

THE BUTTERFLIES OF KENYA AND UGANDA.

Vol. II. Part 2.

Family NYMPHALIDAE.
Sub-family Nymphalinae.
(continued)

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With Introduction and Notes by T. H. E. JACKSON, F.R.E.S.

INTRODUCTION.

The Nymphalinae comprise the following genera: *Euphaedra* (already dealt with), *Cymothoe*, *Euryphura*, *Diestogyna*, *Euryphene*, *Euptera*, *Hamanumida*, *Cyandra*, *Pseudathyma*, and *Aterica*, all of which are dealt with in this paper; a few which do not occur within the boundaries of Kenya and Uganda, such as *Hamilla* and *Craenidomimas*; and a further four which will be the subject of a future paper: *Catuna*, *Pseudoneptis*, *Pseudargynis*, and *Pseudacraea*.

They are all purely African Genera, no examples occurring anywhere but on this continent.

The systematics of the nine genera included in this paper are very confusing. An attempt was made recently at the British Museum (Nat. Hist.) to isolate the various species by dissection and examination of the male genitalia. Unexpected difficulties arose, many well-known and distinct species appeared identical in this respect and the attempt was finally abandoned. It should be stated that the dissections were all made by the "dry method," i.e. slides were prepared and afterwards examined. It would seem, however, that a more satisfactory method known as the "wet preparation," as advocated by Brig.-General Evans, in his recent Monograph of the African Hesperidae, might bring to light points of specific distinction, otherwise obscured. Failure to differentiate the species by means of genital examination does not therefore imply that the classification of the species in the British Museum is incorrect.

It is significant that in all Uganda forests, very few species of any one genus occur, although individuals of each species may differ markedly in external facies, especially in colouration, from those occurring in neighbouring forests.

From such evidence as is available, it would appear probable that we are in reality dealing with comparatively few species in each genus with so many isolated races, each confined to its particular forest.

Factors which have probably given rise to this apparent differentiation into racial forms are: (a) that, with very few exceptions such as *Hamanumida*, all are forest species; (b) that they are restricted to a certain type of habitat, avoiding open spaces, and keeping to dense cover; (c) that because of their restricted environment interbreeding must result in an intensification and eventual stabilisation of certain characters which have arisen as a mutation or variation from the normal, and in the course of association with other species, have proved beneficial.

A species confined to one small area defined by the boundaries of its own particular forest, from which it is prevented from straying by an inherent dislike of open spaces, is an ideal subject for the action of natural selection and may therefore be expected to produce different forms in different localities.

The habitats of this group of genera are unique: as stated above, all, with one exception, are forest species, dense forest being preferred to more open growth. The flight is swift and erratic and seldom more than a few feet above the undergrowth.

Whereas most of the *Rhopalocera* require strong sunlight to stimulate flight, the species of this group, owing to the dense forest conditions in which they live, are comparatively unaffected by light and may be seen flying or feeding in dull weather and quite late in the afternoon. It is nevertheless a fact that males will choose a patch of sunlight in which to bask, and if disturbed will return to the same place. Advantage may be taken of this habit, for the best method of capturing them is to stand as motionless as possible over some sunny patch from which a butterfly has been disturbed, until it returns. The power of vision is unusually well developed, the slightest movement being observed, but motionless objects are not distinguished. It is almost impossible to stalk a member of this group—invariably the insect is scared away before it can be caught, but if one stands quite still and a second collector circles around behind and then walks toward one, the insect will often fly straight to the net.

All the members of this group feed on fermenting fruits and many, in both sexes, may be attracted to banana bait. A forest may appear to be quite untenanted away from the clearings, until one comes across a fig tree with fallen fruit lying below, and then hundreds of these butterflies will be found feeding thereon. The females, otherwise scarce, being occasionally seen flying about the undergrowth in search of the food-plant, are equally attracted to this type of food.

The colours of the males, and in many cases both sexes, are startlingly brilliant as the wings are opened for a second in a

shaft of sunlight, only to be closed again on the slightest movement near at hand. The underside patterns are strongly pro-cryptic and the dazzling effect of the uppersides followed instantaneously by a "black-out" must form a very efficient protection against predators such as birds.

The mimetic associations of the group are interesting. In the males there is much Müllerian mimicry, instances of which are recorded in the text after each species. The *Diestogyna* form a group to themselves; most of the species being black or dark brown with blue and purple reflections which in other parts of tropical Africa is closely mimicked by males of certain *Euryphene*. In the latter genus is a group centred round *E. absolon entebbiae*, Lthy., comprising five species in Uganda, all of which are brown with dark transverse bars, and practically indistinguishable above.

In the *Euphaedra*, a large and powerful species, *E. spatiosa*, is mimicked by the female of *E. medon fraudata* and the male of *E. paradoxa*. Incidentally also to this group belong the females of *Charaxes tiridates*, *numenes*, *bipunctatus*, and the *cedreatis* form of *etheocles* (s.l.).

In the females, practically every species belongs to one or another group, the most notable being the female of certain *Diestogyna* and *Euryphene* which mimic *Catuna crithea*, a very common species, concerning which there is some evidence to support the view that it is distasteful—it has a slow deliberate flight close to the ground and makes no attempt to escape—the exact opposite to its mimics. It is closely mimicked by the females of *D. ribensis*, Ward, *obsoleta*, Grunb., *goniogramma*, Karsch., *saphirina*, Karsch., *Eu. absolon entebbiae*, Lathy., *carshena*, Hew., and *Cyandra opis*, Dr. It is suggested that this is a true Batesian mimicry with *Catuna*, and much Müllerian mimicry amongst themselves, though it is of course not always possible to draw a line between the two types of mimicry.

The larvae and pupae of the group are highly pro-cryptic; the former are furnished with a fringe of long spiny filaments carried laterally, which lie out flat on either side of the body. The larva rests along the mid-rib of a leaf with its feathery filaments flattened against the surface and corresponding to the veins of the leaf. They are thus extraordinarily difficult to see. The pupae are beautiful objects, adorned with spines, spots, and colours, and are of such irregular shapes as can be seen in any curled up leaf.

T.H.E.J.

In preparing this paper, I have had the valuable assistance of Mr. T. H. E. Jackson, who has made available to me many species not previously recorded from Uganda. In the case of types of new races or forms, arrangements have been made that those described from Mr. Jackson's material will be deposited in the British Museum, Natural History; other types will be found in the Coryndon Museum, Nairobi.

I should like to place on record my grateful thanks to Mr. G. Talbot, of the British Museum, whose help in, and knowledge of, this very difficult group have proved invaluable.

Much still remains to be done, particularly with regard to the early life-history of the species recorded; their seasonal variation, geographical distribution, and mimetic associations. Owing to their retiring habits and the very brief glimpses one obtains of many of the group, little or nothing is known of their food plants, eggs, and larvae.

V. G. L. VAN SOMEREN.

NYMPHALIDAE (Continued).

HAMANUMIDA DAEDALUS, F. Pl. I, figs. 1-6.

Expanse 25-35 mm. Sexes very similar. General colour brownish slate-grey.

MALE AND FEMALE: F.-w. ground colour brownish-slate-grey, tending to become more brownish with wear. Apex often with a white tip; cell with two subcostal white dots outlined in black with black and white lines from each to hind edge of cell; apex of cell with an incomplete figure 8 mark in black and white. Extreme edge of wing with white spots at veins, followed by a submarginal row of white dots, often triangular in shape, outlined proximally with black; running parallel and internal to this is a further row of white spots, double in 1b, circular in shape and outlined in black; between this and the cell is another row outlined proximally with black, double in 1b, the spots in 5 and 6 inclined toward costa.

H.-w. ground colour as fore-wing; cell with one or two black irregular shaped rings; the disc of the wing with three rows of white spots continuous with those of the fore-wing, the veins between the submarginal and next row often black and connecting these spots.

Undersurface: Variable; ground colour greyish-tawny to orange-tawny, the marks and spots of above may be only slightly reproduced below, with a whitening of the posterior angle, or they may be very conspicuously white or bluish-white with the spot in the sub-base of the hind-cell well marked.

The form with well marked white spots below has been named f. *meleagris*, Cr.

EARLY STAGES: The eggs are laid on various species of *Combretum* either on the upper or lower surfaces of the younger leaves. They are hemispherical, faceted and strongly spined, creamy to pale green in colour. Egg stage five to ten days. Larva very similar to those of *Euphaedra*, possessing lateral feathery spines from the second to penultimate segments; general colour dull green. The larvae rest on the mid-rib of the leaves and are thus difficult to detect. One finds them more often on the young shoots of trees that have been cut. In the first instar the young larva is olive with hardly any indication of lateral processes. As the larva matures it becomes more translucent. The pupa is greenish very euphaedra-like but with less prominent tubercles on the dorsum and wing angles. Many are devoid of golden or silvery bases to the tubercles. Pupal stage averages one month.

DISTRIBUTION: The species is distributed throughout Kenya from the coast to the highlands up to 10,000 feet and is also plentiful in Uganda. It is not a forest insect but occurs in the open grass country where there are scattered trees and their food plant. Such suitable localities are often found between forest patches where the grass is not tall and rank; indeed the insect is very often associated with almost bare areas where they are found sitting with wings outspread on rocks and bare ground. The colouration is highly cryptic. The flight is swift and gliding. One finds them most active in the late afternoon just as the sun is well on the slant. Their movements are rapid and because of their colour, very elusive. They, however, never fly very far and can be captured if pursued.

ATERICA GALENE, Brown. Pl. 2, figs. 1-4. Pl. 3, figs. 1-2.

Expanse: Males 24-32 mm.; females 33-40 mm. Sexes unlike.

Range: Uganda to Elgon and Nandi.

MALE: F.-w.: Ground colour velvety black at base inclining to black-brown distally; light spots yellowish-white in a curved row from sub-costal in the cell, increasing in size to cellule 2; cell often with two or three bluish wavy transverse lines; a sub-apical series of spots double in four as parallel streaks, very small in 5 and larger sub-costally in 6; very often the spot in 5 is absent; apex finely white tipped; margin white between veins.

H.-w. brown-black paler toward costa and inner margin; a large yellowish-white patch narrowest toward inner margin and widening out toward the mid points in cellules 5-7, distal and

hind margin of this patch serrated. Many examples have a series of black submarginal lines faintly outlined with whitish and the extreme edge is white internervularly.

Under surface: Ground colour of fore-wing blackish paling toward the posterior edge, tip olive-ochreous with a brownish suffused patch just below apex; light spots of above present below. H.-w. ground colour olive-ochreous with diffuse darker olive bars distal to the patch of above which is less distinct; cell with a strongly marked velvety-black bar, sub-basally.

FEMALE: F.-w. ground colour black-brown, spots as in the male but white and larger, the cell marks more pronounced and with a clear white line proximal to the apical cell spot sometimes carried up to the costa. H.-w. black-brown at base and outer side, shading to brownish at anal area with black rays widening out at margin and meeting a wavy blackish submarginal row of lines often accentuated with slight white lines; extreme edge white lined at veins, markedly so opposite 7-8; h.-w. patch pure white.

Under surface: Very similar to the male but less olive, more greyish in ground on the hind-wing. F.-w. spots white. H.-w. patch less clear and sub-basal black mark not so parallel sided and often broken into two spots.

Variations in the female are met with: (a) in which the hind-wing above lacks any brownish suffusion at anal angle; (b) a variety in which the h.-w. patch is suffused with yellowish and the anal portion of the wing is strongly red-brown; (c) *f. extensa*, Heron, has larger white spots and patch on upper side (Ruwenzori). Often with orange suffused h.-w. patch.

ATERICA GALENE THEOPHANE, Hopff. Pl. 2, figs. 5-8.
Pl. 3, figs. 3-4.

Range: Coastal districts of Kenya.

Size similar to above. Males with less curved outer margin more acuminate and pointed apex; spots above strongly yellow, the h.-w. patch with a strong orange-red suffusion on posterior edge and outer and posterior edge of patch *not* serrated. F.-w. spotting larger. H.-w.: Marginal and submarginal row of whitish lines more pronounced. Undersurface similar to Uganda race but yellower, sub-basal spots in cell often entirely wanting, if present much more reduced.

FEMALE: Somewhat like Uganda race but hind-wing patch usually strongly suffused with orange and nearly the whole of the inner half of wing strongly brownish.

A variation of the female has orange spots on f.-w. above, and the whole of the h.-w. except for upper angle and margin strongly orange. Pl. 2, fig. 8.

EARLY STAGES: The eggs are laid singly on the upper surfaces of a thick stemmed creeper (native name (Lug.) "Sedondo") usually on the young leaves of the root suckers. The eggs are small, about .5 mm., light yellow in colour, dome shaped with hexagonal facets, at the angles of the facet a clear spine. The egg turns grey just before the larva is due to emerge. Egg stage 7-8 days.

When newly emerged the larva is translucent olive with very small lateral spines. It does not appear to eat the egg shell. After the second moult the lateral processes are spined, and the general outline including the spines is oval. The body colour is canary yellow, but the spines, with the exception of the first and the two last are transparent with black lateral feathering. The first and two last feathery processes are black. Along the dorsum of the body is a blue and black stripe; this line under low magnification is seen to be composed of a series of jet black triangles apices toward the anal extremity separated by bright blue dots. In the last stage the larva is a flat oval (including the feathery processes) 30 mm. long by 25 mm. broad. These lateral processes are light greenish; the body colour is yellow with, along the meso-dorsal aspect, a blue line bordered on either side by small black triangles, one on each side to every segment. These black triangles are the result of division of the black triangles seen in the younger larva. The larvae lie up along the mid-rib of the leaves. When ready to pupate it loses its bright colour. Before this change takes place, the larva will devour all the leaf it is on until only the mid-rib is left and at its extremity it spins its silk and secretes a yellowish fluid. From this silken base it prepares to hang head down, and the lateral feathery processes are directed toward the ventral surface. Having attached itself it sheds its larval skin within 24 hours,

It is of interest to note here that the yellow band on the pupating stalk is highly objectionable to predatory insects such as ants. They will not cross this band. Yet, if one places a detached pupa near ants they will at once attack and eat it.

The pupa is a beautiful object. It is a semi-translucent yellowish-green, spindle shaped with darker green veinings running in wavy lines in a somewhat irregular manner. Its colour, shape and shiny surface, together with its position on the stalk or twig, give it a most remarkable resemblance to the glossy young shoots and leaf buds of the food plant.

The pupal stage lasts from ten to fourteen days.

DISTRIBUTION: The Uganda race is distributed throughout the forests and riverine forests and is common, more particularly in the central province. This race extends to the Elgon-

Nandi districts and is occasionally found in the Londiani district as also in the Kericho-Sotik areas.

The coastal race is plentiful throughout the forests and forest patches, extending inland to the Taveta area. It also extends up the Tana system to Meru at 5,000 feet. It does not appear in the highland forests of Kenya.

The flight of the male is swift and rapid gliding; that of the female is slower, but protection is afforded by its mimetic resemblance to species of *Amauris* found in the areas of its distribution. Whereas the males are often seen flying along exposed forest roadways and paths and in forest clearings, the females rather restrict themselves to the more open forest undergrowth in which the food plant is growing.

CYNANDRA OPIS, Dr. Pl. 3, figs. 5-8.

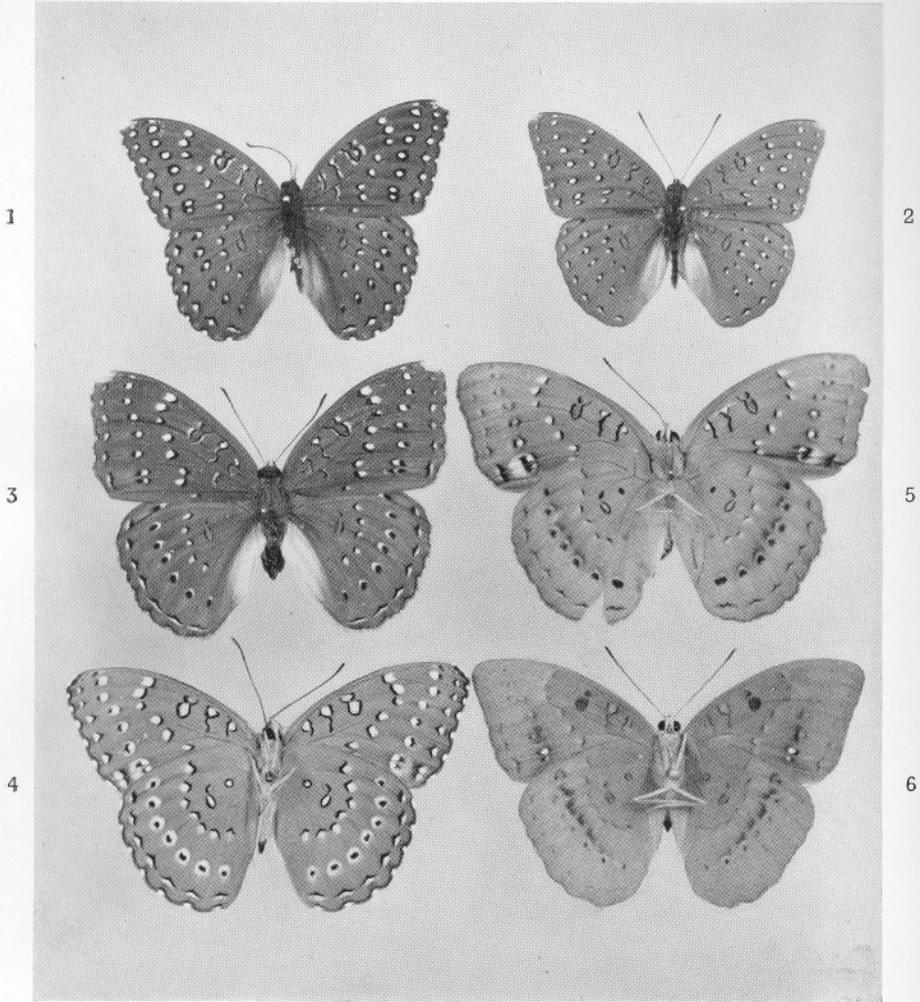
Expanse: Male, 23-27 mm.; female, 30-32 mm. Sexes unlike.

MALE: F.-w. strongly iridescent blue to black through the basal $\frac{2}{3}$ to black at the apical portion; cell crossed by four peacock-blue-green lines and a bar of the same colour at apex, this last continuous with a wavy bar of the same colour which passes through the bases of 2, 3, and sub-basal in 1a, 1b. A further line of the same colour passes from the mid-point of 1a, 1b, 2, and slightly in 3, directed toward the apex and reaching an S series of pure white though small spots which run from sub-costal in 7 to 2. There is a further blue-green bar following the contour of the wing but not reaching the hind submarginal angle.

H.-w. ground colour black with strong blue reflections over most, but not toward costa, and becoming greyish at the inner fold. Four peacock-blue-green wavy bars cross the wing; one basal, one through the apex of the cell; a third in a line from the upper angle to mid-point on inner edge; the fourth follows the contour of the wing more or less, and is contiguous with a submarginal series of blue lunate marks, the three last bars merging into one another in certain lights. The edge of both fore and hind wings white.

Under surface: F.-w. basal half brown; the cell with two lilac-grey transverse bars; the apical half of the wing mostly lilac-grey the white spots of above present below as a series of arrow-shaped white marks; towards the sub-apex, a large triangular dark-brown mark shaded with rufous, base toward margin of wing, apex toward mid-point in 4. H.-w. costa and marginal border chocolate-brown with an extension of this colour from the costa to mid-point in 8-7 and reaching a bar of the same colour which crosses the wing from sub-base in 1a,

PLATE I



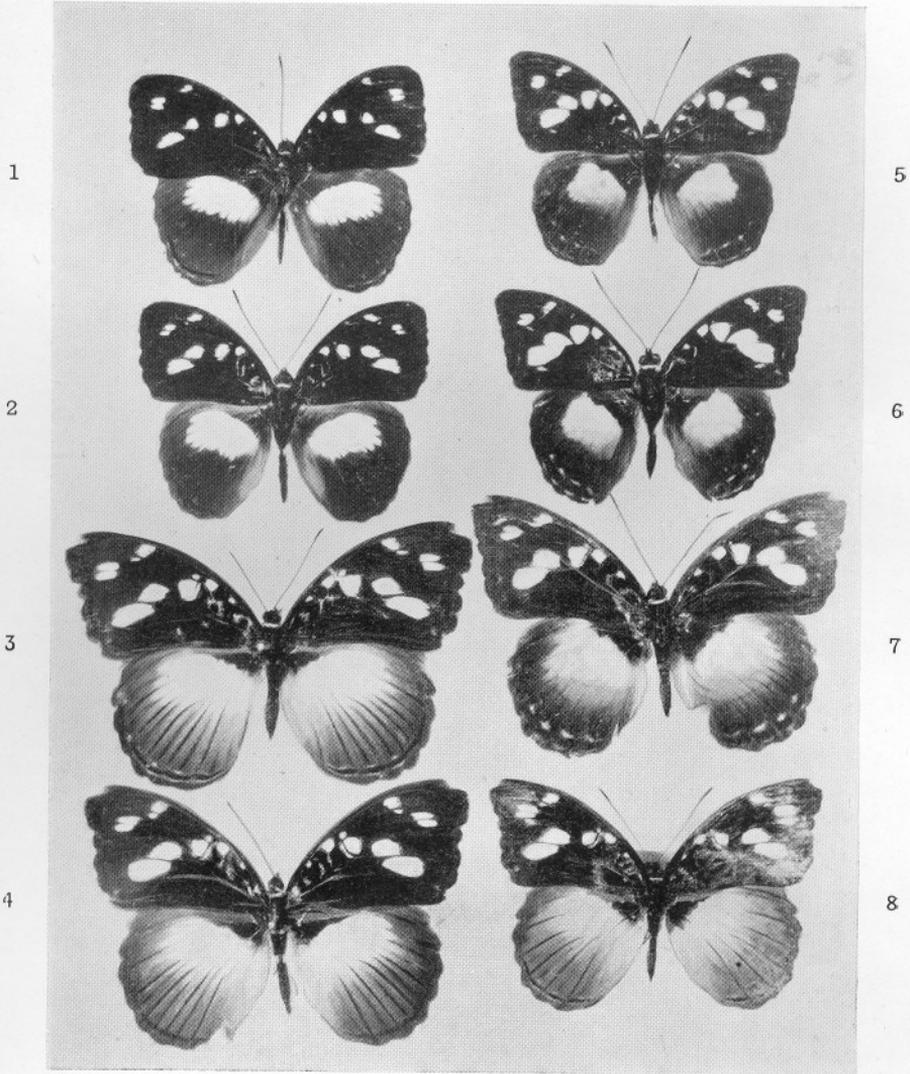
Hamanumida daedalus, F.

Figs. 1 & 2, males (seasonal variation).

Fig. 3, female, upperside.

Figs. 4-6, variation on females on underside.

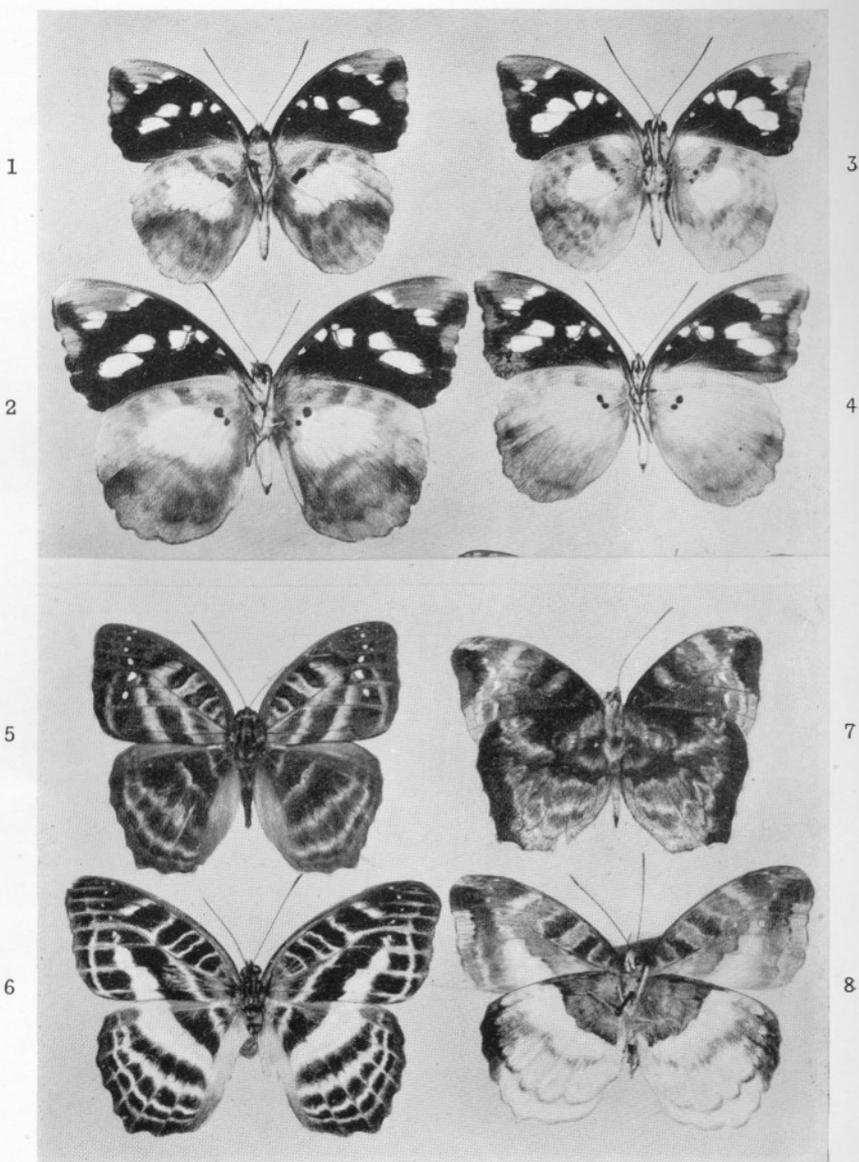
PLATE 2



Aterica galene galene, Brown.
Figs. 1-2, males, Uganda.
Figs. 3-4, females, Uganda.

Aterica g. theophane, Hopff.
Figs. 5-6, males, Kenya coast.
Figs. 7-8, females, Kenya coast.

PLATE 3



Aterica galene galene.

Fig. 1, male; fig. 2, female,
undersurfaces.

Aterica g. theophane.

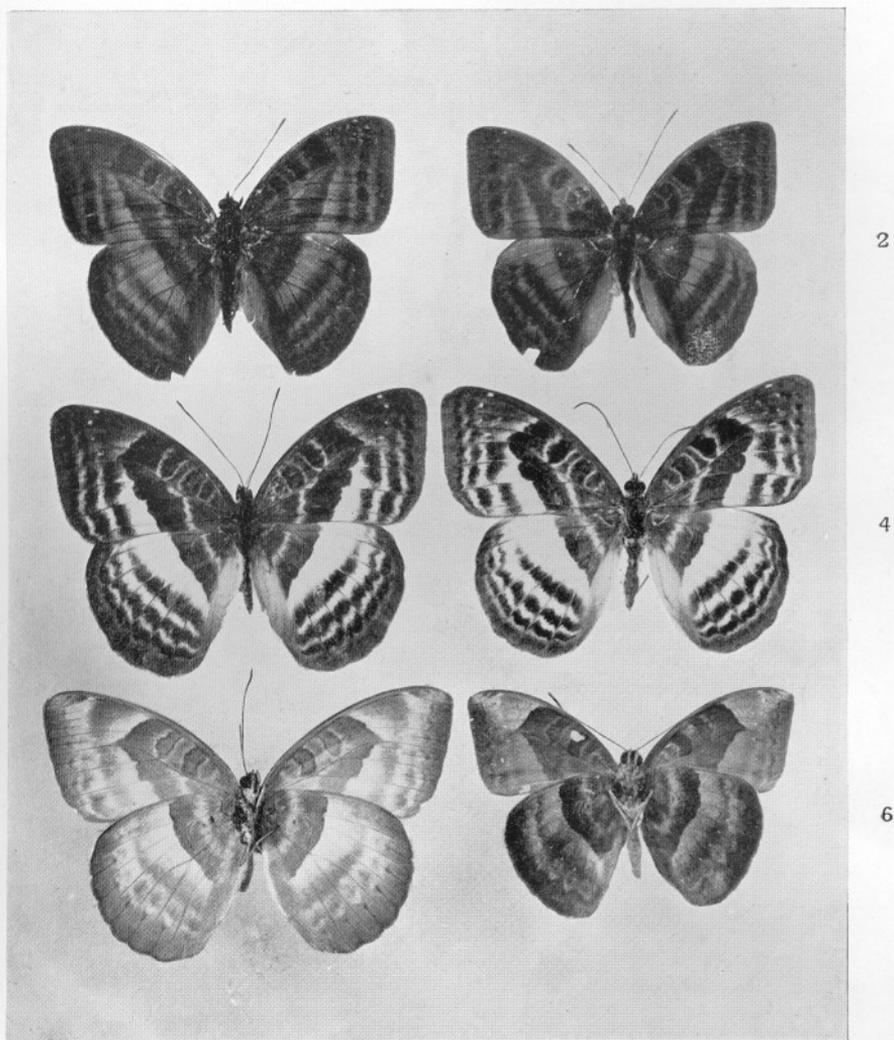
Fig. 3, male; fig. 4, female,
undersurfaces.

Cyandra opis, Dr.

Figs. 5 & 7, male, upper and undersurfaces.

Figs. 6 & 8, female, upper and undersurfaces.

PLATE 4



Diestogyna ribensis, Ward.
Figs. 1 & 2, upper surfaces, males.
Fig. 6, male, undersurface.
Figs. 3 & 4, upper surfaces, females.
Fig. 5, female, undersurface.

the apex of the cell and toward the upper angle. The intervening areas are lilac-grey, this colour in the discocellulars taking the outline of "drop" marks greyish internally.

FEMALE: F.-w. ground colour olive-brown-black, the distal half of the veins ochreous. Two double line yellowish bars cross the cell, one basal, one at about mid-point, followed by single lines through the apex of the cell, with a fourth directed from the sub-costa to mid-point in vein 5. A yellowish line gradually increasing in width runs from the base of vein 4, through the base of cellule 2, 3, and sub-basal in 1a, 1b. A wide yellowish ochreous bar starts at the hind margin at mid-point in 1a, 1b, and 2, and is continued by a curved series of white spots to mid-point in 7. H.-w. ground colour as fore-wing; the yellow bar of fore-wing is continuous with one in the hind-wing from mid-point of costa, gradually tapering off to mid-point on the inner margin. An ochreous fine bar crosses the sub-base of the wing. Three wavy ochreous lines diminishing in width from inner to outer cross the discocellulars, the outermost sub-marginal and not reaching the upper angle. The veins are slightly indicated by yellowish scaling.

Under surface: Base of hind-wing and basal half of fore, lilac-grey, the yellowish bar of the upper surfaces represented below by ochreous-yellow with an increase of this colour over the greater part of the hind wing except for a brownish patch at the upper angle and two wavy brownish lines through the discocellulars. The cell of the fore-wing is crossed by two wide brown bars outlined with paler lilac and beyond the cell a further pale bar which runs continuous with the yellowish bar representing that of the upper side; the white spots of above are reproduced below, while a brownish diffuse bar is present sub-marginally and an orange patch is present on the distal end of cellules 3 and 4.

EARLY STAGES: Unknown to me.

DISTRIBUTION: Occurs in the forest of Uganda and so far not taken further east.

The male of this insect is distinctive. Its peculiar shape and highly iridescent colouration at once distinguish it from any other species. The female, on the other hand, is confusingly similar to the female of *Diestogyna ribensis* in the field, and it resembles to a lesser degree females of *D. obsoleta* and this sex of *Euryphene absolon entebbiae* and *carshena*.

The flight is a series of rapid wing beats and glides and although not long sustained, the insect is difficult to capture.

(The beautiful iridescent blue of the male of this species is probably the finest sight for the collector in Eastern Africa. The females belong to the *Diestogyna* association of mimicry,

which includes *D. ribensis*, *saphirina*, *obsoleta*, *Eu. carshena*, and *absolon* with as model for all of them, *Catuna crithea*, a species of thick forest where it behaves like the *Diestogyna*.—T.H.E.J.)

Genus *DIESTOGYNA*, Karsch.

GENERAL NOTES ON THE GROUP.

(The species of this genus are essentially forest insects, and are rarely seen, and then only for a moment even in clearings in the forest. In Kakamega, I have seen *D. ribensis* and *D. saphirina* on the roads through the forest, but always in the shade of an overhanging tree, and I regard even this as unusual. They prefer dense forest where both sexes may be observed feeding on the ground, on fallen fruits, or the males may be seen sitting for a time, on a leaf, sun-bathing. When feeding the wings are always closed, showing only the procrptic, leaf-like undersides, but when sunning themselves the wings are held wide open and the beauty of the iridescent blues and purples has to be seen to be believed. They are very easily disturbed and the slightest movement will send them darting off into the undergrowth. The power of detecting moving objects is highly developed, more in this group of Nymphalids than any other.

I have waited sometimes for more than half an hour at a time watching a single insect until it came within reach; the slightest forward movement would scare it away. The females are much easier to capture as they fly more slowly, just above the undergrowth, intent on finding their respective food-plants.—T.H.E.J.)

DIESTOGYNA RIBENSIS, Ward. Pl. 4, figs. 1-6.

Expanse: Male, 25-28 mm.; dwarf specimens common, measuring from 18 mm. Female, 28-35 mm. Sexes unlike.

MALE: F.-w. Ground colour dark-brown shot with purple over the greater part of the hind portion; three darker transverse bars in the cell, one wider one beyond cell apex continuous with and at an angle to a broader dark bar running from base of 3, sub-base 2, sub-base 1b, and just internal to mid-point 1a. A basal bar in 1a and 1b. Two sub-marginal rows of darker spots run from apex to hind angle, and a further more diffuse bar through mid-point 3 to just outside mid-point 1a. Fringe of wing slightly white; tip of apex often white. Many specimens with a narrow dark bar between second and third of cell.

H.-w.: Ground colour as fore, paling off at costa. Base with a dark triangle, followed by a broad dark bar. The sub-

marginal row of spots continued through the hind wing, as also the mid-bar.

There is a tendency for specimens from the Kakamega area to be more shot with bluish than purplish.

FEMALE: Ground colour olive-brown. F.-w.: Cell crossed by double lines of ochreous, the first pair in shape of a U, the second more parallel, and a further narrow line just beyond apex; beyond this is a straight narrow bar extending from costa to vein 3 then carried down at an angle and gradually widening to a broad bar through 3 to the hind edge. Toward base of wing is a narrow yellowish line sub-basal in 1a, 1b, and reaching the second double line of the cell. Beyond the broad median bar are two yellowish lines, the more internal continued up toward the costa as four white dots, the outer and sub-marginal bar runs up to just internal of the apex, and outlined externally by dark areas, often carried out to margin along veins. Extreme tip of apex white.

H.-w.: Ground colour as fore; a narrow sub-basal yellowish bar; median bar widest at costa and gradually narrowing to mid-point on inner edge; this is followed by a narrower yellowish bar contiguous at the costa and passing from 7, toward the hind angle; beyond this two further yellowish wavy bars, the outermost narrow and less yellow. Extreme margin slightly ochreous at veins.

Undersurface, male: General ground colour chocolate-brown with more orange in areas corresponding to purplish ones of above; sub-costal half of apex strongly lilac as also intervening paler areas in cell. H.-w. ground colour as fore, with lilac areas corresponding to purple areas of above.

Undersurface, female: More variable; pattern as above but yellowish areas not so pronounced owing to more ochreous tone of ground colour; sub-costal half of apex with greyish or lilac as also the intervening spaces in cell. H.-w. pattern more or less as above but yellowish areas less defined, more diffuse and basal triangle with a lilac dislegnic bar.

EARLY STAGES: The eggs are laid either singly or many close together in bunches on the leaves of *Sp. indet.* They are dome shaped, covered with hexagonal facets with transparent glistening spines arising from each angle of the facets. In sunlight these eggs attract attention for they sparkle like minute dew-drops. The colour is pearly when first laid but they turn greyish as the larva develops inside. The egg stage lasts seven days. When the young larva emerges it eats the vacated egg shell. At first translucent green with fine black transparent hairs projecting laterally, one on each side of each segment from the second to the penultimate and one short spine mid-

dorsal; at the third instar it becomes less translucent, more greenish and an orange spot appears on the dorsum of the first abdominal segment. The lateral processes are seen to have three short branched hairs curved forward, the three hairs arising from one side only. The head is ochreous. At each moult the larva eats its cast skin.

The mature larva is flat, somewhat oval in outline, being 28 mm. by 20 mm. The head is greenish horn covered with fine black hairs. The body segments carry feathery lateral projections on each segment from the second to penultimate. The two from the second thoracic segment point directly forward and cover the head, while the remainder with the exception of the last are directed outward; the last is directed backward. Each feathery projection consists of a central stem, black save for the base which is yellow, and from the stem there are shorter yellow hairs. At the base of each lateral spine is a tuft of fine yellow hairs giving the larva a generally yellow appearance. The first abdominal segment has now a crimson spot. When resting the larva selects the line of the mid-rib of the leaf, and is not at all conspicuous.

The pupa is spindle shaped, bright canary yellow with veinings of darker yellow anteriorly and on the wing scutae and a darker line along the dorsum of the abdomen. The head has two parallel and contiguous projections. The abdominal spiracles are often orange. As in *Aterica galene* the larva pupates at the end of the mid-rib of a leaf from which the lateral portions have been eaten; or sometimes from the tip of a fine twig. The tip is spun over and prepared with a secretion, yellowish in colour, which acts as a deterrent to predatory ants. As in *Aterica*, the larvae hang from this silken pad and bring the lateral feathery spines forward over the ventral surface.

DISTRIBUTION: This species is found in the deep shady forests and are undoubtedly seasonal. On an average, the months of June and July are the best, but emergence is regulated by the climatic conditions prevailing. We have noted that the species is more addicted to the moist areas of forest rather than the outskirts and are to be found in the deeper glades and depressions where vegetation is rank. It has been recorded from forests throughout Uganda and extends east to N. Elgon and to Nandi (F. Jackson) and S. Kavirondo—Kisii (v. S. and W.F.). As already noted, there is a slight differentiation between western and Kakamega specimens, but not sufficiently constant to warrant separation.

The flight is that common to most of the group, a series of rapid wing beats and gliding. There is a close resemblance between females of the species and females of *Cynandra opis*,

and into this mimetic association comes *Catuna crithea*, and certain female *Euryphene*.

DIESTOGYNA OBSOLETA, Grunb. Pl. 5, figs. 1-2; 5-6.

=*D. amaranta*, Karsch. Syn. ♀.

=*integribasis*, Hulst.

Expanse, males: 25-27 mm. Females: 30 mm. Sexes unlike.

MALE: F.-w. ground colour brown-black with dark purple-blue reflections. Dark markings rather obscured as follows: Cell with dark base followed by two broad bars, with a third just beyond cell; the second and third bar continued to the base of 1a, 1b, the latter by dark bar sub-basal in 1a, 1b. The bar beyond the cell is continued through the mid-point of 1a, 1b, and 2. Two other dark bars of rounded spots are present, the inner starting from just internal to the hind angle runs from 1a to 4 and is continued up towards the costa as three to four white spots; the outer series is submarginal; wing fringe white, tip of apex narrowly white.

H.-w.: Brown-black, more brown toward costa, with strong dark blue reflections more intense toward anal angle, darker spotting in bar formation diffuse; base of wing dark, followed by three more or less parallel series of spots, the inner two large, the outer smaller and submarginal. Wing fringe pale, but not white except at end of each vein.

Undersurface: F.-w. ground colour ochreous grey shaded with orange and rufous more particularly as a patch along the outer edge. The dark bars above are reproduced below as brownish bars with pale edges. H.-w. generally more rusty rufous with a yellowish bar crossing from the base of 7, through the cell and sub-base in 1c. A second row of yellowish spots runs from mid-point 7 to just above mid-point in inner edge; there is a submarginal row of blackish angles and internal to this a series of yellowish dots outlined in blackish, and black shading internally.

FEMALE: Ground colour olive-brownish, with darker olive brown between the ochreous yellow bars. Bars as follows: two double line bars in the cell, one just beyond; from the upper line of the second bar, a yellowish line passing from root of vein 2 to sub-basal in 1a; a further line starts below the costa passing cellule 6, 5, 3 sub-basal then is much angled in 2, set more internal in 1a and 1b, at mid-point. The distal half of the wing has a double row of yellowish lines in the form of contiguous circles in areas 1b, 2, 3, 4; in 5-7 the marks break up into discreet spots, the internal ones white. Fringe of wing with white spots at ends of veins; upper tip of apex white.

H.-w.: Ground colour olive-brown, the basal triangle with a diffuse narrow yellowish bar; a wide yellowish bar starts below the costa at mid-point, widens out rapidly to fill the greater part of areas 4-7, tapering off rapidly as it crosses the bases of 3, 2, and 1c, and does not reach the inner fold. From the mid-point of cellule 4 a series of contiguous crescentic marks reach the anal angle; beyond this a wavy line starts at 5 and curves toward the anal angle, accentuated on the outer edge by dark olive.

Undersurface: Ground colour ochreous to Naples-yellow; bases of fore and hind-wings with lilac-grey patches crossed by indistinct ochreous lines, those of the cell above reproduced below. Beyond the lilac area in the fore-wing and just below the costa a series of fine wavy parallel lilac lines forming a triangle; distal third of wing shaded with rufous in which there is a sub-marginal series of blackish angular marks. The hind wing has two parallel series of diffuse lilac angular marks while the outer border is rufescent tinged.

EARLY STAGES: These are unknown to me.

DISTRIBUTION: Occurs in the forested areas of Uganda in the more moist and dense parts. It is not as plentiful as others of this genus. I have not found it east of Entebbe, except in the Mabira forest. Reference has already been made to the similarity between females of this species and others already dealt with. The more transverse direction of the yellowish bar of the hind-wing helps to distinguish it in the field, as also does the more angled mid-bar of the fore-wing. Little is known of its general habits. [Commonest in E. Uganda, round Kampala. —T.H.E.J.]

DIESTOBYNA PALLIDIOR, Hulst. Pl. 5, figs. 3-4; 7-8.
= *umbrina*, Talbot, nec. Auriv.

