

BUTTERFLIES OF KENYA AND UGANDA.

By

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SUPPLEMENT TO VOL. 1.

Being additional notes and addenda to the groups dealt with in the Journal of the East Africa and Uganda Natural History Society, 1925-1935.

INTRODUCTION.

It is now some ten years since the first part of Volume 1 of the serial on the "Butterflies of Kenya and Uganda" appeared, and, as new material and additional observations have accumulated, it is considered advisable to publish a special paper embodying this new data.

For much of the new material, I am indebted to my friend T. H. E. Jackson of Kitale, who has done, and is doing, such excellent work in his district and in Uganda.

Reference will be made to the original notes as they appeared in the several numbers of the Journal, and to the species as dealt with in the Separata of Vol. 1. Corrections to the letterpress have appeared in the Index to Vol. 6 of the Journal.

The order followed will be that adopted in the Journal.

Family DANAIDIDAE. Sub-family DANAININAE: Genus *Melinda*.

MELINDA FORMOSA and *MERCEDONIA*.

Ref. Op. cit. No. 21, pp. 31-32: Vol. 1, Sep. 1, pp. 10-11.

The two representatives of this genus, hitherto considered two distinct species, overlap in their distribution, and in the area of contact, interbreed. Extensive material shows many intermediates. The area of overlap is from Lumbwa-Nandi to Elgon.

As is well known, *formosa* is the model for *Papilio rex*, and *mercedonia* for *rex mimeticus*, the Uganda race. It is therefore interesting to note that the intermediates of these two Danaines act as the model of the intermediate race of *Papilio rex comixtus*, Rothsch., which occurs in the area of overlap. Though these intermediates occur over a wide area, they are associated with true *formosa* and *mercedonia*, to an extent which precludes the recognition of an intermediate race by a distinct name.

The races are therefore: *M. formosa formosa*, Godm., 1880.

M. formosa mercedonia, Karsch, 1894.

Intermediates: *M. formosa* \leq *mercedonia*.

The early stages of all the forms are very similar. The larva of *mercedonia* is rather more ornamented than *formosa* and has more crimson on the segments, especially on the spines.

Genus AMAURIS.

AMAURIS NIAVIUS AETHIOPS, Roths. & Jord.

This is the Abyssinian race of *A. niavius*, and is distinguished by the narrower and less extended white fore-wing sub-apical bar which does not reach toward the margin of the wing, but stops short of the sub-marginal row of small white spots, thus leaving the spot in 3 quite free.

The race is included in this paper on the evidence of specimens taken by Stoneham in Karamoja. There are two specimens in my collection from Kaimosi, one of which is hardly to be distinguished from *aethiops*, while the other has the spot in 3 quite free.

AMAURIS ECHERIA JACKSONI, E. M. Sharpe.

Ref. Op. cit. No. 21, pp. 39-40. Vol. 1, Sep. 1, pp. 18-19.

Under the heading, distribution, mention was made of the geographical variation noticeable in this species

Typical *jacksoni* are found in the Sotik district (type loc.), and eastwards to Lumbwa and the Mau. Topotypical examples really represent an intermediate between two extremes, a large, almost black ground conspicuous insect ranging in the forests of Kikuyu Escarpment east to Mt. Kenia, and the low rain-forests of Meru, and a smaller more brownish race distributed from the coast through Teita, the Southern Masai Reserve to Kisii and central Kavirondo, N. Kavirondo, Elgon, Kitale, and eastern Uganda.

When laid out in parallel series, the differences are obvious, but as already indicated, the named forms are, unfortunately, just those intermediates which render further sub-division difficult.

It is at once obvious that the insects from the high country of Kikuyu, Uplands, Katamayo, and the Kikuyu Escarpment are not at all identical with the series from Kisii-Kaimosi-Kakamega.

We thus have an eastern Mau race; a coast to western Mau race; and the intermediates of the Sotik-Lumbwa area, typical *jacksoni*.

AMAURIS ALBIMACULATA, s.l.

Ref. Op. cit. No. 21, pp. 40-41: Vol. 1, Sep. 1, pp. 19-20.

We are here dealing with an aggregate lumped under one name, omitting, for the time being, the race *hanningtoni*, Butlr.

An accumulation of material collected throughout Kenya and Uganda, clearly indicates that in certain localities, the insects have taken on distinctive colouration.

Butler separated the species from *echeria* in 1875, on certain specific characters already cited, op. cit., on South African material, and East African specimens have been associated therewith, excepting the race *hanningtoni*.

The three distinctive types are as follows: (1) a dark form with small white spots in the fore-wing and dark ochreous hind-wing patch, predominant in the following areas: Southern Masai to Sotik and Kisii, Lumbwa, Mau, Kitale and Kakamega, Aberdares to Meru, all doubtless influenced by the dark *A. ansorgei*, and to a certain extent, *echeria*; (2) a very pale form (distinct from Butler's race *hanningtoni* of the Kilimanjaro-Teita area), with large white spots in the fore-wing, especially that in the cell, and a very pale ochreous to creamy hind-wing patch, not clear-cut on the hind margin, and extending almost to the anal angle along the inner margin; these are typical of the eastern and coastal belt of Kenya and Uganda areas; and (3) an upland race, large of size, and intermediate in colouration, ranging through the forested country of Kikuyu and the southern Aberdares, and associated with the dark form of *echeria jacksoni*, and *A. ansorgei altumi*.

AMAURIS LOBENGULA SEPTENTRIONIS, Poulton.

Ref. Op. cit. No. 21, p. 42: Vol. 1, Sep. 1, p. 21.

This race was described by Prof. Poulton from material sent to him by me from Marsabit. It is the predominant species in the area, but it is now known to extend westward to Kulal and south of Rudolf at Mt. Nyiro, and doubtless will be found in forested country to the southward.

The early stages are as follows: The eggs are laid on a species of *Cynanchum*, so far unidentified, singly or in small groups, either on the upper or under surfaces of the leaves or on the stem most often near the young growing shoots.

The eggs are a long pear-shape, with slightly parallel sides towards the bottom; creamy when first laid they turn orange, then greyish to black before hatching, about the eighth day. The young larva is greyish-olive without any indications of longitudinal lines, until the second instar, at which period spines appear on the forward and hind segments. The mature larva is 50 mm. long, blackish in ground colour, ornamented with a mid-dorsal orange line composed of discreet or semi-contiguous spots, a dorso-lateral line of similar colour but smaller spots, and a spiracular line.

A few yellowish transverse lines connect up some of the dorsal and dorso-lateral lines, thus giving the appearance of a check pattern. Five long filamentous fleshy spines are present on each side, on the dorso-lateral line on the 2, 3, 5, 10 and 11th segments.

The pupa is very similar to that of *A. echeria jacksoni*. It is a pale translucent greenish gold with some golden marks on the wing scutes, a row on the dorso-abdominal segments, and with dark spiracular spots. The dorso-thoracic area is very pronounced and bluntly pointed, thus accentuating the depression between it and the abdominal protuberance. The head case is angled dorso-ventrally, and square edged. The cremaster pedicle is long and black.

It is of interest to note in passing, that the race of *lobengula* which is found in North Uganda and Abyssinia, is much nearer to the southern race *lobengula katangae* than to *septentrionis*.

AMAURIS (Amaurina) ANSORGEI ALTUMI, van Som.

Pl. 1, figs. 1 and 2.

Ref. Op. cit. No. 22, p. 44: Vol. 1, Sep. 1, p. 22 *partim*.

This race was described by me in a supplement to the Journal cited, and was based on some two hundred specimens both caught and bred. I take this opportunity of repeating the description and the figures.

The nominate race is limited to the west of the Mau and north to Nandi; though the types were supposed to have been taken in eastern Uganda, they have not been duplicated in that area since. They are, however, of the very dark race so plentiful in the Lumbwa-Sotik area. This dark race was re-described by Le Cerf, under the name *torrefacta*, type loc. Molo.

The race I have described has its headquarters in the forests of the Kikuyu Escarpment and the Aberdares and has been taken in some numbers at Tusso. It probably also extends to Mt. Kenia on the western side.

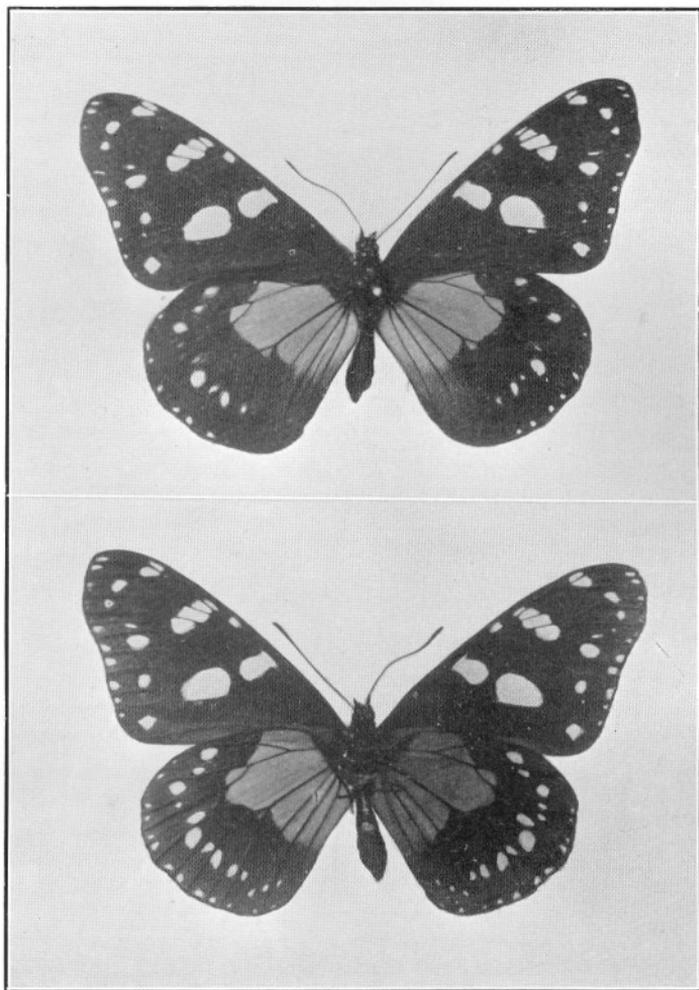
It differs from the nominate race in having the patch of the hind-wing much paler in colour (as in *echeria jacksoni*), and having the sub-marginal spots more numerous and almost white.

On the lower surface of the hind-wing there is a marked black line which crosses the ochreous patch at the bases of the cell and area 8.

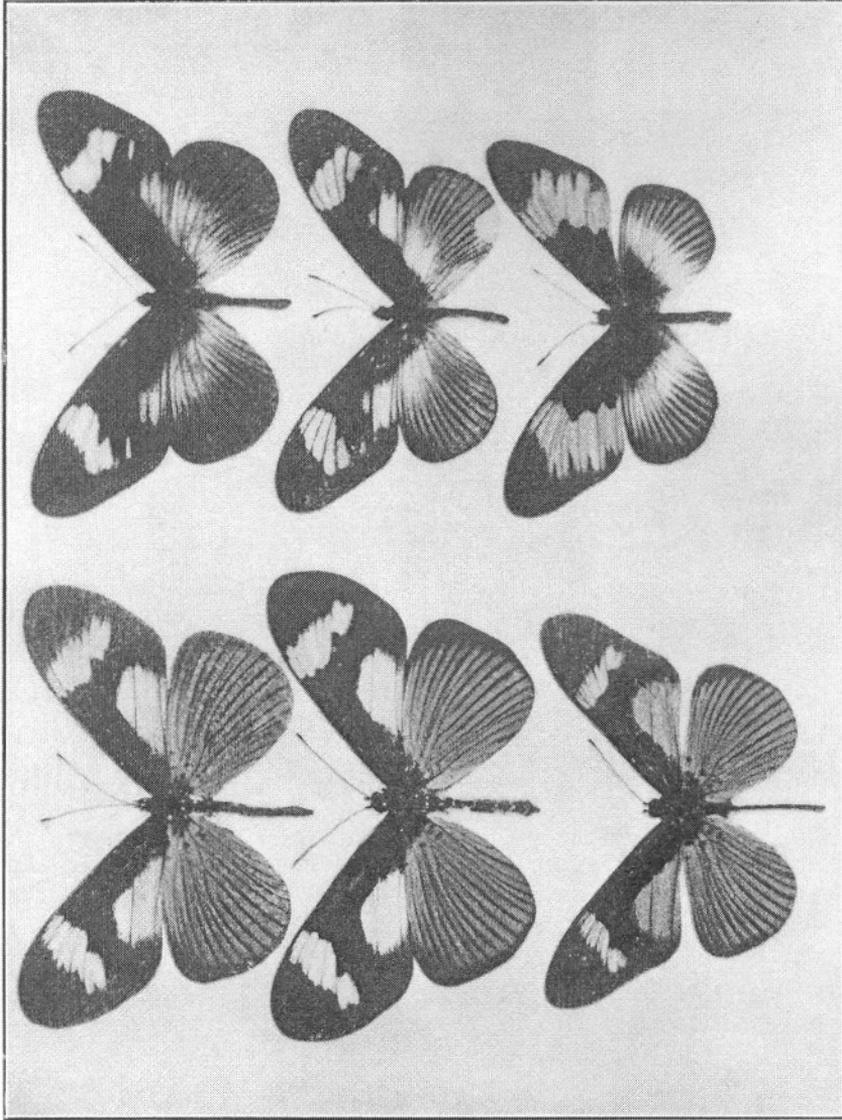
EARLY STAGES :

The egg is of the usual amauris type, a long barrel shape, slightly constricted at the top, finely ribbed and ornamented with cross ridges. They are deposited either on the upper or lower surfaces of the leaves and on the young shoots of *Cynanchum* and a species of *Tylophora*. They are creamy to yellow when first laid and have a high glaze. The young larvae are gregarious and feed together in groups of forty and more, eating the fleshy surfaces of the leaves and leaving the ribs almost intact. In the first stage they are ochreous to greyish without

PLATE 1.



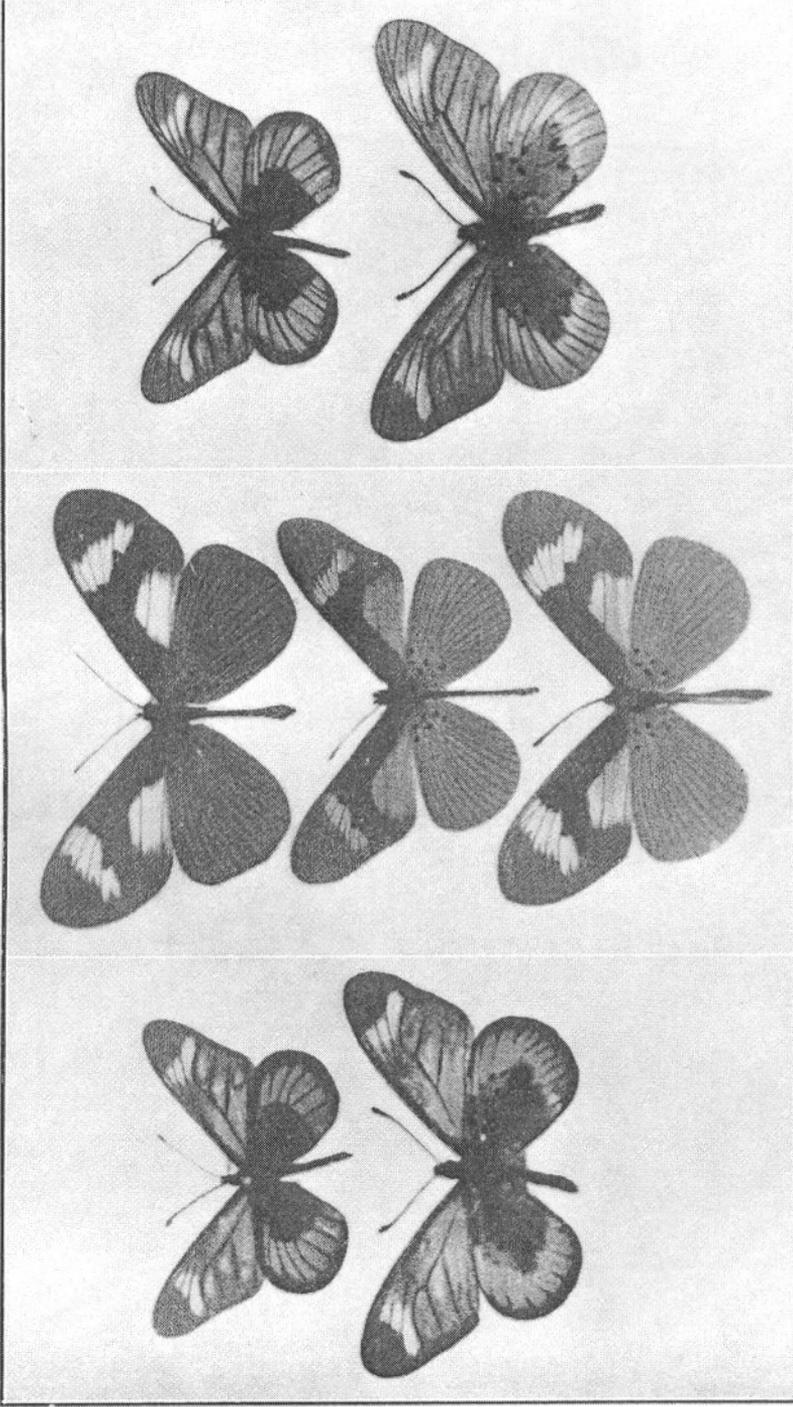
Amauris (Amaurina) ansorgei altumi, van Som.
Upper and under surfaces.



Bematistes schubotzi, Grunb.
Figs. 1-2. Females.
Fig. 3. Male.
Fig. 1. Female f. *jacksonianus*.

Acraea jodutta, Fab.
Fig. 4. Var. f. w. bar white; hind-marginal
patch and h. w. bar ochreous.
Fig. 5. Var. of f. *integra*.
Fig. 6. *Acraea olciops*, var.

PLATE 3.



Figs. 1-2.
Acraea barteri philos, Le Cerf
Male and female.

Figs. 3-5.
Bemastis schubotzi, Grueb.
Undersurfaces.

Figs. 6-7.
Acraea barteri philos.
Undersurfaces.

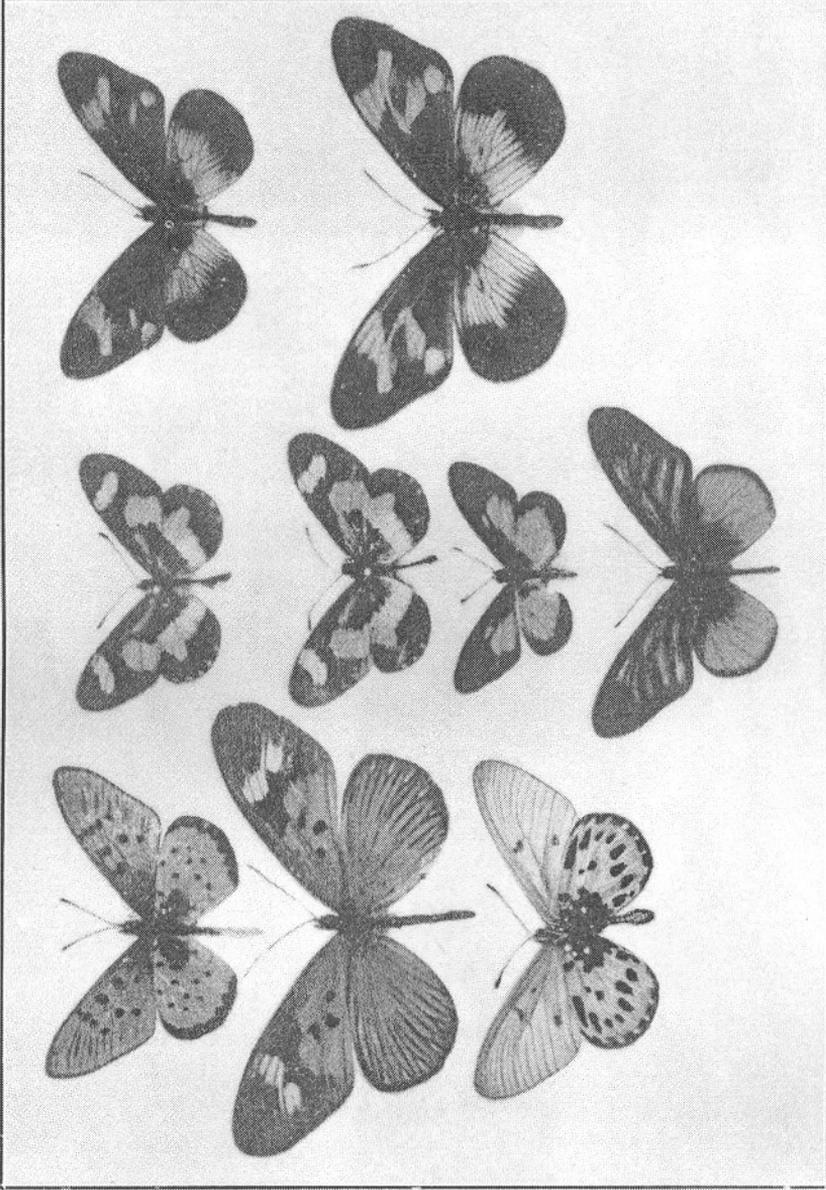


Fig. 1. *A. doubleclayi* sylvesi, Shp.
Fig. 2. *A. althoffi* f.f. *badongensis*, Carp.
Fig. 3. *A. A.* var. *nebulata*.
Figs. 4, 5. *A. sotikensis* rosenae.
Fig. 6. *A. acerata* pallala.

Fig. 7. *A. pelopeia*.

Figs. 8, 9. *A. johnstoni* butleri.
(male and female.)

longitudinal lines and little indication of the body spines which only appear evident at the second moult. In this stage the number of spines on each side is four—but at the third moult a fifth spine develops at the anal end. These spines are present on the dorso-lateral aspect of the segments on the 2, 3, 5, 10, and 11th. The mature larva is very distinctive: the ground colour is purplish-black, a narrow blue line runs along the centre of the dorsum, wide conspicuous orange yellow longitudinal lines placed equidistant along the dorso-lateral and lateral line leaving intervening black areas the same width as the yellow lines. The undersurface is greyish with a purply tinge, more pronounced over the suctorial legs.

The fleshy spines are short compared with those of *echeria jacksoni*.

The pupa is at first pale pink but when hardened becomes a beautiful gold with an extremely high glaze, spiracular spots dark and the cremaster is long-stalked with basal protuberances.

The dorsal aspect of the thorax and abdomen are very prominent with a deep depression between; each abdominal segment is ornamented with black dots, two dorsally, one laterally, one ventral.

The imago emerges in 14-16 days. The pupa case is then brownish though transparent. Held at certain angles the pupa looks very like a baboon's head.

Family ACRAEIDAE. Genus BEMATISTES, Hemming.

This genus replaces *Planema*. Vide Hemming in Carpenter's paper "The Rhopalocera of Abyssinia," Trans. Ent. Soc., Vol. XXXIII, p. 374, 1935.

BEMATISTES SCHUBOTZI, Grunb. Sexes unlike.

Pl. 2, figs. 1-3.

Pl. 3, figs. 3-5.

MALE. Expanse: 33-35 mm.

F.-w. brownish black, sub-apical bar narrow, 3-4 mm. ochreous; patch on hind border orange tawny, filling most of 1a, 1b, except for basal triangle and posterior angle, and the basal half of 2. H.-w. orange tawny, slightly dusted with dark scales at the extreme base, with two black dots in the cell and others of the underside showing through. Marginal border widest at outer angle, but narrowing to 2; veins black-scaled narrowly, with narrow internervular black rays between.

Underside: Somewhat as above, but apical portion of fore-wing not so dark and tinged with ochreous; black strongest as a median bar. H.-w. as above but duller, marginal border not so marked at angle;

black spots small, as follows: three at base subcosta, two large, one small in cell, two at base 1c, one at base 1b.

FEMALE. Two varieties are figured.

Larger than the male, 40 mm., with more rounded fore-wings. Sub-apical bar and posterior patch pure white, the hind-patch rather more restricted distally, but sub-apical bar wider and more indented at V.5. Ground colour blacker; h.-w. as in the male, but marginal border wider especially at angle.

The other variety has the sub-apical bar pure white, while the posterior patch is suffused with tawny-orange. f. nov. JACKSONIANUS.

Type female. Budongo, Sept., 32. T. H. E. Jackson.

Distribution: Collected in the Budongo Forest by T. H. E. Jackson.

BEMATISTES AGANICE UGANDAE, sub. sp. Nov.

Pl. XXXVI, figs. 3 and 6.

Ref. Jrl. No. 29, p. 36, Vol. 1, Sep. V, pp. 102-3.

I have already given full descriptions of the two races as found in Kenya and Uganda. The race *MONTANA*, Butler, type loc. Kilimanjaro, is the Kenya race, while the Uganda race is without a name. I therefore designate it as above.

Type female, Mawakota, Uganda, July, 1929, in Coryndon Memorial Museum, van Som. Coll.

Comparative material: Long series of over 50 specimens of each race.

Sub-family ACRAEINAE. Genus ACRAEA.

ACRAEA ZETES RUDOLFI, Eltr.

Ref. Op cit. No. 23, p. 131: Vol. 1, Sep. 2, p. 49. Pl. VI, fig. 8.

This race was described by Dr. Eltringham from specimens sent to him and previously mentioned by me loc. cit. The full description is as follows: The ground colour of both sexes is rosy-red. The fore-wing has a conspicuous sub-marginal row of tawny-orange spots continued nearly to the apex, and *very* distinctly separated from the apical tawny-orange patch which lies in areas 3, 4, 5, 6, 9. The hind-wing marginal black has a sub-marginal row of small but distinct orange-tawny spots. Type male, Oct.-Nov., 1927, Marsabit; female, June, 1924, Marsabit, Dr. van Someren. Co-types Marsabit and Kulal.

The form from Meru is intermediate between *rudolfi* and *zetes acara*; the females in this case are rosy in ground colour, and represent

a 75% aggregate over the area of low-lying country west to Baringo, and south-east to the head waters of the Tana River.

ACRAEA PENTAPOLIS = *THELESTIS*.

The food plant of this species is "Magungwa" (Luganda), *Mirianthus arboreus* MORACEAE.

ACRAEA ADMATHA LEUCOGRAPHA, Ribbe.

Ref. Op. cit. No. 23, p. 126: Vol. 1, Sep. 2, p. 45.

I am indebted to Miss Fountaine for the description of the early stages of this species. The eggs are not described, but the larva feeds on a species of *Rinorea*. "Ground colour yellowish-brown spotted all over with white-centred black spots out of which extend rather short black spines slightly branched. Head black with a broad white collar on the "neck." Pupa very pale green on the wing cases, pale yellow on the abdomen, with a wavy black line and a few isolated black spots."

ACRAEA PSEUDOLYCIA ASTRIGERA, Butlr.

Ref. Op. cit. No. 23, p. 134: Vol. 1, Sep. 2, p. 52.

Add to the distribution: Southern Masai reserve to Ngong and the M'bagathi and Narok. The insects were numerous on the flowering acacias along the Ngong-Kajiado road in April, 1935.

ACRAEA EGINA.

Ref. Op. cit. No. 23, pp. 134-135: Vol. 1, Sep. 2, p. 54.

