

REVISIONAL NOTES ON AFRICAN *CHARAXES*
(LEPIDOPTERA : NYMPHALIDAE)
PART IV

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BY

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SYNOPSIS

Three species of the genus *Charaxes* are dealt with and eleven new subspecies and five new forms are described.

1. *CHARAXES ETHALION* BOISDUVAL AND ITS SUBSPECIES

WHEN we revised the *Charaxes theocles-viola-ethalion* complex, (van Someren & Jackson, 1952 : 8, 1957 : 23) we referred very briefly to the species *ethalion* Boisduval ; this was due to the paucity of material from many areas of its range. This deficiency has, in part, been made good in recent years by the use of the modern methods of "trapping" adopted by most collectors in South, Central and East Africa. A great deal of additional material has come to hand and has been made available for study.

The species occurs from the eastern Cape Province north through Natal, Rhodesia, and Zambia to Malawi, then through parts of Tanzania to south-west Uganda in the west, and eastward up the east coast of Kenya almost reaching the southern border of Somalia, then northward to the southern border of Ethiopia at Mt. Marsabit to the east of Lake Rudolf. There are however some apparent breaks in the distribution, but to what extent this is due to natural ecological barriers, or to lack of collecting in these blank areas, it is difficult to determine. (Vide Map 1.)

The original description is based on a female from Natal ; there is no mention of the male sex. Rothschild & Jordan (1900), cite a male mentioned by Butler (1896 : 360) as the male of *ethalion*. Butler (1895) however, associated this male with his *Charaxes theocles rosae*. Rothschild & Jordan (1900 : 487) also treated

rosae as a female of *etheocles*. We were fully satisfied on geographical grounds and by an examination of the type, that it is a female of *ethalion*. This has been proved by breeding: a female of form *ethalion* produced offspring of forms *ethalion* and *rosae* and typical male *ethalion*.

Rothschild & Jordan (1900: 479) give a full synonymy and refer to the variations in the female f. *ethalion* and figure two examples, pl. 12, fig. 4 being a broad-banded variation and fig. 6 a blue-spotted and barred form to which Rothschild does not give a form name; this specimen came from Taveta in Kenya. It resembles *swynnertoni* Poulton (1919: 79) from Rhodesia. These three authors failed to recognize *rosae* as a form of *ethalion*.

van Someren & Jackson (1952: 260) enumerated the female forms which were then recognized and indicated their distributions according to the material available.

The following alterations in status were made:

1. *rosae* Butler, 1895, originally described as a species but subsequently placed to *etheocles* by Rothschild & Jordan, was reduced to a female form of *ethalion*;
2. *ethalionoides* Carpenter, 1945, described as a form of *etheocles* was transferred to a form of *ethalion*;
3. the name *rosa* van Someren, 1932 became a synonym of *rosae* Butler since this is now considered an *ethalion* (*vide* 1 *ante*).

van Someren & Jackson, 1952: 260 added the female f. *howardi* to the *ethalion* group of the Chepalungu Forest, Sotik, Kenya. We also described ssp. *alpinus* from the higher altitudes of the Vumba Mts., Rhodesia.

The material in the British Museum (Natural History), including the Joicey and Rothschild Bequests, was rearranged according to this regrouping in 1956. With additional material available, especially from Zambia, Malawi and Tanzania, it is now possible to study the species in more detail.

If the specimens are arranged geographically, it is at once apparent that the males differ hardly at all on the upperside throughout the range of distribution, that the number of female forms varies in each area, and that the basic female forms are: f. *ethalion*, f. *swynnertoni*, and f. *rosae*, each somewhat modified within the distribution of the species from south to north.

A close study of the material seems to indicate that the species *ethalion* has not evolved very far along the lines of subspeciation, though there would appear to be some degree of limitation and segregation of female forms. There is evidence to show that environment has played a part in modifying both size and pattern, thus we note that *ethalion* of the dry thorn bush country is generally small and is thus an ecological strain, not a subspecies in the true sense, for savanna merges into forest either abruptly or gradually. Conversely, *ethalion* of the higher forests with considerable precipitation tend to be larger and more brightly and intensely coloured. However, complete isolation of the insect on Mt. Marsabit in the Northern Frontier District of Kenya has resulted in the development of a race with only one known female form with strong characteristics.

There are however other regional groups of *ethalion* which exhibit considerable divergence from the nominate form yet are basically the same, and others which,

though having the three basic female forms, have in addition extreme modifications of them. Some of these regions are well separated and *ethalion* within them constitute a "breeding community", and one must assume that there is genetical control over the female forms in each. However, this complexity, and often similarity of forms, makes it difficult to divide the species into subspecies or geographical races in the orthodox manner. The alternative is to recognize each "breeding community" as a genetical group. To facilitate the comparative study of this complex, I have divided the species into geographical groups by regions, and each region into areas. Each region has, to a greater or lesser degree, some isolation and a differing ecological environment.

Emphasis has been placed on the fact that throughout the greater part of the range of this species, the three basic forms of females, f. *ethalion*, f. *rosae* and f. *swynnertoni*, occur in part or whole, either similar to the typical form or somewhat modified. To appreciate the variation in these forms to the best advantage, it is advisable to compare each separately.

In this revision, the insect designated by van Someren & Jackson (1957 : 42) as *ethalion alpinus*, from the Vumba Mts., Rhodesia, is omitted. I now treat it as a species with a race inhabiting the Nyika Plateau, Malawi, and these will be dealt with in another paper.

