

FRONTISPIECE.

PLATE LXXVII.



Photo: Dr. van Someren.

Larvae and pupae of *Charaxes azota*.
See Journal 51-52, page 127.

PLATE LXXVIII.

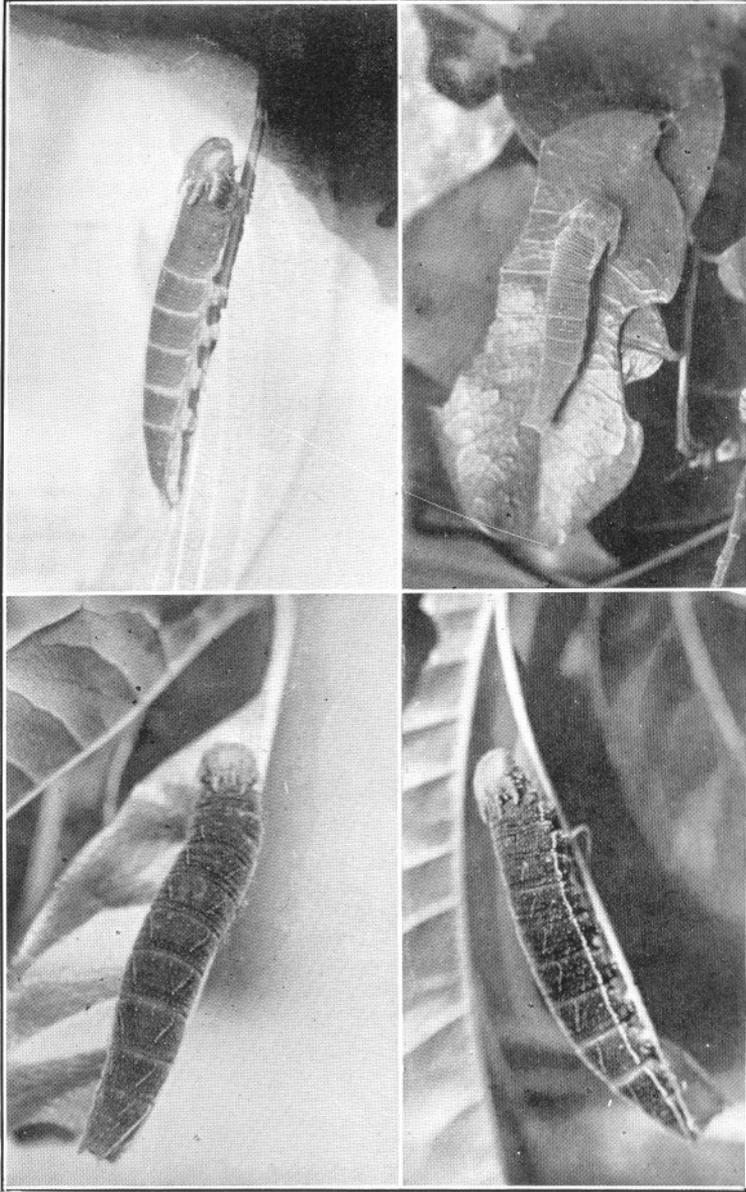


Photo: Dr. van Someren.

Larva of *Ch. brutus*.

Larva of *Ch. guderiana*.

Larva of *Ch. pollux*.

See Journal 31-32, pages 146 and 149.

PLATE LXXIX.

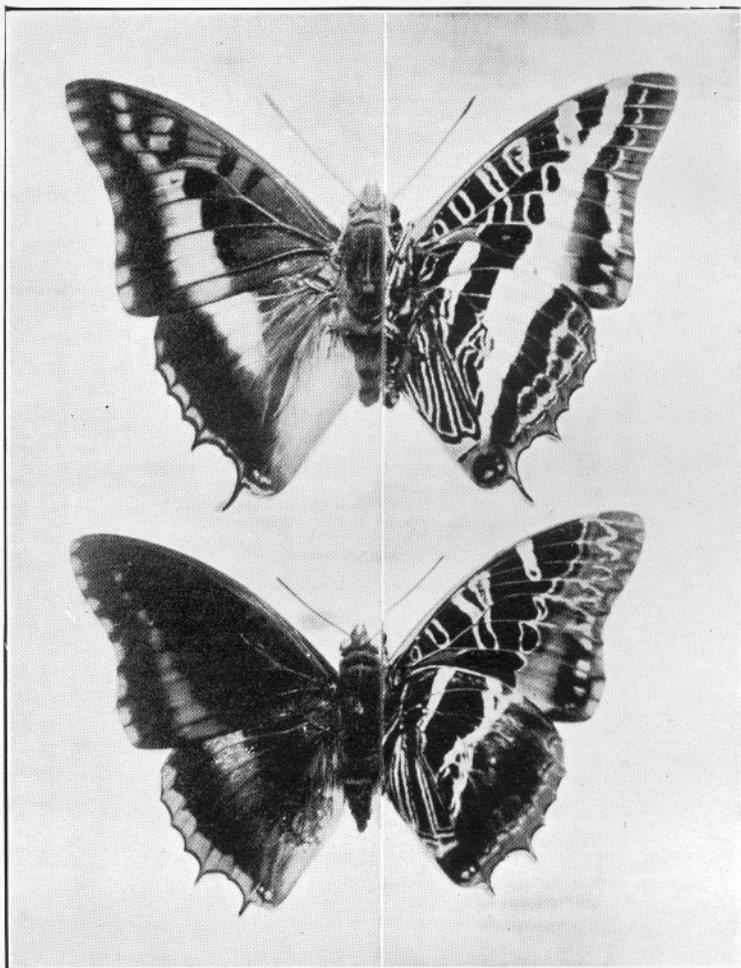


Photo. Dr. van Someren.

Upper surfaces.

Under surfaces.

Charaxes druceanus proximans.

Charaxes eudoxus cabecus.

THE BUTTERFLIES OF KENYA AND UGANDA.

PART VIII.

By

V. G. L. VAN SOMEREN, F.E.S., F.L.S. etc.,

and

REV. K. ST. ROGERS, M.A.; F.E.S.

CHARAXIDI (Continued).

PREFACE.

This paper forms the eighth article dealing with the Butterflies of Kenya and Uganda, and the second devoted exclusively to the *Charaxidi*. This group should be completed in one more article. Although these papers are issued under a joint authorship, owing to unfortunate circumstances, only one of us (van Someren) is responsible for Parts 3 to 8.

CHARAXES DRUCEANUS PROXIMANS, Joic. and Talb. Pl. LXXIX.

Expanse: Male 80-84 mm. Female 84-90 mm. General colour orange-red with black marginal border. Sexes unlike.

Male: F.-w. Basal triangle red-brown distally bordered in 1b-4 with black spots increasing in size up to 4. Cell paling towards apex and crossed in this area by a rectangular black spot; extreme apex with a black rectangular mark. Mid-ala line orange-red distally bordered with rich brown-black carrying on the margin a series of large orange-red spots from 1b to apex. Mid area of 5-7 distally and proximally ornamented with contiguous black spots, the inner ones parallel to the mark at apex of cell, the outer series confluent and parallel to the margin of apex of wing.

H.-w.: Basal area red-brown bordered by ala-line of light orange-red, distally bordered with darker orange-red; outer margin of wing with a broad black border, ornamented on the margin with crescentic orange marks from 2 to 6; margin of 1c with a bluish-green line, internal to which is a series of three spots of a bluish colour. Veins 2 and 4 with tails, that on 2 being twice as long as the other. Extreme edge of fore and hind-wing with narrow white scaling at mid-internervular areas. Inner fold of hind-wing strongly "haired" and orange-ochreous in colour. Thorax and abdomen red-brown.

UNDERSIDE :

F.-w. : Cell, costa and bases of 3—8 reddish-chestnut; cell crossed by three black bars outlined with silvery-white, with a triangular black mark at the apex, outlined with silvery-white. There is a large black spot sub-basally in 1b and 2; two rectangular black spots sub-basal in 3 and one in 4. On the distal side of these spots is a silvery-white ala bar which extends from the mid-point in 1a in gradually decreasing width up to the costa at vein 9. A series of three silvery rectangular contiguous spots cross the sub-bases of 6—8, forming an angle with the upper end of the ala bar. The distal border of the wing is orange-brown, lighter at the hind-angle, and carrying a series of black crescentic marks at the mid-line, outlined distally with silvery-grey; in 1b and 2 the spots are large with triangular silvery-grey marks outwardly. The distal portion of the veins in this border are silvery-grey with an expansion of this colour at the extreme margin. The bases of 1a—2 are greyish-brown.

H.-w. : Ground colour reddish-chestnut; ala bar silvery-white, broadest at the costa and narrowing rapidly to 2 and inclining inwards to the inner fold at 1c. On the distal side of this bar there is a series of sub-marginal confluent silvery-grey rings outlined in black, those of 3-8 enclosing the chestnut ground colour, those of 1c and 2 being purply-grey inside, the former with two bluish-purple spots distally. External to this series of spots is a narrow orange border distally edged with a black marginal line outlined with silver. The basal area of the wing is traversed by a series of lines: a broad silver line starts at the sub-base of 8 continues through the base of 7 and extends through the sub-base of the cell and is carried down in three loops with angled bases in 1a—1c. In 8 and 7 the line is uniform silver but throughout the rest is black internally. A further line, silver and black internally, crosses the apex of the cell and extends into 1c where it joins with the first series. Two black lines cross the bases of 2 and 4.

FEMALE :

Somewhat like the male but the ala bar on both fore and hind-wing very much wider and paler. The marginal spots on both wings large and pale. Underside as in the male but duller.

EARLY STAGES :

This species lays its eggs on the undersurfaces of the leaves of a creeping shrub, *Eugenia* sp. (*Myrtaceæ*) and on *Bersama abyssinica*, Fresen. (*Melanthaceæ*). They are spherical and glossy, with a slight concavity on top. Fine radial lines pass from the edge of the depression, converging towards the centre, where they become obsolescent.

When first laid, the egg is yellow, but in twenty-four hours the upper part becomes streaked with pinkish lines; still later the upper third of the egg is overspread with pinkish-brown. The larva emerges in about eight days and straight away devours the egg shell. The newly hatched larva is pale apricot in colour, 4 mm. long and tapering slightly towards the posterior end. The head is pale-brown with darker markings and a rugose surface. Two pairs of horns are present, one at the highest point on each side of the head and the other about one-third down. The former pair diverging at an angle of about ninety degrees and strongly curved backwards, are almost as long as the height of the head, while the latter are about half as long as the other pair and curve upwards and slightly backwards. There are two minute spinous processes between each upper and side horn. A pair of brown, white-tipped, blunt processes, directed upwards in a slight curve and diverging nearly at a right angle, is present on the anal segment. The length at the end of the first stage is 9 mm. and the general colour greenish with a brown spot on the sixth segment. At the first moult the larva becomes grass-green, with paler green dots, each bearing a minute short hair.

The upper half of the head is dark purplish-brown, the lower pink-brown. The horns are crimson, with paler tips. The anal spines are crimson with pink tubercles. A well-marked spot on the sixth segment is in shape somewhat semi-circular, with a straight edge directed forwards, while that on the eighth is circular and somewhat obscure. Both spots are purply-brown, the front one having a green dot towards the front edge. The length at this stage is 12 mm. The head is first cast and then the skin gradually shed. Growth in the third stage is rapid, but the colour hardly changes except that the head is now green with a purply suffusion at the upper half. The dorsal spots on the sixth and eighth segments become well defined and more purply, with a dotted outline of blue at the circumference. This general colouration is maintained throughout the final stage; but the larva is 45 mm. long when ready to pupate. The pupa is pale green, 30 mm. long, and rather broad, 15 mm. at the angle of the wing scutae. It resembles that of *Ch. pollux* but is rather more bluish and the white marbling on the wing cases is more pronounced. The spiracular spots are red with a central longitudinal dark line and with a brown outline. The angle of the dorsum of the thorax is white and from this, wavy whitish lines run to the bluntly bifurcated head-shield. The cremaster is orange—consisting of a long pedicle with on either side a well-pronounced bilobed process and anterior to each pair is a further bilobed projection on segment 2.

The pupal stage lasts three weeks as a rule, but some carry over for a much longer period.

DISTRIBUTION AND HABITS :

This species is nowhere common but most specimens have been recorded from the high country of the Mau to Mt. Elgon. It however has been taken on the Kikuyu Escarpment and Mt. Kenya but is rare. It occurs in the Teita Hills, but in this area it apparently approaches the race *kivuensis*. Very few specimens have been recorded and much remains to be learnt regarding its distribution. There is little variation in general colouration; there is however a tendency to paleness of ground colour in some specimens and this results in a greater definition of the black markings.

MIMETIC ASSOCIATIONS :

There would appear to be no very close resemblance between this species and others of the genus, but nevertheless there is an undoubted superficial resemblance between it and *Ch. saturnus*, especially so in the case of the pale forms of *druceanus* mentioned above. There is again a resemblance to *Ch. eudoxus* and *Ch. lucretius*, when the insects are in flight.

It is well to mention here that the form of *Ch. druceanus* found in the districts north and to the east of Mt. Elgon show a marked difference to the race *proximans* and probably represent a distinct form. We have already noted that the form which is found in Teita on the Dabida Hills resembles the race *kivuensis*, but more material is needed to definitely place these insects.

CHARAXES EUDOXUS CABECUS, Jord. Pl. LXXIX., fig. 2.

Expanse: Male 76-78 mm. Female 80-84 mm. Sexes unlike, though close. General colour, red-brown and black.

MALE :

F.-w. : Basal triangle red-brown to almost apex of cell and basal half of costa. Remainder of the wing rich brown-black with an orange-red ala bar widest at 1a and rapidly diminishing in width and continued as discreet spots to 6. Margin with large orange-red spots at mid-point between veins, double in 1b, and reaching 9.

H.-w. : Basal area red-brown with black scaling at bases of 4-6, followed by an ala bar of orange-red paler towards the costa and outwardly bordered by a black bar widest in 6 and 7 and narrowing to the anal angle where it is ornamented with two purple-blue spots in 1c. Distal to this is an orange border of confluent spots, edged on the extreme margin with a black line with white scaling in the mid nervular point. Thorax and abdomen red-chestnut.

UNDERSIDE:

Basal two-thirds of wing except 1a and 1b, reddish-chestnut; the cell and area 2, each with two black spots outlined with silver sub-basally and near mid-point; the cell with a third silver bar almost at the apex; while at the apex, is a black bar outlined with silver and contiguous with the inner bar in 2. Area 3 with two spots, a silver one at the base and a black one outlined with silver at mid-point; from this a faint silvery line passes up to the costa parallel to the margin of the wing, in a series of crescentic loops. A further silver line crosses the distal end of the basal third of areas 5-7. The basal areas of 1a and 1b are purple-grey the latter with a large black spot at mid-point. The ala bar of the upper side is indicated by an ochreous-orange bar traversed in areas 3-7 by a series of faint silvery loops with bases formed by the lines in 4-7. Distal to this bar is a series of black suffused confluent marks in 1a to 2 decorated with purple spots and represented in areas 3-6 by black dots in the loops in these areas. The marginal border is orange-ochreous intersected at the veins by blackish triangles with greyish centres.

H.-w.: Ground colour reddish-chestnut, paler in the area corresponding to the ala bar above, which however is distally darkened and bordered outwardly with dull chestnut outlined with greyish-silver and black. The marginal border is reddish-orange narrowly edged outwardly with black. The anal angle carries a greenish spot outlined in black. The basal chestnut is traversed by silvery lines as follows: a broad line running through the sub-bases of 8, 7, and cell and continued down into 1a to 1c in a series of three long black-lined loops; a second double line from the costa in 8 passes through 7, converging in 5 and dividing again in the apex of the cell to reach the descending arm of the loop in 1b.

FEMALE:

Very like the male but the fore and hind ala bars are wider and of a paler orange, the spots in the fore-wing being more pronounced and expanded laterally. The marginal spots of both fore and hind-wings larger and paler. The underside has a paler chestnut ground colour but the distribution of the markings is as in the male, though less silvery.

EARLY STAGES:

We have not reared this species nor is there is published description of the egg or larva. Seitz describes the pupa as "unicolorous green, with yellowish spiracles and orange-yellow creamaster." No food plant is given.

of Kenya. It is exceedingly rare and difficult to capture as it flies very swiftly. Males are taken at bait but the females are seldom seen. In the country north-east of Mt. Elgon is found a form which is described below.

MIMETIC ASSOCIATIONS:

We have already noted the association of this species with *Ch. lucretius* and *Ch. druceanus*, but we would draw attention to the description of the form to be described hereafter which not only bears a strong likeness to *lucretius* on the upper side, but also below.

CHARAXES EUDOXUS. *Sub. sp. nov.?* Unfigured.

Male. Expanse 76-78 mm. Female 80-86 mm. Sexes unlike though somewhat similar.

General colour above as in *Ch. eudoxus cabecus*. Both sexes however differ from the typical form and other described races, in that practically all trace of the silvery-white lining on the underside is lost, thus strongly resembling *Ch. lucretius*. In addition, there is a marked reduction in the size and alteration of the shape of the spots in areas 1b and 2; thus in the male, there are two separate black spots in each of these areas, and in the female the spot in 1b is L-shaped. The hind-wing in the male is almost unicolorous chestnut.

DISTRIBUTION:

North-east of Mt. Elgon to the Cherangani Mts.

TIRIDATES GROUP.

CHARAXES VIOLETTA, Gr.-Smith. Pl. LXXX., figs. 1 and 2. and Pl. LXXXI.

Expanse: Male 80-82 mm. Female, 84-98 mm. Sexes unlike.

MALE:

General colouration black with blue markings.

F.-w.: Ground colour rich blue-black, with the basal area deep blue. Areas 1a and 1b with large light violet-blue marks at the base of the distal half, continued up through the other areas as two divergent rows of blue spots; the inner row of 5 large elongate spots passing through the sub-base of 2 and 3 and thence across the apex of the cell; the outer row, 6 spots of diminishing size, follow the contour of the wing up to 5, thence curve inwards to mid-point in 7.

PLATE LXXX.

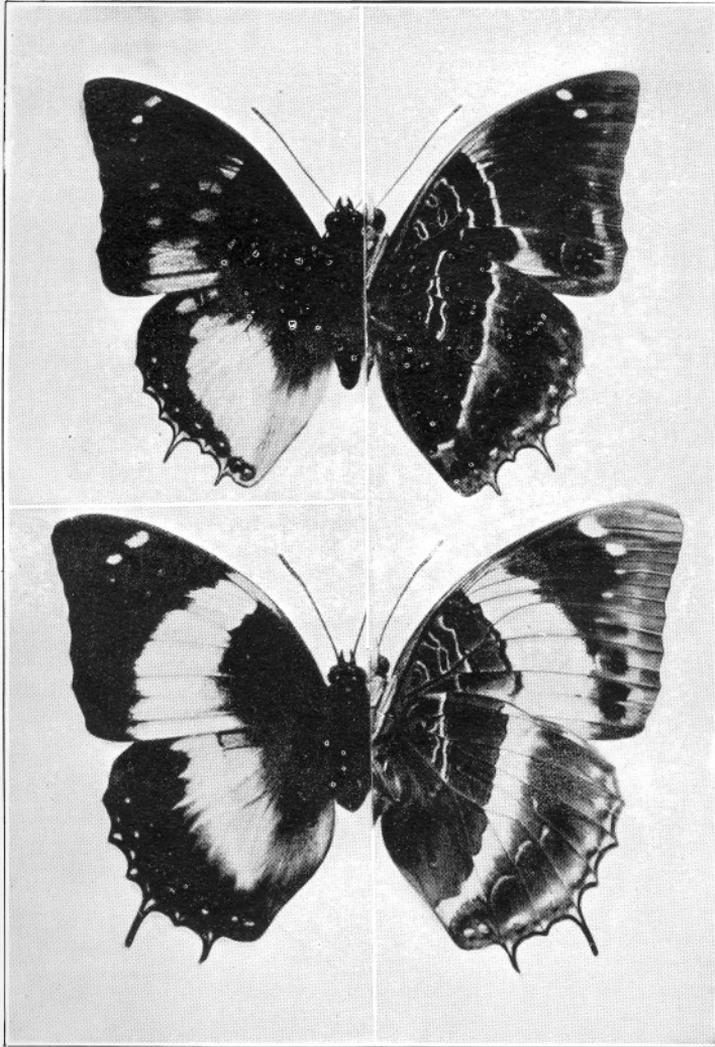


Photo: Dr. van Someren.

Upper surfaces.

Charaxes violetta.

Under surfaces.

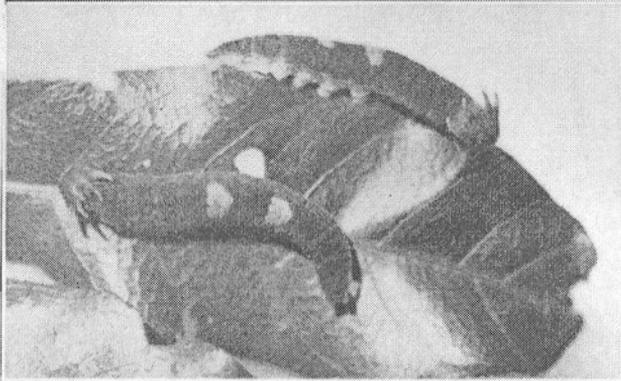
PLATE LXXXI.