Add to the description of the mature larva: Head brick-red; a narrow orange line in mid-dorsum; at base of each spine, a glistening bluish-white spot in front; first segment with a transverse black spot with enamelled surface.

Miss Fountaine describes the larva as velvety black profusely spotted with white. Her description is from full fed though not distended larvae; the transverse orange lines are hidden in the folds of the skin.

In the race *harrisoni*, the black and orange transverse bars are more conspicuous, but otherwise the colouration is very similar.

ACRAEA ONCEA, Hopp.

Ref. Op. cit. No. 22, p. 144: Vol. 1, Sep. 2, p. 62.

The early stages are as follows: Eggs creamy white, spindle shaped and slightly ribbed, laid on *Adenia* sp. Larva ochreous with glistening bases to the long black spines; some reddish on dorso-lateral

line; head ochreous with an inverted V above the mouth, and broad oblique line over eye disc, and the margin of the face black.

Pupa with black rings on lateral aspect of abdominal segments, black lines on dorsum of thorax, and a series of black veinations on the wing-cases.

ACRAEA AEQUATORIALIS ANEMIA, Eltr.

Ref. Op. cit. No. 25, pp. 62-63: Vol. 1, Sep. 3, p. 34.

To the distribution add: Kulal and South Rudolf. It should be noted, however, that examples from Kulal area, though as pale as typical *anaemia*, are larger and with more pronounced spots. These should be recognised as a geographical race.

ACRAEA LYGUS, Druce. Pl. 8, figs. 1-4.

In a recent paper by Prof. Hale Carpenter, this species is mentioned as having been taken in the Taru, Kenya. It has also been recorded from Tanganyika Territory, and probably, is to be found in the thorn-bush country east of Kilimanjaro and Teita.

The species has been confused with *A. stenobea*, by both Eltringham and Aurivillius, and Trimen deals with it as a variety of *stenobea*; Carpenter has unravelled the problem in his paper, *Stylops*, Vol. 1, Pt. 9, pp. 196-7.

Through the kindness of Prof. Carpenter I am able to give a figure of male and female from photographs kindly supplied by the Imperial Forestry Institute, Oxford.

It will be observed that the species bears a strong resemblance to *A. natalica*, and for this reason has probably been overlooked.

ACRAEA CAECELIA PUDORA, Auriv.

Ref. Op. cit. No. 25, p. 64: Vol. 1, Sep. 3, p. 36.

Eltringham states in his Monograph, Trans. Ent. Soc., 1912, p. 184, that the female form *hypatia* is a form found in Sierra Leone, but he also records one specimen in Tring from Mohoroni, which is in South Kavirondo. Among various examples of this species sent to Dr. Eltringham by me are several examples of this form from Kulal and south Rudolf, so determined by him. I suggest that in reality these Kulal males and females represent a distinct race, as they are more tawny-red and more thickly scaled on the fore-wing. The females are of nearly the same colour as the males. For the Kulal specimens I propose the name *A. CAECELIA KULAL*, sub. sp. Nov. Type ♂ Kulal, Oct.-Nov., 1927.

ACRAEA ACRITA.

Ref. Op. cit. 23, pp. 139-141. Pl. VIII, figs. 9-10.

Dr. le Doux has kindly examined these specimens and reports as follows:—

Fig. 9. *Ac. acrita acrita* f. *nigromarginata*, le Doux.

Fig. 10. *Ac. (acrita) manca taborensis*, le Doux.

ACRAEA ANACREON ANACREONTICA, Gr. Sm.

ACRAEA RAHIRA.

Ref. Op cit. No. 25, pp. 70-71: Vol. 1, Sep. 3, pp. 42-43.

I must apologise for the mix-up under these headings. The description given for the latter male should of course refer to that of the former, and the figure of the male, Pl. V, fig. 5, Pl. VI, fig. 10, are *anacreon anacreontica*; whilst figures 6 and 7 of Pl. V, and fig. 11 of Pl. VI are females of *rahira*. The description of the female as given is that of *rahira* female.

It will be noted that in *anacreontica*, both males and females, there is a patch of long ochreous hairs at the bases of the wings, more particularly on the hind-wing, a character which is absent in *rahira*. Pl. 5, figs. 1-6. Pl. 6, fig. 10.

Furthermore, the underside of the hind-wing in both sexes lacks the clear-cut light band outlined distally with black as in *rahira*; and the red areas are more pronounced and L shaped. The black spotting is on the border of this red L, for the most part.

The female of *anacreon anacreontica* is somewhat like the male, but larger, and the ground colour is less orange-red; the spotting and red markings on the undersurface are, however, identical.

Distribution: It is of interest to note that this species has the same distribution as *rahira* in Kenya, and also occurs in Uganda at Buhunge (Hancock leg.). Carpenter states that Uganda specimens are transitional to *anacreon*. They are certainly very reddish.

As there is thus no description of *rahira*, in my notes, the following should be added:

A. rahira, Boisd. Pl. 5, figs. 7 and 8. Pl. 6, figs. 5 and 6.

MALE: Ground colour of both fore and hind-wings pale to orange tawny. F.-w. with black along the costa and at the apex; with black dentate rays from the outer margin running into the ground colour along the veins; a small black spot at about mid-cell and a large transverse one at apex of the cell; a row of dark sub-apical spots, almost contiguous, in 4, 5, 6, one in 3 more discreet and situated more posterior; a further dark spot sub-basal in 2 and one below it in 1b. H.-w. slightly

dusted with greyish scales at the base; a narrow black margin, dentate along the veins; dark spots as on the underside, and with an indication of the sub-marginal line of below.

Undersurface: Paler than above, with black spotting as above, but the black dentate marks along the margin only indicated by streaks along the veins, and between these the orange scaling is strong. Colour of h.-w. as fore, but there is a post-discal almost straight bar from the inner margin to 4, outlined with dark scales distally and inwardly demarcated by a series of dark dots in an almost straight line; this line of spots continued from 1b to 5 thence at right angles in 6 and slightly more proximal in 7.

There are two small sub-costal black spots. A further almost parallel row of spots pass from the inner margin and through the mid-cell, double at root of vein 5; a further black spot at base of cell.

Distribution: The range of this species is interesting. Eltringham does not record it from eastern Africa, but we have taken it on the Sosiani River at Eldoret, and Lake Narasha, and more recently it has been recorded from Lango district in Uganda, also Bulemezi, Lake Kioga, and Bunyoro from specimens taken by Hancock.

ACRAEA ENCEDON, s.l.

Ref. Op. cit.; Vol. 1, Sep. 3, pp. 44-46.

The aggregate hitherto known as *encedon*, in its various forms, has recently received the attention of Dr. le Doux of Berlin, who informs me that there are certainly two species mixed up here, and he supports his distinctions by evidence of genitalia.

I have been unable to follow up in detail the division suggested by this worker, and must refer readers to his writings: *Acraeen—Studien*, IV Mitteil. Zool. Mus., Berlin, Band 17, Heft 2.

Briefly, this author shows that what has hitherto been named *lycia*, auct., a form of *encedon*, is in reality a distinct species with several variations closely resembling similar colour variations in the species *encedon*. But the species *LYCIA*, F. does not occur in Eastern Africa.

I take the liberty of giving the forms of *A. encedon* recorded from Kenya and Uganda, as determined by Dr. le Doux:

- f. *fulva*, D.H. & W. Uganda and Kenya.
- f. *infuscatoides*, le D. Uganda and Kenya.
- f. *alcippina*, Auriv. Uganda and Kenya.
- f. *umbratalcippina*, le D. Uganda.
- f. *poultoni*, le D. Uganda.

- f. *encedon*, L. = *sganzini*, Bsd. Kenya and Uganda.
- f. *lycoides*, le Doux. Kenya and Uganda.
- f. *daira*, G. & S. Kenya and Uganda.
- f. *radiata*, Auriv. Uganda.
- f. *perradiata*, le Cerf. Uganda.

For the descriptions of these various forms, I must refer readers to Dr. le Doux's original paper. He shows that *sganzini*, Bsd., is a synonym of *encedon encedon*.

I am able, however, to give a correct determination of the specimens figured on Plates VII and VIII, Jrl. 24. The following are represented:

- Fig. 1. Female, form *fulva*, D.H. & W. Note here, that according to the original description of *encedon*, this is an insect "concoloribus flavis" and not tawny. The tawny form is *fulva*.
- Fig. 2. This is a dark variety of *fulva*.
- Figs. 3-4 are *alcippine*, male and female.
- Fig. 5. Is a female *lyciodes*, le Doux. (*Ac. lycia* is a distinct West African species.)
- Fig. 6. Of this, Dr. le Doux writes: "A very remarkable specimen, transitional to female *daira*." "It must be a rare form. I have handled hundreds of *fulva*, and never seen anything like it."
- Fig. 7. Is a typical male *daira*.
- Fig. 8. Is a transition to male *poultoni*, le Doux.
- Fig. 9. Male *encedon encedon* = *sganzini*, Bsdv. Of this le Doux writes: "A rather dark specimen and slightly transitional to f. *fumata*, Auriv."
- Fig. 10. Is a male *infuscatoides*, le Doux.

ACRAEA SOTIKENSIS, E. M. Sharpe.

Op. cit. No. 24, pp. 79-80: Vol. 1, Sep. 3, pp. 51-52.

To the distribution add South Kavirondo and Kisii to Lolgorien.

Pl. 4, figs. 4 and 5 = f. ROWENA.

ACRAEA WIGGINSI, Neave.

Ref. Jrl. No. 25, pp. 71-72: Vol. 1, Sep. 3, pp. 43-44.

Through the kindness of Mr. R. T. Evans, I am now able to give a description of the larva and pupa of this species. The food plant is *Cassia sambesiacus*, LEGUMINOSAE, and *Cassia* sp. indet. The mature larva is pale yellow; head creamy-yellow with an inverted V

above the mouth. All spines are strongly branched and black in colour. The anterior legs are black. The pupa is pale yellow shading to creamy on the wing-scutae. These are veined in black. The thorax is ornamented with a club-shaped black line running from the head to about half-way; inside this black line is a Y shaped yellow line arms pointing towards the abdomen; beyond this mark are two diamond-shaped black marks. The abdomen is ornamented with four rows of yellow-centred black spots.

ACRAEA VENTURA, Hewit.

Op. cit. No. 25, pp. 86-87; Vol. 1, Sep. 3, pp. 58-59.

Through the kindness of my friend, R. T. Evans, I am now able to give the life history of this interesting species. As I originally suggested, the evidence of the early stages all go to strengthen the view that we are here dealing with an insect distinct from *terpsichore*. It will be noted that the larva is distinct from any of the variations of *terpsichore* and the food plant is different, and in fact, belongs to a widely different family.

Early stages: The eggs are laid in groups on the underside of the leaves of *Cassia zambesiacus*, LEGUMINOSAE. At first pearly-white, they turn canary-yellow, and later, pink. The young larva is at first greenish-yellow with a black head and black spines. At the second instar the larva is uniform greenish-yellow; with the next moult it develops a dark dorsal stripe; the spines remain yellow except for the first two pairs or dorso-lateral ones which turn black; the head is black or red-brown. When black there is an inverted V above the mouth. The larva, when mature, develops alternate black and ochreous banding with three rows of moderately long branched spines, the anterior and posterior three black, the rest ochreous. There is in addition a glistening blue-black spot at the anterior base of each spine; head orange. The pupa is brownish with, on the abdomen, three rows of black circles with orange centres, situated dorso laterally, laterally and ventrally. The thorax is mottled with black; the wing cases are lined with black and the head piece ochre with black marks over the eye-shields.

Observations: Reference to Eltringham's Monograph reveals the statement that *ventura*, Hewitson, is "apparently, only an unusually red *terpsichore*." He states further that should the form with very red bands on the underside prove to be a distinct species, a new name will probably have to be found.

Although Dr. le Doux has placed *ventura* as merely a form of *terpsichore* (thus following Eltringham), which according to him is antedated by the name *eponina*, Cramer, and this name must stand, I

am convinced on the evidence of the early stages and the food-plant, that *ventura* is a distinct species. I would refer readers to Dr. le Doux's papers.

ACRAEA RANGATANA, Eltr.

Ref. Op. cit. No. 25, p. 88, No. 27, pp. 213-214: Vol. 1, Sep. 3, p. 60 and Sep. 4, p. 63.

I should like to draw attention again to the specific distinction of this insect form *eponina*, Cram.—*terpsichore* auctorum, more particularly as Dr. le Doux has followed Eltringham and placed it as merely a form of *eponina*.

ACRAEA OCHRASCENS, E. M. Sharpe.

Add to the localities: Kisumu; and Bulago, Uganda.

ACRAEA BETTIANA, Talbot. Pl. 6, figs. 3 and 4. Pl. 7, figs. 1-7.

Ref. Bull. Hill Museum, Vol. 1, No. 1, 1921.

This insect is said to belong to the *goetzi* group, but I would suggest that it is probably a geographical race of *rangatana* or a closely allied species. There are forms of *rangatana* which are only slightly darker than *bettiana* and the pattern is very similar.

Description: Ground colour brown-black, basal area with a large creamy patch—slightly dusted with blackish at the extreme base—extending from the hind border to beyond vein 3, and continued into the mid-cell; a blackish dot at apex of cell; a distinct narrow creamy sub-apical bar; a marginal series of orange-red streaks from 1b to 7, longest in 3 and 5. Note: In typical *bettiana*, the cream colour in the cell appears to be distinctly separated from the rest of the light patch by a black line of ground colour.

H.-w. blackish-brown ground colour with a central creamy band of almost equal width until area 4-5 when it is produced distad and then narrows in 6-7 at costa; a series of triangles at the margin from 1c to 7 with orange-red at apices; base of wing with slight mottling and indication of the reddish bar of the underside.

Underside: F.-w. pattern as above, but more brownish, and the marginal streaks longer and broader; some reddish scales at base of costa. H.-w base reddish, basal triangle creamy, followed by a reddish and black slightly curved band, the black being in contiguous rings and containing red; a creamy discal band as above; margin with creamy spots separated by long greyish triangular rays, apices distal and between them orange to brick-red.

Female: Very like the male, but larger and paler, sometimes light areas white.

Early stages: Unknown.

Distribution: Uganda specimens come from the Kigezi area, but the type locality is Kisaba Forest Lake Kivu. Talbot has described a variety of the female under the name *kissejensis*. We have no notes on this species, and are indebted to G. R. L. Hancock and D. Buxton for specimens of the species.

ACRAEA GOETZI, Thur. Pl. 6, figs. 7 and 8. Pl. 7, figs. 9-11.

Expanse 18-20 mm. General colour orange and black. Sexes unlike.

MALE: Fore-wing greater portion of the wing orange red; distal part black with an orange-red sub-apical bar from the costa to short of the marginal border, at the costa it is yellowish. Costa black; apex and outer margin broadly black, the black of the border extending inward between the sub-apical bar and the basal orange-red, often as an almost parallel sided bar, or sometimes wider toward the costal end, and blacker. Base of wing with blackish scaling, this black sometimes extending as a line along the base of the hind margin. In some specimens the marginal black on the outer edge carries small orange internervular spots. Sometimes the sub-apical bar is lighter in colour than the red of the base of the wing.

H.-w. base thinly scaled with black; marginal border broadly black with or without small internervular yellowish spots; rest of wing orange-red, paler at the inner edge and angled somewhat in area 5.

There is a general resemblance on the upperside to *A. acerata tenella*.

Underside: Greater part of the wing dull orange; sub-apical bar yellow ochre and separated by the black irregular bar which does not extend to the border; costa greyish, apex and marginal border orange with black streaks edged with ochreous along veins.

H.-w.: Ground colour ochre-yellow; a red rectangular mark with black ends at about mid-sub-costa, a further obtuse L shaped red mark, short arm at base of wing, long arm in 1c adjoining the cell; one black spot at base of cell, three in 1b, and a black line from inner margin to end of red mark; a further black spot or wavy line at base of v. 5. Border narrowly ochreous and internal to this a wide red bar narrowly black lined internally and intersected by ochreous streaks black-edged and black-centred along the veins.

FEMALE: Resembles somewhat the male form with marginal spots to f.-w. border, but these marginal spots larger and paler; the red of the basal half of the wing suffused with tawny and with a large black somewhat triangular mark at mid-point in 1b apex reaching cell. H.-w. orange tawny, dusky at base; border widely black and carrying internervular triangular yellow-ochre marks at edge; wing fringe greyish-ochre.

Underside as in the male.

Distribution: Has been taken in the Bechunzi-Kegezi country, Ankole.

ACRAEA ALTHOFFI f.f. *BUDONGOENSIS*, Carpenter.

Pl. 4, fig. 2.

Ref. Op. cit. No. 27, pp. 214-215: Vol. 1, Sep. 4, pp. 64-65.

This interesting form was taken by T. H. E. Jackson in the Budongo Forest and has been described by Carpenter as follows: "Resembles the form *telloides*, Eltr., except that the pale sub-apical spots in areas 3-6 of the fore-wing are white instead of tawny-orange."

There are very similar forms of *A. jodutta* named *dorotheae* and *integra*; both these *Acraeas* are very similar to the *Bematistes schubotzi*, Grunb., taken by Jackson in the Budongo. *A. jodutta integra* flies with this form of *althoffi*, Katera, Aug., 1935.

Stoneham has drawn my attention to the fact that the form *ochreata*, Eltringham, is antedated by *ochreata*, Grunb.; thus *ochreata*, Eltr., must be renamed.

ACRAEA BAXTERI PHILOS, Le Cerf. Pl. 3, figs. 1 and 2, 6 and 7.

Ref. Op. cit. No. 27, p. 219: Vol. 1, Sep. 4, p. 69.

This race has been described by Le Cerf from material obtained on the Cherangani Hills by Messrs. Jeannel and Chappuis (*Bull. Soc. Ent. de France*, Vol. 28, No. 10, p. 158).

This species is very variable as evidenced by the fact that three forms of it have been described from Tanganyika. The type came from Mpwapwa, and is figured by Eltringham, *Trans. Ent. Soc.*, 1912, Pl. V, fig. 10. I referred my specimens to the form *subsquamia*, Thaur. The type has the fore-wing sub-apical clear bar almost parallel sided, whereas in the form from the Usambaras the clear area in 4 is longer than the other two and extends further distad. This is also the case with specimens from the Kikuyu Escarpment and the Sotik district.

I give a figure of the male and female from these areas, and suggest that specimens from Kenya should be referred to the race

PHILOS, le Cerf. It will be noted that the male has a clear area in 3, further, that the black of the margin surrounds a red spot in 1b, and the black extends along veins 2 and 3 and cuts the red in the base of area 2. The undersides differ in the sexes.

ACRAEA PELOPEIA, Staud. Pl. 6, fig. 2. Pl. 4, fig. 7.

Expanse: 29 mm.

This *Acraea* was obtained by T. H. E. Jackson in the Kalinzu Forest, Uganda, in January, 1935.

MALE: F.-w.: Ground colour black, strongly scaled at the apex and along the outer margin, less heavily in the cell, and only slightly in the basal half of areas 5-6, longer semi-transparent streaks in 4-2, and most of 1b; red-tinged in 2 and with a distinct orange-red spot at distal end of semi-transparent streak in 1b.

H.-w.: Basal area to just short of the apex of the cell and a narrow marginal border, black to brown-black, the basal area with black spots from below, rest of wing orange-red. Abdomen with transverse yellow lines, golden spots on lateral surface; underside yellowish with black ventro-lateral line.

Undersurface: F.-w. costa, apex and outer margin tawny orange with black veining and narrow black lines in interspaces; rest of wing hyaline; reddish spots of above also present.

H.-w.: Ground colour orange-tawny with the red of above showing through; veins black with black lines in interspaces. Black spots as follows: one each centrally in 1a-2; two sub-basal in cell; one each sub-basal in 1a, 1b; one at base of sub-costa.

Distribution: Kalinzu Forest, Uganda. A rare insect hitherto not recorded further east than the Beni Congo. It has a strong resemblance to *Ac. penelsoa*.

ACRAEA SEMIVITREA, Auriv.

Ref. Op. cit. No. 27, p. 227: Vol. 1, Sep. 4, p. 77.

The distribution of this species was inadvertently omitted in the original published notes. It should read as follows: In the forested areas, and park country of Uganda from Toro, east to Nandi and rarely to Lumbwa.

ACRAEA PULLULA, Grunb. Pl. 4, fig. 6.

A specimen of this has been taken by Jackson at Kakamega. It would appear to be merely a variety of *A. acerata tenella*, lacking the

PLATE 8.

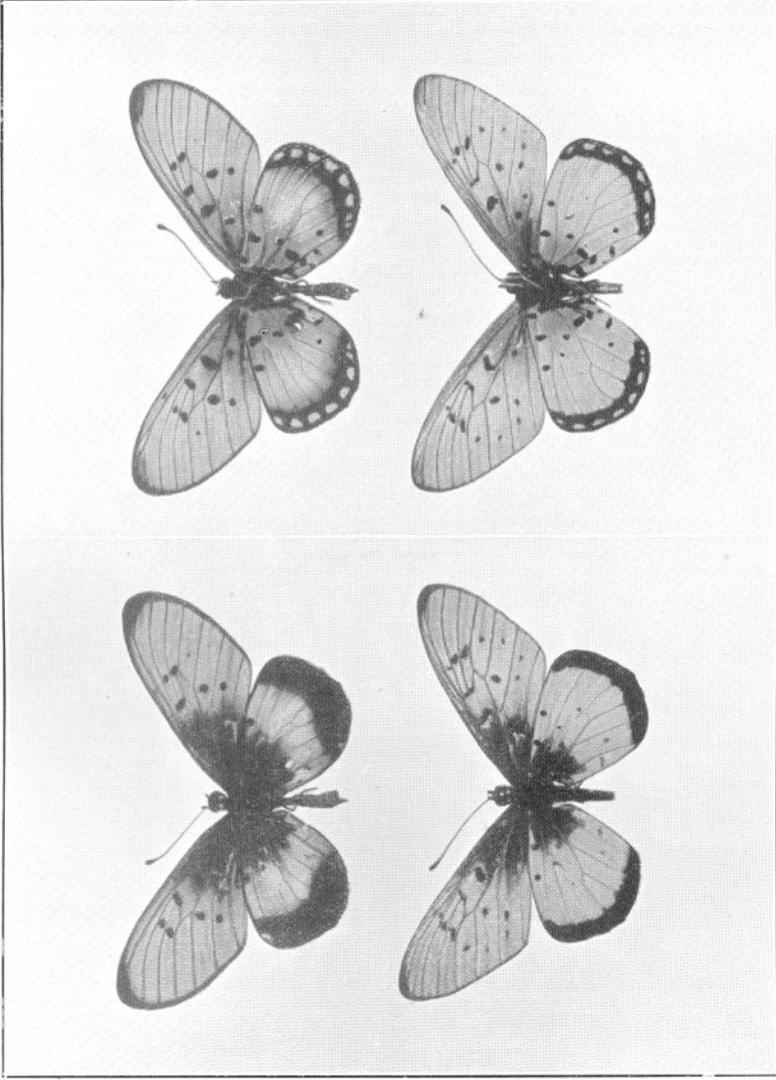
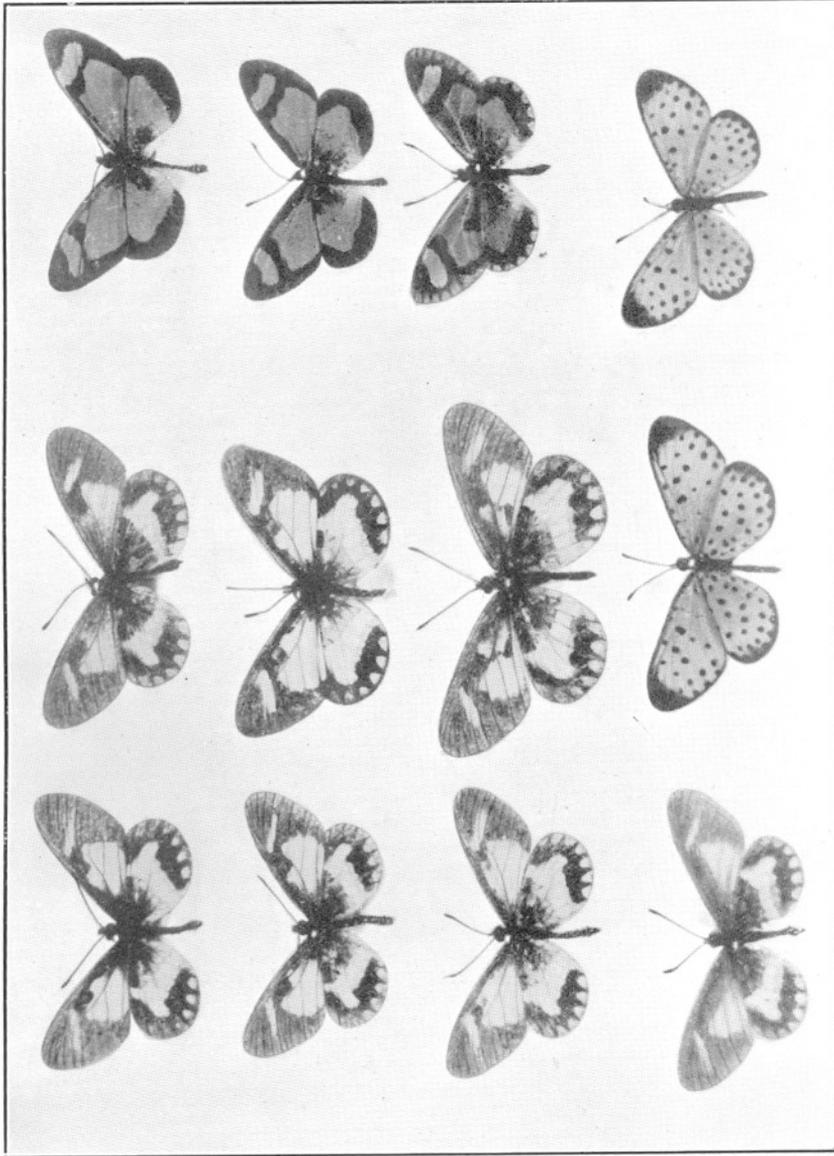


Photo: *Impl. For. Inst. Oxford.*
A. lygus, Druce. Upper and under surfaces.

PLATE 7.



Figs. 1—7. *A. bettiana*, vars.

Figs. 8 and 12.
Pardopsis punctatissimus.

Figs. 9—11. *A. goetzei*, Thur.

