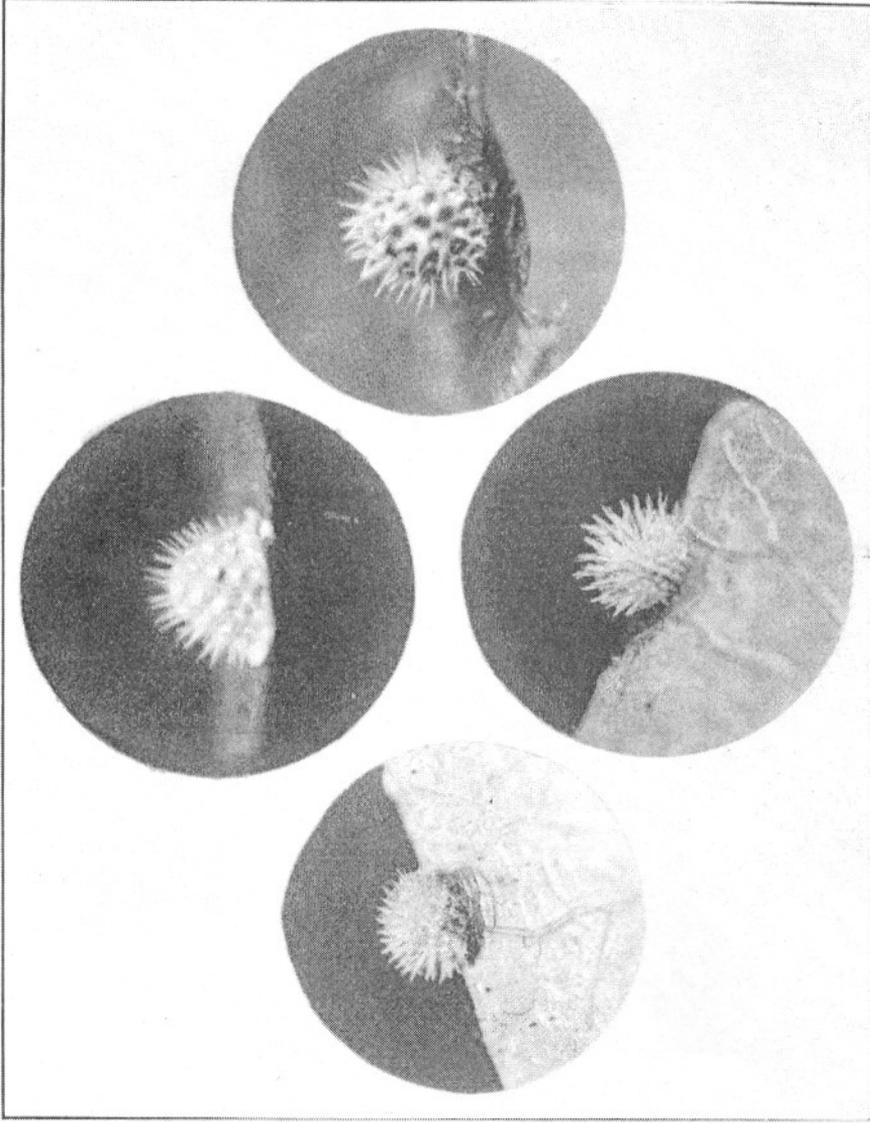


PLATE A.



Eggs of Euphaedras.
1 = *E. nedon fraudata*. 3 = *E. spatiosa*.
2 = *E. neophoron littoralis*. 4 = *E. uganda*.
5 = *E. nedon fraudata*.

PLATE B.

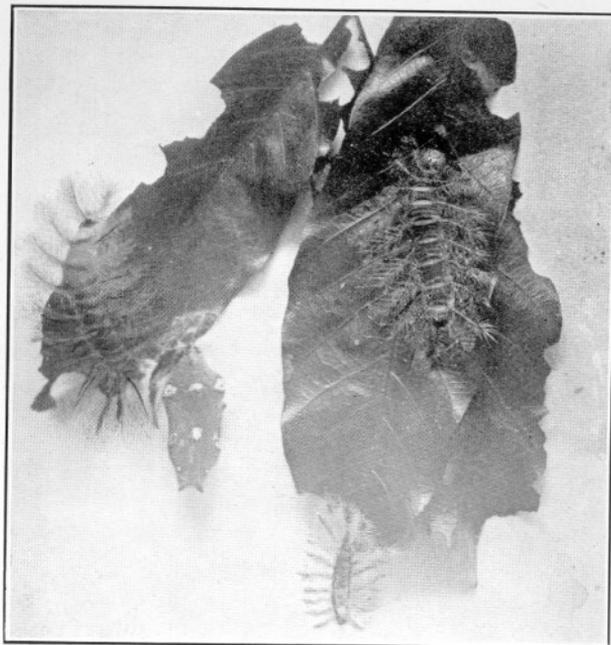


Fig. 1.

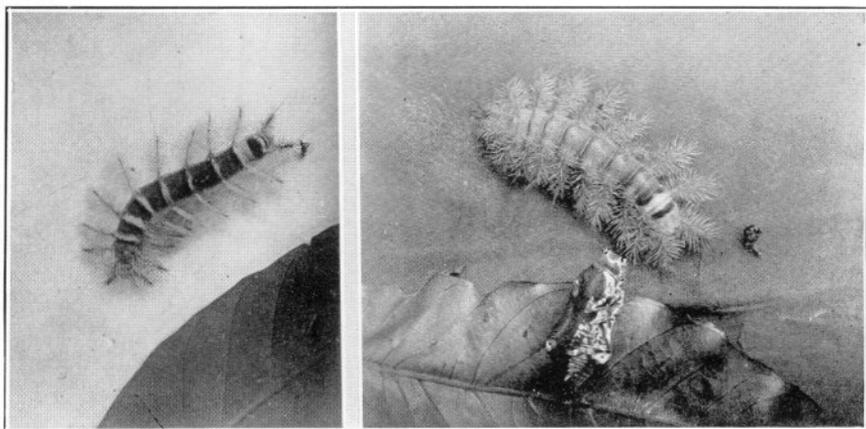


Fig. 3.

Fig. 2.

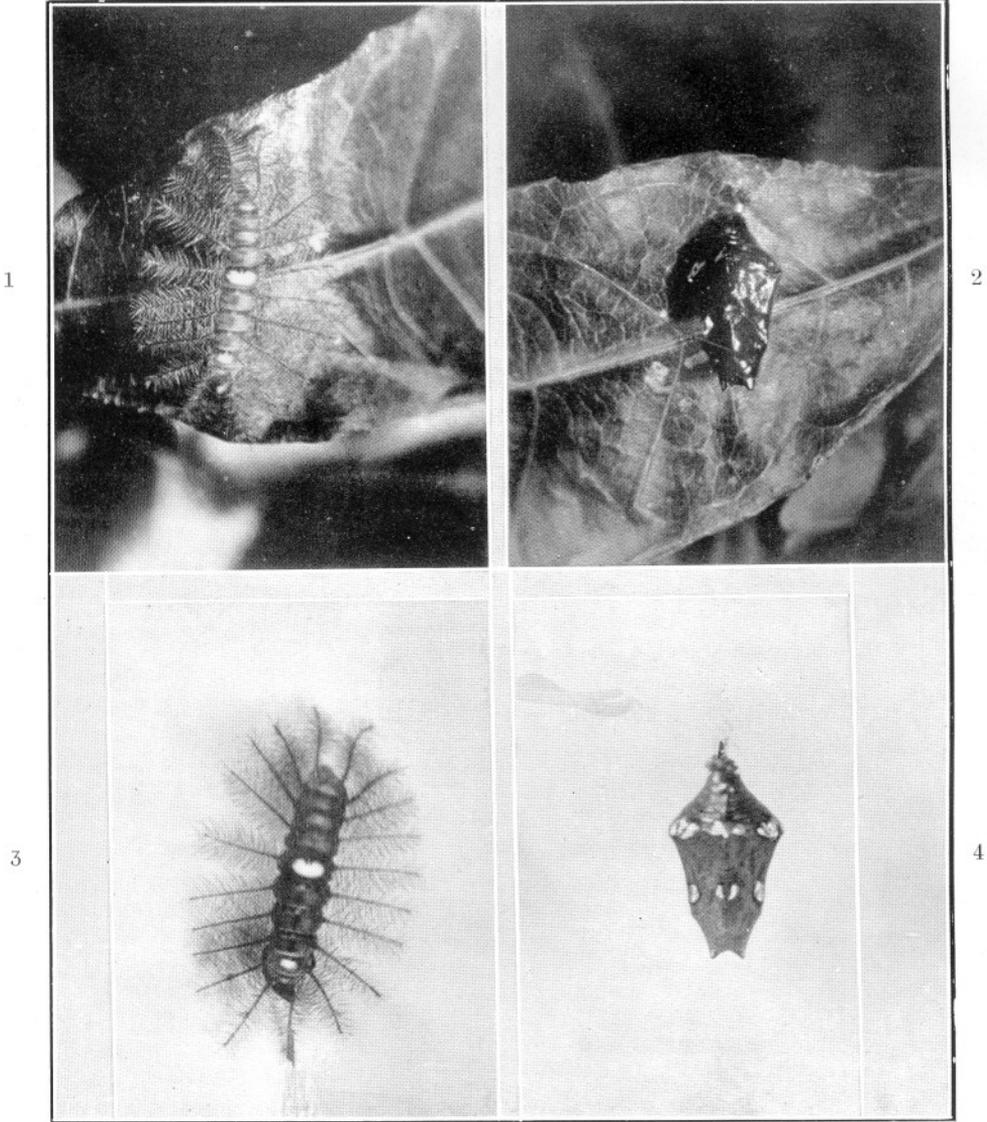
Larvae and pupae of *Euphaedras*.

Fig. 1 = *E. medon fraudata*.

Fig. 2 = *E. uganda*.

Fig. 3 = *E. spatiosa*.

PLATE C.



Larvae and pupae of *Euphaedras*.
Figs. 1 and 2, *E. neophron littoralis*.
Figs. 3 and 4, *E. neophron meruensis*.

THE BUTTERFLIES OF KENYA AND UGANDA.

Part I. Vol. II.

Family: NYMPHALIDAE.
Sub-family: NYMPHALINAE.
GENUS: *EUPHAEDRA*.

INTRODUCTION.

The members of this Genus are West African for the most part, but some few species range into Uganda and the adjacent parts of Kenya, and two species at least are peculiar to the East African Territories.

They are, for the most part, large-sized butterflies with rather heavy bodies and broad wings, conspicuously coloured in shades of green, blue, purple and brown, and black. Their colours nevertheless harmonise with their surroundings to a remarkable degree. The sexes are very alike in colour, but the females are generally larger.

In practically all the species, a varying degree of variation is found, more particularly in the females, and in some at least, there is evidence of a development towards a mimetic colouration and pattern, influenced by certain common distasteful models within their distribution. Moreover, some of the species are in themselves distasteful and we find a degree of similarity *inter se* which lends protection to the association. Some of these species are themselves models to other species of other genera (Cf. *Ch. tiridates*, *Ch. numenes*, *Ch. bipunctatus*, and *cedreatis* form of *Ch. etheocles*. All in the female sex).

All the Euphaedras are forest insects, spending the greater part of the day in deep shade, not so much amongst dense vegetation as in open undergrowth overshadowed by larger trees, which yet allow rays of sunlight to penetrate to the ground. For although shade-loving, these insects are addicted to sun-bathing, when unmolested, but as soon as they are disturbed they seek the shelter of the shadows.

All members of this genus have characteristic larvae: green above and paler green to whitish below, with sometimes conspicuous dorsal markings, and on the latero-dorsal aspect of each segment a long spine adorned with lateral branched spines and feathering which lie flat and spread out on either side of the body so as to touch each other, and the surface on which the larva is resting. The whole aspect is fern-like and feathery. The pupa is characteristic also, being somewhat slender for its size, angular, and ornamented with metallic tubercles. The empty case is thin and glass-like.

Very similar pupae and larvae are found in the near genus *EURYPHENE*, which will be dealt with later.

Much remains to be learnt regarding the early stages of several species of the genus, and it is only by breeding on a large scale that we shall be able to determine the degree of variation in a given species, and the relationship between the so-called species.

EUPHAEDRA NEOPHRON LITTORALIS, Talbot.

Pl. I, figs. 1 and 4, ♂.

Pl. II, figs. 1 and 2, ♀.

Talbot. *Trans. Ent. Soc.*, 1929, p. 486.

Expanse: Male 53-65 mm. Female 75-90 mm. General colour violet with black apex to fore-wing crossed by orange bar. Sexes almost alike. Palps orange.

MALE:

F.-w.: basal half bluish-violet, distal half black, slightly more smoky towards the hind angle; tip of wing orange-tawny and extending in below the dark costa; black distal portion of wing crossed by an orange bar 6-8 mm. wide extending from the costa to a point above the hind angle where it curves and narrows into the smoky angle. One or two black spots are present toward the mid-point of the cell.

H.-w.: Bluish-violet becoming smoky at the margin.

UNDERSIDE:

F.-w.: Ground colour ochreous, with a light tawny-brown basal patch and two irregular diffuse brownish bars crossing the disco-cellular region; a diffuse whitish sub-costal mark, corresponding with the sub-costal part of the orange bar above. Two, sometimes three, black dots in the cell.

H.-w.: Ground colour and marks as in the f.-w.; one black dot in the cell; two diffuse whitish rings toward the anal angle.

In some specimens the whole of the underside is tawny, with scarcely any darker brownish marks, but the orange bar of above is indicated by a yellowish tone.

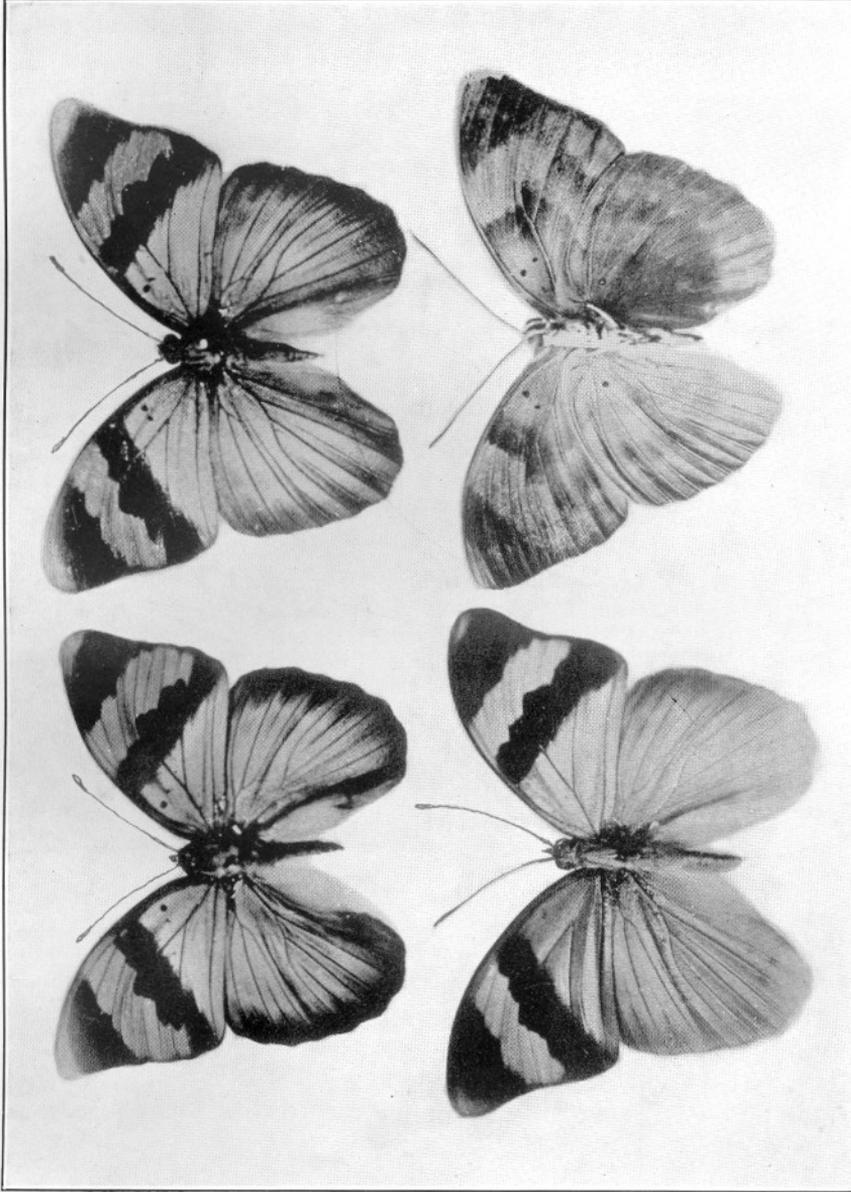
FEMALE:

Very like the male, but larger. The black spots in the fore-wing cell larger and sometimes coalescent. H.-w. margin often with white fringing inter-nervularly.

UNDERSIDE:

F.-w.: Ground colour light purple-grey-brown; cell with a whitish patch towards apex carrying two black dots on proximal edge; a

PLATE I.



Figs. 1 and 4. *Euphaedra neophron littoralis*, ♂.
Fig. 3. *Euphaedra neophron violacea*, ♂.
Fig. 2. *Euphaedra neophron meruensis*, ♂.

pinkish-white bar corresponding in position to the orange bar above is continued through the mid-discocellular by two diffuse whitish spots to mid-point on hind margin; apex with whitish spot; two rows of white discocellular spots. There is sometimes a brownish dusting toward the base and toward the outer margin.

H.-w. : Ground colour as in the fore-wing; cell with one black dot surrounded by a diffuse whitish area, a whitish discocellular bar followed by two rows of sub-marginal spots forming more or less ocellate marks at the hind angle.

EARLY STAGES :

This species lays its eggs on two species of *Deinbollia*, *burbonica* and *kalimanscharica* (Sapindaceae), depositing them in groups or singly, on either the upper or underside of the leaves; sometimes on the flowering stem. The eggs are creamy to yellow with a decided pearly lustre when first laid, but they turn greyish, then almost black just before the larva emerges. The egg stage lasts about seven days. In shape the egg is domed, ornamented with hexagonal facets which are depressed and between the facets are spines. Vide Pl. A., fig 2.

When the larva first emerges it is somewhat transparent, of a greyish colour with a black head and adorned with lateral branched spines which are clear and transparent and hardly noticeable. No dorsal ornamentation is present until the third moult when a pink band appears on the 6th segment and a pink spot outlined in blue is apparent on the 2nd segment. With each successive moult, the colour becomes more green. The mature larva is sage green with darker green bands along the anterior and posterior edges of each segment and each has a dark central spot. There are two blackish spots on the dorsum of the 2nd segment on either side of the pink, and a long oval pinkish spot on the 6th segment. The lateral feathery spines are long, c. 10 mm., translucent greenish, and brownish at the tips with just a touch of blackish on the three pairs at the anal end. Each spine is adorned with numerous fine lateral spines, but the feathering is not so wide in this species as in *E. spatiosa*. The feathery spines of the first two segments are held in a forward position to cover the head; the lateral ones are contiguous and form a flat feathery border around the body, and lie in contact with the surface of the leaf on which the insect is resting. The usual position taken up is along the mid-rib of the leaf. The mature larva is 55 mm. in length, including the spines. When ready to pupate, the larva turns translucent and indication of the dorsal marks vanishes. The larva curls ventrally after spinning a pad of silk to which it attaches its hind sutorial "legs." It hangs suspended for roughly twelve hours before it actually pupates and the larval skin is shed. The skin is pushed off and closely compressed so that it eventually has the appearance of a feathery star.

The pupa is characteristic of the group. The colour is pale translucent apple green. The head is strongly bifid, the two projections are golden with black tips. From the dorsal aspect the thorax and wing cases form a long wedge with slight projections at the "shoulders" of the wings, and from the edge of the wing cases the abdominal segments are sharply truncated toward the cremaster. The dorsal aspect of the abdominal segments up to the edge of the third segment rise abruptly to a peak, to be followed by a slight depression over the fourth and fifth segments, followed again by another rise which slopes to the cremaster. The dorsal ornamentation is as follows: a golden spot at the wing "shoulders," two large golden spots outlined in black at mid-point between the head and the lateral angles; a heart-shaped golden spot at a point corresponding to the tip of the thorax; two large oval golden spots outlined with black at the angles of the wing and the abdomen, with a bluntly crescentic spot at the apex of the abdominal segments carrying a rounded projection on its concave edge; this is also golden and outlined with black. There is a further triangular golden mark at the centre of the dorsum of the 7th segment. The Cremaster is stalked, with two rounded projections laterally on the last and penultimate segments. On the ventral aspect the only marks are blackish streaks on the mid-point of the wing-cases.

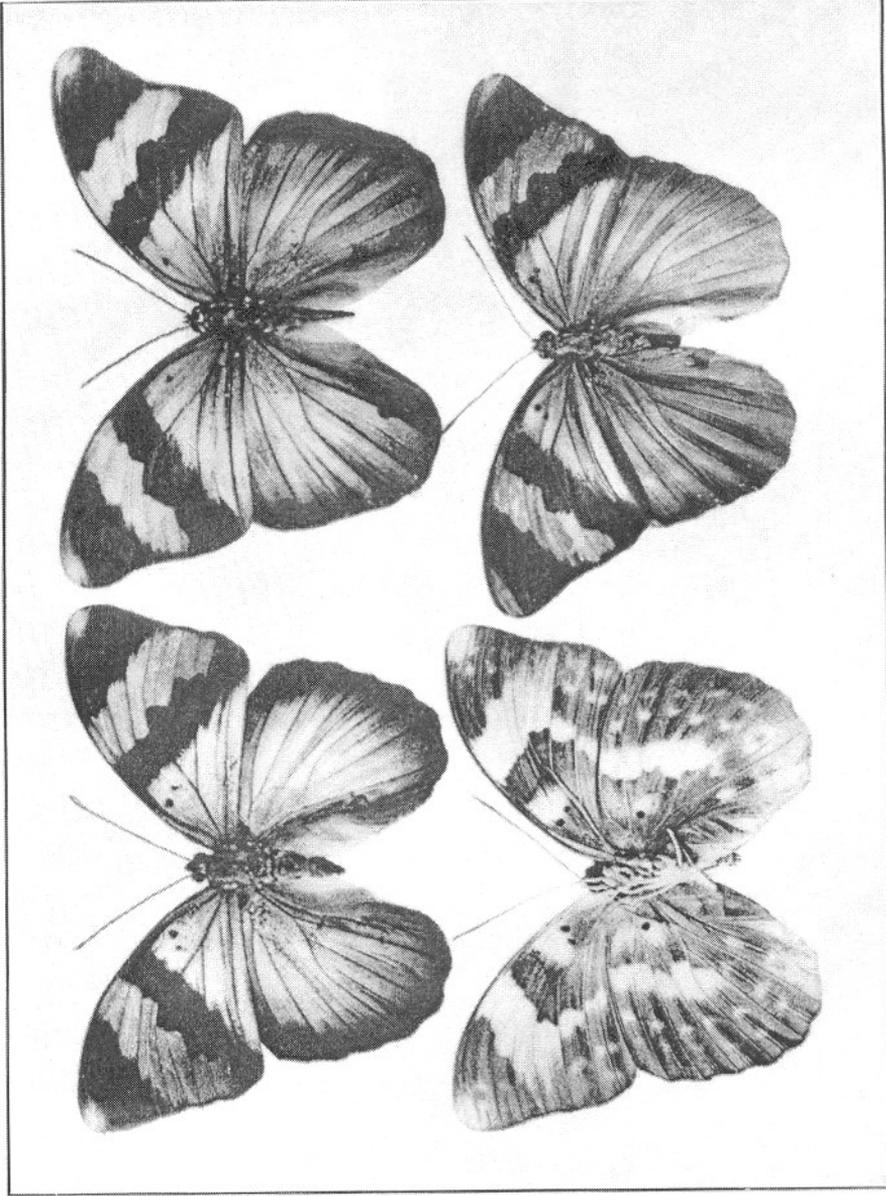
At the coast, the pupal stage lasts three weeks.