Photo: Dr. van Someren.
Charaxes bipunctatus feeding on excrement.



Larvae of *Charaxes violetta*.



The last two spots are white. Some specimens have a series of small blue spots at the margin of the wing at each vein, while the extreme edge at these points is white.

H.-w.: Base, costa and border of wing blue-black, enclosing a large violet-blue area which shades to greyish at the inner fold. Area 7 carries two blue spots at mid-point. A sub-marginal row of small blue spots, double in 1c are placed at the mid-point in 2-7; each of these areas with the exception of 7 is distally margined with pale blue edged outwardly with black and with white scales at the extreme edge. Thorax and body black. Margin of wing serrate with sharply pointed tails at vein 2 and 4; the latter being the longer.

UNDERSIDE:

General colour of ground, olive. Basal half of wing decorated with black marks outlined with white as follows: the cell with one transverse at sub-base, followed by two at proximal side of mid-third and a transverse line on distal side; this last continued through the sub-base of 2 and sub-base of 1b; a further line outwardly shaded with white crosses the apex of the cell, to be continued through 2 where it is joined to the sub-basal line and then is represented in 1b by a crescentic line widely shaded with white outwardly especially along vein 1. Areas 1b and 2 each with sub-marginal "eye" mark, black outwardly, olive ochreous inwardly; this olive-ochreous colour extends up into areas 3-5 as a diffuse sub-marginal bar and represented in 6 and 7 by white spots corresponding to those of upper side.

H.-w.: Ground colour olive. The wing is traversed by a white line which starts at the mid-point of the costa and is continued across to the base of 3 thence down and inward to the fold of the wing just above the anal angle. A further line crosses the sub-base of 8 then divides into two, crossing the sub-base of 7 and the middle of the cell. External to the ala line is an irregular ochreous-olive line faintly outlined in black which ends at the anal angle in an incomplete circle. The marginal border is ochreous-olive from the upper angle of the wing to vein 4 when it becomes shaded with green. Internal to this border is a series of whitish-purple spots accentuated with black outwardly, placed at mid-point in each area extending from 7-1c where the spot is duplicated. The extreme margin of the wing is black with white scales between the serrations.

It should be noted here that the white ala line of the hind-wing is continuous with the white line of the fore-wing, and these form a distinctive "field" character for distinguishing this species from *Ch. cithaeron kennethi*, which it greatly resembles.

FEMALE:

F.-w.: Mostly brown-black with a bluish suffusion at the base; ala bar very broad and nearly pure white, extending from just internal to the mid-point of the costa, distal to the apex of the cell, in a wide curve to the hind-margin where it expands to fill most of 1a and 1b. In these areas it is slightly tinged internally with violet scaling which shows up the line of the underside markings. There is a series of sub-apical white spots of graduated size, set in an outward curve, extending from mid-point in 7 and reaching mid-point in 8.

H.-w.: Basal area blackish shading to greyish at the inner fold, followed by a wide white distal bar, flushed with violet, especially distally, and with a very serrate distal margin; the white area bisected by the dark ground colour of the underside showing through. Border of wing broadly purply-black, carrying a sub-marginal row of small purply-white spots double in 1c and reaching to 7, and a marginal series of lines of the same colour with extensions along the veins at each serration. Veins 2 and 4 with tails of 4 and 7 mm. long respectively.

UNDERSIDE:

F.-w.: With a broad white discal bar and white spots as above; general ground colour ochreous-olive; basal area with black lines as follows: cell with one sub-basal, two at proximal end of mid-third, with a long wavy one at distal end, and extending into 1b and 2, each outlined with white. A further wavy black line along the inner edge of the white bar. There is a sub-marginal ochreous bar following the contour of the wing and joining up with the two sub-apical white dots. Distal to this line there are two black sub-marginal marks in 1b and 2, both indented distally with bluish white.

H.-w.: Basal half ochreous-olive sharply defined from the almost straight ala bar by a narrow black line; decorated with a double black and white line which crosses the sub-base of 8, 7 and the mid-area of the cell; the apex of which is outlined with black. The distal edge of the white ala bar is not sharply defined and is at its upper part bordered by ochreous, which colour extends down the wing following the general contour to the anal angle. It is internally edged with black in areas 1c to 5. Beyond this border the wing is ochreous olive with ill-defined whitish spots accentuated distally in 1c and 3 by greenish scaling containing black dots. The edge of the wing carries a narrow ochreous-orange wavy line relieved at each vein by purply-white and accentuated internervularly with a narrow black line.

EARLY STAGES:

Ch. violetta lays its eggs on the upper or underside of the leaves of *Mizuru* () a common tree in the forests of the Coast. The eggs are at first creamy white, but in twenty-four hours they begin to turn brown at the top. They are spherical with a slight flattening at the top, this area rather coarsely fluted with radiating lines from the central point. Within a day the top becomes concave and the rays stand out more prominently. At the Coast these eggs hatch in six days, but in Nairobi they carry over ten days. The newly emerged larva is olive, with a black head carrying two pairs of short brown horns decorated with black knobs. The anal end has a bifid tail also brown in colour. The larva first eats the egg shell and then feeds on the edge of the leaf. The first moult takes place on the fourth day. The body colour turns into a dull green but the head remains brown except for two greenish patches on either side above the mouth-parts. No dorsal spot is present; these appear at the second moult when the larva becomes grass-green; if only one spot is present, it is on the sixth segment, but usually there are two, the second being on the eighth. These dorsal spots are white with a narrow brown outline; the anterior one is somewhat heart shaped with the apex flattened, and with a small lobe between the two lateral ones. The second spot is a simple shield with the top angled at the centre. The ground colour of the body segments is grass-green, with paler green on the ventral surface with a white line separating the two colours. The head is now green with an ochreous margin. There are two pairs of long tapering horns, with internal to each, a short spine. The horns are pinkish with white tips, and covered with short tubercles. The outer pair project outwards very considerably and then curve up at the tips; the central pair project up and slightly outwards then curve inwards. This stage lasts about a week. In the final stage the larva is 45-50 mm. long, bright grass-green in colour covered with very fine yellow irrorations, with the spiracular line well defined as small contiguous pale yellow spots. The dorsal spots are of the same shape as before but the outline is now a series of bright blue spots on a darker blue ground, enclosing a purply-buff or brick-red area. The head is now much squarer while the horns are not so long in comparison with the facial disc. The lateral pair are less divergent, while the central pair are almost vertical, curving in very slightly at the tips. All the horns are pinkish-violet or purple; the marginal line is yellowish and passes over the black mouth-parts. The posterior-lateral aspect of the facial disc is strongly pectinate as are also the bases of the horns.

The pupa is rather long and slender, pale green in colour, with slight bluish-white marbling on the dorsum and wing-cases. The spiracles are pinkish ovals and carry a small dark dot at the lower

end. The wing-scutae have two parallel black lines at the angles and these are characteristic. There may be a further black spot midway along the antennae sheaths and two small ones on either side of the thoracic ridge.

DISTRIBUTION AND HABITS:

This species is found over a limited area in the Coastal forests and in the Teita country. There are no records of its having been taken in the Highlands of Kenya or in Uganda. It is a forest species which emerges into the broken scrub area at the edge of the forests if food trees in this zone are oozing sap.

Males are attracted to bait but the females are usually taken when feeding on fruit or tree juices. It is nowhere very common, but if one gets to know its habits one can usually count on securing specimens. The flight is strong and swift.

MIMETIC ASSOCIATIONS:

This species is remarkable in that both sexes exhibit a strong superficial resemblance to the two sexes of *Ch. cithaeron kennethi*, furthermore both are closely mimicked by two forms of females of *Ch. etheocles*, and two forms of females of *Ch. ethalion*. There is another species of *Charaxes* which in the male sex resembles the male of *violetta*, this is *Ch. blanda kenya*, which is only known from the forests at the Coast where the model is present in equal numbers with *Ch. cithaeron kennethi*.

We have already drawn attention to the distinguishing character by which the male of this species can be told from the male of *cithaeron*, but it would be well to note here that the two females can be distinguished when at rest by the presence of the white ala bar which crosses both fore and hind-wing in *violetta* and only the hind-wing in *cithaeron*. The fore-wing bar on the upper side in *violetta* is always wider than in *cithaeron*. The sexes of the other *Charaxes* in this association are always much smaller than their models.

CHARAXES CITHAERON CITHAERON, Feld. Pl. LXXXII.,
figs. 1 and 2.

Expanse: Male 86-90 mm. Female 90-102 mm. Sexes unlike.

MALE:

General colouration, black with blue markings and white patch on hind-wing.

F.-w.: Blue-black inclining to brown-black towards the apex. Costa basally brownish. Two rows of purplish-blue spots cross the wing; the inner row starts at the apex of the cell as two spots and continues through 3 and 2, sub-basally and merges into a double spot

PLATE LXXXII.

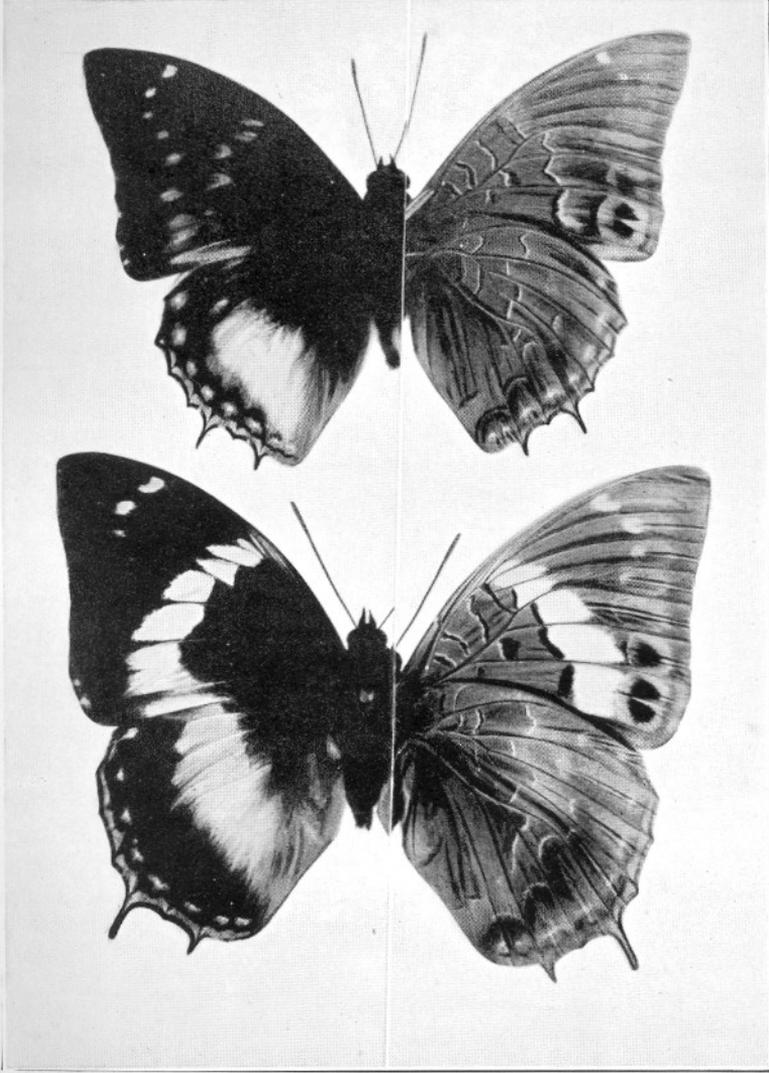


Photo: Dr. van Someren.

Upper surfaces.

Charaxes cithaeron.

Under surfaces

in 1b which is contiguous with a large blue spot in 1a; the outer row starts as two white spots in 7 and 6 at about mid-point then curves by a series of submarginal blue spots in 5-2 and is then represented in 1b by a large blue spot which touches the long blue mark in 1a. Very often there is a series of small golden marginal spots on the outer order of the wing, double in 1b. The extreme edge is white-scaled between the veins.

H.-w.: Basal area and upper part of inner fold black, with the costa and wing border more blue-black and enclosing a large whitish area occupying the basal two-thirds of 1c-4 and represented in 5 and 6 by a blue spot and streak. The margin of this white patch is bluish, with on the lower edge, and internal to the blue margin, a faint golden line. The black outer border carries a row of blue spots with white centres, double in 1c and extending up to 7 and 8. Along the margin is a further row of double triangular golden spots placed on either side of the veins from 6 to 2 and represented in the anal angle by greenish. The extreme edge of the wing is whitish. Margin bluntly serrate, with vein 2 and 4 prolonged into tails of 3 and 4 mm. length. Thorax and abdomen black.

UNDERSIDE:

F.-w.: Ground colour olive slightly darkening towards the bases of 1a and 1b and rather tinged with ochreous in the cell. The double row of spots of the upperside are represented below, the inner by a series of angular ochreous-olive marks accentuated proximally by combined black and white lines, the outer by a series of ill-defined spots, the upper two of which are white, the remainder orange-olive, and represented in 1b and 2 by stronger orange marks, that in 1b outwardly supported with two triangular black spots on a violet-grey ground, thus forming an "eye" spot; and that in 2 with a single black spot distally.

The cell is traversed by three black lines, outlined with white, one straight sub-basally, two wavy on either side of the mid-third, and a further black line at the apex. The sub-bases of 1b and 2 each have a black crescentic mark proximally lined with bluish-white.

H.-w.: Olive with narrow wavy black lines accentuated with white crossing the sub-base of 8, two in 7, and two in the cell. A mid-ala series of zigzag lines outwardly lined with white extends from about mid-point in 8 to a point above the anal angle; these lines are shaded with ochreous-olive distally. Distal to this is a second series of ochreous-olive crescentic spots, those in 1c, 2, 3, and 4 outlined narrowly with black. There is a marginal row of triangular golden olive spots on either side of the tips of the veins from 2-7, and internal to these a sub-marginal row of violet and white spots, double in 1c

and extending to 7. These spots in 1c are distally accentuated with black dots.

FEMALE:

General colour black with a white curved bar.

F.-w.: Brown-black with a purply reflection, especially at the base. Basal half of the costa brownish. A broad ala bar of contiguous white spots extends in a curve from a point on the costa just anterior to the apex of the cell, in gradually increasing width through the sub-base of 3, the mid area in 2 and then to 1a and 1b just beyond the mid-area. In the last two areas the bar is tinged with pale violet scaling proximally, and with ochreous distally. This ochreous colour is continued up the wing in a series of very indistinct spots in 2-5 conforming to the contour of the wing then as large distinct white spots with an inward curve in 6 and 7. In many specimens the extreme margin is ornamented at the mid-internervular point with faint ochreous spots which become clear and double in 1b.

H.-w.: Basal area brownish-black, followed by a wide ala bar of white with purply tinge, extending from the mid-point on the costa to about the mid-area on the inner fold, where it takes on an ochreous tint, especially above the anal angle. The outer margin of this bar is irregular and shades into the wide brownish-black border of the wing. This border carries a series of submarginal triangular violet spots with white centres extending from 7 to 1b where the spot is double; beyond this and just within the edge is a golden-ochreous line of double contiguous spots, with projections along the veins, which is shaded with green at the anal angle. Veins 2 and 4 are extended in the form of tails 3 and 5 mm. long.

UNDERSIDE:

F.-w.: Very similar to that of the male, but with the curved white ala bar clearly defined below, and the "eye" spots at the posterior angle more pronounced; in fact there is an indication of an ocellate spot, submarginal in each cellule up to the apex. The hind-wing is like the male but ornamentation less clear. The absence of a white line on the hind-wing below is a negative character which helps to distinguish this species from *violetta* and *nandina* when the insects are seen feeding with closed wings.

EARLY STAGES:

It is of interest that this species, within its Highland distribution, selects no less than five species of trees, belonging to three distinct families, on which to lay its eggs. Thus in the Nairobi district it lays on the mature leaves of *Colo* sp. nr. *laurifolia*, Mast. (*Sterculiaoea*); on the leaves of *Crabia elliotti* Dunn., *C. brownii*

Dunn. (*Leguminosæ*) and the tough leaves of *Chaetacme microcarpa* Rendle (*Ulmaceæ*); this last a thorny tree of medium size, up to 30 feet, very given to branching, the branches pendent and trailing and carrying long thorns. The leaves are dark green, terminal and laterally spined. It bears hard round ochreous fruit. It forms the principal food plant. In the Meru district it lays on a tree called *Mutoro*. The eggs are deposited on the upper surfaces of the leaves and when first laid are a beautiful, translucent cream-colour. They are large, measuring 1.75 across and almost spherical; the upper surface is slightly flattened and fluted, the rays being very narrow at their central meeting-point, but widening towards the margin of the cupping. The usual brownish line appears at the upper part of the egg as development proceeds and the whole turns a greyish-brown just before the larva is due to emerge. The egg stage lasts for eight days. When the young larva has eaten its way out it devours the remains of the shell. It is greyish-olive in colour, with a black head which shows slight indications of horns which lengthen during the first 24 hours. The anal segment carries two long brownish "tails." As the larva matures it turns greenish-yellow, and at the third instar becomes sage-green, papillated with white-tipped tubercles, and decorated with four lines of white spots which extend the length of the body. These spots are more thickly placed towards the front of each segment and those along the side of the body are larger than the rest, thus forming a broken line which separates the greyish-green underside from the sage-green above. The dorsal spot on the sixth segment is clearly indicated at this stage; it is a curious compound spot of three sections—anteriorly a three-quarter circle followed by a long transverse oval, and this by a smaller oval, the whole being a dirty-grey outlined with dark blue, the border itself decorated with glistening sky-blue stippling. The spot resembles a pot with a knobbed lid on the top. The head presents the outline of a truncated cone, apex towards the mouth, while the upper side or base carries the four horns; each lateral pair separated by a single spine, with two between the central pair. The horns are much tubercled, black-tipped and with a triangular black mark at the front of the base. A yellowish-white line extends down the outer aspect of the lateral horns and is continued along the outline of the face. In the final stage the larva becomes more uniform dark green but the dorsal spot persists and is more distinct. The head becomes less angular and the horns more robust and shorter in proportion to the size of the facial disc; the basal black disappears so that the whole head, with the exception of the marginal streak which is still yellowish-white, is now green.

The pupa is of the usual *Charaxes* type, pale translucent green over the head and thorax, and darker green on the abdominal

segments. The abdomen is markedly convex, so that it projects further than the thorax. Ornamentation is limited to a row of blackish spiracular lines on the abdomen; two diffuse white areas on the wing-cases; and three whitish-blue oblique thoracic marks which meet along the mid-dorsal line, forming acute angles which point toward the head. The pupal stage lasts eighteen days, as a general rule, but some carry over for even six months.

DISTRIBUTION AND HABITS:

The description given ante is of the form of *Ch. cithaeron* which is found throughout the Highlands of Kenya, including Mt. Kenya and districts (though in this latter region there is a strong tendency towards a distinct geographical form), and north to the Nandi area. The race inhabiting the Coastal forests and the Teita Hills is described later. A further geographical form occurs in the eastern parts of Uganda, but we have insufficient material to warrant separation at this juncture.

Schultz has described a *Charaxes* under the name *brevicaudatus* which from the description agrees well with the Highland form of *cithaeron*; the distribution given is East Africa.

Cithaeron is one of the common *Charaxes* in the Nairobi area, being quite plentiful in the forests thereabouts. The males are attracted to bait and droppings of carnivores and to fermenting exudates from trees, whilst the females are attracted to the last only. It is by no means an uncommon sight to see perhaps a dozen *Charaxes*, mostly *Cithaeron*, feeding on the juices of some wounded tree, particularly *Albizia* and *Croton*. Both males and females are very quarrelsome and fight one another, using their fore-wings with great force. Males are noted fighters, and where a selected territory has been occupied by one individual, not another *Charaxes* of any species is allowed within the zone. They are fond of sailing about the open sunny glades in the forest, always high up out of reach of a net, and seen thus, appear bright royal blue, with a glistening white patch in the hind-wing.

MIMETIC ASSOCIATIONS:

Attention has already been drawn to the association of this species with certain forms of females of *Ch. etheocles* and *Ch. ethalion*, along with *Ch. blanda kenyaë*. There is in addition a very marked similarity between the males of this species and those of *Ch. nandina* both above and below and between the undersides of the females of the two.

PLATE LXXXIII.