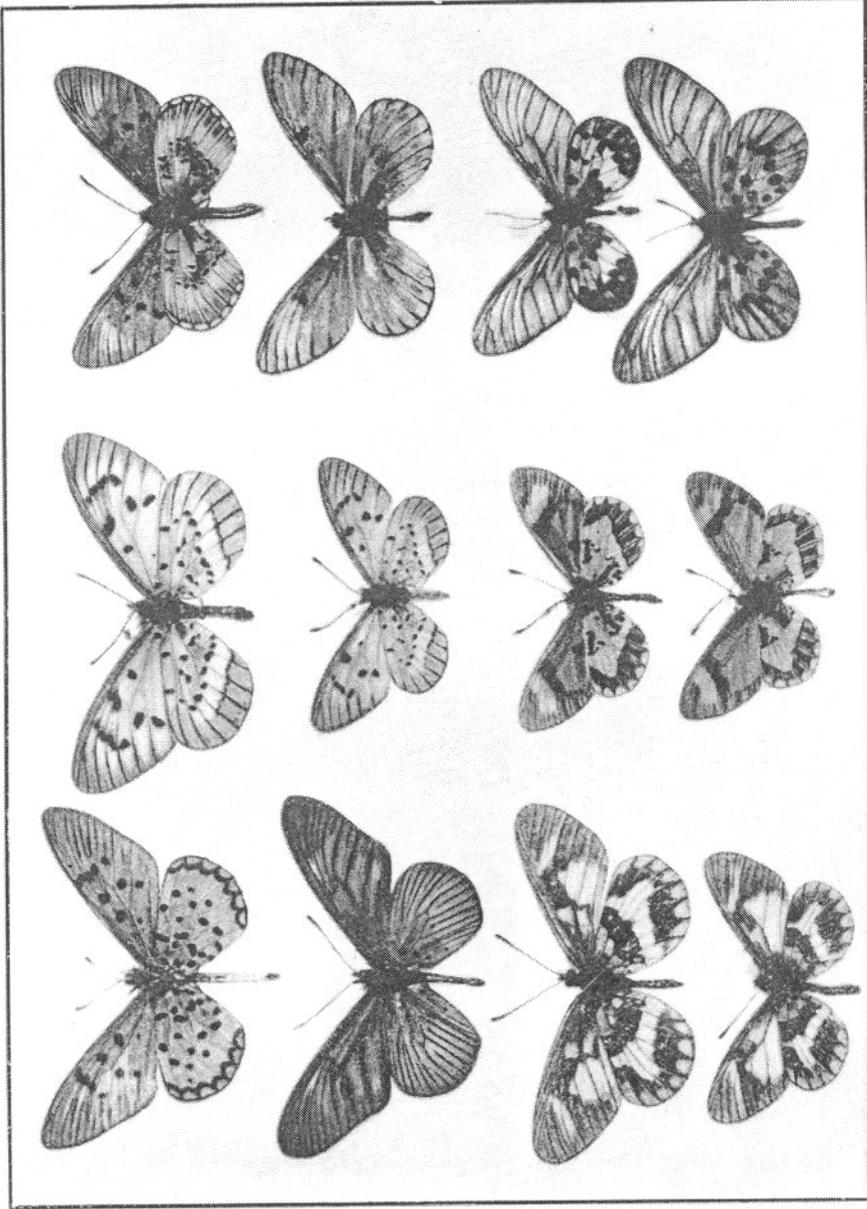
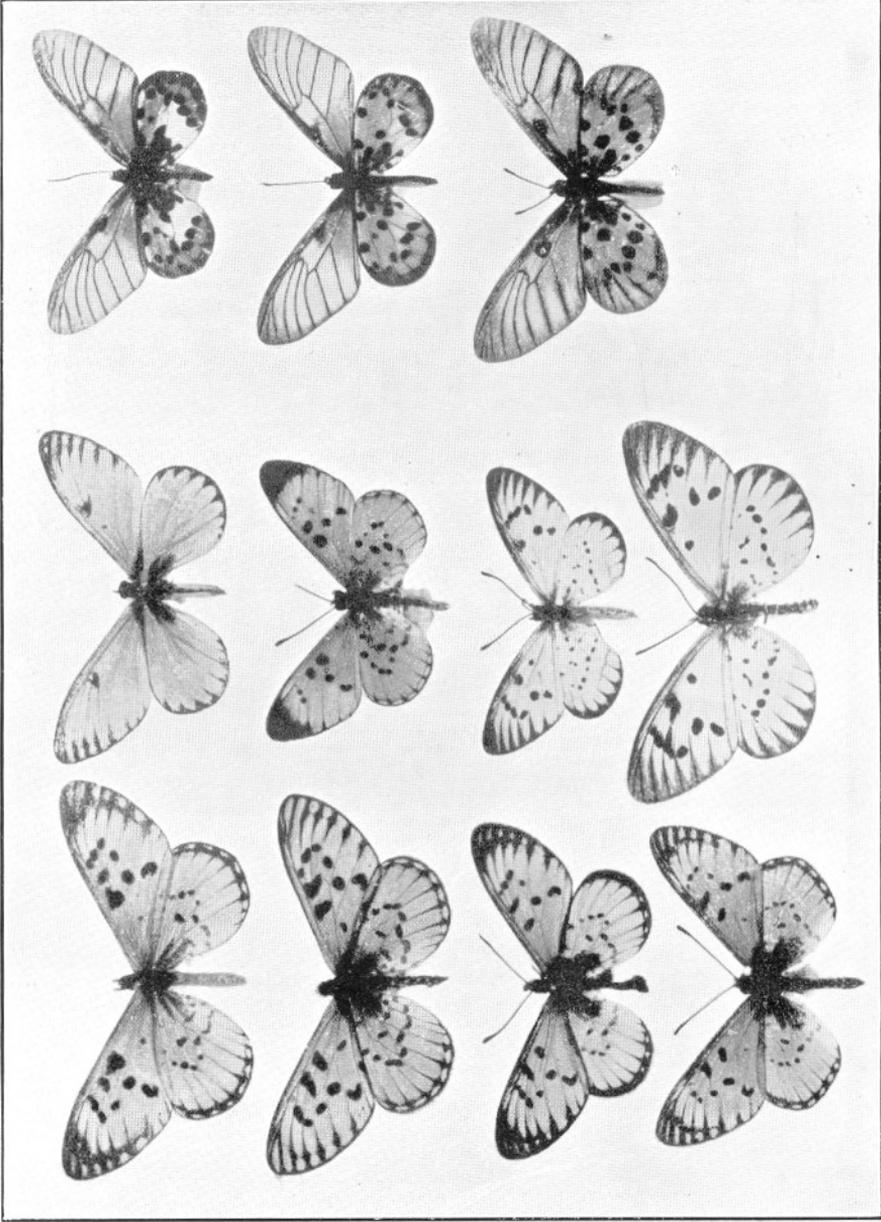


Fig. 1. *A. doobabadijii* *sglesi*,
Undersurface.
Fig. 2. *A. polopoiia*,
Undersurface.
Figs. 3-4. *A. battiana*,
Undersurface.

Figs. 5-6. *A. ichia*,
Undersurface.
Figs. 7-8. *A. gartii*,
Undersurface.

Figs. 9-10. *A. anaercon* *var.*,
Undersurface.
Fig. 11. *A. bougouini*,
Undersurface.
Fig. 12. *A. iturina*,
Undersurface.

PLATE 5.



Figs. 9-10. *A. bourgcoini*, Schut.
Fig. 11. *A. itarina*.

Figs. 7-8. *A. rahira*, Bsdv.

Figs. 1-6.
Variation in *A. anacreon anacreontica*,
G.Sm.

sub-apical orange-red bar. In this specimen there are a few reddish scales and the orange-red of the cell is separated from the rest of the reddish patch by a black line. The undersurface generally resembles *acerata tenella*.

ACRAEA AMACITIAE, Heron.

Ref. Op. cit. No. 27, pp. 231-232: Vol. 1, Sep. 4, p. 81.

The female of this species resembles the male in general markings but the light areas are brownish to ochreous.

ACRAEA ITURINA, Gr. Sm. Pl. 5, fig. 11. Pl. 6, fig. 12.

Ref. Op. cit. No. 22, p. 123.

We now give a figure of this species from a specimen kindly supplied by T. H. E. Jackson.

ACRAEA BOURGEONI, Schut. Pl. 5, figs. 9 and 10. Pl. 6, fig. 11.

This species bears a superficial resemblance to *A. cerasa* and *A. iturina*. It differs from the former in that the ground-colour red does not extend to the end of the cell but only as far as the sub-costal black spot in the cell, which spot is not free from the costa as in *cerasa*; the hind-wing spotting is larger and more numerous and in this somewhat like *iturina*.

F.-w. : Distal two-thirds thinly scaled with blackish slightly more so along the veins and margin to apex, but not so strong in the latter two as in *cerasa*; the basal red extends only as far as a black sub-costal spot mid-way in the cell and on the hind-margin stops short of the hind-angle; a black streak at base of 1b; a narrow long line at base 1a. H.-w. : Ground colour red, slightly paler on the inner margin between the two rows of black spots and along the costa. Marginal border narrowly black scaled with a concentration of black scales on the veins. Black spots as follows: Black scaling at base of wing especially at base of cell and bases of 1a and 1b. The black spots are in three rows; the basal consists of three, sub-basal in 1a, the cell, and 7, the second series, above and distal to junction of vein 6-7, basal in 5, mid cell, mid 1a and 1b, a third irregular series distad in 1b, sub-basal 2, 3, 4, distad in 5, 6, and almost touching the marginal black border.

Underside: Strongly hyaline, f.-w. with red area showing through. H.-w. spots as above, red areas of above replaced with rosy whitish. Female like the male but larger and slightly paler. A var. of the male has a white area on the h.-w. on inner margin between mid and distal row of spots to cell and the costal pale streak is white, and thus extremely like a small example of *A. admatha leucographa*.

Habitat: Kalinzu Forest.

ACRAEA QUIRINALIS, Gr. Sm.

Ref. Op. cit. No. 27, pp. 230-231: Vol. 1, Sep. 4, p. 81.

The early stages are still incomplete, but I am now able to give certain portions of it. The larvae feed on a species of *Urerea*, URTICACEA. They are brownish up to the second instar, then turn darker brown with slight ochreous banding, a pale dorsal line, an interrupted spiracular line and pale brownish underside. The spines are long and branched and generally ochreous, the two foremost and the two at anal end dark brown. The pupa is ochreous with two wide dorso-lateral lines of contiguous spots with yellow centres; a lateral line of black circles with yellow centres; abdominal surface with a double black streak on each segment. Wing cases streaked in black; a black streak on the "shoulders" and angle of eyes black streaked, and a broad black line on the thorax.

ACRAEA PENELOPE, Staud.

Ref. Op. cit. No. 27, p. 221: Vol. 1, Sep. 4, p. 71-72.

Early stages: This species lays its eggs on the same food plant as *quirinalis*, *Urerea* nr. *hipselidendron*, URTICACEA. The young larvae are gregarious, grey-brown up to the first moult, then umber-brown, to the final stage. The spines are long and black. The head black; narrow transverse ochreous broken lines between the series of spines; lateral line ochreous, and lower surface of body greyish. Spiracles red-brown.

Pupa: Either ochreous or dark brown; with a dorso-lateral line and ventero-lateral series of contiguous spots with orange centres, a broad ventral series with a central triangular yellow mark, a distal crescentic mark and two dots. On the dorsum there is an inverted V between the eyes, a line from the apex of the V to a point on the thorax where it divides into a trident; two ovoid marks on either side, with a curved streak distad; a spot and a V on the "shoulders," and wing cases veined in black.

ACRAEA OREAS.

We have noted this species laying on the *Urerea* as above, but the various stages have not been noted. The fact that several species of *Acraea* feed on this plant makes it difficult to separate up wild-taken larvae.

ACRAEA MELANOXANTHA, Sharpe.

Ref. Op. cit. No. 27, pp. 223-224: Vol. 1, Sep. 4, p. 73.

We have succeeded in breeding this insect in the Kitale area. The food plant is a species of *Adenia*, indet. PASSIFLORACEAE. The

larva is olive brown with faint longitudinal pale lines in line with the series of spines, each spine with a black basal spot anteriorly, strongly branched and reddish-ochreous to orange yellow except the first pair, they are orange at the base and black distally and longer than the rest. The head is rusty red.

The pupa is remarkably unicolourous; the dark marks are somewhat ? shaped and arranged in serial lines—dorso-lateral, ventro-lateral, and a few dark streaks ventrally; the wing cases are only slightly lined while the " shoulders " have three divergent streaks, the thorax has a dark central line and this is continuous with the stalk of a Y mark on the head; the two head projections are rather more developed than usual and black on the ventral surface, and there is a crescentic mark on the dorsal base.

ACRAEA DISJUNCTA, Gr. Sm.

Ref. Op. cit. No. 27, pp. 235-236: Vol. 1, Sep. 4, pp. 85-86.

The early stages are now complete. The eggs are laid on the stem and especially young shoots of *Urerea hipselidendron*, URTICACEAE, and are creamy white, turning yellow, then brown before hatching. The young larva is greyish-olive at first, then black with short spines. At the third instar, it becomes more ornamented, the ground colour being dark ochreous with blackish lines. The dorsum of the first segment has a large black transverse spot; an interrupted black line runs the length of the dorsum of the segments and each segment is finely lined transversely, with black up to the spiracular line which is bright ochreous; the underside of the body is buffy, the bases of the fore legs black, the others ochreous. The body spines are short, ochreous, and strongly branched, except the first pair which are long and less branched. The head is black except for fine ochreous hairs directed over the eyes. Length of mature larva 30 mm.

The pupa is fairly constant in colour, though some may be paler than usual in ground colour. The usual colour is pale brown with dark spots in series—a row along the dorso-lateral line slightly raised, ochreous in colour and outlined in dark brown, a latero-ventral series similar in colour, a ventral series more rectangular in shape but similar in colour; black lines around the cremaster; a central thoracic line with two branches is continued toward the head; this line is yellow spotted; on either side of the Y is a loop; wing cases veined brown, with streaks on the shoulders; head projections black-tipped.

ACRAEA ESEBRIA, f.f. *VICTORIS*, Poulton.

Ref. Op. cit. No. 27, p. 239: Vol. 1, Sep. 4, p. 89. Pl. XXX, fig. 8.

Professor Poulton has named the above form from females bred by me during 1923. The description is as follows: "Females resembling the male *protea*, but the ochreous marks of a paler tint, and differing from Trimen's female *protea*. . . ." The sub-apical band narrow and all pale areas pale ochreous. This form is genetically stable. Much work requires to be done to clear up the relationship of the various named forms—for example there is a male form which agrees with the ♀ form *metaprotea*, Eltr.

ACRAEA JODUTTA, f. *INTEGRA*, Schultz and Auriv.

This form has been taken by Jackson in the Budongo Forest and resembles *Planema schubotzi* f. *jacksonianus* to a marked degree.

ACRAEA JOHNSTONI BUTLERI, Eltr. Pl. 4, figs. 8 and 9.

Ref. Op. cit. No. 27, pp. 242-243.

Through the kindness of my friend T. H. E. Jackson, I am now able to give a figure of this interesting race. Jackson states that this race is very common on Ruwenzori and the Kalinzu forest.

It has been bred in numbers and is always constant, there being no other forms of *johnstoni* in these areas. It is a mimic of *Bematistes quadricolor*.

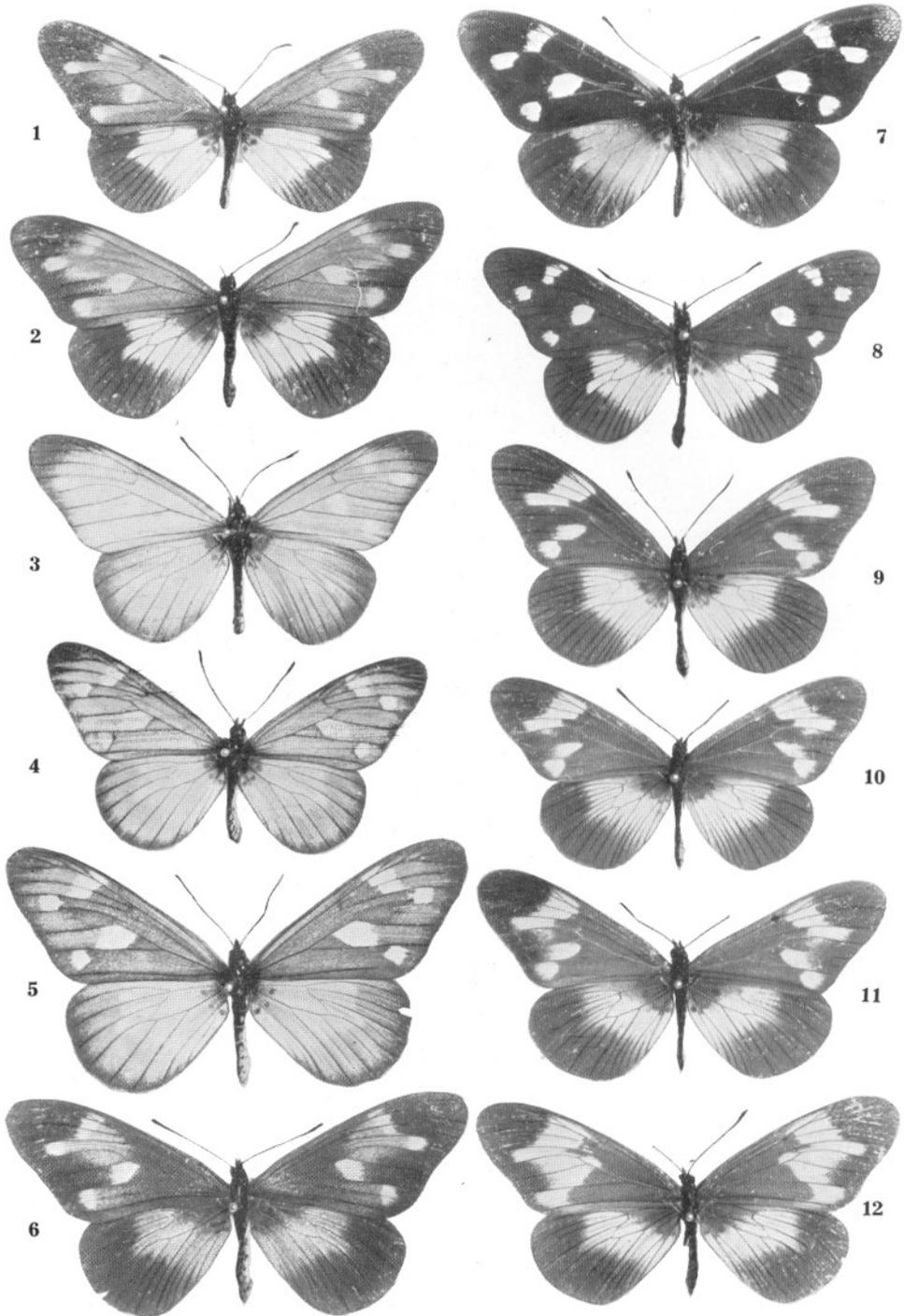
Miss Fountaine has supplied me with the description of the larvae and pupa. Larva, ground colour leaden grey, deep yellow stripes centred black between each segment. Spines yellow; head black. Pupa very pale cream colour, lined sparsely with black, with five rows of abdominal red spots slightly margined with greyish-black. Food plant a species of *Fleurya*.

Prof. Carpenter has written an exhaustive paper on the various races and forms of this species and through the kindness of Prof. Poulton and the kind permission of the Entomological Society I am permitted to use the plates illustrating the article and to quote therefrom. Two new forms are described which occur within the limits of our areas; they are as follows:

Form *valdemaculosa*, Carp. Vide Plate 10, fig. 9.

A form of *confusa*; it is characterised by the large size and pure white of the pale areas in both sexes. *Elgon and Teita.

PLATE 9.



A. Robinson, Photo.

Natural Size.

Forms of *Acraea johnstoni*, Godman.

EXPLANATION OF PLATE 9.

Forms of *Acraea johnstoni*, Godman.

All specimens in the Hope Department, Oxford University Museum, unless otherwise specified.

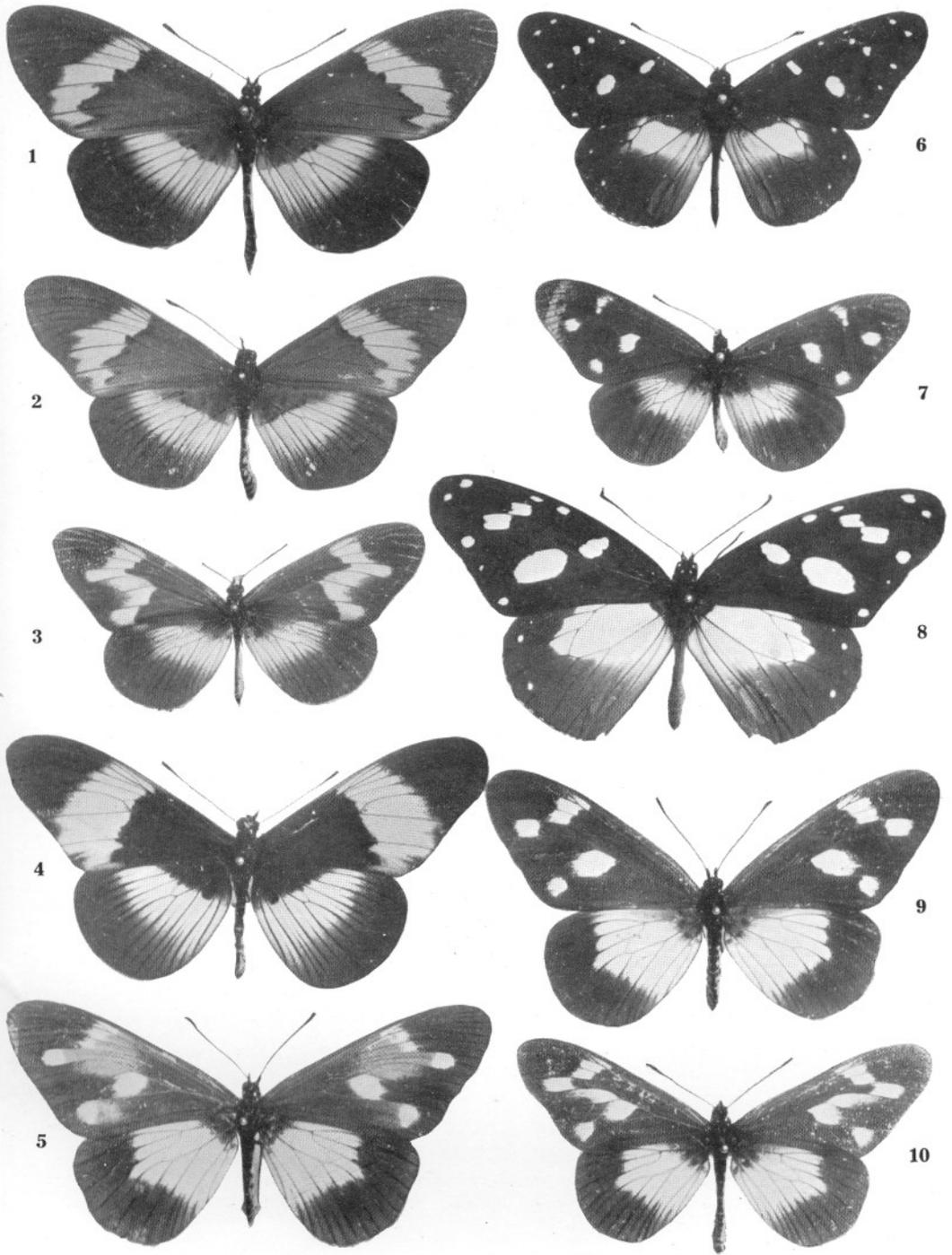
- FIG. 1. Form *johnstoni*, Godm. ♂. Tanganyika Territory, Usambara, Mabirioni, Tanga-Moshi Railway. July 14, 1916. *W. A. Lamborn*. Very little black suffusion of fore-wing, spots cream-coloured on tawny ground: central area of hind-wing white.
2. Form *johnstoni*, Godm. ♀. Uganda, E. Province, Mbale station, near Mt. Elgon. Aug. 10, 1911. *S. A. Neave*. No black suffusion of fore-wing: spots very little lighter than tawny ground-colour: central area of hind-wing white.
3. Form *fulvescens*, Oberth. ♂. Kenya Colony, Dabida Mt., Taita, 100 m. N.W. Mombasa. May 30, 1904. *K. St. A. Rogers*. Very uniformly coloured light brown: the spots only slightly paler and the broad border of the hind-wing scarcely differentiated: a narrow black margin only.
4. New form *pretiosa*, mihi.* ♂. Nyasaland, Mt. Mlanje. May 13, 1913. *S. A. Neave*. British Museum. Differs from 3 in large size and shining whiteness of spots.
5. New form *pretiosa*, mihi. ♀. Port. E. Africa, Mt. Chipirone, 1700 ft. Nov. 3, 1913. *S. A. Neave*. British Museum. Differs from 4 in being slightly suffused with black.
6. Transitional form. ♀. Uganda, Mt. Elgon, Bulago camp, 7000 ft. Dec. 23, 1928. *G. D. Hale Carpenter*. Fore-wings like *johnstoni* with much black suffusion at base: spots very little different from surrounding tawny ground-colour. Hind-wing with strongly marked black patch at base, the paler area tawny. Might be classified as a form of *octobalia*, Karsch.
7. Form *semialbescens*, Oberth. ♀. S.E. Sudan, Didinga Mt., Nagichot, 6700 ft. Jan. 4, 1926. *G. D. Hale Carpenter*. Spots of fore-wing pure white; central area of hind-wing tawny.
8. Form *flavescens*, Oberth. ♂. S.E. Sudan, Didinga Mt., Nagichot, 6700 ft. Jan. 1, 1926. *G. D. Hale Carpenter*. Spots of fore-wing, and central area of hind-wing, lemon yellow.
9. Form near *praelongata* ♂, Joicey and Talbot. ♂. North end L. Kivu. Mt. Ninagongwe, 1900-3000 metres. End of September, 1907. *R. Grauer*. Tring Museum. Spots of fore-wing white, central area of hind-wing yellowish-white. Ground-colour of fore-wing very slightly suffused with reddish scales. Cf. Pl. 10, fig. 10.
10. Elementary form of *butleri*, Auriv. ♂. Uganda, Western Province, west of Ankole forest, 4500-5000 ft. Oct. 14, 1911. *S. A. Neave*. British Museum. Spots of fore-wing and central area of hind-wing dull yellow: base of fore-wing slightly purplish-brown.
11. Form *butleri*, Auriv. ♂. Same data as 10. Spots of fore-wing orange, central area of hind-wing tawny, with darker streaks. Base of fore-wing purplish-brown.
12. Form *butleri*, Auriv. ♀. Uganda, W. Province, Toro, Mpanga forest, 4800 ft. Nov. 13, 1911. *S. A. Neave*. British Museum. Fore-wing bar orange: base of fore-wing purplish-brown. Central area of hind-wing tawny, paler along inner margin, streaked with darker tint.

EXPLANATION OF PLATE 10.

Forms of *Acraea johnstoni*, Godman, with species to which they have synposematic resemblance.

All specimens in the Hope Department, Oxford University Museum.