DISTRIBUTION AND HABITS:

Limited to the coastal forests and plantations of Kenya. It must be noted, however, that this coastal race is connected with two other races, namely *violacea* of the Kilimanjaro area, and to a lesser degree with *meruensis* of the Mt. Kenia rain forests; the linking with this latter takes place along the Tana River.

Although a forest species, this insect is found in almost all localities where there are any sheltering clumps of trees; thus one finds it in cocoanut plantations where mango and other fruit trees have been planted at intervals and a collection of other lesser trees have been allowed to grow up. It is common in certain parts of Mombasa Island where suitable conditions, as just described, exist. Nevertheless the presence of its food plant is essential, and fortunately this is a common species not only on the island but all along the coast. The females are more partial to shady places, but the males are given to flitting or rather gliding to and fro in shade interspersed with sunlit patches. Like others of this group, the flight is characteristic, consisting of one or two wing beats followed by a gliding with wings held horizontal so as to display the wonderful colours. This flight is always close to the ground and is very deceptive, as one learns by experience when attempting to capture the insect. It appears leisurely and slow, but

PLATE II.



Figs. 1 and 2. *Euphaedra neophaon littoralis*, ♀, upper and underside.

Fig. 3. *Euphaedra neophaon aenariensis*, ♀.

Fig. 4. *Euphaedra neophaon violacea*, ♀.

the insects are quick sighted and can accelerate and avoid capture with ease. Females are usually found in the vicinity of the food plants, and they, and to a greater degree the males, are to be found feeding on rotting fruits which are fermenting.

EUPHAEDRA NEOPHRON VIOLACAE, Butl. Pl. I, fig. 3, ♂.
Pl. II, fig. 4, ♀.

This race inhabits the Kilimanjaro area, and differs from the coastal form in the ground colour of the upper side; this is much more purply-violet.

There is the same difference in size between the sexes and in the colour of the under-surfaces. There is no difference in the early stages or habits.

DISTRIBUTION :

Is found throughout the forest on the foot-hills of Kilimanjaro, extending to the Taveta forest and lower Pare mountains and along the Lumi River. It occurs also in the Dabida district, but here we find intermediates toward the coastal race.

EUPHAEDRA NEOPHRON MERUENSIS, Sb.-sp. nov.
Pl. I, fig. 2, ♂.
Pl. II, fig. 3, ♀.

Intermediate in colour between the race *littoralis* and *violacea*, but differing from both in the shape of the fore-wing orange bar, more particularly on its proximal border which is less wavy and is not extended in a curve toward the hind-angle and does not reach vein 2; the median black bar is thus straighter and broader. Furthermore the outer edge of the fore-wing is distinctly brownish and carries a rusty fringe. The hind-wing smoky border shades into brownish and the fringe is rusty coloured. There is thus a tendency toward the race *allenbecki*, Pag., of Abyssinia. Type, male, Meru Forest, Sept., 1927. Dr. van Someren Coll. A series of paratypes in my collection.

EUPHAEDRA NEOPHRON ELLENBECKI, Pag. (Not figured.)

Differs from the other East African races by being smaller and in having the basal portion of the fore-wing and the hind-wing yellow-brown and hardly differing in colour from the sub-apical bar of the fore-wing.

DISTRIBUTION :

This race is included on the evidence of a specimen taken by Col. S. A. Neave, March, 1912, Uchwenyi (? Itwani) Forest, near Witu.

EUPHAEDRA MEDON FRAUDATA, Thurau.

Pl. III, figs. 1—4, ♂♂.

Pl. IV, figs. 1 and 3, ♀, fig. 2, ♂.

= *inaequabilis*, Thur.

= *peculiaris*, Lathy.

Expanse: Male, 55-68 mm.; female, 60-98 mm. Sexes unlike.

General colour bottle green or olive-brown with sub-apical yellowish bar.

MALE:

F.-w.: Ground colour bottle-green with often a golden tinge; the cell usually with two black dots, and a black bar along the apex; the apical half of the wing is suffused with blackish scales, giving a dark appearance to this area; the tip is white, while the transverse sub-apical bar is yellow.

H.-w.: Uniform bottle-green, often with a golden tinge; margin dusky with a greyish fringe.

UNDERSIDE:

Dull yellowish-green; fore-wing cell with three black dots; tip white; a sub-costal white mark corresponding in position to the commencement of the sub-apical bar above; a sub-marginal ill-defined, often broken, darkish bar is present on fore and hind-wings; h.-w. cell with one or two black dots; an interrupted white bar from about the mid-point of the costa to the apex of the cell.

FEMALE:

Ground colour golden-olive brown; fore-wing bluish along the mid-costa; apex with a white tip; apical half of wing darkened with blackish scales; sub-apical bar yellow, often with a greenish tinge. H.-w. uniform golden-olive brown with greyish fringe, and often with a purplish reflection along the margin.

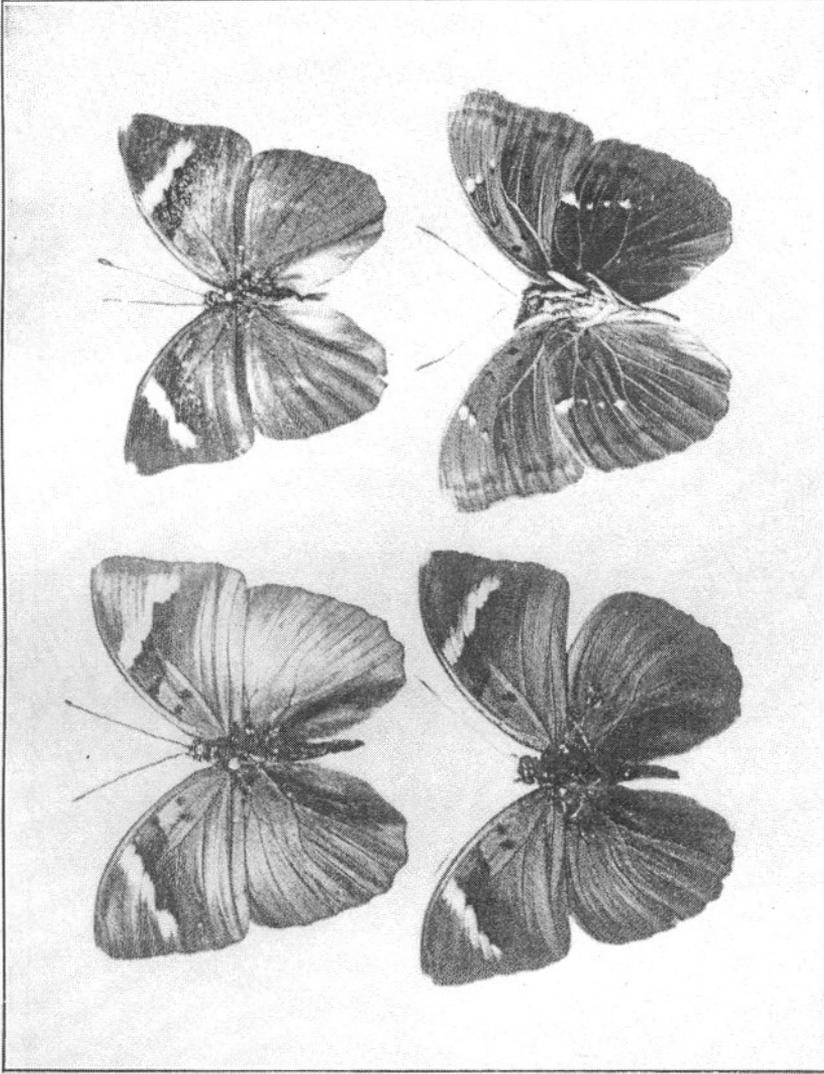
UNDERSIDE:

F.-w.: Yellowish-olive with matt surface; two to three black dots in the cell; an interrupted white sub-apical bar; tip white; a series of dark greenish angled spots forming a sub-marginal bar.

H.-w.: Ground colour as fore-wing; cell with two black dots; an interrupted white bar from mid-costa to beyond the middle of the wing, the costal spot outlined proximally with black; a sub-marginal olive interrupted bar; fringe greyish.

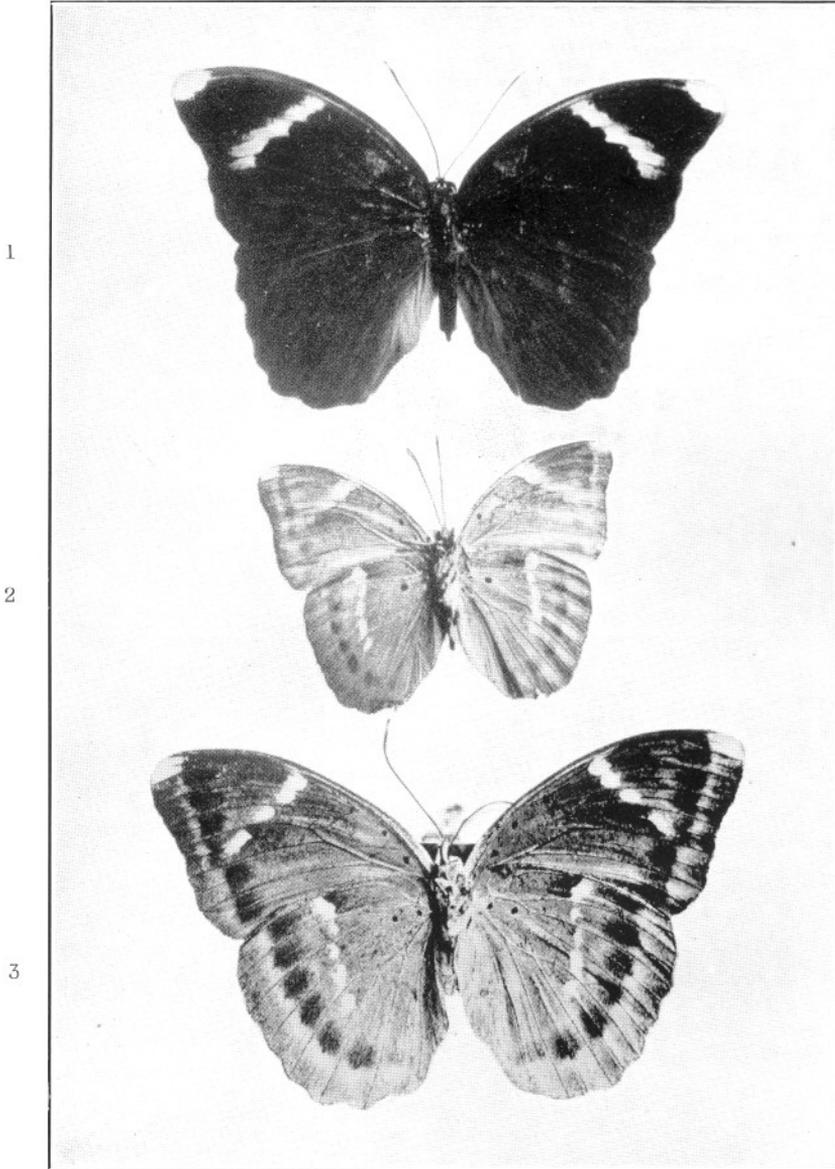
In some males, the dark scaling of the fore-wing is limited to the proximal border of the sub-apical bar only, so that the apex is golden

PLATE III.



Figs. 1-3. Variations of *Euphœdra medon fraudata*.
Fig. 4. Underside.

PLATE IV.



Figs. 1 and 3. Upper and underside of *Euphaedra medon fraudata*, ♀.
Fig. 2. Variation of ♂ underside.

green like the base. There is sometimes a black spot at the apex of the cell on the underside. In both sexes, the ground colour is richer and darker when the insect is fresh but the colour fades out, both above and below, within a day or two, losing its bluish sheen and becoming more golden.

EARLY STAGES :

The food plant of this species is the Nkuzanyana of the Baganda, *Phialodiscus zambesiacus* (Sapindaceae). The eggs are deposited singly, on the upper surfaces of the leaves. They are pearly white when first laid, then darken, to become greyish two days before the larva emerges. In shape they are domed, the surface is covered with hexagonal facets, at the angles of which are glistening spines. The egg stage lasts seven days.

The newly emerged larva is translucent greyish-green, with a large black head, and fine transparent hairs project from the lateral aspect of each segment. The larva is unicolourous until the third moult when a pink band appears on the 8th segment. In this stage it is very similar to the larvae of other *Euphaedras*, the distinguishing feature being the colour of the dorsal band.

The mature larva measures 45 mm. in length; is pale sage-green in ground colour, with slightly darker bands on the front and back edge of each segment. The 8th segment is decorated with a bright pink band 3 mm. wide bordered by dark green. The feathery lateral projections are often 15 mm. long and lie with their margins touching. The position taken up by the resting larva is usually along the mid-rib of the leaf, and is very cryptic. The larval stage lasts from three weeks to a month. It pupates on the under surface of the leaf, either toward the margin or along the mid-rib. As the larva hangs it curves ventrally, and gradually becomes translucent, losing all trace of the dorsal mark.

The pupa is a translucent apple green, with gold-coloured ornamentation on the dorsum. Viewed dorsally, it presents the following characters: the head is bifid, each projection gold in colour with a black "comma" mark; at the latero-distal aspect of the head are two black streaks on a golden base, then follows a slight expansion at the shoulders of the wing-cases, each with a black crescentic mark on a golden spot; the apical projection of the thorax is golden with two parallel black dots; then follows a slight constriction corresponding with the commencement of the abdominal segments and then a more rapid widening out to the angle of the wing-cases; at this point there is a large conical golden mark outlined with black and carrying a black central dot; between the wing projections, the abdominal segments rise in an acute angle the apex of which has a golden elliptical mark with a black mark on the concave edge and two black dots on the

convex; the abdominal segments then taper rapidly to the cremaster which consists of a central stalk with two rounded knobs golden in colour and black spotted, one above the other; there is also a golden central spot in the mid-abdominal region. There is a lateral series of black dots along the spiracular line. The wing cases on the ventral surface are curved, and the abdominal segments strongly ventricose, and adorned with two golden spots, black-dotted.

The pupal stage lasts about a month, but is influenced by heat and humidity.

DISTRIBUTION AND HABITS:

This is a forest species which ranges throughout the forests of Uganda, and extends into the Kavirondo country. It is more plentiful in its western and central areas of distribution.

It is partial to the more open, less tangled parts where shade and shadow alternate with patches of sunlight. One finds them along forest paths which are shaded with overhanging trees. They prefer places where the ground is damp and the atmosphere humid. Males are more in evidence than females, for these latter seek the open spaces in the undergrowth and are difficult to detect, unless one has the fortune to observe them ovipositing; they then flit about from one food plant to another, pausing just long enough to deposit an egg. After laying three or four they settle on the damp mould of the floor of the forest usually in some little patch of sunlight, with their wings outspread. Males are partial to sun-basking, and will rest on some low herb with out-spread wings, or often on the ground, but ever alert. When disturbed they fly low; two or three rapid wing beats, a low glide, and they settle. They will maintain this manoeuvre for quite a long distance along a pathway, keeping just out of reach of the net, before they suddenly turn off into the undergrowth. They feed largely on decaying fruits which have fallen to the ground.

The females are very similar in colour to the next species, and both enter into the mimetic association with the various forms of *Charaxes* females already cited in the introductory notes. The white bar on the under-surface of the hind wings helps to distinguish these females from the following species.

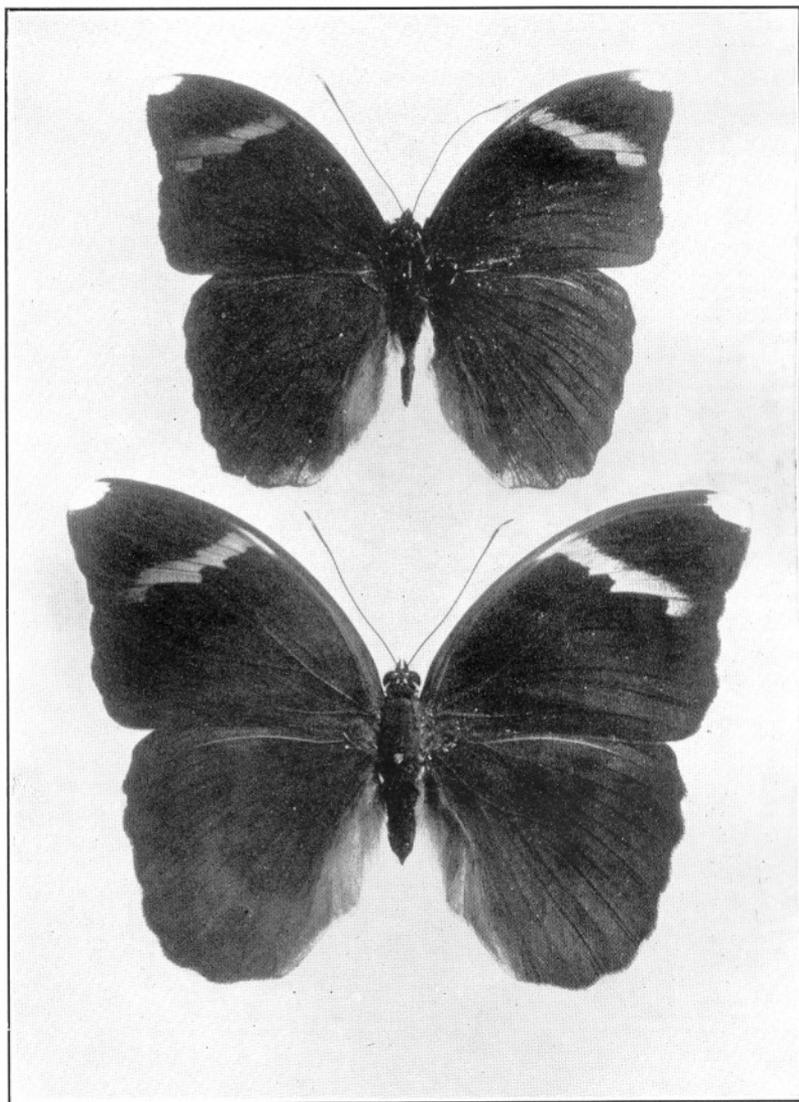
EUPHAEDRA SPATIOSA, Mab. Pl. V & VI, figs. 1 and 2, ♂ and ♀.

Expanse: Male 80-95 mm. Female 95-120 mm. General colour olive-brown with sub-apical yellow bar on dark ground. Sexes very similar.

MALE:

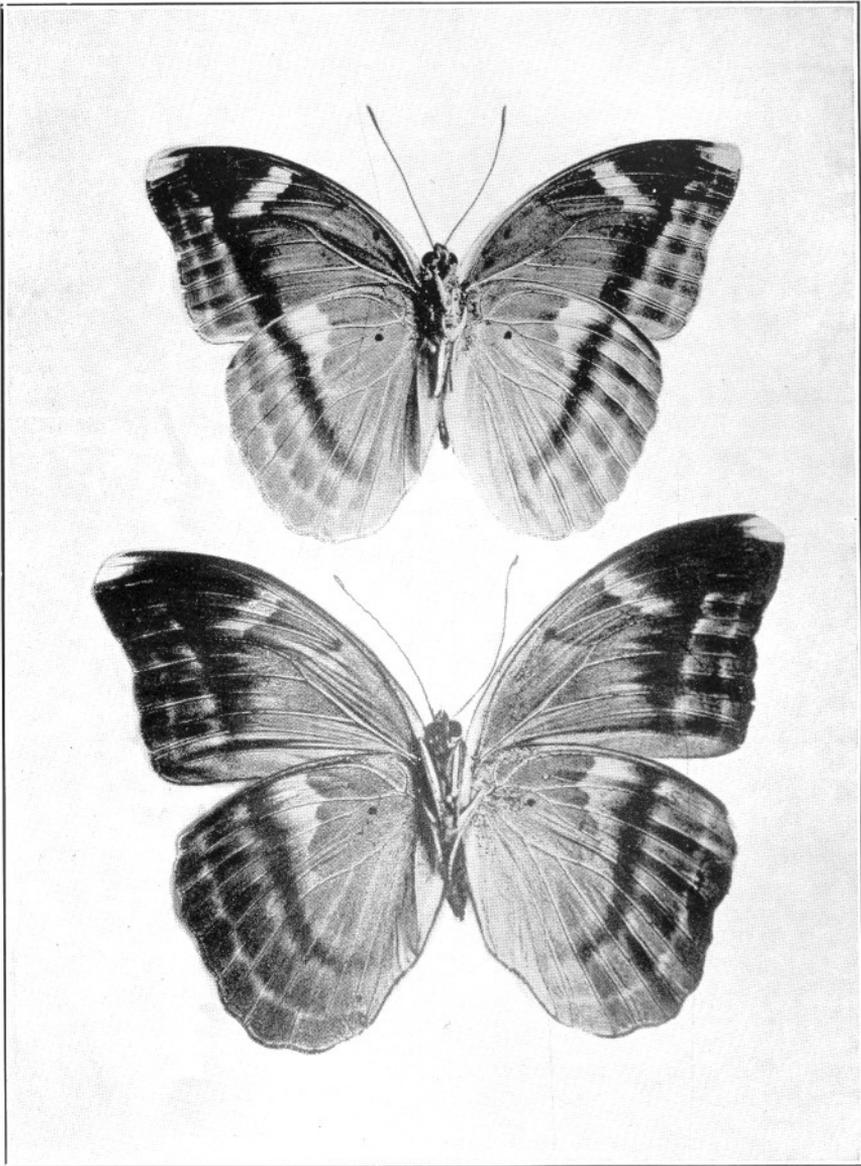
F.-w.: Basal half of costa bluish-green; basal half of wing olive-green-brown; apical half from apex of cell to mid-point on outer

PLATE V.



Euphaedra spatiosa, ♂ and ♀. Upper surfaces.

PLATE VI.



Euphaedra spatiosa, ♂ and ♀. Upper surfaces.

margin, olive-black; tip with conspicuous white spot, sometimes the white extending along the edge of costa; a sub-apical yellow bar almost straight along the distal margin, indented on the proximal margin, average width 5 mm. and with a yellow streak along the hind-costal margin.

H.-w. : Unicolourous olive-green-brown, with a whitish fringe. In fresh specimens the general ground colour is deeper, more olive, less brown. Many of the males have a strong purply-blue to bronze iridescence at the anal angle of the hind-wing.

UNDERSIDE. BOTH SEXES :

Ground colour matt olive-grey, sometimes with a bluish green tinge; a black spot in the f.-w. cell; tip of wing white; costa slightly ochreous whitish at base; a whitish sub-apical bar corresponding to half the bar on the upper side. H.-w. with a black spot in the cell; a whitish bar from mid-costa toward apex of cell. Both wings with a dark olivaceous bar beyond the middle, outlined distally with crescentic light hoops, the tips of the hoops touching a sub-marginal pale bar conforming to the outline of the wing.