COMPARATIVE DESCRIPTIONS OF MEMBERS OF EACH GROUP

GROUP 1

Charaxes ethalion ethalion Boisduval

(Pl. 1, figs. 1-2, Map 1)

Charaxes ethalion Boisduval, 1847 : 593 [♀].

Charaxes rosae Butler, 1896 : 360 [♂ partim].

MALE. General shape of wings short and broad ; fore wing length 30 mm. (average) ; outer border hardly at all incurved, in some specimens almost straight. *Upperside.* Forewing, ground colour velvety black without sheen ; either immaculate or with a trace of a bluish spot subcostal beyond end of cell, and with one or two obscure upper subapical spots ; no glaucous border to the wing, but edge with a distinct white fringe hardly broken by the dark ends of the veins, this white line very obvious in side lighting. Hind wing almost immaculate except for traces of a submarginal row of small white dots, often limited to area above upper tails, usually double at anal angle where the spots may be lilac with white central dot. Border of wing may be slightly maroon above upper tail, or maroon mixed with olive, then olive to anal angle, where the olive scaling is expanded ; extreme edge black with slight indication of white fringe. Tails usually straight and slender, of about equal length, upper 5, lower 6 mm. *Underside.* Ground colour dark ashy-grey-brown with strong satiny sheen varying with direction of light but mostly in the disc of the fore wing and upper apical area ; a quadrate dark mark separates the apical satiny area from the discal ; the black marks on the basal half of the wing narrow but clear ; the lower part of the discal line outwardly strongly black ; the tornal double black spot well marked but not large, the black scaling extending half-way up the submarginal series of spots. Hind wings ground colour as fore, with the discal satiny bar strongly marked ; the postdiscal zigzag line usually well marked, olive and maroon in colour, inwardly defined by a black line ending above anal angle in a double or single crescentic black mark ; border reddish

above upper tail then olive to anal angle which carries two black dots. It should be noted that the ground colour alters slightly with age, fresh specimens are dark while older ones tend to be more brownish (Pl. 1, fig. 1).

REGION 1. EASTERN SOUTH AFRICA, NATAL, ZULULAND, MOZAMBIQUE, RHODESIA.

♀ form *ethalion* Boisduval (Pl. 1, fig. 2)

Fore wing length 40–42 mm., size comparatively large with outer margin almost straight. *Upperside*. Fore wing, ground colour brown-black, darker in fresh specimens, with a strong blue sheen in side light. No spot in the cell, as a rule; discal spots beyond end of cell, upper large, lower small or vestigial; no spot in 4, but those from 3 to hind margin increasing in size so that the bar is pyramidal, but inner edge almost straight, white in colour with slight bluish scaling in 1b. The postdiscal spots white, arranged as follows: three subapical in line, spot in 4 set in, remaining spots in line with outer edge of wing, but spots tend to fade out in 2–1b. Hind wing discal bar comparatively wide, extending from the costa to above anal angle where it cuts across the lower part of the inner fold at right angles, disc of bar white or with slight bluish tinge on borders. Submarginal line white or bluish, interrupted by dark veins; marginal border reddish above upper tails, then olive to anal angle; anal angle greenish with double black dots; extreme edge of wing blackish. *Underside*. Ground colour greyish brown with rufous tinge at base and distal portion of fore wing; the light spots of upperside well represented, strongly in the disc but less marked in postdiscal line, but both rows accentuated by black proximally, though faint in postdiscal series; tornal double spots black with more diffuse blackish spots in spaces above. Hind wing slightly more rufous in ground colour, but discal whitish bar strongly marked, widest at costa then tapering to 1c and represented above anal angle by a quadrate or triangular buffish mark; postdiscal lunate marks accentuated in black proximally, buffish in upper half then more rufous, terminating above anal angle in a double black line with greenish in between; submarginal line buffish to whitish, slightly outlined in black above upper tail then represented by black triangular marks and a double dot at anal angle; admarginal line reddish above upper tails then olive to anal angle outlined distally with narrow white lines; margin reddish brown. Tails long, upper one often spatulate at end, of almost equal length, 7 mm.

Range: General in Region 1, and almost the only form found south of the Tugela River (teste Pennington in litt.)

Variation 1. Differs from the nominate form by the larger white spots in fore wing from hind margin to 2 in discal line; the bolder postdiscal spots which are contiguous with, or merge with the discal marks in 1b–2, the upper discal and postdiscal spots are often connected by diffuse whitish rays. Hind wing discal patch considerably wider throughout, often white, or with a slight bluish tinge on the borders. Underside drab greyish brown with slightly more brownish at bases and on the distal portion of the fore wing. The white marks of upperside of fore wing and the discal bar of hind wing distinct.

Range: Occurs sporadically in Region 1.

Variation 2a. Represents a very slight modification of the nominate form in that the upper spots of the fore wing are slightly tinged with ochre. The hind wing discal bar may be slightly widened in area of the cell, being angled on the outer border.

Range: General in region 1.

2b. ♀ form *aurantimacula forma n.* Similar to above but fore wing spots orange-ochre in upper half but whitish in lower portion of 1b and long mark in 1a. Underside rather generally rufous with upperside fore wing marks showing through and suffused over and indistinct, hind wing bar completely obscured. Size rather small, fore wing length 34–36 mm.