- FIG. 1. *Planema quadricolor latifasciata*, E. Sharpe. ♀. Uganda, E. Province, Mt. Elgon, Bugananya, 7000 ft. Nov. 29-30, 1924. *G. D. Hale Carpenter*. Bands on fore- and hind-wing orange, base of fore-wing purplish-brown.
2. *Planema quadricolor latifasciata*. ♂. Uganda, W. Province, Toro, 7000-9000 ft. Nov.-Dec., 1900. Native collector of *C. A. Wiggins*. Description as 1. Model for 3.
3. *A. johnstoni butleri*, Auriv. ♂. Data as 2. The band on the fore-wing is unusually complete for a male. Cf. with figs. 10 and 11 on Pl. 9. Mimics 2.
4. *Planema poggei*, Dew. ♂. Uganda, E. Province, Busitema, between Mt. Elgon and L. Victoria, 4000 ft. Jan., 1923. *G. D. Hale Carpenter*. Band on fore-wing orange, on hind-wing white. Model for 5.
5. *A. johnstoni johnstoni*, Godm. ♀. Kenya Colony, Taveta, 2500 ft. May 15, 1905. *K. St. A. Rogers*. Fore-wing black at base: spots dull yellow, area between spots orange. Hind-wing white central area. Mimics 4. An unusually large specimen.
6. *Amauris albimaculata*, Btlr. ♂. Uganda, E. Province, Mt. Elgon, Bulago, 7000 ft. Dec. 25, 1928. *G. D. Hale Carpenter*. Spots of fore-wing white, central area of hind-wing yellow. A small specimen of the type serving as model for 7.
7. *A. johnstoni confusa*, Rog. ♂. Same locality as 6. Dec. 24, 1928. *G. D. Hale Carpenter*. Spots on fore-wing white, central area of hind-wing yellow. Mimics 6.
8. *Amauris dannfelti*, Auriv. ♂. N.E. Rhodesia, N. Lake Bangweolo, Luwingu, 4200 ft. July 18, 1908. *S. A. Neave*. Black and white. Model for 9.
9. *A. johnstoni valdemaculosa*, f. n. mihi. ♀. Nyasaland, Mt. Mlanje. April 16, 1913. *S. A. Neave*. The type specimen. Black and white. Mimic of such *Amauris* as 8.
10. *A. johnstoni confusa*. ♂ var. Kenya Colony, Dabida Mt. 4500 ft., about 100 miles W.N.W. of Mombasa. May 31, 1916. *K. St. A. Rogers*. Black and white. An important variation with a white patch in area 3 of fore-wing. Cf. Pl. 9, fig. 9.



A. Robinson, Photo.

$\frac{1}{2}$ Natural Size.

Forms of *Acraea johnstoni* and their models.

Form *pretiosa*, Carp. Pl. 9, figs. 4 and 5.

Like *fulvescens*, but with the fore-wing spots large and pure white.
Dabida, Teita.

These two forms are figured by me on Pl. XXXIII, figs. 6, 9, 10;
and Pl. XXXIV, figs. 8 and 9.

For the distribution and prevalence of the various forms in each
area, I would refer readers to Prof. Carpenter's paper, *Trans. Ent.
Soc.*, Vol. LXXX, 1932.

The form *octobalia*, Karsch, is rather scarce, but occurs in the
Elgon, Kenia, and Dabida-Teita areas. This has the fore-wing spots
and hind-wing patch tawny yellow. An extreme variation of this is in
my collection: it has the ground colour of the fore and hind-wings a
deep brown black and the spots of the fore-wing and hind-wing patch
a deep tawny-ochreous, almost rusty. This specimen is probably
derived from the forms *johnstoni* and *octobalia*.

Two large bred families from the Kitale district derived from
confusa parents gave 43 and 48 *confusa* offspring.

ACRAEA ANSORGEI, Gr. Sm. Pls. 11 and 12.

Ref. Op. cit. No. 27, pp. 232-235. Vol. I, Sep. 4, pp. 83-84.

Since writing the original notes on this species some of my bred
material has been submitted to Dr. Eltringham, and determined as
far as possible, according to already named forms. My previous notes
therefore require considerable modification, and amplification.

The rough division into two groups as indicated on p. 233 of the
Journal No. 27 and p. 83 of Sep. No. 4, still holds good. As regards
the figures on Pl. No. XXVI, I have taken the liberty of again reproduc-
ing them with amended determinations. Vide Pl. XXVI. This plate
is supplemented by a fresh one depicting forms not previously figured.
The general division as given on pp. 83-84 of Sep. 4 should be modified
as follows:

Group A. More or less of the *conjuncta* pattern, having a broad
dark hind-wing border.

1. Spots on fore and hind-wing bright tawny orange = *conjuncta*
(male). Pl. 12, fig. 1. Pl. 11, fig. 8.
2. Spots on fore and hind-wing paler, more Naples yellow = *conjuncta*
(female). Pl. 12, fig. 6.
3. Spots on fore and hind-wing as 1, but spots smaller and that in
1b reduced and separated from 2 = *interrupta*, Eltr. Pl. 11, fig. 9.

4. Spots on fore and hind-wing much as in 1, but deep tawny orange to chestnut=f. nov. RUFONIGER. Pl. 11, figs. 1 and 2.
Type ♂, Uplands, April, 1926.
5. Spots on fore-wing creamy; patch in hind-wing ochreous, hind-with border strong=f. nov. LUTEFLAVA. Pl. 11, fig. 7.
Type ♂, Tusso, Nov., 1926.
6. Spots on fore and hind-wing patch pale ochreous, paler than *conjuncta*, h.-w. with border=*silacea*, Eltr.
7. Spots and patch in hind-wing as in 6 but sub-apical series white=*mutata*, Eltr. Pl. 11, fig. 6.
8. All spots in fore-wing white, hind-wing patch tawny-orange, dark h.-w. border broad and defined, or may be rather ill-defined. f. n. TRICOLOR. Pl. 12, figs. 3 and 4.
Type ♀, Uplands, April, 1926.
9. Very like 8, but discal spots tinged with yellowish, and that in 1b vestigial. Pl. 12, fig. 4 (intermediate form).
10. Hind-wing as in 8, but spots in fore-wing Naples-yellow=f. nov. FLAVIPUNCTA. Pl. 12, fig. 2.
Type ♀, Uplands, April, 1926.
11. Spots in fore-wing and hind-wing patch white, spot in 1b often reduced to streak=*pica*, Eltr. Pl. 12, fig. 5.
12. Spots in fore-wing rich orange-red; hind-wing patch white or distally tinged pinkish-ochreous=*lutealba*, Eltr. Pl. 12, fig. 7.
13. Somewhat like *lutealba*, but fore-wing spots larger and less defined, often with orange rays extending in 3 to 6 to outer margin; hind-wing patch orange-ochreous, paler toward base. H.-w. border with dark rays=f. nov. ADAURANTICA. Pl. 12, fig. 13.
Type ♀, Uplands, April, 1926.
14. Sub-apical spots pure white; other fore-wing spots rich tawny-orange, hind-wing patch rich tawny-orange; marginal border rusty-brown with black at margin=f. nov. CHRYSSIPOIDES. Pl. 12, fig. 14. (This form bears a remarkable likeness to *Danaida chrysippus*.) Type female in Coll. Ruscoe, Escarpment, 1918.

Group B. Forms in which the hind-wing dark border is wanting; or only indicated by dark rays.

1. Ground colour orange-tawny; apical portion of fore-wing black-brown, sub-apical spots tawny; basal black limited to basal $\frac{2}{3}$ of cell, the base of 1b and angle of 2. Hind-wing entirely orange-tawny except for slight dark rays at margin and slight dark suffusion at base = *ansorgei*, Gr. Sm. Pl. 11, fig. 3.
= *aurata*, Bryk. Syn.
2. Very similar to 1, but dark areas reduced, especially at base of fore-wing = *aurivilliana*, Bryk. Pl. 12, fig. 11. Fig. 12 a modification of this form.
3. Fore-wing dark areas as in *ansorgei*, but spots ochreous, while hind-wing lacks dark border, this area being orange ochreous, paling towards base; base slightly suffused with dusky scaling (a form near *silacea*, Eltr.) = f. nov. *FLAVEOLA*. Pl. 11, fig. 4.
Type ♀, Uplands, April, 1926.
4. Somewhat like 3, but less suffused with orange-ochreous on the hind-wing and fore-wing spots = *loveni*, Bryk. Pl. 12, fig. 9.
5. Dark markings as in 3 and 4, but fore-wing spots and hind-wing pale creamy ? = *jeffreyi*, Bryk. Pl. 12, fig. 8.
Pl. 11, fig. 5, is a modification in which the extreme border of the hind-wing is blackish and black rays extend inward.
6. Fore-wing spots tawny-orange; hind-wing entirely creamy but for slight dusky scaling at extreme base = f. *vansomereni*, Bryk. Pl. 12, fig. 15.
7. Sub-apical spots white, other fore-wing spots creamy-yellow, hind-wing entirely orange-tawny = f. *paulinae*, Bryk. Pl. 12, fig. 10.

The types of all the forms here described are in the Coryndon Memorial Museum, Coll. van Someren. The forms are represented by bred series from known parents and batches of wild larvae.

Distribution: Add to the distribution: Kiptiget, Sotik, Mara River and Tusoo, Eastern Aberdares.

Observations: Examination of a series of this species, numbering 180 odd examples, reveals some interesting facts. The forms *conjuncta*, *interrupta*, *rufoniger*, *tricolor*, *luteflava*, are essentially male forms. Of 40 *conjuncta*, there are four females, similarly coloured to, or slightly paler than, the males. Of eight *rufoniger*, two are females, coloured

as the male. Of four *tricolor*, one is a female. Of 22 intermediate between *conjuncta* and *rufoniger* all are males. Of six *luteflava*, all are males. Of *interrupta* all are males. All the other named forms are entirely females.

All males have a dark border to the hind-wing; the majority of females are without this border, or if present, it is not so defined or dark as in the males.

There is some variation in the shape of the fore-wing; many are short and rounded.

A very interesting fact is, that in this species, we find just such variations as one meets with in *Papilio dardanus polytrophus*, the common *Papilio* in the "home" of *A. ansorgei*, i.e. Kikuyu Escarpment, forested zone. And the reason? To appreciate this resemblance, one has to see the variations of the two, set out side by side.

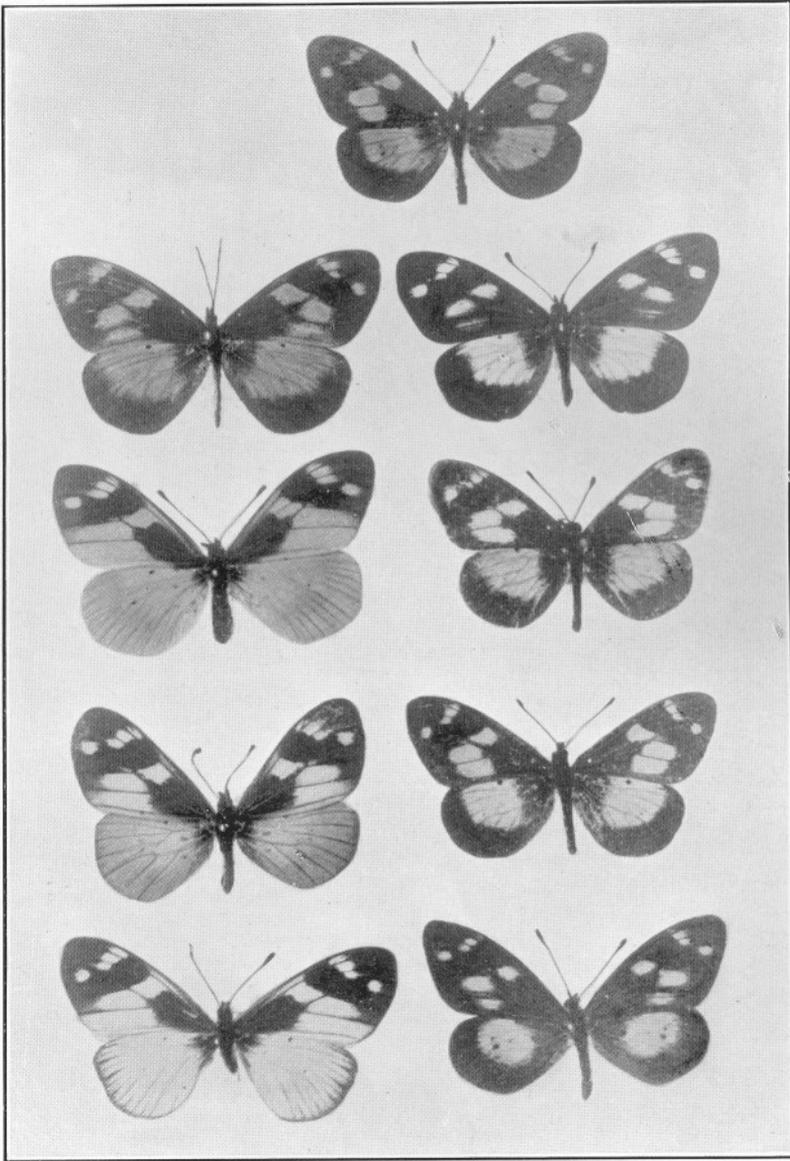
PARDOPSIS PUNCTATISSIMA, Bdv. Pl. 7, figs. 8 and 12.

This species was omitted from my previous paper owing to some uncertainty regarding its affinities. It has been provisionally associated with the *Acraeas* but as pointed out by Eltringham, "the fore feet are of the usual *Nymphalid* kind, but the middle and hind feet have the tarsal extremities of a structure quite different from that in *Acraea*." He adds further, that "it would almost appear that *Pardopsis* . . . should have a sub-family to itself."

The fact that it is *acraea*-like in habits and flight is not sufficient to associate it with that genus, and one must base its position on morphological characters. It is of interest to note, therefore, that the egg, larva, and pupa are of the *acraeinae* type. I have bred the insect on a species of recumbent herb belonging to the *PASSIFLORACEA*. The egg is a long spindle-shape with longitudinal ridges and slight cross marks, yellow to cream in colour at first, then turning greyish before the larva emerges. The larva is greyish, slightly translucent, and adorned with very short branched spines in rows, dorso lateral, lateral and ventrolateral, of the same colour as the body. A mature larva has a centro-dorsal pale ochreous line and cross-lines of the same colour behind each series of spines. The thoracic spines, and also those of the penultimate segment, are darker and longer than the rest.

The pupa is elongate, and very similar to that of *Ac. terpsichore*, but the head is less bifid, and the abdominal ornamentation is a series of incomplete crescentic marks with pale central marks. The venation on the wing cases is fine and hardly darker than the grey-ochre ground colour.

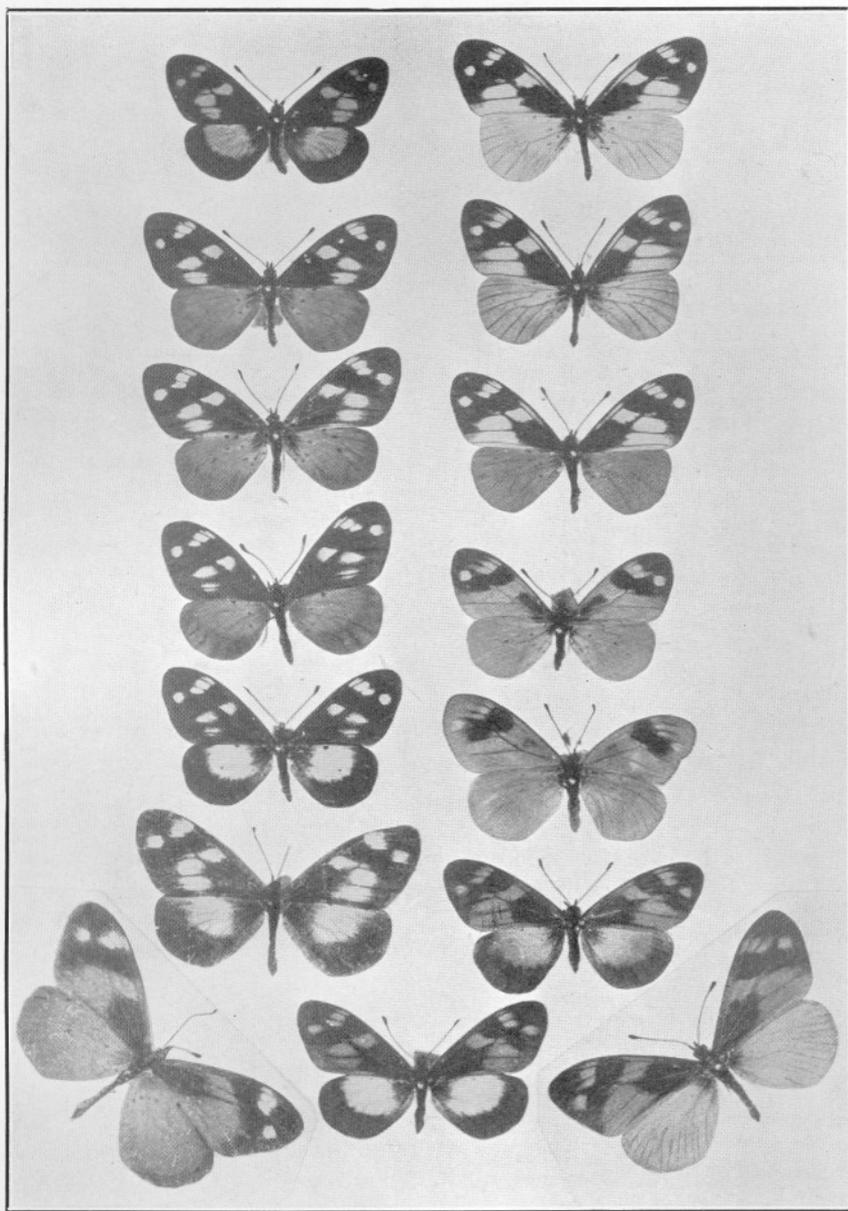
PLATE 11.



Variations of *A. ansorgei*.

Figs. 1—2. *f. rufoniger*.
Fig. 3. *f. ansorgei*.
Fig. 4. *f. flaveola*.
Fig. 5. *f.*

Fig. 6. *f. mutata*.
Fig. 7. *f. luteiflava*.
Fig. 8. *f. conjuncta*.
Fig. 9. *f. interrupta*.



14

7

15

Variations in *A. ansorgei*.

- Fig. 1. f. *conjuncta*.
 Fig. 2. f. *flavipuncta*.
 Figs. 3-4. f. *tricolor*.
 Fig. 5. f. *pica*.
 Fig. 6. f. *conjuncta*.
 Fig. 7. f. *lutealba*.
 Fig. 8. f.

- Fig. 9. f. *loveni*.
 Fig. 10. f. *paulinae*.
 Fig. 11. f. *aurivilliana*.
 Fig. 12. f. *aurivilliana*.
 Fig. 13. f. *adaurantica*.
 Fig. 14. f. *chryssipoides*.
 Fig. 15. f. *vansomereni*.

The ground colour of the fore and hind-wings of the imago is tawny ochreous, with numerous black spots arranged in a constant pattern (vide plate), and the apex of the fore-wing is blackish.

Distribution: This species has a very wide distribution, being extremely common at the coast (where it acts as the model of a Liptenine, *Telipna amanaida*, examples of which are extremely like the model) extending through the dry thorn country of the Masai to N. Kavirondo, and on the east, through Ukambani to Rudolf, thence west through the more open country of Uganda.

Though not found at the high altitudes, it occurs at Nairobi, and is to be seen in the forest clearings but not in the forest itself. At the coast, however, it occurs in the open forest quite frequently.

NYMPHALIDAE. Nymphalinae, Charaxidi.

Genus *EUXANTHE*.

EUXANTHE TRAJANUS VANSOMERENI, Poulton.

Ref. Op. cit. No. 30, pp. 59-60: Vol. 1, Sep. VI, p. 113 and plate.

The eastern race of *trajanus*, as indicated in my notes, is distinct from the nominate race and was described by Prof. Poulton in *Trans. Ent. Soc.*, Vol. 77, 1929.

The race has been bred by me and as already stated, the horns of the larva and that of *Eux. tiberius tiberius* and *tiberius meruensis*, mihi are very similar and quite distinct from those of the other species of this genus. It rather suggests that we should recognise a sub-genus for these two species with such distinctive larvae and general facies in the imagines.

The food plant of *Eux. trajanus vansomereni*, is identified as "Muziru" (Luganda) *Deinbollia*, SAPINDACEAE.

EUXANTHE TIBERIUS, Smith.

I have long suspected that the specimens of *tiberius* from the low-lying forests of Meru would prove to be a constant geographical race, when more material was forthcoming. I based my view on material bred by me, but unfortunately undersized.

The Meru insect has recently been taken in some numbers by Messrs. Hamilton Gordon and Berkeley and also by Miss Fountaine and Barton Eckett. This material has now been placed at my disposal. I therefore describe the race as follows:

EUXANTHE TIBERIUS MERUENSIS, Sub-sp. Nov.

Pl. 13, figs. 1 and 2.

MALE: Differs from the coastal race in being much richer in colour generally; the sub-marginal row of white spots in both fore and hind-wings smaller; the yellowish spots of the fore-wing deeper yellow and, on the whole smaller; the hind-wing ground colour deeper purply-blue-black; the amount of rufous at the base of the fore-wing more extended in 1b.

Underside: The same general remarks apply to this surface.

FEMALE: Differs from the nominate race in that the pale spots are reduced in size, especially those of the central bar; further, all these spots except the sub-marginal ones are lemon-cream, not pure white; further, the hind-wing patch is lemon-cream and almost rectangular especially in the outer and hind angle; the mid-row of spots are cream; the sub-marginal ones of both fore and hind-wings, white; the hind wing patch as above but slightly paler and the sub-marginal row of small treble white spots are diffusely edged with black.

A series of thirty odd examples, male and females compared.

Type male, Meru Forest, March, 1929, in Coryndon Museum.

Type female, Meru Forest, March, 1935, Berkeley Leg. in the Museum.

The food plant of the race is *Deinbollia* nr. *kilimanjarica*, SAPINDACEAE.

The females of this race bear a decided resemblance to *Melinda formosa formosa*.

EUXANTHE WAKEFIELDI.

The food plant of this species is *Deinbollia kilimanjarica*, SAPINDACEAE.

AUXANTHE CROSSLEYI ANSORGEI.

AUXANTHE EURINOME ANSELLICA.

The food plants of these two species is *Phialodiscus zambesiacus*, SAPINDACEAE.

Genus CHARAXES.

CHARAXES FULVESCENS.

Attention was drawn in my notes to two distinct races of *fulvescens*, within Kenya, Op. cit. No. 31, p. 119, and the tentative identification of one as *acuminatus*, Th., Pl. LII, figs. 1-2; a high country race

inhabiting the forests of Kikuyu, to the Aberdares and Mau, and a mid-eastern race of the Elgon-Nandi area west of the Mau, and a mid-eastern race of the Elgon-Nandi area west of the Mau, which I had bred in 1916. Both these races have been bred by me in large numbers and both are constant.

In my published notes I refrained from applying new names to these obviously different races, because no typical examples of *acuminatus* from Tanganyika could be compared neither here nor in England. However, since my paper Jeffrey of Kitale has named the Elgon race STONEHAMI, Bull. Stoneham Museum, No. 4, Sept., 1931.

CHARAXES PROTOCLEA AZOTA, Hew.,

Ref. Op. cit. No. 31-32, p. 126: Vol. 1, Sep. VII, pp. 140-141.

The following may be added to the early stages of this insect: The eggs are laid singly or in twos on the leaves of *Afzelia cuanensis*, Welw., LEGUMINOSAE, and also on *Syzygium* sp. nr. *guinensis*, MYRTACEAE. They are rather barrel-shaped, flattened on top, with distinct fluting, and rounded at the base. Colour cream until the fourth day when they turn brown along the upper lip then all over, then blackish as the larva is ready to emerge. As with most species the young larva devours the egg shell. The larva is dull olive with black horns and stippled face; tail end bifid and spotted with white. It turns green at the next moult. The head of the mature larva is somewhat reminiscent of that of *Ch. candiope*, though with less divergent lateral horns; the horns are rusty brown, and this colour is carried down along the border of the facial disc to just above the mouth parts which are black. There is a pale ochreous line internal to the brown border. The body of the larva is strongly irrorated with yellowish tubercles most conspicuous along the lateral line and the "tail." Dull ochreous oblique lines pass to the suctorial legs. The dorsal marks are well shown on the plate cited; they are putty grey with blue dots on the edges or dull greyish-pink with blue; the central ornamentation has a distinct oblique cross. The pupa is a beautiful object, pink and chocolate, and has already been described.

CHARAXES LUCRETIUS, Cram. Pl. 14, fig. 2.

Ref. Op. cit. No. 31-32, pp. 132-134: Vol. 1, Sep. VII, pp. 146-148.

We have now succeeded in completing the life history of this species, which is as follows: The eggs are laid on the young leaves of "Runaba"; *Hugonia platycephala*, Welw., LINACEAE. "Kiasira" of the Buganda. The eggs are small, almost spherical, slightly con-

stricted at the top, slightly flattened and fluted, and creamy in colour. The larva is at first dull brownish-olive with minute white dots, head black and irrorated and "tails" whitish. At the first moult it turns dull green, the irroration is less marked and ochreous; the head is then brownish along the top, greenish on the lower half. The full grown larva is bright leaf-green finely irrorated with yellow, no dorsal ornamentation on the specimens reared, but the spiracular line is bright yellow with bright blue spiracles; the undersurface of the body pale whitish-green; head green strong tubercled, with a faint ochreous line from the central long pair of horns to the lower angles; three black dots just above the angles; margin of head slightly yellowish, and serrated along the back; horns short, central ones almost straight with a slight inward tendency at tips, outer pair the same, all slightly brownish at distal two-thirds with darker brown to black tubercles; interspaced horns short and often black-tipped. Length 60-65 mm.

Pupa pale green, almost unicolourous, some slight white mottling on the wing cases and a black streak along the wing ridge; spiracles yellow with blue oblique line; cremaster pedicle short, and dark brown, offset on either side by two kidney-shaped tubercles convexity toward base, and two almost circular lobes on the anal ventral surface. Pupal period six weeks.

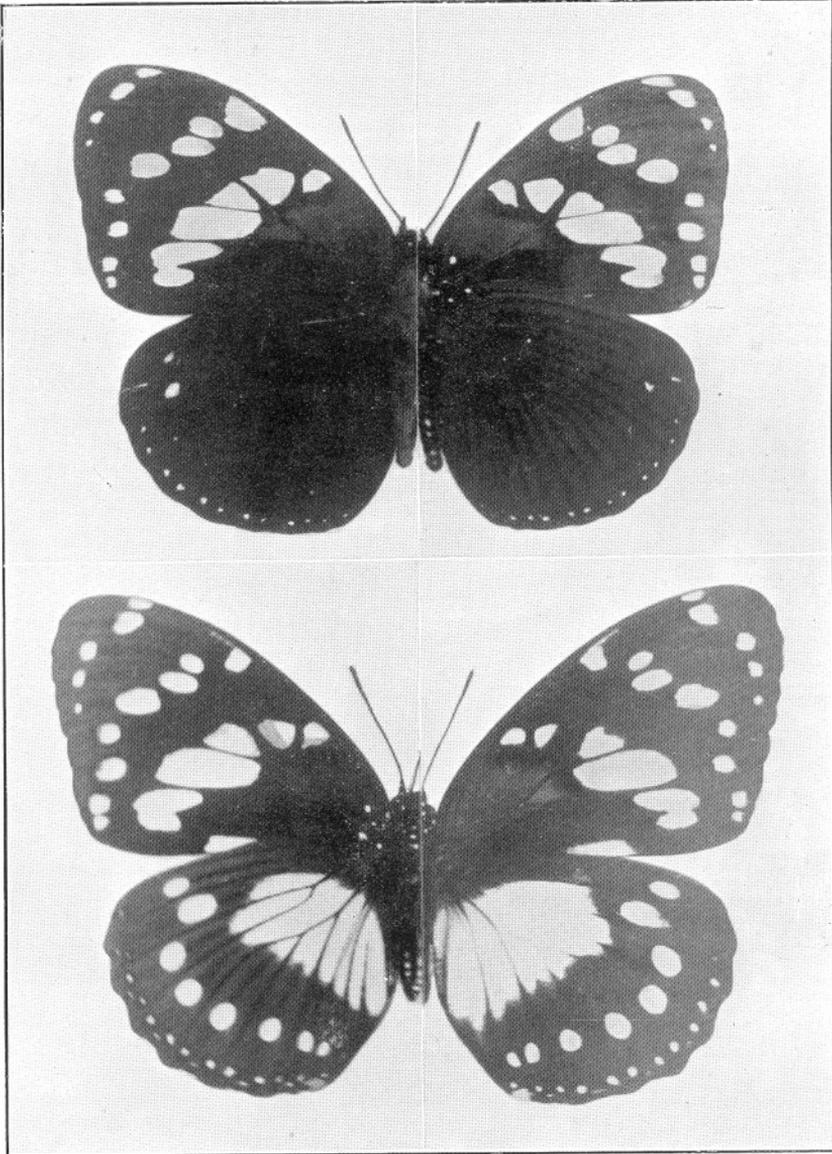
CHARAXES LACTINCTUS, Karsch. Pl. 14, fig. 1.