EARLY STAGES :

This species lays its eggs singly on the upper surfaces of the leaves of sapling plants of *Phialodiscus zambesiacus* and *Paulinnia pinnata* (Sapindaceae). The egg is a beautiful object when viewed through a magnifying glass, especially with sunlight on it. It is dome-shaped covered with depressed facets hexagonal in outline and between the facets there are flexible spines. The facets and spines glisten with a pearly lustre. The whole egg reminds one of the form of an Echinoderm. The egg takes seven days to mature. The newly emerged larva is translucent white with fine black hairs set out from the lateral aspect of each segment, save the last. Each hair or spike is covered in fine white lateral spines. The head is dark brown with a black midline. It remains this colour until the third moult. It then turns grey-green still with a semi-translucent appearance and most of the lateral feathery spines become translucent greenish save at the tips and base which remain dark; the first and last pair remain dark throughout their length but the lateral feathering is white. A blue-black band appears across the 8th segment and the head turns brown. The mature larva is a strikingly beautiful object 70 mm. long, of a pale sage green, slightly darker along the front and hind margins of each segment. The blue-black band on the 8th segment stands out conspicuously. The lateral body feathering is developed to a maximum. Those on the first segment are directed forward over the head; the last pair backward over the anal segment. All are bluish-grey, darker at the base and yellowish at the tips.

The larva lies along the mid-rib of the leaf when at rest, with the lateral feathered spines in contact with the surface of the leaf. They are somewhat sluggish and very prone to bacterial infection, and when this happens they liquify and decompose rapidly. When about to pupate the larva selects a spot usually on the projecting mid-rib on the under-surface of a leaf or sometimes on a twig and here spins a silken base to which it attaches its hind suctorial legs. It then curls ventrally and brings the feathery lateral spines forward to cover the ventral surface. The skin is shed within twenty-four hours.

The pupa is similar in general characteristics to many of this group. The colour is a pale translucent green ornamented with large golden spots accentuated with black. The general distribution of the golden marks is similar to that of the previous species, but the marks are larger, and the abdominal prominence is more accentuated.

DISTRIBUTION AND HABITS :

These insects are entirely inhabitants of the thick shady forests of Uganda, and are found resting on the ground or skimming low over the surface of some forest path where sunlight alternates with shade. They rest with their wings outspread, and though of a large size are elusive and difficult to capture. Females are much more addicted to the shade of the undergrowth than are the males, but both sexes feed on the juices of fallen decomposing and fermenting fruits and berries.

EUPHAEDRA UGANDA UGANDA, Auriv.

Pl. VII, figs. 1 and 2, ♂, fig. 3, ♀.

Pl. VIII, figs. 1 and 2, ♀♀.

Expanse: Male 75-88 mm. Female 100-110 mm. Sexes unlike.

MALE :

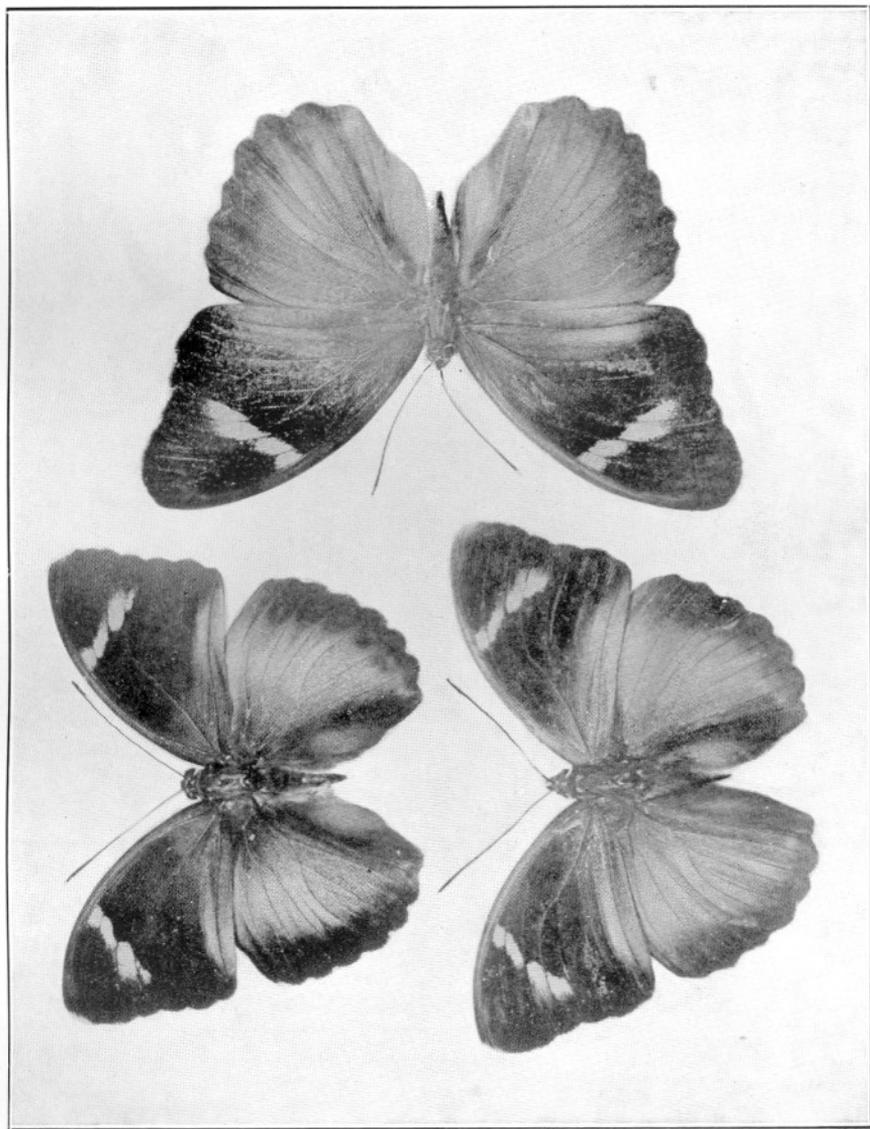
F.-w. mostly a rich blue-black, with a blue costa, a purply-blue base and a patch of the same colour toward the middle of the hind margin. A sub-apical white bar consisting of three to four spots, tinged violet-blue on the margins; varies in width from 2-5 mm. A small white tip at apex; margin slightly scalloped,

H.-w.: Strongly violet-purply-blue in the central area dusky at margins; margin strongly scalloped and bearing white internervular spots. The blue-violet colour changes to a more purply tone when the first bloom of the freshly emerged insect goes.

UNDERSIDE :

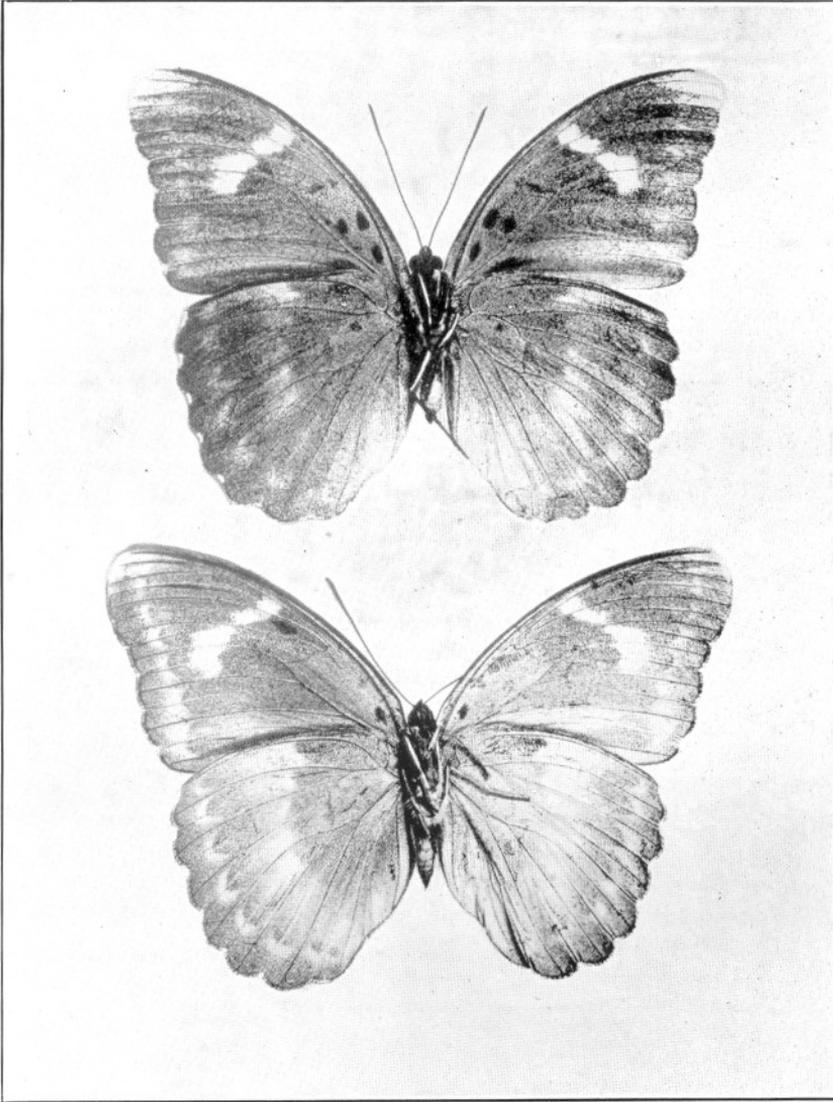
Matt grey-blue with greenish tinge; three black spots in the cell, with one at apex; a sub-apical whitish bar. H.-w.: Ground colour similar; one black dot in cell; an indistinct whitish bar beyond the middle, more pronounced at the costa.

PLATE VII.



Figs. 1 and 2. *Euphaedra uganda uganda*, ♂.
Fig. 3. *Euphaedra uganda uganda*, ♀.

PLATE VIII.



Euphaedra uganda uganda, ♀. Undersurfaces.

FEMALE:

Somewhat variable. F.-w.: General ground colour sooty-black with violet along the costa, at the base and along hind margin expanding to a distinct violet-blue area at the centre of the hind-margin; tip narrowly white; sub-apical bar white, consisting of four white spots edged with blue. H.-w. with sooty brown-black ground colour with a strong purply patch in the centre. Both wings scalloped, the hind one, more so. Underside as in the male three large black spots in the cell of f.-w., one in hind-wing cell.

EARLY STAGES:

The eggs of this species are laid singly or in twos on the upper surface of the young plants of *Rhus subcoriaceus* (Sapindaceae), also on *Paulinnia pinnata* of the same family. They are a high dome covered with depressed facets, hexagonal in outline and between each facet is a spine. These spines are recumbent when the egg is first laid, but spring up as the surface dries. The colour of the egg is pearly white and glistens.

The larva emerges in seven days, and is at first a translucent grey-green with short lateral spines and a black head. This colouration is maintained until the third moult, when the head turns brownish and a dorsal deep pink bar appears on the 8th segment. The larva is then pale green. At the next moult it becomes sage green in colour, with the dorsal mark more prominent; the feathered latero-dorsal spines are 12 mm. in length and translucent green, with just a faint tinge of ochreous at the tip. As the larva rests these spines spread out around it so that the whole of the body outline is covered and the general outline is a long oval 45 mm. x 30 mm.

The pupa is very similar to that of *E. medon*, but is not so ornamented with golden spots on the pale apple-green ground colour.

DISTRIBUTION AND HABITS:

Most plentiful in the forests of Uganda: Budongo, Bugoma, Tero, Mawakota, Mabira, Entebbe, and the forests of Busoga.

Like others of this group their habitat is the deep shady forest with damp floor to which sunlight penetrates in patches. They keep low to the ground in flight and when at rest; the females only rising to a few feet when depositing their ova.

They sit with their wings almost completely spread, but of an evening when roosting the wings are closed.

EUPHAEDRA (UGANDA) f. NITIDULA, Nom. nov.

Pl. IX, figs. 1 and 3, ♂ and ♀.

Pl. X, figs. 1 and 3, ♂ and ♀.

= *E. uganda viridis*, Roths.*

Expanse: Male 75-80 mm. Female 90-105 mm. Sexes unlike.

MALE:

F.-w.: Greater part of distal portion of the wing black; costa, base and hind margin, blue-green to posterior angle; the black extending to, and filling half or more of the cell; tip of wing with a narrow white tip; wing strongly scalloped with white spot in each depression; sub-apical bar white with greenish tinge along edges, composed of three large, and one small, spots. Two darker black spots visible in the cell.

H.-w.: Base and margin blackish, rest of wing blue-green; a sub-marginal row of diffuse greenish spots follow the contour of the outer margin of the wing.

UNDERSIDE:

Matt grey-green sometimes with a bluish tinge; three, two, or one black spots in the cell; sub-apical bar white as also the tip of the wing and the indentations on the border. H.-w. with a similar ground colour with a diffuse whitish bar just beyond the middle, widest at sub-costa; a row of whitish sub-marginal spots are just visible. One black spot in cell.

FEMALE:

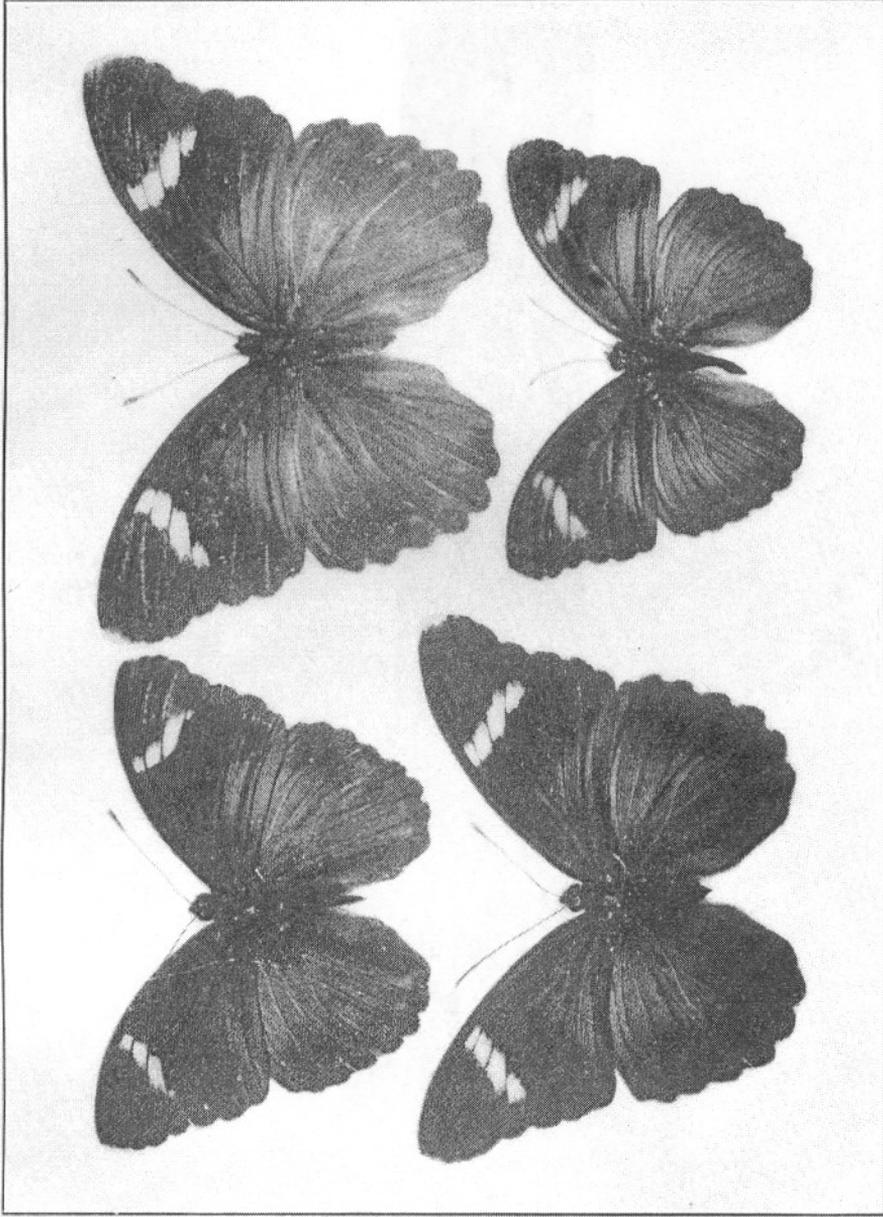
F.-w.: Base of wing to hind angle, and base of costa, violet purple, scaling most visible just beyond middle of hind margin on a brownish base; rest of wing brown-black; tip narrowly white; margin strongly scalloped, and concave between veins 4 and 5, giving the apical portion an elongate appearance; sub-apical bar of four spots, white with violet tinge at edge, particularly on the last spot.

H.-w.: Ground colour brownish, slightly darker at margin and base and with a strong purply scaling in the centre of the disc to the anal angle; sometimes a series of paler violet-purply sub-marginal spots present. Margin strongly scalloped with white spot in each indentation.

Underside as in the male.

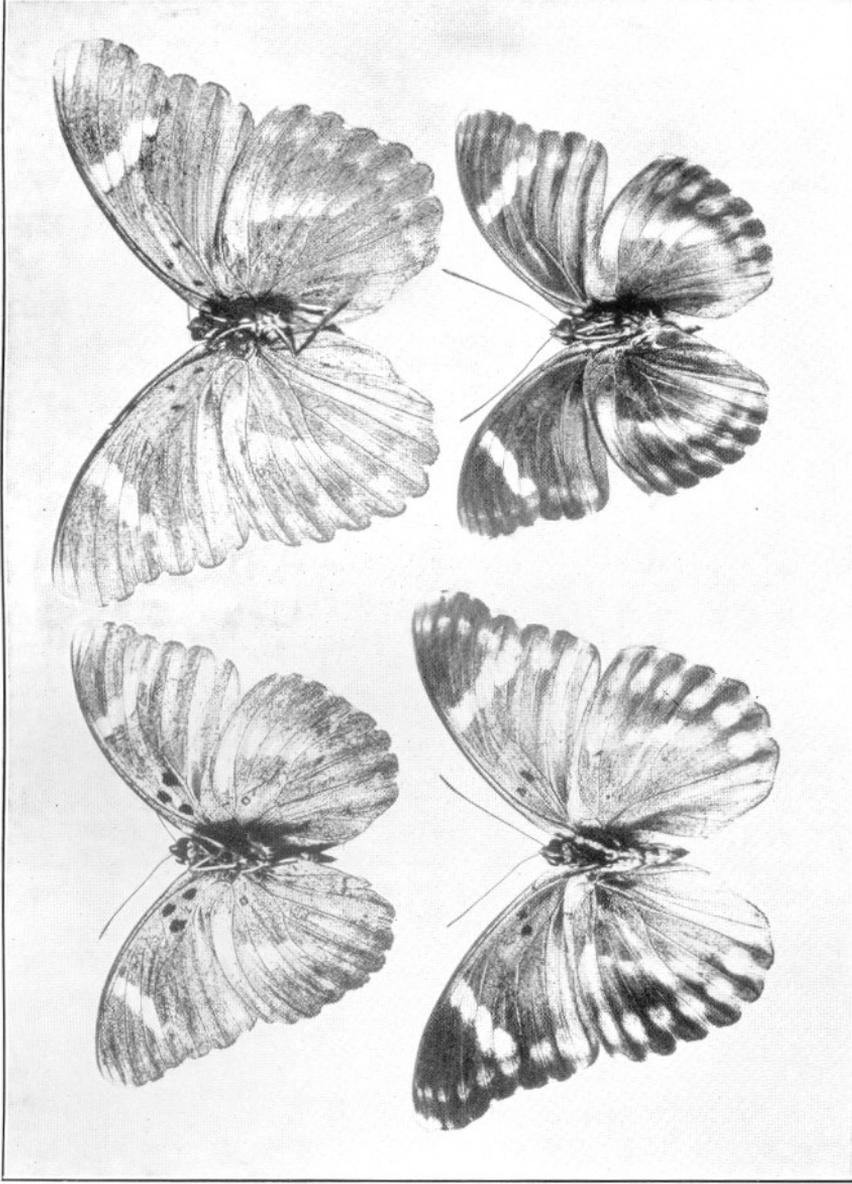
* The name *viridis* is preoccupied by *viridis*, Suffert., and a substitute name is here used.

PLATE IX.



Figs. 1 and 2. *Euphaedra (uganda) nitidula*, ♂ and ♀.
Figs. 3 and 4. *Euphaedra (uganda) kakamegae*, ♂ and ♀.

PLATE X.



Figs. 1 and 3. *Euphaedra (uganda) nitidula*, ♂ and ♀ undersurfaces.
Figs. 2 and 4. *Euphaedra (uganda) kakamegae*, ♀ and ♂ undersurfaces.

EARLY STAGES :

As for *E. uganda*. This insect has been described as merely a form of *E. uganda*. It is true that their distribution coincides to a certain extent, but such breeding of the two as has been done by me, has shown that the two breed true to type and furthermore, the *nitidula* form has a greater extension eastward, and is represented in the Kakamega-Nandi area by a form which is described later. In addition, the fore-wing in the female is more acuminate and the margin more strongly scalloped. For the time being I prefer to keep the two distinct. There is a strong similarity of marking on the underside between this insect and *E. preussi*.

DISTRIBUTION AND HABITS :

As already mentioned, the range of this insect is from the forests of Western Uganda to those of the Eastern Province in Busoga, and thence eastward to Nandi as a distinct form. In habits they resemble *E. uganda*.

EUPHAEDRA (UGANDA) KAKAMEGAE. Sub.-sp. Nov.

Pl. IX, figs. 4 and 2, ♂ and ♀.

Pl. X, figs. 2 and 4, ♀ and ♂.

MALE :

In size, this race agrees with typical *nitidula*. It differs in having the upper surface more strongly blue-green, and the margins of the wings more strongly scalloped. The distal black area of the fore-wing is more restricted, so that the black spots in the cell are more clearly visible. The under-surface presents a striking difference: the ground colour is more tinged with olive-green, on the grey-base; the spots in the cell are very prominent; the sub-apical white bar is distinct, and beside the white tip and the white at the marginal indentations, there is a series of grey-blue sub-marginal spots running from the costa to the hind-angle. The hind-wing is olive-grey-green with a discal bar just beyond the middle; a series of sub-marginal grey-blue large spots follow the contour of the wing from the costa to the anal angle; the indentations on the margin of the wing have white streaks.

FEMALE :

Upper side, very similar to that of *nitidula*, but the sub-apical bar is wider and purer white; and the purple-violet scaling on the discs of both wings stronger. The underside is a replica of that of the male, but the white and blue-grey marks are even more distinct, and thus there is a strong resemblance to *E. preussi*.

EARLY STAGES :

This race has not been bred to my knowledge.

DISTRIBUTION AND HABITS:

The range of this form is confined to the forests of North Kavirondo to Nandi, and Kisii.

Type: Male, Kakamega, March, 1934. Jackson leg. in Nairobi Museum. A long series in the Jackson col. and others in the Nairobi Museum.

EUPHAEDRA OLIVACEA, Grunb. Pl. XI, figs. 2 and 4, ♂ ♂.

Pl. XII, figs. 3 and 4, ♀ ♀. Pl. XIII, figs. 2 and 4, ♀ ♂.

Expanse: Male 70-75 mm. Female 90-100 mm. Sexes unlike.

MALE:

F.-w.: Costa and basal half of wing bottle-green with golden or blue reflections according to lighting; apical half only slightly darker or may be suffused with black scaling; two diffuse black spots in the cell; apex narrowly white tipped; sub-apical bar white and narrow, consisting of four oblique marks; wing fringe greyish, with white dots at the indentations. N.B.—Some individuals have the dark apical suffusion extending toward the base of the cell and reaching vein 2; thus more like *E. preussi* of which *olivacea* is considered a race by many.