Expanse: Male, 50 mm.; length of fore-wing, 29-30 mm.

MALE: General ground colour fuscus-brown with a strong purple bloom. Fore-wing strongly purple at the basal area, less so marginally; cell crossed by a double dark bar with paler out-lines. There is an indistinct, curved pale bar which, starting at the costa just beyond the mid-point runs through the disc of the wing to the mid-point on the hind-margin; the outer margin is shaded darker than the ground colour. Beyond this are two rows of dark spots, one sub-marginal, the other more internal and more or less parallel to the outer margin of the wing.

Hind-wing: More brownish along the costa, and strongly purple over the inner half. The disc of the wing is crossed by

diffuse dark contiguous spots and beyond by two further rows, one sub-marginal, the other running parallel and more internal.

Underside: Fore-wing ochreous, more brownish basally; cell with the usual bars. Beyond the dark basal area the ground colour pales to a more yellowish zone corresponding to the pale bar above. The double row of spots above are represented by black dots.

Hind-wing ochreous with a darker base, distally with a zigzag outline most angled at vein 3. The internal of the two rows of spots above are here represented by blackish dots proximally shaded with ochreous, distally with a darkening of the ground whilst the submarginal row is represented by a series of dusky loops. The cell contains a pale spot outlined with blackish. There is a dark diffuse spot beyond the apex of cell in area 4.

FEMALE: Fore-wing: Dusky ochreous-brown; cell with double bar and basal spot outlined with ochreous. A well-marked creamy bar, tinged with ochreous distally, crosses the wing from the costa at the angle between vein 6 and the costa, and is more or less parallel sided, about 3 mm. wide then decreases in width in area 3 and tapers out and is slightly curved inward in 2. There is a large pale patch in 1b. There are four sub-apical white dots set in a curve in 4-7; beyond these are diffuse blackish spots which extend back through 3-1b. This is followed by a more distinct series of sub-marginal blackish spots from the hind-angle to the apex.

Hind-wing: Dusky ochreous-brown with the basal area darker and defined distally; a post-discal row of large diffuse dark brownish spots curve through the wing from the costa to just above the hind-angle, whilst beyond this there is a series of dark loops; internal to both these rows there are ochreous bars which set off the lines. The wing fringe is ochreous.

Underside: Ochreous more so on the hind margin of the fore-wing, the rest dusted over with greyish especially toward the upper half of the apical triangle. The lines of the cell are apparent whilst the fore-wing bar is distinct and yellowish tinged anteriorly. The white sub-apical dots of above are distinctly reproduced below. Sub-marginally there is a row of faint dark dots. Hind-wing: basal area dark ochreous brown with a dentate outer margin; the cell with a dark ring outlined by a paler zone. There is a diffuse greyish spot beyond the cell in 4, shading to brownish distally. The post-discal row of large diffuse greyish ochreous spots carry a small ochreous dot outlined with darker brownish at their proximal point and are outlined with paler ochreous; the sub-marginal row of crescentic lines of above are here represented by diffuse

lines. The outer margin of the wing is shaded with brownish while the fringe is ochreous.

EARLY STAGES: Unknown.

DISTRIBUTION: South-western Uganda in the Katera Forest; taken by T. H. E. Jackson.

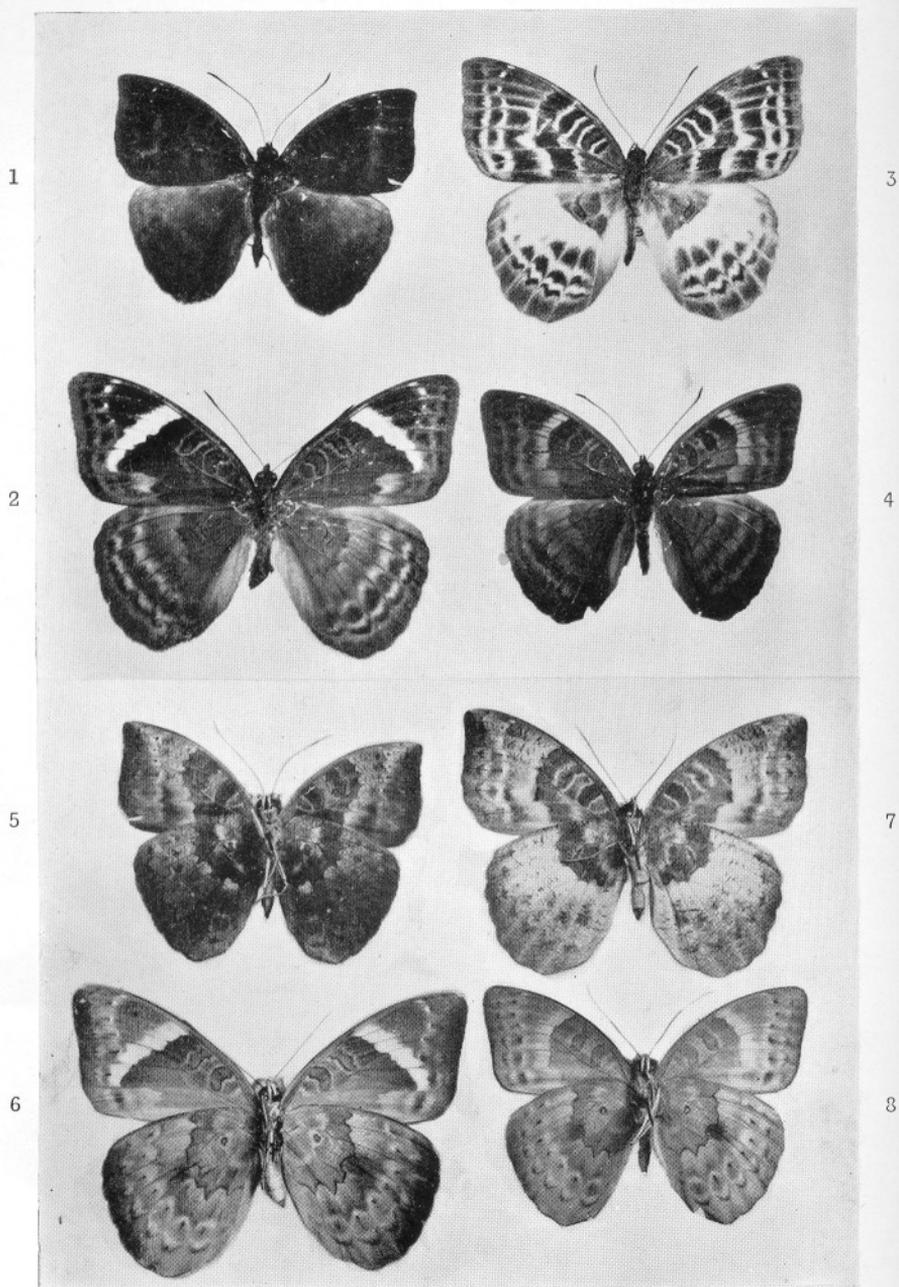
DIESTOBYNA CHALYBEATA, Talbot. Pl. 6, figs. 2 and 7.
Pl. 7, figs. 3 and 4.

As I have no examples of the males of this species I quote the original description published in *Trans. Ent. Soc.*, Vol. 86, pt. 4, pp. 70-71.

"The upperside colouration resembles *simplex*, Stgr., or *saphirina*, Karsch. Underside markings somewhat as in *obsoleta*, Grunb., especially the hind wings. The vestiture on the inner area of the hind-wing is posteriorly developed to form a tuft.

"MALE: Upperside: dark leaden blue with a greenish tinge on the fore-wing; markings indistinct. Fore-wing with the usual cell mark. The post-discal line is only visible as far as vein 2, and from vein 5 to vein 2 is almost straight or at right angles to the inner margin. The submarginal band of dark spots is narrower than in *obsoleta*, and wider than in *saphirina*. As in the latter species, there are no subapical white dots, and the apex and outer border are blackish for about 3 mm., narrowing to the tornus below vein 2. Hind-wing with pale smoky-brown costal area as in *obsoleta*, and reaching vein 4 as in that species; similarly the anterior part of the two submarginal lines of blackish spots is distinct on the pale apical area, though less defined than in *obsoleta*. The fringe of blackish hair along vein 1b is strongly developed, but stops at about 7 mm. from the margin and forms a pronounced tuft which reaches to within 5 mm. of the margin; the hair forming this tuft rises chiefly from the fold in 1c, and no hair rises above the fold as is the case in the two allied species where it covers most of the area. Underside chestnut-brown strongly irrorated or freckled with smoky-brown. Basal area dark smoky-brown with indistinct cell-marks. Discal line as in *obsoleta*, of the same curvature and outline. Distal apical and costal area to vein 4 dusted with bluish-white. Posterior area pale smoky-brown. The two dark sub-marginal bands as on the upperside and not distinct; proximally to the inner band are four bluish-white dots in areas 4, 5, 6, and 8. Hind-wing ground-colour deep chestnut with darker basal area. A rounded and conspicuous pale buff spot near base of area 7, and a similar but somewhat square or oblong spot in 1c on the edge of the dark basal area; similar pale spots, though less defined, are found in *obsoleta*.

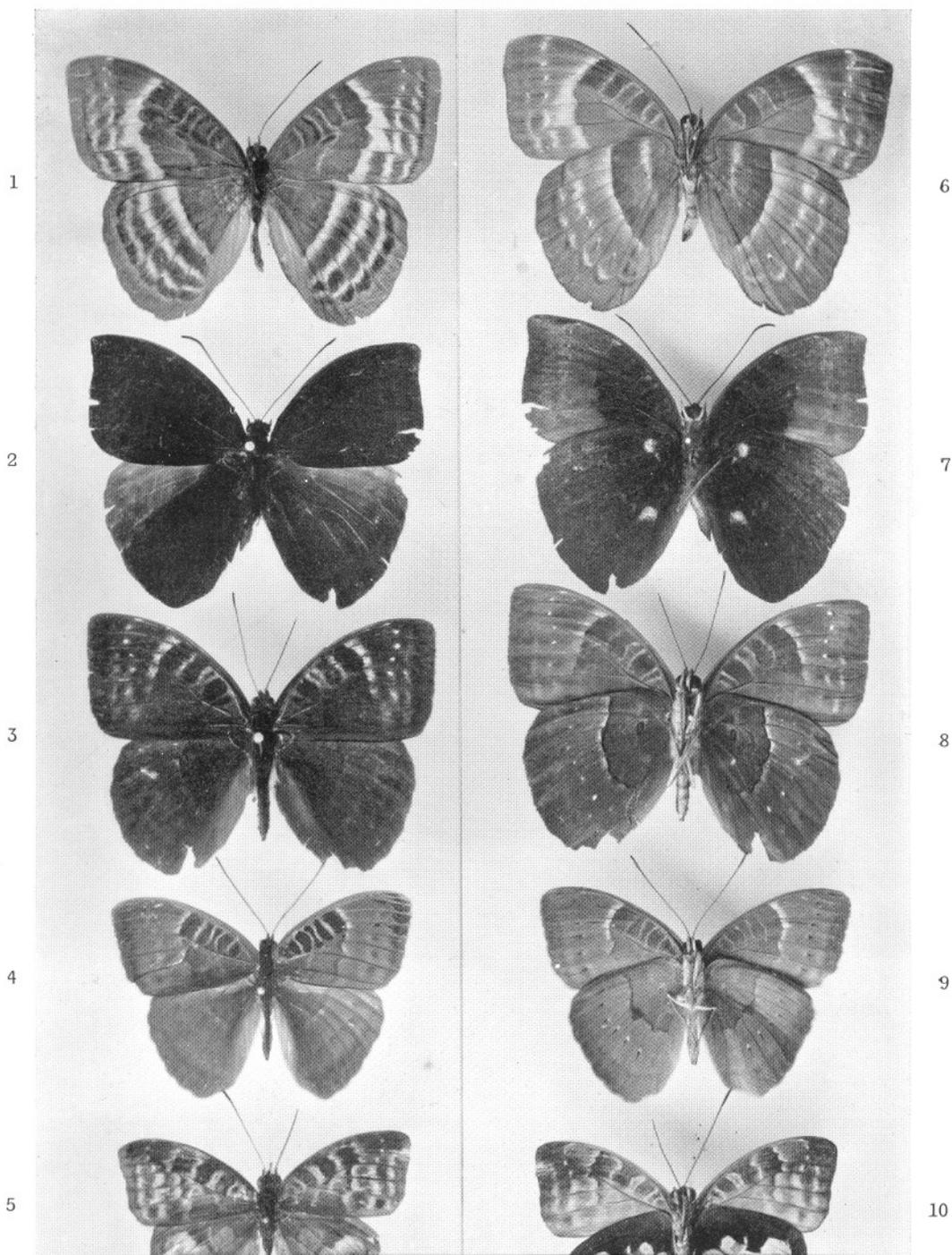
PLATE 5



Diestogyna obsoleta, Grunb.
Figs. 1 & 5, male, upper and
under surfaces.
Figs. 2 & 6, female, upper and
under surfaces.

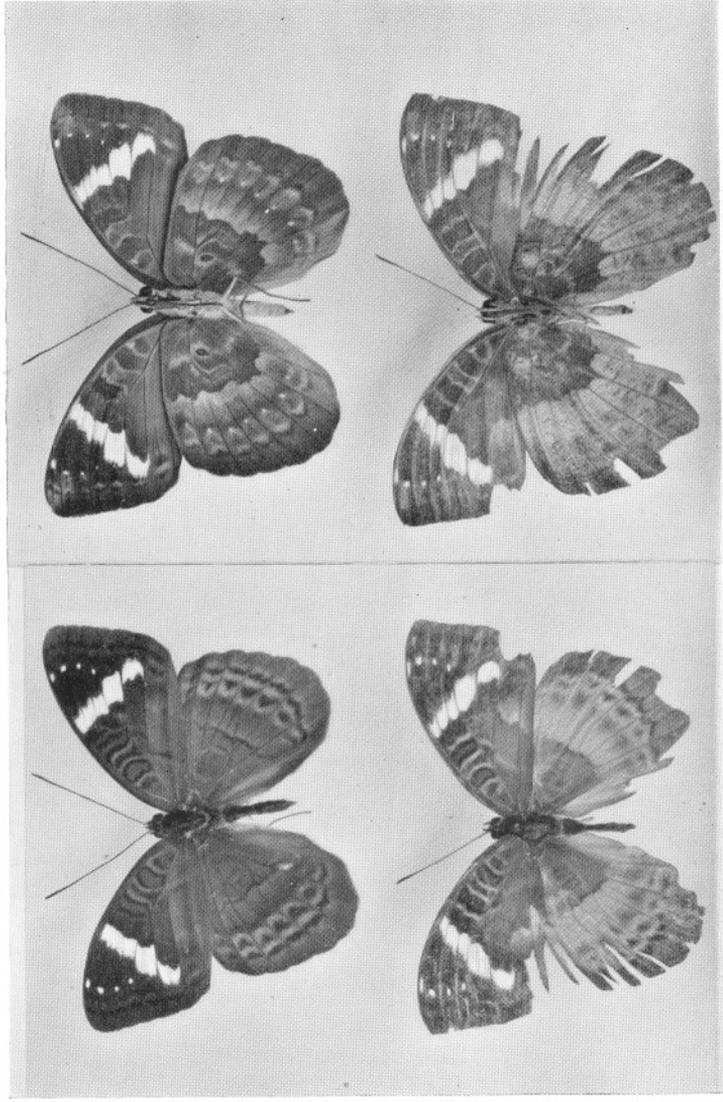
Diestogyna pallidior, Hulst.
Figs. 4 & 8, male, upper and
under surfaces.
Figs. 3 & 7, female, upper and
under surfaces.

PLATE 6



Figs. 1 & 6, *Diestogyna butleri*; upper and underside, female.
 Figs. 2 & 7, *Diestogyna chalybeata*, Talbot; upper and underside, male.
 Figs. 3 & 8, *Diestogyna jacksoni*, Talbot; upper and underside, male.
 Figs. 4 & 9, *Diestogyna theodota*; upper and underside, male.
 Figs. 5 & 10, *Diestogyna gambiae*, Feisth; upper and underside, male.

PLATE 7



1

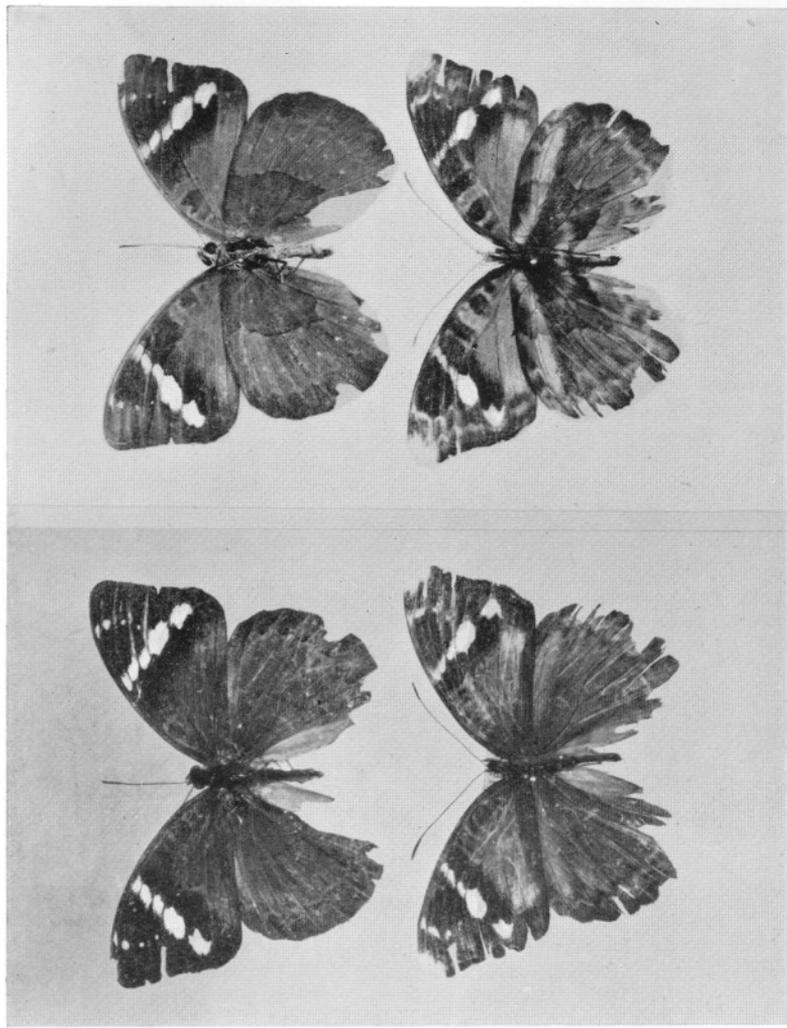
2

3

4

Diestogyna theodota. Figs. 1 & 2, upper and under surfaces, female.
Diestogyna chalybeata, Talbot. Figs. 3 & 4, upper and under surfaces, female.

PLATE 8



Diestogyna jacksoni, Talbot. Figs. 1 & 2, upper and under surfaces, female.
Diestogyna atossa, Hewit. Figs. 3 & 4, upper and under surfaces, female.

"The basal area is bordered diffusely with deep chestnut, and there is a post-discal band of similar colour, broken up into spots, each spot with an indistinct white dot upon its proximal edge. The distal area irrorated with smoky-brown, and bearing an indistinct blackish waved submarginal line. Fringe of fore-wing white, blackish at veins; of the hind-wing black. Abdomen with grey ventral surface; in *obsoleta* it is ochraceous.

"FEMALE: Resembles somewhat *atropurpurea*, Auriv., on upperside, and *amaranta*, Ksch., on the underside. Upperside of fore-wing dull ochreous in basal area as in *atropurpurea*, with the three dark cell-patches sharply outlined with ochreous; the patch across the end of the cell is larger than in the two species mentioned. The pale patch lying between vein 2 and inner margin is large in the type and in specimen 2; in specimen 3 it is as in *atropurpurea*, and in specimen 4 it is represented by a curved buff-coloured mark in 1b. The dark angled line edging the inner side of this patch is much the same as in *atropurpurea*. It may be mentioned here that this submedian patch is absent in *amaranta*. The white band is quite the same as in *atropurpurea* and the usual four white apical spots are present. Hind-wing closely resembles *atropurpurea* in markings.

"The discal line, which edges the dark basal area, is slightly curved and fairly even. The post-discal blackish patches, more distinctly developed than in *atropurpurea*, very large in specimen 4 where also the second post-discal row of dark patches is more developed; in the other specimens these patches, as well as the submarginal sagittate line, are as in *atropurpurea*. Underside more as in *karschi* and *amaranta*. Fore-wing with cell-marks and whitish-dusted apical area as in the male. An indistinct ochreous submarginal band about 3 mm. wide from costa to vein 4, the white dots, as above, on its inner edge. The pale submedian patch reproduced but less distinct than above. Hind-wing basal area blackish-brown irrorated with pale buff to a variable extent. The irregularities along the edge of the basal area, including the tooth on vein 2, are just as in the male. There is a pale ochreous spot near the base of area 7 as in the male, and from this, to the margin near the base, is a curved blackish band, constricted slightly in the cell, and including the dark rounded cell-spot. Distal area pale ochreous, more or less strongly freckled with chestnut. The post-discal blackish spots as on the upperside; indistinct in the type and in specimen 2 but very distinct in the other two examples; in allied forms these spots are either small triangles or mere dots. A waved dark submarginal line as in *karschi* but still heavier; the space between this line and the margin more or less irrorated with blackish. Fringe of both wings black. Length of fore-wing: male, 27-30 m.m; female, 32-33 mm."

EARLY STAGES: Unknown.

DISTRIBUTION: The south-western area of Uganda, Malabigambo Forest, Katera, with an extension into Eastern Congo. The species has been taken by T. H. E. Jackson, who secured the type and other examples.

DIESTOGYNA JACKSONI, Talbot. Pl. 6, figs. 3 and 8.
Pl. 8. figs. 1 and 2.

This is another recently described species, and as only a single female is available to me, I quote the original description. *Trans. Ent. Soc.*, Vol. 86, pt. 4, pp. 69-70.

"Allied to *feronia*, Stgr., also in some respects to an unnamed species in the British Museum from the Cameroons, and in its underside pattern to *simplex*, Stgr.

"MALE: Upperside, deep blue, but not so bright as in *feronia*, the median area of fore-wing and the hind-wing purplish. Fore-wing cell-marks as usual in the genus; the dark oval spots are edged on the outsides with violet-blue in the type, with purple in the Uganda specimen, showing as four violet-blue bars, the basal one indistinct, the outer one strongly marked over the cross-veins. A similarly coloured and heavier post-cellular line, slightly curved from costa to vein 2, but indistinct below vein 3; in the Uganda specimen this line is altogether less distinct. Four white sub-apical dots as in *feronia*, with a violet-blue dot in area 3 placed below the one in 4, a similar but larger and more obscure dot in area 2 placed a little distal of the one in 3, and a similar but small dot below vein 2 placed in line with the one in area 3. This line of dots is absent in the Uganda specimen, though there are indistinct traces of it. A submarginal series of semi-crescentic black spots similar to those in *feronia* but a little larger; between these spots and the post-discal line of dots is a line of somewhat square-shaped black spots each with an indistinct outer violet edging, not apparent in the Uganda specimen. Hind-wing with costal area fuscus-brown to vein 6; in *feronia* it extends to vein 4. A thin black very slightly curved discal line from vein 2 to vein 6, crossing area 2 near its base. A heavy black waved submarginal line from vein 2 to vein 6, less marked and more even in the Uganda specimen. Between the discal and submarginal lines are two indistinct blackish post-discal bands of spots, the inner one broader than the outer; in the Uganda specimen only the outer line is distinct, and the spots forming it are short bars. The outer marginal border is fuscus-brown and less suffused with purple.

"Underside rufous-brown, resembling *simplex* in colour and markings, and not *feronia*; the type specimen more

ochreous. Fore-wing cell-marks as in allied species. Post-discal line with the part below vein 4 nearly even and straight, directed more distad than in *simplex* or *feronia*; it is bordered outwardly with paler brown, somewhat as in *simplex*. A post-discal row of white dots, representing the line on the upperside, much less distinct in the Uganda specimen. Mid-way between these dots and the margin is a deep brown submarginal line marked with ochreous along its inner edge. In the space between the two lines mentioned there are grey-black patches in 1b, 2, and 3. Hind-wing basal area only a little darker than the distal area. Cell-spot not blackened. Discal line more curved than in *simplex*, and passing farther from the point of origin of veins 3 and 4 than it does in that species; this line is narrowly edged outwardly with white. A post-discal row of white dots, and a submarginal line as in other species.

"FEMALE: Not resembling *simplex* or *feronia* but strongly suggestive of *amaranta*, Krsch., or *atrovireus*, Mab., female. Upperside: Fore-wing with the rufous-brown area extending beyond the cell and into the base of area 3, with its edge sharply defined. A band of five white spots as in other species, but not compact as in *simplex* or *feronia*; the three anterior spots are separated by the veins and wider than in *amaranta*; the third spot in 4 has a characteristic proximal projection in the upper part of the cellule, and there is a similar projection to the large and somewhat rounded spot in 2, whilst a more obvious projection is seen on the lower and smaller curved spot. Four white subapical dots as in the allied species. Hind-wing differing essentially from similar females of other species in its blackish-brown marginal border which almost touches the black and slightly waved submarginal line. Discal black line thin and sharply defined. A thin black divided post-discal streak in each of the areas 2-5. Underside: Colouration and hind-wing markings as in the male. Fore-wing with ground colour as in the hind-wing, paler below the cell, and with a diffuse blackish patch in areas 2 and 3 over the area in which are placed the two white dots. Hind-wing a little paler than in the male. Discal line indistinctly edged with white, and the tooth on vein 2 larger. Fringes in both sexes black, in the male with a white dot at apex of the fore-wing.

"Length of fore-wing: Male, 30 mm. (type), 29 mm. Uganda specimen; female, 35 mm."

EARLY STAGES: Unknown.

DISTRIBUTION: Occurs in the south-western portion of Uganda in the Malabigambo Forest, Katera, where T. H. E. Jackson obtained specimens. It extends into the eastern Belgian Congo.

DIESTOBYNA SAPHIRINA, Karsch. Pl. 9, figs. 1-6.

= *D. hobleyi*, Neave. Syn. ♀.

Expanse: Males, 23-25 mm.; females, 28-33 mm. Sexes unlike.

MALE: F.-w. brown-black with dark blue reflections. Cell with lighter blue cross bars, one sub-basal, followed by two parallel near apex; one just beyond and a further ill-defined line crossing the sub-base of 6-5-4 is lost in 3. There is sometimes an indication of a further submarginal bar. Between the bars slight darkening of the scales to form diffuse spots. Apex white tipped.

H.-w.: Black-brown in ground colour, more strongly bluish toward hind angle. Four rows of more or less parallel dark spots cross the disc of the wing, the innermost crosses through the apex of the cell, the outer one sub-marginal.

Undersurface: Brownish with shading of rufous more toward the outer side of the fore-wing and over the hind-wing. Barring of the cell slightly indicated, but the line beyond the cell is more defined and whitish-ochreous and extends from the costa sub-basal in 7 through sub-bases of 6-4, then at about mid-point in 1a, 1b, where it fades out. There is also a sub-marginal row of small black dots and angles, internal to this a further row of black spots sometimes whitish proximally. The hind-wing has a black diffuse spot just beyond the cell which is sometimes carried on above and below as a diffuse dark line to the costa on the one side and toward but not reaching the inner fold on the other side. There is a series of sub-marginal dark angular spots and internal to this a series of fine whitish dots darkened distally.

FEMALE: Ground colour olive-brown with darkening between the naples to ochreous lines. The cell is crossed by narrow lines, a circle toward the sub-base, followed by two lines, the upper one continuous with a line crossing the base of 2, and sub-base of 1b; beyond the cell a straight light line, followed by a transverse sub-apical yellow bar, which varies in width, extending from the sub-costa in 6 toward the hind angle but ending in a somewhat crescentic mark in 2. The mid-point of 1a and 1b with a light bar proximally edged with darker olive.

A series of white dots in a curve through 7-4 and distal to this a sub-marginal row of dark spots—proximally shaded with lighter olive—follows the contour of the wing.

H.-w.: Olive-brown, with a broad yellowish bar from a point on the mid-costa fills the proximal half of cellules 6-3 and fades out toward the inner margin; sub-distal edge of the band with olive dots, often triangular in shape in cellules 6-1c and

the distal edge accentuated by a dark wavy line. The marginal border of the wing often with pale veins and darker intervening areas.

Undersurface: Variable, as to amount of purply-brown flush. F.-w. ground colour brownish-olive darkening toward distal half and outer margin of wing flushed with rusty to chestnut. Marks of above reproduced below as whitish lines and bars.

H.-w.: Basal area grey brown with a lilac line; yellowish bar of above only slightly indicated below in 6-4, but distally indicated by a series of ovals dark inside and white dotted proximally with a dark angular spot distally.

EARLY STAGES: Unknown to me.

DISTRIBUTION: Distributed through the forests of Uganda and extending to the Elgon-Nandi districts and patches of forest in South Kavirondo, Kisii, to Chepalunga.

The female described as *hobleyi* by Neave is now considered a synonym of *Saphirina*, and probably synonymous with *albo-punctata*, Auriv. Females of this species are somewhat variable, more especially as regards the oblique bar of the forewing. This species is found only in forest country.

DIESTOBYNA GAMBIAE, Feisth. Pl. 6, figs. 5 and 10.

This species is included on the evidence of one specimen taken by the late Sir Frederick Jackson, and said to have come from Uganda (labelled merely "East Africa"). As we have no specimens, Mr. Talbot has very kindly supplied the following description:

MALE: Upperside with blackish-brown ground colour, and dark ochraceous markings, sometimes suffused. Fore-wing with prominent spot in middle of cell, outlined with ochraceous; two discal ochraceous lines forming a U-shaped spot enclosing the discocellulars; a sub-basal, or median, short line from origin of vein 2 to inner margin; a discal, irregular, short line, from vein 4, where it connects with outer edge of U-shaped spot, to vein 2; a post-discal, irregular line from costa to inner margin, its anterior part, to vein 4, much thinner than its lower part which projects proximad below vein 2; a second and similar post-discal line, its anterior part formed of three dots in areas 4-6; a submarginal line, divided by the dark veins, and obsolete above vein 5. Cilia white, alternated with black at the veins. Hind-wing with a prominent discal ochraceous line, from vein 2-7 more or less diffused distad; cell more or less dusted ochraceous; discocellular spot conspicuous, and centred with ochraceous; a post-discal series of small black spots, darker than the ground-colour, the proximal ochraceous edgings to these spots

forming a lunulate line in dark specimens; a submarginal black line, edged ochraceous on its inner side.

Underside: Fore-wing with posterior area from vein 4, and including lower margin of cell ochraceous-yellow; anterior area deep chocolate-brown, more or less dusted white; markings as above, pinkish-brown. Hind-wing with an anterior area of very deep chocolate-brown, comprising the whole of areas 7-8, the basal area including base of cell, the basal parts of areas 5 and 6, and extending along outer margin to vein 3; a median bar of the same colour, from below vein 1a to origin of vein 2; posterior area of wing more or less pinkish-brown, dusted with cream, more deeply coloured in the post-discal area; post-discal spots of upperside represented by black dots; the pale area extends to the margin below vein 3.

FEMALE: Markings similar to those of the male, but pale yellow to white. Hind-wing with a prominent, broad, yellow or rarely white cross-band, its distal edge, between veins 5 and 7, broad, the band narrowing sharply below vein 5 to almost a point in area 1c; the upper edge of this band is sharply defined and irregular, the lower edge diffuse and more even; the outer half of the cell and posterior area of wing slightly washed with ochraceous; post-discal and submarginal lunulate yellowish lines. Underside as in the male, but pale areas are pale buff or creamy-white.

DISTRIBUTION: Uncertain, so far as Uganda is concerned. Vide opening remarks.

DIESTOGYNA BUTLERI, Auriv. Pl. 6, figs. 1 and 6.

(= female of *amaranta*, Karsch., as described by Butler.)

The male appears to be unknown. We are indebted to Mr. Talbot for a description of the female.

FEMALE: Upperside ground colour umber-brown, with pale ochraceous markings; fore-wing with the usual *Diestogyna* basal marks, but rather faint; a post-discal, rather prominent band from vein 9 to inner margin, curved strongly outwards, wider between veins 2 and 4, its inner edge crenulate and sharply defined, its outer edge diffuse and more even; two submarginal, somewhat crenulate and nearly parallel lines; the inner of the two submarginal lines has its anterior part, in areas 4-6 formed of white dots.

Hind-wing with a discal narrow band, narrowing posteriorly to vein 1a, and from vein 7 curved sharply inward to costa; a post-discal and still narrower band, its outer edge lunulate; a somewhat uneven submarginal line; a second, much thinner and duller, submarginal line defining an outer border, slightly paler than the ground-colour.

Underside of fore-wing with proximal area pale umber-brown, limited by post-discal band as above; submarginal markings less distinct than above. Hind-wing with ground-colour paler than above; a sub-basal, narrow, whitish band; a discal band as above, but pinkish-white, and outwardly diffuse; submarginal markings as above, but pinkish-white.

Antennae dark reddish-brown; palpi pale reddish-brown touched with white at base and on inside. Head, thorax, and abdomen umber-brown; thorax and abdomen grey beneath.

EARLY STAGES: Unknown to me.

DISTRIBUTION: Has been taken in the Toro district of Uganda (B.M. Coll.), but is evidently very rare. Is not represented in our collections.

DIESTOGYNA THEODOTA, Hulst. Pl. 6, figs. 4 and 9.

(= *cyriaca*, Hulst.; *tricolata*, J. & T.). Pl. 7, figs. 1 and 2.

Mr. Talbot supplies the following description; it is not represented in our collections.

A sombre species, closely allied to *tadema*, Hew.

MALE: Upperside ground-colour paler than in *tadema* or *aphirina*, being a smoky-brown with faint violet tinge; markings pale, more or less slightly violaceous, and often rather obscure. Fore-wing with the usual cell marks and sub-basal line; a post-discal line as in the allied species, its anterior part, to vein 4, at right angles to the costa, its posterior part distinct to vein 1b, straighter and more even and more distinct than in allied species; two submarginal lines as is usual; the proximal area to post-discal line, darker than distal area. Hind-wing with the usual pale costal area and distal area, to discal band, also pale; pale discal line straighter than in *tadema* more as in *aphirina*; post-discal dark spots, and heavy submarginal dark line as in allied species.

Underside: Ground-colour pale reddish-brown to dark reddish-brown; general colouring very similar to that in *aphirina* and *incerta*, Auriv., being unlike *tadema*. Markings exactly as in the two former species.

FEMALE: Only determined by analogy as belonging here. Very similar to *tadema* female. Upperside dull ochraceous-brown. Fore-wing with apical half smoky-brown; a submarginal white band as in *tadema*. Hind-wing as in *tadema*; a discal dark line; a post-discal series of blackish, more or less triangular spots, outwardly edged with paler ochraceous; a submarginal series of blackish spots or bars, separated by the veins, and placed nearer to the post-discal series than to the margin in *tadema* the spots of the sub-marginal series are usually

sagittate or more or less curved). Underside as in the male, except for the white band on fore-wing.

EARLY STAGES: Unknown.

DISTRIBUTION: Western Uganda, but exact area not known.

DIESTOGYNA ATOSSA, Hew. Pl. 8, figs. 3 and 4.

This species is represented in our collections by a female taken by Carpenter (Bwamba Valley). The male is unrepresented, and we are indebted to Mr. Talbot for the description of that sex.

MALE: Upperside chiefly reddish-brown. Fore-wing with proximal half reddish-brown, distal half black; a post-discal ochraceous band, formed of five spots separated by the veins, the two lower spots, in areas 2 and 3 much larger than the others; four sub-apical white dots, in a curved row above vein 4; a submarginal ochraceous line from vein 1b to 5 or 6.

Hind-wing with costal area to vein 7 smoky-brown; an outer smoky-brown border, limited by a submarginal line of small black spots or bars, between which and a post-discal series, is a series of ochraceous spots that bear the submarginal ones; post-discal spots black, triangular, their apices directed inwards.

Underside of fore-wing with posterior ochraceous area, and anterior area deep chocolate-brown broken by pinkish-white cell-bars; post-discal band and sub-marginal line as above; some apical white suffusion. Hind-wing largely reddish-brown, darker than above, and costally deep chocolate; a prominent broad pinkish-white stripe, from base of costa, through areas 7-6 to outer margin; a discal whitish line, angled at lower edge of cell; a post-discal line, produced strongly outwards in area 2, darker brown, edged outwardly with dull white; the area between the discal and post-discal lines is darker than the area between the latter and a submarginal row of blackish triangular spots; a submarginal pinkish-white prominent line, limiting the dark brown outer border which reaches vein 3; anal area more or less grey-white.

FEMALE: This sex is present in our collections and is described as follows:

Upperside: Fore-wing basal half dark orange-brown, distal half black with an extension round the hind angle in the distal portion of 1a and 1b; just here and more internal, the orange is dusted with whitish scales; cell with faint transverse bars toward apex. There is a prominent series of post-discal white spots, small in areas 4-6 and larger in 3 and somewhat arrow-shaped in 2. Three sub-apical white dots set in a curve are present in 5-7, while the apex is also white. Hind-wing mostly

orange-brown, more smoky along the costa and margin; edge of area 7 white; close to the marginal border are ill-defined dark lunulate marks and internal to this series is a further sub-marginal row of angled marks apices directed inward.

Underside: Basal area dull orange paling distally in 1a and 1b; cell crossed by three bars with pinkish-white between; distal portion of wing chocolate brown with the post-discal row of white spots clearly defined, and the sub-apical series also present, but in addition there is a sub-marginal series of whitish pink marks; apex white. Hind-wing as in the male but not so boldly marked.

EARLY STAGES: Unknown.

DISTRIBUTION: Western Uganda, Bwamba Valley; primary forest, 3,000 feet. July, 1921.

EURYPHENE.

GENERAL NOTES ON THE GROUP.

[The great majority of species of this genus are forest insects, but unlike others of this group they are often seen in the openings and clearings. The males are more in evidence than the females for they like to sit in strong sunlight or to chase each other rapidly along paths. I have many times seen males of *Eu. absolon* fighting for a favoured position, beating each other with their wings so that the sound is audible some distance away. Both sexes are attracted to fallen fermenting fruits, and those of a fig tree will collect the Euryphene population for many yards around. Like the *Diestogyna*, they feed with closed wings and because of the procryptic colouration, one can almost tread on them before noticing the presence of a fig or other fruiting tree.—T.H.E.J.]

EURYPHENE ABSOLON ENTEBBIAE, Lathy.

Pl. 10a, figs. 1 and 2. Pl. 11, figs. 1 and 2.

Expanse: Male, 55-56 mm.; female, 60-64 mm. Sexes unlike.

MALE: Upperside: General ground-colour orange-tawny with dark bars. Fore-wing: Orange tawny, slightly paler than hind-wing. Cell with dark wavy lines, the two basal irregularly crescentic, followed by a "B" or 8 shaped mark about the centre, then by a wavy bar, and at the apex of the cell a large oval mark with pale centre. Below the cell is a long dark line at the base of 1b. An almost straight broad bar passes from the hind margin sub-basal in 1a and 1b then through the base of 2 and 3, at right angles to the apical bar of the cell and joins a broad bar beyond the cell. Two other bars composed of contiguous rounded dark spots cross the wing from hind-margin

to costa; the margin of the wing is broadly dark black-brown while the fringe is ochreous. Costa tinged olive.

Hind-wing: Ground colour tawny-orange. Cell with two dark rings centrally and a dark bar apically, this last in contact with a bar which passes through the sub-base of 1c, the base of 2 and 4, and sub-base of 5 and 6; costa dusky; two more or less parallel rows of diffuse, round, large spots cross the wing, the inner one more diffuse and broader than the outer, neither reaching the inner fold. Beyond these is a wavy sub-marginal line from the anal angle to the upper angle; the margin of the wing is dusky, but the fringe is ochreous.

Underside: F.-w.: Ground-colour greyish-ochreous. The dark markings of above are faintly represented by more brownish diffuse bars, the brown colour being most marked as a line from the mid-point of the hind-margin to just below the apex. The sub-marginal row of spots of the upper side is represented by small black dots. Margin of wing brownish. H.-w.: Ground colour as fore-wing, basal area more brownish with an irregular outer margin; cell with two, sometimes three dark rings. A diffuse brownish bar crosses the wing from mid-costa to the anal angle. The outer row of spots above here represented as black dots and the sub-marginal wavy line as a narrow dark line with dots at the angles on each vein. Outer border of wing tinged brownish.

FEMALE: Ground colour olive-ochreous to cream with dark bars. F.-w.: Costa olive; markings as in the male but more brownish-olive, the outer margins of the dark spots being accentuated by creamy irregular bars. H.-w. with a large triangular yellowish to creamy patch base toward upper angle and apex toward inner fold; base of wing olive-greyish with dark spots as in the male. Costa dusky olive-grey, this colour being carried round the marginal border. Internal to this is a wavy submarginal line accentuated internally by a pale ochreous zone. The double row of diffuse dark spots present in the male is here cut short, the inner row being limited to three large and one very small spot proximally in an almost straight line; the outer row ending submarginally in 5.

Underside: Ground colour ochreous grey. F.-w. marks not very clearly defined except those in the cell; the post-discal row of spots here represented as dots. H.-w.: Ground colour as fore-wing, the ochreous triangular patch of above only diffusely indicated but set off by a brownish irregular bar sub-basal in 5 and 6. Cell with three black-brown rings set in a triangle. There is a post-discal row of small dark dots and the sub-marginal wavy line is faintly indicated.

EARLY STAGES: Unknown.

DISTRIBUTION: A common species throughout the forests of Uganda keeping to the undergrowth, and most conspicuous in the clearings and along pathways especially where fallen fruits are to be found. The flight is gliding and the insects keep low to the ground.

[There is much Mullerian mimicry in this group of *Euryphe* centred round *Eu. absolon* as the dominant member. Four other species all less common are closely similar: *laetoides*, *brunhilda*, *oxione squalida*, and *tentyris*.—T.H.E.J.]