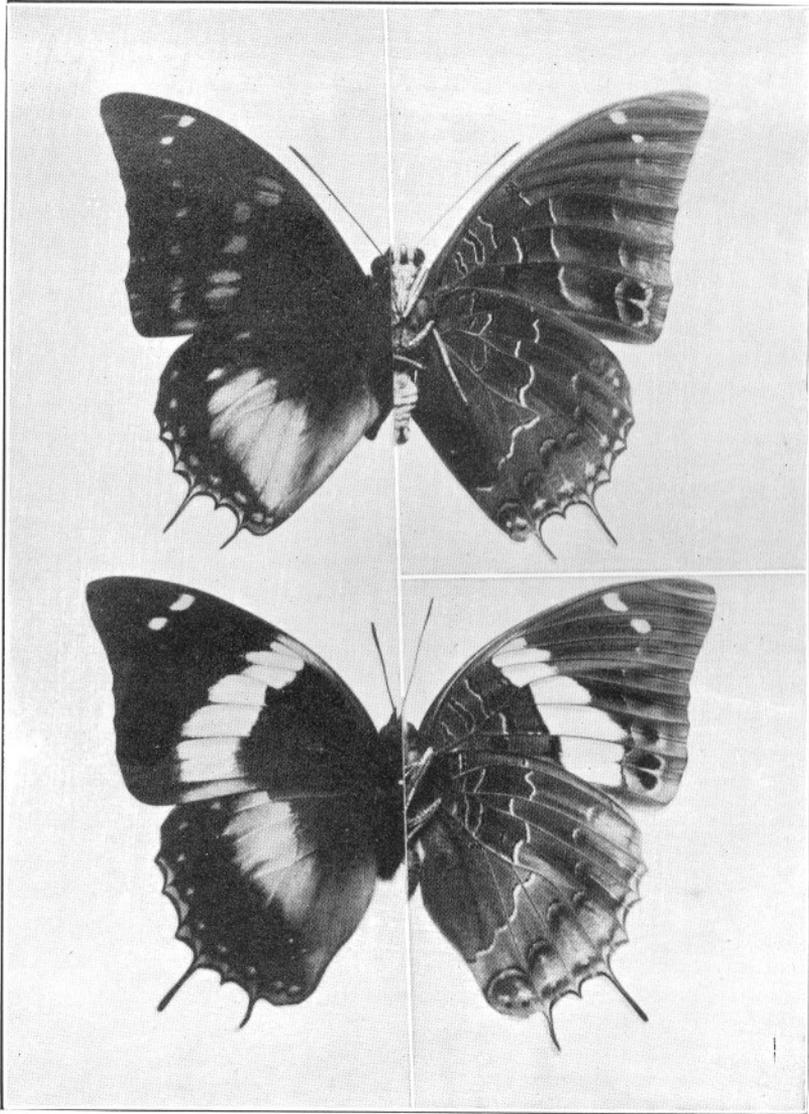


Photo: Dr. van Someren.

Upper surfaces.

Under surfaces.

Charaxes cithaeron kennethi.

CHARAXES CITHAERON KENNETHI, Poulton. Pl. LXXXIII.

Expanse: Male, 88-90 mm. Female, 90-98 mm.

MALÉ:

General colour blue-black with blue markings. Thus somewhat like the typical race but differing in the following particulars:

F.-w.: The sub-marginal row of blue spots from 1b to 6 is an almost straight line, thus conforming to the straighter outer margin (less concave than in the upcountry form). The double spots in 1b are discreet and seldom fused into that of 1a. The general tone of the spots is bluer, less tinged with purple; and the ground-colour is more blue.

H.-w.: The sub-marginal row of spots much reduced and bluer; the marginal golden line narrower and more sharply defined; the light ala patch suffused with bright blue; the anal angle more prolonged while veins 2 and 4 carry much longer "tails," 5 and 8 mm. respectively.

UNDERSIDE:

The ground colour is a stronger olive with less ochreous tinge; with all the marks considerably accentuated, in particular, the wavy black and white transverse line.

FEMALE:

This sex differs in much the same way as does the male. The bar is less irregular and is tinged with blue in 1a; and on the ala white bar innerside in 1b. The light patch in the hind-wing is strongly suffused with blue; the sub-marginal spots are small and strongly blue; and the tails on veins 2 and 4 are very long and slender, 8 and 11 mm. The underside is strongly olive and all the lines and marks are accentuated.

EARLY STAGES:

This race of *Cithaeron* lays its eggs on *Afzelia cuansensis*, Welw. (*Leguminosæ*) a medium to large timber tree, found in the coastal forests and known to the Swahili as "M'bemba-kofe." The eggs do not differ from those of the typical form, but the larvae show constant differences, especially after the second instar. The greatest divergence from the typical is found in the head; the lower edge is not so straight but is much more curved, nor are the lateral angles of the facial disc so acute, nevertheless the lateral horns are thicker at the base, are longer and more curved upwards; the central horns are longer and stronger while neither the outer nor the inner are black at the bases. The intermediary spines are much longer and stronger.

The horns are yellowish with greenish margins; and the lateral facial line is ochreous. The horns of the mature larva preserve these same characteristics but of course are shorter and stronger in comparison and are uniform green. Four black dots are present at the lower angles, posterior to the facial line. The dorsal spots on the sixth and eighth segments are distinct and brick-red. The pupa is rather more slender than that of typical *cithaeron*; the white marbling is much more distinct and defined.

DISTRIBUTION:

The coastal forests of Kenya and along the Tana River. They intergrade with the Highland form in the Teita and Ukamba districts.

MIMETIC ASSOCIATIONS:

Males and females are very like the two sexes of *Ch. violetta*. Both sexes act as models for certain forms of *Ch. ethocles* females and for females of *Ch. ethalion*.

Ch. pythodorus nesaea is an outlying member of this association.

CHARAXES SMARAGDALIS ORIENTALIS, Joic. and Talb. Pl. LXXXIV.

Expanse: Male, 88-90 mm. Female, 100-102 mm. Sexes unlike.

MALE:

General colour black with purply-blue markings.

F.-w.: Blue-black with a curved bar of purply-blue spots extending across the wing from the apex of the cell to a point sub-marginal at the posterior angle of the wing. The large spots in 1a and 1b are not clear-cut and are fused with the double spot in 1b, part of a series of sub-marginal blue spots which follow the contour of the wing through 2-5 and then represented in 6 and 7 by white sub-apical spots.

H.-w.: Purply-blue-black, with a wide purply-blue bar extending approximately from the distal half of 7 across the wing past the apex of the cell and ending at the posterior angle. The marginal border is black, carrying a series of purply-blue spots with white centres, from the anal angle to area 7. There is also a marginal series of purply-blue lines following the contour of the serrate margin. Veins 2 and 4 are prolonged into short "tails," 2 and 3 mm. long.

UNDERSIDE:

F.-w.: Dark olive, with the basal area, olive-ochreous outlined distally by a more ochreous bar which corresponds to the ala bar above; this is edged proximally by bluish-white and black, the latter

PLATE LXXXIV.

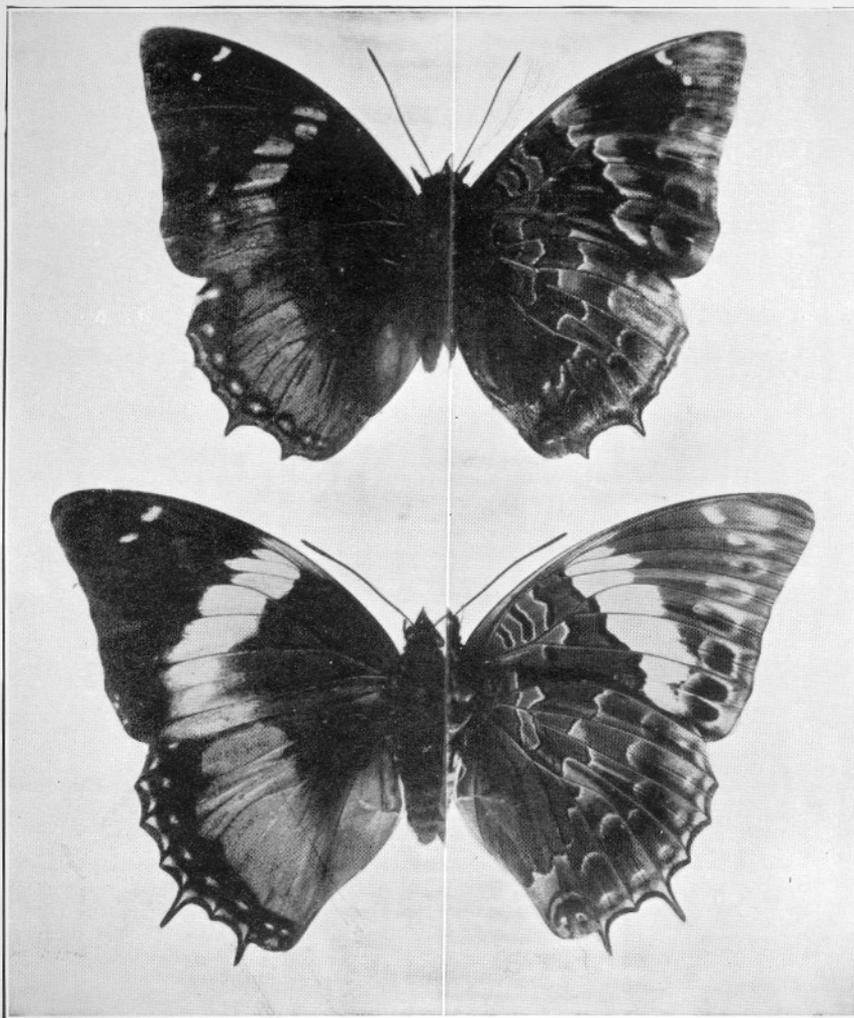


Photo: Dr. van Someren.

Upper surfaces.

Under surfaces.

Charaxes smaragdalis orientalis.

predominating. The sub-base of 1b and 2 each have a wide black spot, while the cell is crossed by three wide black lines bordered with white. The end of the cell is also outlined in black. The sub-marginal spots of above are represented by ochreous olive spots which are crescentic in 1b and 2, and enclose large blue-black spots which form "eyes." The sub-apical white spots are represented. The margin of the wing is ochreous-olive.

H.-w.: Dark olive with an ochreous-olive bar, outlined in black crossing the base of 8, the sub-base of 7 and obliquely through the cell. A zigzag black and white line crosses the wing from the mid-point in 7 to just above the anal angle; this line is distally shaded with ochreous-olive. Between this and the margin is a series of white and olive lunules, terminating at the anal angle in one outlined in black and containing the double purple and white spots, part of the series of sub-marginal spots which extend along the wing to 7. The margin of the wing is olive-green especially at the anal angle to vein 4.

FEMALE:

Apical half and posterior angle with sub-apical white dots in 6 and 7; basal triangle, olive-black with strong bluish-green irridescence, with between the two a wide white ala bar extending from the costa to 1a, with a strong suffusion of greenish-blue scaling in 1a and 1b.

H.-w.: Basal area greenish-black, marginal border blue-black, with a wide area in between of pale greenish-blue; marginal border ornamented with a row of diamond-shaped light-blue spots and with a marginal row of double triangular bluish-white marks. Inner fold of wing, greyish-ochreous. Veins 2 and 4 with tails 3 and 5 mm. long.

UNDERSIDE:

Olive, with the white bar of above represented, but without bluish scaling. Ala bar proximally edged with black. Cell crossed by three white-edged black lines; sub-bases of 1b and 2 with a black and white bar. Sub-apical white dots present and in series with ochreous-olive spots and lines which are placed proximally in a series of sub-marginal ocellate marks, those of 1b and 2 with blue-black centres and white outer borders.

H.-w.: As in the male, but in addition, it carries a blackish edge to the margin.

EARLY STAGES:

Unknown to us, nor is there a published description of either eggs, larvæ or pupæ.

DISTRIBUTION AND HABITS :

This *Charaxes* is found throughout Uganda to Nandi and Sotik. It is a forest species which is never common. In eastern Uganda it is rare and occurs as a straggler in the Nandi country. We found it commoner in Sotik, and in the forests on the Tanganyika border. Males are very much more in evidence than females.

MIMETIC ASSOCIATIONS :

The males of this species associate with and bear a superficial resemblance to *Ch. xiphares nandina*, and may be regarded as an outlying member of the *Cithaeron* group. The female when in flight is somewhat like the female of *Cithaeron*, but is bluer in the hind-wing; the superficial resemblance is there however. Again, we find female *amaragdalis*, in the northern limits of *Bohemani*, the two showing a strong resemblance, but the similarity here appears to be purely fortuitous.

CHARAXES XIPHARES NANDINA, Rothsch. Pl. LXXXV.

Expanse: Male, 90-92 mm. Female, 100-110 mm. Sexes unlike.

MALE :

General colour, purply-black with purple-blue spots.

F.-w.: Purply-black with small golden spots at the mid point on the margin of each area, double in 1b. Two series of white spots; one, sub-apical and sub-marginal extends from the mid-point in 7, then following the contour of the wing ends in 2; the other, starts below the costa at the apex of the cell and is represented in 3 and 2 sub-basally; both series are represented in 1b by rather ill-defined purple-blue spots and in 1a by a long purple spot just beyond the mid-point. There is sometimes a purple spot in the cell.

H.-w.: Ground colour purple-black, rather duller at the base, and greyish at the inner fold; ala bar represented by a purple and white spot at mid-point in 7 and by large purple marks sub-basal in 6, 5, the apex of the cell, the base of 3 and 2. This bar is followed by a series of purple spots, upper ones white internally, starting in 7 and extending to 2, the spot in 6 placed more internal. The purply-black wing-border carries a sub-marginal row of small purple spots from 7-1c, and a marginal line of golden marks conforming in shape to the serrations of the wing. Veins 2 and 4 carry "tails" of 5 and 8 mm. long. Margin of wing with small golden spots at mid-inter-nervular point. Thorax and abdomen black.

PLATE LXXXV.

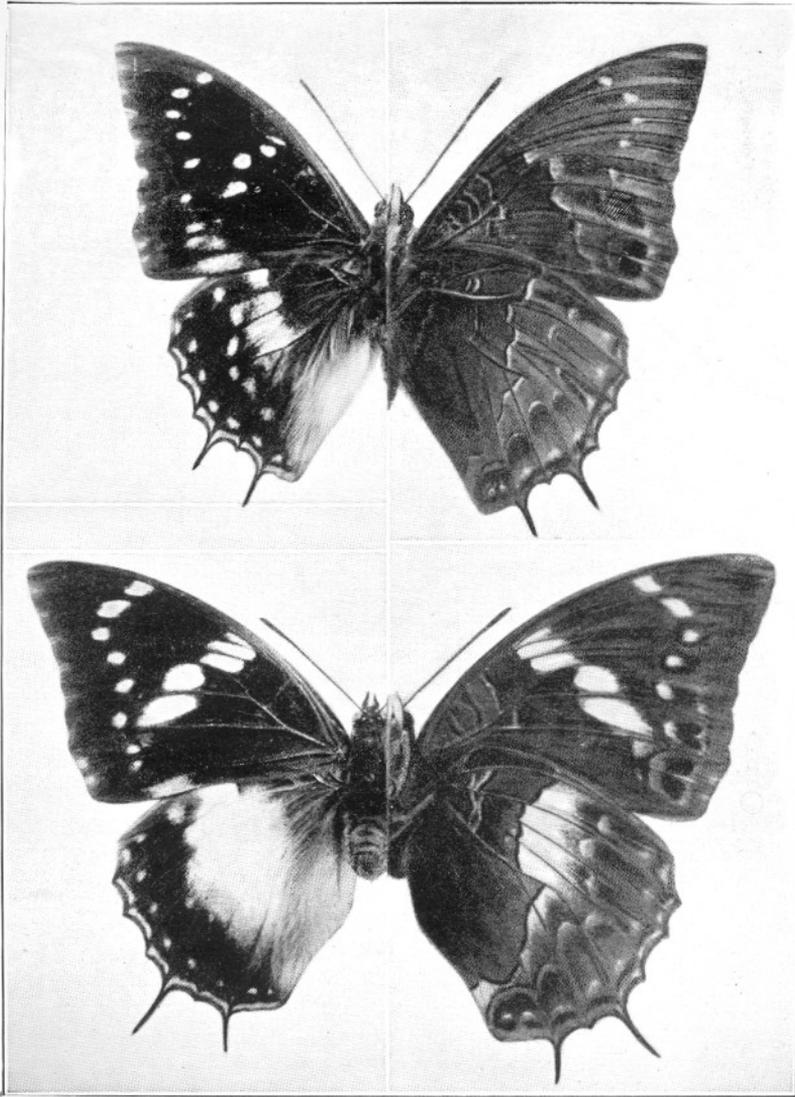


Photo: Dr. van Someren.

Upper surfaces.

Under surfaces.

Charaxes xiphares nandina.

UNDERSIDE:

F.-w.: Ground colour ochreous-grey with slight olive tinge. Sub-marginal row of white spots present, corresponding to spots above and ending in 1b and 2 in two "eye" spots, golden and black, lined internally with black and externally with violet-grey. Inner discal row of spots white, with a black line proximally. Areas 1b and 2 each with a black and white bar sub-basally; cell with three transverse black and white lines and a black line at apex.

H.-w.: Ground colour as fore-wing, basal area with a wavy black line crossing the base of 8, sub-base of 7 and sub-base of cell, and parallel to this another line proximally edged with white, crossing 7 and the cell. A third long wavy, zigzag black line, distally bordered with white, crosses the wing from the mid-point in 8 to just above the anal angle. In this line the black and white colours are of equal width; it is an important character which distinguishes this species from *Cithaeron* if the insect be seen with closed wings. Distal to this line is a series of golden and white spots, rather ill-defined, and becoming elongate in 1c and 2 and following the same series of the upper-side. The sub-marginal row of spots of above are reproduced below as pale lilac, those in areas 3, 2 and 1c with black dots distally, and doubled in 1c. The margin is decorated with golden crescentic lines as above.

FEMALE:

F.-w.: Brown-black with greenish sheen at base. A similar arrangement of spots as in the male, but all much larger, especially the inner series, with a reduction in 1b; all are white except that in 1a, this is ochreous with a slight violet tinge. Marginal spots reduced to small white edges with ochreous shading inwardly, excepting the two in 1b, these are golden and sharply defined.

H.-w.: Ground colour brown-black with a large ochreous central patch extending from costa but not reaching the inner fold; distally bordered by ochreous spots, often contiguous, extending from 8-2. Sub-marginal row of spots small, ill-defined and purplish; double in 1c. Marginal series of lines following wing serrations golden-ochreous, except those in 1c where they are tinged with olive. Veins 2 and 4 with long tails, 7 and 10 mm.

UNDERSIDE:

Mostly olive, with a slight ochreous tinge in the cell and base of 1b and 2. White spots and marks of upperside clearly reproduced below but larger, the outer series tending to form ocellate marks in 1b, 2, and 3. These latter being heavily marked with black outwardly and with golden-ochreous inwardly, with lilac edging on distal side.

The inner edge of the broad white ala bar outlined in black. Black bars cross the sub-bases of 1b and 2, while three black lines outlined in bluish-white cross the cell. The whole of 1a and most of 1b purply-grey.

H.-w.: Basal area and most of the wing-fold ochreous-olive, distally bordered with a black line which extends from a spot midway in 8 and extending to just beyond the apex of the cell at the junction of veins 3 and 4 and thence continued from a point sub-basal on vein 4, to above the anal angle. A large white area follows the first part of this line through 4 to 7, then in a very reduced form in 3 and 2, to appear again just above the "eye" of the anal angle. The distal edge of the white patch is softened by olive scaling and contains the series of ochreous spots indicated on the upper side, but below, they become crescentic especially in 1c to 4, and are margined with black which distally shades into the olive of the wing border. The sub-marginal spots of above are here indicated but larger and ill-defined, but made conspicuous in areas 1c to 4 by a black distal edge, doubled in 1c. The marginal golden border-line is present but is greenish in 1c to 3. The basal lines seen in the male are present in the female also. The white bar on the underside of the hind-wing in this species enables one to differentiate it in the field from female *Cithaeron*, if seen with wings closed.

EARLY STAGES:

We have not succeeded in breeding this species, but we have seen the females laying on *Craibia brownii* and *elliotti*, Dunn. (*Leguminosæ*). On one occasion quite late in the afternoon we detected a female laying on a very tall *Craibia*. As we were unable to collect the eggs that evening, we visited the spot the following afternoon, well armed with ropes and tackle. A rope was made fast to the top third of the tree and then carried to a pulley on a near-by tree. The *Craibia* was cut through and gently lowered. Several eggs were found but all failed to hatch as they were already parasitised. We obtained nothing but a series of minute *Hymenopterons* for all our trouble!

DISTRIBUTION AND HABITS:

This species is rare throughout its distribution. We have taken it in the forests round Nairobi and on the Kikuyu Escarpment and on the Nandi Hills and seen specimens procured in the Sotik Forest. It is of interest to note that the typical *xiphares* is a South African species, but so far as our information goes there seems to be a considerable gap between it and the northern race. Males are sometimes taken at bait but both sexes are more often captured when

PLATE LXXXVI.