Range : Most specimens come from the Natal area and have been taken in the “dry season”. This form has been bred, but intergrades toward variation 2a and the nominate form are present in the same family.

2c. Similar to f. *aurantimacula*, equally small, fore wing length 35–36 mm. *Upperside.* The fore wing discal bar very narrow to 1b and only very slightly wider in 1a, the upper spots ochre, the rest white. Postdiscal spots limited to three subapical, remainder to 1b vestigial. Hind wing bar narrower than usual. Underside more rufous especially on distal portion of fore wing and over the whole of the hind wing, so that the discal bar is hardly visible.

Range : Natal area, mostly in “dry season”.

These three variants should not be confused with *ethalion* of the Port St. Johns area which constitutes a distinct subspecies and is dealt with later.

♀ form *swynnertoni* Poulton

(Pl. 2, Fig. 10)

Charaxes ethalion ♀ f. *swynnertoni* Poulton, 1918 : p. 79.

Attention was first drawn to this form by Rothschild & Jordan, 1900, when they figured a specimen taken at Taveta, Kenya. The type selected by Poulton came from Charinda, Melsetter, Rhodesia.

Size rather variable, majority with fore wing length 40–42 mm. Outer margin of fore wing straight or only very slightly incurved. *Upperside.* Ground colour blue-black, rather browner at bases of wings. Fore wing discal spots as follows : one medium and one very small beyond end of cell, spots from 3–1b not expanding rapidly but streak in 1a long, extending distad. Postdiscal series all of nearly equal size, three subapical in line, spot in 4 set well in, forming an angle with one above, remainder following the curve of the wing margin ; double spots in 1b free or just touching the discal spot in this area. Subapical spots may be white, rest blue. Hind wing discal band usually narrow at costa but expanding over cell area, then tapering to above anal angle where it cuts across the inner fold at right angles, colour dull bluish, slightly paler in the disc. Submarginal linear marks white or pale violet outlined distally in black ; marginal border reddish above upper tail then olive to anal angle, extreme edge black. Tails long and fine, of almost equal length, 6–7 mm. *Underside.* Grey-brown with a slight satiny band in the disc of fore wing, varying with the angle of light, richer rufous on the outer margin in some specimens. Hind wing with more rufous suffusion over whole area. The markings of upperside not very apparent but postdiscal series show up slightly. The tornal double black spot limited to 1b. In the hind wing the submarginal pale line shows up well and the zigzag postdiscal line is usually strong, especially in the lower half.

It should be noted that in newly emerged specimens, the upper side ground colour is darker.

Range : This form occurs sparingly in upper Natal, rare south of the Tugela, but more frequent in Rhodesia.

♀ form *rosae* Butler

(Pl. 1, figs. 3, 4 and 7)

Charaxes rosae Butler, 1895 : 255.

A comparatively large form with fore wing length 38–40 mm. but size variable. *Upperside.* Ground colour brownish black, more brownish in old specimens, with slight violet-blue sheen in side light. Disc of fore wing with a curved white band formed as follows : a triangular mark at end of cell, beyond three whitish streaks and some white scaling on costa ; a triangular mark at base of 3 followed by elongate marks in 2–1b, rounded at distal end, concave on proximal end followed by a narrow elongate mark in 1a on hind margin ; two oval white spots beyond end of cell, lower one sometimes small or vestigial. Postdiscal series : three subapical in line, spot in 4 set in slightly, followed by a spot in line 3. Hind wing base and distal border brownish black. Disc of wing crossed by a whitish band extending up to costa as a solid block and reaching to above the anal angle and crossing the inner fold at right angles. The band is usually white with a slight greenish blue flush over the cell area on inner border, and slightly on outer. *Underside.* Ground colour ashy-grey-brown, rather more rusty on distal part of fore wing and over the disc of the hind wing, but the pattern of upperside is reproduced in varying strength and may be obscured in the hind wing. The submarginal pale line well marked ; marginal red and olive border strong.

Range : This form is scarce south of the Tugela River, more plentiful in northern Natal to Beira and Rhodesia. It is subject to some variation within the range of the nominate race as follows :

Variation 1. Natal. Differs from the nominate form by a slight reduction in the width of the fore wing bar in 3, the absence of the second spot beyond the cell. In the hind wing the discal patch does not reach the costa and the patch is suffused all over with violet-blue.

Variation 2. Melsetter area. Large specimens with upperside fore wing curved band very wide even at the costa, the mark in 2 13 mm. long, those in 1a–1b equally long with very slight blue scaling proximad. Hind wing bar complete from costa to above anal angle, widest in 3–4, white throughout or with some blue scaling on distal border. *Underside.* With the pattern of upperside of fore and hind wings well represented.

Variation 3. Mt. Selinda. A small specimen with upperside fore wing curved bar tapering rapidly toward the costa ; only one spot beyond the cell ; three subapical spots white, small but distinct ; rest of postdiscal series only just visible. Hind wing band represented at costa by a bluish discal spot and two postdiscal, the bar comparatively narrow and strongly flushed over with lilac-blue. *Underside.* Only the fore wing curved bar represented ; the hind wing discal patch not showing in the almost uniform rufous grey ground.