H.-w.: Uniform bottle-green with reflections as described above; margin slightly dusky, with the fringe greyish and white spotted in the indentations of the margin. Some individuals have a strong bluish iridescence at the anal angle and at the cell.

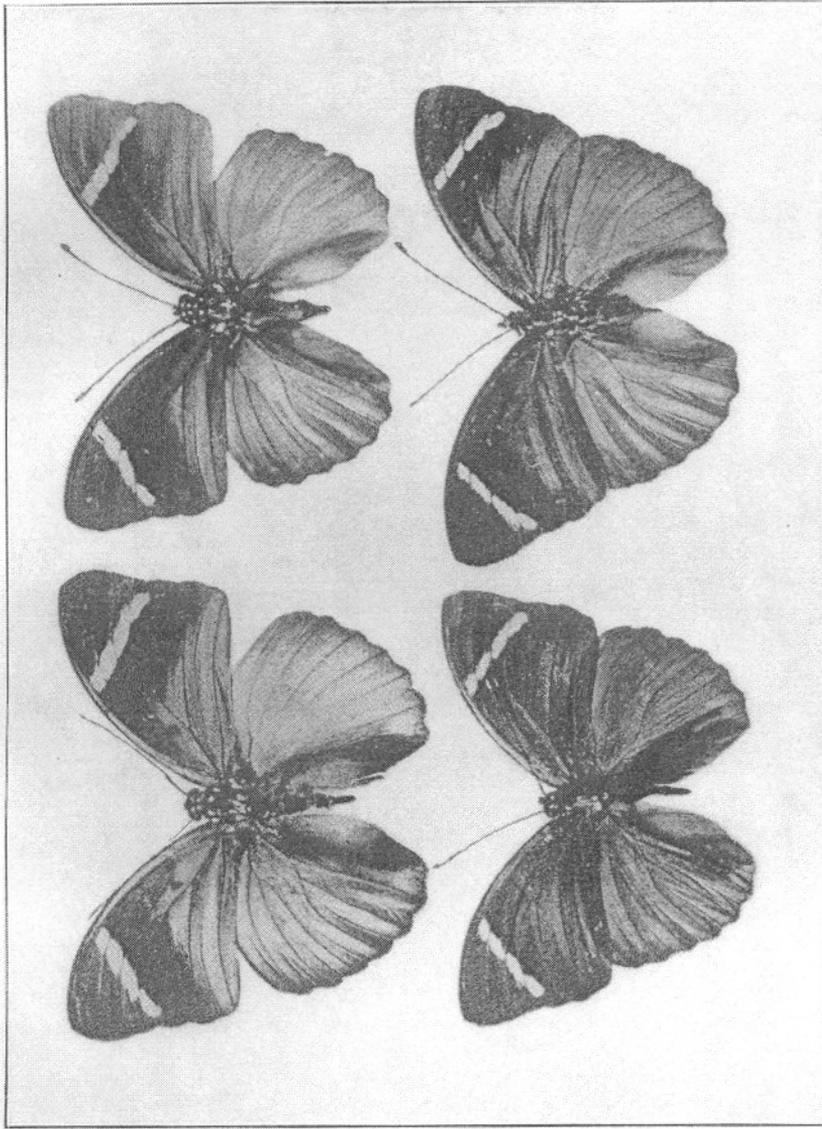
UNDERSIDE:

Uniform matt grey-green with a brownish tinge; cell with two, three or four spots, the last at the apex; the sub-apical bar clear and white. H.-w.: Ground colour as fore, with a whitish streak along the costa up to vein 7; a diffuse interrupted whitish "flare" across the wing just beyond the middle; slight indications of grey-blue sub-marginal row of spots; white streaks in marginal indentations.

FEMALE:

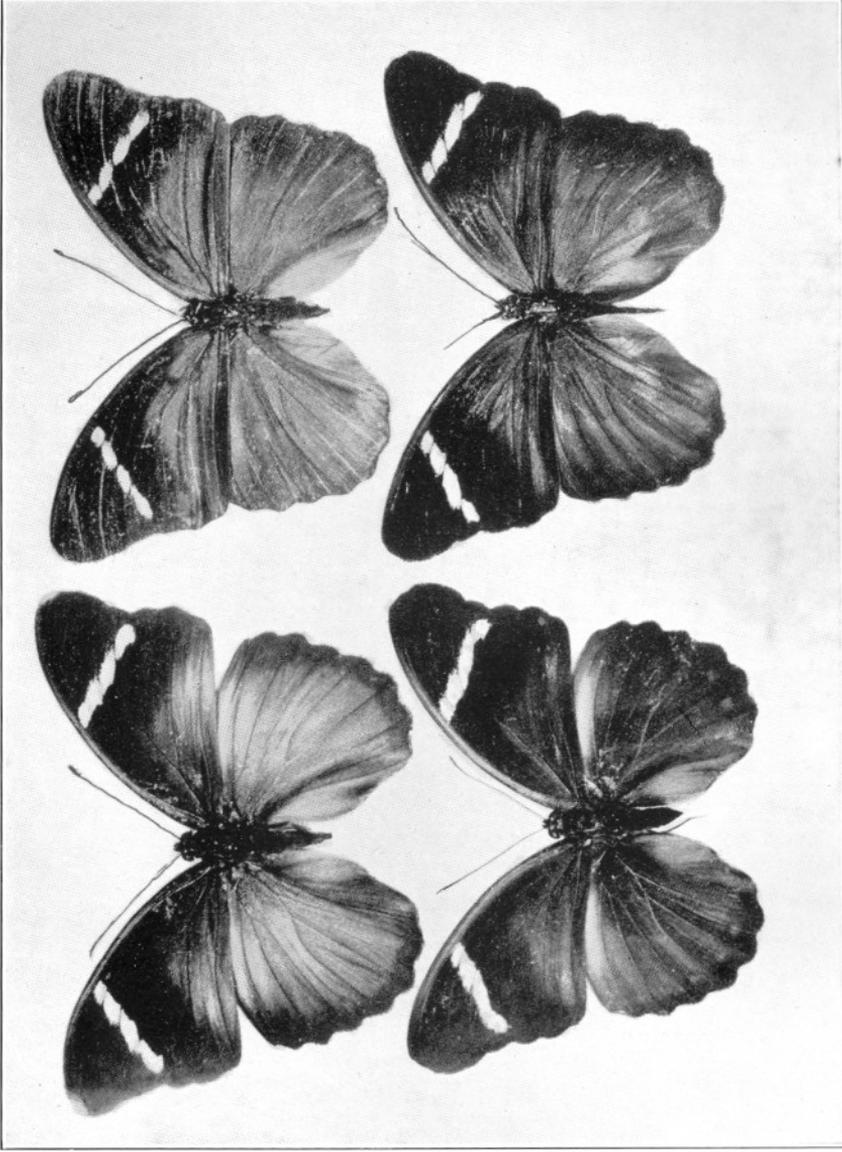
F.-w.: Ground colour bronzy-brown with purple suffusion at base, and blue along the base of the costa; apical half suffused with blackish scales from the apex of the cell to the hind angle. In some individuals the black extends into the cell and obscures the two blackish spots which are otherwise visible; tip narrowly white, and some white in indentations at margin. Sub-apical bar narrow and white. H.-w.: Ground colour bronzy-brown with purple suffusion over mid-discal area; some dusky scaling along the margin, and sometimes an indication of sub-marginal spotting.

PLATE XI.



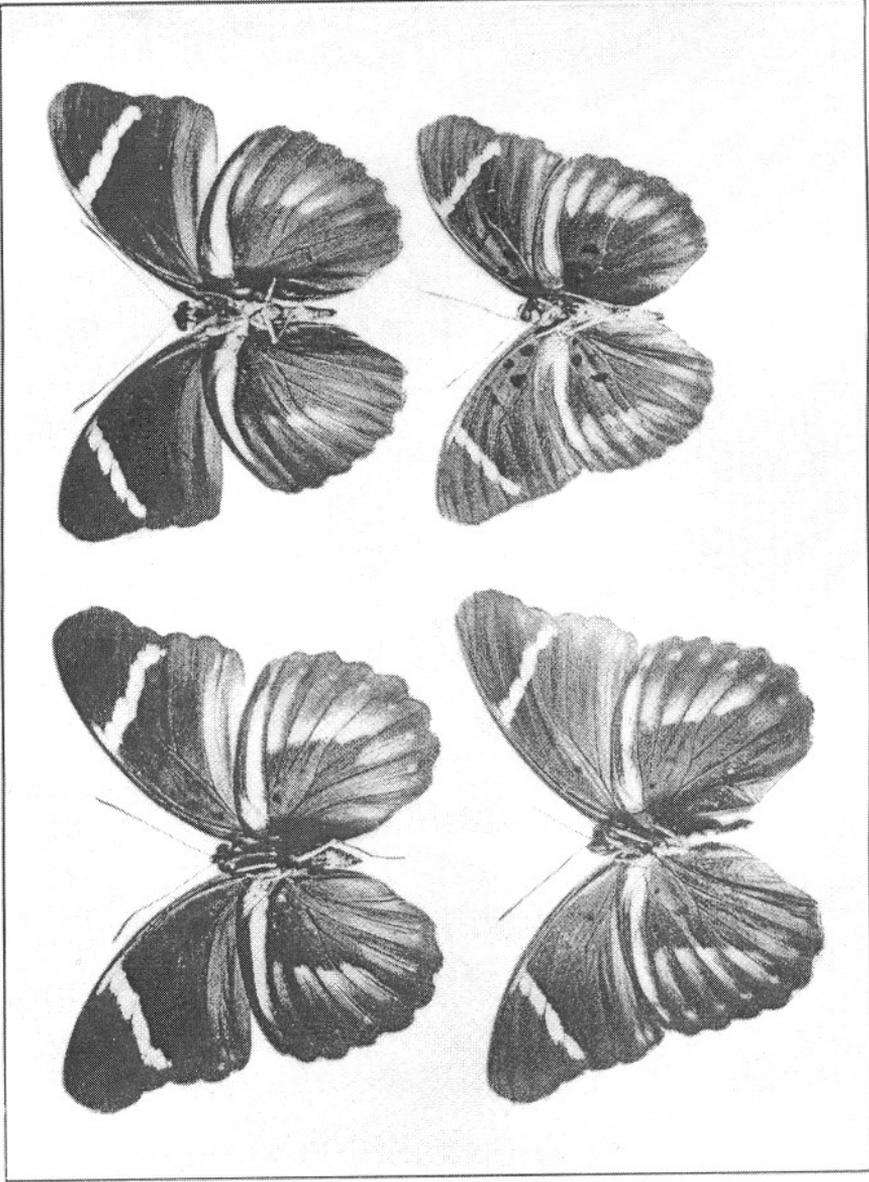
Figs. 1 and 3. *Euphaedra preussi*, ♂ ♂.
Figs. 2 and 4. *Euphaedra (preussi) olivacea*, ♂ ♂.

PLATE XII.



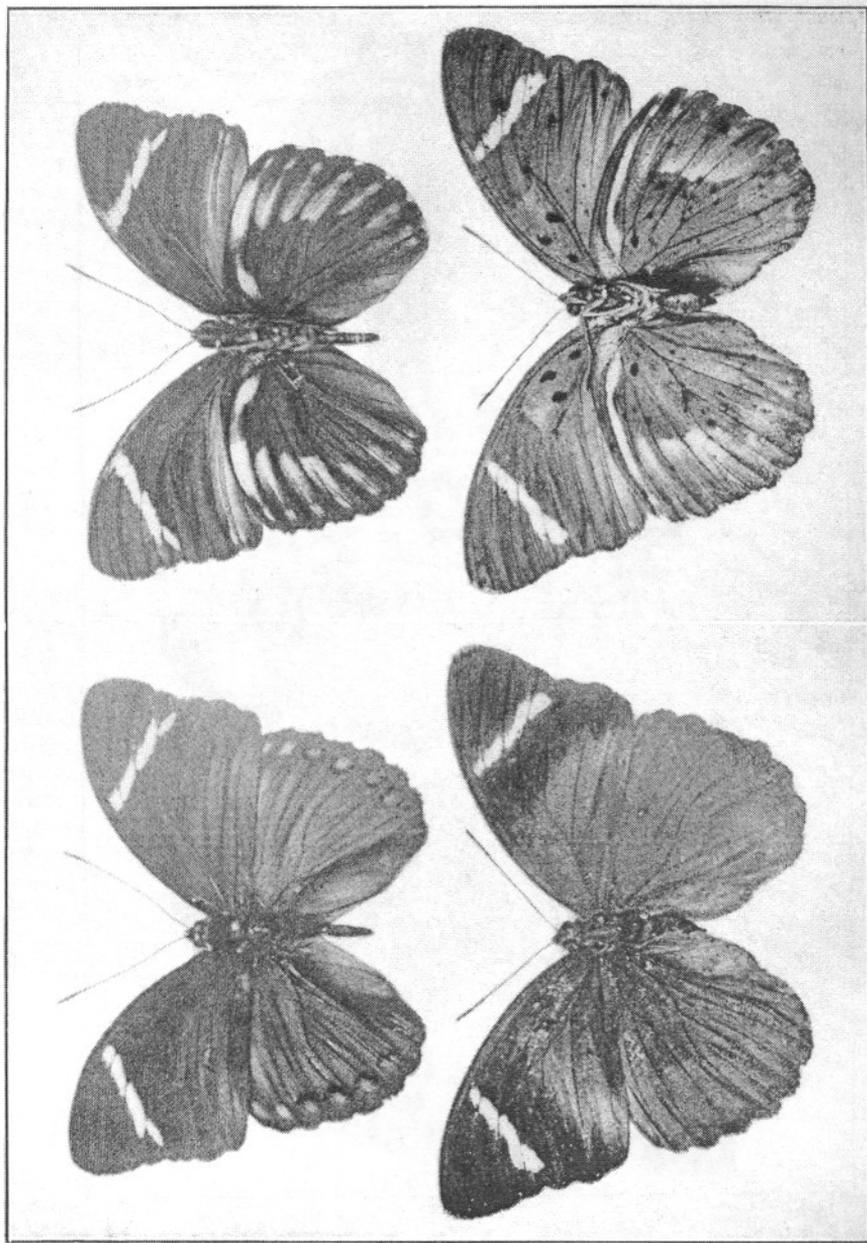
Figs. 1 and 2. *Euphaedra preussi*, ♀ ♀.
Figs. 3 and 4. *Euphaedra preussi olivacea*, ♀ ♀.

PLATE XIII.



Figs. 2 and 4. *Euphaedra (preussi) olivacea*, ♀ and ♂;
Figs. 1 and 3. *Euphaedra preussi preussi*, ♀ and ♂.

PLATE XIV.



Figs. 1 and 2. *Euphaedra preussi* f. *sordida*, ♂ and ♀.
Figs. 3 and 4. *Euphaedra preussi* f. *sordida*, undersurfaces.

UNDERSIDE :

F.-w. : Bluish-grey with purple tinge toward hind margin; cell with three black spots and sometimes one at apex; sub-apical bar white and distinct; white marginal spots more clear than above.

H.-w. : Ground colour as fore-wing; cell with one large black spot; a bluish to white streak along costal margin continuous with a whitish bar clear cut proximally, diffuse distally just beyond the middle; diffuse greyish sub-marginal spots present; white streaks on edge, at indentations, clear.

EARLY STAGES : Not yet bred.

DISTRIBUTION :

The forested areas of Central Uganda to Busoga.

EUPHAEDRA (PRESUSI) f. SORDIDA, Talbot. Pl. XIV, figs. 1—4.

Expanse : Similar to the preceding.

Described by Talbot as a sub-species of *preussi*. *Trans. Ent. Soc.*, 1929.

" Allied to *olivacea*, Grunb.; much darker, and with a row of sub-marginal spots on the hind-wing."

MALE :

Resembles *olivacea*, but is more bluish-green. F.-w. : Above with the median area to the sub-apical band blackened. Sub-apical band very narrow, white, and more oblique than in *olivacea*, the two middle spots longer than in this form, the one in 4 extending more distal. Hind-wing with a weakly defined black distal border bearing a series of bluish-green sub-marginal spots.

UNDERSIDE :

Olivaceous mixed with ferruginous, darker than in *olivacea*. F.-w. in the sub-median area dusted with bluish-white. H.-w. with a post-discal band of white stripes, the anterior three nearly equal, the posterior three short and narrow; some of these stripes almost touch the sub-marginal bluish-white spots; the usual white sub-costal stripe is partly broken up by the ground-colour at its middle.

FEMALE :

F.-w. : Proximal half violet-blue, distal half black-brown. White sub-apical band a little broader than in *olivacea* and agreeing with the male in its shape, the more distal extension of the stripe in 4 always distinguishing this band from the one in *olivacea*. H.-w. : Violet-blue excepting a black-brown border; a sub-marginal row of olive-blue spots.

UNDERSIDE :

Ferruginous marked with bluish-white. Fore-wing dusted with bluish-white over the median and sub-median areas. Hind-wing very strongly marked with bluish-white; a post-discal band is merged with a white proximal area, and distally extends to the bluish-white sub-marginal spots. The bluish-white sub-costal stripe is almost broken near its middle by a dark patch, and vein 8 is striped with blackish."

Type: Male and female in Oxford U. Museum. Paratypes Nairobi Museum. Dr. van Someren, Mawakota, Uganda.

DISTRIBUTION AND HABITS :

This form is so far noted only from the central forested areas of Uganda.

EUPHAEDRA (PREUSSI) f. LACTEATA, Talbot.

Pl. XV, figs. 1 and 2.

Trans. Ent. Soc., Dec., 1929.

This was described from a female and male, but the description is based on the former.

FEMALE :

" Distinguished from other forms by its bluish-white colouration. Probably a phase of the previously described race. F.-w. : Above with proximal area bluish-white faintly dusted with yellowish brown, extending in one specimen to cellule 3, and occupying the usual blue or brown area seen in all *preussi* and *eleus* form. The distal black-brown area is shot with deep blue. A sub-apical band of four spots, the one in 4 somewhat oblong in the type and narrower and more oblique in the paratype.

" H.-w. of the same colour as proximal area of fore-wing. A broad black-brown marginal border as in *eleus*, Drury, bearing a series of eight white spots which are slightly edged with blue proximally.

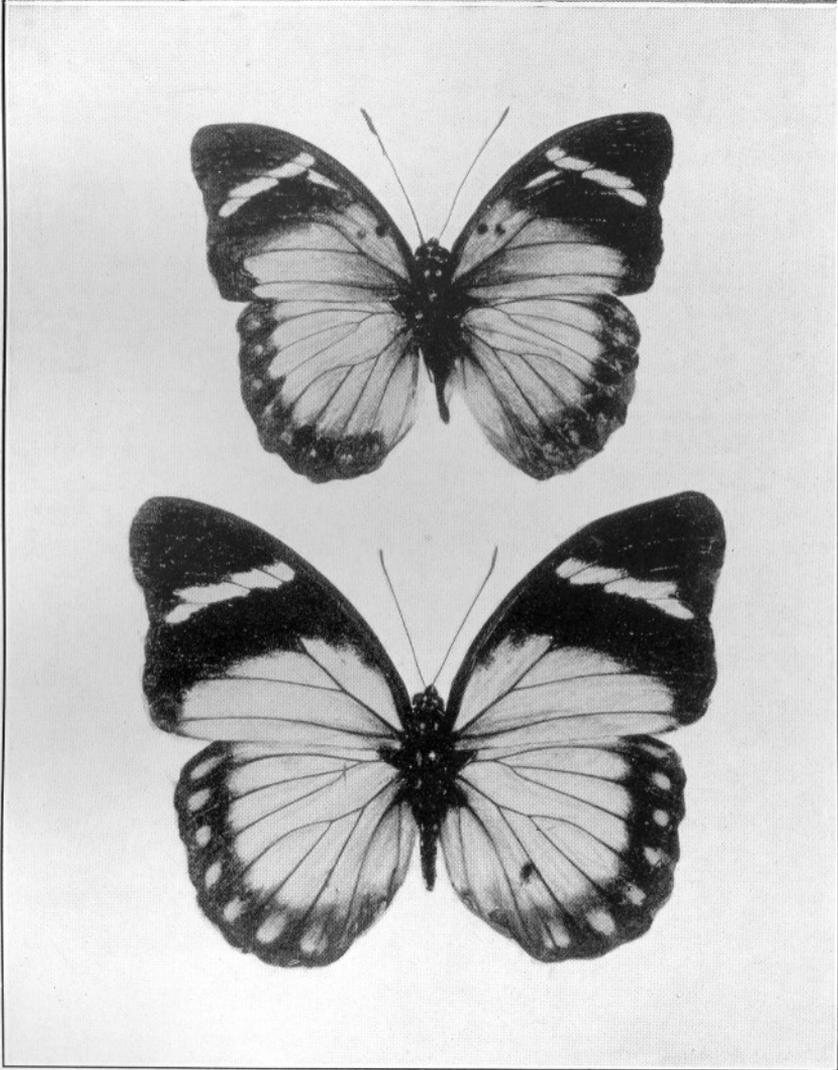
UNDERSIDE :

" Ferruginous, paler over the areas which are white on the upper-side. Cell of fore-wing with two black spots in the middle, a black point near its base and two black dots against the disco-cellulars 4 and 5. Hind-wing with a broad white sub-costal stripe almost reaching the sub-marginal spot in 7, traces of white post-discal patches, a black dot in cell below origin of vein 7, and sub-marginal spot as above, edged with bluish-black proximally.

MALE :

" Upperside colouration similar to the female f.-w. with the basal area dusted and tinged with green. Two small rounded black spots

PLATE XV.



Euphaedra preussi f. *lacteata*, ♂ and ♀.

in middle of cell; sub-apical band narrower than in the female. Under-side similar to the female paratype. Fore-wing with the two black cell-spots as above, the lower one obsolete. H.-w. with the discal band strongly marked."

Female type: Buamba Forest, Uganda. G. D. H. Carpenter and Dr. Wiggins. Male allotype and female type, Mawakota Forest, Dr. van Someren.

EUPHAEDRA PREUSSI NJAMI, Staud. Pl. XXVIII, fig. 1.

FEMALE:

Costa blue-green to almost the tip; basal area blue-green, becoming paler and more bluish over hind marginal area to hind angle and reaching cellule 2. Distal portion of wing blue-black, sub-apical band white, of four spots, the third largest and longest, the fourth set distal. The black area extends to the greater part of the cell and obscures two dark spots.

H.-w.: Pale bluish particularly centrally, and darker at the base: a blackish marginal border with bluish diffuse spots.

UNDERSIDE:

Ferruginous green, more rusty basally. Cell with three large black spots; a whitish streak below the costa contiguous with the white sub-apical band; tip white as also the indentations on the margin; a series of indistinct bluish sub-marginal spots most apparent at hind-angle.

DISTRIBUTION:

On the extreme western forests of Uganda, Buamba Forest. This is an intermediate form toward *lacteata*, Talbot.

EUPHAEDRA PREUSSI. Pl. XI, figs. 1 and 3, ♂ ♂.

Pl. XII, figs. 1 and 2, ♀ ♀. Pl. XIII, figs. 1 and 3, ♀ and ♂.

Expanse of both sexes similar to *olivacea*.

MALE:

Costa and basal area rich dark blue-green from mid-cell to posterior angle; distal portion of wing dark green-black, darker on the proximal edge of the sub-apical bar; sub-apical bar white or tinged with creamy, narrow, the fourth spot narrower and set distal to the third. Two black spots sometimes visible in the cell.