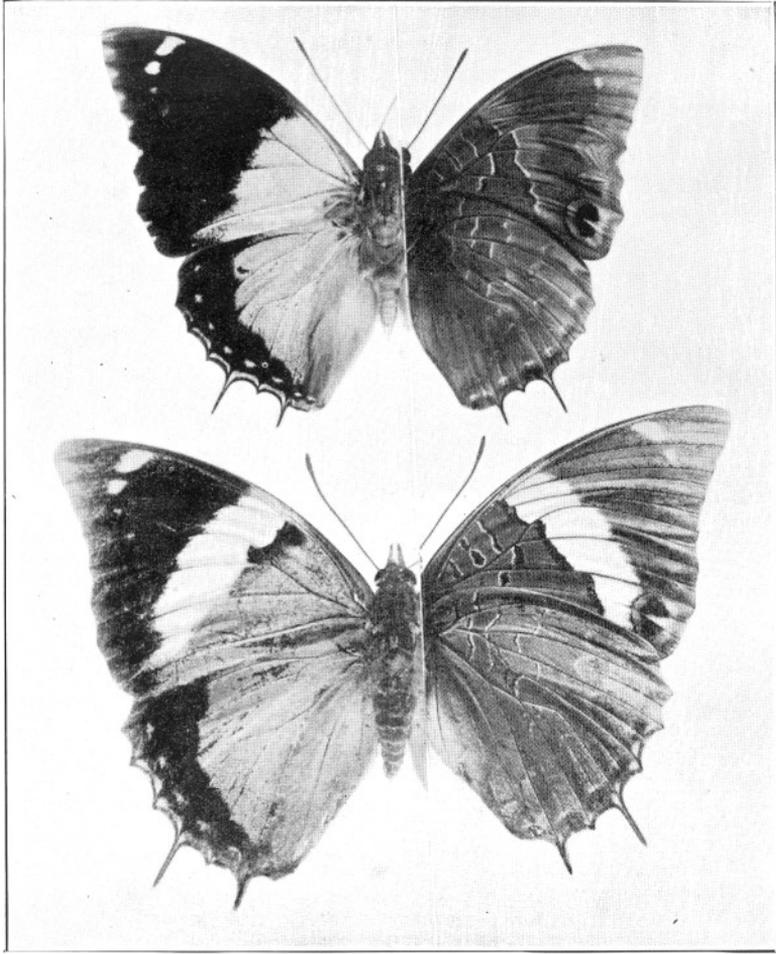


Photo: Dr. van Someren.

Upper surfaces.

Charaxes bohemani.

Under surfaces.

imbibing the fermenting juices of some wounded tree. We have seen no less than five species of *Charaxes*, including four examples of *nandina*, at one spot of exudate. They are usually difficult to capture, but if the fermenting exudate is particularly potent, the insects become so intoxicated as to allow one to pick them off with the fingers.

MIMETIC ASSOCIATIONS:

We have already drawn attention to the remarkable resemblance of the underside of this species in both sexes to the two sexes of *cithaeron*, also to the superficial resemblance of the upper surfaces of the males; the female however is unique, in that it is the only *charaxes* which mimics a *Danaine*, namely *Amauris albimaculata* and *echeria jacksoni*, and in this it is associated with the *cenea* female form of *Papilio dardanus*. Typical *xiphares* is mimetic of *Amauris echeria* in the Durban district, and Prof. Poulton has recently drawn our attention to a new race of *xiphares*, which has its own *Danaine* model, in the Drakensburg Mts.

CHARAXES BOHEMANI, Feld. Pl. LXXXVI.

Expanse: Male, 90 mm. Female, 104-106 mm. Sexes unlike.

MALE:

General colour blue and black. Basal half of F.-w. light greenish-blue, extending from the distal end of the cell to just within the posterior angle. Remainder of the wing blue-black paling towards the apex; extreme edge of wing white with white dots at the margin of mid-point in each area. Two large white spots sub-apical, in 6 and 7, followed by two small dots in 5 and 6.

H.-w.: Nearly the whole of the wing bright blue, inner fold ochreous-grey; marginal border blue-black, carrying a series of small blue sub-marginal spots, from 7-1c and a marginal series of blue lines following the serration of the wings; the ends of these lines white, and at the anal angle tinged with green. Vein 2 and 4 carry tails 3 and 7 mm. long.

UNDERSIDE:

Ground colour greyish-brown with in the f.-w. an olive tinge in the cell and bases of 1b and 2. The sub-apical and sub-marginal spots of above here represented by golden-orange spots extending from 7 to the hind angle, the spots in 1b and 2 crescentic and continuous with pale lilac curves on the distal side and so forming circles with blue-black interiors; the "eye" in 1b being very decided. A rather ill-defined olive-ochreous bar conforming to the outer edge of the

basal blue above crosses the wing. It is bordered internally with a black and white line. Three similar lines cross the cell and one each sub-basally in 1b and 2.

H.-w.: All marks rather indistinct; a whitish line crosses the sub-bases of 8, 7, and the cell, and the line parallel to this, crosses 7, the sub-base of 6 and the sub-apex of the cell. A third zigzag whitish line crosses the wing from the mid-point in 8 and curves inward to just above the anal angle. Between this and the sub-marginal row of whitish spots with black distal dots, is a series of crescentic olive-ochreous lines.

Marginal lines are present in 7 to the anal angle; they are ochreous along the upper part of the wing but become olive in area 2 and 1b. Thorax and abdomen bluish-grey.

FEMALE:

F.-w: Basal triangle bright blue, distally bordered by a wide white ala bar which stretches from the costa just beyond the cell, to the lower edge of 1b sub-marginally. The apex of the cell and the extreme base of area 3 are black with a sharp distal edge but suffused inner margin. Two large white spots are present in 6 and 7 sub-apically, and very often purply-blue spots are present in 4 and 5, sub-marginally.

H.-w.: As in the male but blue less intense; marginal lines rather whiter. Tails on vein 2 and 4 long, 5 and 9 mm.

UNDERSIDE:

Much as in the male, but white bar of upper side present and clearly defined distally and along the proximal edge bordered by black. Basal lines as in the male, but second line in cell often divided into two spots. H.-w. as in the male.

This species lays its eggs on the upper surfaces of the old leaves of *Azalia cuanzensis* (*Leguminosæ*). They are large, measuring 2 m. x 2½ mm., pale yellow in colour, slightly flattened on top and faintly fluted in this area. In twelve hours, the eggs turn red-brown, then black, just before the larva hatches. The young larva eats the remains of the egg-shell before feeding on the leaves. Its colour is at first olive, with black head and whitish tail. The first moult takes place in three days. The larva is now an olive brown, with a white bifid tail and greenish head. The full fed larva is 45 mm. long, of an ochreous-olive colour, each segment with latero-dorsal lines of yellowish running obliquely forward. There are also two vertical rows of greenish spots along the fore part of each segment. The sixth segment is ornamented with a circular dark green mark, most heavily lined laterally and enclosing an olive fore area. The spiracular

PLATE LXXXVII.

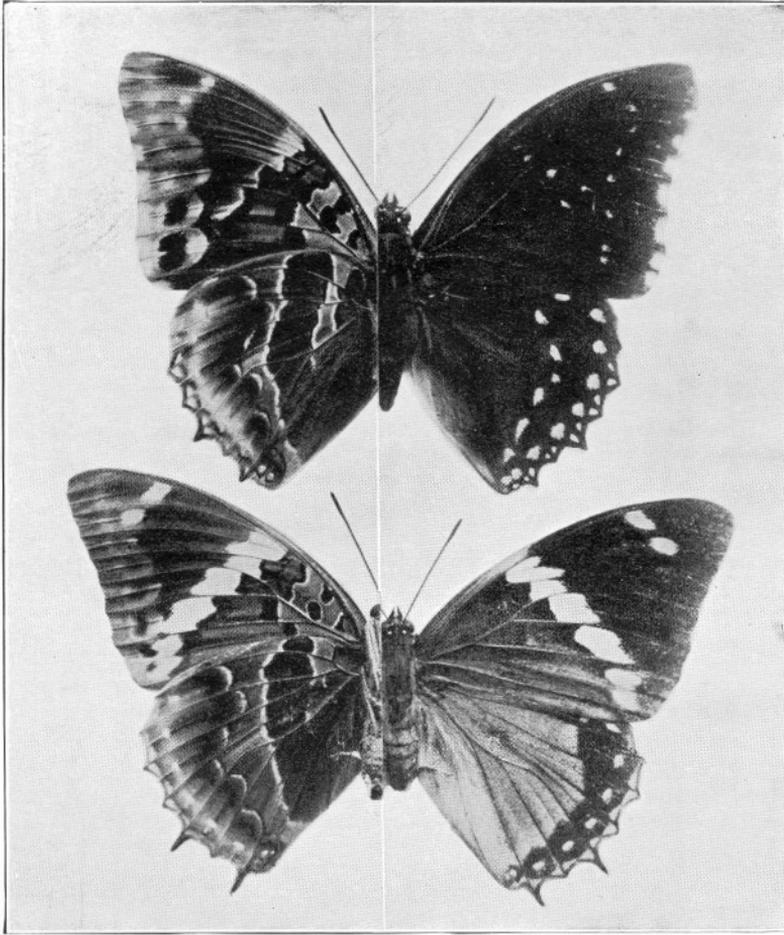


Photo: Dr. van Someren.

Under surfaces.

Charaxes numenes.

Upper surfaces.

line is slightly indicated by a broken series of yellowish dots. The underside of the body is light greenish ochreous. The general appearance of the body is therefore "dead-leaf" like. The head is almost rectangular, pale fawn with a slight olive tinge and with a marginal ochreous line, forming a triangle above the black mouth parts. The horns are very short almost as in *numenes*. The outer ones (2 mm. long) are directed up and slightly out and then incline inwards; the upper pair are equally short and are almost vertical. The whole surface, including the horns is coarsely papillated.

The pupa is very large, measuring 31 x 15 mm. It is pale apple green with a bluish tinge on the margin of the wing scutæ. The spiracular spots are ill defined, but the whole pupa is decorated with bluish-white; the abdomen carries seven oblique horse-shoe lines, most marked dorsally; the wing cases are traversed by a broad line subapically and by a more diffuse one along the marginal ridge. The antennal line is white while the thorax carries a white oval. The cremaster is composed of a short-stalk bounded by lateral ovoid lobes with rugose surfaces and in front of these are two other semi-quadrate lobes—all ochreous in colour. The pupal stage lasts from 10 to 18 days.

DISTRIBUTION AND HABITS:

This insect is rare within its distribution in Kenya. We have taken it in the forests of the Coastal belt and in the Sotik. These areas must represent its northern limits.

MIMETIC ASSOCIATIONS:

Owing no doubt to its rarity, it appears to have had little influence on other species of *Charaxes*. In its southern distribution however, both sexes are mimicked by two female forms of *Ch. etheocles* (T.T., N. Rhodesia, and Angola), *phaeus* and *manica*; two forms of females which do not occur in Kenya or Uganda.

CHARAXES NUMENES NUMENES, Hew. Pl. LXXXVII.

Expanse: Male, 90-94 mm. Female, 95-100 mm. Sexes unlike.

MALE:

General colour blue-black with small blue spots and golden margin.

F.-w.: Blue-black, the blue more pronounced at the basal triangle. Margin of wing with large golden-ochreous spots, increasing

in size from apex to hind-angle, double in 1b. A sub-marginal row of small purply-blue spots, double in 1b follow the contour of the wing extends from 1b to 7; in the last area the spot is white and set in slightly. A further row of four small blue spots crosses the wing from just beyond the cell to the mid-point in 2.

H.-w.: Blue-black, inclining to dull black at the wing-fold. There is a sub-marginal row of triangular spots, blue with white centres, extending from the upper angle to the anal angle; internal to this a further row of blue spots extending from 6 and in an almost parallel series to the anal angle. The extreme edge of the wing is bluntly serrated and with golden scaling between the veins; the margin is decorated with small double triangular golden spots from 6 to anal angle. Veins 2 and 4 with short blunt tails, 1 and 2 mm. long. Thorax and abdomen black.

UNDERSIDE:

Ground colour olive with ochreous tinge, most decided in the cell and the bases of 1b and 2 and marginal border of wing. Cell with a black spot at base, a double black mark in the centre of the ochreous olive area, a wavy line sub-apical and a thin line at the apex. Areas 1b and 2 with large black sub-basal spots bordering the olive-ochreous base. A further irregular black line distally shaded with white, crosses the wing from just beyond the apex of the cell and ending at the proximal side of the "eye" spot in 1b. All area 1a and most of 1b dark purply-grey-brown. Distal end of areas 1b and 2 with faintly indicated ocellate spots, slightly visible in the other areas up to the apex. Two white spots are present at about mid-point in 6 and 7.

H.-w.: Olive-brown; basal area with a black line in 9, one at base of 7, continuous with one sub-basal in cell; a further line outlined proximally with white crosses the sub-base of 8, sub-base of 7 and passes obliquely across the cell; between these lines, an ochreous-olive zone. Upper part of apex of cell black. A well marked ala white line edged with black proximally crosses the wing from just internal to the mid-point in 8 to end in a gentle curve above the anal angle. Beyond this is a series of double crescentic, irregular black marks with white shading distal to the inner row, starting at the distal end of 7 and ending at the anal angle. The marginal border is ornamented with a series of white transverse marks with lilac shading round each, stretching from 7 to the anal angle where the spot is double; these spots are distally accentuated with a narrow black line in 1b, 2 and 3. The margin of the wing is greenish-olive bearing whitish triangular marks as above.

FEMALE:

Apical half of fore-wing blue-black, with two large sub-apical spots in 6 and 7. A wide bar of white spots stretching from the costa to the hind-angle base of the apical black thus separating the golden olive of the basal half from the apical black. The white marks in 1b to 3 are strongly suffused with ochreous. The distal margin of 1b carries a double ochreous spot.

H.-w.: Most of the wing golden-olive, with a wide marginal border of black carrying a series of lilac spots with white centres; the extreme edge of the wing golden between the serrations, and internal to this a series of double triangular golden-olive marks, base to base on either side of the veins. Veins 2 and 4 with "tails" 1 and 3 mm. long.

UNDERSIDE:

F.-w.: Ground colour olive-grey-brown; basal markings as in the male; sub-apical spots large and white. Mid ala bar white and placed as above and merging into the "eye" spot on the posterior angle. Rest of marks as in the male.

H.-w.: Ground colour as fore-wing. White ala line distinct, and post-discal row of crescentic lines clearer than in the male; remainder as in male.

EARLY STAGES:

This species lays its eggs on the upper surfaces of the leaves of at least four species of trees, *Erythrina tomentosa*, R.Br. (*Leguminosæ*) known to the Baganda as "Ekerikiti," a forest tree called by the Baganda "Nkuzayana"; and three species of *Grewia*, *G. mollis*, Juss., *G. nyanzæ*, Drum., with blue flowers, and *G. forbesii*, Harr., with yellow to orange flowers (*Tiliaceæ*). The egg is canary-yellow in colour, 1.5 mm. in diameter and deeply cupped, but with only slight fluting in the depression. The first indication of germination is the appearance of a brownish tinge to the upper ring, and when the egg is mature it turns a brown-black. As soon as the larva has eaten its way out of the egg it eats the remains of the shell. It is of a dull olive colour with black head and white "tail." At the third instar, the larva turns green, and a white spot appears on the sixth segment. The mortality at this stage is very high, as the species is rather more delicate than most and is a fastidious feeder.

The final stage is reached within a fortnight; the mature larva is a dull-green colour, finely papillated, and is 6 cm. long. The tail remains whitish, and each segment of the body bears four bluish-white spots at the anterior edge, two dorsal, two lateral, arranged

in four lines along the body. Most specimens have two dorsal spots, one on the sixth and one on the eighth; both are pale buff with a purply tinge. The anterior spot is a three-pointed crescent, the posterior is hexagonal; both have two distinct black dots in their centres. Sometimes these dorsal spots are brick-red, but they fade to a greyish-green when the larva curls prior to pupation, and within six hours they disappear almost entirely. The head as seen from the front is rather convex, quadrilateral in outline, but rather narrower at the mouth. Two pairs of short, very rugose horns arise from the upper angles and the centre of the top edge; between the central pair are two short spines, and one on either side. These spines are nearly as long as the horns so that the upper side of the head looks somewhat like a comb. The ground colour of the disc is green, with a bluish tinge, the posterior-lateral aspect, paler. The pupa is of the usual form, pale translucent apple-green, with no spots or marbling, except two black dots at the wing-angles. The cremaster is long-stalked, the base bilobed and in front of the stalk, are two kidney-shaped marks, tapering rather, at one end. The spiracles are only just indicated as brown marks.

DISTRIBUTION AND HABITS:

This species is rather common in Uganda, especially central and east, and extends into Kenya as far as the Nandi Hills and Sotik. Females are rare compared to males and keep more to the forest undergrowth or they fly high along the tree-tops. One seldom sees them unless one is on the lookout for a laying female; and then only in patches of forest where the larval food is plentiful. They are sometimes seen in banana shambas at the edge of a forest; they seem to like the shade and here they associate with various species of *Euphaedra*. Males are much in evidence on leopard and hyaena droppings, along open roads or forest paths. They can usually be attracted by decaying fish entrails or any such equally smelly bait.

MIMETIC ASSOCIATIONS:

We have already mentioned that females of this species associate with species of *Euphaedra* especially *losinga inaequalis*, Thunb., *spatiosa*, Mab., and *preussi olivacea*, Grunb., the first two species being particularly common. There appears little doubt but that these *Euphaedra* are the models for the very distinctive type of colouration assumed not only by the female of *numenes*, but by *tiridates* and *bipunctatus* and by two forms of female of *etheocles*: *cedreatis* and *protecedreatis*. Although one usually associates great power of flight with species of *Charaxes*, yet when one sees a gravid female *numenes* intent on seeking out its food plant amongst the forest undergrowth the chances are that one would confuse it with the *Euphaedra*,

PLATE LXXXVIII.

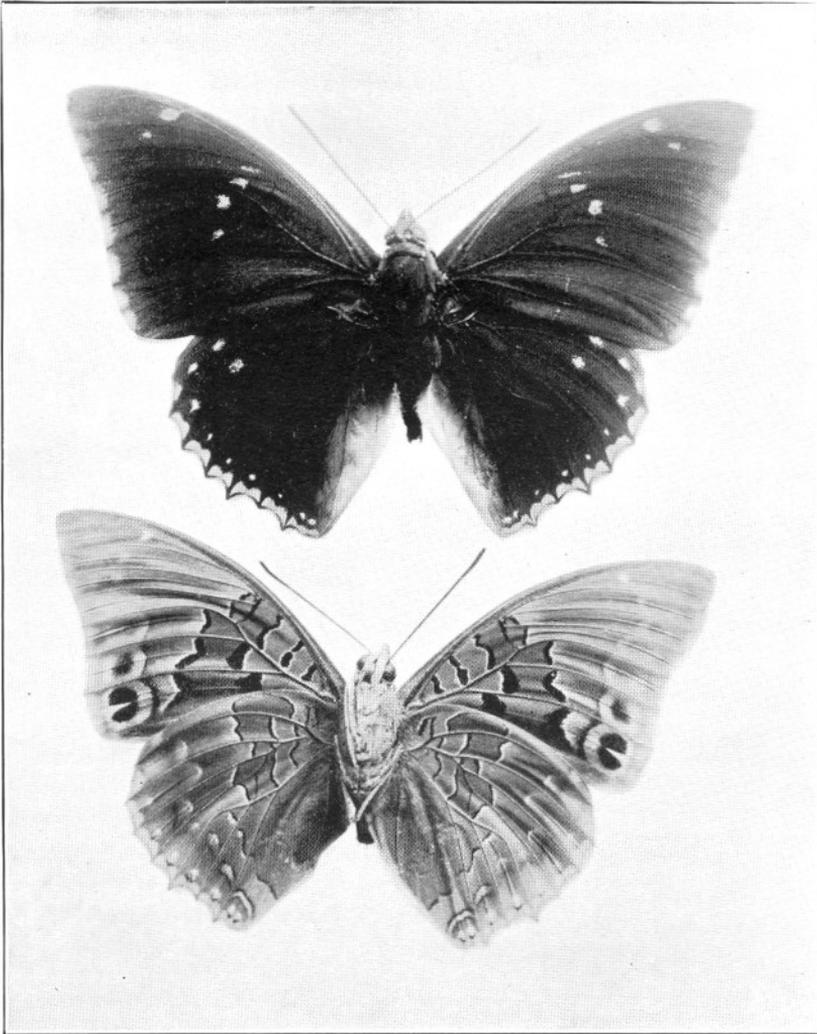


Photo: Dr. van Someren.