Variation 4. Vumba. Small specimen very similar to Mt. Selinda example but upperside hind wing patch stops short at 4 and rather angled on outer aspect and represented at subcosta by a detached spot in the discal line, the whole patch suffused with lilac, but slightly paler in the upper proximal corner. *Underside.* Pattern of fore wing upperside reproduced clearly with an extension of the white scaling to include the two white spots beyond the cell end. In the hind wing the greyish brown ground colour hardly interrupted in the discal zone (Pl. 1, fig. 3).

GROUP 2.

PONDOLAND, PORT ST. JOHNS, BASHEE RIVER.

Charaxes ethalion pondoensis ssp. n.

(Pl. 1, figs. 5, 6, 8 and 9, Map 1)

My attention was first directed to this race of *ethalion* in 1956, when it was noted that the males differed considerably from those of the nominate race in shape and underside coloration and the females exhibited characters which supported the suggestion that the Port St. Johns insects represented a distinct subspecies.

The material then available was very limited, but I have now received a full series of males and females from Messrs W. Teare and C. MacMaster which substantiate the validity of this supposition.

MALE. Fore wing length 32–33 mm., outer margin more incurved than nominate *ethalion*, thus apex definitely acuminate. *Upperside.* Ground colour velvety black; fore wing without any blue marks or with small obscure subcostal mark beyond cell and one or two vestigial subapical dots; margin without glaucous but white fringe strong. Hind wing with very small bluish white submarginal dots, double at anal angle; margin maroon above upper tail, then olive to anal lobe. Tails short, often robust, of about equal length, lower slightly up-curved, 5 mm. *Underside.* Has a strongly variegated appearance, the ground colour being more greyish, slightly rusty tinged at base and outer border of fore wing, the satiny bars through apex of cell, the discal line and postdiscal zone set off by intervening darker bars; the black lines in basal half clear; the tornal double black marks strong with black marks in 1b strong. Hind wing black lines in basal half not strong; the discal satiny bar offset by a dark brownish band proximal to the postdiscal zigzag line of olive and maroon, which is bordered by the submarginal greyish line; border reddish above upper tail then more golden olive to anal angle.

FEMALE. Fore wing length 35–36 mm., outer margin slightly incurved at 3–4. *Upperside.* Ground colour black; fore wing pattern strong, the spots being orange-ochre to orange-tawny; the discal band rather narrow made up as follows: one large and one small subcostal in 5–6, a small spot set well in base 4 (sometimes absent), spots from 3–1b in increasing size followed by long streak in 1a. The marks in 1a and 1b slightly paler ochre. The postdiscal spots well developed and complete from costa to 1b, orange-tawny in colour and completely separate from the discal marks. Hind wing ground colour black, discal band rather restricted, extending from the costa to short of the anal angle where it fades out, centre of band white, inner border slightly blue, outer border strongly blue or mauvish blue. Submarginal line of spots not very strong, mauve with central white dots; marginal border strongly reddish above upper tail, then olive to anal angle, edged black. Tails comparatively short, 6 and 5 mm. *Underside.* General colour greyish brown, more brownish at base and darker on outer border of fore wing; the discal bar of upperside represented clearly in buffish white, the postdiscal spots in grey, both accentuated proximally by black lines; tornal spots well marked, with dark marks in areas above fading out. Hind wing ground colour slightly more brownish, but discal band strongly indicated and bordered by brownish zones; postdiscal zigzag lunate marks greenish with maroon distally and black line internally, strongly marked; submarginal whitish line strong, accentuated distally in black, with triangular blue-black marks toward the anal angle. Marginal border reddish above upper tail then olive to anal angle.

Holotype male. SOUTH AFRICA: Pondoland, Port St. Johns (Transvaal Museum, Pretoria).

Allotype female. SOUTH AFRICA: Pondoland, Port St. Johns, Bashee River (Transvaal Museum, Pretoria).

Variation: Female similar to the nominate form but fore wing discal marks more restricted, the upper spots pale ochre, the lower ones to 1b white; the postdiscal spots fading out in 2 to hind angle.

It is interesting to note that this strongly orange-spotted female is the only form of female associated with the distinctive male in the Port St. Johns area of Pondoland. It bears some resemblance to the ochre-spotted variation of nominate female *ethalion* referred to as *aurantimacula* on p. 283.

This subspecies flies in association with *Charaxes karkloof* Van Someren & Jackson in the Port St. Johns area and the females have a superficial resemblance to one another.

GROUP 3.

Charaxes ethalion nyasana ssp. n.

(Pl. 2, figs. 11-18, Pl. 3, 19-30, Map 1)

The species *ethalion* is represented in Malawi by a subspecies which, while having females very similar to the three basic forms found in the nominate race, has in addition several forms not occurring in any other race.

MALE: Fore wing length 30-31 mm., outer margin almost straight, thus similar to nominate male *ethalion*. *Upperside*. Ground colour of both wings deep velvety black; fore wing immaculate or with very obscure bluish subcostal spot either beyond end of cell or in upper subapical area. Fringe narrowly white. Hind wing with submarginal spots obscured or apparent in region of tails, bluish to lilac with white central dots; border dull maroon above upper tail then olive to anal angle. Tails short, 4 and 5 mm. long, black with median green line. *Underside*. Drab greyish brown, rather browner on hind wing. Fore wing satiny sheen rather diffuse and not in distinct bars, but outer border darker brownish from tornal black spots, which are not very strong, to just below the apex; black lines in basal half clear but fine. Hind wing black lines in upper half fine; postdiscal zigzag olive and maroon line not strong except in lower half; border above upper tail red, then olive to anal angle.

