hindwing costa (see photograph). This recent find in Trinidad has, apart from one capture on the North Coast Road (see addendum), only been captured in the North-West Peninsula of Trinidad on Morne Catherine. It will be of interest to see if this species becomes more common or widespread in the future. This will give some indication as to whether it is a recent coloniser that is spreading, or a species confined to the North-West.

REFERENCES

BARCANT, M. (1970). *Butterflies of Trinidad and Tobago*. Collins

KAYE, W.J. (1921). A catalogue of the Trinidad Rhopalocera (Butterflies). *Memoirs of the Department of Agriculture, Trinidad and Tobago*. No. 2.

LE MOULT, E. (1932). Etudes sur les *Prepona*. *Premier supplement de Novitates entomologicae*, 1, 3 — 16.

LEWIS, H.L. (1974). *Butterflies of the World*. Harrap.

RYDON, A.H.B. (1971). The systematics of the Charaxidae (Lepidoptera: Nymphalioidea). *Entomologist's Record and Journal of Variation*, 83, in parts beginning p. 219.

SMART, P. (1976). *Encyclopedia of the Butterfly World*. Hamlyn.

VANE-WRIGHT, R. 1. (1974). Eugene Le Moults *Prepona* types (Lepidoptera: Nymphalidae, Charaxinae). *Bulletin of the Alleyne Museum* No. 21., 1 — 10.

ACKNOWLEDGMENTS

I would particularly like to thank Professor H. Descimon of the Faculté des Sciences, Zoologie Générale, Marseille, France, for elucidating the taxonomy of this group for me. I would also like to thank Dr. Paul Smart of the National Butterfly Museum, England and Dr. Matthew Cock of the Commonwealth Institute of Biological Control who gave taxonomic advice. Interest in this problem was first sparked off by discussions with Mr. Clive Urich of Sangre Grande and Matthew Cock. The laboratory work was carried out at the Zoology Department, Durham University, England.

ADDENDUM — List of *Prepona* and *Archaeoprepona* taken in August and September 1980 by D.I. Watkins and the author.

1. *Prepona omphale* Hbn.  
Morne Catherine, at mango, 20 August (1); Forest Reserve, 24 September (1)
2. *Archaeoprepona demophon* L.  
Grand Ravine (section of Morne L'Enfer Forest Reserve), fruit trap, 10 September (2); same locality, fruit trap; 23 September (1)
3. *A. demophon* Hbn.  
Morne Catherine, at mango, 20 August (2); same locality, at mango, 24 August (1); same locality, fruit trap, 28 August (1); North Coast Road, milestone 3, flying; 13 September (1); Grande Ravine, flying, 13 September (1); Parrylands, fruit trap, 18 September (1); Forest Reserve, fruit trap, 18 September (1).
4. *A. amphimachus* F.  
Morne Catherine, feeding at mango, 20 August (1); Blanchisseuse, flying, 27 August (1).
5. *A. meander* Cr.  
Morne Catherine, feeding at mango, 20 August (3); same locality, fruit trap, 28 August (2); North Coast Road, milestone 3, flying, 13 September (1)