EURYPHENE TENTYRIS, Hew. (the nominotypical Western subspecies).

MALE: Upperside ground-colour blackish-brown, the markings ochraceous-brown. Fore-wing with anterior area shot with dark purplish-blue, extending usually to vein 2, the markings in this area dull green. This bluish area is absent from Uganda specimens; in these all the markings are ochraceous-brown, and there is a slight purple sheen over both wings in some specimens. A submarginal contiguous series of six round spots, defined by an ochraceous ring, and decreasing in size anteriorly; a post-discal, slightly irregular line, its anterior part, above vein 4, placed more distad, and posteriorly, this line is directed basad; outside end of cell a bar of variable width, representing the anterior part of a discal band that reaches the cell at origin of vein 3.

Hind-wing markings dull ochraceous, the wing sometimes with very slight purple sheen. A discal narrow band; a post-discal broader band; a submarginal broad band, narrowing anteriorly to vein 7, and bearing five small black spots, the outer edge sharply defined by black, and crenulate. Underside purplish-brown to grey-brown, the markings darker. Fore-wing with post-discal thin wavy line from area 1c to vein 4, and continued anteriorly by a line, more distad, from vein 4 to 8, which has a short projection distad, in areas 4 and 5, and on the distal side is bordered by a somewhat pale bar of greyish-white, more or less distinct; a submarginal row of black dots, each touched with greyish-white on its inner edge; an antemarginal row of blackish dots.

Hind wing with a subcostal, white, somewhat quadrate spot, placed in area 7 a little distad of origin of vein 7; this spot is very prominent, and has a single tooth on its inner edge; thin post-discal line, from inner margin to vein 4, somewhat sagittate; anterior continuation of this line faint, but excurved, and marked by two small pale dark-edged spots in areas 4 and 5; submarginal dark dots as on fore-wing; antemarginal line strongly crenulate.

FEMALE: Very similar to *carshena*, Hew. ♀ on both sides, but hind wing below without a prominent blackish-brown post-discal patch as in *carshena*.

Upperside markings buff-yellow. Fore-wing markings as in male, but a posterior band from vein 2 to inner margin, directed basad on margin, where it ends in a point; the inner edge of this band is formed by the post-discal line, whilst its outer edge is the inner edging of the submarginal black spots. This posterior band is narrower than in *carshena*, and the posterior tornal spot of dark ground-colour is larger than in the allied species.

Hind-wing with discal broad, buff-yellow band that expands towards the apex where it touches the dark submarginal line, which it never does in *carshena*; a post-discal series of six or seven rounded spots, their inner and outer edges defined by buff-yellow; a submarginal, blackish, somewhat crenulate line, placed well away from the margin.

Underside ground-colour much paler than in male, but markings similar and well-defined.

This ssp. distributed from Gold Coast and Togoland to Cameroons, Gaboon, Angola, and Congo.

I am indebted to Mr. Talbot for the above descriptions. The form found in Western Uganda has much less purply sheen on the discs of the wings. Such specimens occur in the Semliki and Bwamba Valley, whereas material from Entebbe and the Budongo taken in June agree with Cameroon specimens in regard to the strong purply sheen. There appears to be no difference between the females from the various areas of its distribution.

DISTRIBUTION: Western Uganda, east to Entebbe. The specimen figured was taken by T. H. E. Jackson at Kamengo.

EURYPHENE TENTYRIS, Hew. Pl. 10, fig. 1.

A single male specimen obtained by T. H. E. Jackson at Kamengo. Other specimens from Uganda in the B.M. The following description is based on Jackson's specimen.

MALE: General colour orange-ochraceous with dull grey-brown markings. Fore-wing ground-colour dull orange-ochraceous; cell with a longitudinal basal mark, followed by a double mark at about mid-point, outlined in black; a narrow transverse wavy line beyond; apex of cell with irregular dark mark set transversely; beyond this a further more diffuse dark mark crossing the sub-base of 4-6; base of 1a and 1b with a dark mark; followed by a sub-basal bar crossing 1b and 2; a post-discal row of somewhat rounder dark marks extends from mid 1a up toward the apex curving slightly in 6 toward the costa; a further sub-

marginal row of decreasing size from 1a extends up to the sub-apex; an ad-marginal wavy line extends from the hind-angle and proximally defines the dark border to the wing.

Hind-wing: Ground-colour as fore but with a slight purply reflection, duller, more greyish along the costa and inner fold. Cell with a sub-basal dark mark outlined in black, and 8-shaped; a band of irregular marks through sub-bases of 6-5 then through the cell, basal in 2, followed by a discal band from upper angle to mid-inner fold, and this, by a post-discal series of more or less triangular marks decreasing in size toward the upper angle; submarginal wavy line commencing at anal angle gradually approximates to and then runs parallel to the margin from 4 to the upper angle.

Underside: Fore- and hind-wing ground-colour pinkish-brown, more ochraceous along hind edge of fore-wing. Cell with marks of above represented by black lines; the other series of dark marks here hardly visible as ill-defined faint bands; the submarginal series represented as black dots, internal to each is a creamy streak. Hind-wing with a conspicuous white mark in 7; the other marks very faint and more or less represented by dark lines; the post-discal, as black dots with ochreous streaks proximally, the submarginal, as faint lunulate marks.

EARLY STAGES: Unknown.

DISTRIBUTION: The species has been taken in the Semliki Valley, Bwamba forest, and at Entebbe and the Budongo Forest. The nominotypical specimens have a strong bluish-purple sheen over the anterior wings and a more purplish sheen on the hind wings. The Entebbe specimens have a purplish sheen on both wings, but some, as in the specimen described, lack almost all trace of the sheen. There is, however, evidence that the eastern examples tend to have less purply sheen than western ones.

No females are available from Uganda.

EURYPHENE CARSHENA, Hew. Pl. 10a, figs. 3-5.
Pl. 11, figs. 3-4.

Expanse: Male, 50 mm.; female, 60-63 mm. Sexes unlike.

MALE: General colour dull satin blue-green with obscure dark marks. F.-w. satin blue-green, inclining to yellow-green along the costa, but the marginal border dull black. Cell marks hardly visible, but there is one blackish spot at the apex of the cell, between veins 5 and 6. There is an indistinct dark bar beyond the cell, and an obscure mark, sub-apical in 6. The sub-marginal row of dark spots each surrounded by an extension of the green ground colour presents a scalloped and distinctive band.

H.-w.: Ground colour brownish along the front margin and on inner fold; rest of wing with bluish-green as fore-wing. There is a large dark spot, sub-basal in 4 and 5; a post-discal row of spots most distinct in 4 and 5 and represented as lines in 2 and 3, and fading out in 6. There is also a submarginal wavy line, more distinct at the upper angle but more obscure as it approaches the hind-angle. Some of the spots of the underside show through, for the wing has a semi-translucent appearance.

Underside: F.-w. dull ochreous, cell with distinct black-lined irregular marks; a less distinct black-lined mark crosses the discal area and beyond this is a rusty, obscure bar which reaches to the apex of the wing. There is then a series of very small black submarginal dots followed by an indistinct wavy line.

H.-w. ground colour as fore-wing; cell with two black dots and a black ring; the discal area has a dentate black line continuous with a distinct greyish patch outlined in black, sub-basal in 5 and 6. A rusty indistinct bar crosses the post-discal area from the mid-point of the costa to the anal angle. The post-discal row of black spots are small, mere dots, and the submarginal wavy line is black and fine.

FEMALE: Ground colour olive-brown with yellow-ochre bars and lines. This sex bears a superficial resemblance to the female of *Eu. absolon entebbiae*, but it lacks the dark spots of the mid-row in areas 1a and 1b, and the dark areas are not clearly demarcated by the yellow. In the hind-wing the yellow patch is not triangular but is in the form of a bar, whilst the two post-discal dark bands are complete to as far as the inner fold and are distally edged with yellowish ochre. The details of the markings are best seen in the figure.

Underside: Ground colour grey-ochre with a diffuse rusty bar which crosses both wings from the apex of the fore-wing, through the disc of the hind-wing to just above the anal angle. The other marks are as in the male but more diffuse with the exception of the large brownish spot in 5 and 6 (vide plate).

EARLY STAGES: Unknown.

DISTRIBUTION: This is a common species in the forest areas of Uganda being met with in the open glades and forest paths. They fly low with a gliding motion, and like others of the group, are addicted to rotting or fermenting fruits.

[This species prefers the denser parts of the forest where both sexes enter into a mimetic association with the various species of *Diastogyna*.—T.H.E.J.]

EURYPHENE OXIONE SQUALIDA, Talbot. Pl. 10b, figs. 1-4.

The following description has been supplied by Mr. Talbot.

MALE: Upperside with all brown markings dusky; both wings with a purple sheen in a side-light. Underside much darker than in the nominotypical sub-species.

Fore-wing with a discal, a post-discal, and two submarginal lines of dull ochraceous-brown, slightly curved spots, separated by the veins; ground-colour blackish-brown. Hind-wing with four lines similar to those of fore-wing, but straighter and more continuous, and placed at about equal distances apart.

Underside pale reddish-brown. A prominent blackish-brown stripe, extending obliquely from apex of fore-wing to inner margin of hind-wing, and is more heavily marked on hind-wing. Fore-wing with the usual cell marks of the genus; a post-discal, thin brown line, rather irregular, and oblique; a sub-marginal row of six black dots, and a submarginal crenulate line.

Hind-wing with the inner posterior area somewhat ochraceous; cell with three round small rings, the basal one usually a dark dot; two short brown waved post-discal lines, from costa before apex to vein 3; a submarginal row of black dots, and a waved submarginal line.

FEMALE: Upperside similar to other females of this group. Ground-colour deep umber-brown with pale yellowish markings. Fore-wing with four lines as in the male, ochraceous-yellow, more or less dusted with brown. Hind-wing with prominent discal pale yellow band, anteriorly broad, and narrowing strongly to inner margin, its inner edge sharply defined and slightly crenulate; a pale sub-basal bar crossing the cell; a pale post-discal heavy line from vein 4-1b and a similarly coloured sub-marginal heavy line, formed of lunulate marks, edged outwardly with black.

Underside markings as in the male. Ground-colour very pale buff. Fore-wing more or less dusted or shaded with pinkish-brown.

EARLY STAGES: Unknown.

DISTRIBUTION: This species occurs, in my experience, only in the small forest patches around Kampala and is here extremely rare. It is an exact mimic of *Eu. absolom entebbiae*, and can only be distinguished from below.

EURYPHENE BRUNHILDA, Kirby. ? subsp. Pl. 12, figs. 1 & 2.
Pl. 13, figs. 1 & 2.

Expanse: Male, 48 mm.; female, 58 mm. Sexes unlike.

MALE: General colour rich tawny-orange with black spots.
F.-w.: Ground-colour rich tawny-orange; markings very much

as in *Eu. laetitoides*, but more defined, the discal dark marks are angled in areas 2-5; the second row of post-discal spots more circular and clear-cut; the admarginal dark border more distinct. H.-w. rich tawny orange, the discal bar stops at 3; the post-discal inner row of spots, distinct in 7-4 become indistinct in 2 and 3, and the same applies to the outer row. The sub-marginal wavy line is less distinct.

Underside: Ground-colour greyish-tawny with the markings indistinct except for a narrow brownish line which crosses the wing from about the mid-point on the hind margin to near the apex. The distal portion of the wing is shaded with brownish while the second row of post-discal spots only faintly indicated are represented in the apex as white streaks with black centres.

H.-w.: Ground-colour as fore-wing; all marks very faintly indicated, but there is a whitish or greyish bar at about mid-point in 7 and below this a dark brownish spot with diffuse edges; the second row of post-discal spots is only slightly indicated.

FEMALE: General colour bright orange tawny with black tip to f.-w. and with a white sub-apical bar.

F.-w.: Basal half bright orange tawny, distal half brown-black. The cell marks similar to those of the male; the discal row of spots as well as the first post-discal are represented in 1a-2, but the second row or submarginal are clear and outlined with white faintly tinged with violet, in 1b-4, but only represented by white dots toward the apex. A well-marked sub-apical white bar of irregular shape extends to sub-basal in 3.

H.-w.: Ground colour tawny-orange; markings as in the male but faintly indicated, the most marked being the sub-marginal wavy line; border of wing dusted with greyish.

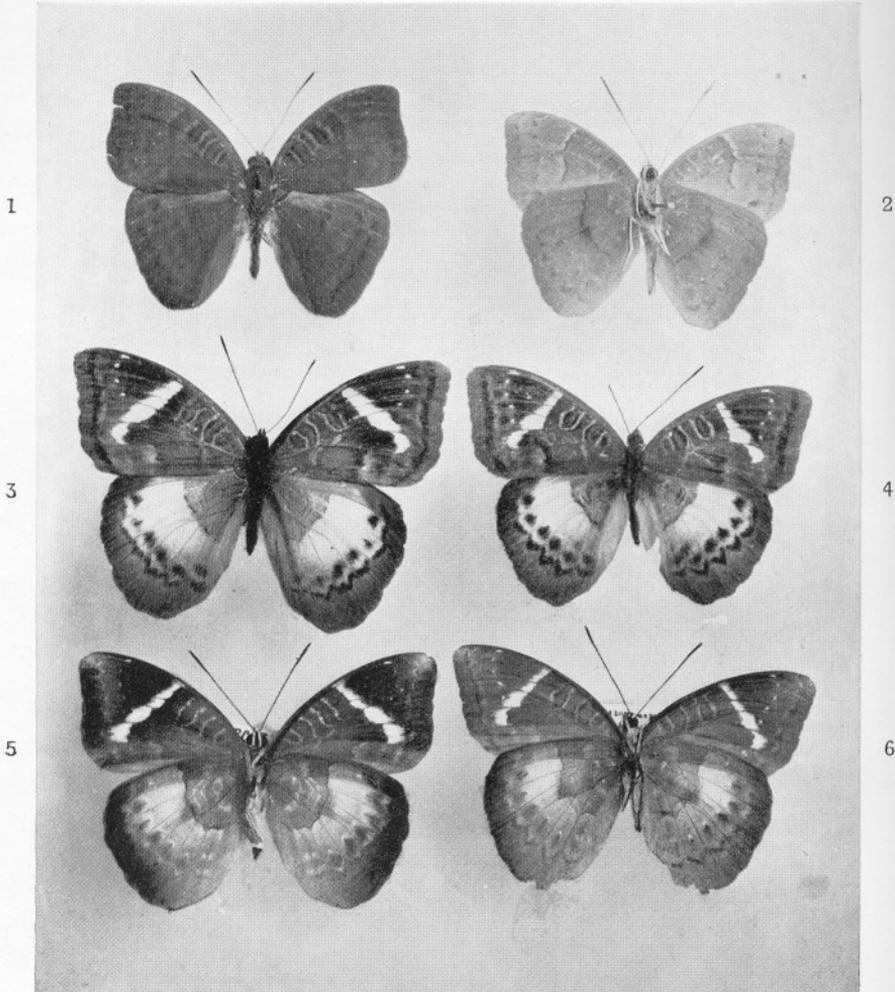
Underside: Ground colour greyish-ochreous with a strong pinkish suffusion especially toward the base of the fore-wing and over the greater part of the hind-wing. F.-w. dark marks only faintly indicated but white marks clear, especially the sub-apical bar which has an extension of whitish to pinkish spots running through areas 1b and 2. The apical portion of the wing is suffused with brownish.

H.-w.: All dark marks only faintly indicated, but the sub-costal white mark at about mid 7 is marked and below this are two brownish marks with white centres, sub-basal in 5 and 6.

EARLY STAGES: Unknown.

DISTRIBUTION: Has been taken by T. H. E. Jackson in the Budongo forest in western Uganda and also occurs in the eastern Congo region. It is possible that the Uganda insect represents a race of the typical one of Cameroons. Uganda

PLATE 9



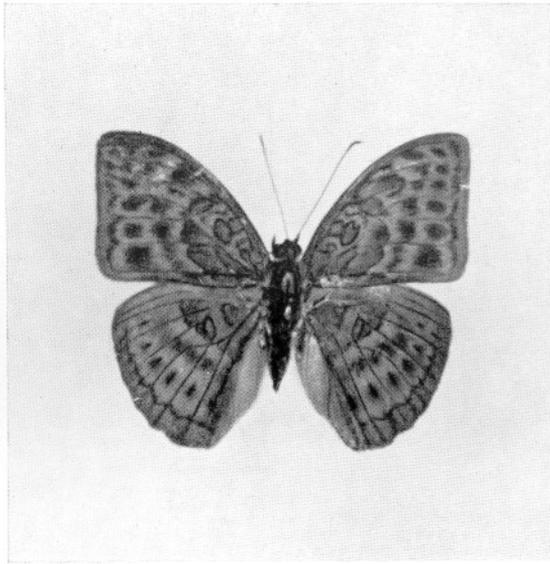
Diestogyna saphirina, Karsch.

Figs. 1 & 2, male, upper and under surface.

Figs. 3 & 4, female, upper surface.

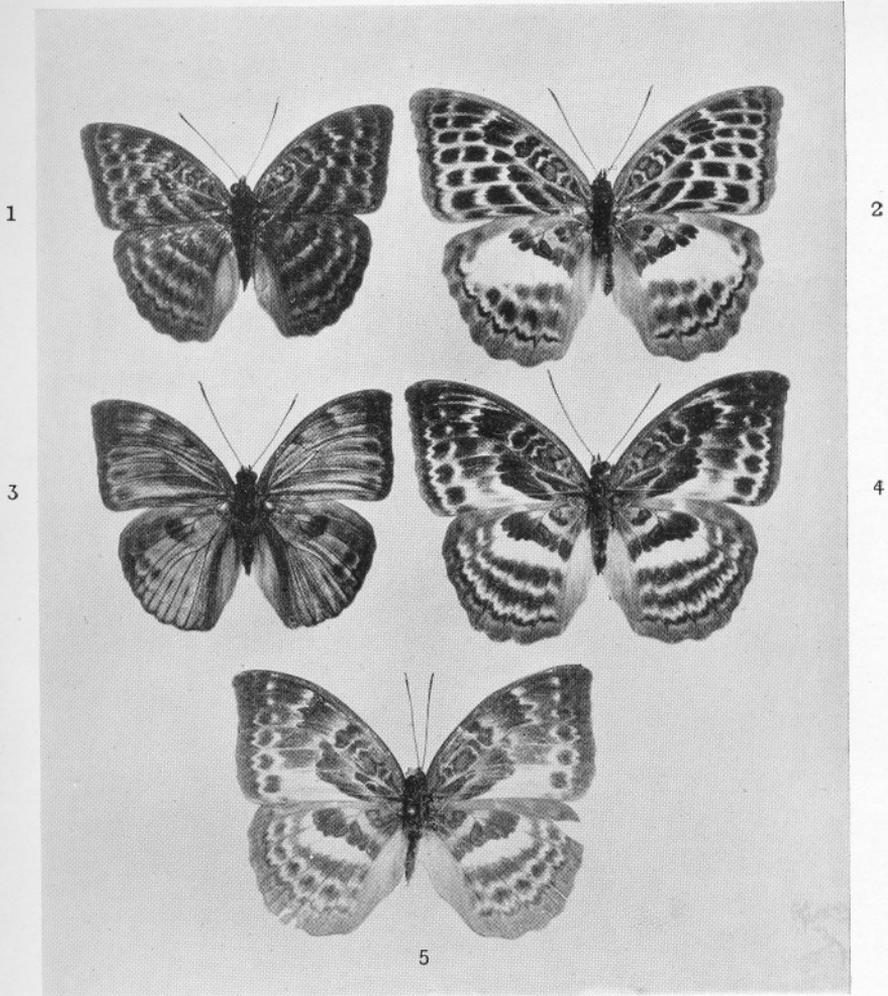
Figs. 5 & 6, female, under surface.

PLATE 10.



Euryphene tentyris, Hew.
Male (Uganda).

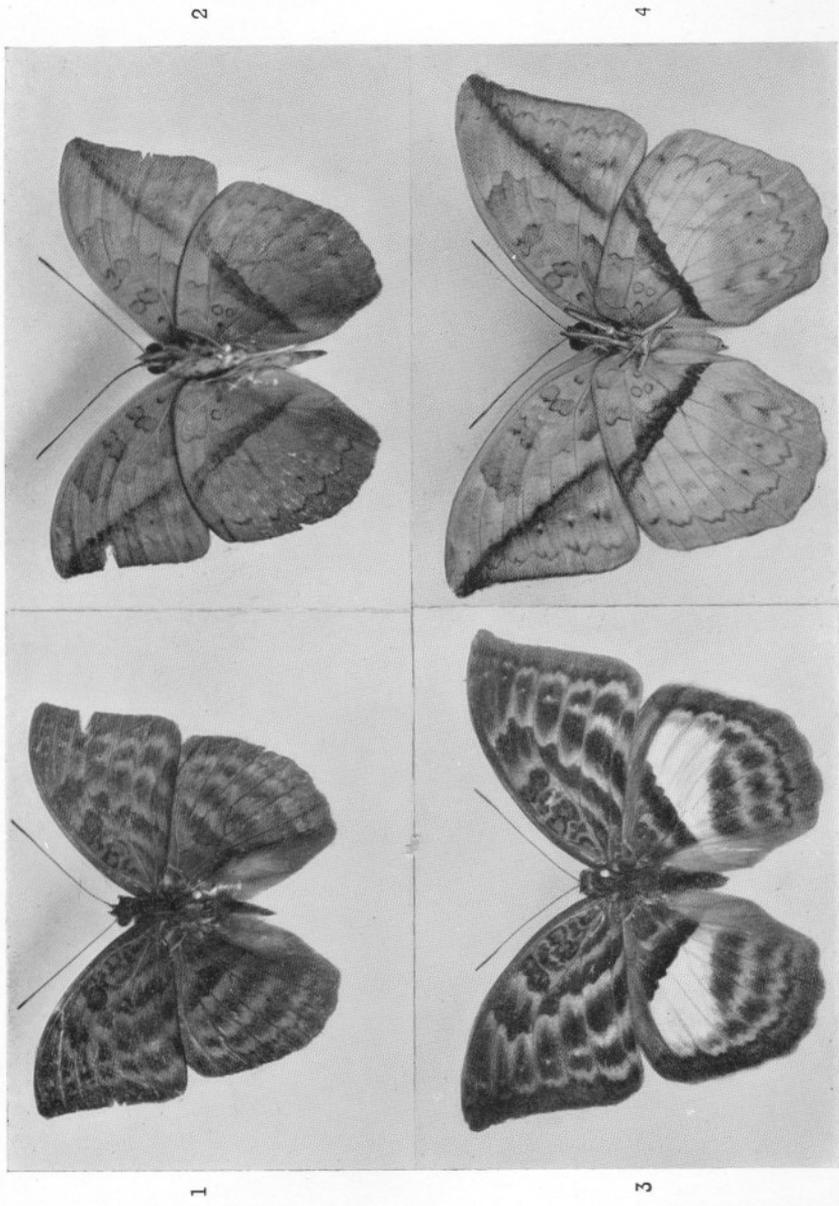
PLATE 10A



Euryphene absolon entebbiae, Lathy.
Figs. 1 & 2, male and female, upper surfaces.

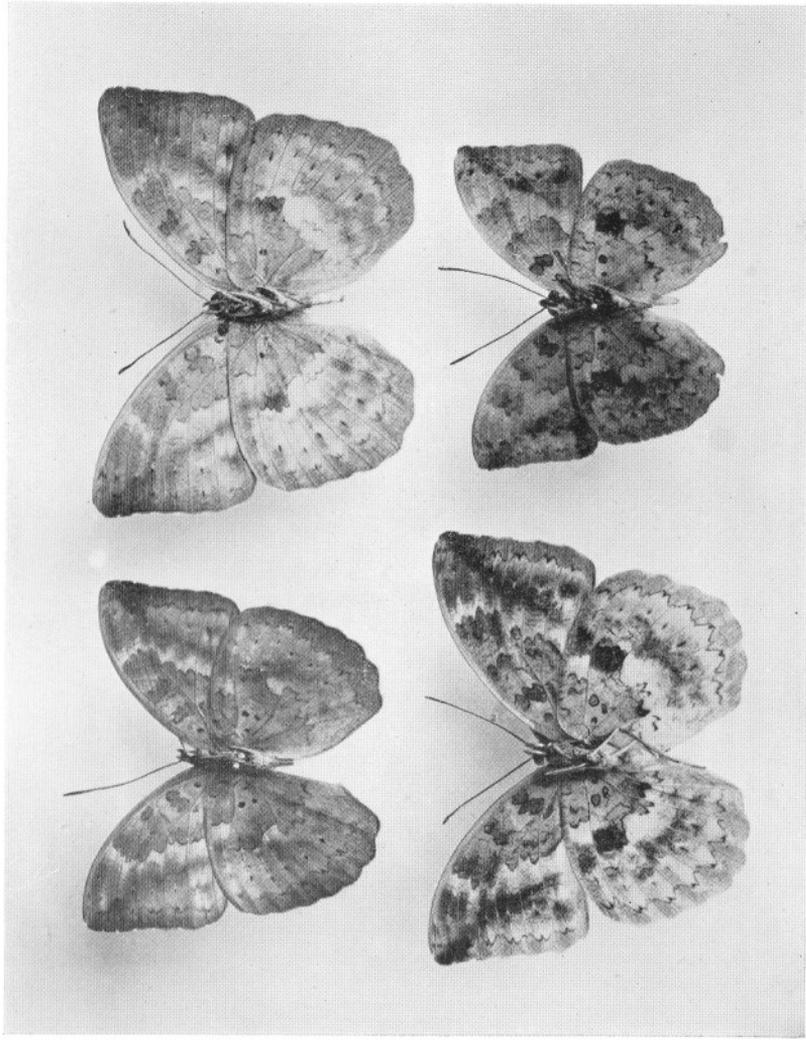
Euryphene carshena, Hewit.
Fig. 3, male, upper surface.
Figs. 4 & 5, female, upper surface.

PLATE 10B



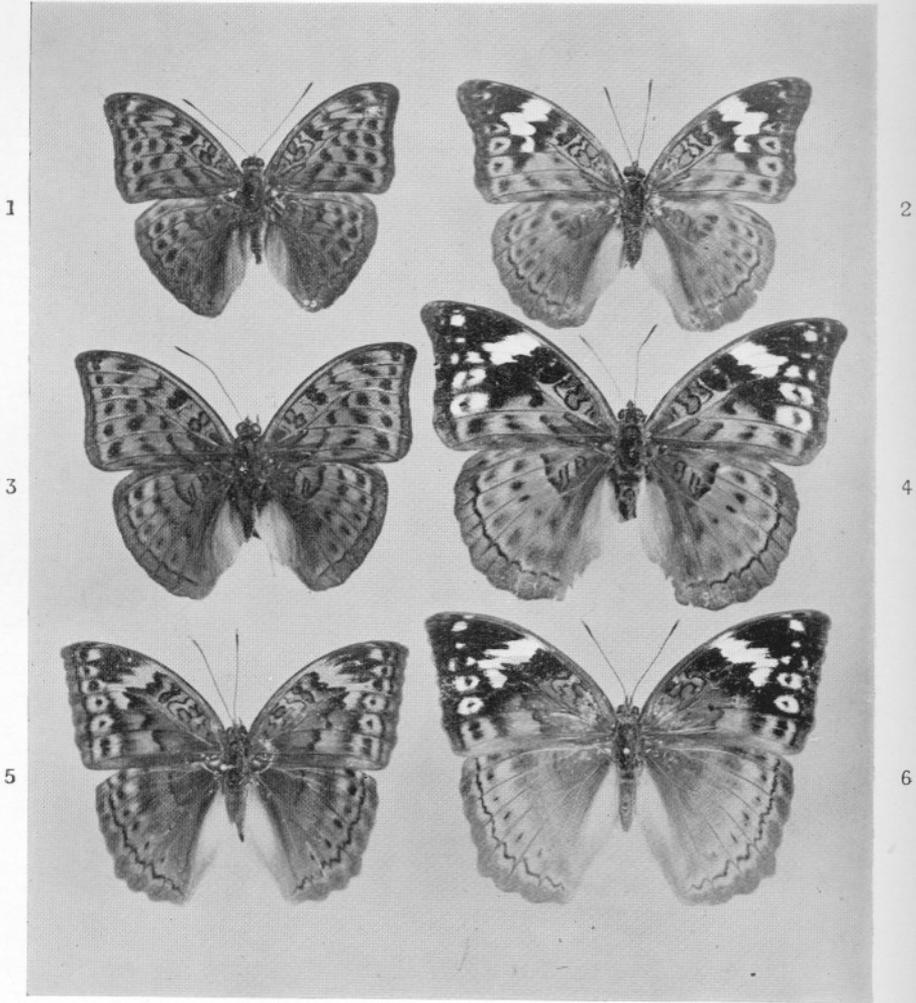
Euryphene orixone squalida, Talbot.
Figs. 1 & 2, male, upper and under surfaces.
Figs. 3 & 4, female, upper and under surfaces.

PLATE 11



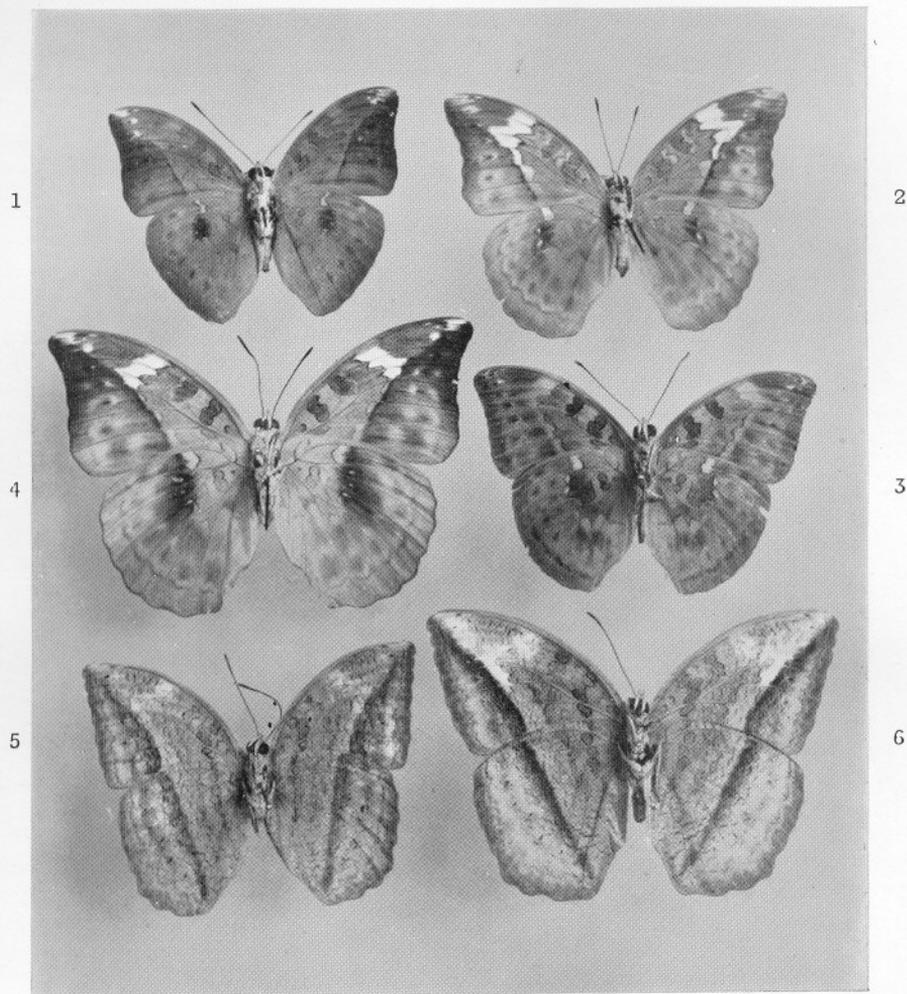
Euryphebe absolon entebbiae, Lathy. Figs. 1 & 2, male and female undersurfaces.
Euryphebe carshena, Hewit. Figs. 3 & 4, female and male under surfaces.

PLATE 12



Euryphene brunhilda, Kirby. Figs. 1 & 2, male and female.
Euryphene chriemhilda, Stgr. Figs. 3 and 4, male and female.
Euryphene senegalensis orientis, Karsch.
Figs. 5 & 6, male and female, upper surfaces.

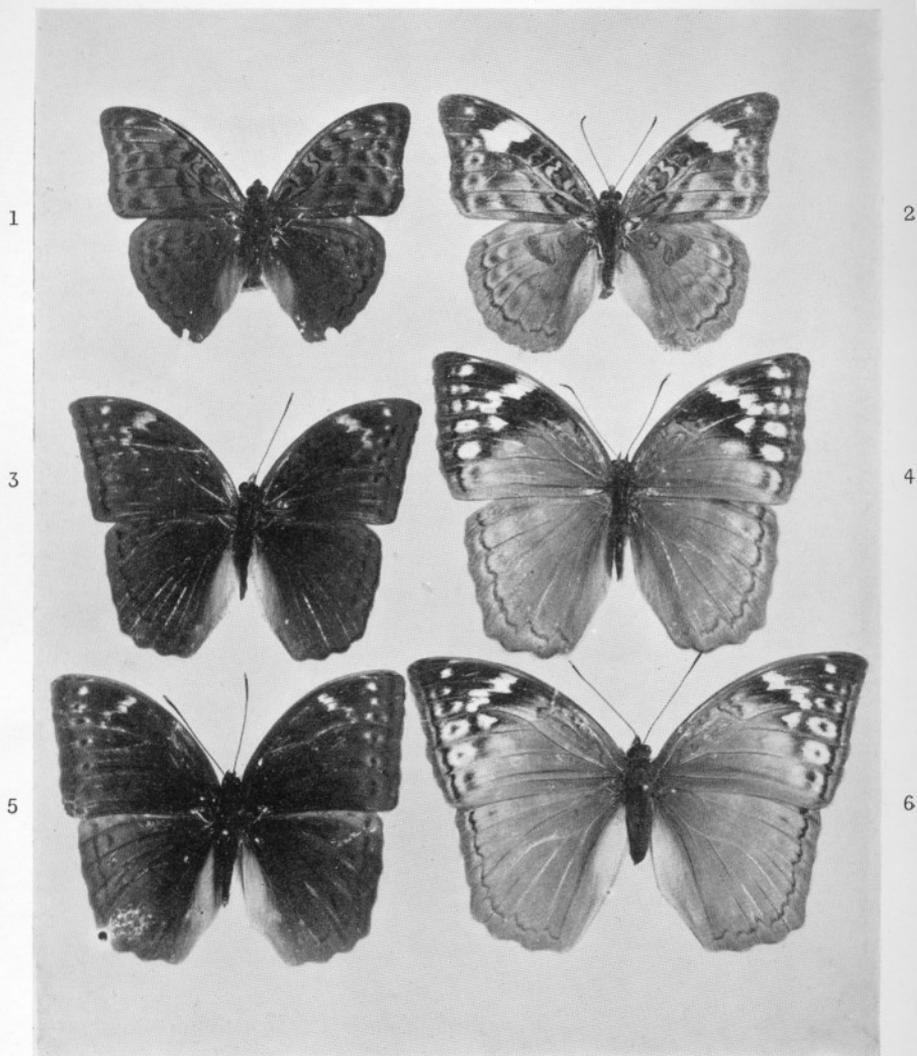
PLATE 13



Euryphene brunhilda, Kirby. Figs. 1 & 2, male & female, under surfaces.
Euryphene chriemhilda, Stgr. Figs. 3 & 4, male & female, under surfaces.

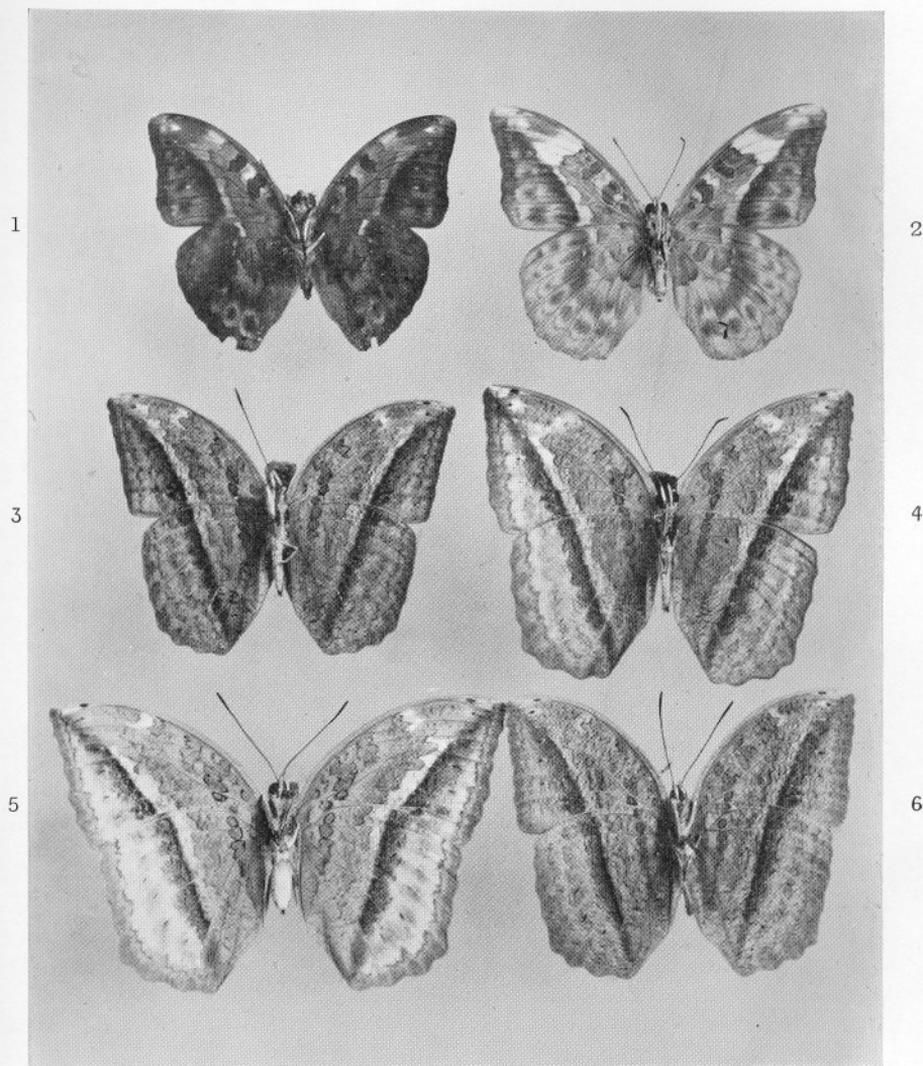
Euryphene senegalensis orientis, Karsch.
Figs. 5 & 6, male and female, under surfaces.

PLATE 14



Euryphene laetitoides, J. & T. Figs. 1 & 2, male and female.
Euryphene mardania katera, van S. Figs. 3 & 4, male and female.
Euryphene mardania badiata, Rebel. Figs. 5 & 6, male and female.
(Upper surfaces.)

PLATE 15



Euryphene laetitoides, J. & T. Figs. 1 & 2, ♂ & ♀, under surfaces.
Euryphene mardania katera, van S. Figs. 3 & 4, ♂ & ♀, under surfaces.
Euryphene mardania badiata, Rebel. Figs. 5 & 6, ♀ & ♂, under surfaces.

specimens are larger than those from the eastern Congo, and are not to be confused with *Eu. iturina*.

The type of *brunhilda* is a female. Uganda specimens differ in having a larger white sub-apical bar in the fore-wing. The discal hind-wing line is more prominent especially anteriorly. On the under-surface the post-discal oblique dark line of the fore-wing is sharply defined not obscure as in the typical form. The hind-wing undersides of both sexes have distinct discal patches.

[I consider this species to be a Mullerian mimic of *Eu. a. entebbiae* in both sexes. It is less common, and on the whole, a weaker flier than *Eu. laetitoides*. Both are to be found wherever figs or other fruits are fermenting on the forest floor.—T.H.E.J.]

EURYPHENE CHRIEMHILDA, Stgr. Pl. 12, figs. 3 & 4.

Pl. 13, figs. 3 & 4.

Expanse: Male, 55 mm.; female, 70 mm. Sexes unlike.

MALE: General colour bright tawny-orange with black spots. F.-w.: Ground colour bright tawny-orange; cell with a basal triangular mark, followed by a narrow transverse line; a central double circle black mark and beyond a faint black line, and at the apex of the cell a broad black bar filling the bases of 4-6; a dusky area at the base of 1b distally margined with black; a discal line of angled spots extends through 1a to 4 then at right angles to the sub-costa in 6; a post-discal row of larger dark spots follows more or less parallel to the discal row and beyond this is a second row of rounded spots which follows the outer margin of the wing. There is an admarginal line following the contour of the wing, and the wing fringe is black.

H.-w.: Ground colour bright tawny-orange, dusky along the costa. Cell with two narrow lined marks; a discal row of black lines is present in 6-4 and only faintly indicated in 3. A post-discal inner row of ill-defined spots is present in 6-2, most clear in 4 and 5, followed by an outer row of spots, largest in 6. The submarginal wavy black line is well defined and narrow.

Underside: Ground colour variable, either strongly bluish violet-grey or tawny with a pinkish-rusty bloom with violet tinge. Spots in cell marked and brownish in colour; a brownish gradually narrowing bar runs between the basal and outer halves of the wing; there is a sub-marginal row of diffuse greyish spots slightly more defined toward the apex where they are outlined with white.

H.-w.: Ground colour as fore-wing with an increase of the violet-rusty tinge toward the centre of the wing. Cell spots clearly defined but submarginal row diffuse though outlined

with the paler ground. The sub-costal mid-spot in 7 is ochreous and this is followed by smaller spots of the same colour sub-basal in 6-4.

FEMALE: General colour bright orange-tawny with black tip to fore-wing and with white sub-apical bar. F.-w.: Basal half bright tawny-orange distal half black; cell marks as in the male, but the bar at the apex submerged in the apical black. Sub-apical white bar present in 4-6; the outer post-discal row of spots outlined in whitish with violet tinge in 2-3, the white being carried toward the apex as dots on either side of the black marks, these dark marks being hidden in the dark surface.

H.-w.: Ground colour tawny-orange, black marks as in the male, but those of the post-discal rows fading out toward the inner margin, and with the submarginal wavy line distinct. The marginal border is slightly dusted over with greyish scales while the costa is dusky.