Ref. Op. cit. No. 31-32, pp. 134-135: Vol. 1, Sep. VII, p. 148.

With the help of Jackson and Evans, I am now able to give a description of the female of this species. It seems to appear in two forms: the one very like the male, but larger and with long tails and wider whitish areas; the other taken by Jackson has the light areas of the fore-wing strongly suffused with rufescent so as to almost obliterate the whitish patch; the same in the hind-wing, except in the mid-disc which still retains the bluish-white, but this is edged distally with a bright rufescent area; the fore-wings are less black, more suffused with rufescent and the paler orange rufescent spots are wider. The undersurface is strongly marked in the fore-wing in both the silvery and dark marks, while the hind-wing has a strong chestnut post-discal bar edged with lilac-grey, narrowly on proximal edge, and widely on distal side; the marginal border is rufescent finely edged with blackish unules in the interspaces. There are also some silvery lines and spots in the upper basal area. This latter form I name JACKSONIANUS, n. nov. Type ♀, Jackson Coll. in Coryndon Memorial Museum.

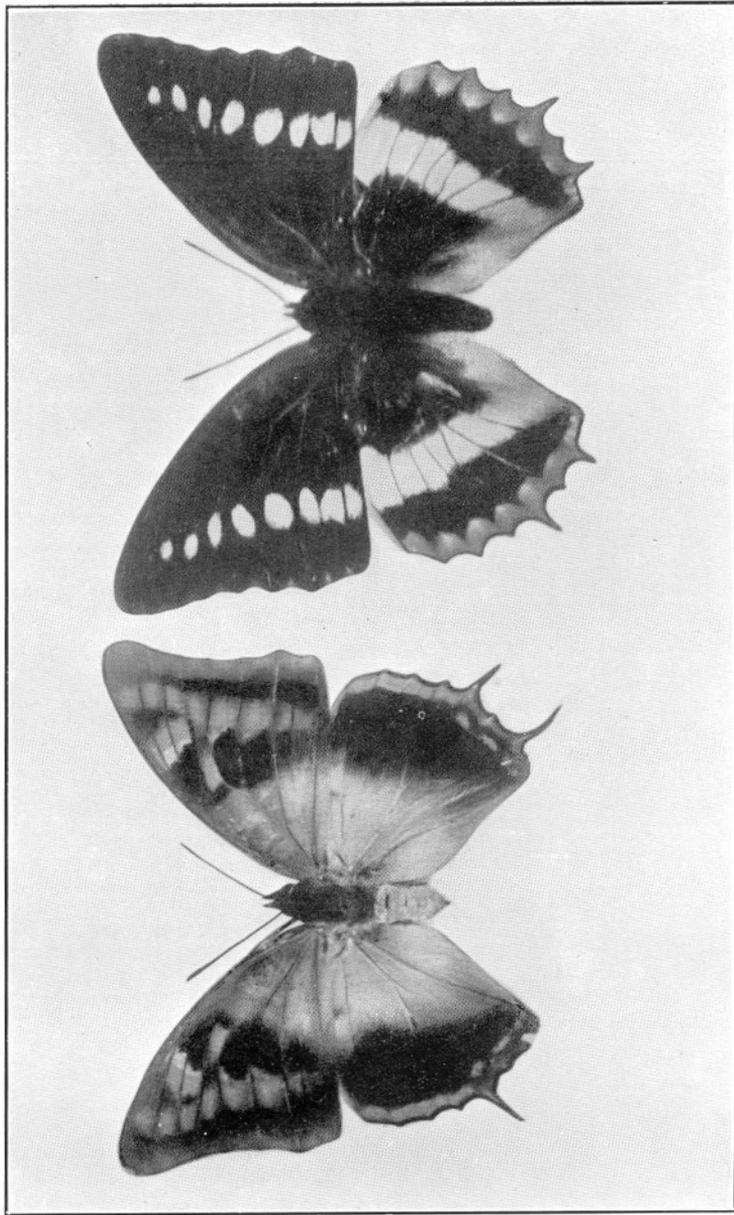
The early stages of the species have been described by Jackson, Pl. No. 42-43, p. 173, but for convenience are repeated here. Food plant *Syzygium cordatum*, MYRTACEAE. Larva rather light green; the skin has a rough appearance due to numerous papillae. The body

PLATE 13.



Euxanthe tiberius meruensis, van Som.
Male and female. Upper and under surfaces.

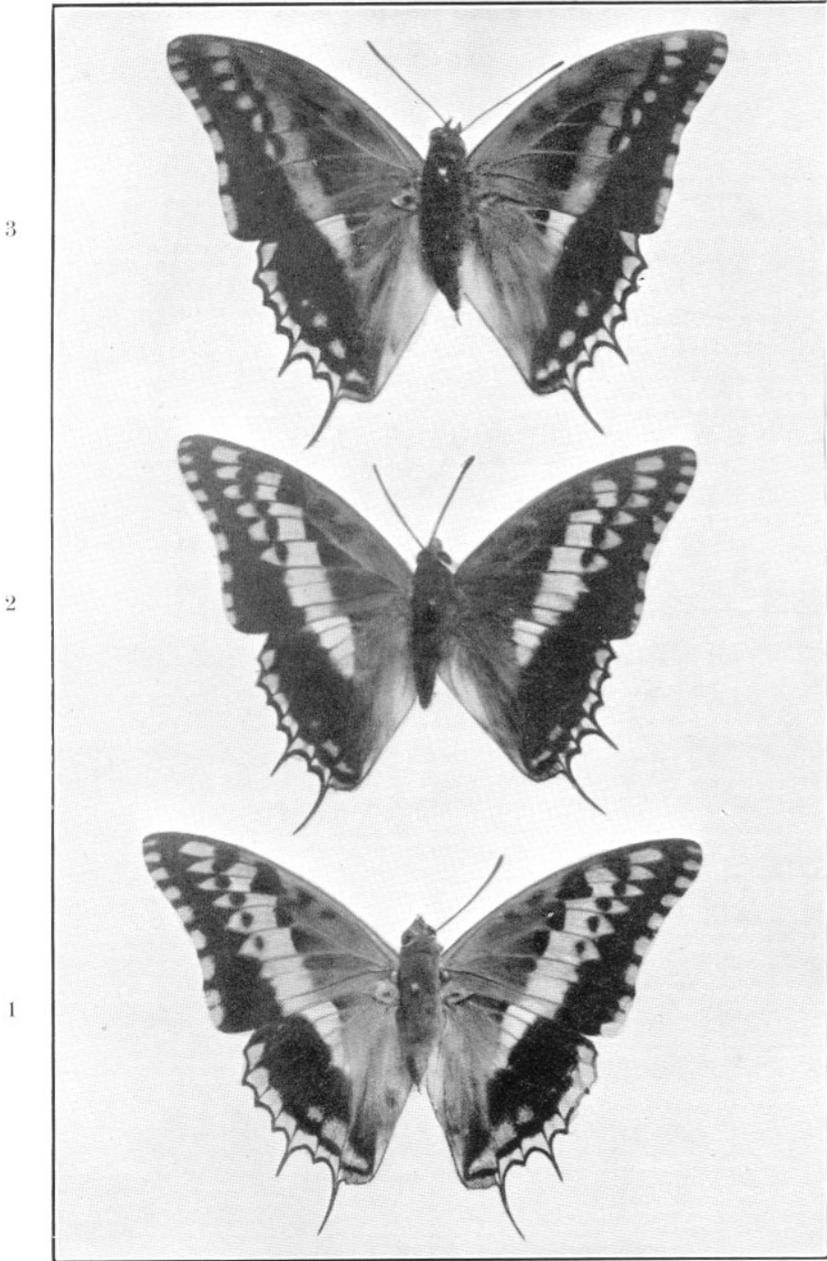
PLATE 14.



Chx. lactitinctus, female,
f. *jacksonianus*, van Som.

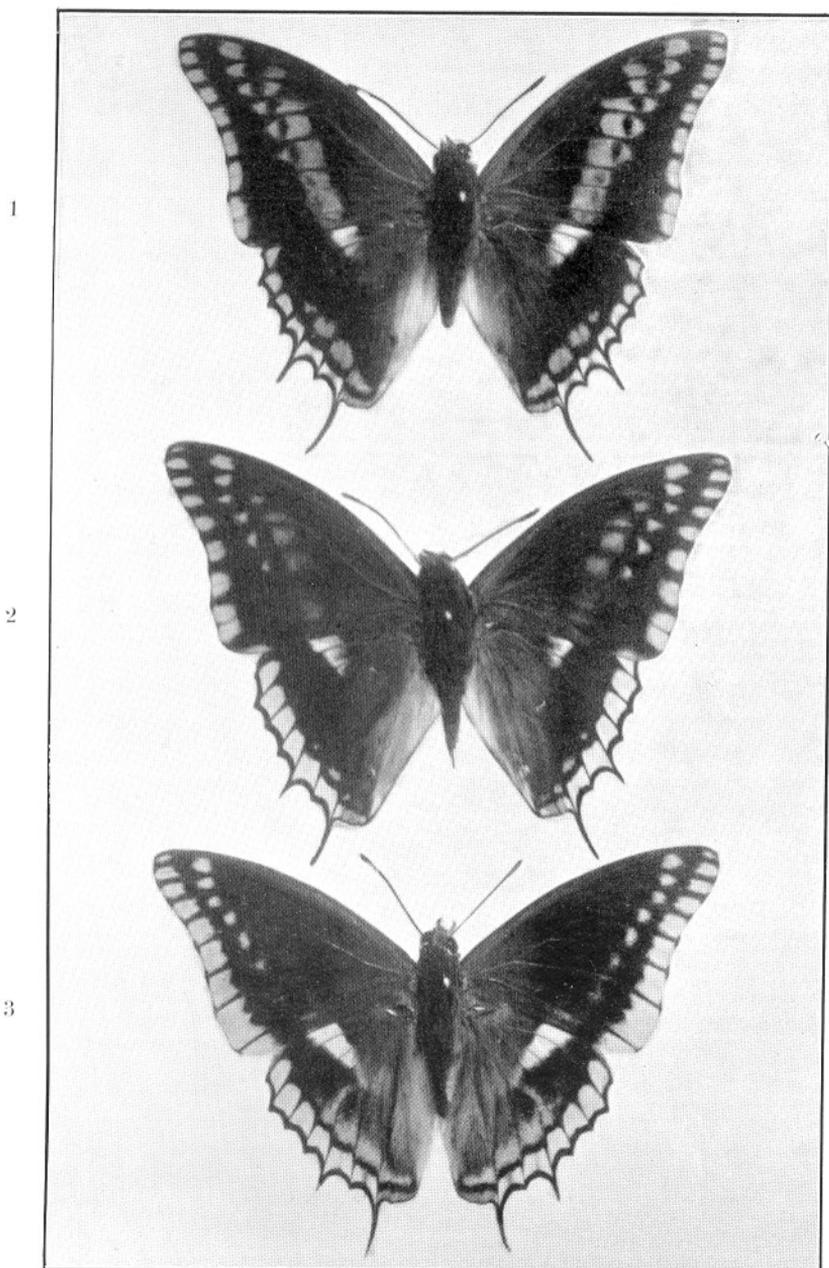
Chx. lucretius, female.

PLATE 15.



Variation in *Ch. pelias harrisoni*.

PLATE 16.



Variation in *Ch. pelias harrisoni*.

Showing a gradual dark suffusion over the basal area of the fore-wings especially, but widening of marginal border. Fig. 3 very like *Ch. j. epijasius*.

line is pale yellowish white and the anal extremity is bluntly bifid. There are two large dorsal spots, one on the 6th, the other on the 8th segments, colour enamel white, in fact startlingly so; that on the 8th is oval, the other circular and smaller. The head is green outlined with whitish, shield-shaped, much longer than broad and square across the mouth parts. There are four principal horns, thick, blunt-ended and almost straight, roughened with papillae; the inner pair are 6 mm. long on the outside, tipped with dark red for 2 mm.; the outer pair are 3 mm. and almost entirely red. The outer horns curve slightly inward and all four are glazed in appearance.

The pupa is plain light green with no red markings whatsoever, except on the spiracles, which are reddish-brown. It is shaped rather like that of *pollux*, except that the abdominal segments curve away sharply from the cremaster. The head case is almost square, and there is practically no depression or "waist" mid-way across the wing-cases; anteriorly it is straight. Cremaster pale olive brown with bilobed processes on either side and two triangular excrescences in front and below on the venter of the anal segment. Pupal stage 36 days.

CHARAXES JASIUS EPIJASIUS, Reiche. Pl. 17, fig. 3.

Ref. Op. cit. No. 31-32, pp. 135-137: Vol. 1, Sep. VII, pp. 149-152.

As with many species of *Charaxes*, *epijasius* is subject to varying degrees of melanism; an extreme example is figured. The whole of the upper surface, with the exception of the marginal border and a few blue spots at the anal angle, brown-black, and where the blue area of the hind-wing should be, it is here olive. It is thus very like *jasius jasius*.

CHARAXES PELIAS SATURNUS, Butlr. Pl. 15, figs. 1 and 3.

Pl. 16, figs. 1 and 3.

Ref. Op. cit. No. 31-32, pp. 138-140: Vol. 1, Sep. VII, pp. 152-155.

CHARAXES PELIAS HARRISONI, Sharpe.

Here also melanism is often met with, but again in no genetically stable form. It is especially evident in the race *harrisoni*. I find in a series of some twenty topotypical examples, a great deal of variation, some examples being just as pale and with black areas just as restricted as in examples of *saturnus*, from the coast, but on the whole, the dark brown areas at the base of the fore-wing and hind-wing are darker and the post-discal bar is narrower and darker; the blue spots of the hind-wing are larger, and in many cases the hind-wing submarginal pale

border is paler and wider, but this last character is somewhat variable. On the other hand, there are three specimens from this South Kavirondo area which are here figured, which show certain characters found in *epijasius*, viz. the very wide pale border to both hind and forewings, especially the latter, and a diffusion of the fore-wing markings into the very dark brown, and obscuring the fore-wing bar. One might almost suspect fig. 3, pl. 16, to be a hybrid between *harrisoni* and *epijasius*.

Add to the food plants of this species: *Gymnosporia senegalensis*,
CELAESTRACEAE.

CHARAXES HANSALI BARINGANA, Rothsc.

Ref. Op. cit. No. 31-32, pp. 142-143: Vol. 1, Sep. VII, pp. 156-7.

This insect has now been taken in South Kavirondo and quite commonly in the Kitale district. These Kitale specimens exhibit a greater number and more prominent row of spots outside the post-discal row than do specimens from the Voi-Taveta area.

The life history has now been completed, except for exact notes on duration of the various instars. The eggs are laid on a shrub or bush known to the Swahilis as "M'swaki" and determined by Kew as *Salvadora persica*, SALVADORACEAE. It is also reported on *Osyris* sp. SANTALACEAE. The eggs are rounded barrel shape with round bottom and flattened top, strongly ridged, with a slight circular depression inside the rim and a central raised spot. The colour is white or creamy at first then turns ochreous; the germ develops and a brown ring appears at the upper margin and shortly the whole egg turns brown then blackish. The young larva is olive with a black head and slight signs of papillation. After the first moult the general colour becomes green with the head of the same colour, with a central brown line and large dark patches on the lateral discs. The horns are divergent and brown. At the next instar the head is greener, the brown facial mark disappears but the face is outlined with yellowish with a black margin; the horns are rufous to their bases with a slight extension of this colour on to the facial disc; the short intermediate horns are black. Having again moulted, the body greener, very finely papillated with yellowish, but there is no dorsal ornamentation. The head is green, the facial margin turns yellow; the horns are green except for the tips, which are rufous; the face line is edged with black which colour extends up the posterior surface of the two outer horns. The intermediate horns are now green.

The mature larva is pale green finely stippled with yellow; some few examples develop two dorsal spots, reddish in colour and outlined

with small yellow and dark green spots, situated on the 6th and 8th segments. The spiracular line is yellow, and the spiracles blue; the lower surface of the body is pale pinkish green. The head is now green; a fairly broad yellow border runs round the face and up the outer side of the lateral horns almost to the tips; small black spots are present at the lower angles on either side of the mouth; the horns are short and robust, green in colour and rufous tipped; the intermediate horns are green, the median ones sometimes black tipped.

Pupa pale green and without any ornamentation other than the blue spiracles. The head is only bluntly bifid. The cremaster is ochreous with a black base to the stalk, two lateral lobes are present, and on the anal segment, ventral surface, two long ochreous tubercles. The imago is as a rule very uniform in colour, but we have two which have the light areas of both fore and hind-wings rich ochreous and thus similar in colour to *castor flavifasciata*.

CHARAXES CASTOR FLAVIFASCIATA, Butlr.

Ref. Op. cit. No. 31-32, p. 146: Vol. 1, Sep. VII, p. 160.
Pl. LXVII, fig. 2.

We have now bred this race in very large numbers. Of 30 odd examples there are three which exhibit a divergence from the normal in that the basal area of both fore and hind-wings up to the middle of the cell is rufescent to chestnut, and the hairs on the abdomen are also of this colour. Pl. 17, fig. 2. They are merely sports and not stable.

The early stages are not very different from those of *castor*; the larva are not however so robust either in build or in horn development; the colouration, especially the dorsal ornamentation, is not so bright. Vide Pl. CVII, fig. 5. The food plants at the coast are Mukoma-koma and Katugo (Luganda) as yet unidentified.

Various forms of *castor* have been described: thus Rothschild and Jordon described a form which differed from the nominate form in that the interspaces in the basal area of the underside were black: Unyora and Nandi. From my long series, this is the usual form in Uganda. The name applied is f. *GODARTI*.

Rothschild described a form of *castor flavifasciata* as *REIMERI*. This differs in just such a way as does the form *godarti*, from the nominate race. Typical *flavifasciata* has the interspaces chestnut: *reimeri*, black.

Then there is a sport which has been given a name by Stoneham: *Ch. castor* var. *aginga*. This differs from the nominate form in having the upperside black except for a slight trace of the alar bar especially in the sub-costal region of the hind-wing, and the sub-marginal row of

blue spots, and marginal yellow crescentic marks. On the underside, the white bar is reduced especially in 6-8 in the fore-wing. I figure such a spot on Pl. 17, fig. 1.

CHARAXES DRUCEANUS PROXIMANS, Joicey and Talbot.

Ref. Op. cit. No. 33-34, pp. 3-5: Vol. 1, Sep. VIII.
Pl. LXXIX, fig. 1.

We are now able to give a figure of the female: Pl. 18, figs. 1 & 3.

There are two varieties of the male: one in which the hind-wing black carries no blue spots, the other, in which this area has large blue spots. Similar variations are found in the females. The specimen figured has these spots well developed.

A race of this species has been described by Lathy under the name *SEPTENTRIONALIS*. The locality appears to be Toro in Uganda. From the description it would appear to be intermediate between the nominate western form and the eastern race.

An additional food plant of this species is *Syzygium cordatum*, and *guiniensis*, MYRTACEAE.

CHARAXES DRUCEANUS var. *ALICIA*, Stoneham.

Pl. 18, figs. 1 and 2.

The type, and unique specimen, was described by Stoneham as a species. T. H. E. Jackson has examined it on my behalf and is of the opinion that it represents a variation of *Ch. druceanus*.

The original description is as follows:

"Fore-wing, above: The red-brown basal area is bordered distally by a black band, which is indented distally. The red median band is very narrow and covered with dusky scales. The black border is wide throughout its length.

"Hind-wing, above: The red-brown basal area is restricted, and the orange bar is absent, being represented by a small spot in cellule 8. Practically the whole of the hind wings are a beautiful glossy blue-black, with four light-blue submarginal spots, and bordered by bright orange.

"Fore-wing, underside: The silver-white median bar is absent, and the whole underside bears a dull appearance. There is a faint trace of a bar, dull silvery-grey in colour, extending from cellule 9 as far as cellule 4 only. The rest of this area is dark brown. The black spots in 1b, 2 and 3 are large, and, more or less, kidney-shaped.

"Hind-wing, underside: Ground colour brown. There is a broad median band of dark chestnut narrowly bordered proximally by silvery grey, and distally by a series of silver-grey streaks. The basal area is

PLATE 17.

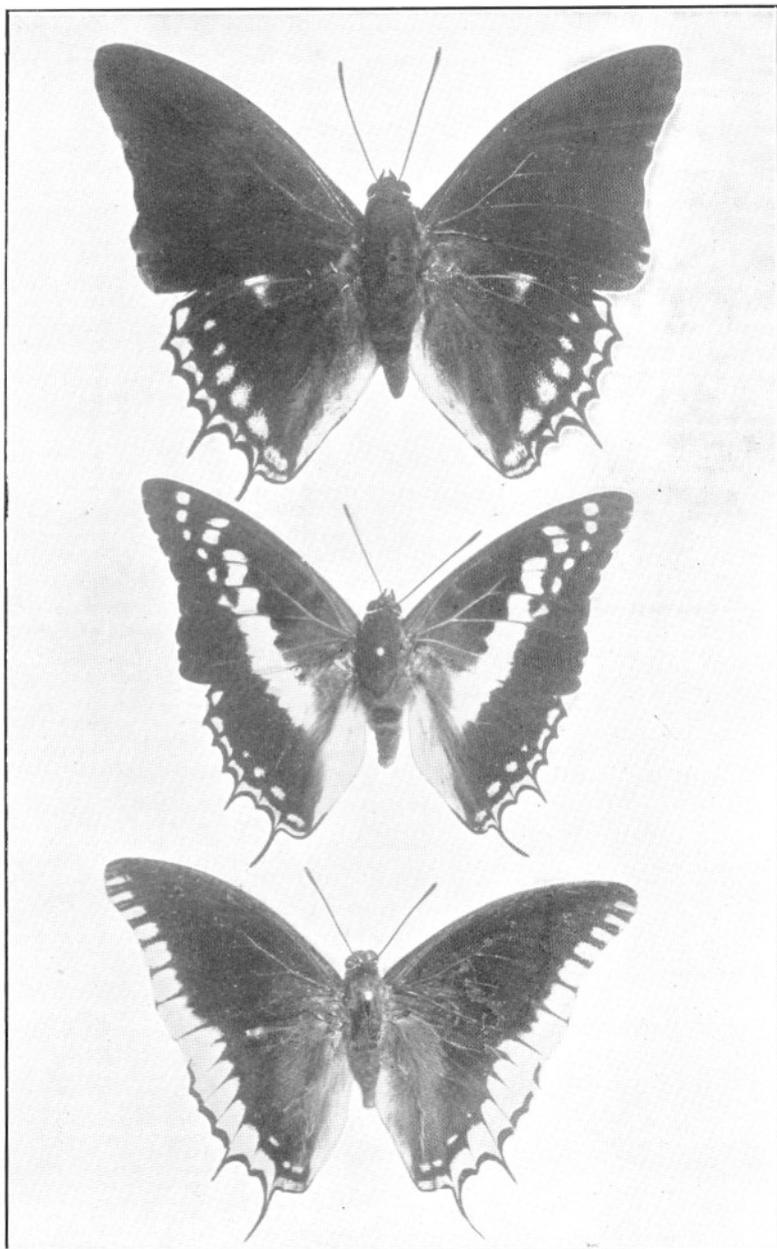


Fig. 1. *Ch. castor* var. *aginga*, Stoneham (*melanistic*).
Fig. 2. *Ch. castor flavifasciata*, var.
Fig. 3. *Ch. jasius epijasius*, var. (*melanistic*).

PLATE 18.