Charaxes bipunctatus. ♂
Upper and under surfaces.

the fluttering and alternate gliding is most deceptive. The similarity between the two is seen at its best when both insects happen to be gliding about a sun-lit banana shamba; the deep shade alternating with patches of dazzling sunlight, enhance the resemblance to a marked degree. Quite recently, both my head "dudu" boy and myself were so deceived that on one occasion when I told my boy to capture a passing *numenes* he replied "Surely you don't want that 'ground butterfly'?" meaning *Euph. spatiosa*. Again when I said "Go after that one," it turned out to be *Euphaedra* and not *numenes*, as I had thought. There are heaps of *Strikes* and *Drongos* in these banana patches, but I have never seen them attack *Euphaedra*. The males of this species belong to the group centring round *Ch. tiridates*; all the species are blue-black with blue spots; most are large and powerful. The resemblance is above, and below also.

CHARAXES BIPUNCTATUS BIPUNCTATUS, Rothsch. Pl. LXXXVIII.

Expanse: Male 90-100 mm. Female 100-102 mm. Sexes unlike.

MALE:

General colour rich blue-black with golden border.

F.-w.: Iridescent blue-black, darker towards the margin and apex; outer margin with golden border broken only by the tips of the veins, rest of wing almost devoid of spots except two, sub-apical in 6 and 7, the former white, the other blue, and a row of two sometimes three crossing the wing, just beyond the cell.

H.-w.: Blue-black, inclining to dull black at the fold. Two large blue spots decorate the upper part of the wing at about mid-point in 6 and 7. There is a sub-marginal row of very small bluish dots, double in 1b and extending up to 7. At the extreme edge of the wing is a series of crescentic golden lines between the veins, and just internal to this and separated by a narrow black line is a series of large golden spots, whose outer edges follow the wing contour, while the inner are slightly impressed at a point opposite each sub-marginal blue dot.

The contour of the wing is only very slightly dentate, the tails on veins 2 and 4 being extremely short, $\frac{1}{2}$ mm. and 1 mm. respectively. Thorax and abdomen black.

UNDERSIDE:

F.-w.: Ground colour olive-brown, with the bases of 1b and 2 and $\frac{2}{3}$ cell olive-ochreous; the former two with large black spots distal to the olive area, and the cell with three black, white-margined lines, one at base, and one on either side of the mid-third. The apex of the cell is indicated by a narrow black line, and beyond this are two

lines distally shaded with ochreous-olive. Three angled black lines cross 1b, 2 and 3, each is bordered with white distally and then shaded with olive. Area 7 carries a white spot at mid-point, while areas 6 to the hind angle have sub-marginal ocellate marks, faint in the upper four but clearly defined in 1b and less so in 2. The margin of the wing is shaded with ochreous and divided by the ends of the veins. The whole of area 1a and most of 1b are purply-grey.

H.-w.: Ground colour olive-brown, rather more ochreous basally; basal area with black lines as follows: one oblique in 9, one sub-basal in 8 continued through sub-base of 7 and across the cell; a further parallel line crosses 7, the base of 6 and then obliquely through the cell, to root of vein 2. A third irregular line crosses the wing from the mid-point in 8 to just above the anal angle. These lines are edged with white distally. There is a series of double crescentic post-discal lines, with ochreous-olive between, faintly indicated in 7-4 and reaching the anal angle, and clearly indicated in 1b-3. The margin of the wing is golden-ochreous inclining to olive at the anal angle, with a very narrow edging of olive, and internal to this is a sub-marginal series of small lilac spots with black dots distally, double in 1b.

FEMALE:

Very like the female of *tiridates* and *numenes*, but differs from both in that the mid-bar of the fore-wing extends further to the hind-angle, and the three lower spots yellower. In the hind-wing, the distal margin of the golden olive area is sharply angled at vein 5 and is pale though not broken into crescentic marks as in *tiridates*.

UNDERSIDE:

As in the male, with the cell containing the same diagnostic marks which differentiate the species.

EARLY STAGES:

We have been unsuccessful in rearing this insect from the egg stage, and there is no published record available.

MIMETIC ASSOCIATIONS:

The association of this species with *tiridates*, *numenes*, and certain *Eurphaedra*, and with certain female forms of *etheocles*, has already been mentioned.

DISTRIBUTION AND HABITS:

This species ranges throughout Uganda and passes eastward into the Nandi-Elgon area but not further. It is a forest species, and males are much in evidence on every collection of droppings, especially

PLATE LXXXIX.

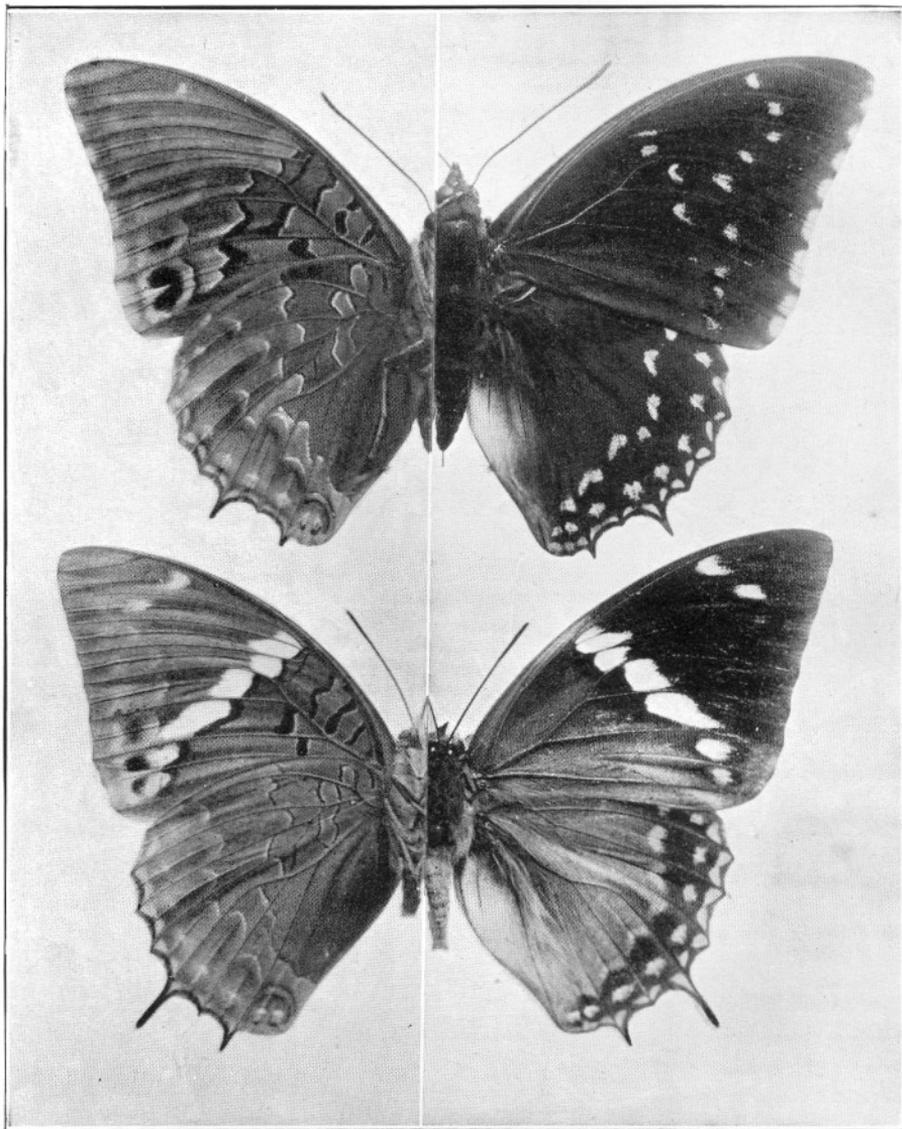


Photo: Dr. van Someren.

Under surfaces.

Charaxes tiridates.

Upper surfaces.

of carnivores, on roads and paths which traverse well-wooded areas. Females are occasionally seen and taken when sucking up the fermenting exudate from some injured tree, or when they are hunting about the forest undergrowth for their food plant.

CHARAXES TIRIDATES TIRIDATES, Cram. Pl. LXXXIX.

Expanses: Male 110-114 mm. Female 112-114 mm. Sexes unlike.

MALE:

F.-w.: Deep blue-black, with purply-blue sheen; outer margin with conspicuous golden-orange border intersected by dentate extensions of the ground colour along the veins, spot in 1b double. A white sub-apical spot is present in 7 and blue spots are present in the other areas, the upper four arranged in a curve, the remainder in a straight line. There is a further series of blue spots distal to the apex of the cell and reaching 2.

H.-w.: Ground colour blue-black, inclining to black at the wing-fold. Two rows of blue spots decorate the wing border; the inner row of somewhat crescentic spots starts in 7 and extends to just above the anal angle, the spots in 2 and 6 set slightly more in than the rest. The second line is sub-marginal and the spots angular, extending from 7 to the anal angle where the spot is double. The extreme edge of the wing is ochreous internervularly, and just internal to these marks are double triangular orange spots. Veins 2 and 4 carry "tails" 1 and 4 mm. long. Thorax and abdomen, black.

UNDERSIDE:

Ground colour olive-brown, rather browner towards apical half. Basal area of 1b and 2 and $\frac{1}{4}$ of cell ochreous-olive, the former two bounded distally with black bars, white edged proximally, the latter with a black bar at sub-base, two bars at mid-point and another at distal end of mid-third; these lines edged with white. Apex of cell indicated by a narrow black line. A series of angular black marks cross the wing, the first, distal to the cell, angle directed outwards; those in 3 and 2 and a double one in 1b, angles inward; all lined with white and shaded with ochreous-olive distally. The sub-marginal area of the wing carries a series of long oval ill-defined ochreous marks, from 7 to 3, and represented in 2 and 1b by more circular marks enclosing black centres, the lower "eye" bisected by a bluish white line, part of the outer segment. The margin of the wing is ochreous-olive, divided by the dark tips of the veins. Lower half of 1b and the whole of 1a, purply-grey.

H.-w.: Ground colour olive-grey-brown; area 9 with a black line; base of 8 with an ochreous-olive area outlined in white and black; base of 7 with a similar mark which extends obliquely across the cell,

An interrupted ala line of black, edged with white and distally shaded with ochreous-olive, stretches from the mid-point of 8 to above the anal angle. Between this series and the sub-marginal row of lilac spots, is a series of ochreous-olive spots shaded white proximally extending in two curves from the distal end of 8 to the mid-point in 5, and from the mid-point in 4 to the anal angle where the spot becomes crescentic and clearly lined with black, forming a half ring round the double lilac spots in the angle. The margin of the wing carries crescentic ochreous-olive lines.

FEMALE:

F.-w.: Basal half of wing golden-olive, distally shaded with black especially in the upper-distal end of cell; apical half of wing blue-black to brown-black basally bounded by a transverse series of large white spots extending from below the costa at the base of 6 to the mid-point in 2 and then by two smaller spots in 1b. The sub-apical area of wing with two large white spots and an indication of a third.

H.-w.: Mostly golden-olive, with a blue-black border separated from the olive, by a series of ill-defined crescentic marks stretching from 8 to above the anal angle. The sub-marginal row of large lilac to purple spots with white dot, extends from 7 to the anal angle where the spot is doubled and blue. Each internervular area on the margin of the wing carries a double triangular golden spot. Veins 2 and 4 carry tails, 4 and 8 mm. long.

UNDERSIDE:

Ground colour rather darker and more greyish-brown than in the male, with a lack of olive-ochreous at the base. All other markings as in the male but in addition the two sub-apical white spots are clearly defined and the white bar of above is present and carried through to the "eye" spot at the posterior angle.

H.-w. as in the male.

EARLY STAGES:

This species lays its eggs on the yellow-flowered *Grewia forbesii*, Harr. (*Tiliaceæ*), called "Nkoma koma" (Luganda) on *Hibiscus calycinus*, Willd. (*Malvaceæ*), known to the Baganda as "Kinsambwe" and on "Nkuzayana" this last also the food of *numenes*, and so far undetermined. The eggs are large, 2 mm. in diameter and slightly less in depth; the cupping on top being marked and well-fluted. As soon as the young larva has emerged from the egg, it devours the remains of the egg-shell. In this stage it is dull olive-brown in colour, with a black head. At the first moult it becomes greener and

the head becomes mottled with white and light brown; at the third instar it turns leaf-green and a whitish spot develops on the sixth segment. The full-fed mature larva is a rich dark-green with finely papillated surface; the sixth and eighth segments are each dorsally ornamented with a purply-buff or whitish spot, that on the former having a crescentic or trident outline with a pointed projection in the centre of the concavity, that on the eighth being somewhat hexagonal (thus very like *numenes*). In some richly coloured examples the spots are brick-red. Each segment has a series of three to four whitish or bluish spots towards the fore-part of the lateral surface, and these form a somewhat broken spiracular line along the entire length of the body, with the exception of the first thoracic segment. The head is markedly convex and rather quadrate in outline; the lower edge is almost straight as are the sides but the top is rounded. The two pairs of horns are strong and owing to their large bases appear shorter than in reality. The lateral horns are equal in length to the central pair and arise obliquely to the side, are directed up and out and then curve in slightly at the tips; they are strongly rugose and spined, especially on the outer and anterior aspects. Below each is a short spine. Between the lateral and central horns are strong spines and between the central horns are two robust branched spines inclining inwards. The central horns project up and slightly out, then curve inwards. The whole facial disc is dark leaf-green and strongly rugose. There is no facial line, but two black spots are present at the baso-lateral corners.

The pupa is of the predominant type, with close-set head, well developed angles to the wing cases and marked convexity of the dorsum of the abdominal segments. There is little or no ornamentation of the pale green ground colour, except a double black spot at the angle of the wing scutæ.

DISTRIBUTION AND HABITS:

Ch. tiridates is the largest species of this group, and is well distributed and common throughout Uganda and the Nandi country. Males are much more in evidence than females, in fact the latter are seldom seen except in the forest undergrowth and on the edges of clearings. One sometimes sees them circling high with a male in pursuit, but they are not common. All droppings of carnivores prove an attractive bait to the males of these insects, and it is no uncommon sight to see three or perhaps four of these huge *Charaxes* feeding alongside one or two other species of *charaxes*, not to mention the numerous *Crenis* and *Lycaenids* which hang about these smelly morsels.

MIMETIC ASSOCIATIONS:

Owing to the size of the species and their great strength, *tiridates* is considered the centre round which the lesser fry are grouped, these including *numenes*, *bipunctatus*, and the two females of *etheocles*, *cedreatis* and *protocedreatis*; all having as their model the *Spatiosalosinga* group of *Euphaedra*. These last are particularly plentiful throughout the distribution of the *Charaxes* and there appears little doubt but that these insects are distasteful to their natural enemies.

We have no records of any of these *Euphaedra* being taken by birds or reptiles though both enemies are abundant in forests where the insects occur. The above remarks referring to colour scheme apply, of course, to the female sex of the *charaxes* mentioned; there is the other form of protection, which is the outcome of a recognition of colour combined with strength and not necessarily with unpleasant taste. Swynnerton has shown that the larger *Charaxes* enjoy an immunity from attack, as their enemies have learnt by experience that, quite apart from the strong and tough integument possessed by these insects which renders them difficult to break up, the fight put up by them, by the assiduous use of their powerful wings, is often sufficient to make a bird let go of a would-be victim.

CHARAXES AMELIAE AMELIAE, Doumet. Pl. XC.

Expanse: Male 100-102 mm. Female 104-106 mm. Sexes unlike.

MALE:

General colour deep blue-black with blue spots.

F.-w.: Deep blue-black, with blue scaling along the base of the costa; and blue spots and marks as follows: a large, long triangular patch at the basal-upper part of cell, followed by a large spot just beyond the cell, and another at the base of 6. A long "club" streak is present at the lower part of the base of 1b, with often a very small line extending into 1a; there are two sub-apical spots in series with a sub-marginal row of increasing size, extending across the wing to 1a; the margin is ornamented with small mid-internervular spots, double in 1b and opposite each, the extreme edge is white-scaled.

H.-w.: Ground colour blue-black, inclining to black and then greyish at the inner fold. Centre of wing with a triangular blue bar of four spots extending from the sub-base of 6, 5, the apex of the cell to the base of 2. A sub-marginal row of large blue spots follows the contour of the wing closely, from almost the mid-point in 7 to the anal angle where there are two spots; areas 5 to 1c are narrowly margined with blue, and the extreme edge of the wing is white-scaled. The wing margin is only slightly dentate; veins 2 and 4 with short tails 1 and 3 mm. long. Thorax and abdomen green-black.

PLATE XC.

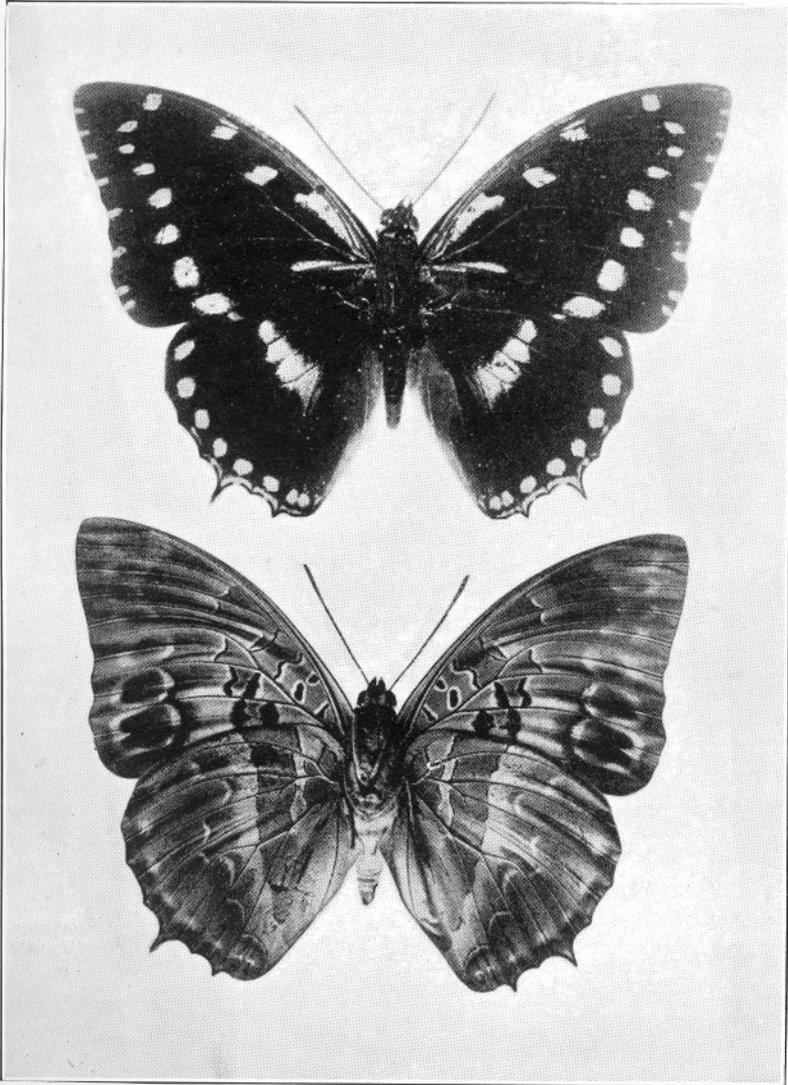


Photo: Dr. van Someren.

Charaxes ameliae ameliae. ♂
Upper surface.
Under surface.

UNDERSIDE:

F.-w.: The whole underside has the appearance of "watered or shot silk" silvery-greyish with an iridescent greenish tinge. Greater part of cell and bases of 1b and 2, greenish-ochreous. The cell contains a black line outlined with white at the sub-base, two white-outlined black spots at centre, and a wavy line at distal edge of mid-third, and a narrow black line at the apex. This is followed by a line at the base of 4 and a line each, sub-basal, in 5 and 6 and 3, the last in series with a line in 2, and this with one in 1b which is frequently joined with a sub-basal one in the same area and so forming a loop or U. Area 2 also carries a sub-basal line. Beyond the U-shaped mark in 1b the ground colour is light bluish-grey, shading to dark grey near the "eye" spot in 1b and in almost the whole of 1a. The sub-margin of the wing is ornamented with ill-defined lilac ovals or ocelli, containing a greenish tinge extending from 7 to 1b, the marks in 1b and 2 being more defined and inwardly shaded with ochreous-olive and bluish and proximally lined in black, and containing black centres, that of 1b being almost rectangular and indented on the distal side, these two forming conspicuous "eye" spots on the posterior angle.

H.-w.: This has the same "shot silk" appearance as the fore-wing, the predominant colour being a silvery-grey with greenish tinge. The base of the wing is traversed by a whitish bar outlined with black, which passes through the base of 8, the sub-base of 7 and then obliquely across the cell; a further whitish ala bar proximally edged with black crosses in almost a straight line from the mid-point in 8 to just above the anal angle; the distal edge of this bar is not sharp but shades off into the ground colour. This is followed by an irregularly placed series of greenish-ochreous ocelli extending from 7 to 2 and replaced in 1b by a crescentic ochreous line outlined in black and partly surrounding two black dots proximally edged with lilac, at the anal angle. The margin is tinged with ochreous either in the form of a continuous line or interrupted by the tips of the veins. Between this marginal border and the ocelli is a greenish-pink area edged distally with ill-defined whitish spots.