Underside: F.-w. basal area ochreous, the distal half with an ochreous ground with greyish to brownish shading, the two halves being separated by a narrowing brown line. Cell marks grey-brown, sub-apical bar ending in 4 but apex with a white streak and sub-apical spot. The post-discal outer row of spots ill-defined.

H.-w. ochreous, grey-tinged with a brownish central area sub-basal in 4-6, carrying white spots; sub-costal spot ochreous. Other markings diffuse and only slightly indicated.

EARLY STAGES: The eggs of this species are laid on the leaves of young plants of the doum palm. They also occur on the Borasus palm. They are greenish white with small facets and short spines arising from the angles of the facets. The larvae, at first greyish olive, turn green after the first moult and assume the feathered lateral projections characteristic of the group. At the third and last larval instars the green is finely irrorated with bluish grey. The larva can be reared on the cocoanut palm. The pupa is hardly to be distinguished from that of *E. senegalensis orientis*; the head is less bifid and the dorsal spines shorter. The colour is green with gold at the bases of the spines; the whole surface is glossy.

DISTRIBUTION: The thickets and forests along the Kenya coast, where they keep to the more shaded parts, flying low to the ground. They are easily attracted to fermenting bananas and other fruits.

***EURYPHENE SENEGALENSIS ORIENTIS*, Karsch.**

Pl. 12, figs. 5 and 6. Pl. 13, figs. 5 and 6.

Expanse: Male, 50-56 mm.; female 65-70 mm. Sexes unlike.

MALE: Reddish orange with dark marks and orange spots. F.-w.: Bright orange-tawny with a reddish bloom; cell with

two wavy cross lines toward the base, then three contiguous cross circles, followed by an S line, and at the end of the cell an irregular bar with dark outline. The S line is orange on its proximal side. A discal zigzag line passes from 1b to 3 then turns at right angles up toward the costa but does not touch it. Distal to this line is a more orange diffuse bar becoming more clear-cut toward the sub-apex where it forms a sub-apical bar. The post-discal row of dark spots extend from 1b up toward the apex, and are surrounded by orange, and on the distal edge there is a dark wavy line. The marginal border is slightly darker than the rest of the ground.

H.-w.: Orange-tawny, paler at the inner fold of the wing. There are no marks in the cell, but the discal line is dark and visible through 4-6. The post-discal row of spots which follows the contour of the wing is ringed with orange mostly proximally and beyond this is a wavy dentate line running from the anal angle to the upper angle. The marginal border is slightly dusted over with darker scales.

Underside: Greyish-ochreous on fore and hind-wings. The orange bars of above show through slightly, and internal to the row of small post-discal dark spots there is a freckled brownish bar. The disc of the wing has very fine freckling over the basal half.

H.-w.: This has the same fine freckling in two rows toward the base and across the wing there is a darker bar of brownish fine vermiculations. The post-discal row of spots are small and the submarginal wavy line is faintly marked.

FEMALE: General colour orange-tawny with black apical half and a white sub-apical bar. F.-w. basal area rich tawny-orange, distal half blackish-brown. Cell marks as in the male. The sub-apical white bar extends from the costa to sub-basal in 3, the smallest spot being in 4, thus giving the bar an angled appearance. There is a short discal line with paler orange distally followed by a darker diffuse spot in 1b. The post-discal row of dark spots, double in 1b, here surrounded with orange, is from 2, surrounded with white with a slight violet tinge, the dark marks are then lost in the blackish ground but the white is retained as three spots. The fringe is for the most part dusky but is white in 5, 6, 7.

H.-w.: Basally rich tawny orange, shading to orange over the post-discal area while the marginal border is shaded with brownish scales. There are no marked discal bands, these being indicated by a slightly darker freckling. The post-discal row of spots extends from 7 to 2 mostly as dark short lines, while the sub-marginal wavy line is strongly dentate and defined.

Underside: Greyish-ochreous with fine brownish vermiculations passing through the discs of the wings and distad to this

there is a brownish line of heavier vermiculations which, taking both wings, extends from the apex to the anal angle. The fore-wing sub-apical bar is indicated by a white area, and the white sub-apical spots of above are faintly indicated below.

EARLY STAGES: The common food plant of this species is the coconut palm. The eggs are laid on the leaves of the younger plants usually single, or occasionally in twos or threes. They are creamy in colour with hexagonal facets from the angles of which short spines arise. The larva hatches in seven to ten days and is at first a brownish-olive, but at the first moult turns a brighter green. During the first two instars they feed on the surface layers of the leaves but later on eat the whole leaf structure. The larva is characteristic of this group, having a series of feathery processes from the lateral aspect of all the segments except the last. The dorsal aspect of the 4th and 8th segments are ornamented with a blue patch with a white centre. Pupation takes place in three weeks to a month under favourable conditions. The pupa is much angled, the abdominal segments form an equilateral triangle from the cremaster to the line of the wing-cases when viewed on the ventral surface, the two lateral angles being prolonged into acute spines with golden bases. On the dorsal surface, the second abdominal segment is carried on into a marked spine broadly golden at the base. The thoracic segments and wings form an elongate cone with the head segment strongly bifid. The thorax is ornamented with three lateral and one dorsal golden spot, the lateral ones being along the edge of the wing cases. The pupal period varies from a month to six weeks, though some may carry over for a longer period.

DISTRIBUTION: The species is very common all along the coast, being most plentiful in the coconut shambas and the more open forest along the margins of which doum and borasus palms exist. They are particularly plentiful where the natives have been cutting the husk from the coconuts, the attraction being the fermenting juice from the husk. Males are more in evidence than females and are more readily attracted to bait, such as fermenting fruits of various kinds.

EURYPHENE LAETITOIDES, Joicey and Talbot.

Pl. 14, figs. 1 and 2. Pl. 15, figs. 1 and 2.

Expanse: Male, 50 mm.; female, 58-59 mm. Sexes unlike.

MALE: Ground colour dark tawny-orange with rows of dark spots. F.-w.: Cell with a basal inverted U followed by a transverse narrow line then by a centrally placed double contiguous spot, and beyond this an S-shaped line; just beyond the cell is a dark transverse bar at base of 4 and 5. A narrow line is

present at base of 1b. A discal line of dark more or less elongate spots crosses the wing and turns up at a right angle at 4 toward the costa. A post-discal row of spots, rather indistinct in 1a and 1b, thereafter more distinct passes up toward the apex then turns inward as two long dark lines in 5 and 6 to the costa. A submarginal row of spots starts in 1b and extends to the apex of the wing. The border of the wing has a dark line indistinctly separated from the dark outer edge.

H.-w.: Costa less brownish, more greyish tinged. Cell with two double lines; discal bar distinct in 5-3 and faintly indicated in 2; post-discal contiguous elongate spots more distinct in 5-3 growing faint in 2; a further row is present, distinct and circular in 6-4, then more elongate and less defined to 2 and 3. There is a submarginal wavy dark line following the contour of the wing from the anal angle to the upper angle.

Underside: F.-w. basal half of the wing greyish with a greenish tinge the distal half more brownish, sharply defined along the post-discal line (proximally) and shading off into the ground distally. The cell marks are distinct and grey-brown. The second post-discal row of spots of above are here represented by small whitish dots, that in the apex arrow-shaped and distinct. There is a paler more greyish bar proximal to the brownish bar which becomes whitish just below the costa.

H.-w.: Basal area greenish-grey, distal half more brownish. A greyish elongate streak crosses area 7 and less defined greyish marks in 6-4. There is a series of post-discal greyish ovoid marks with brownish central streaks from 1c-7. Cell marks finely indicated as above. The inner fold of the wing with a slight violet tinge.

FEMALE: Ground colour dull orange-tawny, with white sub-apical bar and indistinct dark spots and lines.

F.-w.: Basal half dull tawny, distal portion dusted with blackish-brown. Markings as in the male, but all more diffuse and indistinct. There are two white sub-apical spots and a well-marked sub-apical white bar which stops at vein 4. The outer post-discal row of dark spots is made more obvious by pale rings round the spots.

H.-w.: Dull tawny, slightly more greyish along the costa. Markings as in the male but all more indistinct.

Underside: Ground colour pale ochreous-grey with in the forewing a brownish shading to the distal half clearly defined proximally. Much of the lighter areas of above are here scaled with white and show up as whitish bars and rings especially in the post-discal areas of the fore and hind-wings. The sub-apical white bar is present and in addition there is a white area toward the apex.

EARLY STAGES: Unknown.

DISTRIBUTION: This species is an inhabitant of the eastern Congo but extends into Uganda, in its western forested areas, and has been taken by T. H. E. Jackson in the Budongo Forest. The male bears a superficial resemblance to the male of *Eu. absolon* but is more rufous, and also to the male of *Eu. brunhilda*, but the dark spotting is not so distinct nor the ground colour so red.

EURYPHENE MARDANIA KATERA, subsp. nov.

Pl. 14, figs. 3 and 4. Pl. 15, figs. 3 and 4.

EURYPHENE MARDANIA BADIATA, Rebel.

Pl. 14, figs. 5 and 6. Pl. 15, figs. 5 and 6.

This species occurs in two racial forms within the Kenya-Uganda borders.

Specimens from Katera appear to agree with the Eastern Congo race, unnamed in the British Museum, and to which the name *KATERA* may now be applied.

Expanse: Male, 58-60 mm.; female, 63-65 mm. Sexes unlike. Race *KATERA*: MALE, general colouration dark red-brown with dark and orange marks.

F.-w.: Basal two-thirds red-brown with a strong purple bloom. Cell with ill-defined marks; beyond the cell, a dark irregular bar which is carried down sub-basal in 4 and faintly in 3. Beyond this is a sub-apical orange irregular bar. The post-discal spots are here represented by a row of outer spots encircled by orange, the spot in 1b being faint. Beyond this is a submarginal wavy line following the contour of the wing, and the wing fringe is white-spotted in 4-6. Differs from the nominate race in its less broad and less elongate sub-apical orange bar.

H.-w.: Red-brown strongly suffused with purple except along the costa and the inner fold. The discal marks are hardly visible whilst the outer post-discal row is only visible in 5-7; the submarginal wavy line, most evident at the upper angle, fades away toward the hind-angle.

Undersurface: Ochreous grey with a slight greenish tinge, faintly vermiculated. The cell marks are slightly more grey, outlined with brown, while there is a double brownish mark, sub-basal in 1b; this is part of a series which crosses to the hind-wing, passing through the cell. A further dark brownish line consisting of fine vermiculations, more distinct proximally, runs from the apex of the fore-wing to the anal angle of the hind-wing. The post-discal dark spots are here represented as small blackish dots, and the submarginal wavy line is narrow and hardly visible. The surface of the hind-wing is finely vermiculated in more or less parallel series.

Race *BADIATA*, Rebel. In this race, the males are on an average rather larger than *katera*, and are of a generally paler red-brown with far less purply suffusion. The dark marks of the fore-wing are less strong and hardly differentiated from the ground colour. The sub-apical orange irregular fore-wing bar is narrower and less definite, whilst the submarginal wavy lines of fore and hind-wings are ill-defined. The undersurfaces of the two races are very similar, but in the eastern form the markings are less strong and the ground colour is generally paler.

FEMALES: Race *katera*: Ground colour dull reddish-tawny with the apical half of the fore-wing black, this black colour strong and extending from the apex of the cell to almost the hind-angle; all spots within this black area, including the sub-apical bar, white; the admarginal row of black-centred spots white with a violet tinge.

H.-w.: Ground colour dull reddish-tawny slightly greyer along the costa and darker at the base. The only dark markings are a wavy submarginal line following the contour of the wing from the upper angle to the anal angle. The post-discal spots are hardly visible.

The race *katera* differs from the nominate form in its less extensive black to the distal half of the fore-wing and in the absence of the white mark in 1b and submarginal white line in 1a and 1b of the hind angle, and the general different tone to the orange-brown of the disc of the wings; this is duller, less orange.

Type, male: Katera, October, 1935. T. H. E. Jackson.

Paratypes four males.

Type, female: October, 1935. T. H. E. Jackson.

Paratypes three females.

These types will be deposited in the British Museum; paratypes in the Coryndon Museum, Nairobi.

Race *badiata*. In this race the ground colour is less orange, more greyish-tawny; the apical area of the fore-wing is only slightly blackish, and the admarginal row of black-centred spots are ochreous, not white, and not sharply defined. The black of the fore-wing does not reach the apex of the cell. It is altogether paler than *katera*.

Undersurfaces: Greyish-ochreous finely vermiculated, and with the dark lines as in the males already described. The sub-apical white bar is present but more restricted and the sub-marginal spots are faintly indicated.

DISTRIBUTION: This species is widespread throughout the forests of Uganda and extends into the Kakamega-Kabras area. They are to be found in the more open undergrowth and along

the forest paths exposed to sunlight. The flight is gliding and if disturbed, swift. They are readily attracted to decaying fruit.

[This species prefers hot sunny clearings and the outer fringes of the forest. It has been taken feeding at oozing fermenting sap from trees.—T.H.E.J.]

EURYPHENE PHANTASIELLA SIMULATA, sub.sp. nov.

Pl. 16, figs. 1-4.

Expanse: Male, 53 mm.; female, 60-63 mm. Sexes unlike.

MALE: General colour olive brown with a yellowish fore-wing bar. F.-w.: Ground colour olive-brown; cell with one basal and two dark transverse bars; beyond cell a further dark bar from which, at right angles, a series of discal dark spots extend to the hind-edge of the wing. A marked yellowish sub-apical bar extends from 6-4 and is carried out indistinctly toward the margin but does not reach the edge. Two post-discal rows of faintly indicated dark spots cross the wing, while the marginal border is darker brownish.

H.-w. almost unicolourous olive-brown; the usual marks of this group being very obscured.

Underside: Unicolourous olive-grey, with an obscure darker line from apex of fore-wing to anal angle of hind-wing. The fore-wing sub-apical bar is here white and stops short at vein 5, but there is an apical white tip. In the hind-wing there is an S-shaped white sub-costal mark in 7.

FEMALE: Fore-wing ground colour black with a strong iridescent bluish patch in the mid-areas of 1a and 1b, and slightly at the base of 2. Sub-apical bar white, shaded bluish distally. The disc of the hind-wing is strongly iridescent blue surrounded by blackish along the costa and on the marginal border.

Undersurface strongly greenish as in the male, with the dark marks similarly placed though stronger, and in addition two white spots are present sub-basally in 5 and 6. This female bears a strong resemblance above to *Euphaedra inanoides* but is bluer.

Type, male: Katera, Uganda, T. H. E. Jackson, February, 1939. Paratypes, four males, three females, same data.

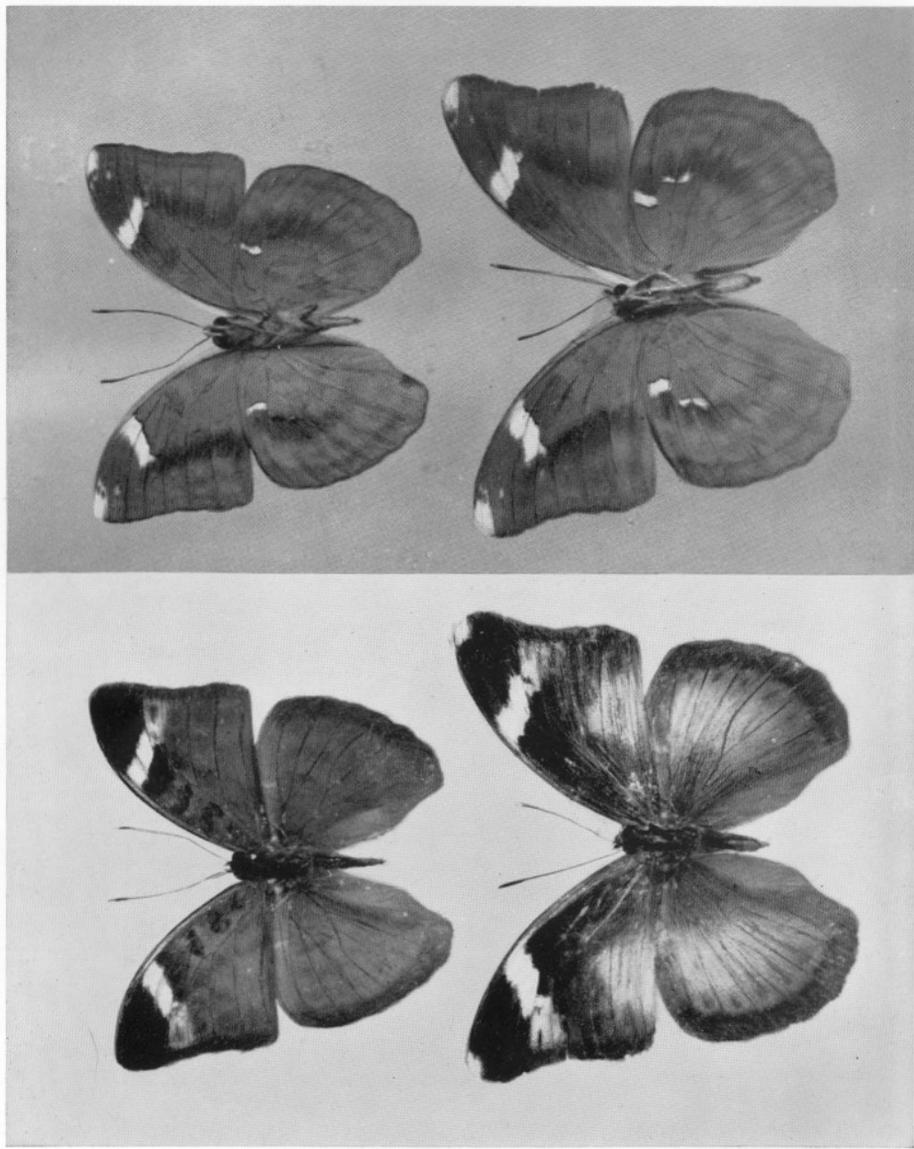
EARLY STAGES: Unknown.

DISTRIBUTION: This eastern race was secured by T. H. E. Jackson in the Katera forest in 1933 and 1939.

The male bears a marked resemblance to *Euphaeda m. fraudata*. Mr. Talbot has supplied the following notes on the specimens described above:

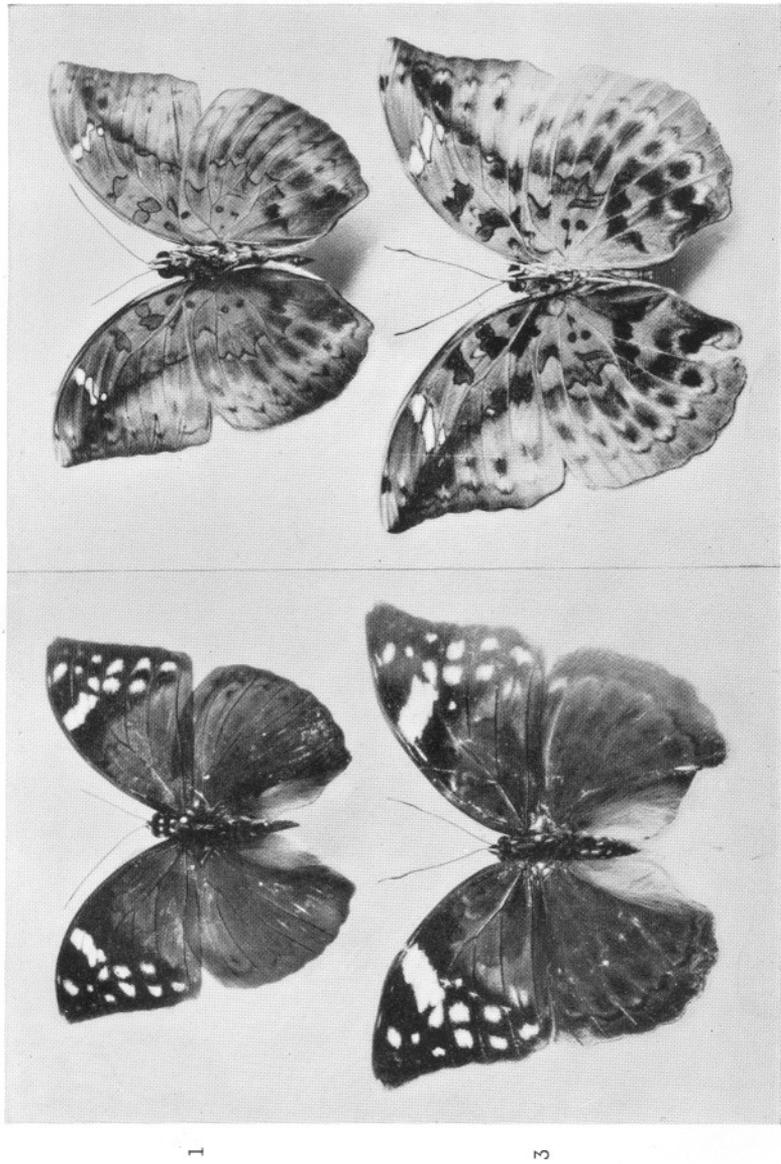
"The male from Katera resembles in the width of the sub-apical band *phantasiella* from Cameroons, but has the patch in

PLATE 16



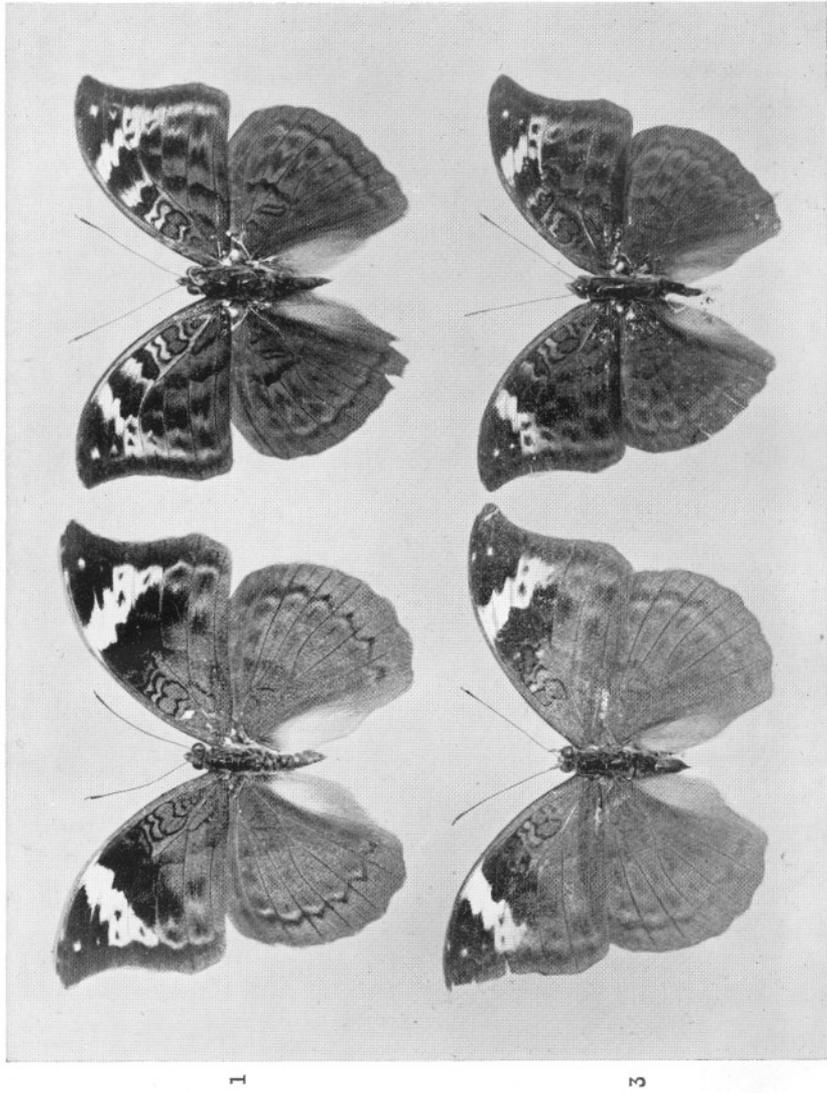
Euryphene phantasia simulata, van. S.
Figs. 1 & 2, male, upper and under surfaces.
Figs. 3 & 4, female, upper and under surfaces.

PLATE 16A



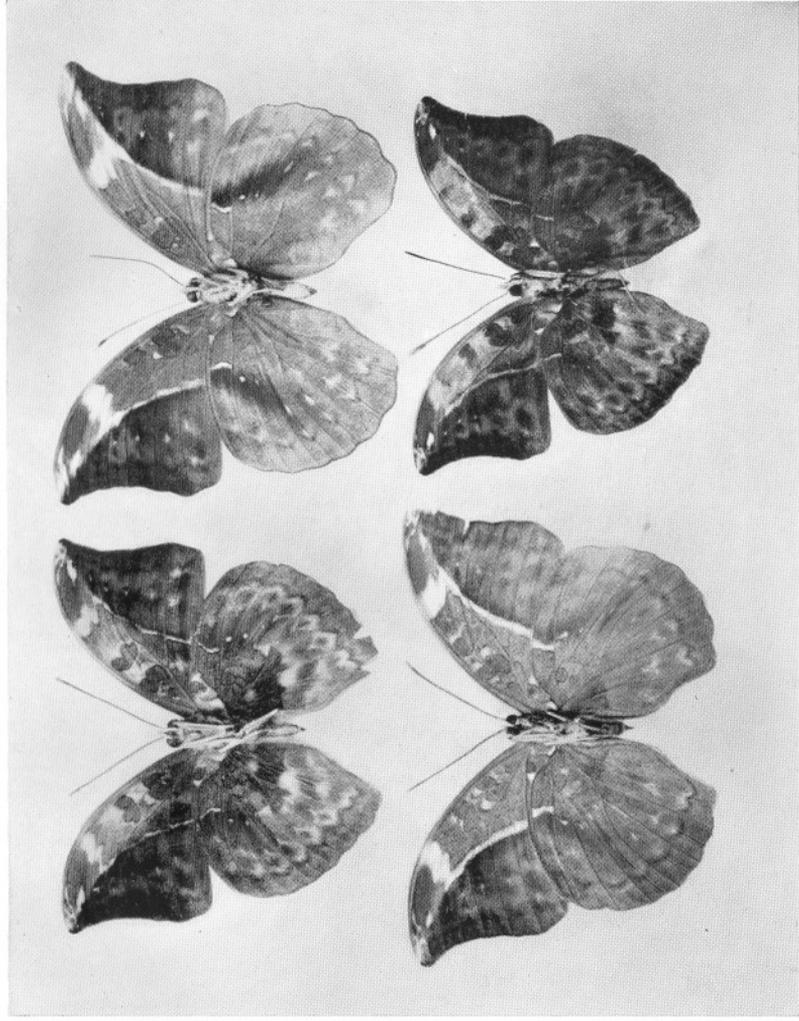
Euryphene pleistomax, Hew.
Figs. 1 & 2, male, upper and under surfaces.
Figs. 3 & 4, female, upper and under surfaces.

PLATE 17



Euryphene sophus (Katera).
Figs. 1 & 2, female and male, upper surfaces.
Euryphene sophus audeoudi, Riley.
Figs. 3 & 4, female and male, upper surfaces.

PLATE 18



Euryphene sophus (Katera).
Figs. 1 & 2, male and female, under surfaces.
Euryphene sophus audeoudi, Riley.
Figs. 3 & 4, female and male, under surfaces.

area 4 dusted with black as in most specimens of f. *phantasina*. The underside is more pure green than either of the two allied forms which have the green colour more or less washed with greenish-white. Fore-wing with post-discal band straight, not curved as in the two allied forms.

"The female upperside resembles female *phantasia*, but differs in the costal band being white, the part of the band below vein 5 being mostly blue like the inner area of the wing; apical white spot smaller. Hind-wing blue area darker, not paler on the disc and its outer edge is sharply defined. The underside resembles *phantasina*, but fore-wing with wider band; no distal shading over the area between post-discal band and margin. Hind-wing with larger white costal spot and two smaller white spots below it in areas 5 and 6 and placed more distad."

Mr. Talbot also adds the following notes: "*Euryphene phantasiella*, Stgr., and *phantasina*, Stgr. Associated with these two names is another so-called species called *maximiana*, Stgr., 1891, which has a female resembling the male. If the males under these three names were mixed up, one could divide them into a broad and a narrow-banded form and this would not hold good if account were taken of the size of the white apical spot. I suggest that one species exists for the above names, the female being polymorphic.

"If *phantasia*, Hew., is a second species it is distinguished chiefly by the absence of a dark post-discal band on the underside of both wings, this band being always present, on the fore-wing at least of the former species. If the three names given above comprise one species, the oldest name is *maximiana*, but if there are two species, then *phantasiella*, Stgr., 1891, has priority over *phantasina*, Stgr., 1891. Until some proof is forthcoming it may be best to keep the two separate."

EURYPHENE PLEISTONAX, Hew. Pl. 16a, figs. 1-4.

MALE: Upperside of fore-wing with proximal half bright reddish-brown, its outer edge even and oblique from vein 4 or a little above this, to near the tornus; distal area black, extending into upper angle of the cell; a subapical white bar from vein 9-5 and a small spot below vein 5; a post-discal row of five small bluish-white spots in areas 2-6, those in areas 3 and 4 placed more proximal than the others; a submarginal row of similar spots in areas 1b to 6, those in 5 and 6 minute and often absent.

Hind-wing the same colour as proximal half of fore-wing; costal area to vein 7 smoky-brown, this colouring extending often along outer margin to form a well-defined border that is limited by a submarginal somewhat sagittate line.

Underside of both wings with proximal half pale ochraceous; distal half somewhat pinkish-brown shaded with ochraceous. Fore-wing with three sub-costal white spots in areas 4-6, that in 4 rounded; a post-discal, oblique, black, somewhat crenulate line from vein 4 to 1b; a submarginal, obscure, strongly wavy line; two black round spots in areas 4 and 5 near the submarginal line, the lower spot placed more proximad than the other.

Hind-wing with a post-discal black line, very angulate and irregular, from vein 8 to 1a; the whole inner side of post-discal line up to end of cell, usually shaded with black, and also usually a series of obscure black patches outside the line, and separated from the wavy submarginal line by a paler pinkish area, bearing smaller obscure blackish spots.

FEMALE: Upperside resembles the male but brown areas paler. Fore-wing white sub-apical bar wider, and white spots larger. Underside as in male, the markings more distinct.

EARLY STAGES: Unknown to me.

DISTRIBUTION: Western Uganda.

[This magnificent species occurs in dense forest where it is extremely difficult to capture. Its flight is swift and erratic and it is never seen for more than a few seconds. The red colouration of the male is very fine in the sunlight.—T.H.E.J.]

EURYPHENE SOPHUS AUDEOUDI, Riley. Pl. 17, figs. 3 & 4.

Pl. 18, figs. 3 & 4.

EURYPHENE SOPHUS (Katera).

Pl. 17, figs. 1 & 2.

Pl. 18, figs. 1 & 2.

Expanse: Male, 53-55 mm; female, 62-65 mm. Sexes unlike.

MALE: General colour olive-brown with yellow fore-wing bar and black spots and bars.

F.-w.: Ground colour olive-brown with a slight reddish tinge. Cell crossed by black lines outlined at apex with ochre; beyond the cell a broad black bar distally set off with a yellow bar; beyond this a broader black bar sub-basal in 4-6, followed by a yellow-ochre sub-apical bar which crosses 6, 5, 4, and extends down the sub-margin of the wing and enclosing diffuse submarginal dark spots. There is a dark line basal in 1b, followed by a discal band of dark spots from 1b to 3, and external to this a further series of three post-discal spots, somewhat quadrate in shape.

H.-w.: Ground colour olive-brown with a reddish tinge over the disc of the wing. Cell crossed by two black line marks; beyond the cell an ill-defined discal black line extending to 3, followed by an angled wavy post-discal line which fades out in 2, and beyond this a series of triangular dark spots, rather obscure and not reaching 1c. The submarginal wavy line is more marked and blacker.

A second common form of male has the ground colour rather more brownish and all the markings are submerged with the exception of the fore-wing sub-apical bar.

Underside: Ground colour mostly violet-grey with an olive-green shading toward the distal half of the fore-wing, this green colour being concentrated as a median band from apex to mid-point in the fore-wing with an extension through the hind-wing from the mid-costa point thence in a curve to the centre of the outer margin and then down the margin to the anal angle. The yellow marks of above are here only slightly indicated but the apex of the fore-wing has an angled white streak. The bases of both fore and hind-wings are darker grey accentuated on the outer margin by a yellow line, to as far as 4 of the hind wing.

FEMALE: Wings even more falcate than male; general colour olive-green with grey bloom, black tip to fore-wing crossed by yellow bar.

F.-w.: Basal half olive green, distal black; cell with black-lined marks; beyond the cell a broad black bar which passes through the basal areas of 5, 4, and 3, and extends into 2 and in 1b is represented by a black spot. Beyond this is a well-defined yellow, broad, sub-apical bar which carries two black spots distally in 4 and is contiguous with and shades into the yellow-green surrounding the sub-marginal dark spots. The marginal border of the wing and the apex is black with a white tip and two white dots.

H.-w.: Mostly olive-grey green, slightly more grey-brown on the costa and inner fold. Discal marks obscure, but the wavy submarginal line distinct from 7 to just above the hind-angle. A variety of female is less green, more olive with the dark marks of the fore-wing obscured.

Underside: Ground colour violet grey with the green-olive shading more distinct and sharply defined. In the fore-wing the sub-apical bar is white where it crosses the grey ground, but brownish where it extends over the green shading. The post-discal row of spots is represented by whitish streaks.

EARLY STAGES: The species lays its eggs on two species of plants, one a wild "rubber vine" *Landolphia*, the other a *Chrysophyllum*. The eggs are greenish with a faceted surface and short spines. The young larva is at first olive, with hardly any indication of the leathery lateral projections, characteristic of the group. At the second moult the larva is green with a pale to whitish centro-dorsal line and on either side, midway between the dorsal line and the lateral projections there is a blue spot present on each segment except the first and last. The feathery projections are bluish green above, whitish below. The pupa is bright green with a highly glazed surface, much angled

at the abdominal segments, especially the dorsal surface, and is ornamented with black spots as follows: one large spot on the thoracic tubercle, one on each of the "shoulders," and two on either side of the wing cases. Most of the tubercles are golden at the base with black tips. The venation of the wing cases is sometimes indicated by darker green lines.

DISTRIBUTION: Occurs sparingly in the eastern forests of Uganda but more plentifully in the central and western forests. It is an insect of the undergrowth, frequenting the more open areas.

[Is common in the Nandi-Kaimosi area, sparingly for some unexplained reason in east and central Uganda, and is then common again in Kalinzu and Ruwenzori.—T.H.E.J.]

EURYPHURA ACHLYS, Hopff. Pl. 19, figs. 1-5.

Expanse: Male, 55 mm.; female, 67 mm. Sexes somewhat alike, but female paler and with more white.

MALE: Ground colour golden-olive or blue-olive green. Cell with two small lines at base, followed by a large black-lined oval mark, then by a thin black line and at its apex a further quadrate mark with a projection into 4. Sub-basal in 1b is a short line; beyond this a discal row of black marks from 1a to sub-basal in 6. A post-discal row, double in 1a to 2 then coalescing and continued as a single row to the apex, the four last often with a white dot placed distad. There is a further series of linear black marks submarginal and following the contour of the wing. The marginal border is blackish.

H.-w.: Ground colour as fore-wing, slightly browner at costa and brownish along the fold. Cell with one black spot at mid-point. The apex of the cell crossed by a black-lined mark; beyond this a short discal series of spots not extending beyond vein 5, followed by two rows of post-discal spots, the outer row more linear, both stopping short of the anal angle. The submarginal dentate line is continuous from the upper angle to the anal angle. The marginal border is narrowly black.

Underside: A rich rusty ochreous, often with a strong violet bloom especially over the basal and discal areas. **F.-w.:** Markings obscure with the exception of the two large marks in the cell, the four white dots in a line with the apex, and the white tip. **H.-w.:** Marks in the cell are one circular, one more or less rectangular at apex, and above the cell a further round mark toward base of 6. The post-discal series of spots here represented as white dots and lines. The submarginal line as indistinct greyish-brown with white dots at the veins.

FEMALE: The female occurs in two forms, one very similar to the male except for the greater amount of white on the fore-

wing; the other has a much paler ground colour, more grey-green, so that the lines and spots, similarly placed to those of the male, show up more distinctly. The white markings, conspicuous of the sex, are placed distad to the black discal marks and increase in size toward the costa. The white spots on the post-discal row of black spots are larger, and often number 6.

Underside: Rusty-ochreous with a violet-grey bloom over the base and discs. The dark markings are less obvious than in the male, but the white spots of above are well represented and those of the post-discal series are blackish distally.

EARLY STAGES: The eggs are laid on the young leaves of *Chrysophyllum* sp. They are rounded cones, deeply faceted and from the angles of the facets are glistening spines, 1 mm. long, giving the whole a glinting appearance, though the egg is actually pale green. The larvae emerge in a week to 10 days. At first dull olive, they become green with paler feathery projections, at the second moult. In the fourth stage the dorsum is ornamented with a central white line, and on either side an interrupted blue line. At the base of each of the feathered lateral projections there is a blue spot. The larvae lie along the mid-rib of the leaf with the feathery or fern-like projections in contact with the leaf surface. The outline is then a long oval. The pupa stage is reached within six weeks and the insect emerges in six weeks. The pupa is highly glazed, bright, transparent green with numerous golden spots corresponding to the various spines and tubercles, the most apparent of which are those on the angles of the wings, the "shoulders," that on the second abdominal segment, dorsally, and the thoracic tubercle. The head is strongly bifid, the points being black-tipped.

DISTRIBUTION: The forests along the coast of Kenya more particularly those with damp water courses or heavily shaded ravines. The males can be attracted to bait (fermenting fruits), and are much addicted to settling in a small patch of sunlight, with wings outspread. The females keep more to the undergrowth.

EURYPHURA PLAUTILLA ALBIMARGO, Talbot.

Pls. 20-21, figs. 1-16. Pl. 22, figs. 1-4.

(*E. isuka*, Stoneham, equals male of *albimargo*, Talbot, thus a synonym.)

I have been at considerable pains to discover what is the correct designation for the race of *E. plautilla* inhabiting the eastern Belgian Congo east to Uganda and Kakamega in Kenya.

Consulting the literature, we find that the first name to be applied to any form or sex of this eastern race is that of Talbot, Bulletin Hill Museur, Vol. 1, 1921 (figured Pl. XI), p. 63, in

which a female is described as *albimargo*, f.nov. (type loc. Ituri Forest). Subsequently, Stoneham described a male and female from Kakamega as *isuka* and *ithako* respectively, Bulletin Stoneham Museum No. 25, Oct., 1935, describing the male as a species, though admitting that it might possibly "be considered a race" of *plautilla*.

Examining a long series of males from Eastern Congo to Kenya, we find that there is no constant difference between them, and that the characters on which Stoneham founded his *isuka* were to be found in western Uganda examples. Mr. Talbot, examining the series in the British Museum, has come to the same conclusion. Following the accepted procedure, of raising a form name to rank as sub-specific, and with the full concurrence of workers in the Entomological Department of the B.M. I have accepted Talbot's name *albimargo* as that which is applicable. I have adopted this procedure, although I am given to understand that the International Rules of Nomenclature do not give cognisance to names below sub-specific rank. It is, however, a recognised common procedure and practice.

It will thus be noted that although *albimargo* is now applied as the racial name for the eastern sub-species, it is still also retained as the form name of those females answering to the description of the type cited by Talbot. I have been guided in this by those in authority in the British Museum. In dealing with the several female forms, I have taken cognisance of the fact that although very similar forms are associated with the nominotypical *E. plautilla plautilla*, and have been designated by form names, these names cannot be applied to somewhat similar females of the eastern race, and I have thus adopted the system of adding a prefix to the names of those forms of the western race as have been described, and have retained certain names which have been applied to female forms of the eastern race. Thus *ithako*, Stoneham, is retained for the forms with a continuous white band in the fore-wing.

Expanse: Male, 50 mm.; female, variable but average about 53-55 m.m. Sexes unlike.

MALE: General colour dull bronzy brown with darker brown markings; anal angle produced to form a "tail."

F.-w.: Ground colour dull brown. Cell with two small marks toward base, one large black line mark just beyond middle, and a thin dark line beyond. At the bases of 4 and 5 a further broad black-outlined mark with a projection into 4. Bases of 1a and 1b shaded dark, beyond this a discal series of dark brown spots which carry on more or less at right angles to the costa through 4, 5, 6. There is a post-discal double row in 1b to 2, continued forward to just short of the apex as a single

row, white inwardly, black distally, the largest white spot being in 4. A submarginal interrupted zigzag line follows the contour of the wing up to the apex.

H.-w.: Ground colour dull brown, paler along the inner fold. Base of wing dusky over most of the cell, this with one circular spot at mid-point and a further more rectangular lined mark at apex. There is then a short series of discal spots stopping short at 2. Beyond this is a row of post-discal triangular dark marks and a second row of circular spots set in curves to follow the wing contour, and running parallel to this is the submarginal zigzag line from upper angle to anal angle.

Underside: The ground colour of both wings is dull ochreous to buff with a rusty area over the incised portion of the fore-wing and over the anal half of the hind-wing. The markings of the fore-wing are two large black-lined grey marks in the cell and just beyond; while the post-discal row of spots, black to black and white, are present from 1b to just within the apex. The hind-wing marks are: two in the cell and a circular mark just above. The other markings are obscured but the post-discal row of spots are edged internally with white and joined up to the submarginal series by white lines; the anal angle has a double violet-tinged line.

FEMALE: Variable; occurs in several forms. Pls. 20, 21, 22.

- A. This is a form which is somewhat male-like in that the general colour is brownish but not so dark as the male. Ground colour grey-brown with the upper marks as in the male but showing up more clearly on the paler ground. In addition the discal series of angled marks are more pronounced and are distally bordered with white whilst there are long angled white marks in 4, 5, 6, forming an irregular sub-apical bar. The post-discal series of dark spots are accentuated on their inner side in 3-7 with white.

In the hind-wing the basal area is darker, defined on its outer edge by a curved series of angled marks; beyond this the discal zone is paler, and crossed by a double series of post-discal marks, more diffuse arrow marks internally, followed by more defined triangular dark marks outlined with a paler brownish; and distal to this is a submarginal wavy zigzag line.