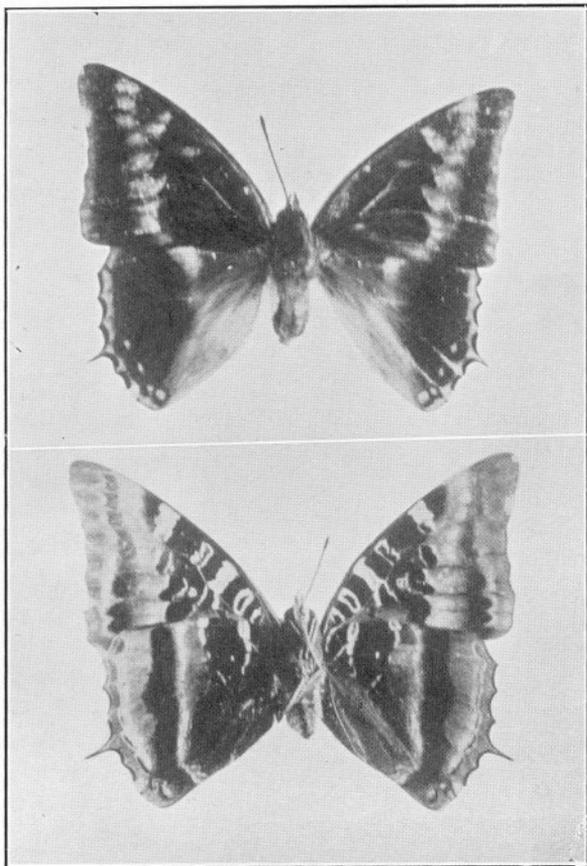
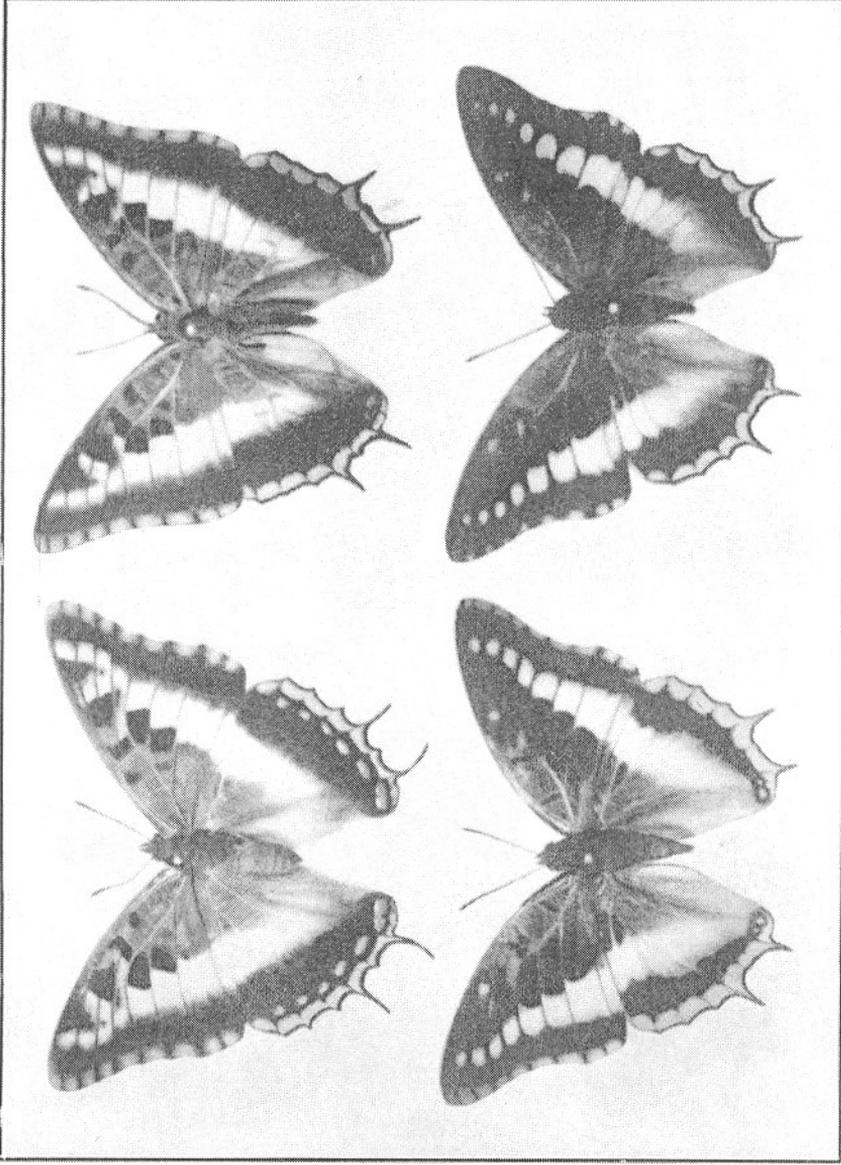


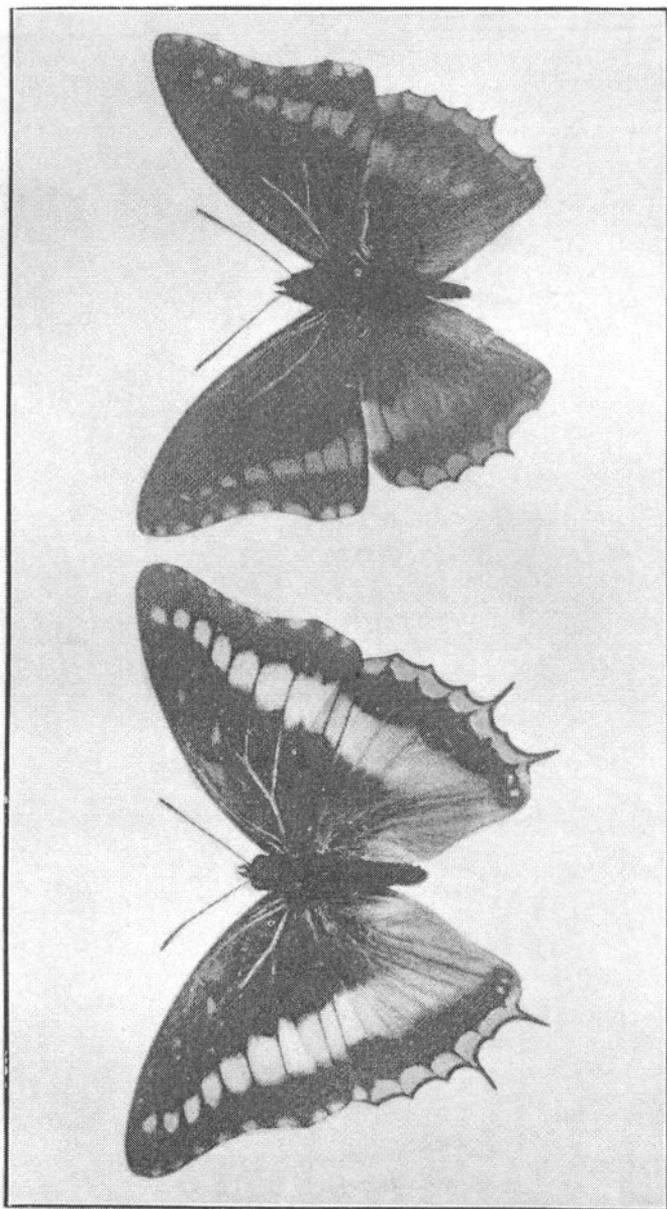
Photo: C. Thorold.
Ch. druceanus, var. *alicia*, Stoneham.

PLATE 19.



Figs. 1 and 3. *Ch. ducanus proximatus*, females, one with strong sub-marginal blue spots in h.w.
Fig. 2. *Ch. eudoxus cubensis*, female.
Fig. 4. *Ch. eudoxus cubensis*, var. *amantus*, female.

PLATE 20.



Ch. eudoxus eubacis, var. *amaurus*. Female and male. Upper surfaces.

traversed by two narrow silver lines only, which, however, only extend from 8 to the cell, one near the base thereof, and the other through the middle. There is a fine and short silver-grey line in 1b."

Distribution: Kitale. The author states that he has seen other specimens.

CHARAXES EUDOXUS CABACUS, Jordon.

Pl. 19, fig. 2 (female).

Ref. Op. cit. No. 33-34, pp. 6-8: Vol 1, Sep. VIII, p. 174.

Pl. LXXX, fig. 2.

We now give a figure of the female. It will be noted that it resembles the female of *druceanus proximans* to a remarkable degree on the upperside; the chief difference being in the extent of the black area of the distal half of the fore-wing. For early stages vide next form.

To the previous brief description of the female, add the following:

F.-w.: Base rufescent-chestnut to approximately mid-point in 1a, 15 mm., then inclined inward at 1b toward root of v. 2 where it is 5 mm., then filling the triangle between this point and the root of v. 3. In some examples there is also a small rufous area at angle of v. 3. It fills the cell to almost the apex, where it is cut short by a black bar, and sometimes more proximally by a double crescentic black mark. The rufescent colour also extends along the costa for half its length. The distal portion of the wing is black-brown traversed by a tawny orange bar, 8-10 mm. wide in 1a, 8 mm. in 1b, 5 mm. in 2, and thence by discreet rounded spots decreasing in size to 7. The inner margin of the tawny-orange spots on 1b-3 are concave. The outer margin of the wing carries lunate orange-tawny spots, double in 1b up to apex. Beyond the black bar, at apex of cell, is a tawny bar and beyond this again, a further orange-tawny spot in the black ground of 5 and 6. Sometimes the dark cell bars of below show through.

H.-w.: Basal area rufescent chestnut, with sometimes a blackish area sub-costal in 7-8. Beyond this a wide orange-tawny band 8 mm. wide in 8 where it is contiguous with the marginal orange, slightly wider in 7, then 1 mm. wide in 5-6, 8 mm. in 4, widening again in 3 and becoming wider and diffuse toward the inner edge and merging into the basal rufescent. Margin with a broad orange-tawny band of contiguous lunules with extension of this into the "tails," the extreme edge black; between the marginal orange and the tawny-orange band, the wing is black-brown with a double purple spot at the anal angle.

As already remarked, it is somewhat like female *druceanus proximans*, but the fore-wing bar has not the Y at the end of the band.

Compared with females of the form *amaurus*, it may be noted that in *amaurus*, most examples have less rufescent spots in the black

ground beyond the apex of the cell, and the general appearance is darker, than in *cabacus*. It is doubtless influenced by *lucretius*.

Undersurface: The marks are as in the male but on a paler ground and the light markings are less silvery.

In dealing with this group, *Chx. eudoxus*, we meet with considerable difficulty. Prof. Poulton, in *Trans. Ent. Soc.*, 77, part II, 1922, briefly recounts the various races so far described, and mentions the material, of the various races known, in England.

The nominotypical *eudoxus* is apparently still insufficiently represented in the "home" museums, not only as regards males but females also (Sierra Leone to Cameroons). Apparently a race with a broad f.-w. band and broader h.-w. band, "both red-yellow" in colour, the f.-w. band extending to SC4.

The race *mechowi*, Rothschild, was described from (type) Angola, Beni, Congo. The f.-w. band narrower and tapering more abruptly towards the apex and reaching Sc. 5, the four upper spots small and uniform. The h.-w. band broader than in *cabacus*. No female described.

The Hill Museum possessed one female; it may now be in the British Museum.

In dealing with these two races, it is of interest to note that Holland, in *Bull. American Museum*, Vol. LXIII, Art. VI, records three males from Medje as *eudoxus*, on the evidence of the reduction of the silvery bands on the lower surface, and by the prolongation costa of the median fulvous band of the f.-w. on upper side.

He states that they are at once distinguishable from *mechowi*, of which he had seven males, from presumably the same locality. He therefore makes *mechowi* a species.

We next come eastward and find that in 1932 Le Cerf describes a single male from Ktembo, Lake Kivu, as *theresae*. He states that this specimen is intermediate in general appearance between the S.sp. *mechowi*, R. & J., West Africa, Angola, and *cabacus*, Jordan, East Africa. The general tone of the upperside much less dark than *cabacus* and almost as light as *mechowi*. On the f.-w. the basal chestnut area extends just to the discocellulars and distally is divided by a black line; the post-median light band is wider at its origin; 8 mm. between 1 and 2, than *mechowi* and *cabacus* and much more rapidly attenuated, 2 mm. to v. 3 but not reaching 3; beyond this one does not see more than three spots, the last very small. The marginal tawny spots are much smaller than in the two forms cited. There is one tawny spot 2 mm. in diameter in the interspace 6-7. The tawny band in h.-w. is 10 mm. at v. 5 and 6.5 mm. at v. 7; beyond this it dilates rapidly to the outer border and forms a long point at the base of 8, near its origin; this projection is divided by a black vertical streak arising from the basal dark area. The post-discal black band is 8 mm. between

8-6, smaller between 6-2 and 4 mm. between 2-3. The underside of both wings much more resemble *mechowi* than *cabacus*.

We know that the character of the fore-wing bar in the males is variable within limits in any one race but the interesting point in Le Cerf's description is that his race is *lighter* than *cabacus*. This description is of interest to us locally; whether it can be accepted as representing a good race remains to be proved.

Next in distribution, we come to the specimens taken by Jackson and Jeffrey in the Katera Forest, west of Lake Victoria and north of the Kagera River. Bearing in mind the above description of *theresea*, it is interesting to note that Jackson's specimens are extremely dark, much darker than *cabacus* or *mechowi*, as I describe later, and whose female is quite distinct from all others.

Further east still we have the race *cabacus*, Jordan, described from Uganda (central). We now know that this race extends eastwards to Elgon, Kitale, Cherangani, and the Mau. We have bred it in numbers and ascertained that there are two forms, typical *cabacus* and the form *amaurus*.

The characters of *cabacus* male are the comparative short fore-wing bar or band which extends from the hind-margin, wide in 1a and rapidly attenuated toward the costa. Of the four examples in Tring, according to Poulton, Op. cit., this bar extends to about mid-way between the hind margin and the apex; one at Oxford has a longer bar, extending to 6. Of material before me (form *Cabacus*) eleven males have the bar extending from 1a-6; two from 1a-5; one from 1a-4. Measured, they are as follows:—

(1) 6 mm. 5 mm. 3 mm. 2 mm. 1.5 mm. 1 mm.	(2) 7 mm. 5 mm. 3 mm. 1.5 mm. — —	(3) 7 mm. 6 mm. 4 mm. 2 mm. 2 mm. 1 mm.	(4) 7 mm. 5 mm. 4 mm. triangle 2 mm. 1.5 mm. 1 mm.	(5) 7 mm. 5 mm. 3 mm. quadrate 2 mm. 1.5 mm. ,, 1 mm. ,,
(6) 7 mm. 7 mm. 4 mm. 3 mm. 1.5 mm. 1 mm.	(7) 7 mm. 6.5 mm. 4 mm. lunate 2 mm. 1 mm. —	(8) 6 mm. 4 mm. 3 mm. quadrate 1.5 mm. 1 mm. —	(9) 6 mm. 6.5 mm. 3 mm. 2 mm. 1 mm. —	
(10) 5.5 mm. 7 mm. 4 mm. lunate 2 mm. quadrate 1 mm. —	(11) 6 mm. 4 mm. 3 mm. 1.5 mm. 1 mm. —	(12) 6 mm. 6 mm. triangle 3 mm. 1.5 mm. — —	(13) 7.5 m.m. 6 mm. 3 mm. 1.5 mm. 1.5 mm. —	
(14) 7 mm. 7 mm. 4 mm. triangle	1.5 mm. —			

A similar variation is seen in the variety *amaurus*, but in this, the main character is the entire absence of silvery lines on the *underside*. This character appeared as a stable variation in the race *cabacus*, and in no other, until Jackson produced his new material from Katera. Here we are faced with three males and one female, two males strongly lined in silver, and one without. The question then arises, is the variety *amaurus* to be recognised?

My personal opinion is that we must retain the name as indicating a stable variation. It remains to be proved whether or not a similar variation, genetically stable, occurs in the dark Katera race; if so, then one would be justified in creating a new name for such a variety.

In the meantime one can only mention the fact that we have evidence of such a variation.

CHARAXES EUDOXUS f. *AMAURUS*. Pl. 19, fig. 4.

Pl. 20, figs. 1 and 2. Pl. 21, figs. 1 and 2.

Ref. Op. cit. No. 33-34, p. 8: Vol. 1, Sep. VIII, p. 176.

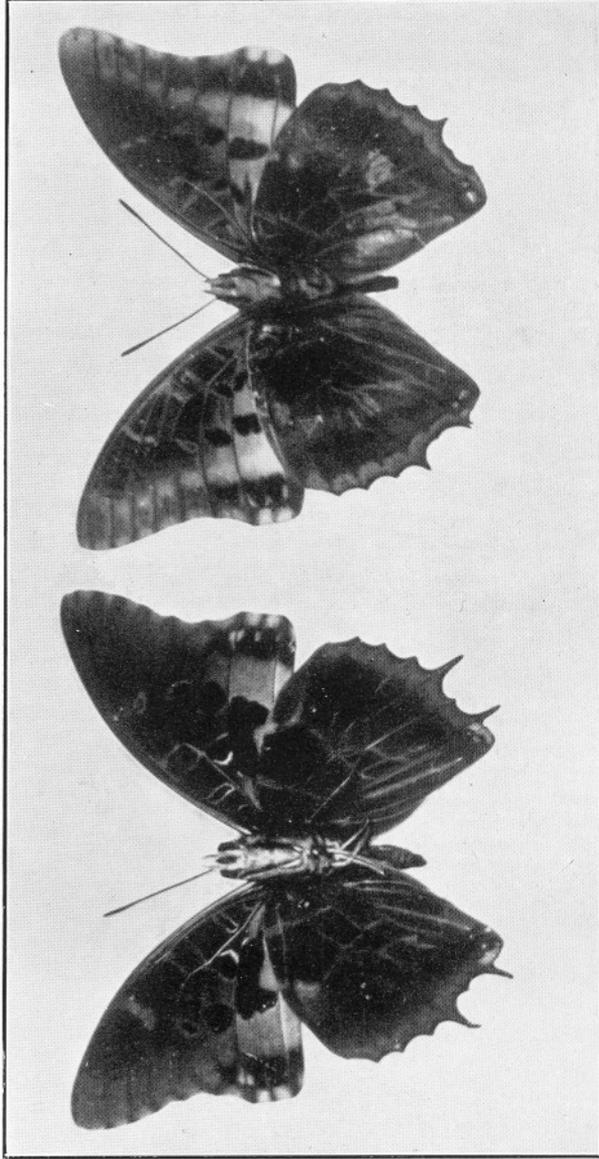
In my notes above cited, I referred to this as ? sb-sp. It has now been described by Prof. Poulton under the above name. We are now able to give further notes on the two forms. We have bred a series of both from the same locality, and it would appear that *amaurus* is a variety and not a geographical race. Furthermore, the early stages appear to be identical, or almost so, but there is a puzzling difference in the genitalia, dissection of which I have made; indeed the difficulty is increased in that the genital armature of neither of these, *amaurus* and *cabacus*, agree with that of *eudoxus* given by Poulton, *Trans. Ent. Soc.* 77, 1929, p. 480.

In this form, *amaurus*, the males and females resemble *eudoxus cabacus* on the upperside, but both differ from that race on the underside in that the silvery lines are entirely or almost suppressed, thus bearing a strong similarity to *lucretius*. Pl. figs.

The early stages of both forms are completed and are as follows: The food plants have been provisionally determined as *Syzygium cordatum*, *Syzygium guiniensis*, MYRTACEAE, *Garcinia* sp., and *Schefflera* sp. ARALIACEAE.

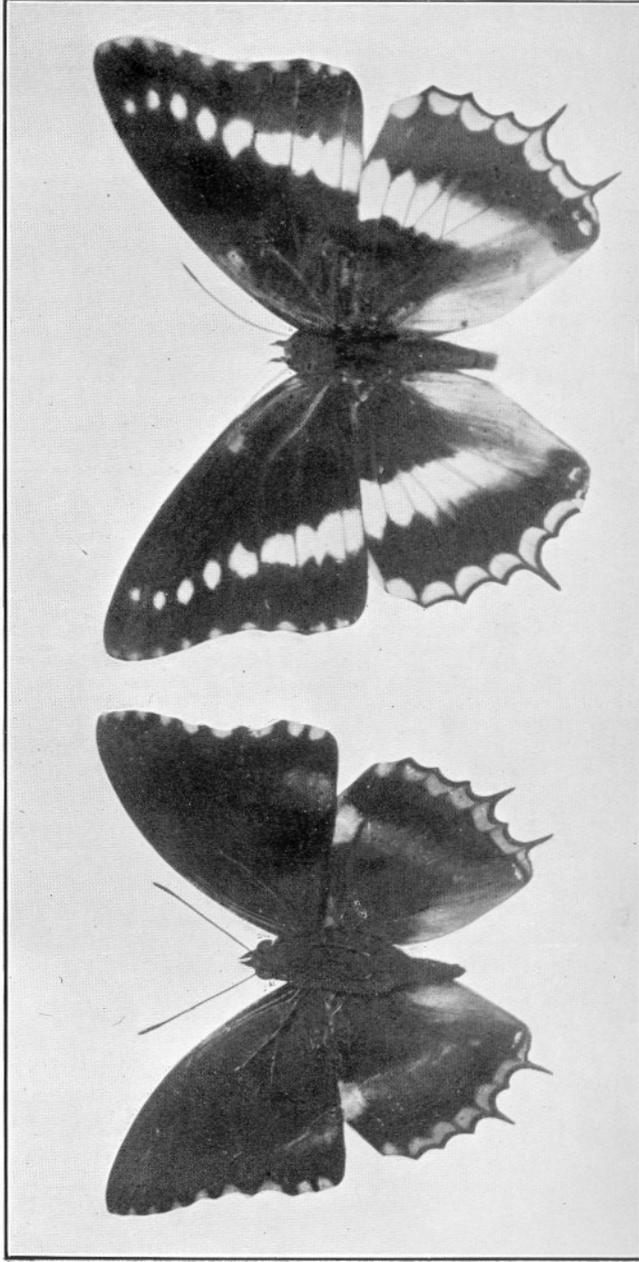
The eggs are pearly white when first laid, then the usual brown suffusion spreads from the upper part to the whole and then turns blackish. The shape is rather a squat barrel with round bottom and flattened top ridged, and with a central depression. The young larva hatches in eight days and is olive with very minute whitish papillae (under magnifying glass), black head and yellowish "tails." At the

PLATE 21.



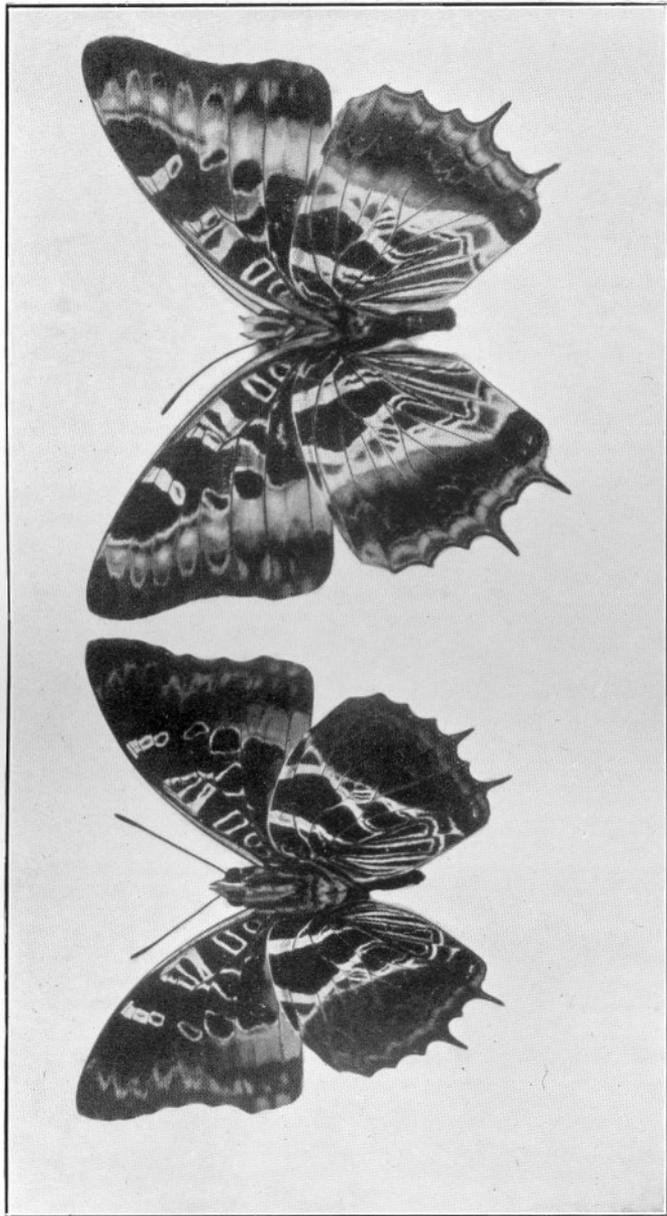
Ch. eudoxus cabacus, var. *amaurus*. Undersurfaces.

PLATE 22.



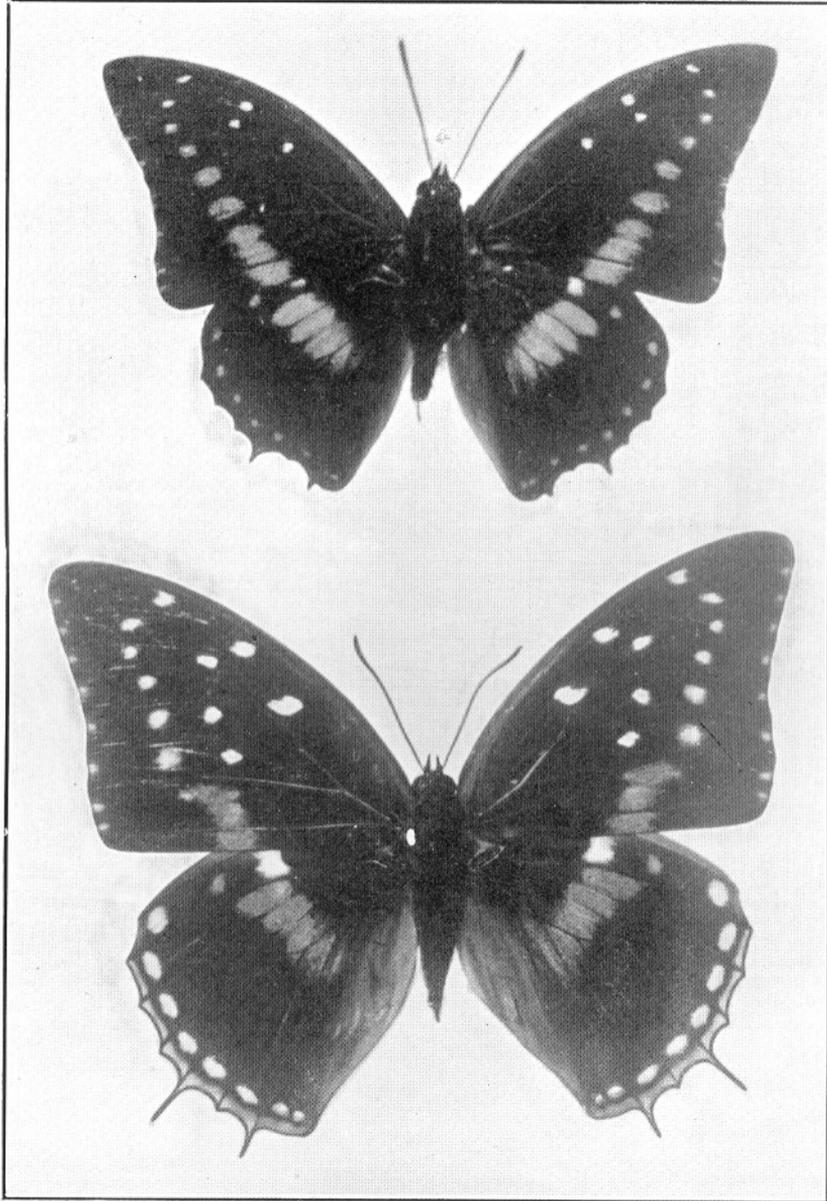
Ch. eudorus sb.sp. (Katera Forest). Male and female. Upper surfaces.

PLATE 23.



Ch. eudorus sb.sp. (Katera Forest). Under surfaces.

PLATE 24.



Ch. imperialis, Btlr. Male and female.

second instar the greenish colour appears and the pale stippling is more obvious but the tails are less long, and the head now turns brownish with very divergent horns and some greenish centrally on the face. At the next moult, the body is greener, the head is almost entirely green, the horns remain divergent, and rufescent in colour; a yellowish margin appears as a facial line and the intermediate horns are black; the face is strongly rugose and when the larva is about 20 mm. long the next moult takes place. The general colour is now bright green, a small dorsal spot appears on the 6th segment, and the whole body is finely papillated with yellowish points; the head is green and the horns shorter in proportion with the size of the head and not so divergent.

In the final stage the body colour is the same as before, the mark on the dorsum of the 6th segment is a heart-shaped shield in red and green, and on the 8th there is sometimes a second spot. The spiracles are turquoise blue with a yellow central line; the spiracular line is not marked, and the underside of the body is whitish with pink between the segments. The head is uniform green; there are three black spots at the lower angles; the horns are now short and stout, the central pair only very slightly turned inward at the tips, and they may or not be red at the tips; they are usually uniform; the outer pair, however, have well-developed toothed processes some of which are forked. Length 55-60 mm.

The pupa is pale green with a rather frosted appearance due to minute depressions and irregularities on the surface; the spiracles are bluish with a black central streak and brown ring surrounding them.

The cremaster is moderately stalked, has a bilobed rounded process on either side and on the anal segment ventrally there are two ovoid tubercles with brown spots at each end. The pupa of *amaurus* is very similar but there is a yellowish streak on the edge of the wing cases and spots of the same colour on the head.

CHARAXES EUDOXUS. Sub.sp., Nov. Pl. 22, figs. 1 and 2.
Pl. 23, figs. 1 and 2.

This very distinct race of *eudoxus* has recently been taken by T. H. E. Jackson and Mr. Jeffery, in S.-W. Uganda.

MALE: It most closely resembles the race *cabacus* and the form described by Prof. Poulton as *amaurus*. It differs however from both these by the greater extension of the black ground colour of both fore and hind-wings, causing a reduction in the orange-chestnut post-discal bars, especially in the f.-w.