FEMALE:

F.-w.: Brown-black, with markings much as in the male but white or creamy, the cell is however without a mark. The median band of the hind-wing is longer and wider and is continuous with the spots in the fore-wing at 1a and 1b.

UNDERSIDE:

Much as in the male but white ala bar more defined and wider. The black spots at sub-base of 1b are either coalescent or discreet.

EARLY STAGES:

We have not bred this species nor can we find a published description of the early stages.

DISTRIBUTION AND HABITS:

Ch. amelia is a western species which extends into Uganda as far east as Mt. Elgon. It is a forest insect which is certainly not common, and is one of the handsomest of the genus. The curious silvery underside makes it a conspicuous insect when seen feeding at bait. We have only once seen and captured a female; it is rare.

MIMETIC ASSOCIATIONS:

*Professor Poulton has written on the mimetic relationship of this insect, and has cited it (the female) as a secondary model for the *etheocles* female form of *etheocles*, with *brutus* as the central model; with these must be included the white-barred form of female *etesipe*.

CHARAXES PYTHODORUS PYTHODORUS, Hew. Pl. XCI.

Expanse: Male 90-94. Female 94-100 mm. Sexes unlike.

MALE:

General colour black with light-blue bar.

F.-w.: Ground colour black, rather browner at the base; a blue-ringed white spot distal to the apex of the cell, followed by two like-coloured spots sub-basal in 5 and 6 and one sub-basal in 3 and represented in 1a to 2 as a large triangular blue mark, base to hind-margin. Two blue spots at sub-apex and continuous with a series of sub-marginal blue spots, more or less parallel to the outline of the wing and meeting the large blue spot in 1b.

H.-w.: Extreme base black, but most of the wing taken up by a large light blue patch, shading to white at the upper part of the fold and to greyish distally. The marginal border is black, bearing a series of very small blue spots, double in 1b. This area also has a narrow blue line at the margin. The extreme edge is white between the ends of the veins. The edge is only very slightly dentate, with hardly any projection of veins 2 and 4. Thorax blackish shading to grey posteriorly; abdomen white.

UNDERSIDE:

The whole of the underside is naples-yellow with a slight olive tinge. The markings are black and very fine with the exception of the U-shaped mark at the sub-base of 1b and the partial "eye" spot

* Poulton, Internatioaler Entomologen-Kongress, Zurich, July, 1925. Band 11.

PLATE XCI.

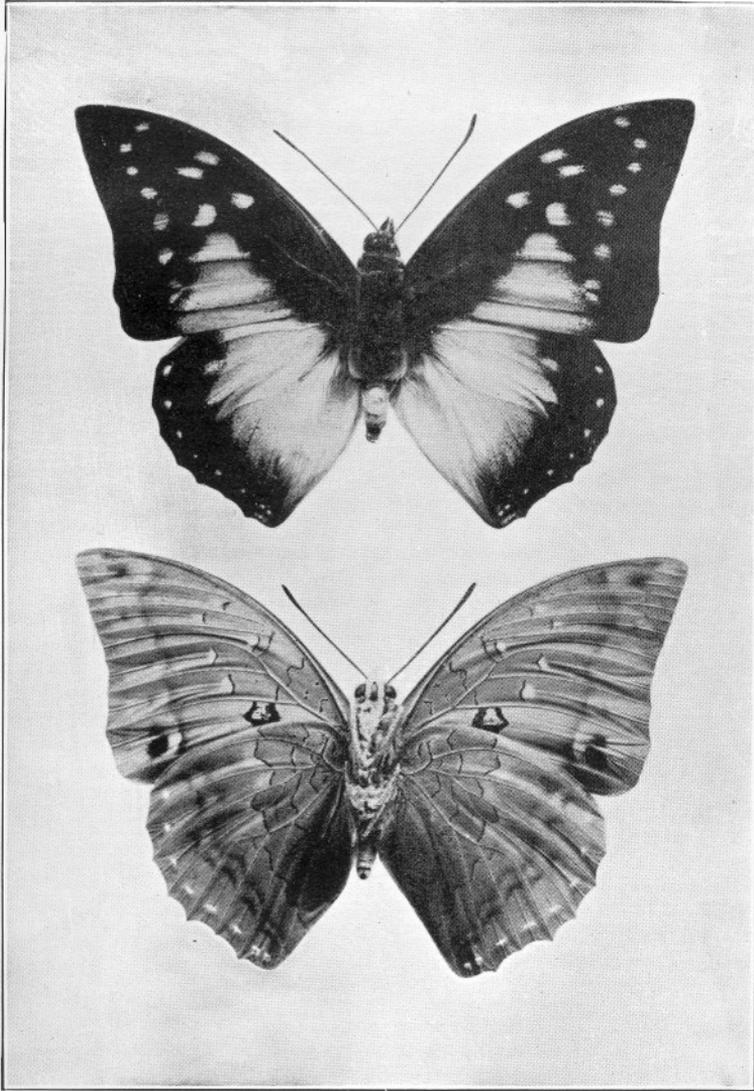


Photo: Dr. van Someren.

Upper surfaces.

Under surfaces.

Charaxes pythodorus pythodorus. ♂

at the sub-margin of this same area. The cell is crossed by a sub-basal line, then by two short lines, and by a double-curved line at the distal edge of the mid-third. The spots of the upper side are indicated by ill-defined ochreous ones, each with an angular narrow black line proximally. The distal end of 1a is purply-grey.

H.-w.: Ground colour as in fore-wing. There is a fine black line in 9; and a parallel series crossing the sub-base of 8, 7, and the cell. A further zigzag line crosses the wing from just internal to the mid-point of vein 8 to the sub-base of area 3 when it turns inward to end above the anal angle. There is a further parallel series of very ill-defined olive lines almost converging at the anal angle and reaching the sub-margin of 7. There is a sub-marginal row of very small lilac spots extending from 7 to the anal angle.

Underside of thorax and abdomen naples-yellow.

FEMALE:

This is unknown to us, and is not described in Seitz.

DISTRIBUTION AND HABITS:

This species ranges through Uganda and extends into the forests of Nandi and Maragoli, but has not been seen or taken on the higher ranges such as the Mau; it however does occur in the Sotik and Kisii forests. This distribution is interesting in that there is a very considerable stretch of diversified country between the habitat of the typical form and the geographical race which is found in the forests of the Coastal belt (see later).

This is not one of the common *Charaxes*, in fact it can be considered rare. It is a forest species which keeps to the higher trees and only descends when attracted to various animal droppings, especially faeces of Carnivores. Males are very fond of basking in sunlight and may often be seen sitting with out-spread wings on some projecting branch of a high tree in a forest clearing.

EARLY STAGES:

Unknown.

MIMETIC ASSOCIATIONS:

There would appear to be no very marked similarity between this species and any other except as already stated when discussing *Ch. cithaeron* (males).

CHARAXES PYTHODORUS NESAEA, G.-Smth. Unfigured.

MALE:

Expanse: 76 mm. Very like the typical form but very much smaller; the sub-marginal row of blue spots very small and the blue area in the fore-wing and that of the hind-wing much bluer, the latter with a purply tinge at the outer margin. The sub-marginal spots in the hind wing are also very small, but the edge is ornamented with a narrow blue line, extending from 1b to 7.

UNDERSIDE:

The ground colour is richer than in the typical form but all the lines are less distinct; the sub-marginal lilac spots in the hind-wing are however larger.

EARLY STAGES:

Unknown to us.

DISTRIBUTION AND HABITS:

The distribution of this race in Kenya is the forests of the Coastal belt. It is very uncommon and little is known of its habits.

MIMETIC ASSOCIATIONS:

There is a very decided resemblance on the upperside between the male of this species and those of *Ch. cithaeron kennethi*, and *Ch. violetta* with the male of *bohemani* as an outlying member.

CHARAXES KAHLDENI KAHLDENI, Homeyer. Pl. XCII., fig. 1.

Expanse 56-60 mm. General colour creamy; with orange-yellow margins.

MALE:

Basal half of F.-w. pale creamy-green with a satin lustre; apical half light orange-yellow with darker margin and a sub-marginal row of spots following the general wing contour. The apex of the wing is square-cut and the outer margin incised.

H.-w.: Almost entirely creamy-green with a marginal border of orange-yellow extending from 4 to the anal angle where the colour changes to brownish-grey with two ocellate spots. Vein 2 is produced to form a long club-shaped "tail" greyish-brown in colour.

UNDERSIDE:

Orange-brownish with a decided greenish tinge. Fore and hind-wing traversed by a bar, Y-shaped in the latter; the stalk dividing at the origin of vein 2, the inner arm running to the base of the wing,

PLATE XCII.

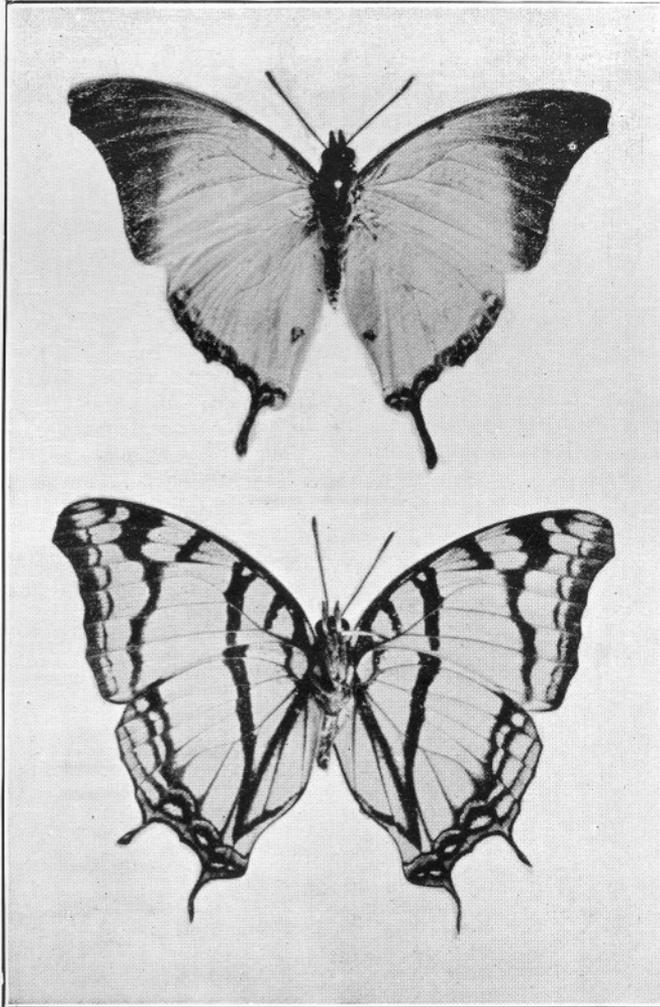


Photo: Dr. van Someren.

Charaxes kahldeni. ♂
Charaxes zoolina, under surface. ♀

the outer passing through the base of vein 8 and continued across the fore-wing in a line with the apex of the cell. This bar is greyish-brown distally, followed by greyish and margined with silvery-white on the inner edge of the arms.

FEMALE:

Very like the male in general colour.

EARLY STAGES:

Unknown to us.

DISTRIBUTION:

This species is a West African one which just extends into the western borders of Uganda. In its eastward distribution it is not plentiful.

CHARAXES ZOOLINA f. *ZOOLINA*, West. Pl. XCIII., figs. 1 and 2. Pl. XCII., fig. 2.

Expanse: Male 50 mm. Female 60-62 mm. General colour pale creamy with a greenish tinge and black apex and margins.

MALE:

Costa, apical half and outer border black; with an extension of the black into the apex of the cell. Basal half of wing cream-coloured with a greenish tinge; base of wing shaded with brownish. The black apex carrying creamy spots, a sub-marginal row of large spots in 3, 4, and 6 with white spots at about mid-point.

H.-w.: Mostly creamy with greenish tinge; marginal border widely black carrying a marginal line of orange, tinged with green at the anal angle; and a sub-marginal row of white spots extending from 7 to the anal angle where the spots are purply. Vein 2 extended into a long clubbed tail.

UNDERSIDE:

Pale greenish-cream rather greener than above; black areas of above present as blackish-brown, with in addition a black bar sub-basal in the cell and with the black bar at the apex of the cell carried down to the mid-point in 1b. Three white spots are present in the post-discal area and a series of large sub-marginal whitish spots follow the contour of the wing from the apex to the posterior angle. Very often there is a series of smaller white spots distal to the sub-marginal series.

The hind-wing is pale greenish-cream with a brownish marginal border ornamented with a double row of sub-marginal whitish spots, the distal ones large and bordered outwardly with ochraceous to as far as the "tail" where it turns olive. The spots, from the anal angle

to 2 are lined with black. The disc of the wing is traversed by a Y-shaped brownish line, stem extending from the "tail" at vein 2, bifurcating before the apex of the cell, the outer arm passing to the mid-point in 8, while the inner arm passes to the base of the wing and thence to 9. There is a curved line extending from the base of the stem and crossing 1c and 1b. The tail is mostly black.

FEMALE:

Somewhat like the male, but with a greater extent of greenish-creamy ground, and consequent reduction in the black areas; the basal area of the apical half of the wing is taken up by a series of large spots extending from the hind-angle, in increasing size, up to the post-discal area, all narrowly edged proximally, with black. There is a single large whitish sub-apical spot.

H.-w.: Ground colour as in fore-wing; marginal border black, outwardly edged with orange-ochreous, and inwardly bordered with a wavy whitish line with in between these, a series of whitish spots, largest in 7 and diminishing in size as the anal angle is reached. Veins 2 and 4 are prolonged into club-shaped "tails."

UNDERSIDE:

As in the male, but with a reduction in the blackish areas.

CHARAXES ZOOLINA f. *NEANTHES*, Hew. Pl. XCIII., figs. 3 and 4.

This is a seasonal form of the preceding. It is characterised by the replacement of all the whitish areas by tawny-orange; and the black areas, by reddish-brown. The apical dark areas and the margin-border of the hind-wing are more broken up by the larger size of the tawny-orange spots.

UNDERSIDE:

In this form, the lower surfaces are either almost uniform tawny, with a slight dusting of darker scale and ill-defined dark lines; or with a single dark line inwardly lined with silvery-white crossing both wings.

EARLY STAGES:

The eggs of this species are laid on the upper side of the fine leaflets of *Acacia pennata* (*Mimosaceæ*) known to the Baganda as 'Kauli.'* The food-plant is a very thorny creeper with short close-set recurved spines.

* *The name Kauli is a group name which is applied to several species of climbing Acacias.*

PLATE XCIII.

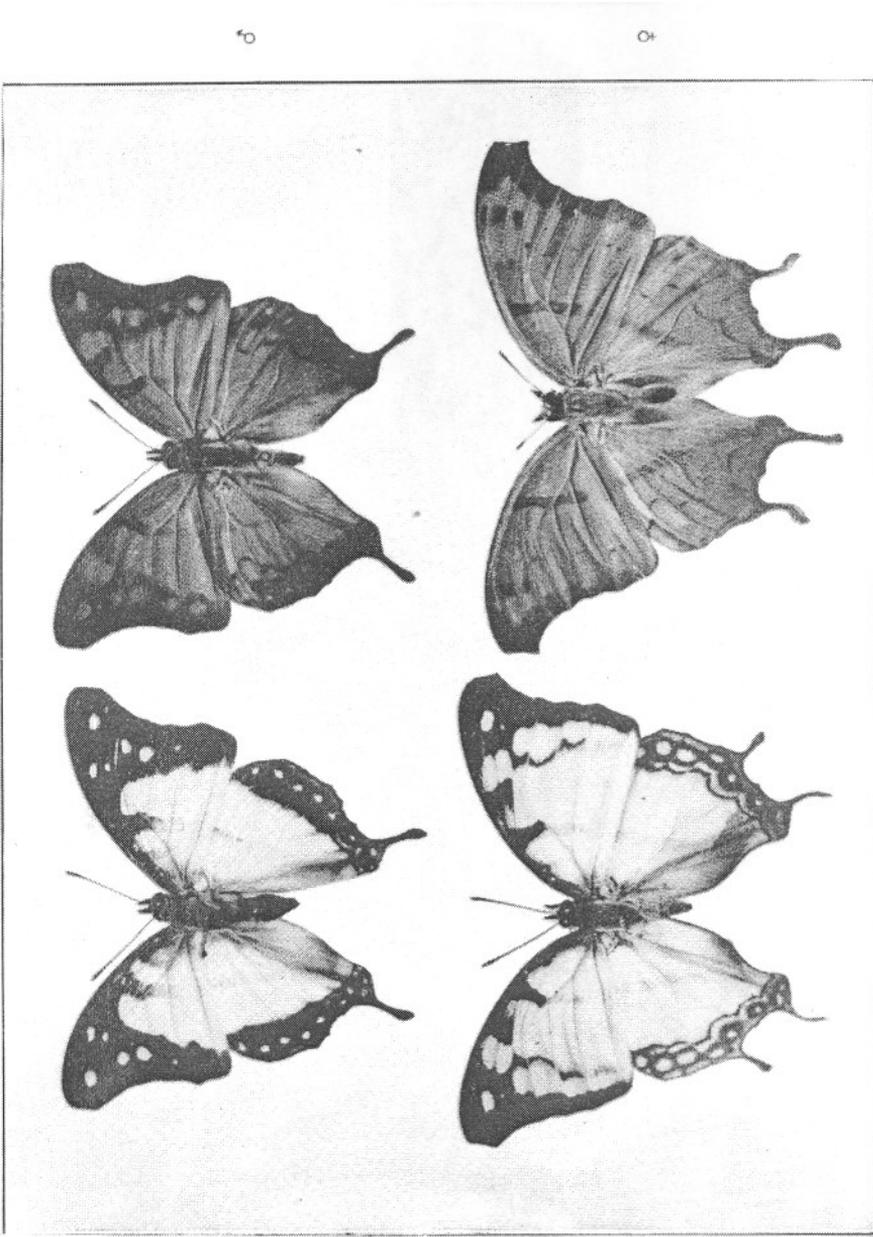


Photo: Dr. van Someren.
Zoolina form. *Charaxes zoolina*.
Upper surfaces. *Neantbes* form.

PLATE XCIV.

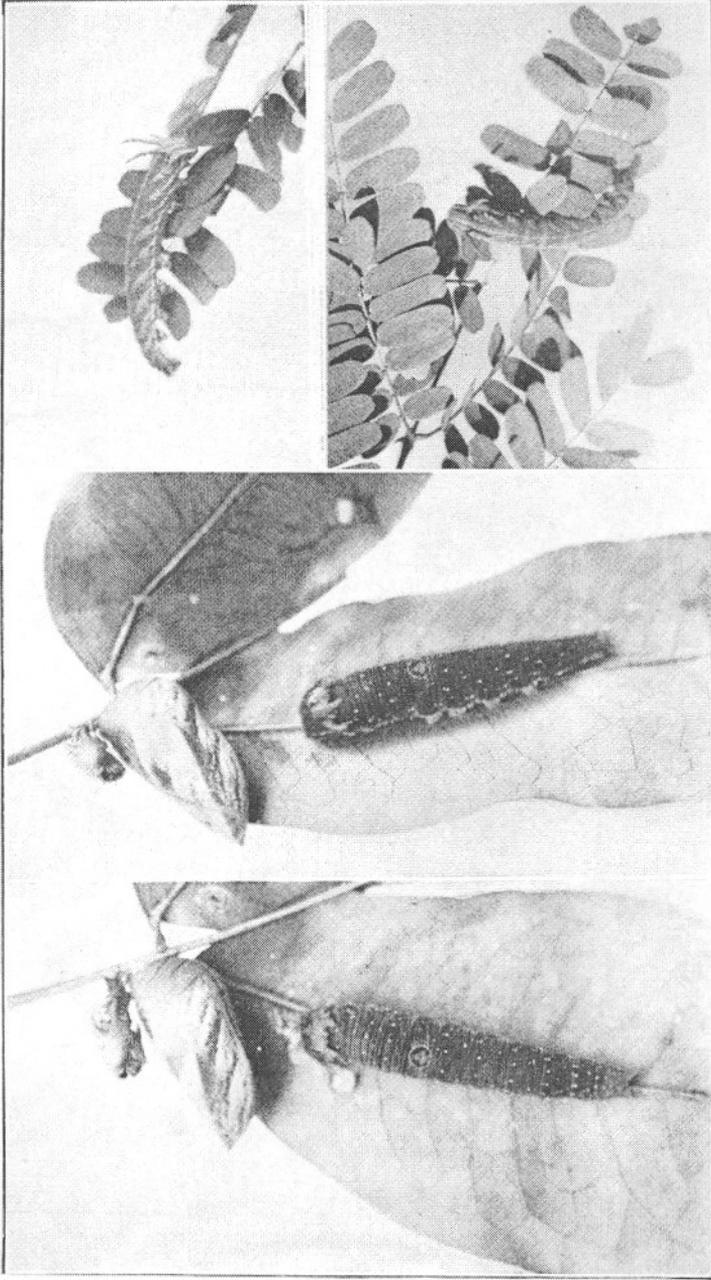


Photo: Dr. van Someren.