H.-w.: Mostly dark blue-green, slightly blackish on the marginal border and purplish along costa; a sub-marginal row of indistinct bluish spots.

UNDERSIDE:

Dull olive-green, slightly ferruginous at base; three black spots in the cell, and sometimes a black mark at apex; a sub-apical band, white, as above. H.-w.: Ground colour as fore, with a marked sub-costal bluish streak; one black spot in cell; very small sub-marginal dots and a slight bluish "flare" in the post-discal area, not forming a bar.

FEMALE:

Basal area bronzy-brown with purple reflections proximally and along the costa; in area 1b colour paler; distal portion of wing brown-black from the apex of the cell to hind-angle, or from mid-cell; two black spots in cell; tip white edged; sub-apical band white and narrow and almost parallel sided. H.-w.: bronzy-brown with a strong purple suffusion over the whole, except the marginal border which is dusky brown.

UNDERSIDE:

F.-w.: Tip white edged; ground colour olive matt, with lilac tinge at hind border; cell with two or three black spots. Sometimes the ground colour is strongly tinged ferruginous.

H.-w.: Ground colour as in the fore-wing; the usual sub-costal white to bluish streak is present; there is no distinct post-discal pale band, but a diffuse "flare" of bluish most distinct beyond the cell. No sub-marginal series of spots, or only very small and faintly indicated.

EARLY STAGES:

This has not been bred.

DISTRIBUTION AND HABITS:

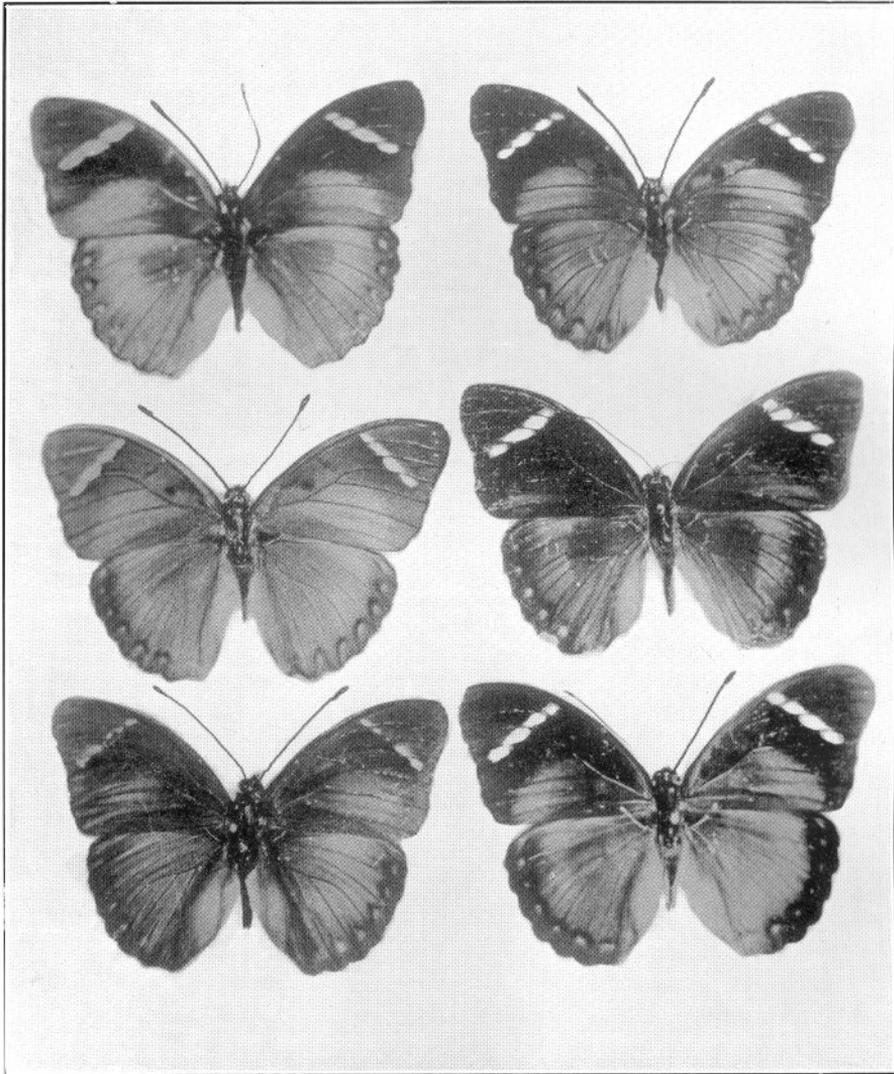
This type of *preussi* is found in the forests of Western Uganda, particularly in the Bugoma-Budongo areas. It is richer and darker than the form *olivacea*.

EUPHAEDRA PARADOXA, Neave. Pl. XVI, figs. 1—6, ♂♂
Pl. XVII, figs. 1—5, ♂♂.

This is a very variable species and the following notes and descriptions of new forms are the result of a critical examination carried out by Prof. Hale Carpenter and myself. Before dealing with the entire material at my disposal, some 130 specimens, and indicating the variations and intermediate forms we will give the results of the examination.

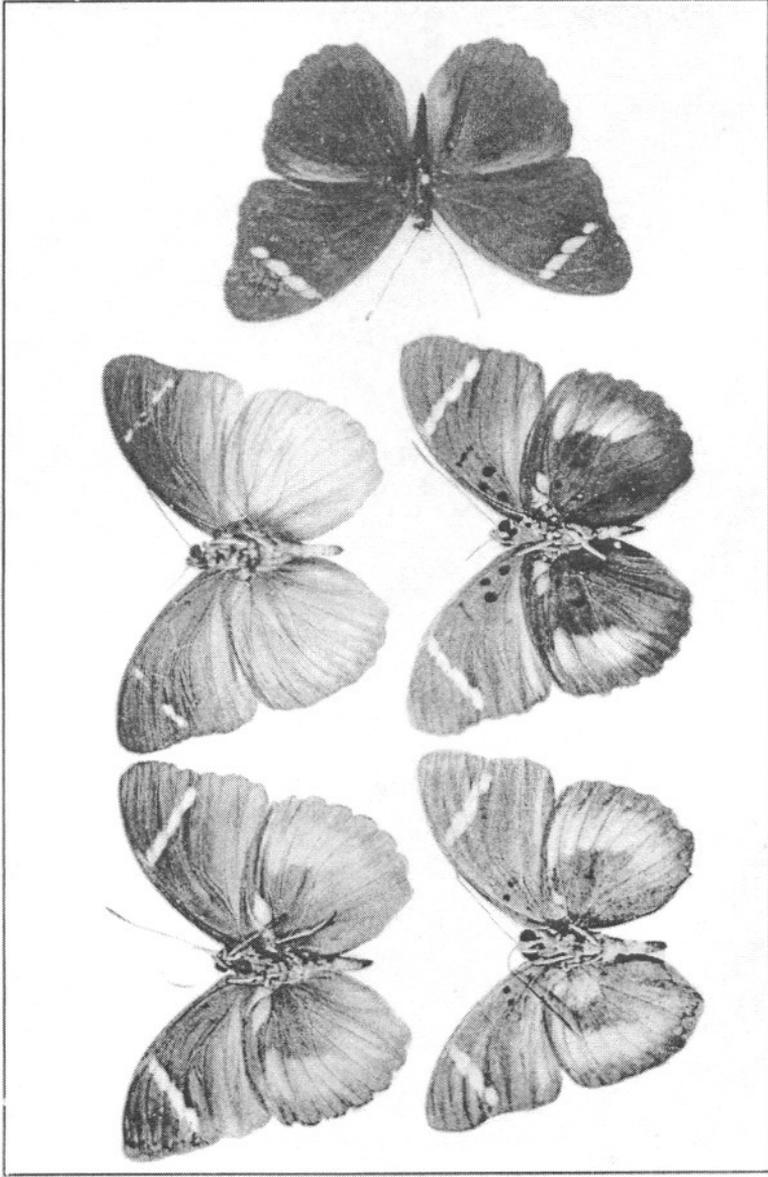
NOTES on *Euphaedra paradoxa*, Neave, with descriptions of new forms, by Prof. G. D. Hale Carpenter and V. G. L. van Someren.

PLATE XVI.



Euphaedra paradoxa paradoxa, showing variation in the ♂.

PLATE XVII.



Euphaedra paradoxa paradoxa, ♂♂.
Figs. 1—4. Variation on underside.
Fig. 5. A melanistic variety.

The original description of the species is as follows:—

"*Euphaedra paradoxa*, sp. nov. Neave. Nov. Zool, 1904, XL, pp: 333-34.

"**FEMALE:** Dull red-brown with glossy greenish-black margin. Upperside: Fore-wing glossy greenish-black with a narrow dirty white oblique sub-apical bar extending from sub-costal nervule to near distal margin halfway between third radial and first median nervules. Starting from inner margin from base to near posterior angle is a patch of dull red-brown with a slight green tint running up to and invading the base of cell and angle between median nervule and second median nervule.

"**Hind-wing:** The same dull red-brown colour, with a narrow uniform distal margin of glossy greenish-black, bearing inter-nervular spots of paler green.

"**Upperside:** A dull pale olive-green, paler toward the margins.

"**Fore-wing:** Costa buff coloured at base and again toward the apex. Sub-apical bar white.

"**Hind-wing:** Basal and middle portions darker green, considerably paler in discal area. A row of very faint greenish sub-marginal spots in internervular spaces of distal margin. Inner margin and internal and sub-median nervures covered with buff-coloured hairs. Fringe blackish, dotted with white, especially at apex of fore-wing. Expanse 62 mm. Type, female, Ugaia, South Kavirondo, January, 1903." (N.B.—The type is really a male.—Authors.)

The original description of this species quoted above, alluded to the type as a female. It proves, however, to be a male. As a result of examination of a long series of this insect from practically the type locality, South Kavirondo to the north-east of Lake Victoria, the following notes are possible.

The type male, on the upper surface is obviously an intermediate between the red-brown form, with the general resemblance to *E. eleus*, and a dark green form such as *E. preussi preussi* or *E. medon*. The narrow sub-apical whitish band is set less transversely and more antero-posteriorly than in most species except *preussi* which seems very closely related. The chief difference from *preussi* is on the underside where the strongly-marked white stripe on the costal margin of the hind-wing is lacking or may be faintly suggested at the root of the sub-costal nerve toward the base of the wing. Three black spots are indicated in the cell of the fore-wing by a few black scales; when present in other specimens they are seen to be poorly developed compared with *preussi*, or even with *medon* in which they are smaller and less well developed than in *preussi*. The pale marks on the under-surface of the hind-wing are more correctly termed "greenish-white" and form a continuous patch as in *E. uganda*, crossing the outer half

of the wing from vein 8 and 3. The outline on the proximal edge of this pale area corresponds closely with a less well defined difference of shade in the same place in the male of *preussi preussi*.

The series obtained contains certain well marked forms to which no names have been given. The following are therefore proposed:

- (1) A form of *paradoxa* male which very closely resembles the normal bronze-green male of *preussi preussi*, Stgr. For this we propose the name PREUSSOIDES, f. nov. Pl. XVIII, figs. 1—4.

The very narrow whitish sub-apical bar, slightly narrower than in *preussi*, is, as in the *paradoxa* form, set somewhat less transversely than in most *Euphaedra*, and is greenish-white. The hind border of the hind-wing has a sub-marginal row of dark angular spots, better defined than in *preussi*, which mark the inner edge of the slightly paler "internervular spots of the paler green" described for the type *paradoxa*.

The underside does not differ appreciably from that of the type, but the three spots in the cell of the fore-wing, one near the base and two distal, are distinct, though smaller than in *preussi*. In the type specimen of *p. preussoides* there are no spots on the hind-wing under-surface: another specimen has one near the root of vein 7. Other paratypes have the bases of the costa of fore and hind-wing on the under-surface yellowish, and some have the apical portion of the fore-wing dusted with the same colour.

Type, male, Suna, South Kavirondo, Kenya Colony, April, 1932, Dr. van Someren. In Hope Dept., Oxford University Museum; paratypes, and 15 topotypes in Coll. van Someren.

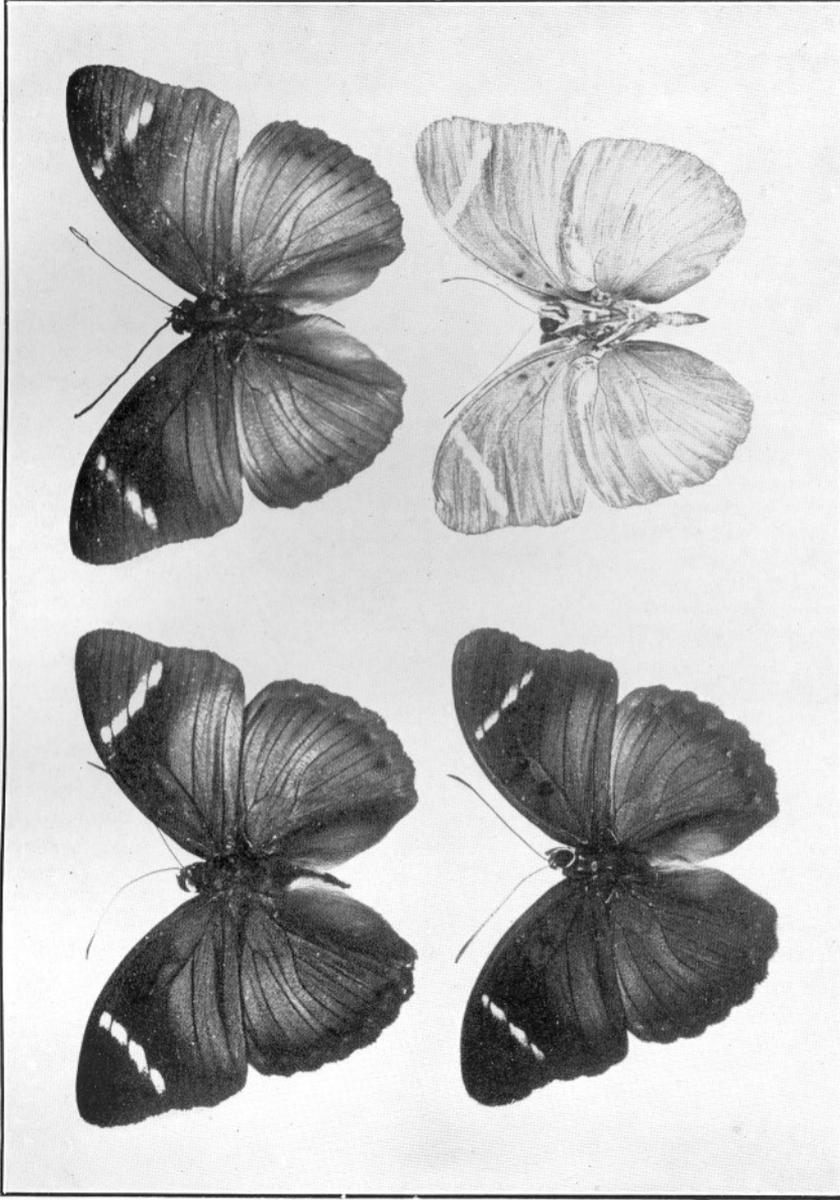
The so-called female type of *paradoxa* being really a male, the female allotype is here described. The specimen selected is one nearest in appearance to the male type.

E. paradoxa paradoxa, female ALLOTYPE.

Sub-apical bar white instead of dirty-white as in the male, and is divided into three sections by black scales along veins 4 and 5. The large pale areas are red-brown with a strong green tinge; the pattern as in the male. The hind-wing has a more defined sub-marginal row of spots than in the male; they appear as black-bordered slightly bluish lunules. The under-surfaces shows little difference from that of the male, except that there are traces of whitish spots in the position of the lunular marks of the upper side.

Allotype, female, Suna, South Kavirondo, Kenya Colony, April, 1932, in Hope Dept., Oxford University Museum. Paratypes in Coll. van Someren. 14 specimens.

PLATE XVIII.



3

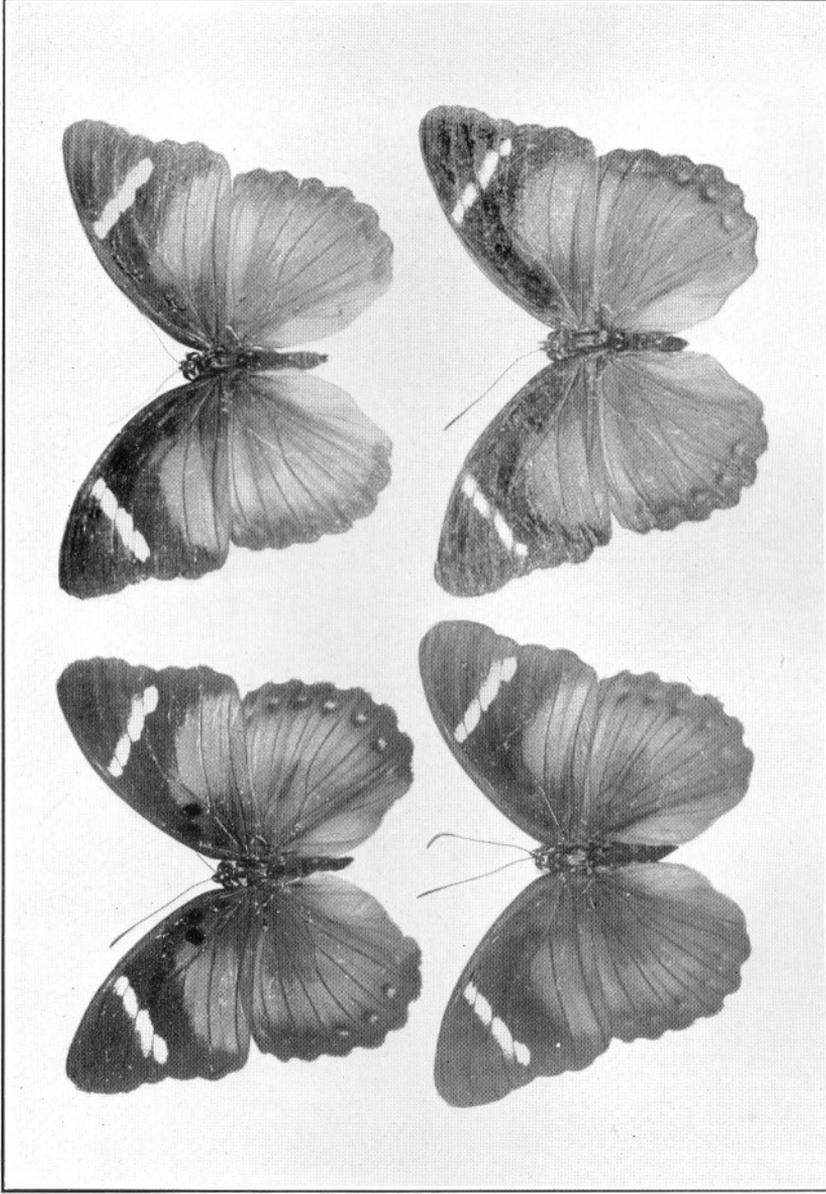
4

1

2

Euphaedra paradoxa f. *preussoides*.
Figs. 2 and 4, ♂ ♂. Figs. 1 and 3, ♀ ♀.

PLATE XIX.



3

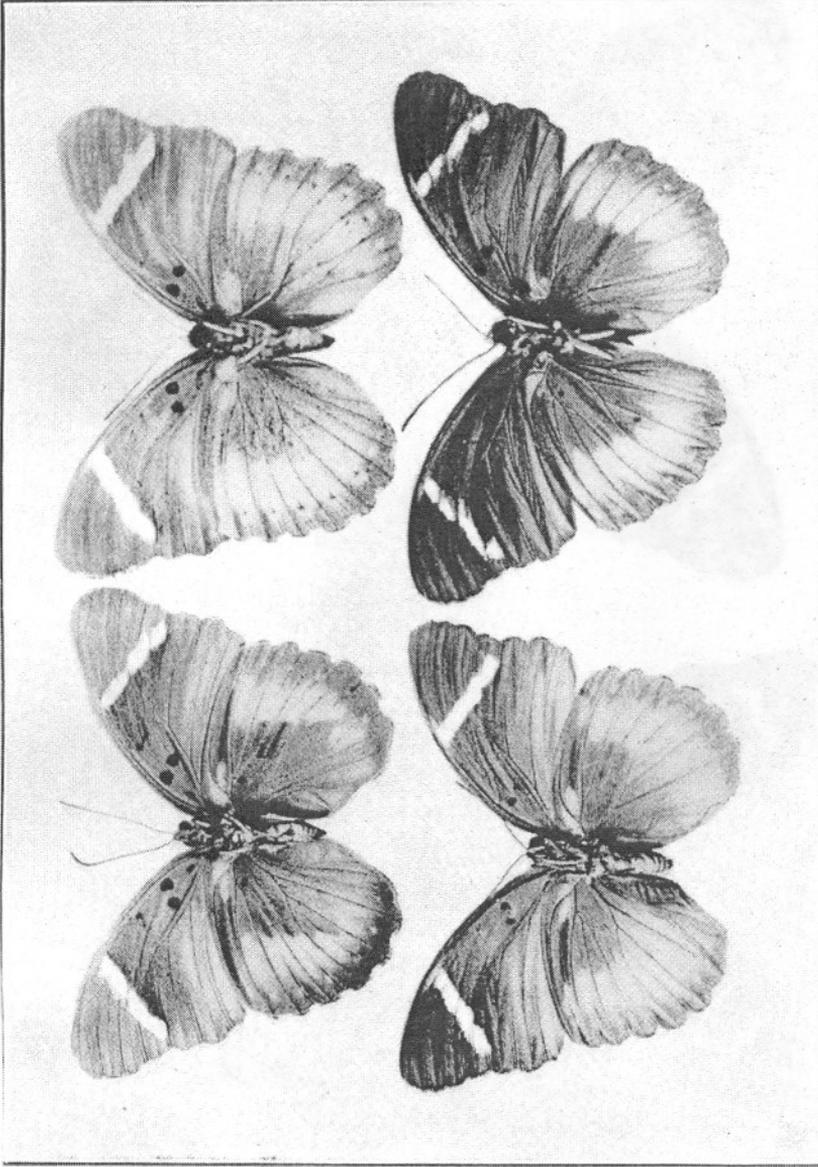
4

1

2

Euphaedra paradoxa f. rufescens. Figs. 1—4, ♀ ♀.

PLATE XX.



Euphaedra paradoxa undersurfaces.
Fig. 1, *f. rufescens*. Fig. 3, *f. vansommereni*. Figs. 2 and 4, *f. featheri*.

Some female specimens of this very variable species incline very strongly to a red-brown with *no* greenish tint and the sub-marginal lunules are well developed and bluish-white, thus bearing a very strong resemblance to *E. eleus*, *Hypolimnas missipus* female and *Danaida chrysippus*. To this form we give the name *E. paradoxa* f. *nov.*

RUFESCENS. Pl. XIX, figs. 1—4. Pl. XX, fig. 1.

The type specimen and many others show very strongly on both surfaces of the fore-wing, the two distal black spots in the cell. On the under surface the whitish markings are more sharply defined and distinct than in the male type or female allotype; the sub-marginal white spots are as in the allotype.