Underside: This is best described as rusty-ochreous slightly paler on the hind-margin of the fore-wing and violet greyish toward the apex at sub-costa. The hind-wing also rusty-ochreous, paler at the upper angle and tinged with greyish below the cell. The f.-w. cell has two black-lined dark grey marks, and beyond some greyish shading, while the discal marks are angled dark brown and greyish; the

post-discal row of spots are white with black centres. The h.-w. cell marks are similar to those of the male, but the discal zigzag line is brownish outlined and accentuated with whitish.

Type: Budongo, April, 1936 (Jackson); paratypes 3. Budongo, June, 1936 (Jackson). = neo-albofasciata f.f. nov. Pl. 21, fig. 10.

- A1. A variation in which the ground colour is paler, more rusty to pinkish especially over the discs of both wings so that the spots and marks in this area show up more. There is, however, no, or hardly any indication of the white angular marks in the fore-wing.

Type: Jinja, July, 1928 (van Someren); paratypes 4. June-July, 1928 (van Someren); 1, Kakamega (T. H. E. Jackson), 1933; 1, Katera (Jackson), Nov., 1935. = conformis f.f. nov. Pl. 20, fig. 8.

- A2. A variation of above with the fore-wing whitish marks more apparent, and in addition there is a distinct greenish tinge to the surround of the outer post-discal dark spots especially in areas 1b and 2 of the fore-wing and toward the hind angle of the hind-wing. This is an important transitional form toward B. Pl. 20, fig. 7.

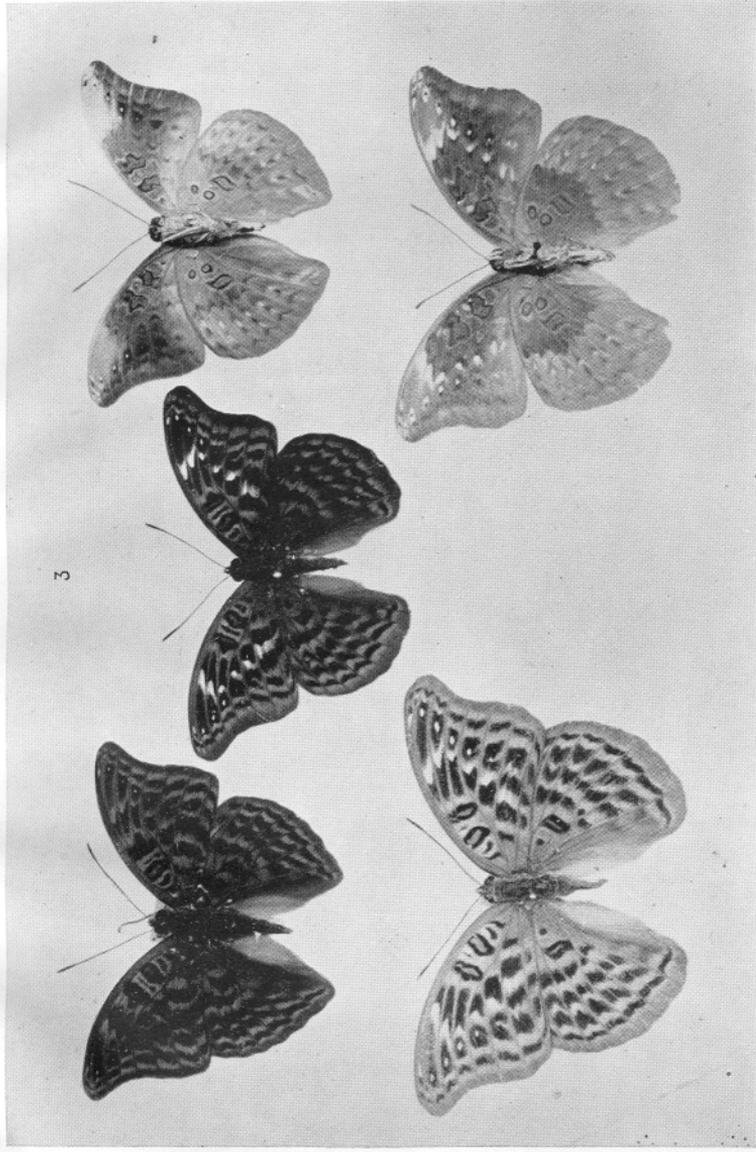
- B. Broadly speaking, this form might easily be mistaken for the female of *Euryphura achlys*, the ground colour is the same greyish-olive with a golden or brassy sheen in some lights. In the fore-wing the white angled marks are present especially in areas 3-6 and the post-discal series of dark dots are white tipped. The dark markings of the cell and those of the hind-wing show up distinctly on the greenish ground.

Type: Budongo, Nov., 1937 (T. H. E. Jackson). Paratype 1 same date. = neo-oliva f.f. nov. Pl. 20, fig. 5.

- B1. A variation of above, in which the ground colour is less green, more greyish particularly over the disc of the fore-wing and the surround of the post-discal row of spots in the hind-wing. There is furthermore a distinct ochreous tinge to the discal zone of the hind-wing, whilst the basal area is thus sharply defined and darker. In the fore-wing the whitish areas are wider, and there is a whitish shading toward the apex of the cell and beyond so that the double cross-bars here and in the cell show up more distinctly. This variety is thus a further development of A2 toward B, with an approach toward C described hereafter. Pl. 20, fig. 6.

- C. A very pale form in which the predominant colour is white. F.-w. basal area of cell, bases of 1a-5 greyish-brown, this area bordered and accentuated distally by a series of darker

PLATE 19



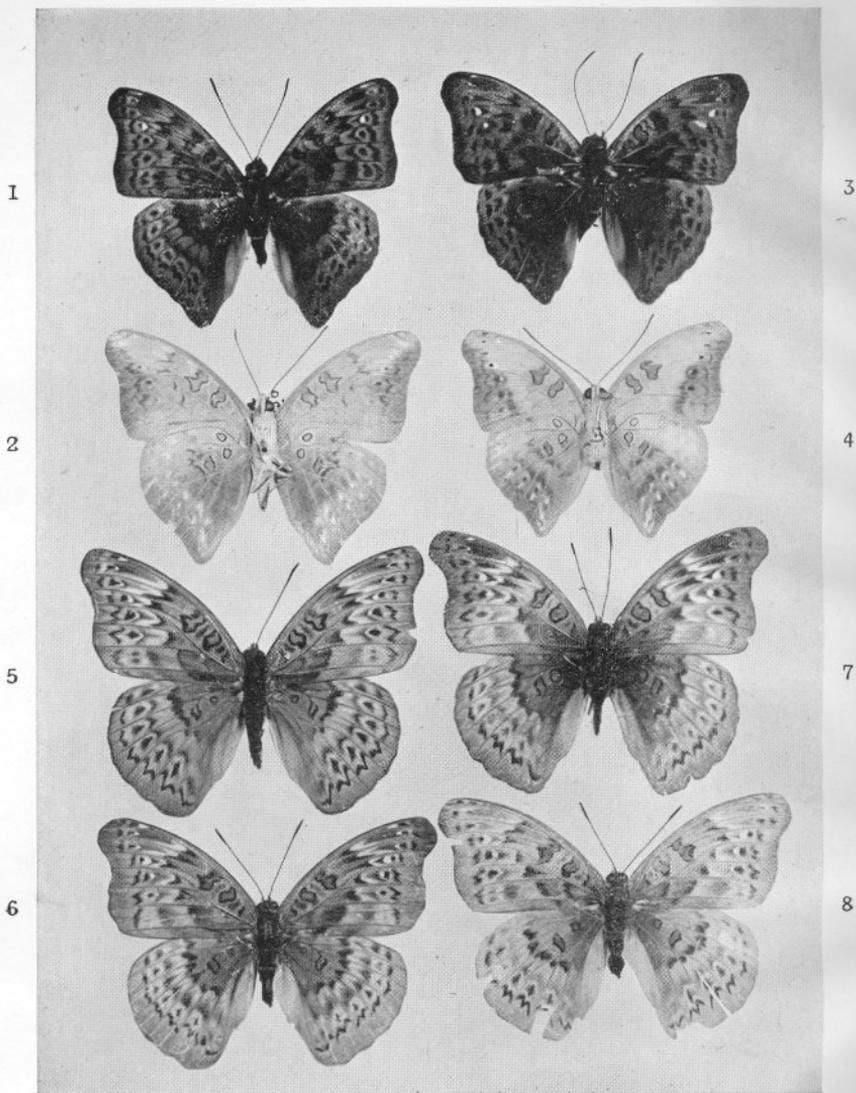
Euryphura achlys, Hopff.

Figs. 1 & 2, male, upper and under surfaces.

Fig. 3, variety of female (male-like).

Figs. 4 & 5, female, upper and under surfaces.

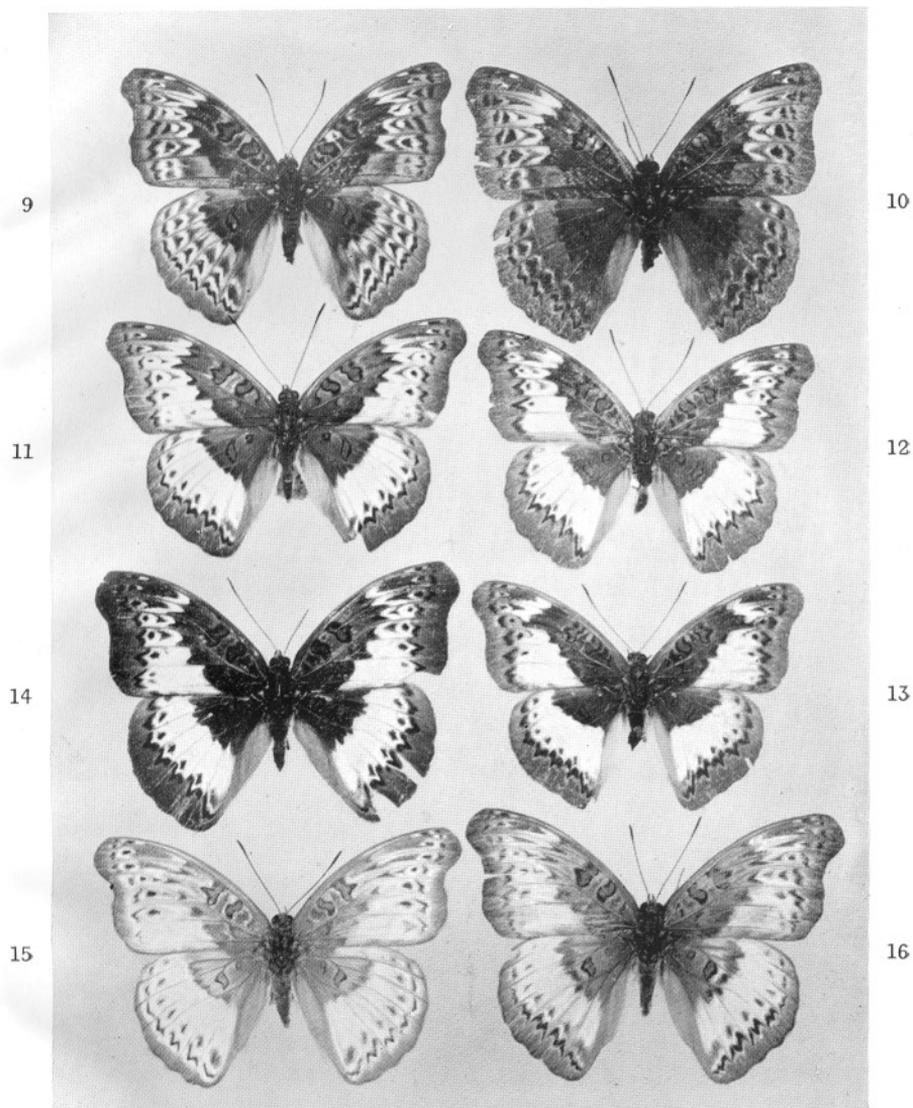
PLATE 20



Euryphura plautilla albimargo, Talbot.

Figs. 1-3, males (Uganda), upper and under surfaces.
Fig. 4, male (Kakemega), under surface.
Figs. 5 & 6, f.f. *neo-oliva*, van S. (green forms).
Figs. 7 & 8, f.f. *conformis*, van S. (brown forms).

PLATE 21



Euryhura plautilla albimargo, Talbot. Female forms.
Fig. 9 (brown form), *conformis* X *neo-albofasciata*.
Fig. 10, f. *neo-albofasciata*, van. S.
Figs. 11 & 12, f. *ithako*, Stoneham.
Fig. 13, f. *neo-athymoides*, van S.
Fig. 14, f. *bicolor*, van S.
Figs. 15 & 16, *albimargo*, Talbot.

spots and arrow marks in a line from sub-base in 1a-4 thence in an angle toward the costa in 5 and 6. Beyond this the disc is white extending toward the hind-angle and crossed by a diffuse indistinct inner and a more distinct darker outer, series of post-discal marks, and beyond by a sub-marginal broken series of wavy dark marks, the border of the wing being brownish-grey especially toward the apex which carries a further series of four dark spots following the contour of the tip. These spots as well as the upper of the submarginal series are whitish proximally. The fore-wing cell is crossed by three dark-lined bars, and beyond its apex is a dark-lined hastate mark outlined with white. The hind-wing basal area is grey-brown filling the cell and bases of 1a-2 and 8; this dark area shades off to white at the bases of 4-7 and beyond is crossed by a curved dentate line from mid-costa to apex of cell and on to the inner margin. Beyond, the wing is broadly white to almost the border which is narrowly brownish at the upper angle gradually widening toward the hind-angle. This white area is crossed by an inner row of ill-defined arrow brownish marks and an outer series of graduated spots, then by a submarginal zigzag line from upper angle to anal angle. The inner fold of the wing is grey-brown. This type of female may be known as f.f. *albimargo*, Joicey and Talbot. Pl. 21, fig. 15.

- C1. is a variety of C in which the basal brownish areas are darker with little white just beyond the fore-wing cell, with only a greyish shading above and beyond the hind-wing cell; with the discal row of dark spots in less of a curve but stronger, so that between this and the broader marginal dark border, the white band shows up more distinctly. Furthermore the submarginal zigzag line is wider and darker. There is a distinct green sheen to the area beyond the cell. In the fore-wing the dark border is wider and extends so as to almost include the series of dark submarginal spots which are only slightly outlined with white. There is evidence in this variety of the B1 greenish colouration; it however is a variant of *albimargo*. Pl. 21, fig. 16.
- C2. This is a variation of C 1 in which the basal dark areas as well as the borders to fore and hind-wings are darker, more blackish-brown; the basal dark areas being sharply defined distally and strongly dentate. The apical black and the border of the fore-wing and the dark border of the hind-wing reach up to and include the submarginal zigzag row of lines. The outer row of post-discal arrow marks are still within the white band, whilst the inner row is only faintly indicated. = *ithako*, Stoneham. Pl. 21, figs. 11 and 12.

- D. In which the dark areas can be termed black-brown contrasting strongly with the discal pure white band on fore and hind-wings. The outer row of post-discal spots are blacker and more definite and there is a reduction in the V-shaped white at the sub-bases of 5 and 6 in the fore-wing. There is a distinct violet sheen to areas 1a and 1b in fore-wing and 4 and 5 of hind-wing. = *bicolor* f.f. nov. Pl. 21, fig. 14. Type: Budongo, June, 1936 (T. H. E. Jackson).
- D1. In this form, the distinguishing feature is the great reduction or absence of any white spot in the f.-w. bar in 4, so that this bar is separate from the sub-apical white bar, which is itself almost at right angles to the wing band. This form, which is common, and though showing, as these several forms do, intergrades amongst themselves, may be known as *neo-athymoides* f.f. nov. Pl. 21, fig. 13.

Type: Kampala, Jan., 1935 (T. H. E. Jackson). Paratypes 7. Kakamega, Oct., 1930, Sept., 1937 (T. H. E. Jackson); Jinja, May, 1923; Mulange, Oct., 1921; Kakamega, Feb., 1932 (van Someren).

The brown-black beyond the f.-w. cell thus extends and meets the dark marginal border.

In view of the variation in the females as indicated above, it is suggestive that this species is closely related to, if not actually conspecific with *achlys*. Indeed, Holland, in reporting on the Lepidoptera taken by the American Expedition to the Congo, *Bull. American Mus.*, Vol. XLIII, p. 193, records a female taken as *achlys*, Hopff. and states that it agrees with examples of that species from Zanzibar! Examination of the genitalia, in wet and dry preparations, indicates a remarkably close affinity in *achlys* and *plautilla*, there being just that slight difference, though not by any means constant, which might be expected in two races of the same species. The general facies of the genital armature in both is the same, and the variation in the number and position of the spines on the penis is present in both. As, however, the relationship of these two to *chalcis* is in doubt, I record them as species, with the above proviso.

EARLY STAGES: I am indebted to Miss Fountaine for information regarding the early stages of this insect. "Found very commonly on a low-growing creeper, a species of wild rubber, in the more shady parts of the Kibale Forest. Unfortunately out of more than two dozen larvae found on this plant, every single one was parasitised. Other larvae taken on *Chryso-phyllum albidos* had escaped parasitisation and finally produced butterflies. The full-grown larva is green with a distinct white dorsal line, on either side of which, on each segment, is a small

distinct blue spot. The head is green, and the first segment carries two long branched horns of the same colour. On the lateral aspect of all the other segments are fairly long feathery appendages, paler green in colour, with a slight bluish tinge.

"The pupa is bright green with black spots on the abdominal spiracles and thoracic tubercles."

DISTRIBUTION: This species has been taken in greatest numbers in the forests of western Uganda, but extends east to the Kakamega and Kabras forests in Kavirondo. It is very plentiful in Katera, Kibale, Budongo.

The female form *albimargo*, Talbot, bears a strong resemblance to the female of *Cymothoe s. hobarti* and to a lesser degree with the white female form of *Harma theobene*. There is also a resemblance between the form D, *bicolor*, and the black and white females of *Cy h. johnstoni*.

[Both sexes of this species may be taken, wherever they occur, on fallen fruits. They fly low along forest paths and roads, settling every now and then to feed for a few moments with closed wings, when they become practically invisible.—T.H.E.J.]

CYMOTHOE SANGARIS HOBARTI, Btlr. Pl. 23, figs. 1-6.

Expanse: Male, 50-52 mm.; female, 58 mm. Sexes unlike.

MALE: General colour bright red. F.-w.: Bright red except for the apex and the extreme margin which are black. Some specimens have very small black dots sub-marginally, the one usually present being in 6. H.-w.: Bright red with the fold of the wing ochre-grey; the extreme margin is black and there is a submarginal row of black spots, those toward the anal angle sometimes being joined by fine black angled lines. There is often a dull blackish spot below the costa in 7.

Underside: Rusty-ochreous with a rusty line crossing the hind-wing from just above the anal angle to about the mid-point on the costa and thence to the fore-wing to the root of vein 7. The submarginal and post-discal marks are obscured, but two black-lined marks are present in and just beyond the cell and at the base of 1b. In the hind-wing there are two black-lined marks in the cell and a broken wavy black line through the disc. The post-discal dots are greyish-white whilst the fringe carries white dots in the interspaces.

FEMALE: Mostly white with a dusky suffusion over the bases of both wings and on the margins and apex of fore-wing. Both wings are crossed by a median dark line. F.-w. cell with wavy black lines and white interspaces beyond root of vein 2. Beyond the cell two further lines followed by a wide white bar. The apex and margin broadly dusky and internal to this two

series of arrow-head marks; in some specimens the outer marks are joined. Sometimes there is a discal series of loops proximal to the white bar. H.-w.: Dusky at the base and along the inner fold; margin dusky with ochreous patches at the tips of the veins. An outer post-discal series of arrow-shaped marks is present followed by a submarginal series of stronger blackish dots connected up by black angles at the veins.

Underside: The median band of above is here represented by a stronger line especially on the h.-w. Distal to the line the wings are whitish to buff with a slight dusky shading in the incised area of the f.-w. and margin of h.-w. The submarginal and outer post-discal marks are faintly indicated, but the white areas internal to the median line are accentuated by black outlines and from the median line to the base of the wings the ground colour is either ochreous grey or ochreous with a strong pink tinge.

EARLY STAGES: The eggs are laid on the young shoots of *Rinorea* (VIOLACEAE), usually on the lower surface toward the edge. They are rounded cones with flat facets and short spines, and of a greenish colour. The larva is brownish olive at first, but turns a sap green at the second moult. The mature larva is bluish-green with short blackish spines greenish at the base and slightly branched at the tips. The spines on the segments after the first thoracic are longer and much more branched throughout their length. The dorsum of the segments is ornamented by a thin white line; on either side of this a broad dark green line with an interrupted yellow line running its entire length. Below the lateral line of spines is a narrow white line which shades off into the paler green of the underside. The head is yellowish with a few black spots, while the last segment is also yellowish. The pupa is a pale green with yellow spiracles, and with darker green areas on the thoracic case.

DISTRIBUTION: Most common in the Kakamega-Kabras forests the species ranges through most of the Uganda forests, sparingly in the central provinces but more abundant in south-western districts. The males are more in evidence than females, due no doubt to their conspicuous colouration. Males are often noted skimming just above the ground along pathways especially where wild fruits have fallen and lie about decaying. The similarity between the females and the *albimargo* form of *Euryphura plautilla* has already been noted.

[This species is seldom seen in the open, being confined to the dense forest where the males come down occasionally from the trees to rest a moment in a sunny patch on a low tree and then back again to the higher foliage. The colouring is magnificent as it suns itself with wings widely open, the brilliant

colour standing out from the intense green of the forest foliage. It is rarely seen feeding, but occasionally a male may be found amongst *Euphaedra* and *Euryphene* on the fallen fruits of some forest tree. The females strongly resemble those of *Cy. theobene* in flight.

The distribution of this species is interesting as it occurs from Kakamega, throughout Uganda, but not apparently into the Congo where its place seems to be taken by two other closely allied species.—T.H.E.J.]

CYMOTHOE CAENIS, Drury. Pl. 24, figs. 1-6. Pl. 26, figs. 1-6.
Pl. 25, figs. 1-6. Pl. 27, figs. 1-3.
Pl. 28, figs. 1-8.

Expanse: Male, 56 mm.; female, 60-65 mm. Sexes unlike.

MALE: General colour creamy white with green tinge, borders black. F.w.: Ground colour creamy-white with greenish tinge, costa narrowly black for basal two-thirds, the black then widening at the apex and outer margin of the wing, forming a black border, white spotted at the fringe in the interspaces. A post-discal series of angled black marks extends from 1a and 1b, where the marks are large, to the sub-apex; beyond this an admarginal series of larger and blacker arrow-head marks. Base of wing slightly dusted with blackish scaling.

H.-w.: Ground colour white with the fold and tuft greyish; vein 8 and the basal part of 7 black; an outer post-discal series of angled blackish marks largest toward the anal angle and gradually fading out extends up to 7. The border is black with white spots on the fringe and internal to this is an admarginal row of arrow marks, black in colour, largest in 4, 6, and 7.

Underside: Pale greenish-white shading to white distally, with a sharply defined median band beyond which the area is dusted and patterned with grey-brown. Distal to the median band is a series of post-discal arrow marks surrounded by whitish, and admarginally there is a further series of black dots joined up by angled lines; the border is shaded with grey-brown, while the fringe is darker brownish. The cells of both wings have fine black-lined marks and in the discal areas of both there are wavy broken lines of brownish.

FEMALE: The development of the female pattern and colouration appears to progress in two directions: one in which the pattern remains more or less constant, but there is a deepening in the ground colour from the male-like colour (*conformis*) to the deep sienna in the *adelina* forms; the other in which the pale whitish or creamy colour is retained as a discal bar in greater or lesser degree, vars. of *rubrida* to *dumensis*.

The different forms are described as follows:

- A. A form which superficially resembles the male, the ground colour being similar, but the cell is crossed by wavy black lines; the apex is more suffused with blackish grey as also are the borders of fore and hind-wings with the post-discal row of arrow marks larger and the admarginal series larger and showing up prominently in the greyish ground. = f.f. *conformis*, Auriv. Pl. 24, figs. 2-3.
- A1. A modification of the above in which the cell marks of both fore and hind-wings are more marked and with blackish scaling in 4-6 beyond the cell; a greater amount of black marginal border with the admarginal and post-discal outer row of spots more clearly defined and darker. In this form there is a very slight yellowish suffusion over the base of the cell in the fore-wing and the post-discal arrow marks in the hind-wing in 3-5 are yellowish. Pl. 24, figs. 4 and 5.
- A2. A further modification in which the bases of both fore and hind-wings are suffused with orange to just before the end of the cell, and the arrow marks in 3-5 in both fore and hind wings are orange. The admarginal hastate black marks are larger. This transitional form is an approach to B. = f.f. *rubida*, Holl. Pl. 24, fig. 6.
- B. Into this category come certain transitional forms which combine the characters of *rubida* and *dumensis*, Strand. They may be described as having the basal areas of fore and hind-wings strongly orange to beyond the end of the cell with this colour more or less defined distally, so that there is a wide bar of the whitish ground crossing both wings, between this orange base and the wide dark marginal border; the marginal border again suffused with yellowish to orange between the post-discal row and admarginal spots particularly in areas 4-5 of the hind-wing. Pl. 25, figs. 1 and 2.
- B1. A modification in which the orange basal areas particularly in the fore-wing in the region of the cell strongly dusted over with greyish scaling and the distal border of the orange outlined with a dark zigzag line. This is an approach to C. Pl. 25, fig. 4.
- B2 represents transitional forms toward *obscura*, Schultz, in that the basal orange areas are more suffused both in the fore and hind-wings with greyish scaling and the discal band is obscured. There is a tendency to a more reddish-tawny basally. Pl. 25, figs. 5 and 6.
- C. A form in which the basal areas are strongly sienna or red-brown sharply defined distally where there is a defined whitish to yellowish discal band which on its distal border is defined by the blackish arrow marks of the post-discal row of

spots. The marginal border is blackish but the surround of the admarginal large black hastate spots is orange. = *dumensis*, Strand. Pl. 25, fig. 3.

- C1. Somewhat like the above but the discal band more light orange and less defined, especially proximally. Pl. 26, fig. 1.
- D. Forms in which the general pattern is similar to A and A1, but the ground colour is orange. = *lutea*, Schultz. Pl. 26, figs. 2-3.
- D1. Can be described as a pale *lutea* in which the ground colour is yellow. In some, there is a suffusion of greyish scaling over the bases of the wings especially over the base of the fore-wing cell. Pl. 27, figs. 1-3.
- E. Similar in pattern to D, but the ground colour a richer darker orange tawny to orange, to sienna, with hardly any paling off in the region of the discal band. = *adelina*, Hew. Pl. 26, figs. 4-6.
- E1. Very like above, but basal areas suffused with greyish, and the marginal dark border not invaded in 4-5 of h.-w. or 1b and 2 of f.-w. with sienna.

EARLY STAGES: Unknown to me.

DISTRIBUTION: Forests of Uganda, particularly central and western. They appear to be particularly numerous in the forests to the east of Lake Albert, Bugoma, and Budongo, and again in the Mawakota forest. The species is one of those which, on occasion, will migrate in vast numbers.

[This is a forest species, but occasionally migrates and is then found in the open. The males of this and all other species of the genus like to sun themselves on a particular branch from which they drive off all intruders. They may be taken occasionally on rotting fruit or rarely on the droppings of leopard, hyaena, etc., but this is less common than in the other genera of the group.

The females similarly may sometimes be seen on fallen fruit, but they are more wary than the males and are usually seen for a second as they dodge across an open space in the forest in search of the food plant.

There appears to be a distinct lag in the emergence of the female sex, the males always appearing first.—T.H.E.J.]

CYMOTHOE HERMINIA JOHNSTONI, Butler.

Pl. 29, figs. 3 & 6. Pl. 30, figs. 1-6.
Pl. 31, figs. 2-8. Pl. 34, fig. 1.

Expanse: Male, 55-60 mm.; female, 60-75 mm. Sexes unlike.

MALE: General colour cream with a broad black border carrying light spots. There is some variation in the degree of

black and the colour of the ground surrounding the admarginal black marks.

F.-w.: Ground colour cream with a greyish shading at base; costa increasingly black from mid-point to apex; marginal border broadly brown-black, the proximal edge being deeper black and strongly dentate; the admarginal row of arrow-shaped black marks are broadly surrounded by cream and joined together by fine black lines, the two largest spots are in 3 and 4.

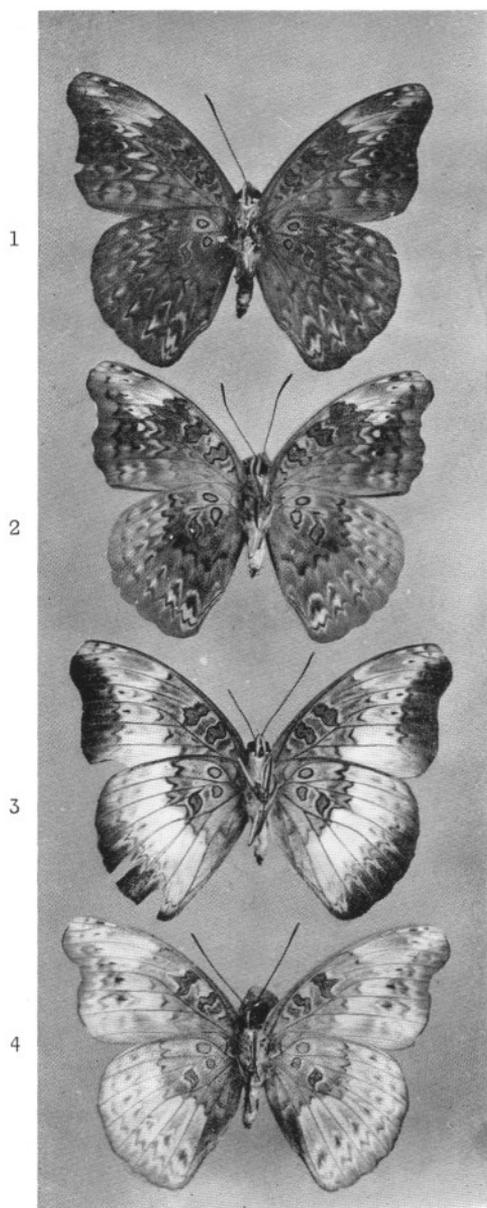
H.-w.: Ground colour as fore; the base shaded with grey, and passing to brown-black through the base of the cell and down the inner fold. The black bar present on the fore-wing is carried down through the hind-wing to just above the anal angle, whilst the admarginal arrow-marks are again repeated, the two largest being in 3 and 4. The border is black-brown, narrowest at 5 and 6, whilst the fringe has white spots mid-way between the veins.

(The above description applies to an average male, but two extreme varieties are to be found: (a) a very much darker form which occurs in the western distribution of this race, and (b) a very light form in the south-eastern portion of its range. Both of these will be referred to later.)

Underside: Creamy-ochreous, with a narrow median line crossing both wings, the proximal area with a zig-zag pattern of brown lines enclosing areas with brownish scaling; on the distal portion of the wings, the black dentate bar of above shows through, as also does the series of admarginal marks, though on this surface they are represented as small black dots. The wing fringe is brownish with white dots. The incised portion of the fore-wing is rusty-tinged.

MALE VARIATIONS:

- A. A form in which the dark border is very much wider in both fore and hind-wing, more intense in colour and strongly defined proximally. The admarginal arrow-marks are surrounded with less ground colour, which is strongly bright orange-yellow instead of cream. The underside is heavily marked both within and outside the narrow median line; whilst the admarginal arrow marks, accentuated by a light ground, are well defined in all areas except 3 and 4 of the fore-wing, and 4 of the hind-wing. Such a male shows a strong approach to the nominotypical *herminia*, but as it flies with the typical *johnstoni* in the Kalinzu forest of West Ankole, Uganda, it must be considered only a form of the race *johnstoni*. Furthermore it differs from the race *herminia* in that the black border is not so narrow and restricted to the margin, thus the yellowish surround to the arrow marks is more restricted. Pl. 29, fig. 1. Pl. 31, fig. 1.



1

2

3

4

Euryphura plautilla albimargo, Talbot.

Under surfaces.

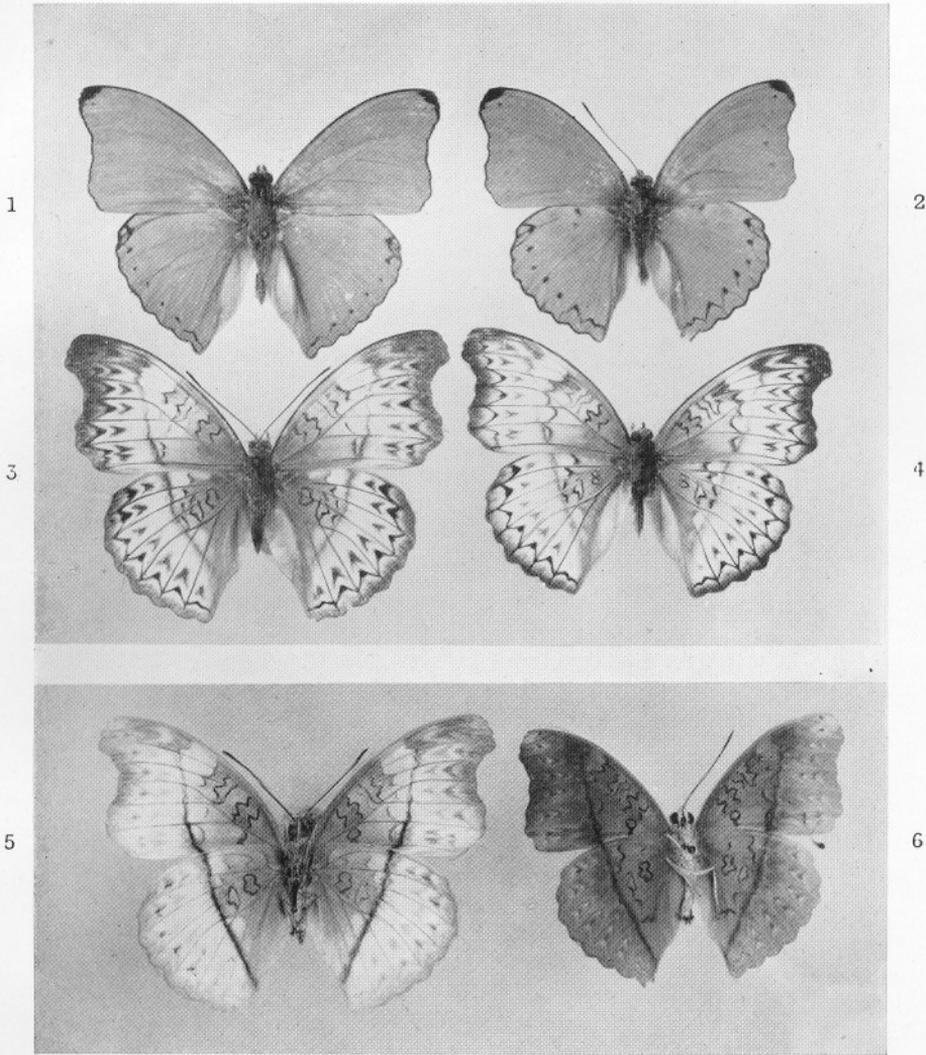
Fig. 1, f.f. *neo-oliva*, van S.

Fig. 2, f.f. *neo-albofasciata*, van S.

Fig. 3, f.f. *bicolor*, van S.

Fig. 4, f.f. *albimargo*, Talbot.

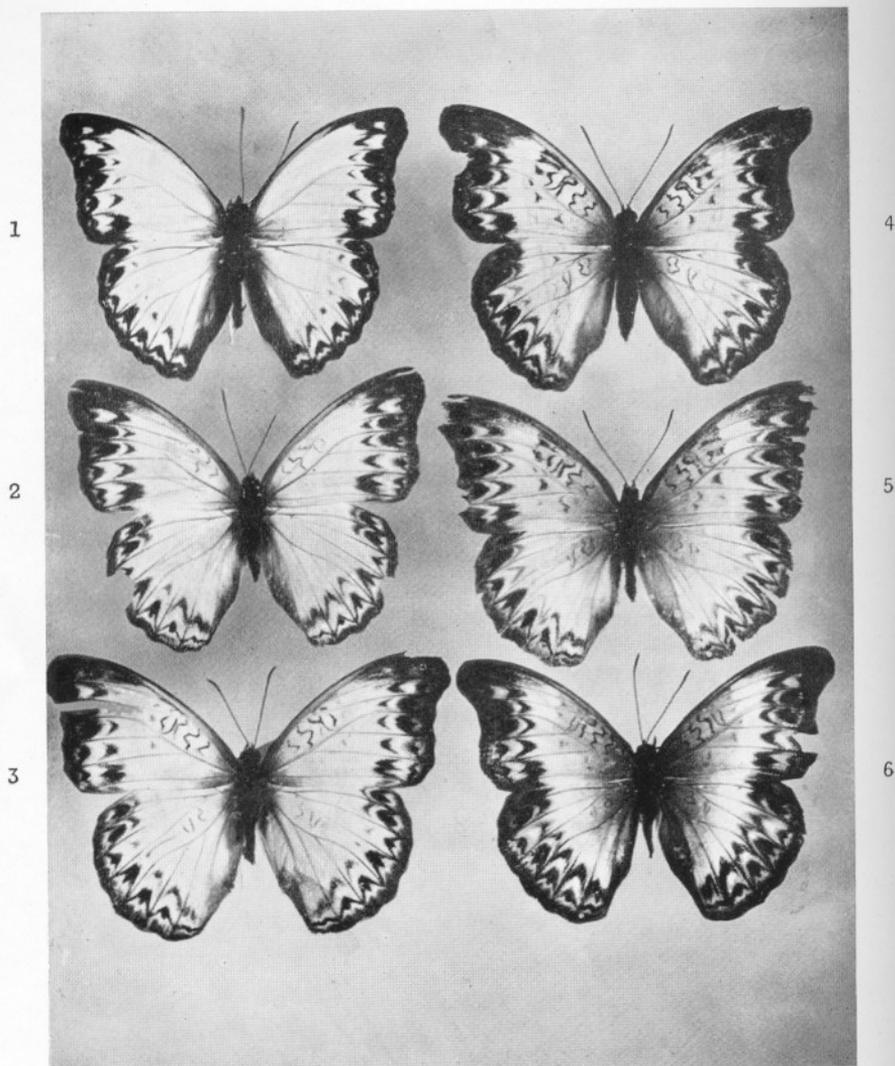
PLATE 23



Cymothoe sangaris hobarti, Btlr.

Figs. 1 & 2, males, upper surface. Fig. 6, male, under surface.
Figs. 3 & 4, females, upper surface. Fig. 5, females, under surface.

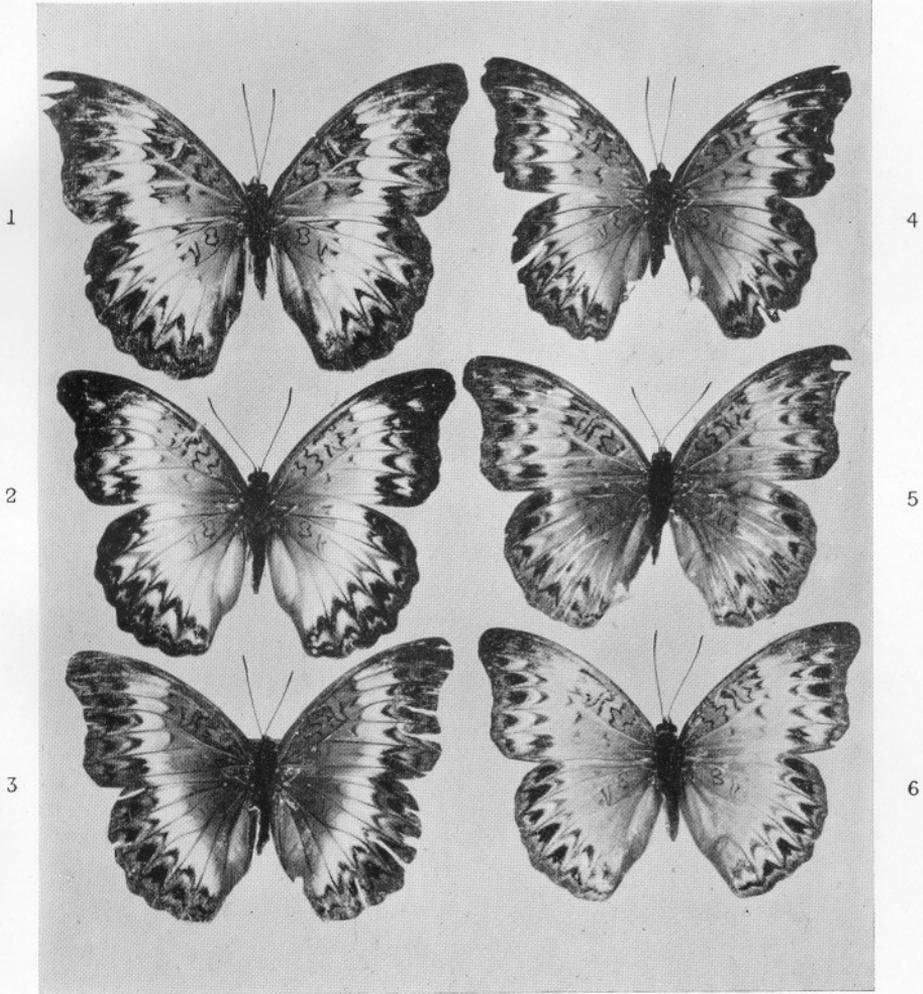
PLATE 24



Cymothoe caenis, Drury.

- Fig. 1, male, upper surface.
Figs. 2 & 3, male-like females, f. *conformis*.
Figs. 4 & 5, transitional to *rubrida*.
Fig. 6, female, f. *rubrida*, Holland.