Expanse: 43 mm. F.-w. mostly deep velvety black; basal half of costa, base of wing, bright chestnut; marginal spots orange; the post-

discal bar reduced on the proximal side so that it is indicated by small diffuse chestnut spots in 1a and 1b, and less so in 2 (spots in 2 sometimes absent), set distal to the mid-point.

The black ground colour of the fore-wing may be clear-cut transversely across the apex of the cell, followed by a black transverse sub-apical spot, or the black may extend into the cell with a diffuse line of junction.

H.-w. ground colour black; the basal black area is triangular in outline, apex toward body, remainder of base chestnut paling toward the inner margin. The post-discal chestnut bar is narrow, and crosses the wing from just distal to the mid-line on the costa to above the anal angle; the bar at the costal end is paler than the rest, marginal border with crescentic orange-chestnut spots outlined in black distally; tails black. Lilac spots at anal angle. Abdomen chestnut on back.

Underside: In this race there is the same variation as is found in *cabacus* and the form *amaurus*, that is, the silvery lines may be strongly marked or may be only just indicated. Of the three males sent to me, one is strongly marked, the other has greyish lines, while the third is hardly lined at all, as in the form *amaurus*.

The general tone of the underside is darker and more flushed with purplish than in the other two eastern forms.

FEMALE: This is even more distinctive than the male. It bears a strong resemblance to the female of *Ch. lucretius* on the upper side.

It differs, however, from that species in that the upper side of the abdomen is chestnut, not black; the marginal crescentic orange marks of the h.-w. border are narrower, more sharply defined and without a pale spot at the bases; the base of the hind-wing is suffused with chestnut and is not so blackish; the post-discal bars of fore and hind-wings, though of the same ochreous yellow, is edged with rufescent on the hind-wing; the basal chestnut of the fore-wing is greater in extent.

From the females of the race *cabacus* and form *amaurus* this female differs in the greater extent of the black areas in the fore and hind-wings with a reduction in the chestnut areas, the difference of the post-discal bars which are not orange-tawny but creamy with ochreous tinge; the more clear cut crescentic marks on the h.-w. marginal border; the black tails.

The underside differs entirely from *lucretius* and diverges from *cabacus* in just the same way as indicated for the male sex.

Distribution: All the material available is from the Katera forest, where it flies with *lucretius*, and is doubtless influenced by this species.

CHARAXES VIOLETTA, Gr. Sm.

Ref. Op. cit. No. 33-34, p. 8-12: Vol. 1, Sep. VIII, pp. 176-180.

To the distribution add Meru Forest. I have received this species from this locality and Messrs. Hamilton Gordon and Berkeley state that the species was very plentiful at Meru in March/April, 1935.

The males do not seem to differ, but the dark areas of the fore-wings of the females are darker, more blue-black than in coastal examples, especially at the base. It would be interesting to ascertain the food plant in this area. It will lay on *Deinbollia* at the coast.

CHARAXES TIRIDATES, Hew.

Add to the food plant: *Chaetacme macrocarpa*, ULMACEAE; *Phialodiscus zambesiacus*, SAPINDACEAE; *Bombax rhodonaphalon*, BOMBACEAE; *Osyris* sp., SANTALACEAE.

CHARAXES NUMENES, Hew.

Add to the food plants *Deinbollia* sp., *Phialodiscus zambesiacus*; and *Allophylus macrobotrys* (Uganda).

CHARAXES AMELIAE AMELIAE, Doumet.

Ref. Op. cit. No. 33-34, pp. 34-36: Vol. 1, Sep. VIII, p. 202.

Through the kindness of my friend Jackson, I am now able to give a figure of the female of this species. Pl. 26, fig. 1. Pl. 28, fig. 2.

Jackson writes that *ameliae* is the dominant charaxes in the Malabigambo Forest, Sango Bay, and Kagera River.

The early stages are still unknown.

CHARAXES IMPERIALIS, Butl. Pl. 24, figs. 1 and 2.
Pl. 25, figs. 1 and 2.

I am indebted to Jackson for the specimens of this rare species which he has taken in the Malabigambo Forest, Western Uganda, Katera Forest, and Kagera River.

MALE: Expanse 50 mm. F.-w. Ground colour blue-black; one white spot at extremity of cell, two just beyond; a series of eight blue post-discal spots increasing in size and intensity of blue from below the costa to practically the mid-point on the hind-margin in 1a. The spots in 1a and 1b contiguous; small ill-defined light spots at margin.

H.-w.: Ground colour blue-black, wing bar blue and continuous in direction with the fore-wing bar; a sub-marginal row of blue spots

double and small at anal angle gradually increasing in size to subcosta in 7, the last spot whitish.

Underside: Olive-greyish, cell with wavy black lines outlined with black; white spots of above reproduced below; also post-discal row but small and white, that in 2 and 1b with olive-yellowish distally, the latter with lilac outlined with black internally, also with conspicuous crescentic black marks broadly shaded with lilac; 1b and 2 with narrow black cross lines edged with lilac.

H.-w. ground colour as fore; a series of sub-marginal ill-defined lilac spots, internal to these a further series of olive spots internally edged with lilac; cell and bases of 7-8 with fine black lines outlined with whitish and another series sub-basal in 5 and 6.

FEMALE: Expanse 60 mm., thus much larger than the male. F.-w. ground colour brown-black with some bluish suffusion at the base. Cell with one large spot at apex, distal to it four white spots in 2, 3, 5, 6; post-discal bar blue in 1a and 1b, the latter double and contiguous; an orange spot at distal end of this spot; a further series of orange spots in 2, 3, 4, 5, 6, 7; small double orange streaks at margin from 1b to apex. H.-w. blue-black, slightly greyish at inner fold; discal—post-discal bar blue from 1c through apex of cell and represented in 7 by a white quadrate spot; distal to this an orange spot; a sub-marginal row of orange spots, tinged with lilac at anal angle, extends to 7; marginal border with orange line intersected with black veins and distally black bordered.

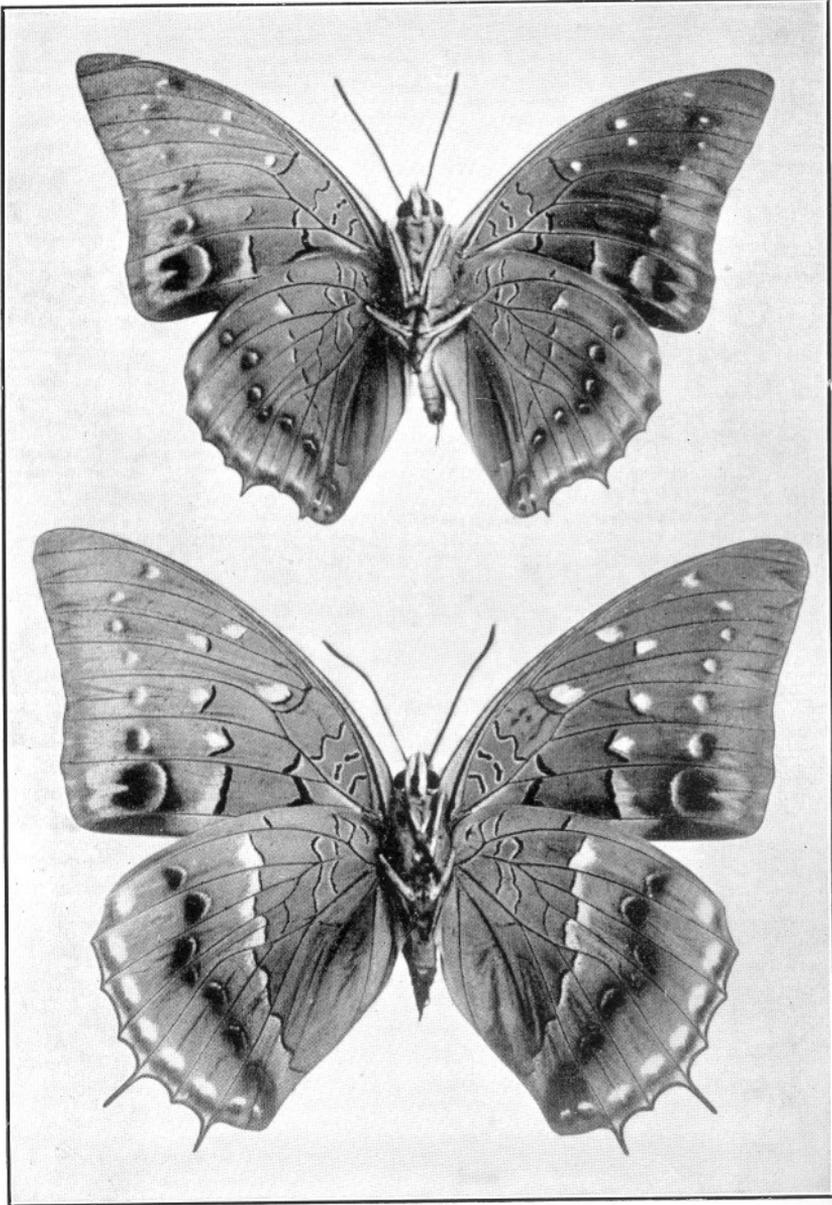
Underside: Much as in the male, but spots and lines larger and more distinct.

CHARAXES HADRIANUS, Ward. Pl. 27, fig. 1. Pl. 28, fig. 1.

Jackson has sent me a specimen of this species, taken at Katera, August, 1935.

MALE: Expanse 48 mm. F.-w. basal area bright chestnut occupying the greater part of the cell, the base of 1b, and less so in 2, the latter two slightly edged with bluish-green which colour fills the base of 1a. Apical half of wing black from the apex of the cell to the hind angle, central portion of wing creamy with this colour invading the black at the bases of 2, 3, 4; the distal edge of the white patch in 1a-1b where it meets the black, slightly bluish. Two white spots sub-basal in 5 and 6; a further series of five creamy spots in areas 2, 3, 4, 5, 6, diminishing in size from 2-5 then slightly larger in 6. H.-w. creamy, slightly dusky at base; dark line of lower surface shows through intersecting the wing from mid-costa to anal

PLATE 25.



Ch. imperialis, Btlr. Undersurfaces.

PLATE 26.

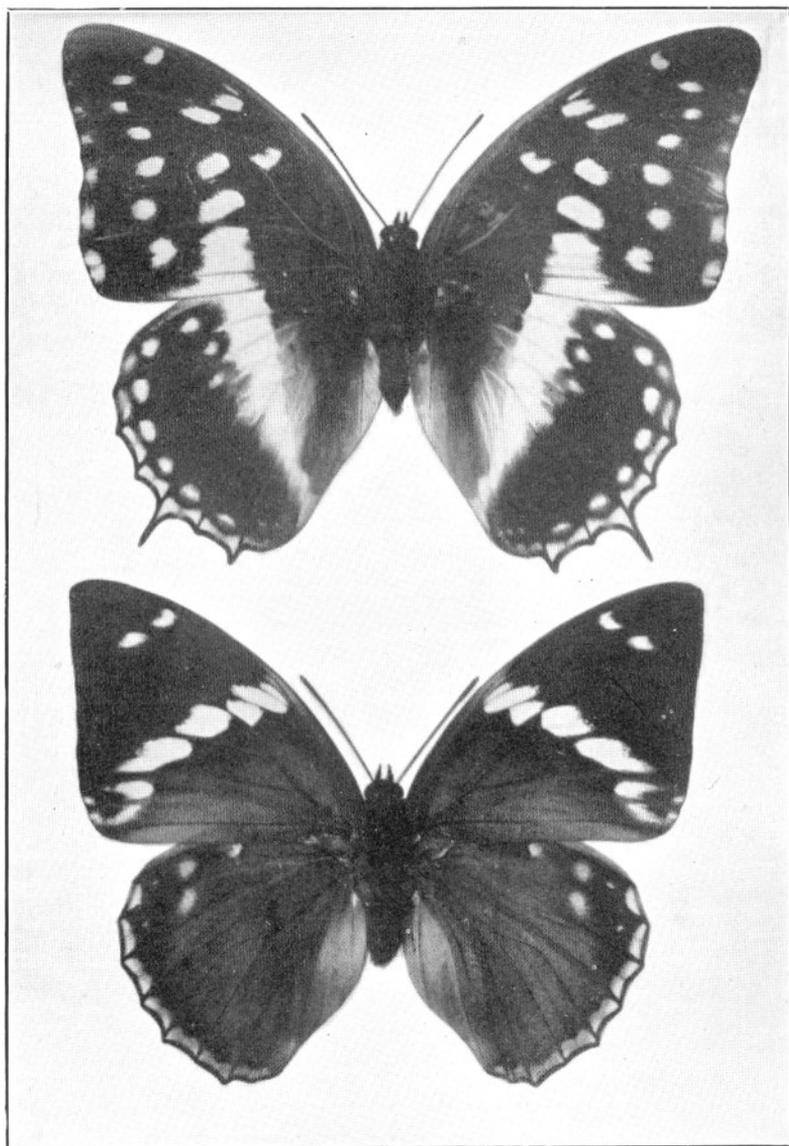


Fig. 1. *Ch. ameliae*, female.

Fig. 2. *Ch. bipunctatus*, female.

PLATE 27.

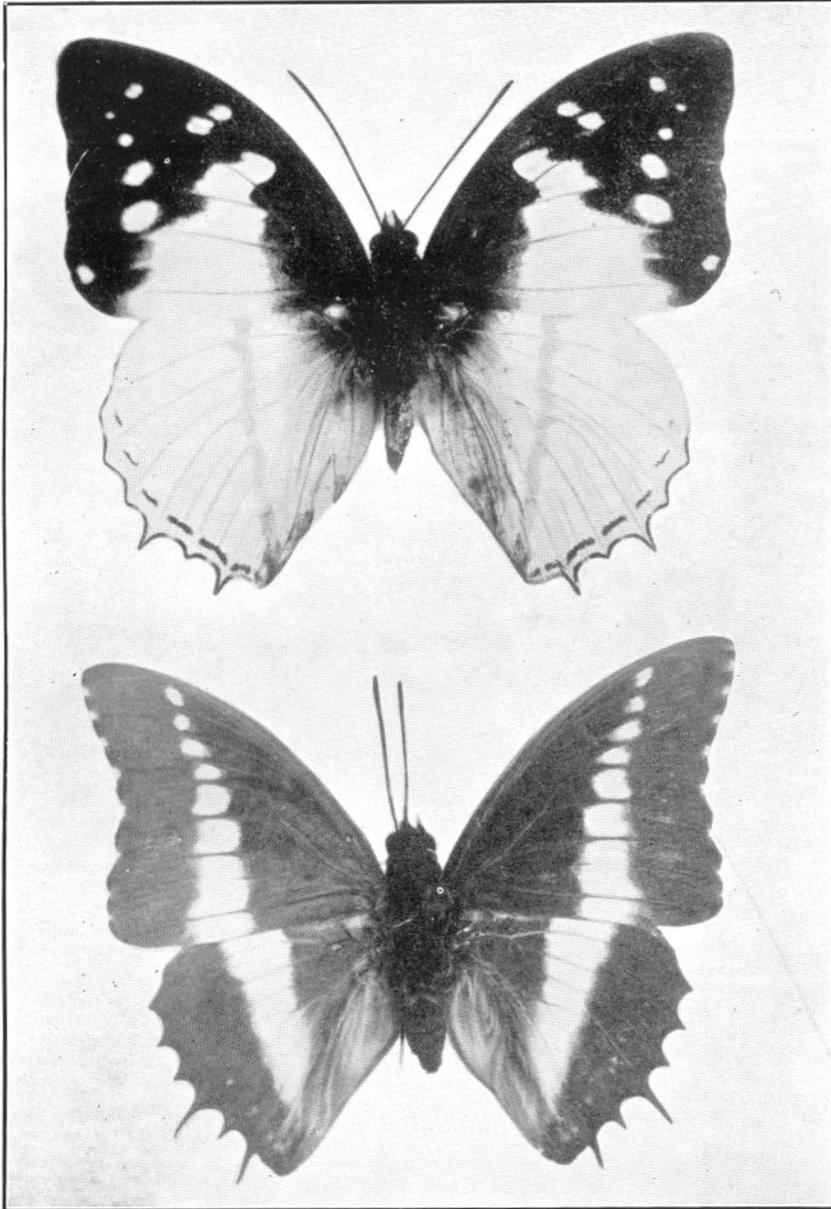


Fig. 1. *Ch. hadrianus*, Ward. Upper surface.
Fig. 2. *Ch. brutus*. A curious olive-grey variety with bluish lustre.

PLATE 28.

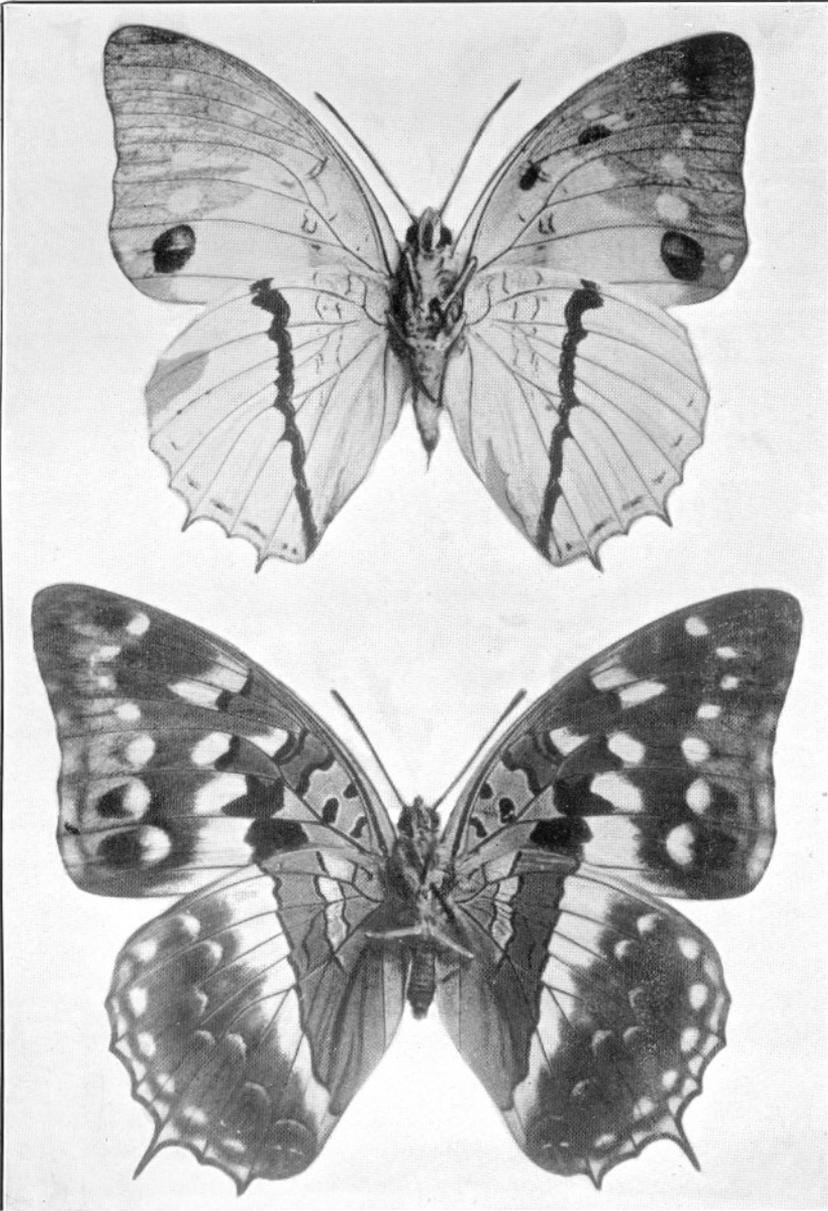


Fig. 1. *Ch. hadrianus*, Ward. Undersurface.
Fig. 2. *Ch. amaeliae*, Doum. Undersurface.

angle. A sub-marginal series of black lines from anal angle to 5; margin of wing with fine black line just internal to extreme edge.

Underside: F.-w. apical half silvery; basal half creamy white spots on upper side slightly indicated, but posterior angle with a conspicuous "eye spot" greyish inwardly black distally.

Slight black lines at bases of 1b and 2. H.-w. creamy with slight double black lines in 7 and 8 and through cell. Disc of wing traversed by a chestnut line from mid-costa to anal angle made up of more or less contiguous crescentic marks proximally edged with black. Margin and tails with slight black lines followed by yellowish lunate marks with small black triangles on proximal edge of convexities.

We have no specimen of the female. It is possible that these eastern insects may prove to be a distinct race.

CHARAXES BIPUNCTATUS. Pl. 26, fig. 2.

We are now able to give a figure of the female. Basal half of fore-wing olive golden, distal half black with a series of white to ochreous spots from just distal to the cell, crossing the wing to the hind angle, the spots in 1b more diffuse black centred and contiguous with double ochreous streaks at margin of 1b. Two white sub-apical spots. H.-w. ground colour olive golden slightly black-scaled at upper angle and narrowly internal to the marginal border of olive-ochreous lunate marks; a black spot at convexity of each lunule picked out in white proximally; a pale olive-ochreous spot at mid-sub-costa, two larger similarly coloured spots in 6-7, extreme edge of wing blackish; tails hardly indicated.

CHARAXES PYTHODORUS PYTHODORUS, Hew. Pl. 29, figs. 1-2.

Ref. Op. cit. No. 33-34, pp. 36-38: Vol. 1, Sep. VIII, pp. 204-206

We are now able to give the figure of the female of this species, which has been bred in numbers in the Kitale district.

FEMALE: Upperside, very similar to the male, but larger; spots and median bar much more whitish, ground colour more brownish less black. We republish the description of the early stages as recorded by R. T. Evans in Jrl. No. 47-48.

The type of the race *NESEA* came from Mombasa and I have topotypical examples as recorded previously; Rothschild and Jordan however, place the Uganda-Kitale examples as belonging to this race, but they are distinct. It remains to be shown whether or not the Uganda specimens differ from the nominate race or not.

NOTES ON *CHARAXES PYTHODORUS PYTHODORUS*.

By R. T. EVANS.

REMARKS ON HABITS OF FEMALE.

I have watched *Ch. pythodorus* ovipositing, and it appears to be its habit to lay not more than four or five eggs on one tree, thus scattering the eggs over a large area. *Ch. pythodorus* is also apparently a very slow layer, taking at least two seconds over each egg. The only specimen of this insect that I succeeded in getting to lay laid eleven eggs and then died. I afterwards examined it, and the eggs were finished. Other specimens which died without laying had from 27 to 34 perfect eggs inside. *Ch. pythodorus* apparently will not lay in captivity unless the cage is in full sunlight.

The laying season would appear to be governed by the young leaf period of the food-plant. As this is very short, and the females will only lay on the young leaves, the laying periods seem to be very restricted.

EARLY STAGES.

The eggs are large and pearly-white. They are laid, singly as a rule, but sometimes in pairs, on the under or upper surfaces, generally the former, of the young leaves of *Crabia brownei*.* For 24 hours after laying it remains almost spherical, slightly flattened on top, then the usual depression appears. Twelve hours later, an irregular reddish ring appears round the rim of the depression, with a small red spot in the centre. The lower half of the egg becomes suffused with pinkish-brown. After three days the red markings turn grey-brown. Before hatching the egg turns black. The egg stage lasts eight to ten days.

The young larva is at first uniform olive-brown with a white tail and black head. The horns are white, and give the appearance of a frill. Immediately on emerging the larva eats the egg-shell, and very shortly after starts in search of food. After three days the larva becomes olive-green finely speckled with white. Each white spot consists of a small papillation bearing a minute hair. The head is now dark brown mottled with black. The horns remain white, and are short and broad, all four being of a more or less uniform length. The larva gradually becomes greener, until when it is a week old, the body is grass-green. The tails and horns remain white. When at rest, the larva lies along the mid-rib of the leaf with head raised. Two days before the first moult, in some specimens, a small white dorsal spot appears on the sixth segment. The first moult takes place after

* Also on *Crabia brevicaudata*—Leguminosae.—V. G. L. v. S.

ten days. The head is now brown with the lower parts green. In some specimens there is a well-marked dorsal spot on the sixth segment, consisting of a white spot bordered with brown. After the second moult the head becomes green, with mouth-parts black, bases of the lateral horns and tips of the inner horns dark brown, bordered with a pinkish line. The face is bordered with a yellowish line, which becomes broader towards the mouth. The body marks are as follows: A row of yellow dorso-lateral oblique lines from the fourth to the last segment. Each line starts from a spot in the front of each segment, runs obliquely forward through the segment in front of it, and enters the next segment to join a conspicuous white spiracular line. Segments 1 and 2 are without these lines, but have each a spot placed where these lines would start. Segment 3 has a small line, commencing as the others, but not entering segment 2. In some specimens there is a conspicuous dorsal spot on segment 6, in shape like an acorn, creamy-white, bordered with dark brown. It consists of a raised spot, higher at the back than at the front, like a pouch opening backward. In other specimens, however, there is no trace of this spot. The head continues the same in the fourth instar, but after the final moult changes slightly, in that the horns are shorter, thicker, and more upright, and the face is squarer. Throughout the whole larval stage, the body and head are finely papillated with yellow. The mature larva is from 45 to 50 mm. long. When the larva has curled just before pupating, it becomes slightly translucent, and the dorsal spot, when present, becomes pale green.

The pupa is a beautiful object. It is of the usual *Charaxes* form, 25 mm. long, pale green, with yellowish marbling over the dorsum of the thorax. The abdomen is slightly darker, ornamented with purplish spots arranged in a regular pattern. The spiracles are present as a row of purplish marks. The head is bluntly bifid. The only ornamentation on the wing-scutae is a row of four black spots, those on the inside being larger than on the outside. The cremaster consists of a pinkish stalk arising from a base, consisting of two kidney-shaped lobes, ochreous in colour. Two small blackish spines arise at the base, and lie along the abdomen, pointing forward. The abdominal segments are produced backward, forming almost a hump.

CHARAXES ANSORGEI ANSORGEI.

Ref. Op. cit. 31-32, pp. 153-156.

CHARAXES ANSORGEI JACKSONI, Poulton.

There are two distinct races of this species within Kenya and a possible third; the typical nominate race is found west of the Mau, roughly speaking; the second east of this range of mountains, and the

third in the Meru district. In Uganda, the race *ruandana* occurs. Material was placed at the disposal of Professor Poulton, and he has made a critical examination and published his results in *Stylops*, Vol. 2 pt. 1, Jan., 1933. With the permission of the author and the Royal Entomological Society we append the full notes and make use of the plates which he has kindly presented to the Society.

The Kenya races have been bred in numbers, the eastern race feeds on *Bersama abyssinica*, the western race on *Bersama engleriana*,
MELIANTHACEAE.

THE GEOGRAPHICAL RACES OF *CHARAXES ANSORGEI*,
ROTHSCH. (LEP. NYMPHALIDAE).

Plates 30 and 31.