In some specimens there is a distinct white sub-costal stripe on the under-surface of the hind-wing between veins 7 and 8; an extension to the margin of the wing of the basal white mark on the sub-costal nerve which is present in most specimens. This white stripe increases the likeness to *eleus* produced by the red colouration and pale sub-marginal hind-wing spots. Type, female, Suna, South Kavirondo, Kenya Colony, April, 1932. In Hope Dept., Oxford University Museum. A series of 20 in Coll. van Someren.

As with other *Euphaedra*, there is a very distinctive female form the general ground colour of which is a pale bluish-green. The following description is submitted by Prof. Hale Carpenter.

E. paradoxa f. *nov.* VANSOMERENI. Pl. XXI, figs. 1—4.

The pattern is as in *paradoxa paradoxa*, but the pale areas are of that peculiar pale bluish-green so hard to describe. The sub-apical bar is very pure white; the type specimen has well developed sub-marginal lunular markings on the hind-wing, while some show them more faintly. The two distal spots in the cell of the fore-wing, not shown on the underside, are indicated on the upperside as large and blurred. The pale area on the underside of the hind-wing is conspicuous. The upper surface, as with the male form *preussoides*, is extraordinarily like the corresponding sex of *preussi preussi*, but the lack of the costal stripe on the hind-wing, the presence of the large pale discal patch, and the absence of the black spots on the underside, distinguish *paradoxa vansomereni* from *preussi*. It also bears a strong resemblance to a pale form of *uganda*.

Type, female, Suna, South Kavirondo, April, 1932. In Hope Dept., Oxford University Museum. Dr. van Someren. Paratypes in Coll. van Someren. 12 specimens.

It is possible that when the much needed revision of the genus *Euphaedra* is undertaken, *paradoxa* may prove to be a race of *uganda*, or *preussi*; decision must await anatomical investigation.

I now propose to describe other forms of this variable species.

E. paradoxa f. nov. COMIXTA. Pl. XXII, figs. 1—4.

A male form which presents the following characters: Almost the entire fore-wing greenish-black rather darker at the proximal border of the sub-apical band. The fore-wing pale areas greenish-golden and limited to the distal end of 1a and 1b, but not reaching to the hind angle. The base of the wing is thus suffused with dark green. The spots in the cell are seen but clouded by the general green scaling. The hind-wing base is greenish; the discal area greenish-golden; the marginal border dark green without any indication of sub-marginal spots, but there are darker green angular marks in the margin, base toward edge. The under-surface is as in the form *preussoides*.

Type, male, Suna, South Kavirondo, Dr. van Someren leg., April, 1932, in Coll. van Someren. Paratypes, nine, in my collection. This form links the typical *paradoxa* with the form *preussoides*.

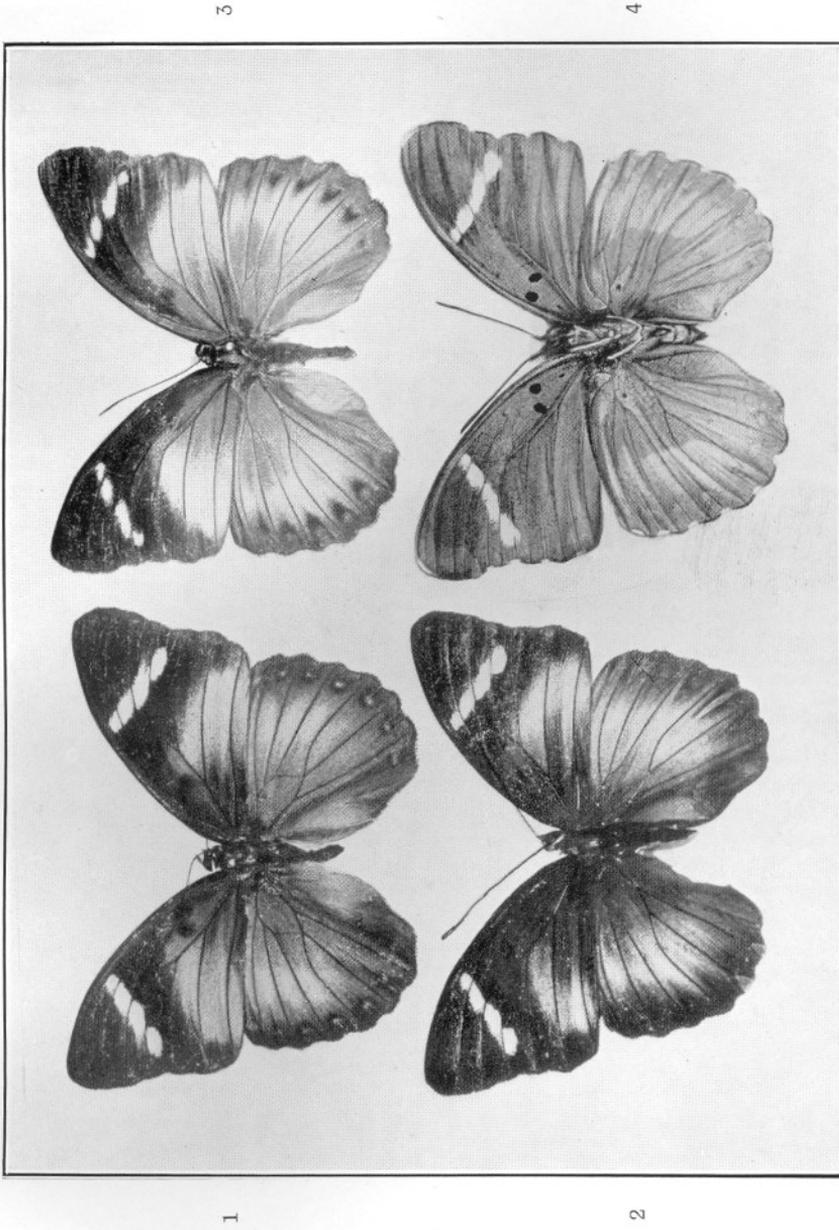
E. paradoxa f. nov. FEATHERI. Pl. XXIV, figs. 1—4.
Pl. XX, figs. 2—4.

This is a female form represented by a long series, 14 examples in my collection. They differ from the female allotype of *paradoxa* by the greater degree of black of the fore-wing which covers the cell as a clouding of blackish, thus obscuring the two large spots in the cell, and also covers the basal portion of the wing. The pale areas are thus restricted to the mid portion of areas 1a, 1b, and the base of 3 but it is of a bright bluish-green with orange scaling in 2 and bluish distally. The hind-wing basal area is greenish-orange dusted with blackish scales, but the distal portion is orange and clear-cut corresponding to the white band of the underside. The marginal border is black with bluish lunules proximally edged with stronger black; indentation on the wing margin is strongly white.

Type, female, Suna, South Kavirondo. van Someren. In my collection.

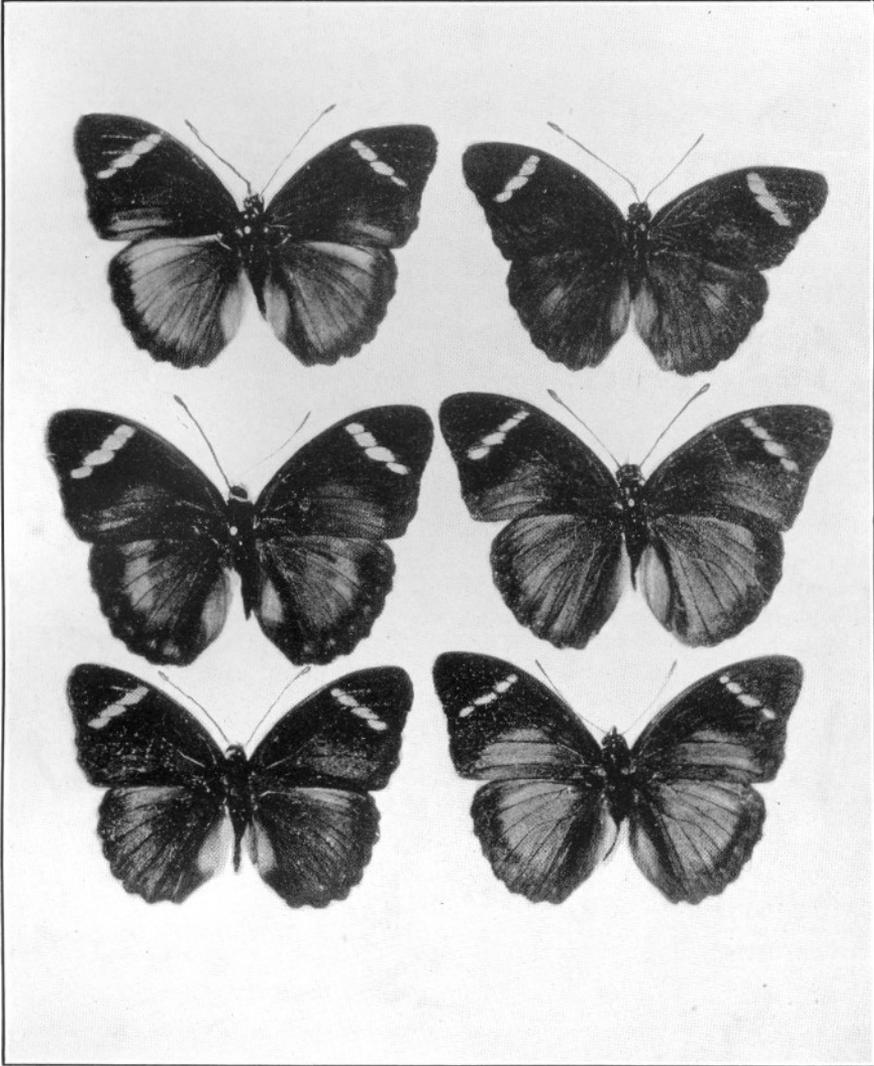
This form is dedicated to my late friend, W. Feather, who helped me to obtain my material, and who did so much to increase our knowledge of African Lepidoptera.

PLATE XXI.



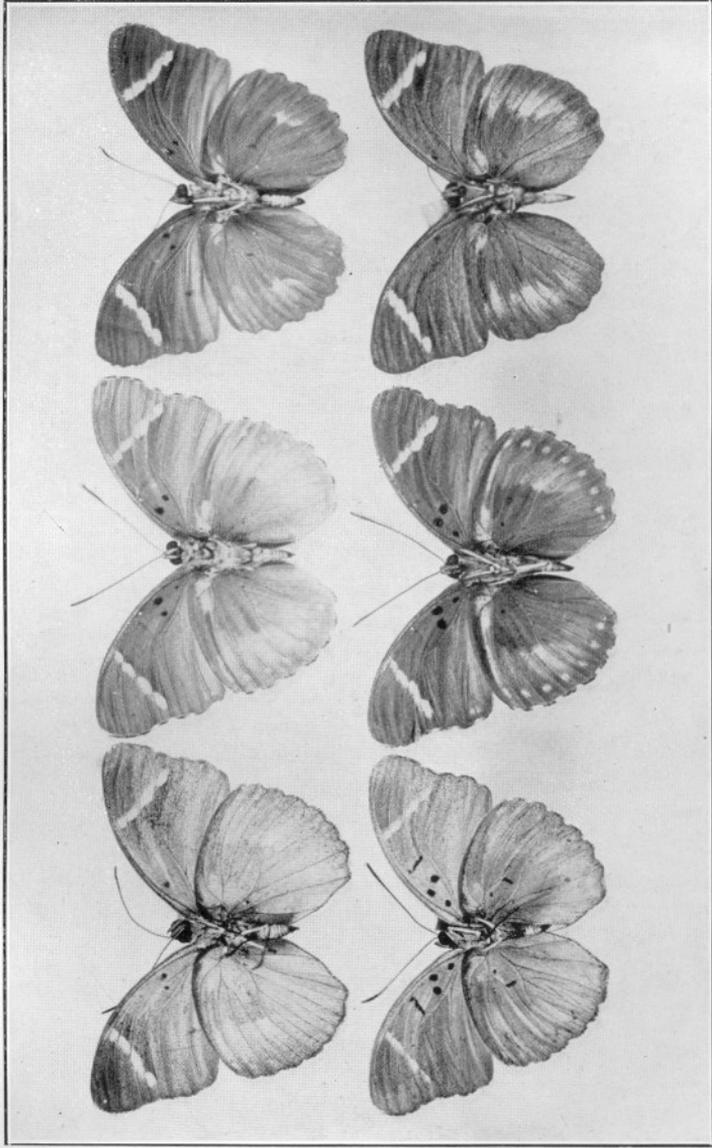
Euphaedra paradoxa f. *vansomeri*.
Figs. 1-3, upper surface. Fig. 4, under surface.

PLATE XXII.



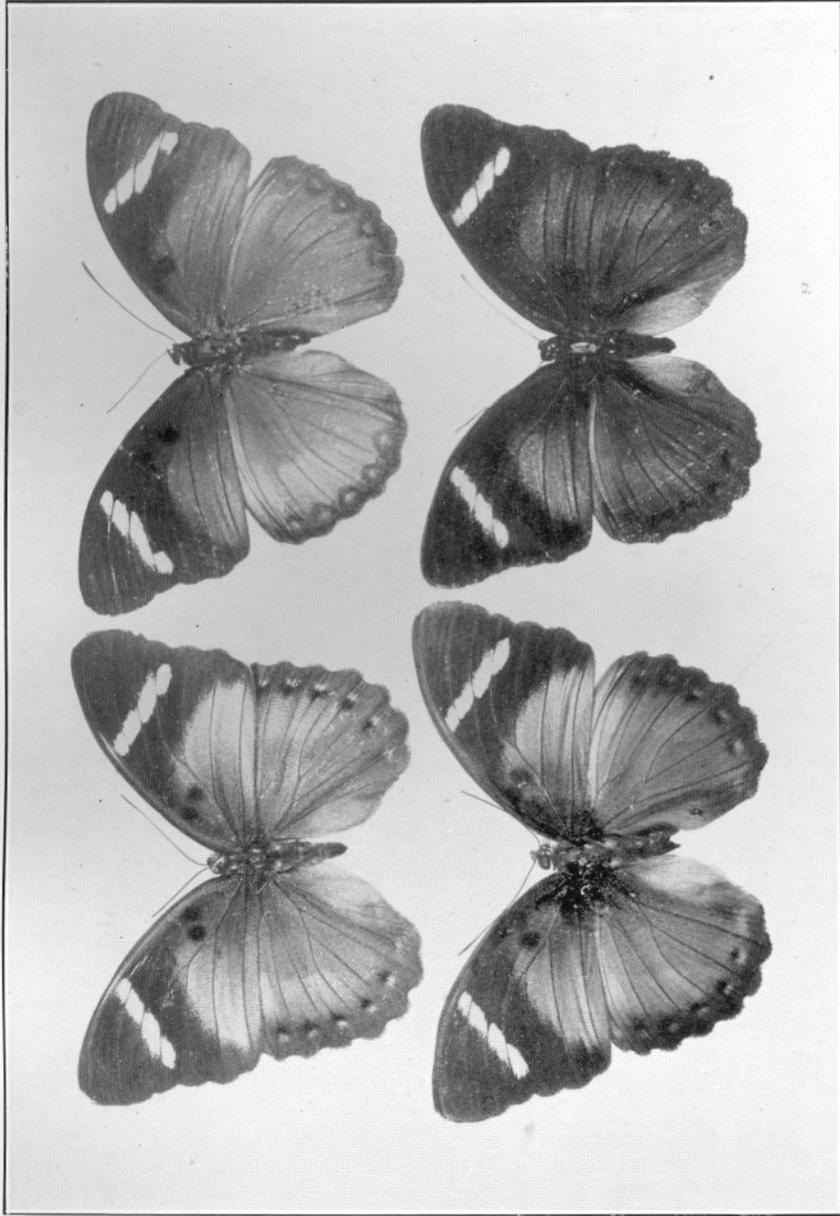
Euphaedra paradoxa f. *comixta*, ♂ ♂.

PLATE XXIII.



Euphaedra paradoxa, ♂, showing variation on the underside.

PLATE XXIV.



Euphaedra paradoxa f. *featheri*, ♀ ♀.

Other individual variations not represented in series are as follows :

- (a) Males similar to nominate *paradoxa* but with dark areas black with little or no greenish tinge, and fore-wing bar white.
- (b) Males in which the whole of the fore-wing is greenish black except for a white sub-apical band, and the hind-wing all dark green except for a small diffuse patch of gold just beyond the middle.
- (c) Males in which the fore-wing dark areas are dark green with greenish-white sub-apical band. H.-w. border green with scarcely a trace of sub-marginal spots.
- (d) Similar to (c) but fore-wing band yellow.
- (e) Very similar to (c) but with fore-wing band almost absent and the basal area of the hind-wing strongly green. Vide Pls. XVI and XVII.

The chief variations are thus in the colour and width of the fore-wing bar or band; the degree of greenish scaling and its extent. On the underside, the presence or absence of a sub-costal white streak on the hind-wing; the size and number of the cell spots; the width of the white bar beyond the middle and the ground-colour variation from green to golden olive to rusty. Variations in the various female forms are due, apart from the ground colour, to the extent of the black of the apical half. In many, this colour extends through the cell, thus obscuring the cell spots and reaching the base; the width and colour of hind-wing marginal border and size and colour of sub-marginal spots; and the width of the fore-wing bar.

Most of these variations are depicted in the accompanying plates.

EARLY STAGES :

Though common in its area of distribution, this species has not been bred.

DISTRIBUTION :

So far as is known, this species is limited to the patches of forest in the South Kavirondo area, and to the Lolgorien district. One odd specimen taken in 7/5/13 was from the Chepalunga Forest.

EUPHAEDRA ELEUS ALTERNUS, *nom. nov.* for.

= *Euphaedra eleus latifasciata*, Talbot.*

Pl. XXV, figs. 1—4. Pl. XXVI, figs. 1—4. Pl. XXVII, figs. 1—4.

Talbot, *Trans. Ent. Soc.*, Dec., 1929.

Type as given *op. cit.*

Expanse: Male, 70-85 mm. Female, 95-110 mm. Sexes much alike, orange-red with black borders carrying white marks.

* The name *latifasciata* is preoccupied by *latifasciata*, Holland.

MALE:

F.-w.: Basal half red-brown to orange-brown, extending from the base to the apex of the cell, thence to the root of vein 3 and posteriorly to the sub-margin of the hind-angle; the costa is greenish for its most part; apical half of the wing black or green-black with a sub-apical bar of four white or yellowish-white spots, the third one longest, the fourth small and set distal to the third. A double bluish spot is sometimes present sub-marginal at the hind angle. Cell with two, one, or no black spots.

H.-w.: Orange to red-brown; black at extreme base below costa; veins black-scaled; marginal border black carrying a sub-marginal series of pale spots, seven in number of almost equal size, either white, or bluish sometimes accentuated proximally with deeper black than the ground. Margin strongly scalloped with white in indentations. Body with four white spots on front of thorax and two on the sides; abdomen white lined.

UNDERSIDE:

F.-w.: Rufescent to rusty, slightly darker towards apex, sometimes green-tinged, sometimes with a purply tinge; cell with one, two, or three, or no black spots, sometimes one at apex; sub-apical band white; often a double spot at hind angle.

H.-w.: Ground colour as fore; a well-marked sub-costal white streak extending from base to first submarginal white spot; a series of sub-marginal white spots in position as above, often accentuated proximally with black border; just beyond the mid-line a series of whitish marks varying in size from definite streaks to mere spots. Margin with white in indentations.

FEMALE:

General pattern as in the male; ground colour usually paler and more orange; fore-wing sub-apical band broader and white. Dark areas of fore and hind-wing black with occasionally a blue tinge; hind-marginal spots white, white tinged with blue or pale blue, the lower ones slightly larger.

UNDERSIDE:

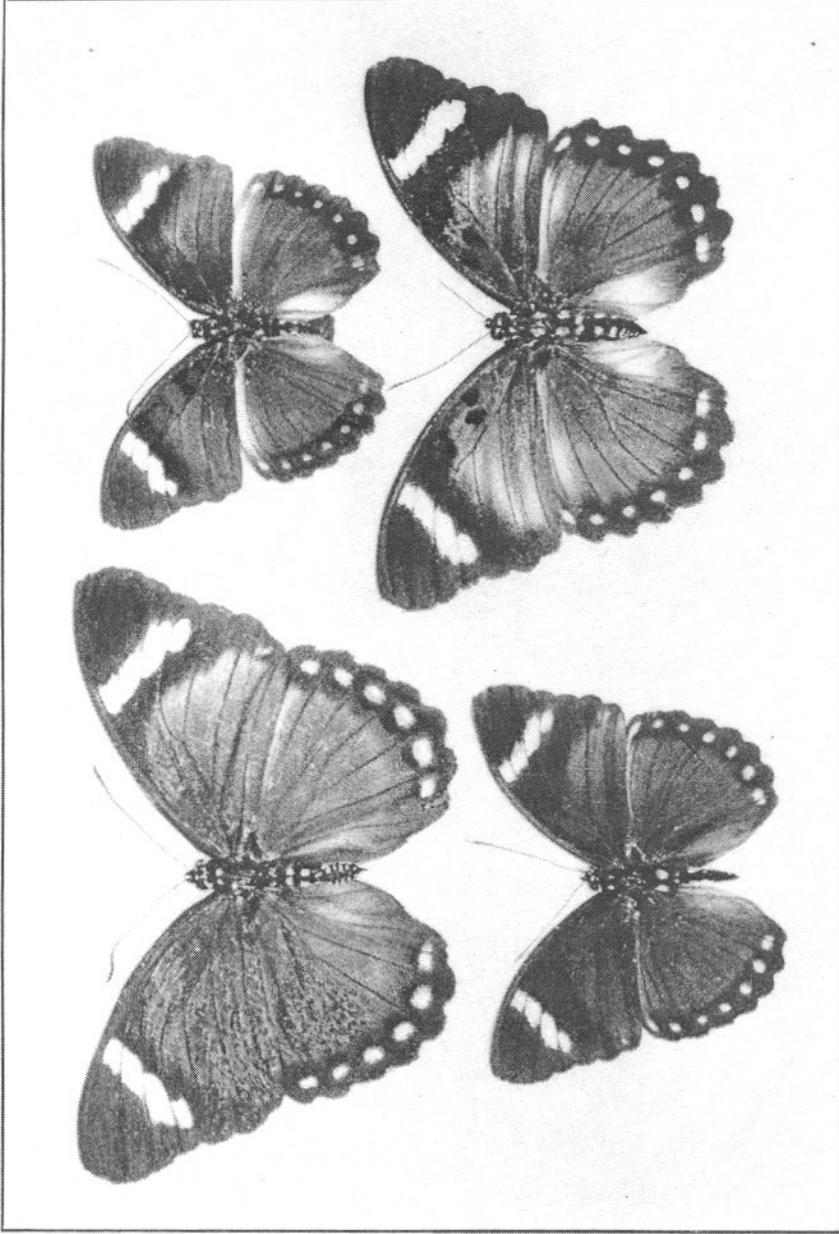
As in the male but ground colour paler. Some specimens with a whitish "flare" at base of fore-wing.

EARLY STAGES:

I have not bred the species.