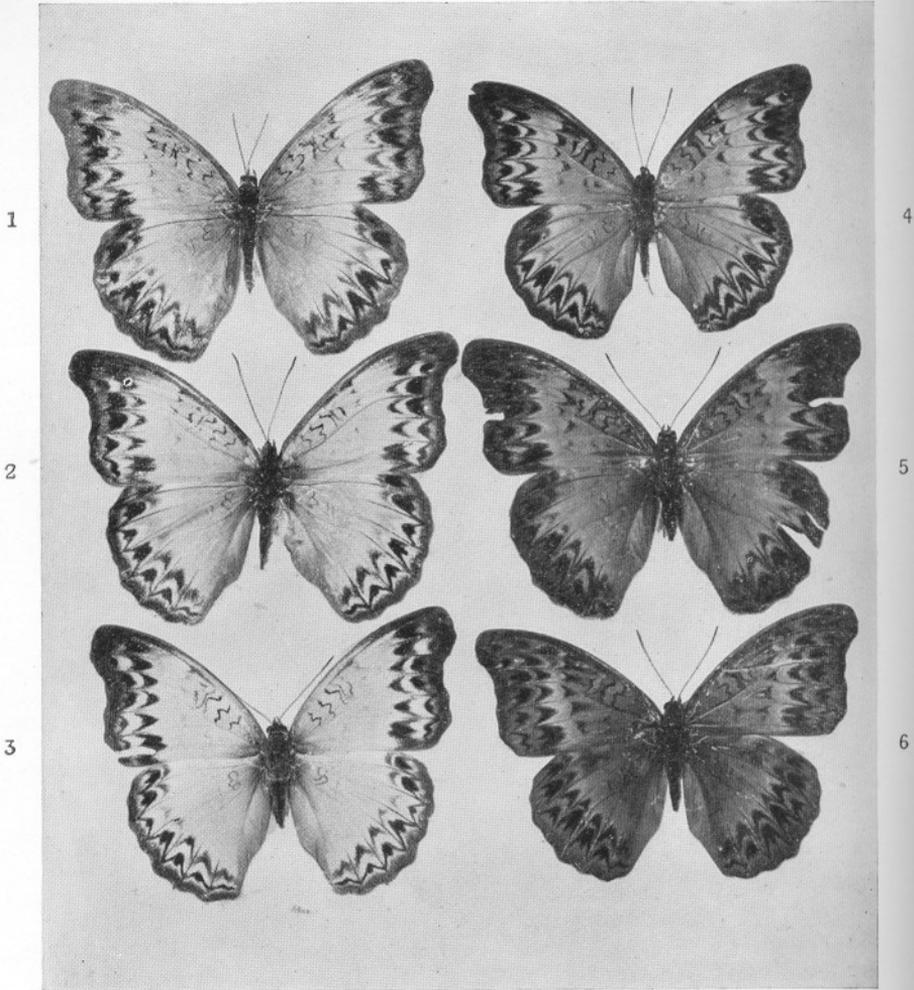
PLATE 25



Cymothoe caenis, Drury.

- Figs. 1 & 2, transitional to *rubrida*.
Fig. 3, female form *dumensis*, Strand.
Figs. 4 & 5, transitional to *lutea-adelina*.
Fig. 6, transitional to *lutea*.

PLATE 26



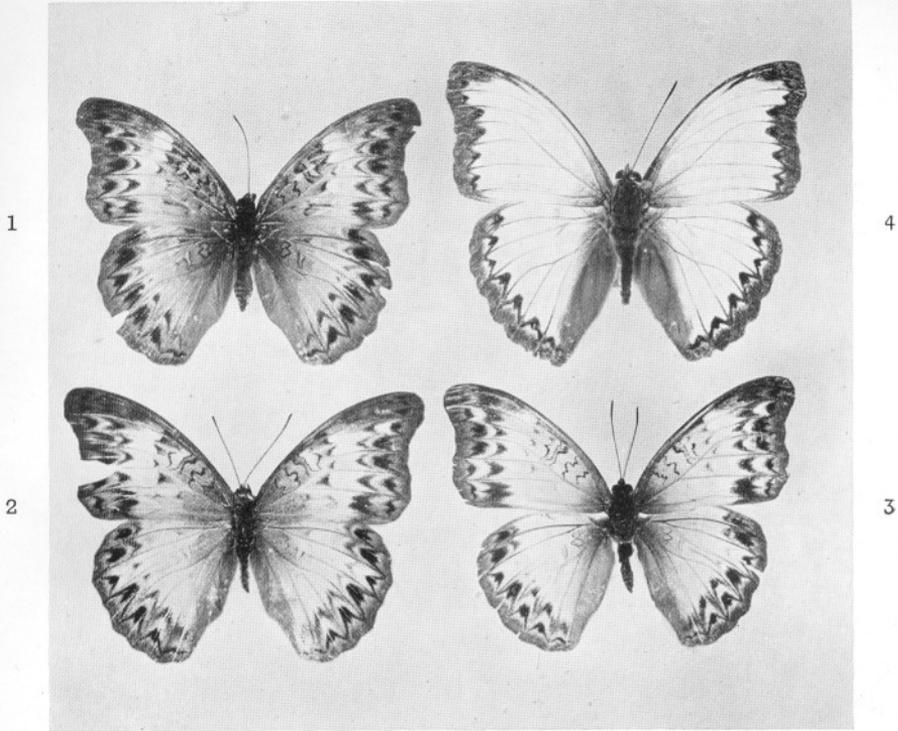
Cymothoe caenis, Drury. Female forms.

Fig. 1, transitional to *lutea*.

Figs. 2 & 3, f. *lutea*, Schultz.

Figs. 4-6, f. *adelina*, Hew.

PLATE 27



Cymothoe caenis, Drury.

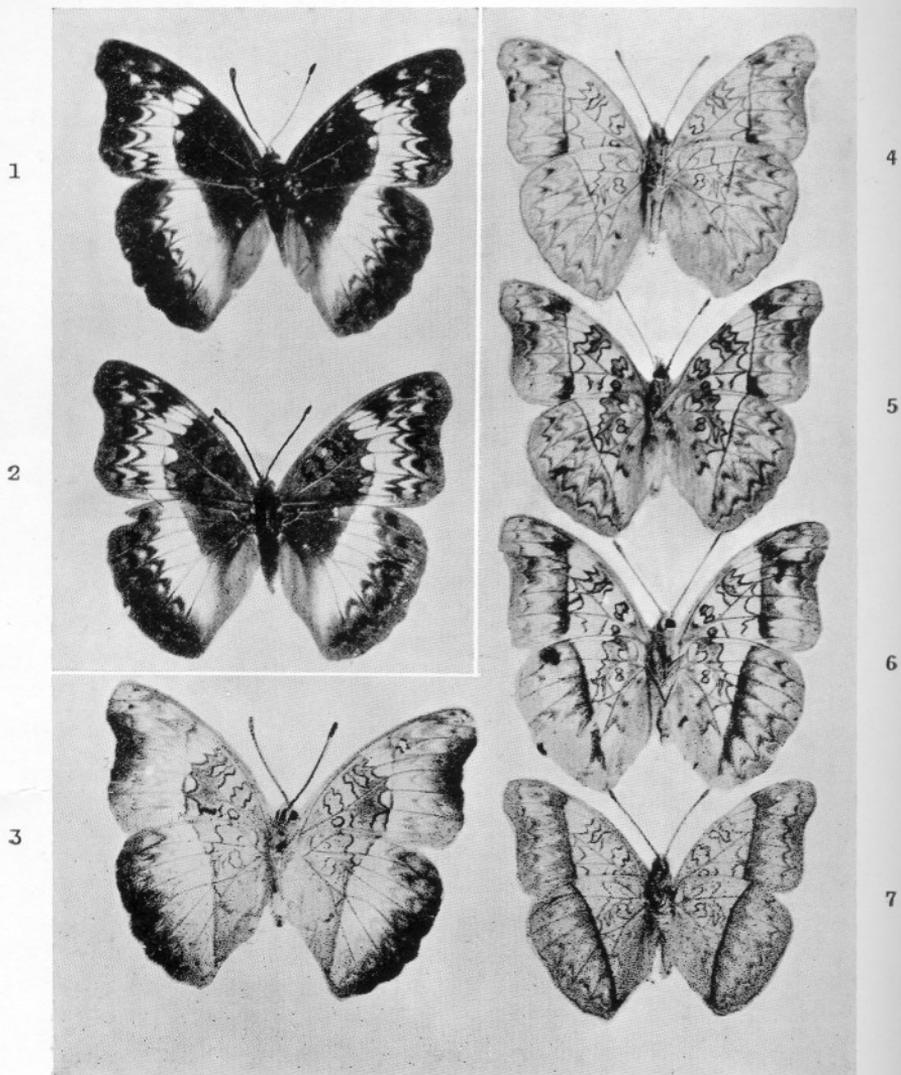
Figs. 1 & 2, pale yellow, transitional to *lutea* X *conformis*.
Fig. 3, transitional, *conformis-lutea*.

Cymothoe coranus, Smith.

Fig. 4, male upperside.

(For other figures of this species vide Pl. 27a and Pl. 34, fig. 6.)

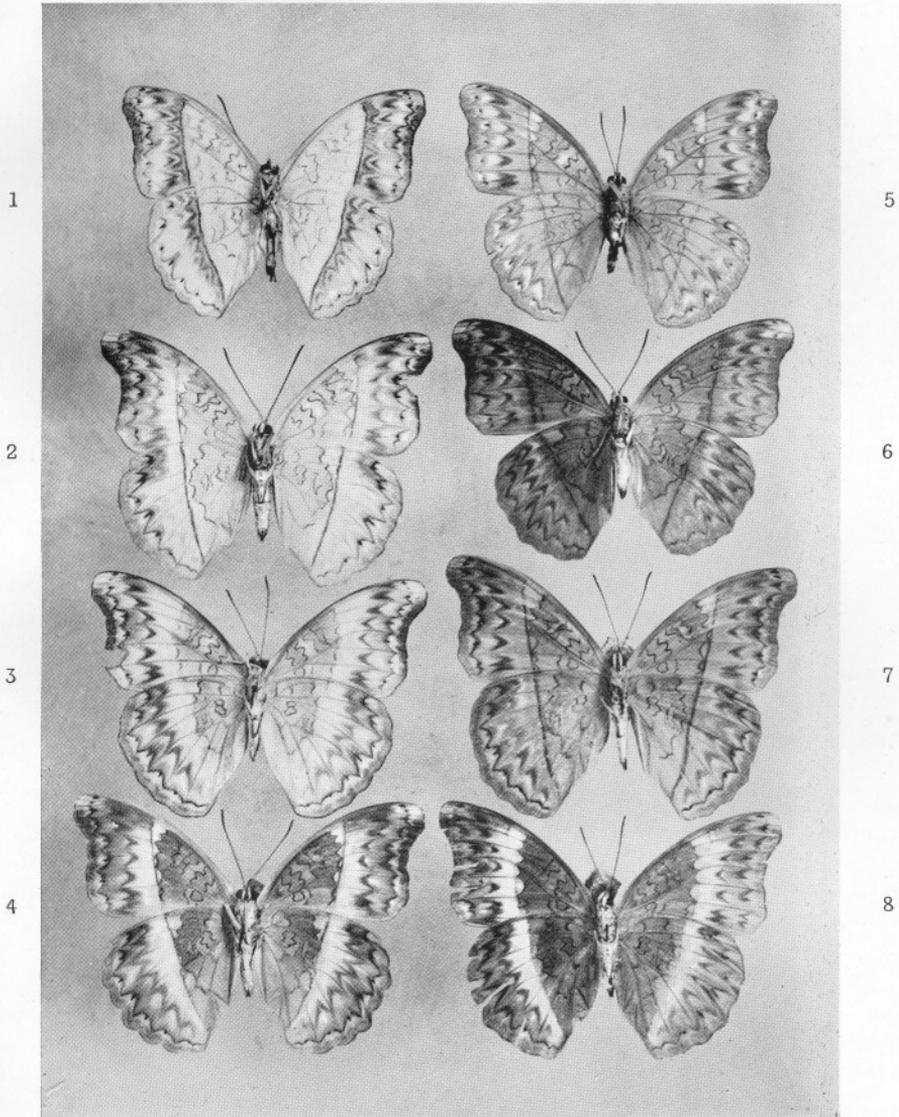
PLATE 27a.



Figs. 1-3 females *Cymothoe coranus*, Smith.

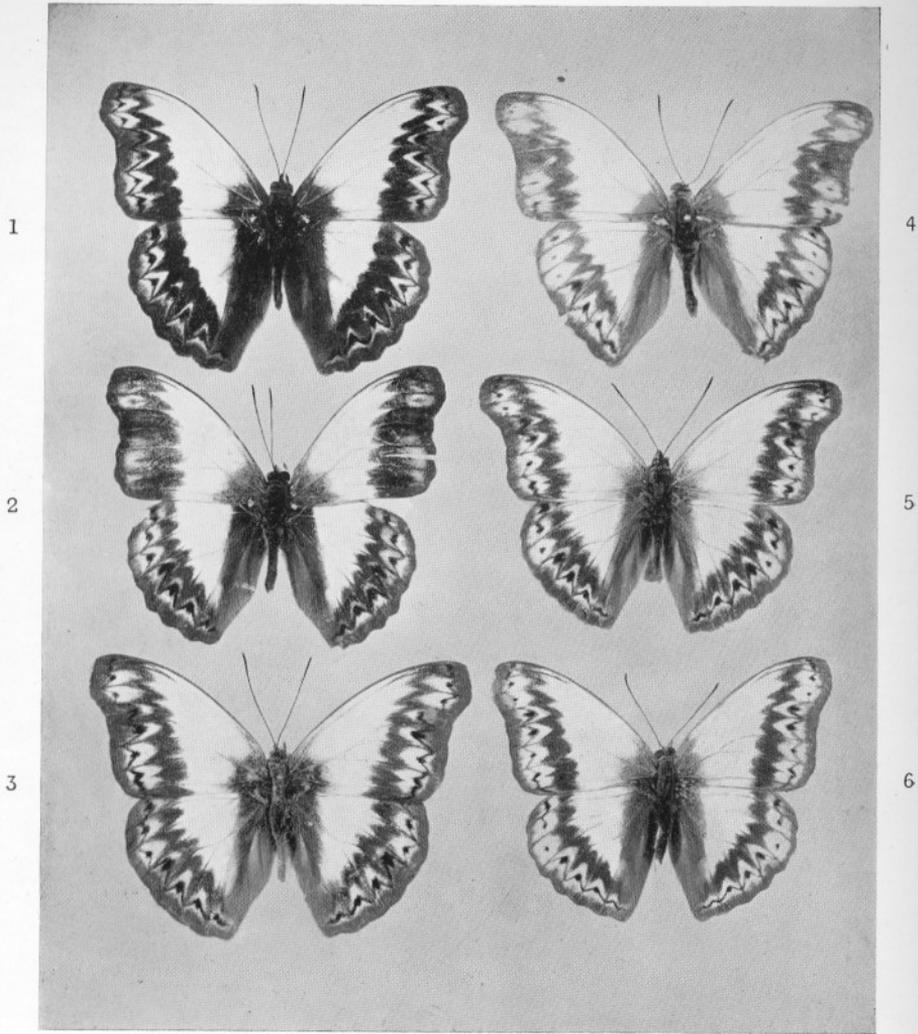
Figs. 4-7 males, underside.

PLATE 28



Cymothoe caenis, Drury (undersurfaces.)
Fig. 1, male. Fig. 2, f.f. *conformis*.
Fig. 3, f.f. *rubrida*. Fig. 4, f.f. *dumensis*.
Fig. 5, f.f. nr. *lutea*. Fig. 6, f.f. *adelina*.
Fig. 7, f.f. *lutea*. Fig. 8, f.f. *dumensis*.

PLATE 29



Cymothoe herminia johnstoni, Butlr.

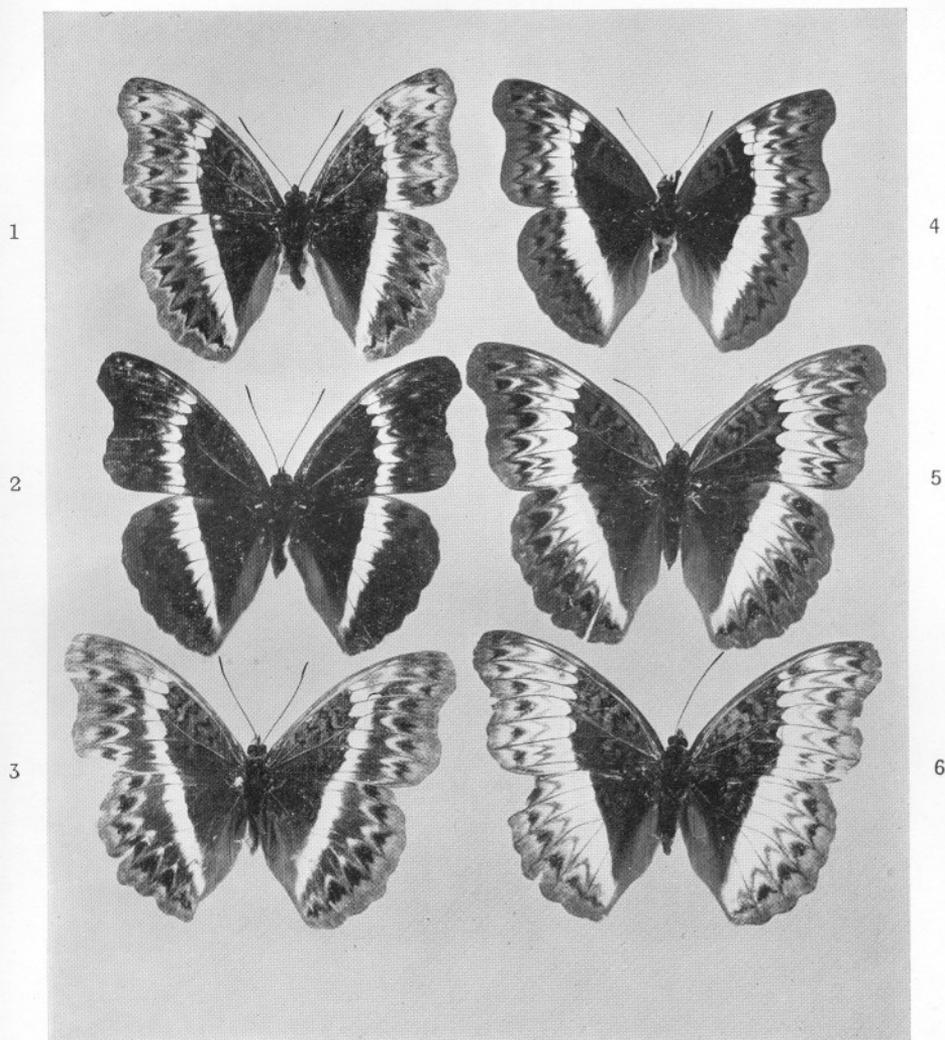
Fig. 1, transitional to *herminia herminia*. (See text.)

Fig. 2, transitional between *herminia* and *johnstoni*.

Fig. 3, almost typical *johnstoni*.

Figs. 5 & 6, typical male *johnstoni*, Btlr.

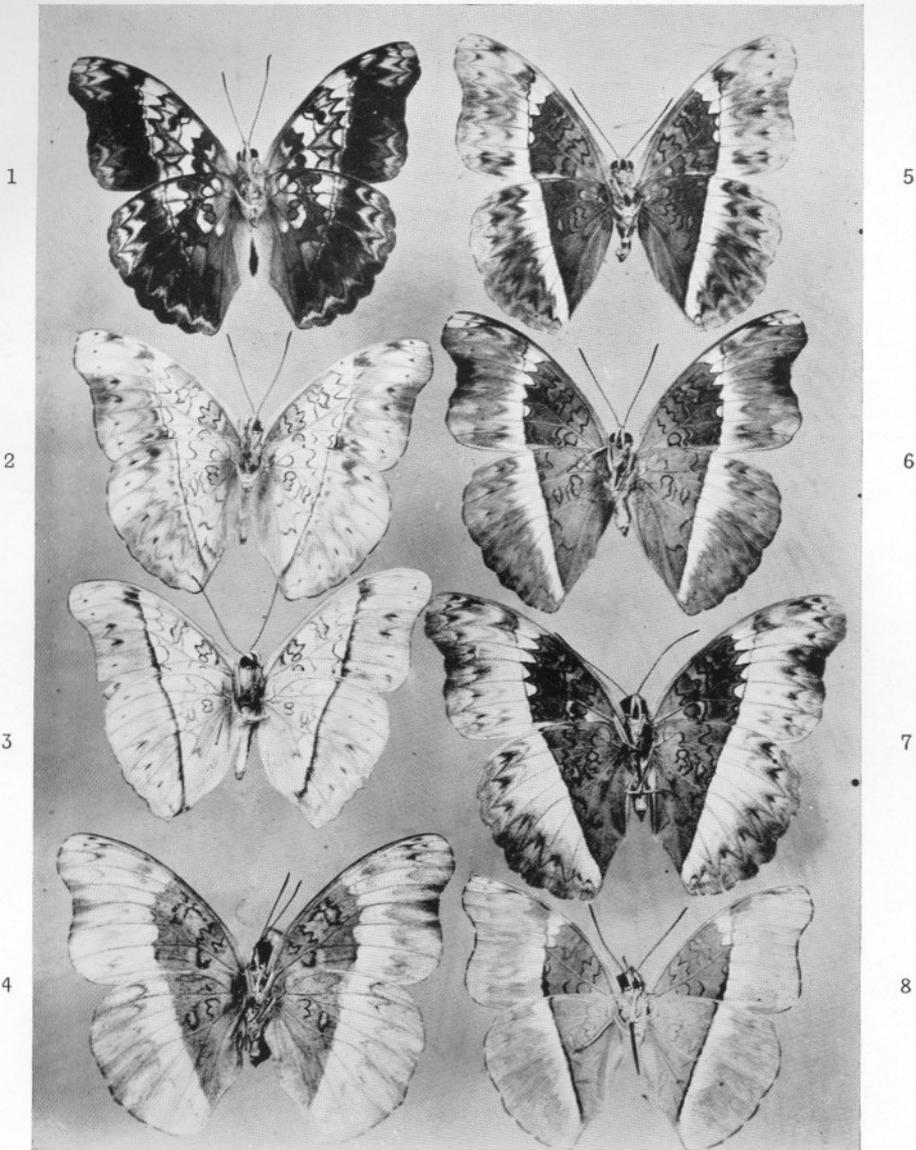
Fig. 4, an extreme pale form of *johnstoni* (South Kavirondo). (See text.)



Cymothoe herminia johnstoni, Btlr. Female forms.

Fig. 1, f. *sultani*, Bryk. Fig. 4, f. *kakamega*, van. S.
Fig. 2, f. *bipartita*, van S. Fig. 5, transitional between 3 and 6.
Fig. 3, f. *johnstoni*, J. & T. Fig. 6, *confluens*, van. S.

PLATE 31



Cymothoe herminia johnstoni, Btlr. Under surfaces.

Fig. 1, male *herminia*. Fig. 5, f.f. *sultani*, Bryk.

Figs. 2 & 3, *johnstoni* (males). Fig. 6, *bipartita*, van. S.

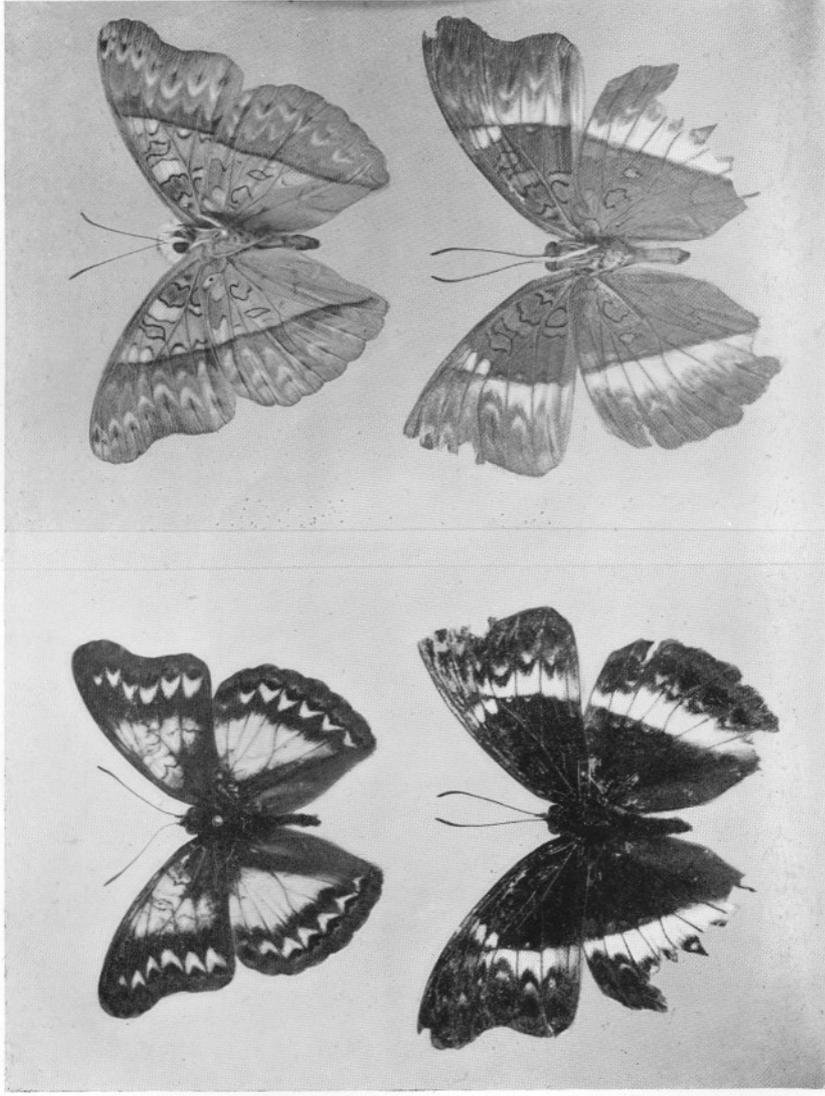
Fig. 4, f.f. *budongo*, van. S.

Fig. 7, f.f. nr. *confluens*, van. S.

(vide P. 34, fig. 1).

Fig. 8, f.f. *kakamega*, van S.

PLATE 32



Cymothoe teita, van. S.

Figs. 1 & 2, males, upper and under surfaces.
Figs. 3 & 4, females, upper and under surfaces.

A variation of the above occurs in which, although the wide border is present, the fore-wing arrow marks and light surround are not clearly defined, but diffuse. Pl. 29, fig. 2.

- B. In contrast to the *herminia*-like variation of the western Ankole district, there occurs in South Kavirondo an extreme pale form which has the appearance of an extension of the cream ground outward toward the apex of the fore-wing and only separated from the cream spots of the apex by narrow dark angled lines. The dark marginal border is not strongly defined, and the admarginal black marks, arrow-shaped in the other forms, are here small dots except toward the hind angle of the hind-wing. In addition, the cream spots are almost obliterated in areas 3 and 4 in the fore-wing.

Pl. 29, fig. 4. On the underside, a marked feature is the width of the dark median band, wider than in typical *johnstoni*, almost straight in the fore-wing but curved inward toward the cell in the hind-wing. Six males from S. Kavirondo are similar in all these respects. (For underside, see Pl. 31, fig. 3.)

FEMALES: In this species we find that the female sex exhibits distinct though not very striking colour differences, for all are of a black and white combination.

I have figured the more distinctive variations on Plates 30 and 31. In consultation with Mr. Talbot, and as the result of his kind assistance, I am able to cite what should be accepted as the nominotypical female, f. *johnstoni* (*Bull. Hill. Mus.*, 1, p. 59, Pl. X, fig. 17) and described as such by Joicey and Talbot.

Broadly speaking, the female forms can be divided into two groups, (a) in which the dark ground is traversed by a discal white bar on both wings distal to which the dark arrow marks are *not* accentuated by white; (b) in which, in addition to the discal white bar, the arrow marks are proximally, and to an extent distally, accentuated with white.

GROUP B.

- (1) Female f. *JOHNSTONI*, J. & T. (Pl. 30, fig. 3.)

Ground colour, brown-black, with a *narrow* discal or median band of white in almost a straight line from just above the anal angle of the hind-wing, to 3 in the fore-wing, then set slightly in and extending to the sub-costa, through 4-6. The proximal edge of the white bar is almost straight in the hind-wing, and indented along the veins in the fore-wing. On the distal side the band is dentate to a greater or less degree. In the type, it is strongly dentate, but in the specimen I figure it is less so. Beyond the band is a series of black arrow-head marks, apices inward, accentuated proximally by white, following the general contour of the wings.

The fore-wing cell is crossed by wavy black lines; the hind cell has an ovoid black mark toward the apex, and an 8-shaped mark at its centre.

The specimen figured differs from the neallotype *johnstoni* only in that the post-discal white marks are set further out from the white band; otherwise it agrees very well.

Underside: Ground colour ashy-grey-brown; discal bar as above but not so distinct; dark arrow marks present proximally edged with white as above, and distally bordered with the same colour but to a greater degree than above. Hind cell with dark marks as above; base of 8 with a whitish mark. Fore-wing cell with narrow wavy lines as above, and with white bars proximally and distally; 1b with a dark circular mark with white areas on either side.

(2) Female f. CONFLUENS, f. nov. Pl. 30, fig. 6.

This form can be taken as the extreme in this group. It is characterised by the great width of the discal white bar which is separated from the white marks in the post-discal area by indistinct angle dark marks, almost obscured in 3 in the fore-wing. The marginal border is not strongly dark, and the arrow black marks are not so acute, thus not so long. The underside shows a correspondingly greater amount of white with only faint dark angled lines and small black dots corresponding to the arrow marks of above.

Type, female, Budongo forest, May, 1936, T. H. E. Jackson.

Mr. Talbot informs me that there is a similar specimen in the B.M. from Kalinzu Forest.

(3) Female f. Pl. 30, fig. 5. Pl. 31, fig. 7.

This is an intermediate form between *johnstoni* and *confluens* and need not be distinguished by a separate name.

GROUP A.

(1) Female f. BIPARTITA, f. nov. Pl. 30, fig. 2. Pl. 31, fig. 6.

Differs from f.f. *johnstoni* by the more intense blackish ground colour both proximally and distally to the discal white band which is narrow, and tapering toward the hind-angle, more curved in the fore-wing, and generally narrower in areas 3-6. The dark ground distal to the median band has no white in the post-discal zone, and the black arrow-head marks show up indistinctly in the blackish ground. The underside is considerably darker than in *johnstoni* and has a distinct purple tone particularly in the fore-wing proximal to the discal white band which is more sharply defined throughout its length. This is the darkest form of female. The post-discal and submarginal dark marks are obscured in the ground colour.

Type, female, Kalinzu Forest, W. Ankole. T. H. E. Jackson, October, 1937.

(2) Female f. KAKAMEGA f. nov. Pl. 30, fig. 4. Pl. 31, fig. 8.

Resembles somewhat the form *bipartita*, in the intensity of the dark ground proximal to the white discal band which is wider in both fore and hind-wing, but the distal dark border is more brownish and thus the post-discal angled dark marks and the submarginal arrow-head black marks show up very distinctly; furthermore, there is a series of white angled marks distal to the post-discal angled marks. The bases of areas 3-6 beyond the cell are very blackish, whilst the dark cell marks stand out conspicuously.

The underside is distinctive, having the greyish-ochreous ground colour suffused with olive proximal to the discal band which is strongly defined proximally by a brown median line throughout the hind-wing and on the fore-wing to as far as 3. The distal portion of both wings is strongly ochreous-grey and the dark marks of above do not show through nor are indicated by dots.

Type, female, Kakamega, July, 1935, T. H. E. Jackson.

(3) Female f. BUDONGO f. nov. Pl. 31, fig. 4. Pl. 34, fig. 1.

A curious form in which the basal areas of both wings internal to the discal white bar is brownish-black with the usual dark marks of the cells of both wings obscured. The white band is broad throughout, but fades out toward the costa of the fore-wing (as here it is dusted over with dark scales) at the bases of 4-6, but white scaling is present as a continuation of the discal bar toward the sub-apex at about the mid-points of these areas. The usual angular extension of white from the bar into 2 and 3 across the median line is scaled in greyish so that the band has a straighter proximal edge up to 4. On the distal edge of the band are angular dark lines in the hind-wing, and arrow-head marks in the fore-wing, both blacker than is usually the case, with only a slight whitish scaling in the angles, but the dark arrow-head marks so conspicuous in the hind-wing of the other forms are entirely absent here.

On the underside, the basal areas of both wings are ash-grey with the dark cell lines and marks unusually prominent especially that in 1b of the fore-wing and the apical cell spot in the hind-wing. The discal band is not well defined and shades into the border which is only slightly dusted with greyish scales, and brownish along the edges. The angular marks of above are here grey.

Type, female, Budongo, May, 1936, T. H. E. Jackson.

GROUP C.

Female f. *SULTANI*, Bryk. Pl. 30, fig. 1. Pl. 31, fig. 5.

This conspicuous form is somewhat like *bipartita* in the form of the discal white bar and the dark basal half of the wings, but differs in the distal portions, being lighter, more brownish, and in having the distal edges of the dark arrow marks and to a certain degree the proximal edges in the fore-wing, bordered with ochreous-yellow much as in the herminia-like male already described. The underside is very strongly marked both as regards to ground colour which is ochreous-grey with a purply bloom, and the dark post-discal and sub-marginal marks. There is a suffusion of ochreous scaling toward the sub-apex of the fore-wing.

This type of female has been taken in the Kalinzu area and not eastward.

EARLY STAGES: The eggs are laid on the young leaves and shoots of two species of plants, *Rawsonia* and *Dorvyalis* (FLACOURTACEAE). The are at first greenish white in colour. In shape they are elongate domes with faceted surfaces and with fine spines usually at the angles of the facets. The eggs are usually laid on the underside of the leaves. The larva is green with a median yellowish line and along the dorso-lateral aspect of each segment are short feathery spines. The bases of the spines are bluish. The pupa is green, darker on the thorax and paling off on the wing scutes. The head is bluntly bifid; the two projections are yellow and from these a yellow line runs along the angle of the wing cases, along the dorsal line as far as the spiracles. These spiracles are black dots on a yellow base. The thorax is strongly keeled, but not so much as the abdominal segments which are acutely ridged. The cremaster and stalk are orange with one large central black mark and one small black dot on either side. The last abdominal segment also has two black dots on the ventral surface. The duration of the pupal stage is approximately three weeks, though in a few cases the insect emerges after a month or more.

DISTRIBUTION: Within Kenya, the localities from which we have taken the species are Kisii and South Kavirondo in wooded areas; it also occurs in Kakamega, Kabras, and Elgon, whilst in Uganda it is common in most of the forests, particularly those of central and western Uganda.

[Very similar to *Cy. caenis* in general habits. The males choose a sapling or branch of a tree and will stay in the vicinity for hours at a time, chasing away any other insect that may encroach on their preserves. The females stay largely in the thicker undergrowth, but may be found on the edges of clearings or roads where they sun themselves for a moment, then fly

swiftly across to disappear on the other side. The species may be found rarely on rotting fruits or on droppings of carnivora.

Cy. herminia johnstoni extends much further eastward than does *caenis*, being common in the Kakamega-Nandi area. As one travels westward it tends to merge into the typical or nominate race *herminia herminia* and in the Kalinzu forest in western Ankole, occur forms which are practically identical with forms from the type locality. The type of *johnstoni* came from Toro, thus within the west of the distribution of the race and not very far in reality from the areas where overlapping with *herminia* takes place.

The females appears to be less variable than those of *Cy. caenis*; in its western distribution there is a tendency to yellowing instead of white on the margins of the wings. Vide f.f. *sultani*, Bryk.—T.H.E.J.]

CYMOTHOE CORANUS, Smith. Pl. 27, fig. 4. Pl. 27a, figs. 1-7.

Expanse: Male, 55-60 mm.; female, 60-65 mm. Sexes unlike.

MALE: Ground colour creamy white with a blackish border.

F.-w.: Ground colour cream, with dusky scaling at the bases of 1a and 1b and slightly in base of cell; costa black edged, the black widening out toward the apex where it becomes continuous with the blackish-brown border of the outer edge of the wing. This border is narrowest in 5, widest in 4 and 3, and at the line of contact with the cream ground is accentuated by a series of black arrow marks. In some specimens there is a slight amount of cream just distad to the arrow marks in 1b and 2.

H.-w. creamy white, with greyish scaling at the base of the cell, and along the inner fold where it is slightly brownish. The dark border is fairly uniform in width, averaging 3 mm. and gradually shading off at the upper angle. Just internal to the border is a series of black contiguous arrow marks, the bases of the marks touching the dark border, but enclosing a slight amount of cream scaling.

There is little variation in the males on the upper surface; it usually takes the form of an increase or reduction in the amount of cream colour distal to the submarginal row of black marks in the hind-wing and in areas 1b and 2 of the fore-wing.

Undersurface: There is considerable variation here, which, broadly speaking, is due to the presence or absence of dusky scaling within the general pattern of outline dark marks. The ground colour varies from a cream to creamy-ochreous. Both wings are crossed by a dark median line, that of the fore-wing being almost straight, bent only toward the costa in 6; the hind-wing line, commencing at about mid-point in the costa, is slightly curved inward and extends to the anal angle. Internal to the

median line of the fore-wing is a series of dark-lined loops, from 1b-6, those in 4-6 being elongate; these are characteristic, and persist in both sexes. On the proximal side of the median line of the hind-wing is a similar series of irregular-shaped dark lined marks. In the fore-wing cell is a trilobed dark lined mark, followed by a mark in 1b; in the hind-wing the cell contains an 8-shaped mark. Distal to the median line of both wings is a double row of wavy shadow lines, which in some specimens coalesce, thus forming a dark zone of brownish-grey. Beyond this is a wavy angled submarginal line, with a uniform border beyond, or in some specimens strongly shaded with rusty to brownish in 3-5. The general pattern of dark lines is the same in all variations, the difference in appearance being the dusting over of the intervening spaces with grey-brown scaling.

FEMALE: General colour black with a white bar.

F.-w. black-brown with a white discal band commencing at about mid-point in 1a, thence curving up toward the costa just beyond the cell. In some cases there is a slight extension of the white, into areas 1b-3, on the inner side of the position of the dark median line already referred to in description of the male. The proximal edge of the band is sharply cut, whilst the outer edge is irregular and dentate. Adjacent to the band is a series of post-discal white angular marks extending through the sub-apex; and beyond, in areas 5 and 6, are two white sub-apical spots. Beyond and contiguous to the post-discal angle marks are black arrow-marks arranged to follow the contour of the wing.

H.-w.: Basal triangle black-brown with an extension along the inner fold. Beyond is a wide discal white band, slightly convex on its inner edge, more convex on its outer edge which is irregular, due to an angular extension of the dark ground in each area. The band gradually decreases in width toward the costa. Beyond the band is a series of white, somewhat angular, post-discal spots, bordered distally by a series of black arrow marks arranged in a curve and following the contour of the wing.

Underside: Both wings crossed by a median dark line almost straight in the forewing and strongly curved (concave) in areas 3-5 of h.-w., then through the apex of the cell, thence in almost a straight line to just above the anal angle. Internal to this line the ground colour is whitish-grey, carrying within the cell and beyond, and in areas 1b of the fore-wing, black-lined marks. The distinctive marks on the proximal side of the median line, referred to under the description of the male, are here equally represented, and form part of the discal white band which crosses both wings as described above. Beyond the band, the outer

edge of which is not sharply defined, the ground colour is greyish-white, with a varying degree of purply-brown especially toward the extremities of areas 3-4 of the fore-wing and from 3-6 on the hind-wing. Within this border are three parallel series of darker, shadow, angled marks.

The variation on the underside of the females is in respect of the degree of dark scaling proximal to the inner edge of the discal band of the fore-wing.

EARLY STAGES: These are unknown to me.

DISTRIBUTION: Within Kenya, this species is confined to the coast forests from Ganda to the Shimba Hills. There is some seasonal variation, as evidenced by the intensification of the markings on the underside of both sexes. Specimens taken in March-April are lightly marked below, whilst those captured in July are heavily marked. The first few specimens secured were taken by Messrs. Millar and Jeffrey in a patch of forest near Kwale; later in the year a series of eight males and nine females were obtained in the Makadari forest on the top of the Shimba hills. Although the species must have been numerous, it was only secured in one spot where a certain amount of tree felling had taken place and an open glade had been formed in the dense forest growth. Here many examples were seen as they glided along the sunlit opening for a few moments to disappear in the adjoining thick growth.

It will be seen from the plates that the female of this species resembles certain forms of *Cy. herminia johnstoni*, and furthermore, there is a similarity between them and the female of *Euptera pluto kinugnana*.

***CYMOTHOE TEITA*, sp. nov. Pl. 32, figs. 1-4.**

Expanse: Male, 48-50 mm.; female, 60 mm. Sexes unlike.

MALE: General colour cream with black border carrying cream arrow marks. F.-w. strongly suffused with black over the base of the cell and basally in areas 1a and 1b with an extension of the black along area 1a so that it joins the broad black border. Costa reddish at the base then black where it merges into the black of the apex. Central portion of the wing cream, with the veins black, the cream area including the mid-portion of 1b, the bases of 2, the extreme of 3, 4-6. Beyond this cream area the wing is dark grey-black carrying a series of very distinct arrow-shaped cream marks accentuated distally by jet black. The tips of the veins are orange especially 5-7. H.-w.: Extreme base, costa, inner fold and broad marginal border dark grey-black, central portion of wing cream; the marginal border ornamented with cream arrow marks as in the fore-wing. End of veins with triangular orange tip marks; in between them the

fringe has a white spot. The black arrow marks are accentuated distally with a black line then by a narrow cream line.

Underside: Wings crossed by a narrow dark median line; the inner portion of the wings creamy with a slight greyish dusting at the base and along the fold of the hind-wing; outer portion of wings with greyish shading over the portion corresponding to the dark border of above; the arrow marks not well defined but obscured, but each with a black dot at base; areas 1a, 1b, and 2 distal to the median line rusty brown, strongly toothed, the other areas also toothed up to the costa in blackish; the incised portion of fore-wing shaded with blackish especially toward the fringe. The cells of both wings with black-lined marks; area 1b with a black circle and beyond this a crescentic black mark. Fore-wing with a discal series of crescentic black lines.