Pupae and larvae of *Charaxes cithaeron kennethi*.

Larvae of *Charaxes zoolina*.

When first deposited the eggs are pale creamy, but turn yellow within twenty-four hours. They are 1 mm. high and 1 mm. in diameter, and very slightly flattened on top, and finely fluted in this area. The young larva is first olive, with a brownish head, but at the first moult it turns greenish and by the second moult, the characteristic oblique segmental lines appear and the head becomes green. The green of the body becomes brighter as the last stage is reached but the oblique become almost pure white so that the caterpillar appears boldly striped. These lines pass from the posterior dorso-lateral aspect of one segment to just above a very narrow spiracular line and thence on to the posterior lateral area of the segment in front. A central dorsal line of yellow extends from the 2nd to the anal segment. Although these lines are clearly seen on close inspection, yet, when the larva is resting on the fine leaves of the food plant, they completely break up the outline and render the insect extremely like the fine leaves. The head is pale-green in colour with dark-green outer margin and two dark-green vertical lines arising from a common point just external to the mandibles and extending to either side of the inner long horns. A further line arises above the centre of the mandibles and divides the facial disc. The postero-lateral aspect of the disc carries a comb of well-marked spines and just above this the outer pair of horns arise; these are directed obliquely outward and then slightly upward. The inner long horns arise from the apex of the lateral segments of the disc, pass upwards with a slight divergence and then become more wide-spread, then incline slightly inward and backward. The posterior-lateral aspects of all the horns are heavily spined.

The pupa is small, and pale green in colour with a faint dusting of white on the wing scutae. These wing-shields are markedly angled laterally; and the "shoulders" are prominent. The spiracular dots are whitish. The cremaster is bifid where it joins the last segment and each side is composed of two contiguous pear-shaped lobes with a couple of divergent pear-shaped lobes in front.

The head is obtusely rounded while the ventral surface of the thorax and abdomen form an almost straight line.

DISTRIBUTION :

Although the two forms of this insect are so markedly different, it has been definitely proved by breeding that they are one and the same species and represent seasonal phases which correspond to the wet and dry forms found in other groups of butterflies, more particularly the *Precis*.

In countries where the "rainy" season is sharply marked off from the "dry," the two forms are seldom taken during the same

season, but in Kenya, where the seasons tend rather to merge, it is no uncommon thing to find both forms equally dominant. The species is common and extends from the Coastal areas throughout the inland regions (except at high altitudes over 7,000 ft.) into Uganda. It is more particularly an insect of the warm countries, frequenting the open forests and savannah forests, and acacia-fringed rivers.

The *neanthes* form is an outlying member of the mimetic association centred round the *Attella phalantha* group.

These insects are not very often taken at bait, but appear to be very partial to exudates from trees and to flower juices.

CHARAXES EUPALE DILUTUS, Rothsch. Pl. XCV., fig. 3.
Pl. XCVI., fig. 4.

Expanse: 60 mm. Sexes alike. General colour greenish-cream and olive.

MALE:

Distal half of fore-wing light olive-green with an irregular basal border; rest of wing pale greenish-cream, slightly more yellow-tinged at the base, and with a satin lustre. A small olive spot at the upper part of the apex of the cell, and a series of minute dots dividing the apex of the wing longitudinally, are the only ornamentation.

H.-w.: As basal area of fore-wing with a narrow margin of olive, and a series of blackish-olive sub-marginal spots, double at the anal angle and extending to 6. Margin of wing slightly serrate. Head brownish; thorax dark-green with light pubescence; abdomen light green.

UNDERSIDE:

Pale green with a silvery lustre more particularly marginally. The cell carries a large transverse silvery spot with a red-brown centre. Areas 2 and 3 with reddish-brown irregular marks accentuated distally with black and internally with silver. The hind-wing is traversed by a very narrow brownish ill-defined line, bordered internally with silver.

A sub-marginal row of minute brown dots surrounded by silvery scales extends from the anal angle to area 7, and internal to this is an irregular row of crescentic silvery lines.

EARLY STAGES:

The eggs of this species are small, measuring 1 mm. in diameter, pearly white in colour, with the fluted cupping on the top of the egg not very well marked. They are laid singly on the upper surfaces of the leaves of a thorny tree known to the Baganda as "Kirobo"

Scutia commersoni, Brongn (*Rhamnaceæ*). It is a tree which grows along the margins of forest and in the scrub country. The first sign of development appears around the edge of the cupping as a brown ring and as the egg matures it turns blackish. The egg stage lasts seven days. The young larva devours the egg shell and throughout the first instar is an olive-yellow colour with a black head. It is by no means easy to rear, due in part to the fact that it will only eat very fresh leaves, and the food plant withers rapidly soon after gathering.

The mature larva is 40 mm. long with a very finely pailated body of a dull grass-green colour. The markings vary in appearance. As the beginning of the last instar, each segment bears four rings of fine white stippling; which later on becomes yellowish. There is a spiracular line of fine yellow dots starting at the second segment and extending to the tail. There are no dorsal marks in the specimens we have reared, but occasionally found examples have a faint V mark on the sixth segment.

The head as seen from the front resembles a somewhat egg-shaped disc with the broad part uppermost, surmounted by four long thin horns, the central being 4 mm. and the lateral 3 mm. in length. All four are finely spined and uniform grass-green in colour as is the head itself. There is no central line or border to the facial disc.

The pupa is pale green with a glossy surface, strongly ornamented along the angle of the wing-scutæ with a clear yellowish line which extends round the margin of the head-shield. The second and third abdominal segments are dorsally decorated with two convergent white lines, while the fifth segment is almost entirely white or yellowish, the white not reaching the anterior dorsal edge but extending to the sub-lateral area of segment four. The spiracles are indicated by red-brown dots. In the ventral area the abdominal segments are very coalescent with the result that the margin of the wing-cases almost reach the cremaster. The cremaster is long-stalked and arises from two lateral lobes of uneven size, the posterior lobe being the larger, and in front of these are two other lobes oval in outline placed at right-angles to the lateral ones. The whole surface of the pupa, though glossy, is punctured with very fine pits.

DISTRIBUTION :

This beautiful species is widely distributed in Uganda and ranges into the boundaries of Kenya to the line of the Mau, but its southern range is not known. It is said to occur at Nairobi along with the next species.

It is so confusingly like the next species that without dissection it is almost impossible to distinguish them. Talbot has reviewed and

described the various races of both species in Bull. Hill Museum, Vol. 1, No. 1, October, 1921.

It is a most remarkable fact that females are seldom taken or even seen; males on the other hand are extremely common, and indeed might with safety be classed along with males of *Charaxes etheocles* as the commonest species of *Charaxes* in Uganda. Every bit of animal excrement lying on path or roadway through forest country will have two or more examples of *Eupale* feasting on it. So intent will they be on this evil smelling bait that one may lift the insects up between thumb and finger.

CHARAXES SUBORNATUS MINOR, Joicey and Talbot. Pl. XCV., fig. 4.

Expanse 60 mm. Sexes much alike. General colour light greenish-cream with olive tip to fore-wing.

MALE:

The whole of the hind-wing and the greater part of the fore-wing very pale greenish white with a satin lustre at the base, more restricted than in *eupale*; apical portion of fore-wing light olive green also rather more restricted than in *eupale*, and carrying five small whitish dots at about mid-line. Hind-wing with a varying number of small brownish sub-marginal dots, largest at the anal angle.

UNDERSIDE:

Much as in *eupale*, but silvery marks in fore-wing wider and the sub-marginal white dots more distinct; the post-discal bar on the hind-wing wider and more centrally placed; and the whole surface flecked with silvery scales.

EARLY STAGES:

Unknown.

DISTRIBUTION:

Through Uganda east to Kenya and south to as far as Nairobi. (Vide remarks under previous species.)

CHARAXES JAHLUSA KENYENSIS, Joicey and Talbot. Pl. XCV., figs. 1 and 2. Pl. XCVI., fig. 8.

Expanse: Male 50 mm. Female 66 mm. General colour orange with black spots.

MALE:

F.-w.: Apex produced and outer margin incised; ground colour bright reddish-orange over the greater part, with the apical third blackish, which colour extends down the sub-margin of the wing in a series of contiguous lunules to the hind-angle, each crescent enclosed

PLATE XCV.

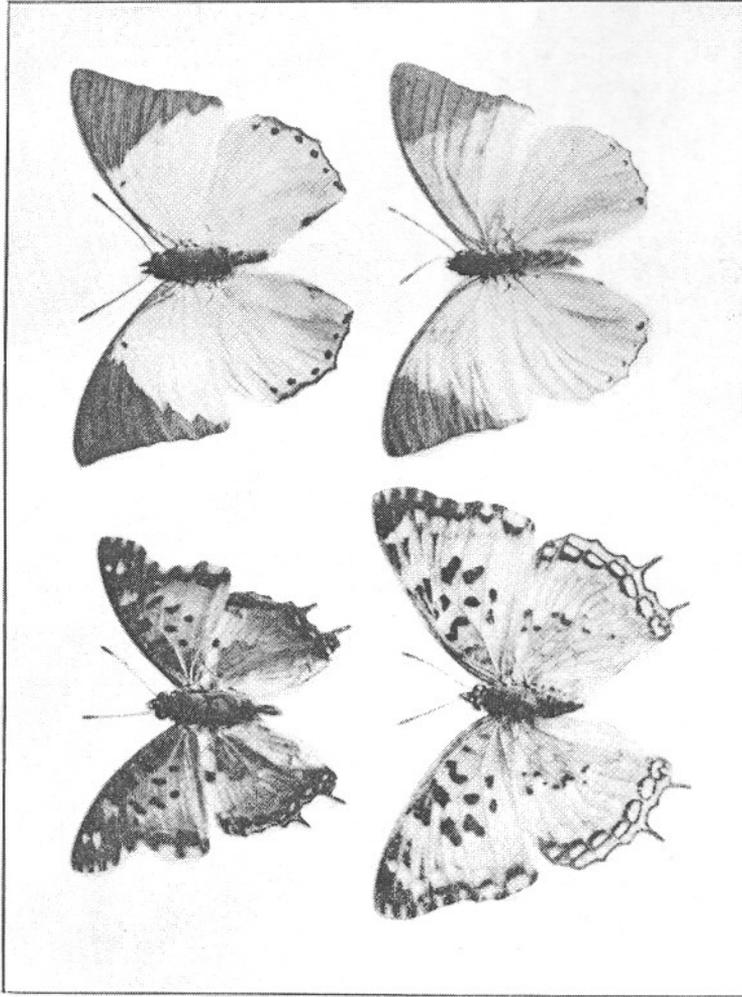


Photo: Dr. van Someren.

Charaxes jakhisa kenyensis.

Charaxes jakhisa kenyensis.

Upper surfaces.

Charaxes eupale dilatatus.

Charaxes subornatus minor.

ing an orange mark. The sub-apical area with a series of orange spots largest in 7 and 8 and small in 5 and 6. The cell contains a black transverse line just beyond the mid-point and a further black mark at the apex. Areas 1b, 2 and 3 each with a black mark internal to the mid-point, the first two with an additional mark sub-basally.

H.-w.: Reddish-orange, with most of the cell, and most of 2 more tawny, distally accentuated by black more particularly in areas 6 and 7. The extreme margin is black edged with white scales internervularly, and at the anal angle. Sub-marginally there is a series of ocellate black spots, thicker internally and containing orange spots. Veins 2 and 4 produced to form acute "tails," the former internally shortened by the rounded projection of the anal angle.

UNDERSIDE:

The basal portion of the fore-wing is a delicate pinkish to salmon; apical portion silvery grey with radiating blackish lines internervularly; light spots of above represented by pinkish to white; black mark as above but more defined and with an additional spot at base of cell. H.-w.: Silvery grey intersected with black veins and dark internervular rays; basal area with an irregular brownish mark outlined with black which starts at the mid-point in 7 and base of 6 and covers most of the cell and the greater part of 1a to 1c. The cell contains a large silvery spot. The wide marginal border presents a marbled appearance produced by a double series of diffuse ochreous spots with greyish and black in the interstices.

FEMALE:

F.-w.: Outer margin not deeply incised. The general scheme of markings as in the male, but the whole ground colour much paler more orange-ochreous; the black at the apex and along the outer margin narrower, while the marginal yellowish spots are more discreet. The marginal ornamentation to the hind-wing consists of long ovoid contiguous black rings enclosing yellowish-ochreous spots.

UNDERSIDE:

As in the male but more ochreous.

EARLY STAGES:

Unknown to us.

DISTRIBUTION:

This handsome little *Charaxes* is an inhabitant of the warmer districts of Kenya and is most frequently found in the acacia and thorn-bush country. It occurs in the coastal forests, though not in

the densely wooded parts. The area where we have found it most abundant is in the Kibwezi district, where it may frequently be taken feeding on the gummy exudate of the acacia trees.

MIMETIC ASSOCIATIONS:

This species enters the *atella* centred mimetic group.

CHARAXES LICHAS BEBRA, Rothsch. Pl. XCVI., figs. 5—7.

Expanse: 55-60 mm. General colour tawny orange with black tip.

MALE:

Hind-margin and outer margin almost rectangular; apical angle acutely pointed and recurved.

F.-w.: Bright tawny-orange, slightly darker at base; apex purple-black with an extension of this colour down the margin of the wing to 2, but intersected by orange veins. Areas 1b to 4 with sub-marginal row of brown-black spots. Apex of cell with a small blackish spot followed by two post-discal spots in 5 and 6.

H.-w.: Bright tawny-orange with two brownish spots in 7 and very small brownish sub-marginal dots in the other areas. Vein 4 produced to form a long tail; no tail at 2, but the anal angle markedly pointed.

UNDERSIDE:

Fore and hind-wings reddish-brown with ochreous marbling and a curious greyish lustre; both wings traversed by a red-brown line outlined with ochreous, extending from just before the apex to just above the anal angle. The dark spots of above faintly indicated below.

FEMALE:

Very like the male but paler throughout.

EARLY STAGES:

Has not been bred by us, and there appears to be no published record.

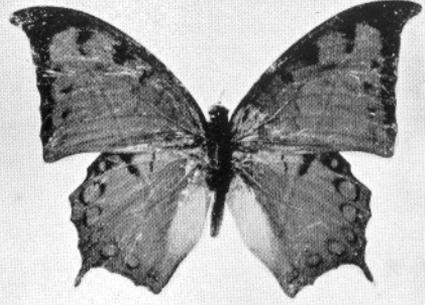
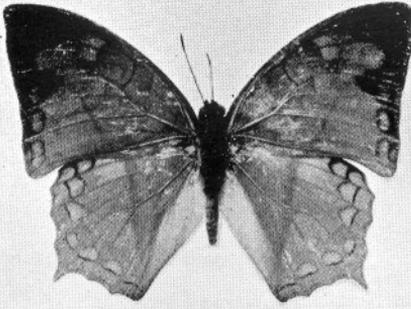
DISTRIBUTION:

This species is found in the wooded and forest areas of Uganda and ranges east to the Nandi Hills. It is frequently taken when feeding on damp mud or on animal excrement. Females are by no means common.

The species probably lays on one of the creeping acacias.

PLATE XCVI.

♂



♀

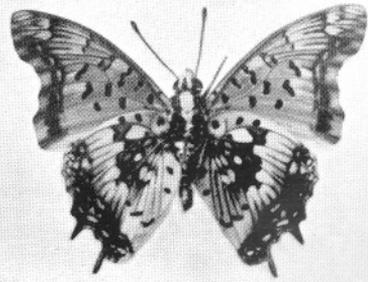
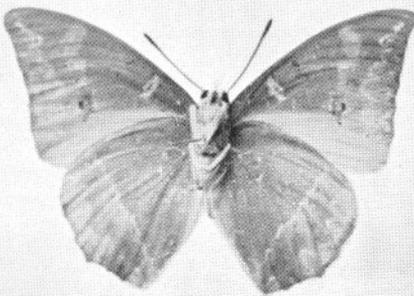
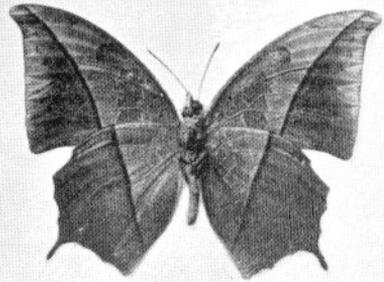
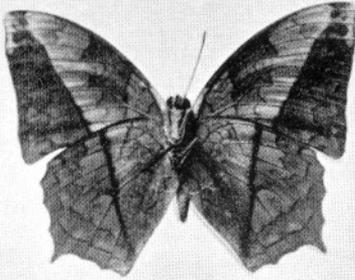
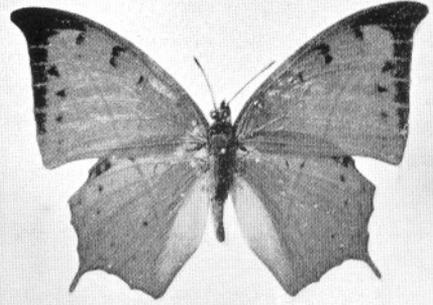
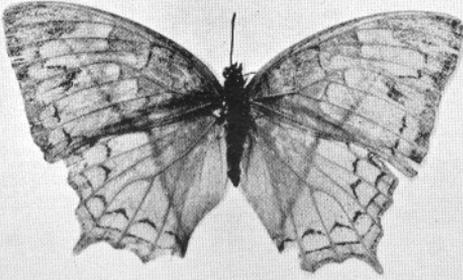


Photo: Dr. van Someren.

1. *Charaxes paphianus*.
2. *Charaxes paphianus*.

5. *Charaxes lichas bebra*.
6. *Charaxes lichas bebra*.

CHARAXES PAPHIANUS SUBPALIDA, Joicey and Talbot. Pl. XCVI., figs. 1—3.

Expanse: 54-60 mm. Sexes somewhat alike. General colour reddish-orange with black tips.

MALE:

F.-w.: Outer edge almost straight, but posterior angle produced. Mostly reddish-orange, with a slight darkening distal to the cell. Hind-margin concave distally. Apex purply-black with the basal margin deeply indented in 4, with an encroachment of the black in area 3, thence carried down the outer margin as ovoid blackish rings more heavily black outwardly.

H.-w.: Ground colour reddish-orange slightly darker at base and before inner fold. Border with a sub-marginal row of somewhat triangular ill-defined brownish marks containing orange, extending from 7 to the anal angle. Vein 4 with a tail; margin of wing slightly serrate.

UNDERSIDE:

Basal triangle ochreous-orange sharply defined from the more greyish-brown triangular central area which possesses a curious lustre and a sharply defined distal marginal line of brown. Outer triangular portion of wing orange-ochreous with a double row of wavy lines following the wing contour.

H.-w.: Distal half ochreous-orange ornamented with a double sub-marginal row of wavy lines following the contour of the wing; proximally bordered by a defined brown line which crosses the wing from the mid-point in 7 to the anal angle. Internal to this the wing is darker brown with a greyish-lustre, and the base of the wing is ochreous-orange.

FEMALE:

Larger than the male, very much paler throughout, more yellowish-orange; with the dark markings of the male indicated though very faintly as brownish lines and marks; the sub-marginal lines however rather clearly defined on the pale ground.

UNDERSIDE:

Much as in the male but paler.

EARLY STAGES:

This species oviposits on the upper surfaces of the fine leaves of a thorny creeper called Kauli by the Baganda. It is an *Acacia* near the species *goetzii*, Harms. The insect also lays on an allied species as yet unidentified. The egg is pearly-white in colour with the usual fluted cupping on the top poorly defined. The eggs hatch in seven days. The newly-emerged larva does not eat all the egg shell, but

very soon commences to feed on the leaf. The colour is at first olive-yellow with the head black. In six days it has passed the second moult and assumed the greenish tint and indications of the oblique lateral lines characteristic of the species. The full-grown larva is 35 mm. long. The body is finely papillated and of a dark green colour with striking black segmental stripes running obliquely across each segment. Under a low magnification each mark is seen to consist of a long oval area, enclosed by a fine black line, the enclosed area being light green along the anterior side, and black posteriorly. These lines do not meet on the mid-dorsal line of segments one to eight but they gradually approximate until at the tenth they unite and form a crescent. The black lines on segments four to seven are the widest, those before and after gradually diminishing in width towards head and tail. The head is most characteristic, resembling the outline of a truncated cone, base upward, surmounted by two long central horns (5 mm.) slender and green in colour with black tips, and two shorter (3 mm.) lateral horns uniform green in colour. The facial disc is light green, covered with fine papillæ and divided by six dark green nearly black lines, which, arising from the bases of the horns, pass downwards and converge above the mouth. Of these lines, two arise from the base of each central horn, and one from each lateral.