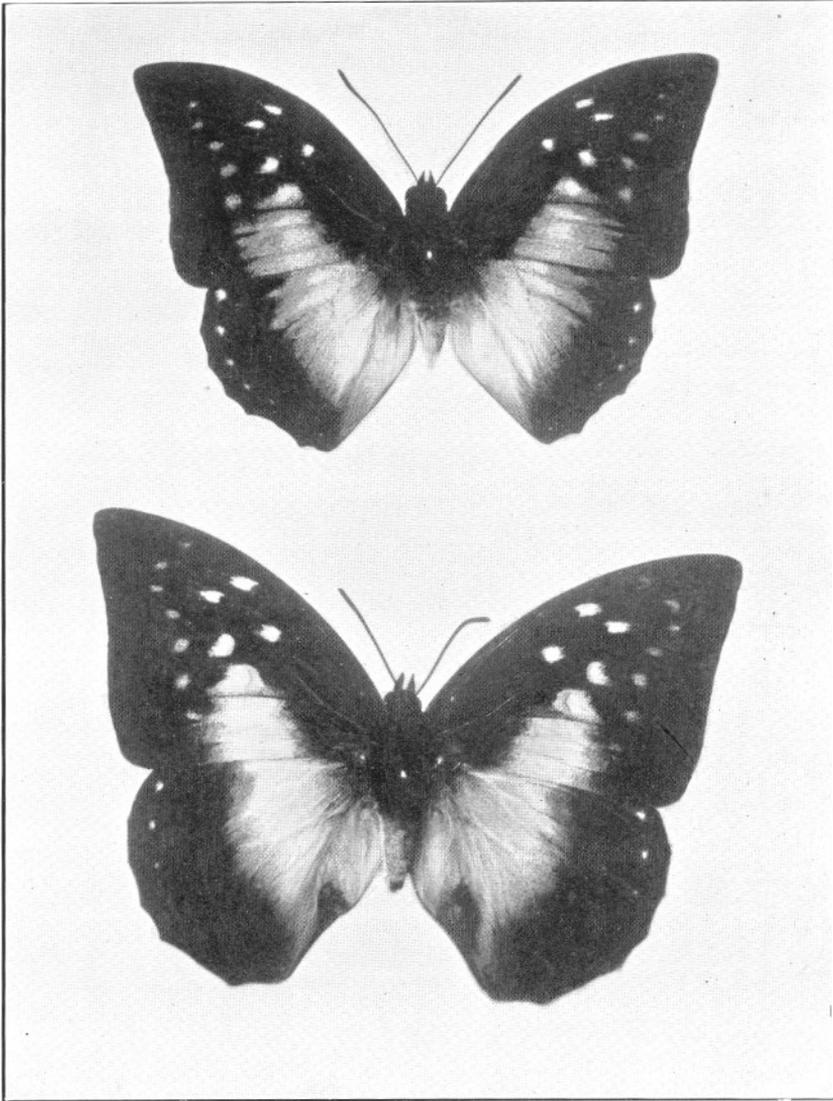
By EDWARD B. POULTON, D.Sc., F.R.S., Hope Professor of Zoology
in the University of Oxford, Fellow of Jesus College, Oxford.

An account of the geographical distribution and mimetic associations of four subspecies of *Charaxes ansorgei*, together with some addition to our knowledge of their behaviour in life, appeared in 1932 *Proc. Ent. Soc. Lond.*, 7: 6-9, where it is stated on p. 8 that figures, with brief descriptions of the new forms, would it was hoped, "be communicated to *Stylops* in the near future." Hence the present short paper.

1. *Charaxes a. ansorgei*, Rothsch.—Plate 1, fig. 1—♂; fig. 2—♀. The male was described by Lord Rothschild in 1897 *Novit. Zool.*, 4: 181-182, and figured in 1898 *ibid.*, 5, pl. v, fig. 2. The female hitherto associated with this male is that of the next race, the true female being undescribed. Figure 2, reproduced from Mr. Alfred Robinson's excellent photograph, shows that the pattern of this female resembles that of the male and differs from the females of other known races of *ansorgei* in the tint of the F.W. discal band being orange instead of white. It is, however, paler than that of the male, especially so in area 1 where it becomes nearly white in some examples. Because of its paler tint this band stands out more prominently than that of the male, the difference being exaggerated by photography—so much so indeed that it became necessary to colour this marking in the print selected for reproduction. The dark, tawny marginal F.W. spots and sub-marginal H.W. spots are much reduced as compared with those of the male. Apart from this latter difference, the greater size of the female, its paler F.W. band, straighter F.W. outer margin and the wider black marginal area of both wings, the sexes of *a. ansorgei* are very similar in appearance.

The H.W. tails of both male and female are shorter than in the next race, a difference very clearly shown in pl. 1. In its paler tint

PLATE 29.



Ch. pythodorus pythodorus, Hew. Male and female.

PLATE 50.

CHARAXES ANSOERGEI ANSOERGEI, Rothsch., ♂—1, ♀—2, N.E. Uganda
and Kenya, W. of Rift Valley;
C.A. JACKSONI, subsp. n. ♂—3, ♀—4, Kenya, E. side of Rift Valley.



PLATE 31.

CHARLES ANSORGEI RUCANDANA, Talb., ♂-1, ♀-2, N.W. and N. of
L. Tanganyika, and W. Uganda;
C.A. LEYCKI, subsp. n. ♀-3, ♂-4, L. Nyasa, ♀ from Manow, N. of Lake.

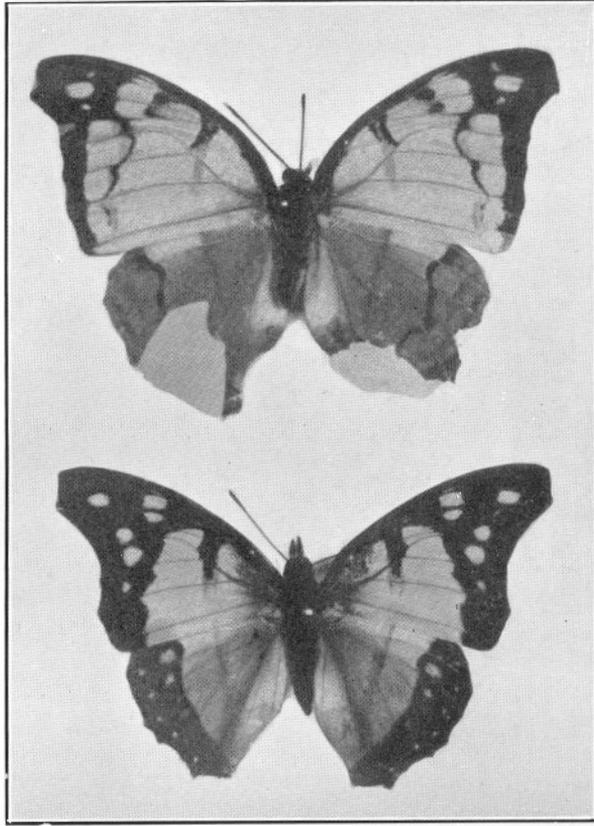


John Bala Sans & Danielsson Ltd London

Nat. size.

Ulfréd Robinson, phot.

PLATE 32.



Ch. zoolina-neanthes, female and male, showing colouration of both seasonal vars.

and greater sensitiveness to actinic rays it would appear that the F.W. band of the female has already advanced in the direction of the white band of the other *ansorgei* races. There can be no doubt that, as regards this feature, it represents the ancestral form from which the others have directly or indirectly evolved.

Length of F.W. of specimens represented on pl. 1, fig. 1, ♂—41.0 mm.; fig. 2, ♀—47.5 mm.

The following examples were studied in the preparation of the above account:—

N.E. Uganda: S.W. of Mt. Elgon, Mt. Kokanjero, 6,400 ft., 7-9 Aug., 1911 (*S. A. Neave*), ♂♀, Brit. Mus.; W. slope of Mt. Elgon, N. Bugishu, c. 7,000 ft., Bulago, 26 Dec., 1928 (*G. D. Hale Carpenter*), ♀, Hope Dept., O.U. Mus.; ditto, Butandiga, 30 Dec., ♂; 1-4 Jan., 1929, ♀; 7 Jan., ♂.

Kenya Colony: E. slope of Mt. Elgon, Kitale, 1926, ♂, Nairobi Mus.; ditto, Sept., 1931 (*T. H. E. Jackson*), ♀; ditto, 1930, Herbst, ♂, Coll. J. Levisk (ex Coll. Oberthür), here represented on pl. 1, fig. 1; ditto, Nov., 1930, ♂, Coll. Mme. Fournier; Trans-Nzoia, 15 miles E. of Mt. Elgon, 1,500 metres, 1930, Herbst, ♂, Coll. Mme. Fournier; ditto, ♂, Brit. Mus. (ex Coll. J. J. Joicey); Nandi Country, Patsho, 11 Dec., 1896 (*Dr. J. W. Ansorge*), ♂, Tring Mus., Type, Rothsch. 1897 (Novit. Zool., 4: 181; 1898, 5, pl. v, fig. 2); W. slope Mau Escarpt., 7,000 ft., Lumbwa, Aug. 1920 (*H. L. Andrewes*), ♀ (perhaps bred, but nearly as large as the captured specimens), Hope Dept., O.U. Mus., here represented on pl. 1, fig. 2, Allotype; ditto, Dec., 1920, ♀, a very small specimen, probably bred. In addition to the above, two males in the Hope Dept., labelled "Nairobi, E. Afr. Prot., 17.v.1903," were collected by Mr. A. H. Harrison. These specimens, which agree with the type of *C. a. ansorgei*, were probably collected on the west side of the Rift Valley.

2. *Charaxes a. jacksoni*, subsp. n.—Plate 1, fig. 3—♂; fig. 4—♀. This sub-species has been carefully described, together with its life-history, by Dr. V. G. L. van Someren and Canon St. Aubyn Rogers, in *J. E. Afr. & Uganda Nat. Hist. Soc.*, 31-32: 153-156; pl. lxxi, figs. 1-4; lxxv, figs. 4, 5; lxxvi, figs. 11-13; also the female by A. G. Butler in *Proc. Zool. Soc.*, 1900: 915. Both these publications assumed that this race did not differ from *a. ansorgei* on the W. side of the Rift Valley. It is, however, evident that the material described in the E. African Journal was chiefly of the eastern race, having been collected near Uplands on the Kikuyu Escarpment, or bred from eggs or larvae obtained in the same locality. The distinctions pointed out below taken in connexion with the published descriptions and with the excellent figures on plate 1, provide means for the easy identification of this race of *ansorgei*.

MALE.—Three closely similar examples of this sex have been kindly sent to me by my friend Dr. V. G. L. van Someren. They resemble on both upper and under surfaces the figures published in the *J. E. Afr. & Uganda Nat. Hist. Soc.* (31-32: pl. lxxi, figs. 3, 4). So far as I am aware no other males of this race exist in European collections.

When figs. 1 and 3 of pl. 1 are compared it is at once obvious that the F.W. band of *jacksoni* (3) is much narrower than that of *ansorgei* (1), the black marks in the orange patches of areas 1b, 2, and 3 much larger, and the four orange spots beyond area 3 with the 2 others set at an angle with them, much smaller. The whole band, although narrower, stands out far more prominently than in *ansorgei* because of the much darker tint of the basal rich chestnut brown which deepens into black as it approaches the inner border of the chief marking. The darkened wing surface within the bar results in the two black spots of the cell becoming far less distinct than in *ansorgei*.

The F.W. marginal and the H.W. sub-marginal spots are smaller although the difference is not great. The H.W. tails are slenderer and much longer.

The H.W. under surface is characterised by the narrowness of the white band and especially by the nearly straight line followed by it and the four black marks along its inner border, in areas 1c, 2, 3 and 4. This part of the pattern appears to be a very convenient and distinctive feature, although only applicable to the males.

FEMALE.—The difference between the patterns of these two races has already been pointed out under *ansorgei*. The greater prominence of the bar is not only due to its whiteness but, as in the male, is greatly enhanced by the dark tint of the basal surface of both fore- and hind-wings, especially the former. The H.W. tails are longer and stouter.

Length of F.W. of specimens represented on pl. 1, fig. 3, ♂—41.0 mm.; fig. 4, ♀—52.5 mm. It must be remembered that the ♂ being bred is probably much smaller than a wild example.

EXAMPLES STUDIED:—Kenya Colony: Aberdare Mtns., E. foot and slopes, 7,000-8,500 ft., 24-27 Febr., 1911 (*S. A. Neave*), ♀, Brit. Mus.; Kikuyu Escarpt., nr. Uplands, Uganda Rly., 7,500-8,000 ft., Apr., 1926 (*V. G. L. van Someren*), 3 ♂♂ (probably all bred, 2 with pupa-cases), one represented on pl. 1, fig. 3, Type, 3 ♀♀ (all much smaller than pl. 1, fig. 4 and probably bred, 2 with pupa-cases), Hope Coll., O.U. Mus.; Kikuyu Forest, Roromo, 16 Dec., 1899 (*R. Crawshay*), ♀, Brit. Mus., Type of Butler's description of *Ch. a. ansorgei*, ♀, in 1900 *Proc. Zool. Soc.*, 1900: 915, here represented on pl. 1, fig. 4, Allotype of ♀ *jacksoni*; ditto, 22 Jan., 1900, ♀, Tring Mus.

This interesting race is named in honour of Mr. T. H. E. Jackson, F.E.S., of Kitale, who first recognised the difference between the races of *ansorgei* on the two sides of the Rift Valley (1932 *Proc. Ent. Soc. Lond.*, 7: 6).

3. *Charaxes a. ruandana*, Talb.—Plate 2, fig. 1—♂; fig. 2—♀. This race was described from the only known ♀ by Talbot in 1932 *Bull. Hill Mus.*, 4: 289, and given the name *ruandana* because the locality, Kabira Forest, was stated by the captor, T. A. Barns, to be in Ruanda. If this is correct it must be, as Mr. Talbot writes, "in the southern corner of that area," inasmuch as the label furthermore records that the forest is 12 miles N. of Usumbura at the N. end of Lake Tanganyika. The males, except one, were taken rather further S. than the female, and the single example much further N., on the Congo border of W. Uganda.

MALE.—The F.W. band and indeed the whole wing resemble *jacksoni*, but the four post-discal spots and the two within them are somewhat larger, although smaller and more sharply defined than in *ansorgei*. The degree of development of the black marks in the orange constituents of the band in areas 1a, 2 and 3 is also intermediate between the darker *jacksoni* and the less dark *ansorgei*. The F.W. marginal spots are also intermediate but, in this respect, there is very little difference between the three races.

The narrowing of the anterior section of the H.W. band affords the most conspicuous distinction between the male *ruandana* and the other races, as may be seen at a glance when fig. 1 on pl. 2 is compared with 4 (*levicki*), and with 1 (*ansorgei*) and 3 (*jacksoni*) on pl. 1. This distinction, although very evident, is less marked in the other males of *ruandana*. In this, as in other respects, the male of *ruandana* is nearest to *jacksoni*, although the posterior section of the band in this latter is much broader, due to the spread of its inner border over the basal surface. The sub-marginal spots resemble those of *jacksoni* and are distinctly smaller and less developed than in *ansorgei*.

The beautiful and complex pattern of the F.W. under surface in this and the other races of the species was found to be so variable when a fair series was examined that, except in *jacksoni*, it became inexpedient to found any characters on its appearance in the single or very few examples which alone were available in all except *ansorgei*. There is, however, one striking feature, pointed out to me by Mr. Talbot, on the under surface of the hind-wing of *ruandana* ♂ in which the white band is much beyond the cell in area 4. The interruption is less and the mark less rectangular in a male from W. Uganda which, in this and other respects, is somewhat transitional

towards *ansorgei*. In the narrowness of the H.W. band on the under surface *ruandana* resembles *jacksoni*.

FEMALE.—The F.W. band is narrower than in the females of the other races and the whole effect of the upper surface more black-and-white and *brutus*-like. The spots of the post-discal series are obsolescent except the anterior one which is distinct and white, not orange as in the other races. The almost complete suppression of the F.W. marginal as well as the H.W. sub-marginal markings is another distinctive feature well brought out in the figure (pl. 2, fig. 2). The contrast in this respect with the female *jacksoni* (pl. 1, fig. 4) is very strong. The pale white and bluish H.W. band is also narrower than in the other races. The tails of both sexes appear to be intermediate between those of *ansorgei* and *jacksoni*, but in order to reach safe conclusions on this and other points a longer series of specimens is required.

Length of F.W. of specimens represented on pl. 2, fig. 1, ♂—40.0 mm.; fig. 2, ♀—48.75 mm.

EXAMPLES STUDIED.—Virgin forest behind the shore mountains of N.W. Tanganyika, 18-2,200 metres, Grauer, ♂ Allotype, Brit. Mus. (ex Coll. J. J. Joicey), represented on pl. 2, fig. 1; L. Tanganyika, N.W. shore, 1,900-2,100 m., Febr., 1910, Grauer, 2 ♂, Coll. Mme. Fournier and Tring Mus.; 12 m. N. of Usumbura at N. end L. Tanganyika, Ruanda Distr., Kabira forest, 7,000 ft., Jan., 1924, Wet Season (*T. A. Barns*), ♀, Type of Talbot's description in 1932 *Bull. Hill Mus.*, 4: 289, Brit. Mus. (ex Coll. J. J. Joicey), here represented on pl. 2, fig. 2; W. Uganda, Congo border, Mar.-Apr., 1926 (*E. Barns*), ♂, Brit. Mus. (ex Coll. J. J. Joicey).

In addition to the above my friend M. le Cerf has kindly shown me a ♂ in the Paris Museum which appears to be quite distinct from *ruandana* as here described and figured. It was taken at Kitembo, Lake Kivu, E. Belgian Congo, Nov., 1931. It is possible, but I think unlikely, that this form is the ♂ of *ruandana*. The F.W. band is much broader and more heavily marked with black than in this latter race, the post-discal F.W. spots rather larger and continued posteriorly as far back as area 1a, the marginal F.W. spots more developed, the H.W. band also much broader and with no marked constriction towards the costa. More specimens, especially females, from the same area would be extremely interesting.

Since the above paragraph was written M. Le Cerf, who had been travelling in Morocco, returned to Paris and very kindly sent me the following particulars of the six males, including the one mentioned above, which have now been received from Kitembo:—

“ Voici tous les détails de nos étiquettes :—

“ Bulira, Kitembo, Lac Kivu, xi.1931, 1 ♂ ; viii.1932, 1 ♂ ; xi.1932, ♂ ♂.

“ Lushasha, Kitembo, Lac Kivu, viii.1932, 1 ♂.

“ Kirondo, Kitembo, Lac Kivu, ix.1932, 1 ♂.

“ Tous ces exemplaires sont bien pareils entre eux, notamment pour la largeur de la bande terminale noire des ailes antérieures qui est notablement plus étroite que la bande fauve discale. Le No. 4, qui vient d'arriver et est encore sur l'étaioir, a les points fauves subterminaux des ailes postérieures un peu plus grands que chez les autres individus, mais il ne s'agit évidemment que d'une très faible modification individuelle, nullement raciale.

“ Lushasha, Kirondo et Bulira, sont très rapprochées l'une de l'autre dans la vallée de la Luzira, petite rivière qui se jette dans le lac Kivu, entre Bobandana et Katana. Elle descend des montagnes boisées, parallèles au Lac, qui forment en majeure partie la région du 'Kitembo.' Les chasses ont été faites à l'altitude de 2.500 mètres environ, mais il y a des sommets atteignant 3.000 mètres à proximité immédiate.

“ Tels sont les renseignements que je possède actuellement. Je souhaite qu'ils vous soient utiles et vous parviennent encore à temps pour que vous puissiez les inclure votre travail.—F. LE CERF.”

4. *Charaxes a. levicki*, subsp. n.—Plate 2, fig. 4—♂ ; fig. 3—♀. This race is described from a ♂ and ♀ kindly lent to me by Mr. J. Levick, F.E.S., after whom I have the pleasure of naming it. But for the locality I should have hesitated to suggest that they belong to the same race, the ♀ being so much like *jacksoni* and the ♂ so very different from any known form of *C. a. ansorgei*, the female being among the largest and the male by far the smallest in any of these races.

MALE.—The outer margin of the F.W. is deeply excavated, and the anal areas more prominent than any other male of *ansorgei*. The F.W. marginal spots are very strongly developed in area 1a, much less so in 2, 3, and 4, and again more strongly in 5 although far from attaining the size of the two in 1a. Thus the effect is that of a highly irregular series quite unlike any of the other males known to me. The band is very broad and the black markings within it, in areas 1a, 2, and 3, are nearly as in *ruandana*, but the post-discal spots are larger than in the latter race and about equal to those of *ansorgei*. The F.W. basal area is lighter in tint than in any other male of the

* Where the number of plates is referred to in the text read 30 and 31 in place of 1 and 2.—Editor.

species, but the black markings along the internal border of the band contrast strongly with its pale orange-brown colour.

The H.W. pattern is very different from that of any known male of *ansorgei*. The band which, up to vein 7, is bluer than in other races, takes on a tawny tint in areas 7 and 8, the two marks being separated from each other by strong pigmentation along the vein, while the bluish-white mark in area 6 is much reduced, forming a marked constriction between the two sections. The whole effect is very characteristic and unlike the other races. The sub-marginal spots are also much larger as is the green marginal mark at the anal angle of the wing. On the under surface, the H.W. band is not narrow as in *ruandana* and the mark beyond the cell is small and causes hardly any constriction.

The female upper surface closely resembles *jacksoni*, but the basal area is even darker and the band whiter, so that the mimetic likeness to *brutus* is stronger. The F.W. post-discal spots are considerably larger than in *jacksoni* and the sub-marginal H.W. spots rather smaller.

Length of F.W. of specimens represented on pl. 2, fig. 4, ♂—37.0 mm.; fig. 3, ♀—50.0 mm.

EXAMPLES STUDIED:—Lake Nyasa, E. Africa, No. 969, ♂, Coll. J. Levick (ex Coll. Oberthür), Type; Manow, N. of L. Nyasa and E. of New Langenburg, No. 970, ♀, Coll. J. Levick (ex Coll. Oberthür), Allotype.

CHARAXES ZOOLINA-NEANTHES.

Ref. Op. cit. No. 33-34, pp. 39-41: Vol. 1, Sep. VIII, pp. 207-210.

We take this opportunity of publishing a figure of two intermediates between these forms. Pl. 32, figs. 1 and 2.

CHARAXES EUPALE DILUTUS, R. & J.

To the food plants of this species add *Albizzia sassa* and *Albizzia grandibracteata* in the Kitale district (Jackson).

CHARAXES ZINGHHA, Stoll.

Ref. Op. cit. No. 33-34, pp. 49-50: Vol. 1, Sep. VIII, pp. 217-218.

We have now bred this species. The food plant is "Kyasira" (Luganda), *Hugonia platysepala*, Welw., LINACEAE, a climber which has a series of hooks along the branchlets to enable it to retain a hold on its supporting tree. The eggs are a squat barrel shape with rounded base and flat top which is strongly fluted radiating from a raised central point. The young larvae are olive with black head and

strongly bifid yellowish "tail." Even at this stage, the horns are characteristic. The larva turns greenish at the first moult and is slightly papillated. The second moult takes place within a week and the head then becomes green with rufous horns and a line of the same colour around the disc. At the third moult the head is very similar to that of the final instar of the larval stage; the lower edge is square, the lateral horns are short and incline inward at the tip, the two long horns are directed outward and then curve inward; these horns are ochreous and an ochreous line surrounds the face. The lateral intermediate horns are only slightly indicated. The facial disc is a strong green and there are two dark oblique lines above the mouth; the central fissure between the lateral lobes is marked. The body colour is now deep green with a lateral line well developed and the tails are broadly bifid. In the final stage the larva reaches a length of 55 mm. It is a deep green with strong papillation in yellow, a strong lateral line of the same colour, and the lateral aspect of the body has decided rounded tubercles, dorsal spots on the 6th and 8th segments are indicated by a slightly raised area of deeper green centrally blue with red dots or grey with a bluish outline; sometimes the spots are obscured. The tail is still broadly bifid and yellowish. The head, figured on Pl. CVII is somewhat reminiscent of that of *varanes* or *fulvescens*, yet has some similarity to *Euxanthe*. The disc is green with an ochreous line running from the bases of the long horns to the outer angles of the mouth parts; the lateral aspects are widely yellowish; the lateral horns are short, strongly rugose; the central pair long, divergent for the basal half, then strongly curved inward, very rugose and ochreous in colour; the central intermediate horns are short, rugose and ochreous and there are no intermediate lateral horns. The posterior aspect of both lateral and long central horns are strongly spined.

Pupa: Of the usual charaxes type, perhaps slightly more ventricose, pale green with little ornamentation; such as is present is whitish and irregularly placed over the dorsum of the abdomen and on the wing shields, and on the head tubercles. The head is square with slight projections.

Rothschild and Jordan suggest an affinity to *Ch. etesipe*, but in view of the larval characters it would appear rather different.

A study of the larval characters of the group would well repay study and help in the sub-division into sub-families and genera.

CHARAXES ETESIPE.

Ref. Op. cit. No. 33-34, pp. 50-54: Vol. 1, Sep. VIII, pp. 218-222.

Add to the food plants of the nominate race, *Dalbergia* nr. *lacteata*, also *Entada abyssinica*.

I was recently informed by Messrs. Berkeley and Hamilton Gordon that they had taken this species at lower Meru forest.

I have now had the opportunity of examining a small series of some six specimens. On the upper surface these specimens resemble the race *tavetensis*, but on the underside, the ground colour is paler, much less ochreous tinged, and as all are constant in this respect I propose to name a local race as follows:

C. etesipe GORDONI, sub.sp. nov. Type male, Meru forest (lower), 2,500 feet, in the Coryndon Memorial Museum. H. Gordon and Berkeley. Six specimens compared with a series of nominotypical *etesipe* and a series of *tavetensis*.

The following food plants should be added under the respective species:

CHARAXES CANDIOPE:

Croton alienus Pax, EUPHORBIACEAE.

Occasionally in the Nairobi area.

Croton dichogamus Pax.

In the Machakos and Ngong areas on stony ground, and at the coast.

Croton jatrophaoides Pax.

At the coast.

Croton pseudopulchellus Pax.

At the coast.

Croton macrostachys Pax.

Elgon to Nairobi area.

CHARAXES POLLUX:

Fluggea microcarpa, EUPHORBIACEAE.

Jinja.

Bersama engleriana, MELANTHACEAE.

Uganda and Kitale area.

CHARAXES BRUTUS:

Bersama abyssinica, MELANTHACEAE.

Kikuyu escarpment.

Fluggea microcarpa, EUPHORBIACEAE.

Uganda.

Ekebergia rueppeliana.

Elgon area.

Turraea holstii.

Elgon area.

CHARAXES VIOLETTA:

Deinbollia kilimanjarica.
Coast and Meru.

CHARAXES CITHAERON:

Grewia sp. and "Mutoro" sp. indet.
Meru district.

Azalia cuansensis, LEGUMINOSAE.
Coast.

Crabia brevicaudata, LEGUMINOSAE.
Elgon area.

CHARAXES NUMENES:

Allophylus macrobotrys.
Uganda.

Deinbollia sp.
Elgon area.

Phialodiscus zambesiacus, SAPINDACEAE.

CHARAXES TIRIDATES:

Phialodiscus zambesiacus, SAPINDACEAE.

Bombax rhodognaphalon, BOMBACEAE.

Osyris sp. indet.
Kitale.

CHARAXES EUPALE:

Albizia grandibracteata, LEGUMINOSAE.
Elgon area.

CHARAXES ETESIPE:

Dalbergia sp.
Kitale area.

Cassia sp.
Kitale area.

Entada scadens, LEGUMINOSAE.
Rabai area, coast.

Entada gigas.
Coast.

Entada abyssinicus.
Kitale area.

Azalia cuansensis, LEGUMINOSAE.
Coast.