FEMALE: General colour black with a wide median white bar. Both wings with the basal half black, with black lines in the cells, the distal margin of the black area sharply defined and just within its edge small white dots in 2 and 3, and large white marks in 4 and 5 of the fore-wing, and in the hind wing diffuse white spots in 4-6. The marginal border is broadly grey-black, on its proximal edge, strongly dentate with black arrow marks, with white spots at bases, then admarginally a further series of jet black sagittate marks. The veins with triangular orange spots at tips.

Underside: Basal portion brownish-grey bordered by a brown median line. The white bar of above as well as the other white spots are here represented, but the outer border is purply-grey with a faint indication of the black marks of above; marginal orange spots larger than above. The fore-wing cell and the base of 1b have ochreous patches outlined in black.

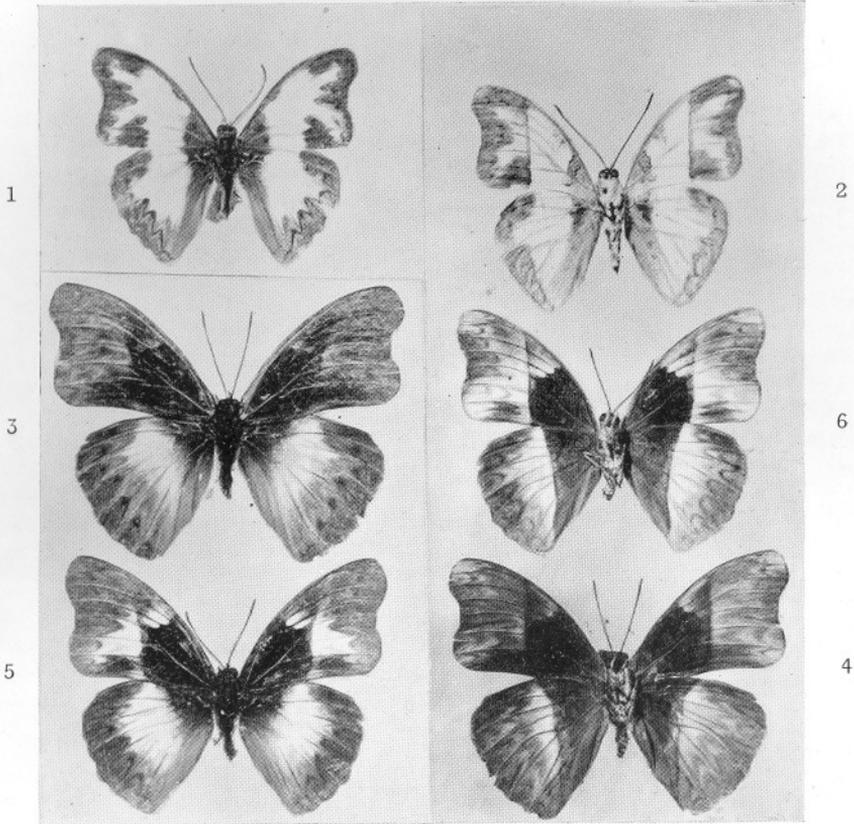
EARLY STAGES: Unknown.

Type: Male, Bura, 5,000 feet, October, 1938, in Coryndon Museum, Nairobi, Kenya. Paratypes four. Type of female with same data.

DISTRIBUTION: This species has so far only been taken on the Bura ridge and in patches of forest on the Teita Hills.

Remarks: This very distinctive insect was submitted to Prof. Carpenter of Oxford for his opinion. There is nothing like it in the Hope Dept., Oxford. Prof. Carpenter writes as follows: "It is not matched by anything in the British Museum. The red apical dots at edge of wing are quite peculiar; also the black lines traversing the f.-w.; also the sub-marginal white lunules are not 'staggered' as in *aurivillii*, Stgr. (= *zombana*) which seems to be nearest to it."

PLATE 33



Cymothoe indamora amorinda, van S.

Figs. 1 & 2, male, upper and under surfaces.

Figs. 3 & 4, f.f. *damora*, van. S., upper and under surfaces.

Figs. 5 & 6, f.f. *amorinda*, van. S., upper and under surfaces.

Of the female, he writes: "Very like a series of B.M. ascribed to *melanjae*, B.-B., but the male of *melanjae* differs considerably from yours except in respect of the lines crossing the white disc of the f.-w. Prof. Carpenter put forward the suggestion that *aurivillii*, *melanjae* and *teita* may be forms of a polymorphic species."

Owing to its distinctive feature I have described the Bura insect as a species. The five males taken are uniform in colour and pattern. There is a slight superficial resemblance between this species and *vumbui*, van Son., from the Vumba Mts., S. Rhodesia. It is possible that they are conspecific, and represent geographical races, but they are so distinctive that there is little chance of confusion of the two.

CYMOTHOE INDAMORA AMORINDA, subsp. nov.

Pl. 33, figs. 1-3. Pl. 34, figs. 1-3.

Expanse: Male, 55-57 mm.

MALE: General colour creamy white with black basal area and border. F.-w.: Basal area of fore-wing dark grey with a green bloom, with a darker spot in the cell and in 1b. Costa blackish with a slight expansion, sub-costa at apex of cell and then merging into the grey-black border. Blackish border with an irregular inner edge due to an extension of the cream-white toward the apex in 5, then obliquely down in 1b and 2; the dark areas in 1a, 1b, and 2 enclosed by this white projection and the white discal portion; the black in these areas darker than the border. There are also black lines at the apices of the marginal dark border. H.-w.: Basal area and an extension through 1b grey with greenish tinge; inner fold greyish; marginal border brown-grey with a dentate inner margin; disc of wing creamy with an extension of the cream ground into the border at 5. The border carries a series of black contiguous angles largest in areas 2-4 then smaller and less defined in 5-7. The black border is more dense at the upper angle.

Underside: Basal areas of both wings greyish, followed by a white zone sharply differentiated from the border and crossed by an almost straight median line. The cell has a few wavy lines at the base in black and in brown toward its apex; the indentation of the marginal border by the white ground colour as seen above is again reproduced below, but the dusky areas are here greyish with a slight brown tinge especially at the incision of the fore-wing.

Type, Kalinzu, W. Ankole, Oct., 1937 (T. H. E. Jackson). Paratypes, 8, Kalinzu, Oct., 1937, Jan.-April, 1938 (T. H. E. Jackson).

FEMALE: This sex occurs in two forms: (a) ground colour brownish-black, darker over the base of the hind-wing and fore-wing with the black area in this latter extending distally from a point at about mid 1a through to the costa to almost the origin of vein 7. There is often a contiguous black area in 1b which is more apparent in the second form to be described. Distal to this basal dark area in 3 and 4 are two indistinct ochreous streaks, otherwise the fore-wing is immaculate. Hind-wing with the basal area blackish-brown slightly greyish toward apex of cell; disc of wing with a large ochreous to creamy patch with a diffuse proximal border and a dentate distal edge filling the basal portions of 1c-6 and mid 7. Beyond this a wide brownish-black border carrying a series of submarginal blackish triangular spots slightly joined by a dark angled line. = *damora* f.f. nov.

Type, Kalinzu, W. Ankole, Dec., 1937 (T. H. E. Jackson)
Paratype 1, same data.

Form (b) differs from the above in that the hind-wing patch is white, more defined proximally and more angled into 4 and 5 and thus nearly meeting the submarginal row of dark spots. In the fore-wing the basal black area is more defined and is accentuated distally by a white bar, represented in 1a and 1b by slight streaks, on which a large dark spot is placed, and widest in 2 gradually tapers in 3 and 4, forming a triangle; beyond the cell are two white spots basal in 4 and 5 and slightly present in 6. Beyond this white patch the wing is brownish-black and immaculate. = *amorinda* f.f.

Type, Kalinzu, W. Ankole, Dec., 1937 (T. H. E. Jackson)
Paratypes five same data, and Feb., 1938, Jan., 1938.

Underside: The wings are crossed by a median dark line, straight or almost so across the fore wing, and in the hind-wing slightly angled from the costa to vein 6, then in a straight line toward the hind angle. The basal areas of the wings on the proximal side of this line are greyish-brown with in the fore-wing wavy cross lines through the cell, sub-basal in 1b and beyond this a discal wavy line.

In form (a) there is some white scaling sub-basal in 4-6, beyond the median line the wing is more ochreous-grey, the f.-w. brown with faint whitish shadow marks distal in 1b and 2, while the apex is slightly white scaled. In the hind-wing the ochreous patch is defined proximally but distally it is diffuse and indented by an indistinct post-discal row of arrow marks outwardly shaded with whitish. The border is ochreous-grey-brown.

In form (b) the basal portions of the wings, proximal to the dark median are dark ashy-brown crossed by indistinct wavy lines through the cell and discally. The white areas of above are here present but less defined and more restricted,

and beyond the whitish area in the fore-wing the apex is ochreous grey-brown with a row of darker spots from 2-5, the tip of the wing being whitish scaled.

EARLY STAGES: Unknown.

DISTRIBUTION: This species has been taken by T. H. E. Jackson in the Kalinzu Forest, S.W. Uganda. The second form of female described above bears a strong resemblance to the figure of *hewitsoni* given in Seitz. Pl. 35, but is distinct.

[Confined in my experience to the Kalinzu forest in W. Ankole, where in small local areas it is fairly common. The males behave as do those of *Cy. caenis* and *Cy. h. johnstoni*, choosing a branch usually high up in a sunny patch and chasing each other and fighting for the best vantage points. The females are very weak fliers and easy of capture, but they are protected by a remarkable resemblance on the wing to *Amauris* and certain Acraeas such as *Ac. lycoa* whose flight would appear to be mimicked as well.—T.H.E.J.]

The specimens described above were submitted to Mr. G. Talbot, as they presented some difficulty. Mr. Talbot has kindly made a comparison with material in the British Museum, and writes as follows: "Male: this specimen differs slightly from the eleven males in the B.M. Hind-wing: post-discal black scalloped line from veins 2-6 much thinner, and edging the pale discal band from veins 3-6 there is usually a series of dusky spots on the band, of which this specimen shows a remnant in areas 3 and 5. Underside paler than ours, the post-discal lines much thinner; on fore-wing this line at the inner margin is directed outwards whereas in all ours it is straight; also it is slightly waved, but in ours it is quite even; discal crenulate line faintly marked anteriorly, and obsolete below vein 4; in our specimens it is strongly marked throughout. Hind-wing post-discal line waved anteriorly; discal line, as on fore-wing, only marked anteriorly. Both wings with the distal markings weakly defined.

"Female: We have a series of nine; yours differ in certain points: Upperside of f.-w. with the post-discal white patch separated from the spots beyond end of cell; the latter spots in 4 and 5 are narrower; the inner edge of white patch is continued to vein 5, where it meets the distal edge of the somewhat triangular-shaped patch. In typical *indamora* there is a continuous white band, broadening out below vein 3. Hind-wing as in *indamora* except that the post-discal black spots are less distinct. Underside apparently not different from *indamora* in which some variation occurs in the curvature of the post-discal lines limiting the dark proximal areas; on fore-wing, the extent of white scaling beyond the cell, and in the distal area, is also variable.

"The dark female specimen I take to belong to the same species, but we have no specimens like it. It requires a name.

"As these insects are rather variable, the differences indicated in the specimen (male) must be constant to some degree, especially on the underside, in order to say that it represents another form or sub-species."

In a further communication Mr. Talbot states: "The type of *indamora*, a female, came from Calabar. Fore-wing upper-side with inner edge of discal white band only slightly angled at vein 4, and oblique below this vein, so that the white patch in area 2 is narrow and does not reach vein 2; outer edge of band more even than in the eastern race and with no distal projections at veins 2 and 3.

"The male, Oban, Distr., S. Nigeria, differs from eastern race chiefly on fore-wing upper-side; outer edge of discal band sharply defined and, as in *hewitsoni*, separated from the outer curved band. Underside not obviously different, but on hind-wing the discal irregular thin line is very weakly marked."

Cymothoe zenkeri (= *langi*, Holland) occurs together with *indamora* and *hewitsoni* in the Congo and Cameroons. Whether *zenkeri*, *indamora*, and *hewitsoni* are three species seems doubtful. One of our two *hewitsoni* males is from the same area as our Nigeria male of *indamora*, but was caught in June, the others in March.

C. zenkeri, Rich., has *langi*, Holland, and *stetteni*, Bryk., as synonyms. The discal band on both wings is sharply defined. Fore-wing with narrow band not complete, but two sub-apical spots and a lower spot. I have not seen this from Uganda."

CYMOTHOE CYCLADES OCHREATA, Gr.-Sm. Pl. 34, figs. 3-6.

Expanse: Male, 66 mm.; female, 72 mm. Sexes unlike.

MALE: General colour orange with black line on hind wing, and black spots. F.-w.: Ground colour bright orange with only very slight dusky tinge at the base, and with a slight darkening over the distal portion due to the dark colour of below showing through. Apex and margin of wing diffusely dusted with blackish scaling dentate in spaces, and just within this a sub-marginal row of black dots more or less following the contour of the wing to sub-apex.

H.-w.: Ground colour orange, slightly dusky at the base, brownish at the fold. Disc of wing crossed by a black line clear-cut proximally, and more diffuse distally. Two dark marks sub-costal in 7; a double ring and a circle in the cell, and a few dark discal marks. Border of wing dusted with black scales, internal to this, a well-marked zigzag line with black dots in the spaces, and more internal, a shadow line faintly indicated.

Underside: Sandy-ochreous with a grey tinge; fore and hind-wing crossed by a well-marked median band, clear cut proximally and strongly shaded greyish distally. In the fore-wing a series of dentate or tooth lines enclosing dull orange on the proximal side of the median line. A strong black S mark sub-basal in 1b; cell with black-lined marks. The marginal border carries a zigzag shadow line and a series of black dots submarginally. H.-w.: Ground colour as fore, slightly more greyish; median line as described, and beyond this, shadow lines and black spots as in fore-wing.

FEMALE: Basal areas to as far as the median line dark-grey-brown and beyond this paler, more whitish especially on the fore-wing dusted over with brownish scaling. On the proximal side of the median line in areas 2-5 of fore-wing are clear-cut white triangles outlined in black. In areas 1a and 1b are large diffuse dark spots on the median line extended up in the other areas as dark angular marks. There is a further row of post-discal arrow marks surrounded by whitish from 1a to the sub-apex. Distal to this is a series of small black submarginal dots, following the contour of the wing.

H.-w.: Basal area as described, but inside the median line in areas 6-7 are two pale whitish marks, and in these same areas but distal to the line are two whitish arrow marks represented in the other areas by dark shadow marks. A series of dark submarginal spots are present from the anal angle to sub-costa in 7, the two upper marks being largest.

Underside: General ground colour of both wings greyish-buff with the dark narrow median line distinct throughout. The white triangles of above are again reproduced. There is also a double dark mark in sub-base of 1a and 1b. The other fore and hind-wing marks are faintly indicated.

EARLY STAGES: Unknown.

DISTRIBUTION: This species occurs in the forests of western Uganda, Budongo, Bugoma.

[Very similar in habits to *Cy. lurida butleri*. I have taken a male feeding on human excrement. It is usually confined to the dense forest regions and its distribution is restricted to the Budongo forest whence it extends into Ituri in the Congo Belge. —T.H.E.J.]

CYMOTHOE BECKERI THEODOSIA, Stgr. Pl. 35, figs. 3 & 4.
Pl. 35a, figs. 1 & 2.

Expanse: Male, 90 mm.; female, 93 mm. Sexes unlike.

MALE: General colour golden yellow with dark hind-wing border. F.-w.: Golden yellow paler in the disc, and dusky shaded along the outer edge of the costa and outer border; fringe

dusky and white spotted. A submarginal row of arrow-shaped dark spots becoming rounded toward apex. Strong markings of lower surface show through above. H.-w. pale creamy-yellow shading to golden just before the dark black-brown border. Fore and hind-wings strongly scalloped with white spots in the incisions, submarginal row of contiguous arrow marks with paler areas at apices submerged in the dark ground of the border.

Underside: A rich rusty-red paler over the discs; apex and a mark from costa to 4 ochreous; cell and areas 1b and 2 with irregular white marks; area 1a mostly white, over proximal two-thirds. Shadow marks present in post-discal area and submarginal marks indistinct.

H.-w.: Rusty-red paler over the disc. Basal area of wing with conspicuous white marks, the outer discal ones being in a row from costa to just above the anal angle. Post-discal shadow marks indistinct; between the outer row and the submarginal angled line are ochreous streaks. Fringe alternately black and white.

FEMALE: General colour black with white spots and a large creamy patch in the hind-wing.

F.-w. mostly black with a bluish suffusion over the base mostly in 1b; central portion of 1a and 1b cream. Cell with two white marks; sub-basal in 2 a large round white spot; a series of three white streaks in a row sub-basal in 6-4, then continued down as white arrow marks through 3-1b. A further row of white marks crosses the post-discal area while there is a conspicuous row of more or less rounded white spots submarginally.

H.-w. with a large cream area filling the centre of the wing; basal area suffused with blue scaling; inner fold of wing blackish continuous with a broad black marginal border, with black extending slightly up the veins. The rows of white spots, one outer post-discal, one submarginal. Most of the spots, with the exception of those in the cell and the three long ones beyond, tinged with bluish distally.

Underside: F.-w greyish with the white markings of above again reproduced but not strongly. H.-w. as fore, but the basal area with a conspicuous white spot at base of 7 and 8; a double black mark in the cell, and a dark bar crossing from the costa to the inner fold, at the discal area. There is also a narrow median line running through the white patch.

EARLY STAGES: Unknown to me.

DISTRIBUTION: This species has been taken in western Uganda in forest. The female of the Uganda form lacks the orange patch in the hind-wing.

CYMOTHOE EGESTA CONFUSA, Auriv. Pl. 35, figs. 1 & 2
Pl. 37, figs. 1 & 2.

Expanse: Male, 65-68 mm.; female, 85-88 mm. Sexes unlike.

MALE: General colour ochreous-yellow with darker hind-wing and yellowish bar.

F.-w.: Ochre-yellow with a greenish suffusion over the base, shading to brown-black 1-3 where the median band is clear-cut proximally. The distal border of the yellow median band is defined by a broad confluent series of arrow marks which lessen in size as they approach the apex. The marginal border is grey-brown and internal to this is a submarginal series of blackish spots, joined by a narrow line in 1a-2, then again in the apex.

H.-w.: Basal area greenish-brown shading to brown-black at the proximal edge of the yellowish median band; this band is widest in 6 and gradually tapers to just above the anal angle which is produced to a point. Distal to the median band is a dark brown-black zone, indented on its outer aspect by a zigzag ochreous line; this in turn is followed by a series of black arrow marks joined together on an ochreous base. The marginal border is grey-brown to olive.

Underside: The ground colour is ochreous strongly suffused with grey especially over the hind-wing. The median line is indicated by a narrow black line outlined distally by ochre. The markings are diffuse except those in the sub-base of 1b and in the cell. The submarginal row of spots are small and black.

FEMALE: General colour dark grey-brown shading to a deeper brown at the cream median bar which crosses both wings from the anal angle then up through the fore-wing to 5. Internally it is sharply defined, but distally in the fore-wing it is bordered by diffuse dark arrow marks. In the hind-wing it is clear-cut. In some specimens there is a pale area above the median band in 6. The wide border of the wing is less dark brown and carries a row of sub-marginal arrow-shaped black marks which follow the contour of the wing and becoming smaller as they reach the apex. The fore-wing cell is crossed by dark wavy lines while there is also a series of dark discal arrow marks from costa to 1b.

Underside: Ground colour ochreous grey, with the median line narrow and internally bordered with brown especially on the hind-wing. The submarginal row of blackish dots is present in both wings but obscured in areas 1a and 1b of the fore-wing. There is a strong circular signet-ring mark in 1b of the fore-wing and less strong marks in and beyond the cell.

EARLY STAGES: Unknown.

DISTRIBUTION: The species occurs in the forests of western Uganda at Katera and Kalinzu and more plentifully in the Kivu

area. It is a ground feeder and is usually seen flying low to the ground with gliding flight, but is not easy of capture. The Kivu specimens are richer than those taken in Uganda, and the ad-marginal ochreous band of the hind-wing is broader.

CYMOTHOE LURIDA BUTLERI, Grunb. Pl. 36, figs. 1-4.

Pl. 37, figs. 3-4.

Expanse: Male, 70 mm.; female, 82 mm. Sexes unlike.

MALE: General colour golden yellow with darker border. **F.-w.:** Ground colour golden-yellow shaded with olive at the bases, particularly in the hind-wing, with an extension through 1c, fold of wing buffy-grey. Costa of f.-w. narrowly black at edge, widening out toward apex; a brown apical line below the costa, apex and marginal border brownish. Submarginal row of brown arrow marks obscure in 1b, but largest in 3 and 4. Some specimens have a few wavy lines in the cell; such specimens usually have a broader border. Fringe dark brown with white spots in spaces.

H.-w.: Border brown with a shading of the same colour to beyond the row of submarginal arrow marks; these marks may be separate or joined up by a fine line.

Underside: Variable, either brownish-ochreous, or olive ochreous, the wings crossed by a median brown line outlined distally with ochreous, more or less straight from anal projection to 3 then waved or angled and curving inward to mid-point between apex and end of cell. The markings are obscure except the black-lined ones of the cells, one beyond the f.-w. cell, and a circular one in 1b. **F.-w.** with a zigzag discal line and between this and the upper part of the median line, an ochreous patch extending to the costa. Fore and hind-wings with submarginal blackish arrow marks, and faint post-discal greyish arrow marks. Base of hind-wing with darker basal patch as seen above; cell with two ochreous spots and one at base of 7 and 8.

FEMALE: General colour red-brown with black tip to fore-wing and white sub-apical bar.

F.-w.: Basal half red-brown with dusky shading particularly beyond the cell; cell with distinct irregular red marks outlined with black. Beyond the cell, black, followed by four distinct white triangular marks in the disc outlined in black with an extension of the white into the costa, and continued in 2 as a pale triangular spot or a black angle. Beyond this bar, to the apex the ground colour is black-brown but crossing it are two rows of white triangular spots with black arrow marks centrally, the largest patches being in 2 and 3, smaller in 1b, and with much less white in 4-6. These white spots are con-

PLATE 34

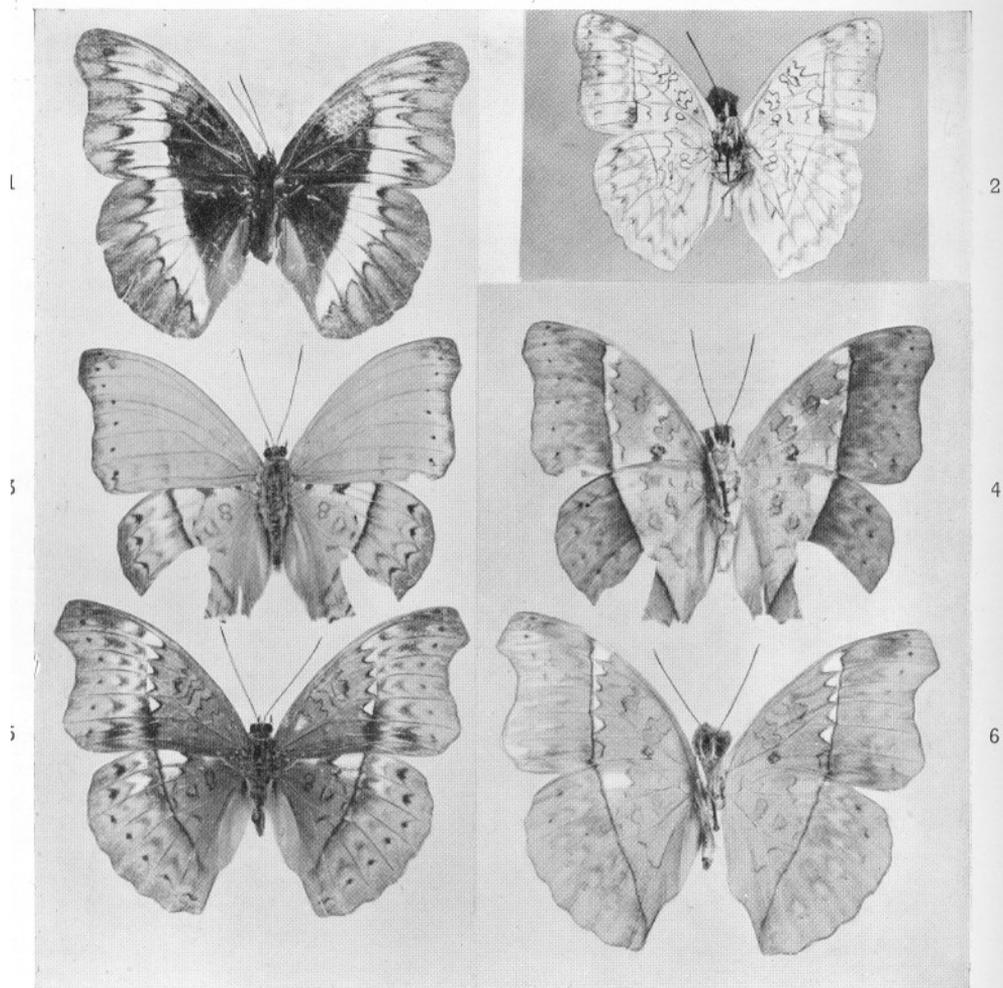


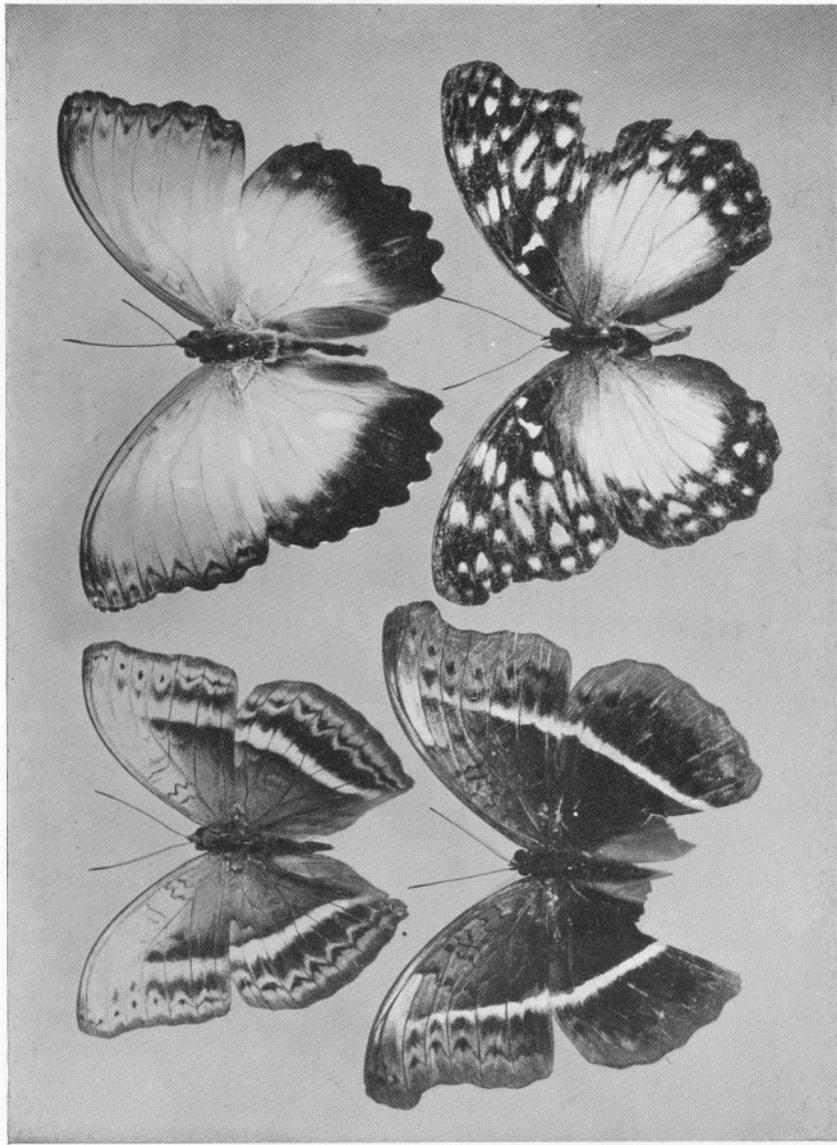
Fig. 1, *Cymothoe herminia johnstoni*, f.f. *budongo*, van. S.

Fig. 2, *Cymothoe coranus*, male, undersurface.

Figs. 3 & 4, *Cymothoe ochreata*, Gr. Smth., male, upper & under surface.

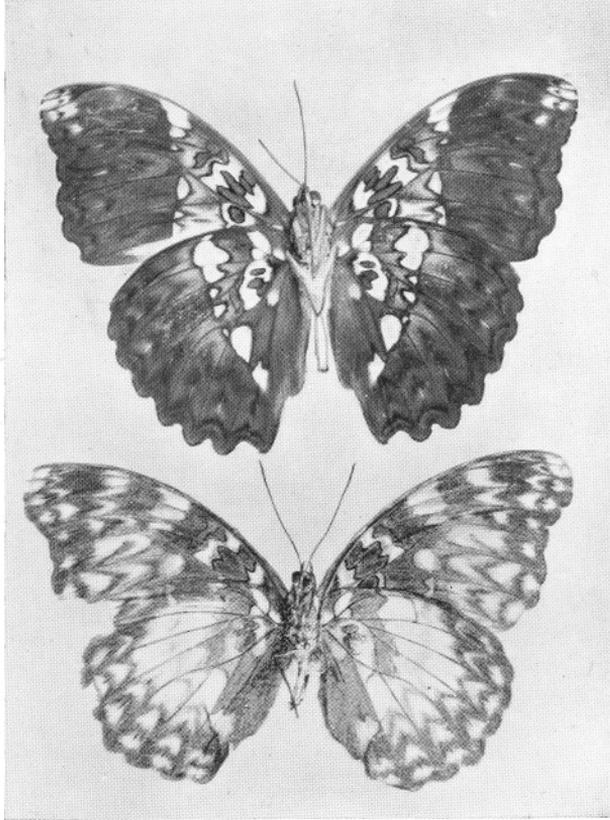
Figs. 5 & 6, *Cymothoe ochreata*, Gr. Smth., female, upper & under surface

PLATE 35



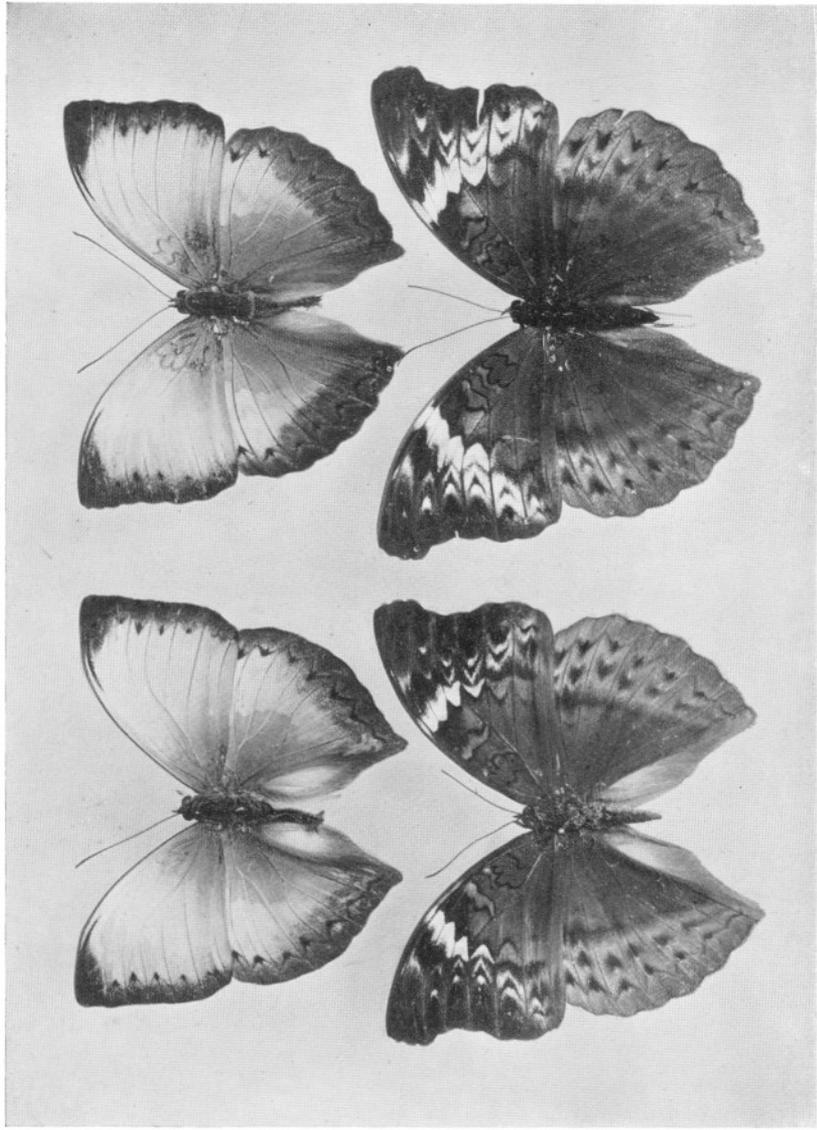
Cymothoe egesta confusa, Auriv. Figs. 1 & 2, male and female.
Cymothoe beckeri theodosia, Auriv. Figs. 3 & 4, male and female.

PLATE 35A



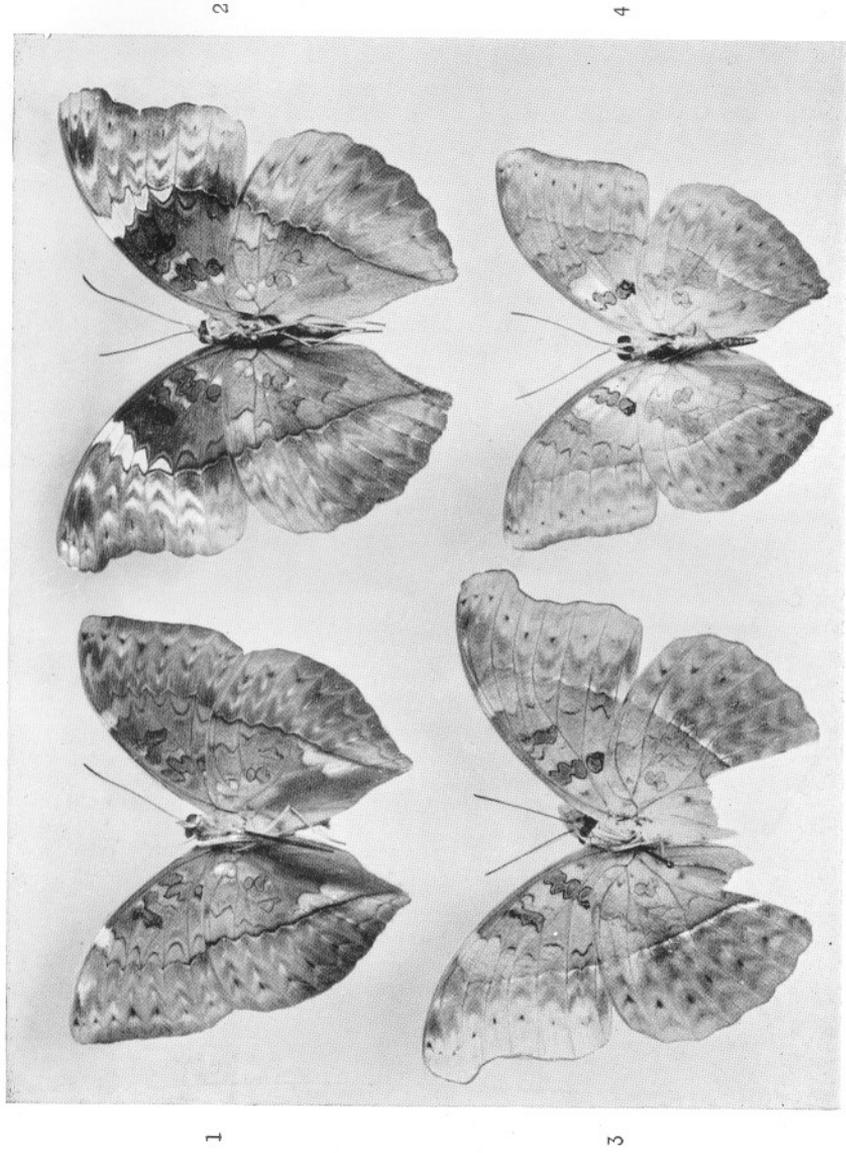
Cymothoe beckeri theodosia, Auriv., under surfaces.

PLATE 36



Cymothoe lurida butleri, Grunb.
Figs. 1 & 2, males. Figs. 3 & 4, females.

PLATE 37



Cymothoe lurida butleri, Grunb. Figs. 1 & 2, under surfaces.
Cymothoe egesta confusa, Auriv. Figs. 3 & 4, under surfaces.

contiguous with the discal white bar and form a more or less continuous sub-apical bar across the wing. The submarginal row of black arrow marks, following the contour of the wing, are white tipped. H.-w.: Ground colour red-brown slightly more dusky along the costa and inner margin, and paler distally. Dividing the basal red from the paler area is an obscure series of dusky discal marks largest in 5-7. Beyond this and in these same areas are whitish patches and continuous with them is a series of post-discal dusky shadow arrow marks. The submarginal black arrow marks are distinct and largest in 6 and 7. The fringe is dusky with white spots, increasing in length at the upper angle, and forming a white line.

A variation to the above has the red cell marks of the f.-w. more distinct; but there is a reduction in the white sub-apical bar; in the hind-wing the differentiation between the dark basal area and the paler border is stronger so that the submarginal and post-discal rows of black spots appear more distinctly.

Underside: Variable; either a brownish-grey, olive-grey, or greenish-ochre, with shading of violet-grey toward the apical half of the fore-wing and beyond the median line in the hind-wing. The median line is similar to that in the male, but red-brown, with ochreous, often with a strong shading of dusky-grey distally. The white areas of above are here reproduced, but more indistinctly. The outer border of the h.-w. is shaded with rusty as is also the incised margin of the f.-w. The discal and post-discal markings are ill-defined shadow marks, greyish with white shading. The submarginal spots are small. The inner fold is often strongly pink, or greyish-red.

EARLY STAGES: The eggs of this species are laid on the leaves of *Rinorea* (VIOLACEAE). The egg stage lasts a week to ten days. The larva in second stage is deep sky-blue with black branched spines; the two immediately behind the head, longer. The spiracular line is a vivid scarlet, and below this are short spines, yellow in colour. Head and anal segment yellow. The full-grown larva is longitudinally striped. The dorsum is olive-green shading to sky-blue followed by a broad band of crimson-madder, and below this a yellow fading out to yellowish-white on the ventral surface. This lateral yellow carries short yellow spines. The dorso-lateral line, corresponding to junction of the green with blue, carries long black branched spines; the longest spines are those on the first thoracic segment, and those on the two last segments. The head is bright yellow with black mouth-parts. The last segment is also yellow.

The pupa is deep green, rather paler on the wing-cases. The spiracles are scarlet, outlined with black, the black edging extending slightly to the dorsum. I am indebted to Miss Fountain

for the description of the larva and pupa. Unfortunately the shape of the pupa is not given.

DISTRIBUTION: This species occurs through most of the forests of Uganda, east to the Elgon-Nandi, Kaimosi forests. It is comparatively common, and the males are very conspicuous. In common with others of this group, they frequent the undergrowth and will settle on decaying fruit. The undersurfaces of both male and female are definitely cryptic, for when the insect is at rest with wings folded it is difficult to detect. The flight is low and gliding, but nevertheless swift and the insect is not easy to capture.

[Although found throughout Uganda and extending east to Kavirondo, this species is never much in evidence. Both sexes are shy and retiring, preferring shady places or even dense forest to the more open spaces frequented by the other representatives of the genus. They are difficult to capture. The flight is swift and the insect is very much on the alert.—T.H.E.J.]

CYMOTHOE (Harma) THEOBENE. Dbl. & Hew.

Pl. 38, figs. 1-6. Pl. 38a, figs. 1-4.

Expanse: Male, 50-55 mm.; female, 62-65 mm. Sexes unlike.

Both males and females have the posterior border of the fore-wing incised so that the posterior angle is not rounded.

MALE: General colour dark brown with yellow bar and spots. Bases of fore and hind-wings dark brown shading to orange in the fore-wing and to grey-brown at the fold of the hind-wing; hind and fore-wing crossed by a wide yellow-cream bar, tapered at toward the anal angle and widening out through the fore-wing and reaching the costa, the distal edge in fore-wing strongly shaded with orange. Beyond this band both wings are dark brown, the fore-wing with a series of yellow spots running from below the costa to the hind-angle, with two large spots sub-apical. The hind-wing has a series of sub-marginal yellow spots distally accentuated with a dark line which follows the contour of the wing.

Underside: Both wings ochreous with a dark median line crossing both wings, sharply defined proximally but shaded distally. On the proximal side are a series of contiguous dentate cream spots which widen out toward the inner edge of the hind-wing. The cell of the fore-wing has a reddish irregular bar which carries on into 1b; beyond the cell is another reddish bar, whilst the base of the hind-wing is freckled with red-brown and blackish scaling. The borders of both wings have diffuse ochreous shadow marks and blackish submarginal dots.

FEMALES: Variable, but there are three main forms as follows:

Form A: Mostly white, with darker basal areas and blackish borders. Basal areas of fore and hind-wings suffused with greyish-brown, often with the distal edge accentuated, and clear-cut by a wavy dark-brown line which fades out toward the inner fold of the hind-wing. There are usually two white triangular marks beyond the fore-wing cell followed by one sub-basal in 2. The rest of the wings are white dusted over with greyish scales, border of wing grey-brown more especially at the apex and outer border above hind angle, but the white ground extends into area 5 distally. There is usually a large sagittate dark mark sub-apically, then a more or less continuous series of outer post-discal arrow marks, and a sub-marginal series. The hind-wing is less strongly dark along the border, the widest portion being in the position of the "tail." There are usually two large dark marks in 7, sub-costa followed by a submarginal series, those toward the anal angle being joined by an angled line. There are often two extra dark spots in 4 and 5. *Nominate ♀ f. theobene.*

Underside: Ground colour white slightly pink to violet suffused over the basal areas, the whole heavily stippled with grey scales. The arrangement of the marks are similar to those of the male.