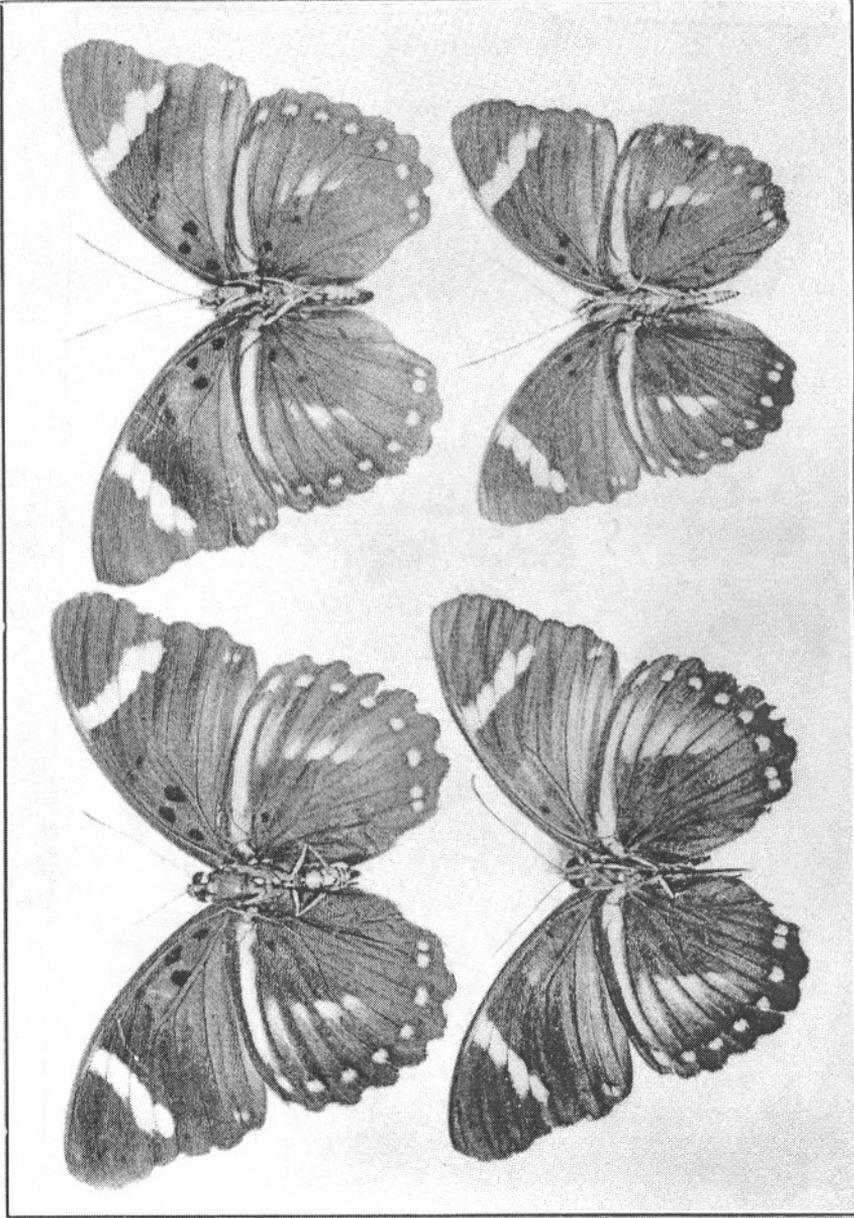
DISTRIBUTION AND HABITS:

These *Euphaedra* bear a strong resemblance to certain diurnal moths with which they form a mimetic association.



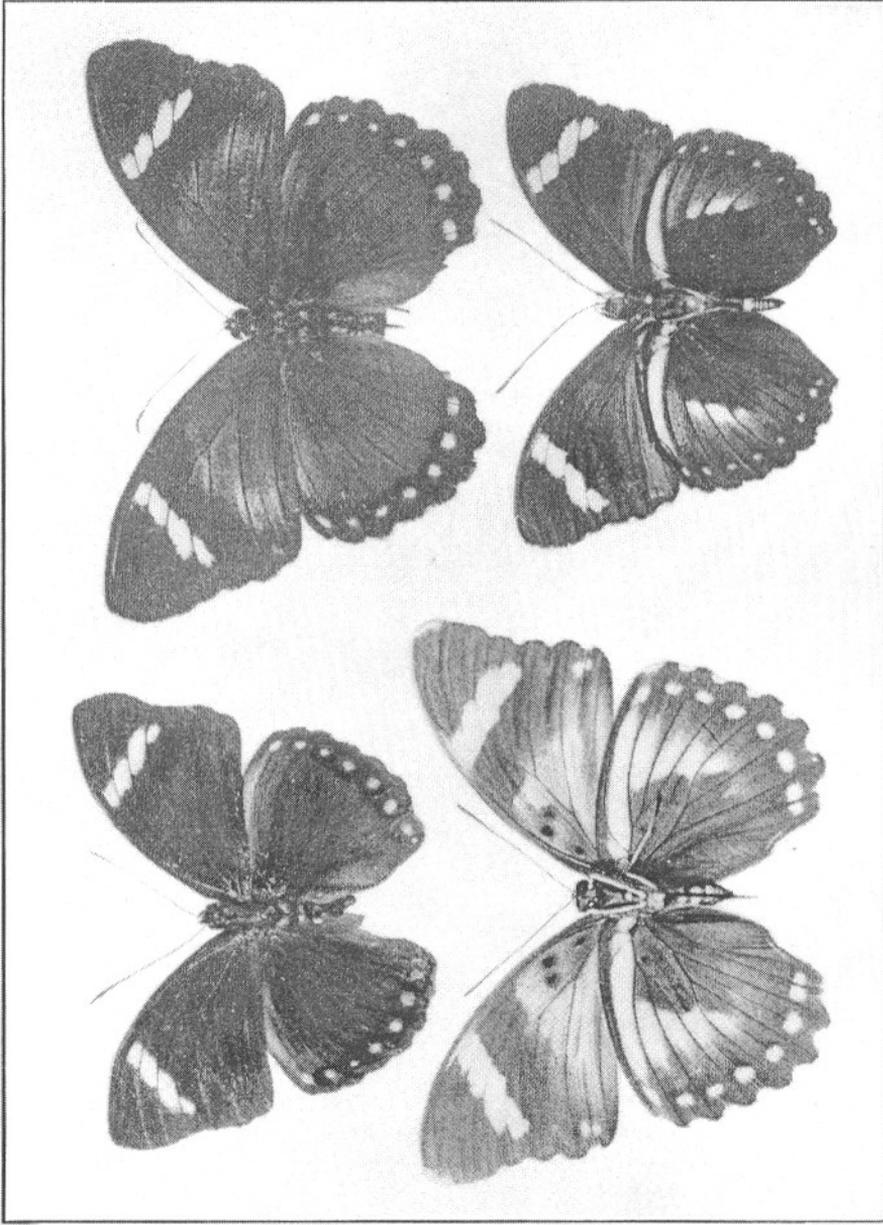
Euphaedra eleus alternus.
Figs. 1 and 4, ♀ ♀. Fig. 2, ♂. Fig. 3, ♂. Fig. 3, ♀. Fig. 3, ♂.

PLATE XXVI.



Euphaedra eleus alternans.
Fig. 1. Underside of ♀.
Fig. 2. Underside of ♂ f. *rattragi*.
Fig. 3. Underside of ♀.
Fig. 4. Underside of ♂.

PLATE XXVII.



Euphaedra eleus alternas.
Fig. 1, ♂ f. *retobrannens*. Fig. 2, ♀ underside.
Fig. 3, ♀ f. *rattrayi*. Fig. 4, ♂ underside.

In forested areas throughout Uganda eastward to Elgon and Kavirondo to Nandi. The general habits are very similar to other *Euphaedra* but on the whole they are more given to frequenting the more open parts of the forest, not seeking dense shade to any great extent. The form *ORIENTALIS*, Roths., occurs at the coast of Kenya on the Rabai Hills.

I now propose to deal with the various forms which have been given names.

E. eleus f. *ratrayi*, E. Sharpe. Pl. XXVII, fig. 3. Pl. XXVI, fig. 2.

Differs from the nominate form in having the light areas of the fore-wing suffused with greenish, particularly distally but retaining some rufescent scaling at the base; the costal area of the hind-wing also green-scaled.

This form should be referred to as merely an aberration, and is rare. The specimen figured is in the collection of my friend T. H. E. Jackson, and was taken at Kakamega.

Form *coprates*, Druce. Pl. XXV, fig. 3.

Differs from the nominate form in having the dark areas of the fore and hind-wings strongly tinged with green, that of the fore-wing not extending into the cell which has two black dots, nor does it extend beyond the root of vein 3.

Form *rufobrunneus*, Stoneham. Pl. XXVII, fig. 1.

Diverges from the nominate form in having the brown areas very dark mahogany, with an extension of the fore-wing black into the cell and also basally thus obscuring the cell spots. The underside is very dark and tinged with green. This is merely an individual aberration.

Form *orientalis*, Roths.

Differs from the nominate form in having a broader white sub-apical bar. The dark areas of the f.-w. extending to vein 3. Coast.

For the other varietal names applied by Stoneham, I would refer to Bull. Stoneham Museum, No. 10, June, 1932. The name recognised above, is the only one I am prepared to support; the remainder are hardly worth separation under different names as the characters are small and unstable. In the descriptions no mention is made of the sex of the "type," an important point.

Furthermore, Talbot described the Uganda-Kenya race of *eleus*, and though the colour of the spots in the hind-marginal border is not mentioned, one of Stoneham's names might be a synonym, as Talbot's description has priority.

I have, however, made a careful examination of Talbot's description and type and compared it with the various forms named by Stoneham: as none of these apply, a substitute name for Talbot's *latifasciata* is here given.

EUPHAEDRA CROCKERI CAERULESCENS, Gr.-Sm.

This species is mentioned on the evidence of one specimen in the British Museum, labelled Karubi Forest, Nairobi.

Seitz, in *Macrolepidoptera of the World*, Vol. XIII, p. 185, gives this as a form of *xyete*. It is figured as *gausape*, pl. 44a. I suggest that the species does not occur in Kenya and the label on the specimen is an error.

EUPHAEDRA SARITA INANOIDES, Holl.

Pl. XXVIIIa, fig. 4. Pl. XXVIIIb, fig. 2.

Expanse, male, 75 mm.

MALE:

F.-w.: With a green-blue area covering most of 1a and the basal two-thirds of 1b, this same colour covering the apical portion of the wing from the apex of the cell, toward the tip and outer margin; this area traversed by an indistinct sub-apical whitish band; cell and the remainder of the wing, blue-black; two black cell spots indicated.

H.-w.: Basal area blackish, disc of wing light-bluish-green; marginal border blue-black, and at its junction with the pale area a series of faintly indicated bluish spots margined inwardly with black.

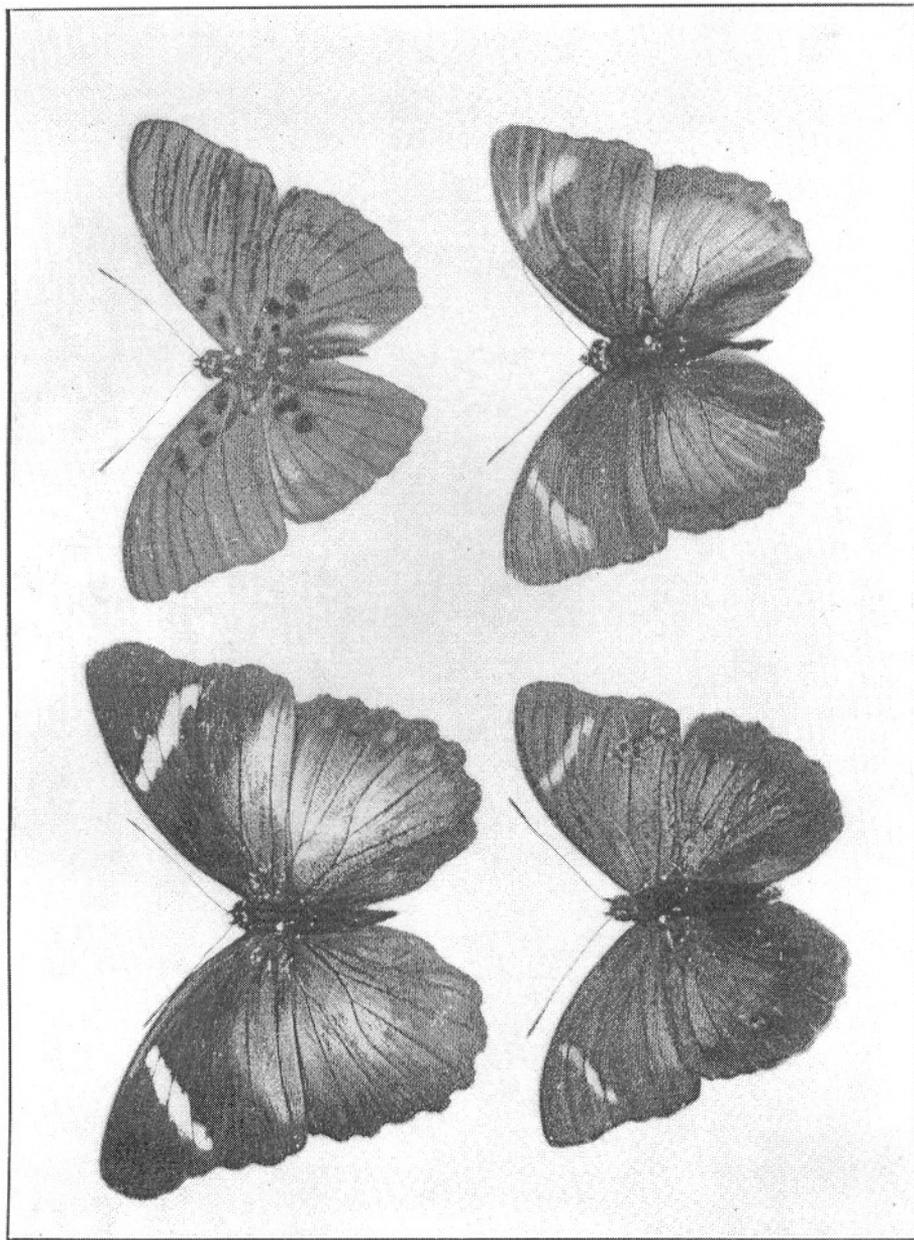
UNDERSIDE:

F.-w.: Greenish-grey with an ochreous tint; cell with three black spots; sub-apical band white. H.-w.: Ground colour as fore-wing more golden tinted along inner margin; cell with one small black spot; sub-marginal spots faintly indicated as also a whitish band beyond the middle.

A variety of the male, from Uganda, is as follows:

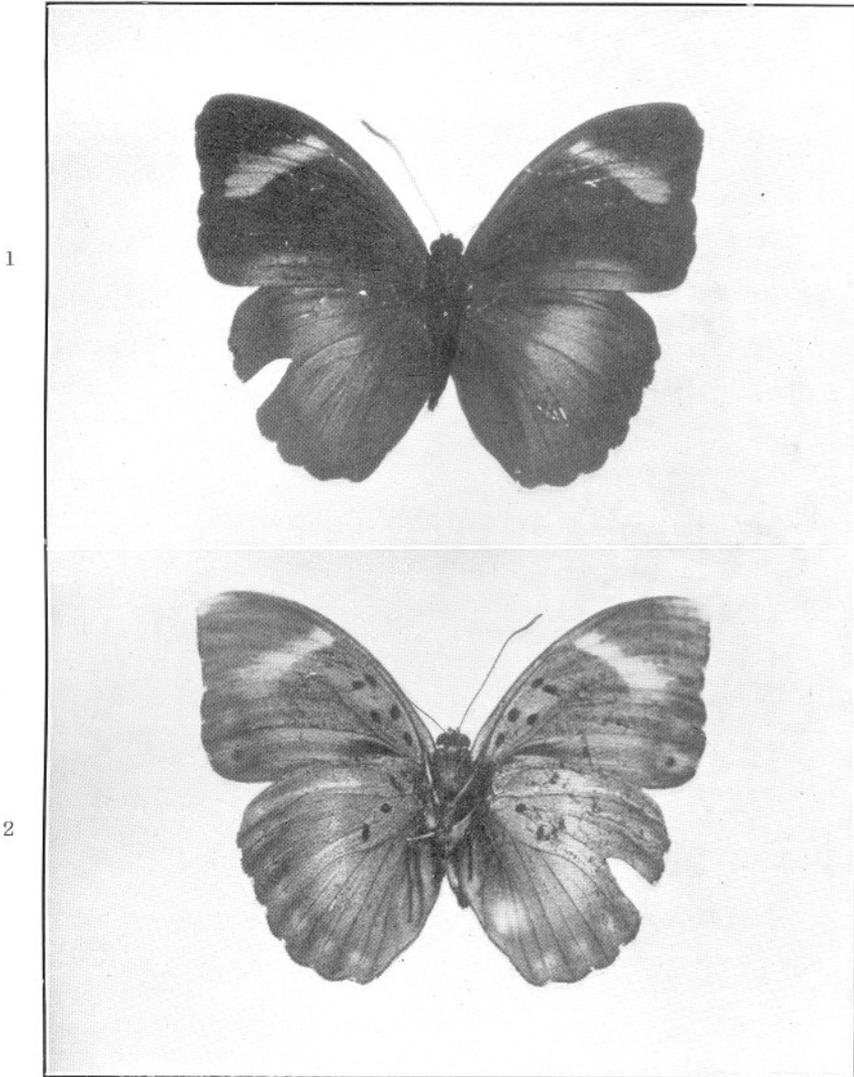
F.-w.: Blue black with a bluish sheen at the base; a blue patch along the hind margin; costa blue; sub-apical bar slightly clubbed bluish to white below costa; extreme apex white; small white dots at mid-internervular point on fringe. H.-w.: Ground colour black with a large blue patch, the blue sheen extending toward the base. Fringe with distinct white spots. Underside: Greyish-olive suffused with golden along the inner fold of the h.-w. F.-w. cell with three black spots; apex of cell with two black dots; area corresponding to the sub-apical bar of above, whitish. H.-w. cell with one black spot toward upper side and one toward apex; a slight whitish "flare" on disc, and slight whitish sub-marginal spots; fringe black with white dots at mid-internervular points. (Jackson Coll.)

PLATE XXVIIIa.



Figs. 1 and 2. *Euphaedra eberti*, ♀ and ♂.
Fig. 3. *Euphaedra edwardsi*, ♀.
Fig. 4. *Euphaedra edwardsi*, ♂.

PLATE XXVIIIb.



Euphaedra sarita inanoides, ♂.
Upper and undersurfaces.

PLATE XXVIIIc.

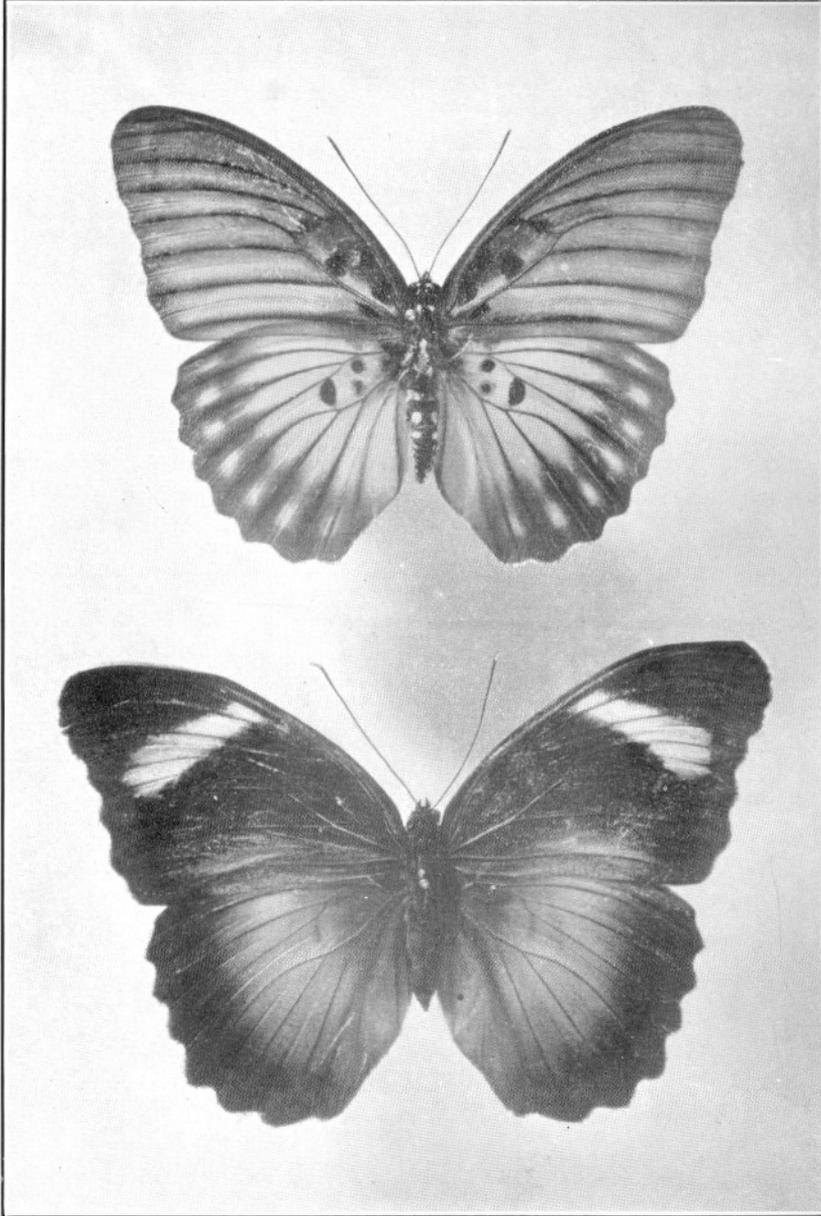


Fig. 1. *Euphaedra edwardsi*, ♀.
Fig. 2. *Euphaedra sarita inanoides*, ♀.

The female is not represented in my collection, and descriptions are incomplete; a figure is given on Pl. XXVIIIc. The characteristic "clubbed" end of the sub-apical bar is well shown.

EARLY STAGES:

I can find no record of these.

DISTRIBUTION:

This species ranges from the Congo into Uganda along the Semliki at Dwamba Forest and Mpanga. It is strictly a western species. The specimens figured were taken by Prof. Carpenter, and T. H. E. Jackson.

EUPHAEDRA EBERTI, Auriv. Pl. XXVIIIa., fig. 2.

Expanse: 75-80 mm. in male.

MALE:

F.-w.: Very similar to *sarita inanoides*, the green colour being distributed over the basal half of the wing and again beyond the cell toward the outer margin and the apex, this greenish area traversed by the whitish-green sub-apical band. The distal portion of the cell, an area across the wing and the wing-margin blackish; two large obscured black spots in the cell. H.-w.: Almost entirely blue-green slightly dusted with blackish at the base; marginal border black with obscure black and bluish spots.

UNDERSIDE:

Matt greenish-grey; cell with three black spots, the base of the cell golden; sub-apical band white. H.-w.: Ground colour as fore-wing, base of costa brick to orange-red; one black spot in cell; practically no white band beyond middle, and sub-marginal spots very indistinct.

Early stages unknown.

DISTRIBUTION:

Within the Uganda Protectorate, this species ranges from the Congo into the Semliki at Dwamba Forest, Toro.

EUPHAEDRA EDWARDSI, Hoeven.

Pl. XXVIIIa, fig. 3.

Pl. XXVIIIc, fig. 1.

F.-w.: Ground colour dark olive green; a large black spot at base of 1b; three large black spots in cell, often two at apex of cell. H.-w.: Marginal border green with paler areas triangular centrally; disc of wing orange-brown; a large black discocellular spot in 4; two large and one small spot in the cell.

UNDERSIDE :

F.-w. : Greyish over apical half, greenish basally; cell with three large black spots; base of wing with slight orange tinge. H.-w. : Base of costa and marginal border greenish-grey, disc greyish-orange; three black spots in cell; two at base of costa, one in 4 and one in 7; a white sub-costal streak with black base present.