Holotype male. MALAWI: Nkata Bay (*J. D. Handman*). In B.M. (N.H.).

FEMALES. The *ethalion* pattern forms in Malawi are, in the main, very similar to those of Group 1, but they are brighter; the ground colour is stronger and blacker and the amount of blue-green scaling at the base of the wing more in evidence.

Region 1. MALAWI.

FEMALES OF ETHALION PATTERN.

1. ♀ form *nyasana*

A large form, fore wing length 40-42 mm. *Upperside*. Ground colour of fore wing blackish with a strong greenish sheen at base. Pattern generally similar to nominate *ethalion* but bolder; discal upper spots larger; there is a large diffuse whitish spot at end of cell and a spot

at base of 4; white marks in 1a-2 wider. Postdiscal spots bold and complete from the subapex to 1b, where the mark merges with the discal mark. Hind wing discal bar wider, especially in mid position, the white limited to an oblique central bar widest at costa, the borders suffused with greenish blue, particularly basad. Submarginal line of whitish lilac linear marks rather diffuse as a rule, double anal marks lilac. Marginal border dull reddish above upper tail, then olive-green to anal angle. *Underside*. Greyish brown, satiny in disc but suffused with brownish on distal part of fore wing; discal and postdiscal white marks of above strongly represented in fore wing; hind wing suffused with rufous over the whole, so that the discal bar may be obscured or suppressed. Tails long and slender 7-6 mm. (Pl. 2, fig. 15.)

Variation a. Upperside. Pattern basically similar to the preceding, but the discal and postdiscal spots of the fore wing show an indication of being joined by rays.

Variation b. Somewhat similar to *var. a*. but fore wing spots other than those of 1a and 1b (which are white) are strongly tinged with ochre.

2. ♀ form

Upperside. Fore wing pattern as in *ethalion ethalion* but discal marks in 1a-1b wider and strongly blue-scaled at ends. Hind wing discal area strongly suffused all over with blue scaling except toward the costa, thus obscuring the usual white bar in mid area. *Underside*. Whitish marks other than those of 1a-1b suffused over with buffish grey, and obscuring the pattern. This variation appears to indicate some transition toward *f. swynnertoni*. Some specimens may have the fore wing discal and postdiscal spots in upper half tinged with ochre.

FEMALES OF SWYNNERTONI PATTERN.

The *swynnertoni*-like forms in Malawi divide up into four distinct forms, one of which does not appear to occur elsewhere; there are also some interesting variations apparently restricted to Malawi.

1. ♀ form *cithaeronoides forma n.*

(Pl. 3, figs. 25, 26, 28, 29).

On an average smaller than nominate *swynnertoni*, fore wing length 37 mm. (average). *Upperside*. Ground colour is a deeper black with strong dark blue or greenish blue sheen in side light. Fore wing pattern much as in the nominate *swynnertoni*, but the discal blue spots are brighter blue; there are two spots beyond the cell end, the upper large, lower smaller, both blue, spots in 3-2 well separated, the spot in 1b triangular so that the lower part of the bar expands rapidly, widest in 1a. The spots in upper part of 1b, 2-3 smaller than in *swynnertoni*. In the postdiscal row, the three upper subapical spots are conspicuously white and in line, spots in 3-4 set in at an angle to subapical, spots in 2-1b slightly larger and free of the discal marks; these spots are blue. Hind wing discal area bright blue, represented by costa by a spot in discal line, central whitish bar just visible. Submarginal elongate marks well developed white or bluish white; marginal border reddish above upper tail then olive to anal angle; extreme edge black. Because of the brighter blue contrasting with the black surround, the patch shows up brilliantly; the insect thus bears a strong resemblance to a small fresh specimen of *Charaxes cithaeron nyasae*. *Underside*. Ground colour grey-brown with a rusty flush on the distal part of fore wing, and over the disc of the hind wing. The subapical spots of fore wing show up, but the remainder of the upperside pattern is obscured; the tornal black marks are very distinct and accentuated by a paler surround. Hind wing black lines hardly visible, discal bar obscured, but the submarginal pale line is strongly marked and entire; marginal border reddish above upper tail, then olive to anal angle, with triangular black marks and a double spot at anal angle. (Pl. 3, figs. 26, 29.)

Holotype female. MALAWI: Mlosa Stream, Lauderdale, 23.ix.62 (J. D. Handman).

Paratypes: 3, same data as holotype.

2. ♀ form

Upperside. Very similar to f. *cithaeronoides* but discal bar in fore wing more strongly developed, wider and whitish blue; spots in 2-3 larger. Postdiscal spots whiter throughout. Hind wing discal patch whiter, less bright blue especially in upper half; submarginal line not so distinct, more greenish; marginal border with red scaling extending to lower tail, but olive at anal angle. *Underside.* Ground colour greyish brown, the discal marks of fore wing show up buff or whitish, more especially in 1-3. Hind wing discal patch obscured. (Pl. 3, figs. 25, 28.)

These specimens show an approach to nominate *swynnertoni* but at the same time suggest some influence of an *ethalion*-like strain in genetical make up.

3. ♀ form *suppressa* forma n.