Form B: A variety in which the whole of the upper surface is strongly suffused with brown-grey scales, slightly more reddish at the bases of the wings. The white spots are obscured, but the dark ones appear as a double row through the fore and hind-wings along the outer border. On the hind-wing, however, there is a large quadrate white spot in 7 at about the midpoint. *♀ f. nigro-lutescens, Poulton.*

Form C: Somewhat similar to B, but the general tone a reddish to tawny-grey. The sub-costal dark marks of the fore-wing more distinct. *Nr. ♀ f. lutescens, Poulton.* There is every combination of these three forms to be found in a long series. *♀ f. sordida.*

Form D: This represents a very distinct form in which the fore and hind-wing white bar is reduced in width, more or less evenly in the fore-wing to only 3-4 mm., widest in 2, and in the hind-wing it is widest in 6 and then gradually tapers off toward the hind-angle. It is interrupted in 6-7 by two large black semi-quadrangular spots. The reduction in the width of the white band is due to an invasion of the white on the distal border by a considerable increase in marginal black, to enclose the row of dark post-discal spots which are usually free. In the hind-wing there is this same encroachment, but on the other hand the post-discal row of dark spots, usually irregularly defined, are here

represented by large blackish marks distally flecked with white. All the areas which are dark are more blackish than in the nominate female form.

It will be observed then that this form bears a strong superficial resemblance to certain black and white females of *Cy. h. johnstoni*, or to the similarly coloured females of *Euryphura plautilla*.

This distinctive female may be known as *jacksoni* f.f. nov. Named in honour of Mr. T. H. E. Jackson, who obtained the form in Kalinzu forest, western Ankole, Dec., 1937 (van Someren).

Reference to the named female forms of this species will be found in the *Trans. Ent. Soc.*, 1921, pp. 469-472, by Prof. Poulton.

The coastal Kenya race of *theobene* to which the name *blassi*, Weym., may be applied, differs in the male by being less strongly marked with dark brown, thus generally more yellow, with the fore-wing median band wider and less defined distally. On the other hand, the females are much more strongly marked basally, and have a wide dark border; the white area thus stands out as a broad median band. The hind-wing is not "tailed." Pl. 38, figs. 7 and 8.

EARLY STAGES: The eggs are laid on a species of *Rinorea* (VIOLACEAE) and on *Dorvyalis* (FLACOURTACEAE). The adult larva is green with a dorsal dark green line paling toward the line of slightly branched spines which, starting at the first thoracic segment, run the length of the body to the penultimate segment. These spines are black. Below the spiracular line, which is yellowish, are smaller yellowish spines. The pupa is slender but has a strong keel on the abdominal segments, a lesser keel to the thoracic segments, and a marked ridge along the upper edge of the wing-cases. The spiracles are black with a yellow base. The head is only slightly bifid.

DISTRIBUTION: The species is very common throughout the forested areas of Uganda. They are less addicted to the ground level than most of this group. The common form of female is the white one, and this bears a resemblance to *Salamis parhassus*, which is equally common.

The coastal race is, so far as Kenya is concerned, rather a rare species, and my records are for the Rabai Hills and the Ganda Forest. It probably also occurs on the Shimba Hills from which it has been reported by my collectors. The species has also been taken in the Nairobi district in the Karura forest in 1916, but it is very scarce.

This species is subject to occasional migratory movement, but the reason is obscure.

[This is the commonest species of *Cymothoe* in Uganda and in some places, such as around Kampala and again in the S.

Sudan, it is indeed one of the commonest butterflies. Its habits are the same as for most of this group, but being so numerous the females are more in evidence.—[T.H.E.J.]

EUPTERA ELABONTAS, Hew. Pl. 39, figs. 1-4, 1a-4a.
? race *mweruensis*, Neave.

Expanse: Male, 45 mm.; female, 50 mm. Sexes unlike, usually.

MALE: General colour black with creamy or greenish-yellowish marks. F.-w.: Ground colour black; cell with a narrow streak sub-costal followed by two dots and a transverse line or crescent at end of cell; beyond the cell a sub-costal dot with a streak below. Sub-basal in 1a-2 is a yellowish bar; beyond this a wider discal band, narrow in 1a, slightly wider in 1b, widest in 2 and smaller and more distad in 3. In 4 there is a lunate mark with in 5 and 6 angled marks, apices directed inward; submarginally there is a streak in 1a, followed by U marks in 1b and 2, then by thicker marks in 3 and 4, then fine ones in 5 and 6. The marks in 1a and 1b are slightly greenish tinged distally.

H.-w.: Ground colour black. A yellowish bar crosses from the mid-costa through the bases of 6 and 5, through the cell and sub-basal in 1c; admarginally is a fine interrupted line following the contour of the wing. A second discal bar crosses from opposite the mid-point of the inner fold in gradually decreasing width toward the upper angle, the spot in 6 set in and small. A submarginal series of U marks runs from just above the hind-angle to the upper angle of the wing. There is then a fine admarginal interrupted line from anal angle to upper angle. The thorax has two whitish bars, while the abdomen has two double bars and a terminal dot. Pl. 39, figs. 1 and 4.

The above description fits specimens from the greater part of its range in eastern Uganda, thus agreeing with the characters of the race *mweruensis*, Neave, but two males from Entebbe and one from Mawakota exhibit a much wider discal band (vide Pl. 39, figs. 3 and 6), whilst the spot on the inner fold of h.-w. is large and white, as also the costal spot.

Underside: Ground colour ochreous-grey with a slight greenish tinge toward the margins; with the ground colour of the cell more greyish. The light marks of above are here white but in addition there is a black lined mark in the cell between the two white dots of above, and a triangular black-lined mark at the end of the cell. The white sub-basal marks in 1b and 2 are black lined proximally, while submarginally in 1b and 2 are a large and small black mark; and very small black dots in 3, 5, 6. H.-w.: Ground colour as described; white marks replace the yellow ones of above and in addition there is a series of black dots between

the discal band and the submarginal loop marks, the largest black dot is in 7.

The underside of the variety of male referred to above is more ochreous to rusty and of a stronger colour so that the white dots, lines, and bars show up more distinctly.

FEMALE: This sex occurs in two forms, the usual one being black and white and very *neptis*-like; the other very similar to the male, but larger, and without the prolongation to the anal angle of the hind-wing, thus the wing is more rounded.

Form 1. General colour black and white. F.-w.: Ground colour black, with the white markings arranged as in the male, but those of the cell and along the sub-margin rather obscured, whilst the discal bar is expanded more abruptly from a small streak in 1b to a large 4 mm. mark in 2 slightly smaller in 3, very small in 4, and contiguous with a streak in 5; other marks in 5 and 6 are "crochet hook" in shape. H.-w.: Ground colour black with a white streak at the base, followed by a narrow white bar as in the male, but the discal band wide except at the inner fold and 7 and slightly tapering toward the upper angle. The submarginal white line is not very distinct, but between this and the admarginal line the ground colour is blacker. The thoracic and abdominal bars are as in the male, but white. Underside very similar to the male but both white and black marks larger.

This can be taken as representing the dominant form. Pl. 39, figs. 4 and 8.

Form 2. Male like, that is, with a strong pattern of light marks on a black-brown ground, the light marks being cream, and larger than in the male, but otherwise similar. A point of difference lies in the fact that the ground colour is browner; nevertheless, practically all the lines, angles, and spots are accentuated by black on the proximal side. This may be known as *primitiva*, f.f. nov. Type, Katera, Oct., 1935 (T. H. E. Jackson). Pl. 39, figs. 2 and 7.

EARLY STAGES: We have not examined the eggs of this species, but larvae have been taken on a plant, not yet identified. They conform to the general shape of many of this group, being dull green with long feathery lateral spines rather paler in colour, those of the first thoracic and sub-terminal segments being longest. The first two thoracic spines are slightly brownish at the bases. When not feeding, the larva lies along the mid-rib of the leaf, usually on the underside, with the lateral spines pressed close to the surface, so that it becomes practically invisible. When it has attached itself for pupation the head is curled up toward the abdomen, and the lateral spines are brought forward and meet. The larva gradually loses its

full green colour and becomes a semi-translucent greyish-green. The skin is cast within 24 hours of suspension.

The pupa is pale green with a semi-glazed surface, the abdominal segments strongly ventricose, with very small black spots on the spiracles, and considerable angling of the third segment dorsally, the ridge being carried forward to meet the posterior angles of the wing scutae. The other abdominal segments are slightly ridged.

There is a slight constriction between the posterior angles of the wings over the segments scutella, then an expansion over the "shoulders" in the form of a ridge and terminal spine, and forward of this the ridge runs into the bifid horns of the head. The abdominal ridge and ala spines are yellowish to brown. There is very little venation of the wing scutes. The pupa stage lasts three weeks to a month under favourable conditions, but some may carry over for a longer period.

DISTRIBUTION: From the Kaimosi-Kakamega forests throughout the eastern portions of Uganda to Mawakota. It is a forest species. The female of the dominant type is a wonderful mimic of some of the larger *Neptis*.

[The males of this interesting genus are found in sunny patches in the forest, often several together, but each choosing a separate branch from which to take short flights to chase away each other or any other insect which may encroach too near their stance. The flight is rapid but they are comparatively easy to capture when settled, for they are bold and will even attempt to "chase" a moving net when raised too close to them. Females are usually taken before the sun becomes too hot, flying low along a road or path, or feeding on fruits or moisture. It is this difference in flight and habits which enables one to differentiate between them and *Neptis*.—T.H.E.J.]

EUPTERA HIRUNDO RUFA, J. & T. Pl. 40, figs. 1 & 2.
Pl. 41, figs. 1 & 2.

Expanse: Male, 40 mm.; female, 45 mm. Sexes unlike.

MALE: General colour black with greenish-cream markings. F.-w.: Ground colour intense black. Cell with a sub-costal streak at the base, followed by a "comma" mark, then by two transverse lines and a broken angle at end of cell. Beyond this are two longitudinal streaks, with a dot in 6. Sub-basal in 1b and 2 and basal in 3 are angled marks and a dot. A discal band widest in 1a crosses to 1b, then in 2 and 3 is represented by discrete spots, that in 2 being oblique and that in 3 small; this band is then represented in 4-6 by small dots. There is a submarginal series of V or U marks from 1a-4, then faint in 5, more distinct in 6.

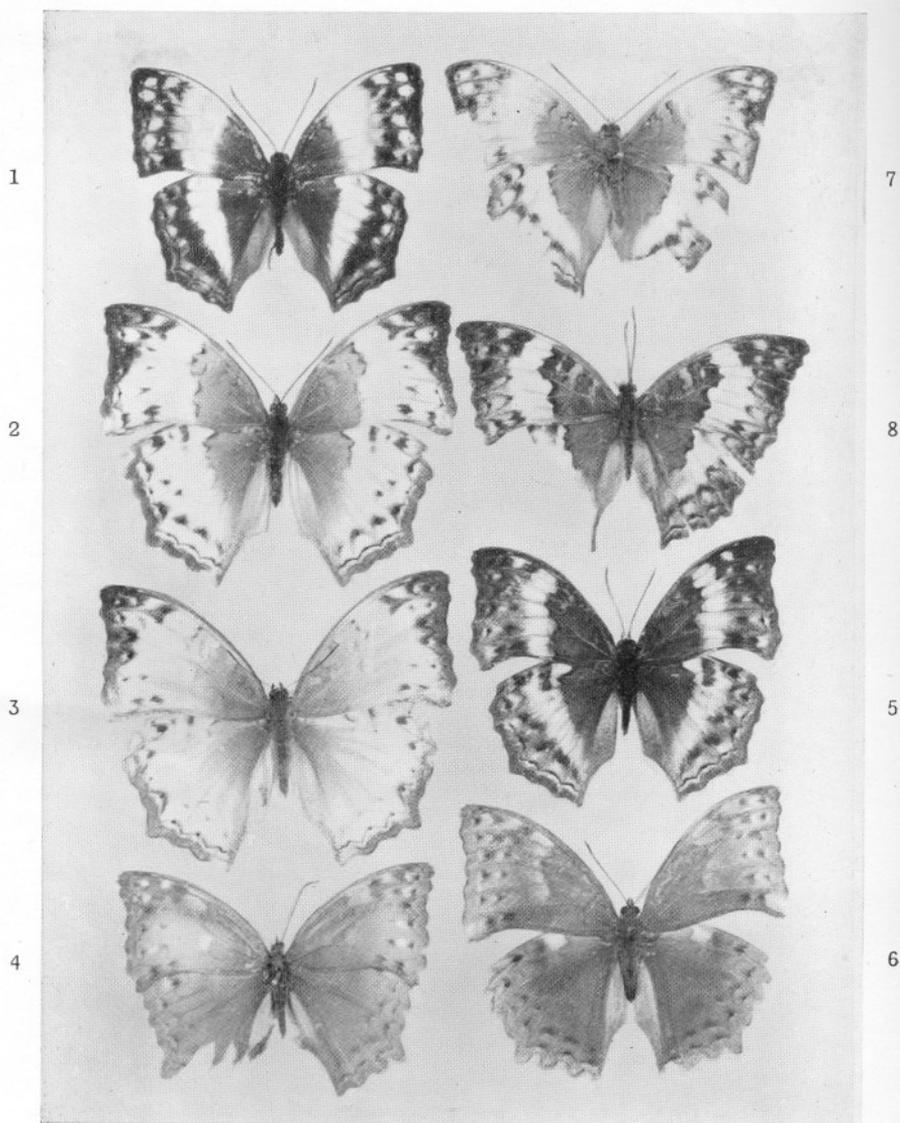
H.-w. more brown-black especially along the costa, marginal border and inner fold. There is slight transverse green scaling in the cell and a small white dot above. The discal band is triangular in outline, represented basally as a long line in 1c thence tapering rapidly to a small spot in 6. Beyond this band are small spots post-discal in 4-6. A series of lunate or U marks run submarginally from the upper angle to the "tail" or anal angle where the line becomes straight.

The thorax is crossed by two interrupted bands and a line over the scutellum. The abdomen has a large patch covering most of the segments except the basal three. All the light marks on the wings and body are greenish-cream.

Underside: Quite different to the upper surface and giving the appearance of a *Precis*. Ground colour grey-brown, darker over the basal portions and more brownish on the borders. Cell with a black-lined mark; at end of cell two black lines shaded outwardly with whitish; beyond, a double whitish angled mark in 5 and 6. A black mark sub-basal in 1b; distad to this and crossing the sub-bases of 2 and 3 an indistinct brownish line, and distal to this the ground colour is more greyish, in a bar up to the costa; the submarginal U marks of above are slightly indicated but each has a black dot, those in 5 and 6-7 with white proximally. The apex of the wing carries two white marks. H.-w.: Ground colour as fore. The brown line of the fore-wing is continued down through the hind-wing in a zig-zag passing sub-basal in 7-6-5, base of 4, then inwardly curved and then straight along the inner fold.

FEMALE: The only female form which we possess is *rufa*, J. & T. General colour dark brown-black with wide band across fore and hind-wing. F.-w. cell to just beyond, the basal portion of 1a and 1b the extreme bases of 2 and 3-4-6 black brown sharply cut from the discal orange-ochreous band. Cell with one longitudinal basicostal line followed by a triangular creamy spot, then by two transverse lines and one angled line beyond cell, all outlined proximally in black. The discal band is wide and extends from the mid-portion of 1a-6; it is widest in 2 and tapers off in 6. Within the distal ends of this band are black spots, large in 1b, then of uniform size to the costa. Within this series, in 5-7 are white dots. The dentate outer border of the band is outlined in black.

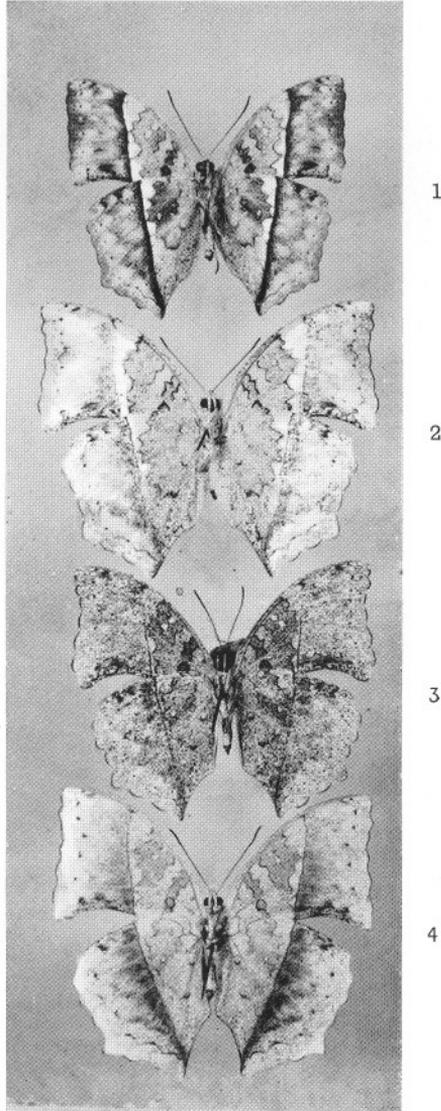
H.-w: Basal portion black-brown, straight for its greater length then angled up toward the costa in 7. Beyond this a wide creamy to orange band with on its distal border a series of black spots outlined distally with ochreous and followed by a black bordering which stands out from the blackish-brown of the border.



Cymothoe (Harma) theobene.

- Fig. 1, male. Figs. 2 & 3, nominotypical females.
 Fig. 4, f.f. *lutescens*, Poulton.
 Fig. 5, f.f. *jacksoni*, f. nov., van. S.
 Fig. 6, f.f. *nigrolutescens*, Poulton.
 Figs. 7 & 8, *Cy. theobene blassi*, Weym. Kenya coast, male and female.

PLATE 38A



Cymothoe theobene, Dbl. & Hew.
Under surfaces.

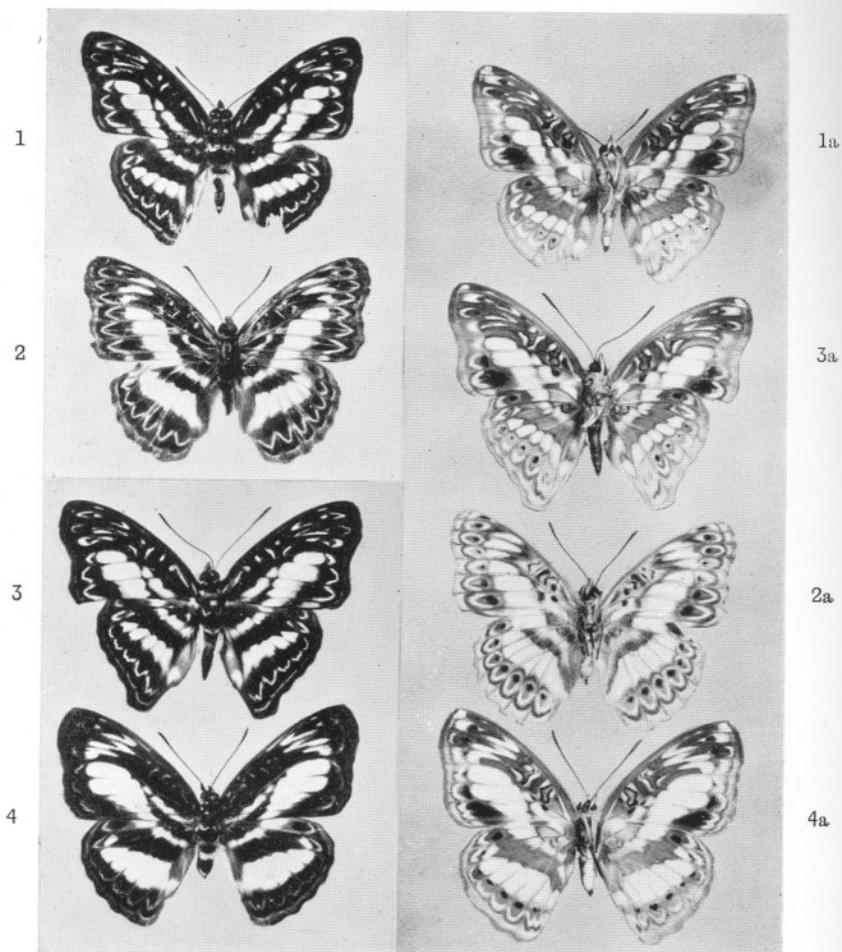
Fig. 1, male.

Fig. 2, typical female.

Fig. 3, f.f. *jacksoni*, van. S.

Fig. 4, f.f. *nigrolutescens*.

PLATE 39



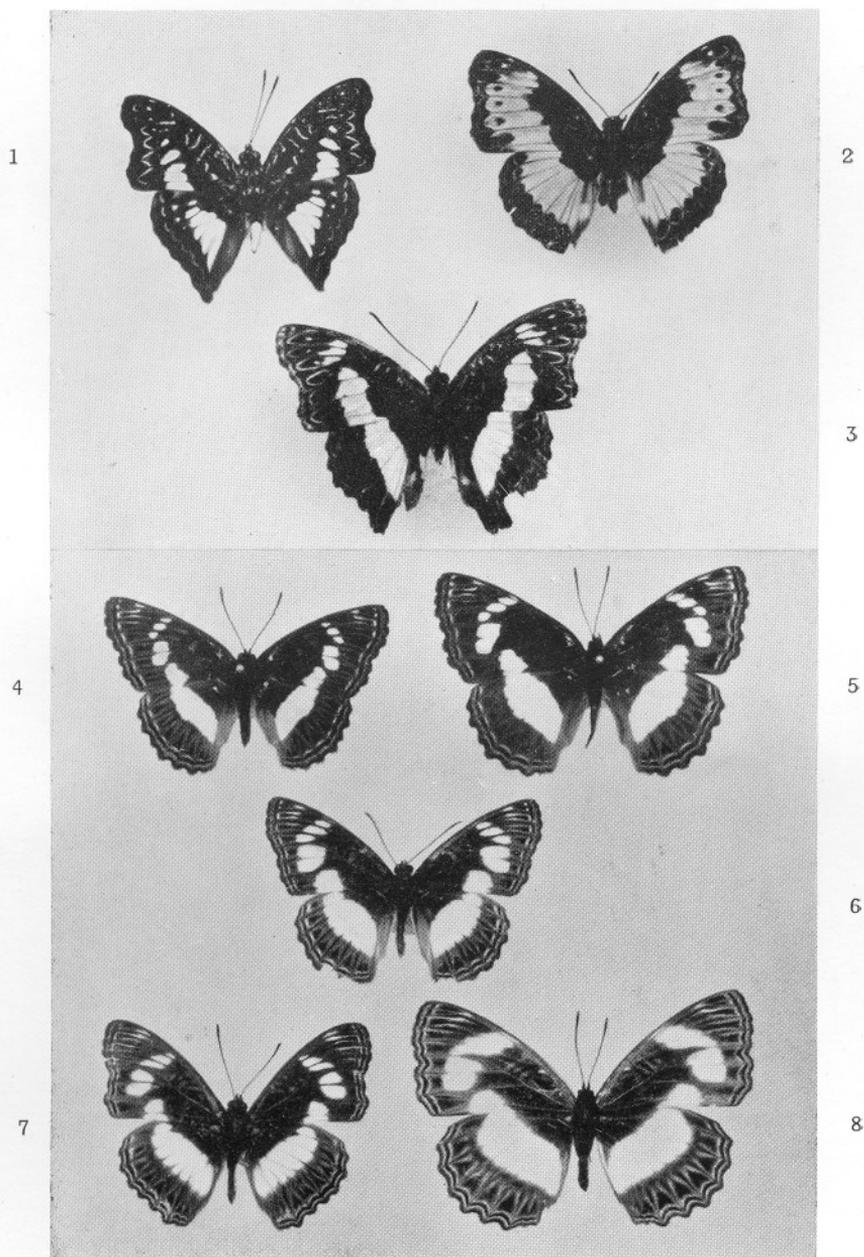
Euptera elabontas ? *mweruensis*, Neave.

Figs. 1, 3, 1a, 3a, males, upper and under surfaces.

Figs. 2, 2a, f.f. *primitiva* f. nov., van S.

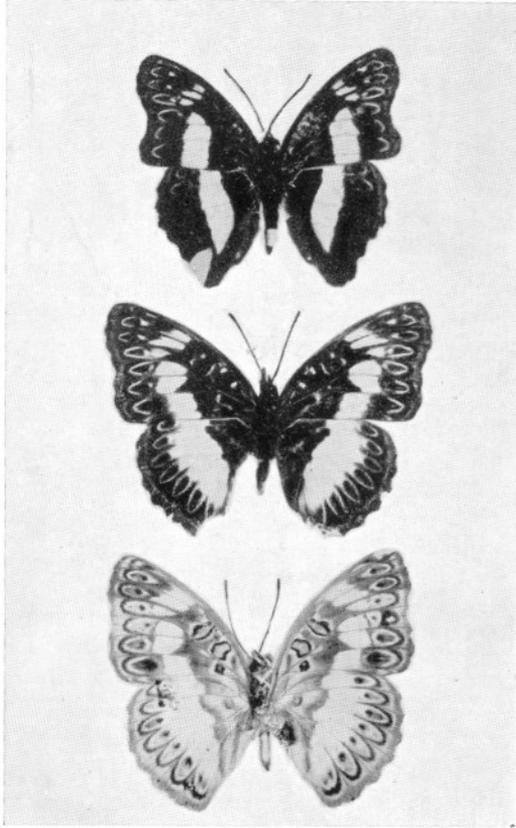
Figs. 4, 4a, nominotypical female.

PLATE 40



Euptera hirundo rufa, J. & T. Figs. 1 & 2, male and female.
Euptera pluto kinugnana, Smith, fig. 3, male.
Pseudathyma plutonica, Btlr. Fig. 6, male.
Pseudathyma nzoia, Sp. nov., van. S. Figs. 4 & 5.
Pseudathyma callina, Smith. Figs. 7 & 8, male and female.

PLATE 40a.

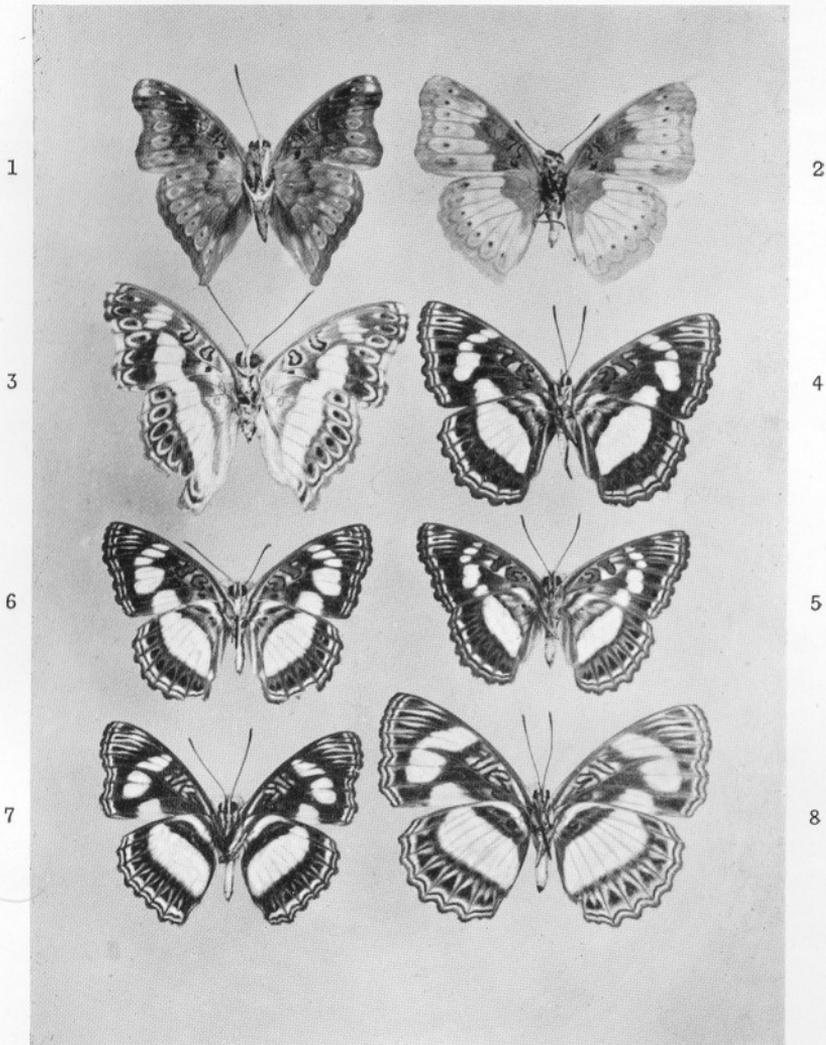


Euptera kinugnana, Smith.

Fig. 1. Male.

Figs. 2 and 3. Female.

PLATE 41



Euptera hirundo rufa, J. & T. Figs. 1 & 2, under surfaces.
Euptera pluto kinugnana, Smith. Fig. 3, under surface.
Pseudathyma nzoia, van S. Figs. 4 & 5, under surfaces.
Pseudathyma plutonica, Btlr. Fig. 6, under surface.
Pseudathyma callina, Smith. Figs. 7 & 8.

Underside: Basal areas grey-ochreous as also the apex and border. In the fore-wing the cell marks are brown; sub-basal in 1b is a black spot; the discal bar is as above, ochreous and the black spots of above are here as blackish dots. H.-w.: Basal area grey-ochre at the base and border; discal band ochreous with a darker shading distally. Black spots of above here as black dots. Submarginal lunate marks indicated and pale edged internally.

EARLY STAGES: Unknown to me.

DISTRIBUTION: This species has a more western range than the preceding species extending to Malabigambo forest at Katera in N.W. Lake Victoria region. It has not been taken from Kavirondo, but from Mawakota east to Jinja.

The female described is a wonderful mimic of certain *Precis* such as *P. millonia rauana*.

EUPTEA PLUTO KINUGNANA, Smith. Pl. 40, fig. 3.

Pl. 40a, figs. 1-3. Pl. 41, fig. 3.

Expanse: Male, 45-48 mm. Female, 46-50 mm.

MALE: General colour black with cream bars and lines.

F.-w.: Black-brown; cell with a sub-basal-costal longitudinal streak followed by two transverse lines and two small dots beyond the cell. A discal yellowish-cream band starts at about mid-1a, 4 mm. wide passes through 1b, 2, and narrows in 3. Above this band are three semi-arrow marks forming a sub-apical bar, and beyond this small white spots in 3-6. There is a series of U submarginal lines with the enclosed areas black, and outlined with black; there is then an admarginal interrupted line following the contour of the wing from the hind-angle to the apex.

H.-w.: Basal area black, with more brown-black extending down the inner fold; marginal border brown-black carrying a series of U to complete ovate marks enclosing jet black and outwardly bordered by the submarginal black line; beyond and admarginally an interrupted paler line.

Underside: Strongly reminiscent of *Neptis saclava*. Ground colour ochreous with a greyish tinge particularly distally. The cell with two black-lined marks outlined with whitish; sub-basal in 1b a black spot broadly outlined in white; discal band white and as above; sub-apical bar as above but white; a series of black marks, large in 1b and 2, submarginally, outlined distally in the first two and encircled in the other areas with white and enclosing some ochreous ground. Admarginal interrupted line white.

H.-w.: Ground colour ochreous to greyish distally. Basal area with a forked white bar with the outer prong extending into 6 basally. The cell with a circular brown mark; the discal

band white and crossing the wing from mid-costa to just above the anal angle. Submarginally there is a series of ovate white circles enclosing black dots on the ochreous ground, the black dots set eccentrically and proximal. On the admarginal an interrupted white line following the wing contour.

FEMALE: General colour black and white. Ground colour blackish-brown crossed by an interrupted white discal band. This band, in areas 1a-1b, at about mid-point consists of rectangular white spots, followed in areas 2 and 3 by more triangular marks set slightly out, especially in 2, followed by a small triangular mark in 4, then by two long marks in 5 and 6. Distad to the band is a series of white dots from 2-7 followed by a series of fine white-line loops enclosing black areas and accentuated distally by black lunate marks. The cell contains two subcostal white dots outlined in black and toward its apex are two white lines outlined with black. H.-w.: Basal portion blackish followed by a wide white discal band with an irregular inner edge, and outwardly bordered by a series of ovoid white marks enclosing black areas, and distally accentuated by black. The cell is crossed by an ill-defined white line.

Underside: Base of wings with rusty scaling and grey-brown especially along the proximal edge of the fore-wing white bar. The cell has two black-lined marks accentuated outwardly with white; the base of 1b has a black circular mark outlined with white. The discal white band is as above, both in fore and hind-wing, whilst the series of ovoid marks on the distal border are more generally white with black dots at their proximal ends and strongly outlined on the distal edge with brown-black; beyond this series, the ground is whitish shading to rusty on the margin of the wing especially toward the anal angle of the hind wing and toward the apex of the fore-wing. The ovoid spot in the distal portion of area 1b in the fore-wing is largely black-centred, forming an "eye."

EARLY STAGES: Unknown to me.

DISTRIBUTION: Within our boundaries this species is confined to the forests of the coast, Vanga (Ganda forest), Shimba hills, and Rabai hills, north to Sekoke. They have the same habits as the other species of the genus.

PSEUDATHYMA PLUTONICA, Btlr. Pl. 40, fig. 6.

Pl. 41, fig. 6.

Expanse: Male: 40-42 mm.; female slightly larger. Sexes somewhat alike.

MALE: F.-w.: Ground colour black-brown; cell with one basal angle, followed by three transverse black lines, ground slightly paler between line two and three. Discal band inter-

rupted; a large spot mid in 1a and 1b, then two large contiguous spots set distad in 2 and 3, followed by three white spots sub-basal in 4-6 set in a line toward the costa. Beyond this a series of black triangular marks, apices inward, the upper ones in 5-7 outlined in white, the others with white at base of triangle, thus distally, and contiguous with a double line black and white, the black proximal. Wing fringe with white dots internervularly. H.-w.: Ground colour brown-black crossed by a wide discal band whose proximal edge is curved from the inner fold to about mid-costa, with the distal edge slightly scalloped and convex, the longest bars being in 5, so that the whole has the appearance of tapering at both ends. Beyond this band is a series of triangular black marks bordered distally by two white and a black line between; the wing fringe dark with white lunates.

Underside: Ground colour ashy grey-brownish tinged with slight rusty tone to the margins and in the cell marks. Cell with marks as above but area between line 2 and 3 whitish. A black spot basal in 1b. Other dark and light marks as above, but admarginal white lines more pronounced and intermediate one less so. H.-w.: Ground colour as above with white markings similar, but more pronounced; the basal area crossed by two ill-defined bands; submarginal and admarginal marks of above conspicuously reproduced below. I have described the light markings above and below as white, but in fresh examples they are really apple-green. This colour soon fades out.

FEMALE: This sex is larger and somewhat similar to the male.

EARLY STAGES: Unknown to me.

DISTRIBUTION: Was originally described from Toro and has since been taken by Jackson in Kakamega and Kampala, westward to Kamengo and Kalinzu.

[Both sexes where they occur are found flying low along paths and roads through the forests, or feeding on decaying fruits and damp mud. During the hotter parts of the day they retire to the forest shade. They are perfect mimics of *Neptis*, in both sexes.—T.H.E.J.]

PSEUDATHYMA NZOIA, sp. nov. Pl. 40, figs. 4 and 5.

Pl. 41, figs. 4 and 5.

Expanse: Male, 40-42 mm.; female, 50-52 mm. Sexes somewhat similar. General colour black and white and resembling *Neptis* ssp.

MALE: F.-w.: Ground colour black-brown; cell with a dark basal area outlined distally with deeper black, followed by a lighter bar, then a further dark bar outlined in black. The discal band is much narrower than in *plutonica* (being only $2\frac{1}{2}$

mm. as against 4 in the nominate race) and starting at mid 1a, extends into 1b where the spot is distinctly indented on the proximal and upper side so as to give an inward kink. The spots in 2 and 3 set more distad are here also much smaller, the upper one not approaching the lower vein of the cell nearly so close as in *plutonica*. The spot in 4 is very small whilst those of 5 and 6, smaller than in *plutonica*, are not elongate. The other lines and marks are as in that species but less marked whilst the submarginal loop in 6 is laterally constricted.

H.-w.: Ground colour as fore; discal band much narrower than in *plutonica*; less curved on the proximal edge, but with a distinct angle on the distal edge at 4. Furthermore the outer edge is less scalloped, more regular, as the black ground does not extend up the veins. The other marks are as in *plutonica*.

All the pale marks are strongly apple-green when fresh and fade out to a creamy opaque white. This green colour is much more evident in this species than in any other.

FEMALE: The remarks regarding restriction in size of the light spots, here always white, described in the male, hold good in this sex also; more particularly is this the case in respect to the white areas in the fore-wing; moreover the two spots in 2 and 3 are more distad while that in 4 is very small.

On the undersides of both sexes the ground colour is a richer brown, not so tinged with grey, whilst the submarginal black triangles in both fore and hind-wings are longer and more pronounced.

EARLY STAGES: We have bred this species out in very considerable numbers. The larva, first grey-green, turns dull green at the first moult, then brighter green in the next stages, though the abdominal segments are darker than the thoracic.

The head is yellowish, each segment from the second to the anal is furnished on the dorso-lateral aspect with a long feathered filamentous spine, longest anteriorly and posteriorly, slightly less green than the body. There is a blue dot on the dorso-lateral part of the first segment. As is common with larvae of this group, one finds them flattened out along the lower surfaces of the leaves and they are then difficult to detect. The pupa is semi-glazed, pale green in colour, with a slight transverse ridge on the third abdominal segment terminating in a sharp spine before which is a gold spot. There is also a slight longitudinal ridging on the other posterior abdominal segments with short spines. The ridges and spines are ochreous yellow, this colour extending across the third segment and as a triangle or dome shape on the fourth and on the spines of the other segments. The abdomen is strongly ventricose. The thoracic segments are longitudinally ridged, but not sharply. There is a restriction

at the junction of the thoracic-abdominal segments reflected in the upper edge of the wing cases then an expansion to the "shoulder spines" which are black. There are black spines on the bifid head, two black dots on the fore-part of the thorax and two more on the scutellum. The ventral surface is immaculate.

DISTRIBUTION: The limitations of this insect are from the Elgon-Kitale district south to Nandi and Kavirondo and again in Kalinzu. It is everywhere rather rare, although just after an emergence several may be noted. This insect is here described as a species on account of the very distinct arrangement of the white spots and the general different colouration above and below; furthermore, there is a marked overlap in the distribution of this and *plutonica*, for both occur throughout the range of the other. Vide distribution note.

Types, male and female, Kitale, Oct., 1932, bred van Someren. Paratypes, seven males and seven females, same data. In my collection; four specimens, Jackson coll. from Elgon, Kakamega, and Kalinzu.

PSEUDATHYMA CALLINA, Smith. Pl. 40, figs. 7 and 8.

Pl. 41, figs. 7 and 8.

Expanses: Male, 42 mm.; female, 53 mm. Sexes somewhat similar.

MALE: General colour black and white. F.-w.: Ground colour black-brown, cell with an angled sub-basal mark followed by three black transverse lines; sub-base of 6-4 with white longitudinal streaks, small in 6 and longest in 4, these forming a continuation of the white discal band which commencing in 1a, where it is widest, 3 mm., is continued in 1b where the spot is somewhat triangular, apex forward, then in 2 and 3, but these spots are set distad to the first two, separated from them, and somewhat pear-shaped. (There is a marked similarity to the western *plutonica*, but the shape of the spots in 2, 3, and 4 is different.) There is a series of triangular black submarginal marks, bases outward, from 1b-4, becoming elongate beyond, distally bounded by two parallel white lines separated by a black line, and extending admarginally from the hind angle to the apex. The black sub-apical marks are partially enclosed in a narrow white border.

H.-W.: Ground colour black-brown; disc of wing crossed by a white band, almost straight for its greater length on the proximal edge, except where it stops short of the inner fold, and below the costa. (It is thus less curved than in *plutonica*). On the distal border it is curved in 7-6 then almost straight, but indented by the extension of the blackish ground along the veins, until the inner fold where it curves upward. It extends

further into the inner fold than in *plutonica*, reaching 1b. The submarginal triangular black marks are well marked and extend from the hind-angle to the upper angle where they are more elongate in 6 and 7, and thus differ from *plutonica*.

The admarginal double white line, with black between, is strongly marked.

Underside: Black brown, with a greyish tinge; cell with a sub-costal basal whitish streak, followed by an inverted, double lined V in black with whitish enclosed, followed by a whitish transverse bar, then by a double lined transverse bar in black with whitish in between, and two whitish spots beyond, sub-basal in 1b is a black crescentic mark. The discal band and the white marks in 4-6 are as above. The submarginal black marks are here represented by a large ovoid mark in 1b, more quadrate in 2 and 3, then elongate in 4-6, those in 5 and 6 outlined except proximally, with white. The admarginal white and black lines are well marked, and the white marks on the fringe stand out clearly. H.-w.: Ground colour as fore, base of wing with a basi-costal white line, only one curved line crosses the dark area, the second, seen in *plutonica*, is only slightly indicated by a few white scales. Cell with a black ring mark. Discal band as above, but shaded on its distal edge with blackish. The submarginal black triangles well defined and accentuated by white outline not meeting at apex but broad on the base, followed by an admarginal white line. Wing fringe with conspicuous white internervularly. Apart from the detailed differences cited above, between this species and *plutonica*, with which it might be confused, the whole underside has a more black and white appearance, less brownish than in the latter.

FEMALE: Ground-colour less blackish than the male. F.-w: Cell marks and other pattern as in the male, with the exception of the discal bar; the marks in 1a and 1b taken together form a blunt triangle; the next two spots are more as in the male, but those of 4-6 are more generally elongate especially the sub-costal, so that there is less tapering off toward the costa. Hind-wing pattern as in the male, but larger throughout and with less of a break along the proximal edge in 7.

Underside: Generally similar to that of the male but larger and the ground colour more brownish.

EARLY STAGES: Unknown to me.

DISTRIBUTION: Hitherto only taken within the boundaries dealt with, in the Kalinzu and Budongo Forests of Uganda, and apparently very scarce, for Mr. Jackson's collectors have only turned up two males and three females. The habits are similar to those of others of this genus.

(To be continued.)