E. edwardsi viridis, Suffert.

This has the basal area of the hind-wing dusky green and the cell spots are small or indistinct.

Early stages unknown.

DISTRIBUTION :

Dwamba Valley, Toro, Daro Forest and Tero Forest, taken by Neave and Carpenter. A Congo species which has a limited extension into Uganda.

EUPAEDRA RUSPINA, Hew. Pl. XXIX, figs. 1—4.

Expanse: Male 70-90 mm. Female 90-105 mm. Sexes alike.

MALE :

F.-w. : General colour orange-brown; apical portion black, with this colour extending along the costa to almost the base but all along the costal edge, and as a narrow line along the outer margin; a sub-apical interrupted bar of three white spots, the upper one small and often indicated by a few white scales. Small white marks on margin of outer edge.

H.-w. of the same ground as fore-wing with a slightly richer tint distal to the cell; marginal border black, narrow at outer angle and expanding to the anal angle which has an angular projection; margin white at indentations.

UNDERSIDE :

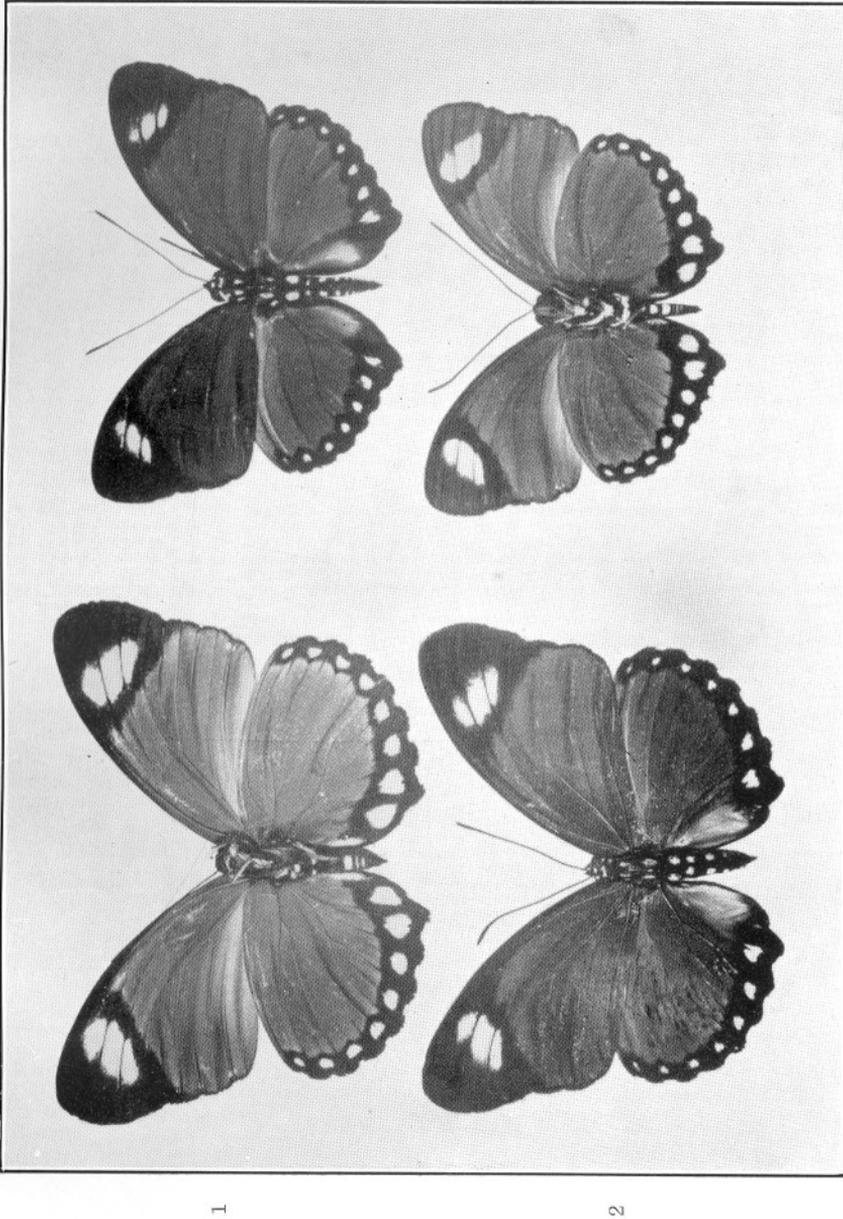
Pattern as above, more or less; sub-apical bar wider and general colour paler, while the dark apex of the fore-wing is tinged with greenish. Eight white spots on marginal border, and one on anal fold.

FEMALE :

Very like the male, but often paler and white spots larger. The anal angle is not produced, to a point. The thorax has four white spots at front and two along the sides; abdomen white lined and spotted.

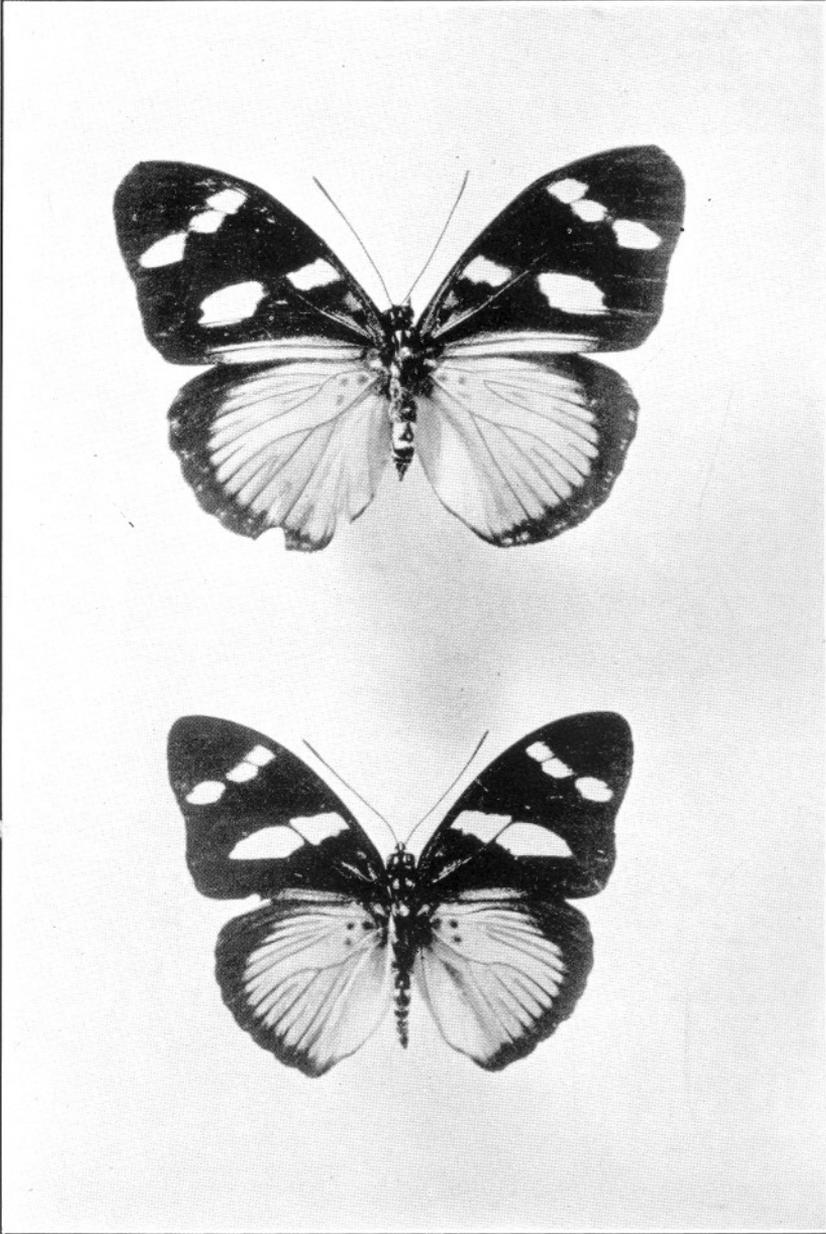
Early stages unknown to me.

PLATE XXIX.



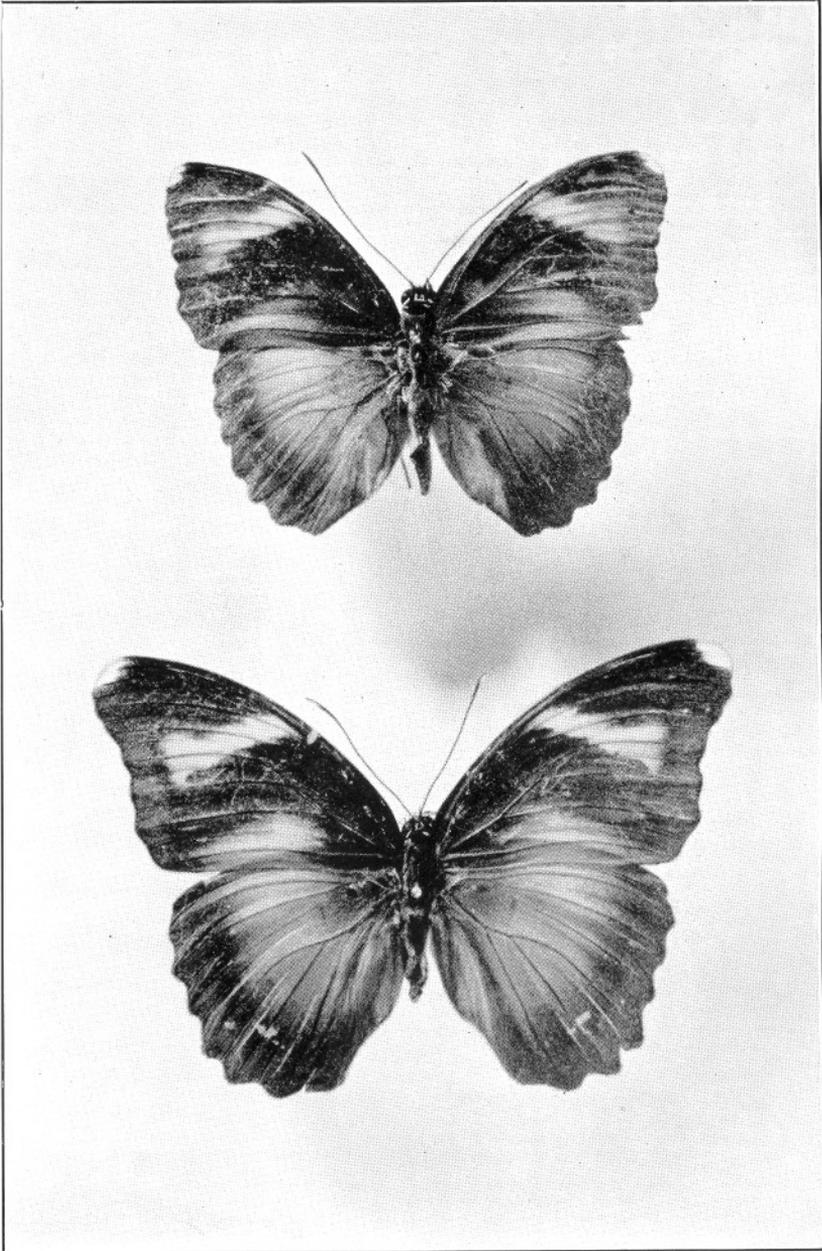
Euphaedra ruspina. Figs. 1 and 2, ♀. Figs. 3 and 4, ♂.

PLATE XXX.



Euphaedra eusemoides imitans, ♀ and ♂.

PLATE XXXI.



Euphaedra xypete cyanea, ♂ and ♀.

DISTRIBUTION :

In forested areas of western to eastern Uganda. In general habits it resembles other *Euphaedra*, but its flight is more swift and gliding, each glide being longer sustained. It is associated in flight with the diurnal moth *Aletis helcita*, and certain members of the genus *Xanthoplopteryx* which it mimics.

***EUPHAEDRA EUSEMOIDES IMITANS*, Holl.**

Pl. XXX, figs. 1 and 2.

F.-w. : Ground colour black, apex white-tipped and white fringe spots. Sub-apical bar cream, consisting of two contiguous spots distal to the apex of the cell, and one larger, more rounded spot toward margin and more toward the apex; a cream transverse bar crosses the cell followed by a pear-shaped spot toward the base of area two. A creamy streak along the hind-margin but not reaching the hind angle. H.-w. with the greater part orange-red, dusky at base and with a black border and white marks in the fringe; three black spots in the cell.

In the female, the creamy streak along the hind-margin of the fore-wing is more marked; the red area in the hind-wing greater in extent and there is a submarginal row of double whitish to bluish spots. The black spots in the h.-w. cell are only indicated and not defined.

Early stages unknown.

The specimens figured are in the British Museum. I am indebted to the Museum authorities for this plate., also that of *E. cyanea*.

DISTRIBUTION :

Forests to the western side of Uganda; Daro and Budongo.

***EUPHAEDRA XYPETE CYANEA*, Holland. Pl. XXXI, figs. 1 and 2.**

Related to *coerulescens*, Gr.-Sm.

" F.-w. : The basal area is bright blue from the base to the middle of the cell and thence outwardly to nearly the inner angle of the wing. Beyond this bright blue area, the outline of which is quite straight, the remainder of the wing is rich velvety black, interrupted, however, by a sharply defined post-apical band of bright blue, which is much more sharply defined than is the case in *coerulescens* and does not extend as far downward toward the inner margin . . . "

" The middle of the upper side of the hind-wings . . . is bright blue . . . " " On the underside . . . the cell is green or greenish ochraceous." " The dark spots in *E. cyanea* which appear in the cell of the fore-wing are . . . small . . . " " The spots in the cell of the secondaries are also very greatly reduced or disappear and the discal spots beyond the cell . . . are smaller and the red

of the costal border in some specimens spreads downward into the discal area of the wing as a faint reddish shade."

"The females in *cyanea* are marked exactly as are the males but have much greater expanse of wing, and the post-apical band of the primaries on the upper side is paler blue."

Extracted from the original description, *Bull. Am. Mus.*, Vol. XLIII, pp. 178-9.

The specimens figured are in the British Museum and I am indebted to this Institution for the photograph.

DISTRIBUTION :

Forests of Western Uganda.

EUPHAEDRA ZADDACHI. Sharpe. Pl. XXXII, figs. 1 and 2.

F.-w. : Velvety black with a green sheen at the base; sub-apical bar creamy, slightly clubbed at marginal end; a second bar crosses the mid portion of the wing from the apex of the cell through the base of 2 and thence into 1b. H.-w. : Base and marginal border black, no sub-marginal spots but white fringe along the extreme edge at internervular spaces; central area yellowish-red, the veins creamy yellow.

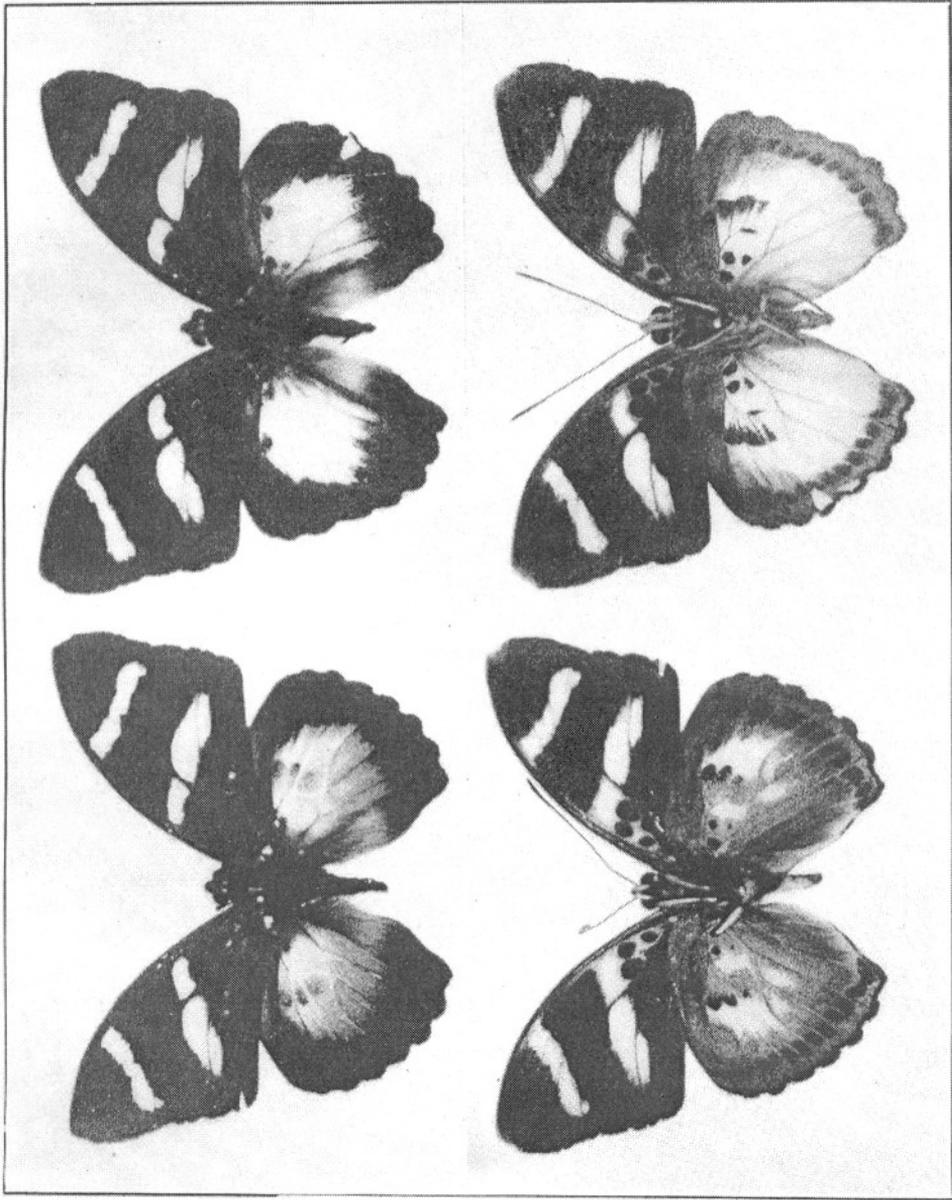
UNDERSIDE :

F.-w. : Cell creamy with greenish tinge, three black spots; hind marginal area blackish; the second creamy bar of above present below and outlined with black; beyond this bar the colour is olive tinged with pink and two large arrow-shaped blackish marks are present distally; the sub-apical bar is creamy edged below with black; a series of broken sub-marginal black marks extend almost to the apex, while the outer edge is black with small white spots in fringe; apical portion of wing olive white-tipped. H.-w. : Cell with three black spots; ground colour pinkish-red, strongest along the sub-costal area, and suffused with ochreous along inner border; a creamy patch is present at distal part of cell, and a larger patch of the same colour sub-basal in 2-6 with black marks in 5, 6, and 7. A sub-marginal row of double black spots in each internervular space from outer angle to anal angle followed by an area of olive tawny, becoming more green toward the anal angle, outlined on the edge with black carrying white spots on the fringe at mid-point of marginal scalloping.

E. s. f. CHRISTYI, Sharpe. Pl. XXXIIa, figs. 3 and 4.
Pl. XXXIIb, figs. 1 and 2.

F.-w. : Similar to the above; h.-w. differs in having the patch creamy with a slight greenish tinge basally, and the black marks of the

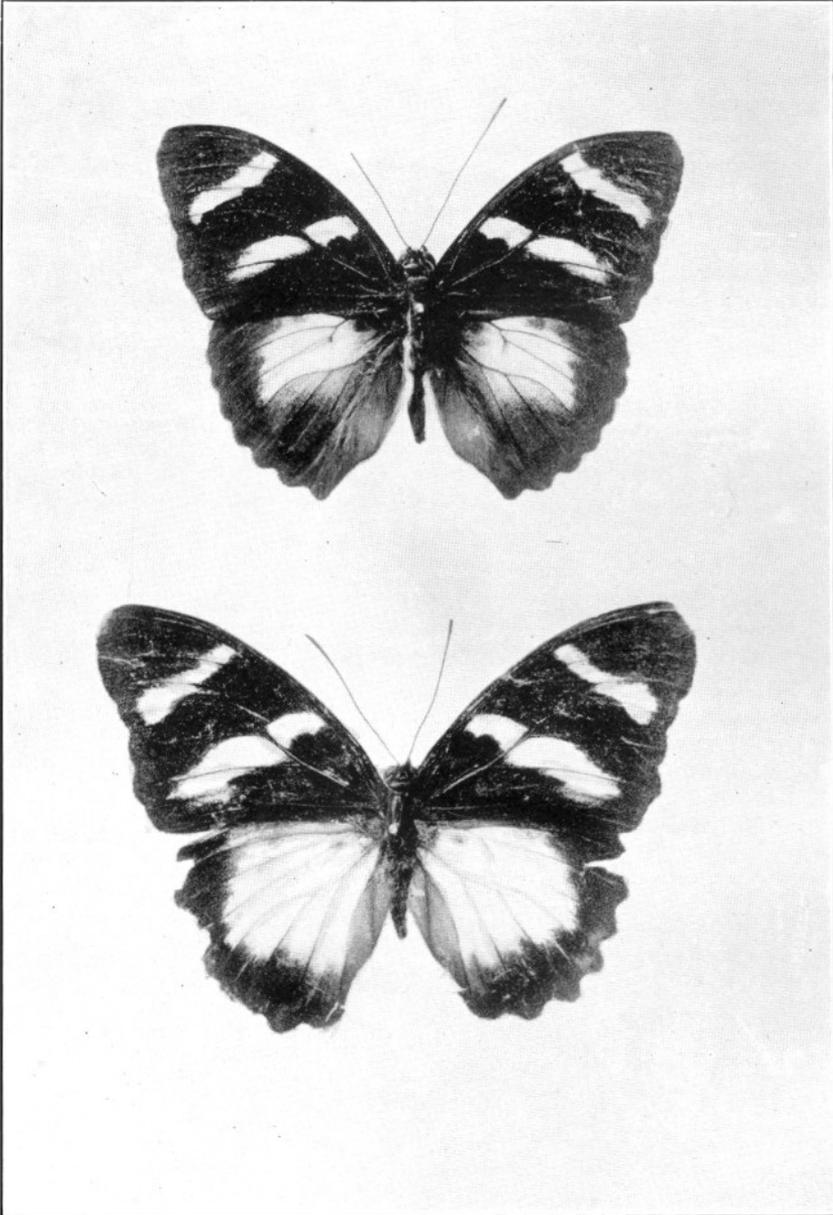
PLATE XXXII⁶.



Figs. 1 and 2. *Euphaedra vaddachi vaddachi*, ♂ ♂.

Figs. 3 and 4. *E. v. christyi*, ♂ ♂.

PLATE XXXIIb.



Euphaedra zaddachi christyi, ♂ and ♀.

underside showing through. Underside: F.-w. as in the above form but lacking the pinkish tinge between the creamy bars. H.-w.: Ground colour creamy with greenish tinge and pinkish-red limited to the sub-costal area.

DISTRIBUTION AND HABITS:

This species is found in the forests of western Uganda and extends east as far as Kampala area. They bear a remarkable resemblance to certain day-flying distasteful moths such as *Xanthospilopteryx superba*, *poggei* and *atribasalis*, also the Hysid moth *similis*. The black and white females resemble *X. gruenergi* and somewhat, *Amauris niavius* and its associates. There is an undoubted mimetic association between these insects.