(Pl. 3, figs. 20, 32)

Upperside. Resembling somewhat f. *cithaeronoides*, but base of fore wing with strong deep blue sheen. The discal bar completely suppressed except for a blue spot beyond end of cell, the long streak in 1a and a diffuse blue mark in 1b. The postdiscal spots are however very distinct, white from subapex to 2, blue in 1b. Hind wing discal band broad, whitish, but with strong blue sheen over all, or on distal border. Submarginal linear white marks well developed; marginal border reddish to upper tail, then olive green to anal angle. *Underside.* As in *cithaeronoides* or with even darker brownish coloration. (Pl. 3, figs. 20, 23.)

A very distinct form represented by several specimens.

Holotype female. MALAWI: Port Herald, Mlosa stream, 26.vii.62 (J. D. Handman).

4. ♀ form *demaculata* forma n.

(Pl. 3, figs. 21, 24)

This boldly marked variation is the converse of form 3 as regards the pattern of the fore wing; it appears to be an unusual form.

Upperside. Ground colour as in form 1, but with a greenish blue sheen over the base of the fore wing. Postdiscal spots limited to three subapical, rather indistinct, remainder completely obscured. The discal bar however is very pronounced and made up of two white spots beyond the cell, an arrow-shaped spot in 3, a larger spot in 2 rather angular, mark in 1b broader and at base as wide as streak in 1a, all pure white, but last two with strong greenish blue ends. Hind wing discal band comparatively narrow, whitish in upper half toward costa, strongly greenish blue on borders and over lower end, not extending through to inner fold but represented above anal angle by a free bluish mark. Submarginal line white; marginal border broadly red above upper tail, then olive to anal angle. *Underside.* Ground colour strongly rufous grey, more rusty on distal portion of fore wing; uniformly rufous shaded on hind wing. The fore wing discal bar strongly represented in 1a-3 in buffish white; the hind wing band hardly visible; the postdiscal zigzag line obscured in upper half but strongly maroon opposite the tails. Submarginal line present but most marked above tail area, where there are three black marks; marginal border reddish above upper tail, then olive to anal angle. (Pl. 3, figs. 21, 24.)

Holotype female. MALAWI: Luger Stream, Mlanje, 2.ix.62 (J. D. Handman).

FEMALES OF ROSAE PATTERN.

There are two main *rosae*-like forms in Malawi, 1., a large form in which the fore and hind wing light areas are *not* greatly in contrast, and 2., one in which the ground colour is intensely blue-black with some blue sheen over the basal area of fore wing the fore wing bar intensely white and in strong contrast to the strong blue of the hind wing patch. There is also an interesting variation which I describe below.

1. ♀ form near *rosae*.

In size and general facies this form is reminiscent of *rosae* of the nominate race. *Upperside*. Fore wing pattern is similar, the curved white bar extends into the upper part of the end of the cell, the inner curve of the bar is regular, the outer more irregular, two white spots, the second variable in size midway between the cell mark and the subapical spots of the postdiscal series which consists of 5 white spots, the lower two forming an angle with the subapical three in line. The long marks in 1a and 1b tinged with blue. The hind wing bar is fully represented at the costa as a block, it varies in width, usually fairly even on the outer border but irregular on the inner, widest in the region of the cell, may be whitish suffused with blue, with the oblique white showing up clearly or the white line may be obscured; the lower part usually stops short of the inner fold above anal angle but is represented on the fold by a pale spot. The submarginal broken line of linear marks and the marginal border as in the nominate *rosae*. *Underside*. Rufous grey with slightly more rusty tinge on outer border of fore wing and over the disc of the hind wing. The base of the fore wing with rather strong black lines, and the curved bar of above strongly represented; the hind wing patch is strong, while the postdiscal zigzag line of greenish maroon is especially strong in lower half; marginal border as usual.

Comparative fore wing lengths are: Chintechi 40 mm., Mlaye 40 mm., Monkey Bay 38 mm. (Pl. 3, figs. 27, 30.)

Variation a. Upperside. Similar to the foregoing in the pattern of the fore wing but the marks in 1b-2 also broader than usual; the costal portion of bar broad; the long streak in 1a blue with this colour extending up the inner edge to 1b, the postdiscal spots elongate and larger than usual. The hind wing patch uniform pale blue and represented toward costa by two separate spots. The submarginal line conspicuous, the marginal red and green border wider than usual. A very ornate example, from Mlanje.

Variation b. Upperside. Fore wing curved bar almost uniform throughout, the white mark in 2-1b shortened at distal end, so that the postdiscal spots are increased to six, the lowest in 2 being just free of the discal mark. The hind wing patch does not extend to the costa and besides being narrower than usual, is pale blue, without signs of an oblique white discal line. The submarginal crescentic linear marks are almost contiguous; the marginal border well-developed. Mlosa Stream, Mlanje.

Variation c. Upperside. Ground colour fore wing blacker, the curved white bar narrower than usual, the mark in 2 being half its usual length so that the postdiscal spot in this area is free. The two spots beyond end of cell and all the postdiscal series are strongly orange-ochre. The hind wing band goes through to the costa and at the tapered anal end touches the mark on the inner fold; the band is suffused with mauvish blue but the oblique white discal bar is clearly visible toward the costa. Submarginal line of somewhat triangular marks mauve, with white central dots; marginal border conspicuously red above upper tail, then olive to anal angle. *Underside*. Light brownish at bases of wings, black lines fine; curved bar of above distinct, and beyond this the wing is strongly satiny brownish grey but the margin of wing strongly brownish; the tornal spot large and black, with some brownish diffuse marks in spaces above distal to the postdiscal spots, which are slightly indicated.