The pupa is light green, similar in form to that of *Ch. anticlea*, and is without marks or spots. The cremaster is long-stalked and consists of two lateral lobes, with two oval lobes, widely separated, in front. The imago emerges in fourteen days. In common with all *Charaxes* larvae these catapillars lie up during the day time on an area of a leaf or leaves which has been spun over with silk. As the leaves of the food plant in this particular case are so very fine and delicate the larva rests on the mid stalk with the fine leaflets extending out on either side. In such a position one sees the value of the dark oblique lateral lines; they break up the general outline of the insect in such a way as to make it harmonise with the leaf spray.

DISTRIBUTION :

This species is found in the forests of Uganda, more particularly along forest roads and internal clearings where the food plant has grown up amongst the secondary growth. They are hardly attracted to the baits beloved by most *Charaxes*, and one frequently sees them settled on some prominent twig, in the full rays of the sun. If disturbed they fly off, but usually return to the same twig time after time.

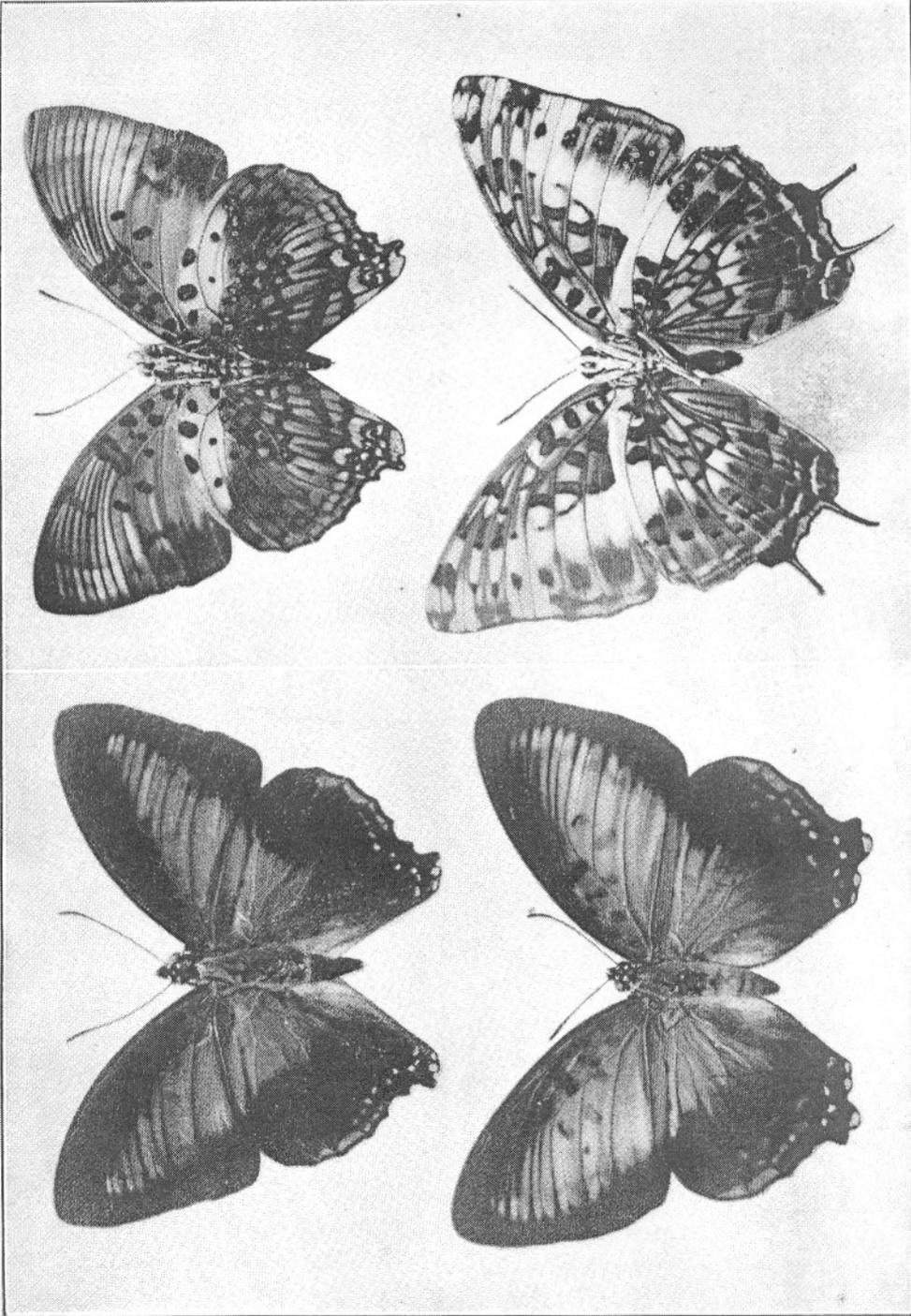


Photo: Dr. van Someren. *Charaxes zingha*.
Upper surfaces.

PLATE XCVII.

Charaxes zingha.
Under surface.
Charaxes etespe.
Under surface.

CHARAXES ZINGHA, Stoll. Pl. XCVII., figs. 1—3.

Expanse: 84-92 mm. Sexes somewhat alike; general colour black with tawny-red bar.

MALE:

Fore and hind-wing black, the former with a large orange-red triangular area filling the body of the wing from the base of the cell and the proximal two-thirds of the hind margin and ending in a point in the sub-apical region. Hind-wing with the basal triangle red-orange; the margin decorated with orange-red lines in areas 2-5, and with two ochreous spots at the anal angle; internal to these a sub-marginal row of double spots in areas 1b to 4.

UNDERSIDE:

Greater part of the cell and most of the apical half of the fore-wing greyish-brown intersected by blackish rays and veins; remainder of the wing pinkish-orange. Areas 1a-2 with large black areas at the distal end, the last traversed by a black line and carrying two black spots sub-basally. A further black spot is present sub-basally in 3. A black spot is present at the base of the costa, while the cell contains one at the base, a double spot at the proximal end of the mid-third and a further double spot at its distal end; followed by a double line at the apex. There are two equidistant diffuse brownish line between the apex of the cell and the apex of the wing.

H.-w.: Ground colour greyish-pink particularly along the costa. Area 9 with two large black spots; areas 7 and 8 each with two, those in 8 being large. The remainder of the wing ornamented with a network of black. Ground colour along the inner fold and at the anal angle yellowish. The anal angle produced in the form of a rounded projection and vein 2 into a short blunt "tail."

FEMALE:

Upper surface much as in the male but the light areas more tawny orange, which colour fills most of the cell of the fore-wing. The hind-wing marginal and sub-marginal spots larger and followed by an additional inner row in areas 1c-5. Underside as in the male.

EARLY STAGES:

Unknown.

DISTRIBUTION:

This striking and curious *Charaxes* is limited in its distribution to the larger forests of Uganda, more particularly those of the west and south-west. We have not seen it feeding at animal excrement but only on exudates from wounded trees and at flowers. Females

are rare. The habits of the species recall those of the *Euxanthes*; they are fond of settling on some prominent twig or leaf in the full rays of the sun and resting with half-open wings. If disturbed they close the wings and so expose the very acraea-like undersides; doubtless using this curious pattern as a warning. The upper surface brings the insect into the *Pollux* mimetic association and though not by any means such a powerful insect as its model it nevertheless puts up a gallant fight when tackled.

CHARAXES ETESIPE ETESIPE, Godt. Pl. XCVIII., fig. 1. Pl. XCIX., figs. 1 and 2. Pl. XCVII., fig. 4.

Expanse: 80-82 mm. Female 90-100 mm. Sexes unlike. General colour of male black with blue marks.

MALE:

F.-w.: Rich blue-black, rather bluer at the base. Cell with a white spot at the apex; areas 2, 3 and 6, with white spots sub-basally followed by a series of sub-marginal spots following the wing contour from 7 to 1a, those in 1a to 2 being blue, the remainder white; the spot in 1b double.

H.-w.: Blue-black, carrying a post-distal row of large blue spots from 1c to 7, followed by a sub-marginal row of white spots from 7 to the anal angle where the white line is crescentic and encloses two blue dots distally bounded by olive-green, forming an ocellus. The extreme edge is white-scaled internervularly. Veins 2 and 4 are prolonged to form long pointed tails, each accentuated by a blue longitudinal mid line.

UNDERSIDE:

Ground colour creamy with a strong suffusion of grey on the distal portions of 1a and 1b and 5 and 6. The basal areas of 1a and 1b almost entirely greyish-black. The cell is decorated with three transverse chestnut bars outlined with black; while similar lines traverse the base of 1b, 2 and 3, 4, 5, and 6; those in 1b and 2 in duplicate. The mid-portion of 4, 5, and 6 with black club-shaped rays, on a grey ground. There is a sub-marginal row of black spots of increasing size stretching from 7 to 1b, followed by a faint sub-marginal blackish line especially marked in 1b and 2.

H.-w.: Costal margin and the whole of area 8 and most of 9 creamy with an extension of this colour into 7 at about mid-point, followed by a series of sub-basal white spots in 6-3. Ground colour of the remainder of wing olive-grey. The base of 7 with two chestnut bars outlined in black, followed by a single similar bar at the bases of 6, 5, 4, 3, 2 and 1c. The cell is traversed by three such bars. The post-discal area of the wing is traversed by two series of black

PLATE XCVIII.

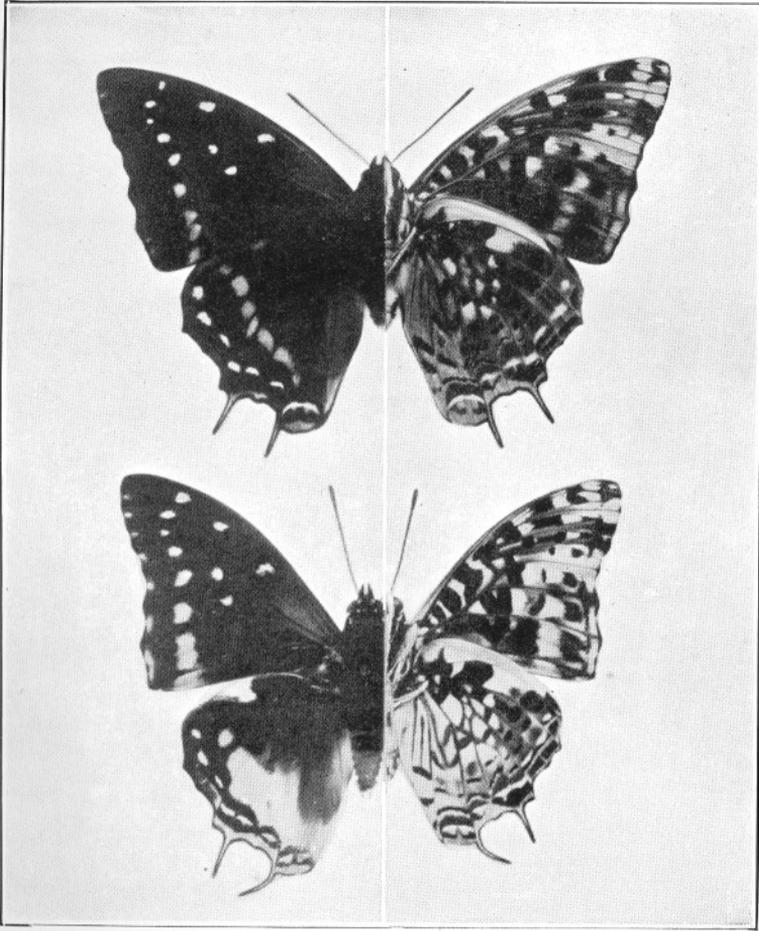


Photo: Dr. van Someren.

Upper surfaces.

Under surfaces.

Charaxes etesipe etesipe.

Charaxes etesipe tavetensis.

spots of varying shape. The margin of areas 5-7 are reddish-chestnut internally bordered by a series of ochreous lines which extend to areas 4-10, these latter bordered distally by black. The marginal border of 1c-8 olive-ochreous, rather greener at the anal angle and margined externally with a narrow black line which extends along the margins of the "tails." The green of the anal angle carries two blue spots distally outlined with black.

FEMALE:

There are two distinct types of this sex, both mimetic of other species of *Charaxes*. The first form mimics *Charaxes brutus*, and is black with a white bar crossing both wings. F.-w. black with a green-blue sheen at the base. Cell with a white spot at the apex; followed by four spots in sub-bases of 2-6, those of 2 and 3 sometimes contiguous to the large white spots in these areas, part of the wide white ala bar which traverses the wing from the mid-third of 1a and with gradually reduced width reaches the sub-apical area in 7. This bar in 1a and 1b laterally margined with bluish.

H.-w.: Blue-black, rather greyer at the base, with a white bar margined with blue which is continuous with the bar of the forewing and passes from the mid-third of 8 to just above the anal angle. The border of the wing carries a sub-marginal row of white spots, double in 1c, while the margin of areas 5-7 is chestnut. The edge of areas 1c to 3 are white with an extension of this colour down the long tails which are present on veins 2 and 4.

The second form is similarly marked but the light areas are replaced with ochreous-yellow; the bar of the hind-wing margined with greenish. This form mimics *castor* and has been given the name *castoroides*, Poulton.

UNDERSIDE:

As in the male, but with a greater amount of white and a reduction in the olive-greyish ground colour.

EARLY STAGES:

The eggs of this species are large, measuring just over 2 mm. in diameter. They are laid indiscriminately on the upper or under surfaces of the leaves of the castor-oil plant *Ricinus communis* L. (*Euphorbiaceae*), found growing on the outskirts of forests in native cultivations. There are two species of castor-oil grown by the natives, one with a greenish or white stem, the other with a reddish stem. It is on the former that the butterfly lays. Both plants have been identified as the same species by the authorities at Kew, but they appear to be chemically different if not specifically so; and it is worthy of note that the Baganda declare them different species. Leaves of

the red-stemmed plant fed to larvae are refused absolutely, the caterpillars preferring to die rather than eat abnormal food. *Etesipe* also lays on the leaves of a fine tree the *Phyllanthus meruensis*, Pax., *Phy. guinensis*, Pax., also belonging to the *Euphorbiaceæ*. As many as 12 to 18 eggs have been counted on one castor-oil leaf. The egg is of the usual form, a sphere with a slight depression on top with radiating rays from the mid-point. When first deposited the egg is white but as development proceeds it becomes yellow then dark brown. The larva emerges in eight days. The young larva hardly ever eats the egg-shell, but commences to devour the margin of the leaf on which the egg was deposited. It is at first pale olive in colour with a black head on which the horns are slightly indicated. By the second day the horns are well pronounced. Growth is rapid and the first moult takes place on the third or fourth day. During the second stage the body is green while the tails are brownish and the tips of the horns black. The mature larva is 60 mm long with a dull bluish-green body covered with fine papillæ with white points. A distinct spiracular line is present from the second to the anal segment; it consists of white stippling in continuous series. This line separates the green of the dorsal surface from the pale greenish-white of the undersurface. The dorsal aspect of the sixth and eighth segments is usually ornamented with a conspicuous grey spot varying in shape but most frequently resembling a three-pointed crescent or less commonly a figure or quadrilateral shape. These spots are outlined with small blue-black dots. The spot on the eighth segment is sometimes absent, or very faintly indicated.

The head is somewhat hexagonal in outline and is surmounted by two central tubercles on either side of which are two pairs of horns. The inner pair, which are long (4 mm.) thick and finely spined, arise from the upper corners, while the outer ones are slender and arise from the outer corners. The general colour is green, with the tips of the horns blue. There is no distinct facial line. When the larva curls just prior to pupating, the colour changes—the dorsal spots disappear and the body becomes translucent. In twelve hours bold lines appear and these persist as ornamentation on the pupa. The larval skin is shed within another twelve hours.

The pupa is one of the most beautiful in the *Charaxes* group. It is a deep green with bold white or yellow marks and lines arranged in a regular pattern (see coloured plate Jrl. 32).

DISTRIBUTION:

Charaxes etesipe is one of the commoner species throughout its distribution in Uganda, but it becomes somewhat rare in its south-east range which includes the Nandi-Lumbwa areas. Its place is

taken by a very distinct geographical race in the more southern areas of Kenya. (Vide post.)

As with most *Charaxes*, this species is usually represented by a predominance of the male sex. They are strongly addicted to evil smelling baits such as excrement of Carnivores and will come readily to a bait consisting of decaying fish entrails. It is a forest species which is most in evidence in the region of its food-plant and as has already been noted these plants occur on the outskirts of forests and forest clearings. It is in such localities that one comes upon the females as they hover round the food plants.

MIMETIC ASSOCIATIONS:

We have already mentioned that the two forms of females described are mimics of two distinct species. Many other forms are found but all are transitional to the two main types. The males act as models to the *carpenteri* form of female *Etheocles*.

CHARAXES ETESIPE TAVETENSIS, Rothsch. Pl. XCVIII., fig. 2.

Expanse: Male 75 mm. Female 80 mm. Sexes unlike.

MALE:

Very like *etesipe etesipe*, but with larger and more pronounced sub-marginal blue spots in the fore-wing, all these spots being nearer the margin than in the typical form. Margin with blue internervular spots, double in 1b. Outer margin of wing incised so that the apex is more acute. H.-w. with a more pronounced blue edging in areas 1b to 4, and with the post-discal blue in the form of a wide bar which is whitish at the inner fold and represented in 6 as a separate spot. Area 8 is white in the mid-area and this colour extends slightly into 7. The "tails" on vein 2 are outwardly curved.

UNDERSIDE:

Much as in the typical form but ground colour clearer creamy and the markings rather bolder and more defined.

FEMALE:

Two distinct forms occur, both similar to the typical ones but having the basal areas decidedly tinged with green.

EARLY STAGES:

The eggs of this form are indistinguishable from those of the typical race. They are however deposited on the young trees of *Azalia cuanzensis*, Welw. (*Leguminosæ*) known to the Swahili as "M'bembakofi." It is of interest that the larvae of this race show

a marked difference to those of the Uganda form. The body colour is similar, but the dorsal spot on the sixth and eighth segments are brick-red surrounded with a grey line outwardly edged with a series of minute black dots. The head shield is different, in that the central horns are longer and more tapering and are black on the front surfaces at the tips while the lateral horns are black along the upper edge. The facial line is yellow.

DISTRIBUTION:

This race is confined almost entirely to the forests. It occurs in the Taveta-Teita districts and in the coastal zone.

PLATE XCIX.

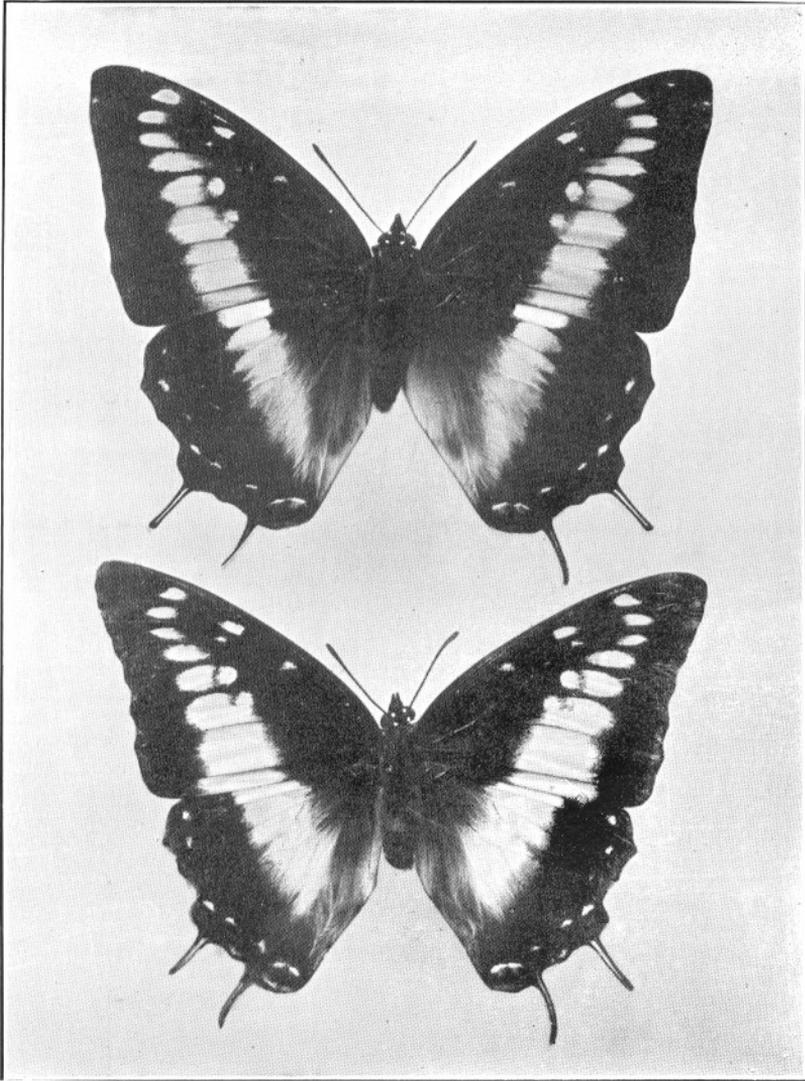


Photo: Dr. van Someren.

Charaxes etesipe.
Female form *castoroides*.
Female form *etesipe*.