This unusual specimen was taken on Kubula Hill, Blantyre (*H. McKay*).

2. ♀ form *imitans* forma n.

Pattern of fore and hind wing conforming more or less to f. *rosae* but considerably modified, the colour of fore and hind wings being in strong contrast.

Upperside. Fore wing length 36–38 mm. average 36 mm. Ground colour when fresh, a deep blue-black, with brighter blue sheen at base of fore wing in side light, distal portion black. Discal curved bar more solidly pure white, less broken by black veins on outer border; the costal portion of the bar is wide, since the subcostal streaks are extended distad to touch or merge with the two white spots beyond the cell end, as in the type specimen; the bar is constricted in 4 and is widest in 2, the streak in 1a is not however longer than the mark in 1b. In five specimens the postdiscal white spots are limited to the three subapical, the rest are vestigial or absent; (in only one specimen is the series complete to 3). The hind wing patch is rather narrow, represented at the costa by a blue mark in discal line, the outer border is thus curved, the inner margin is defined at the upper half, and diffuse in the lower, where it meets the inner fold; the whole patch is strongly suffused with blue scaling, especially strong on the margins, with high light in disc in side illumination but there is no clear white discal line. Submarginal linear white marks small but clear, greeny tinged at anal angle; marginal border maroon and olive green. Tails rather long and slender, 7 mm., upper one slightly spatulate at end, lower pointed. *Underside.* Ground colour darker than *rosae*, with a large satiny area in disc of fore wing, offset by a darker brownish distal border. Fore wing discal curved bar strongly marked but hind wing without indication of discal patch. Submarginal whitish to greyish line strong. Tonal black mark in fore wing strong. (Pl. 2, figs. 16–18; Pl. 3, figs. 19, 22.)

Holotype female. MALAWI: Lauderdale Est., Mlaye, Mlosa Stream, 5.ix.62 (J. D. Handman).

Paratypes. 4, Luger Stream, Mlanje; Mlosa Stream, Mlanje; Hynde Dam, Limbe; Swazi Est., Mlanje (Handman & Martin).

Variation a. A small specimen with the costal portion of fore wing curved bar less wide, so that whitish spot beyond the cell is free. The postdiscal spots are all more or less obscured. In the hind wing the discal blue patch is very restricted to the mid and lower portions only, and there is an obscure bluish spot on costa entirely free. Submarginal line of spots obscured above upper tail but distinct in lower half; marginal border as usual. Malawi, Mlosa Stream (Handman).

Variation b. The fore wing curved bar is very much reduced and tapers toward the costa, the two spots beyond the end of the cell entirely free, the distal portions of white marks in 1a–2 with black scaling obscuring the ends, the streak in 1a strongly blue. The hind wing discal blue patch reduced in upper half and represented by a blue spot in discal line at costa and in space below, the outer border is thus very angled. Chitakali Est., Mlanje (Martin).

The form *imitans* bears a resemblance to females of *Charaxes cithaeron nyasae* van Someren.

REGION 2. ZAMBIA, MUMBWA-LUSAKA.

FEMALES OF NYASANA PATTERN.

1. ♀ form *nyasana*.

A small form, fore wing length 34–36 mm. In general appearance very similar to form 2 of Malawi, but smaller. *Upperside.* Discal and postdiscal spots in upper half of fore wing,

white, but those in 1a-1b suffused with blue scaling. Hind wing discal band rather wide for size of insect, strongly suffused with blue on borders and toward the anal angle, but white central bar usually visible. Submarginal line of spots not strongly indicated, but marginal border as usual. *Underside*. Ground colour rusty greyish, slightly more rufous over hind wing. Fore wing light marks apparent only in areas 1a-1b, and in the hind wing the discal bar is almost obscured. (Pl. 2, figs. 13, 14.)

This is a small savanna form, with a distinctly seasonal appearance.

2. ♀ form.

A single example from this region is identical with the *nyasana* ♀ form near *cithaeronoides* of the Malawi series.

♀ form near *imitans*.

A small form bearing a close resemblance to the type form described above. *Upperside*. The outer border of the curved bar in fore wing more irregular and with a strong blue suffusion on lower marks in 1b-1a especially distad. Hind wing band wider and whitish at costa but otherwise blue. Submarginal linear mauvish white marks strong; border as usual. *Underside*. Ground colour greyish brown, more rusty on border of fore wing; discal curved bar fore wing strongly represented, but hind wing band hardly indicated; submarginal linear marks very pronounced; tornal black marks on fore wing strong.

REGION 3, SOUTHERN TANZANIA, NEWALA, NORTH OF RUVUMA R. AND NJOMBE.

FEMALES OF NYASANA PATTERN.

♀ form near *imitans*

Very similar to form 2 of the Malawi series with *nyasana* pattern, with upper part of upper-side fore wing curved bar wide and touching the spot beyond end of cell, but lower portion narrower, streak in 1a dull bluish. Hind wing patch not extending to the costa, but stopping at 6, uniform bluish.

Underside. As in Malawi form 2, but upper part of fore wing bar goes through to the spots beyond the end of cell. Basal black lines and tornal spot strong. Hind wing band not represented below, but submarginal pale line strong.

Variation: An attractive variation has the postdiscal spots and those beyond the end of the cell in the fore wing orange-ochreous. Tanzania: Rutumba Forest, Lindi area, 27.v.1965 (McCleery).

FEMALES OF SWYNNERTONI PATTERN.

1. ♀ form near *cithaeronoides*.

Upperside. Fore wing, lower blue spots in discal row obscured with blue scaling; hind wing band wide.

2. ♀ form near *swynnertoni*.

Upperside. Fore wing discal and postdiscal marks strong and well separated; hind wing band narrow, greenish blue. The associated male is very similar to that of *ethalion nyasana*.

3. ♀ form near *citheronoides*.

Upperside. Agreeing with f. *cithaeronoides* of the Malawi area but fore wing discal band less abruptly expanding in areas 1a-1b and the streak in 1a not so long, the postdiscal double mark

in 1b is free and not merging with discal mark. The postdiscal spots are distinct, the four upper white, the rest bluish white. Hind wing discal patch wider and represented at the costa by a quadrate off-white mark, borders strongly blue-scaled, the white oblique bar rather diffuse. Submarginal white linear marks well separated and distinct in the majority of specimens; marginal border reddish above upper tail, olive-green to anal angle.

Underside. Generally less rufescent, more greyish than Malawi form 2; satiny areas in fore wing wider with a reduction of the rufous shading on the distal margin. The black lines on the basal half of the wing more clear but the upper side pattern is only slightly reproduced below.

Tanzania, Newala, north of Ruvuma River.

GROUP 4.

Charaxes ethalion nyanzae ssp. n.

(Pl. 4, figs. 31-35, Pl. 5, figs. 42, 45-48, Map 1)

MALE. Fore wing length 31-32 mm.; shape, short and broad; outer border of fore wing hardly at all incurved. *Upperside.* Ground colour black, white fringe on edge rather conspicuous in side light; no blue spots on subcosta or an obscure one just beyond end of cell and a minute dot in subapex at subcosta and sometimes a trace of a second subapical spot, otherwise wing immaculate. Hind wing black, almost immaculate except for a trace of submarginal off-white spots in tail area; marginal border with obscured reddish above upper tail and trace of greenish to anal angle. Tails short, upper 4 mm, lower 4 mm. *Underside.* Drab grey-brown with a satiny quadrate mark in cell, a satiny bar through disc and on postdiscal area and upper part of apex, with intervening areas slightly darker brown. Basal black lines fine; postdiscal black line fairly distinct; tornal black spot and submarginal dark marks not strong. Hind wing ground colour as fore wing, black lines fine, disc with a slight satiny bar, postdiscal zigzag line of olive and maroon lunules finely outlined proximally in black, fairly strong in lower half; submarginal pale line faint; marginal border narrow, reddish above upper tail, then olive to anal angle with small black dots proximad.

Holotype male. S. W. UGANDA: Kikagati, Kagera River. In B.M.(N.H.).

REGION 1. KENYA, WEST OF THE RIFT, CHEPALUNGU-MARA AREA, EAST SIDE OF LAKE VICTORIA.

♀ *ethalion* pattern.

The only specimen now available for comment is a large one, fore wing length 38 mm. *Upperside.* Fore wing, discal bar strong but rather narrow in lower portion, the mark in 1b is separated from the streak in 1a, and rounded on its distal end so that the postdiscal spot in this area is free. Hind wing band not very broad, represented at the costa by an elongate free mark; the band widens over the area of the cell, then tapers to inner fold; a discal white bar is visible in the upper half but the band is suffused with blue in the lower portion. Submarginal line rather indistinct except at anal angle; marginal border reddish then olive and well developed.

This specimen resembles the *ethalion* pattern from the Kagera River in Region 2.

Lake Victoria, south and eastern side: Suna-Chepalungu-Sotik.

♀ *rosae* pattern

♀ form *howardi* van Someren & Jackson

Charaxes ethalion ♀ f. *howardi* van Someren & Jackson, 1952 : 260.

This unique form has the *rosae* pattern, but all marks including the fore wing curved band strong ochre-yellow ; hind wing band also ochre but paler toward the costa. (Pl. 4, figs. 32, 35).

It will be noted that in this group, not only is the female of the *ethalion* pattern wide-barred, but the form like *rosae* is also very wide-barred, as is also *howardi*, in which the pattern is ochreous in colour, not white.

Kenya, west of Rift, Chepalungu.

REGION 2. S. W. UGANDA, KAGERA RIVER AND AREA SOUTH.

♀ *ethalion* pattern.

A large form, fore wing length 37-41 mm. *Upperside*. Closely resembling some specimens from northern Malawi, but fore wing spots in discal line in 2 and 3 more rounded and entirely free ; mark in 1b quadrate, streak in 1a longer. Postdiscal spots bold, entirely free to 1b where the spot touches or merges into the discal mark. Base of fore wing with a strong greenish sheen in side light, the greenish blue extending to proximal ends of white marks in 1b and 1a. Hind wing discal patch widest over cell area, generally broad and reaching costa, the discal white bar visible but suffused over with bluish scales, especially over the lower portion. Submarginal linear marks distinct, whitish or bluish, but may be rather obscured in upper portion ; marginal border may be reddish above upper tail or suffused with greenish, greenish to anal angle. *Underside*. Ground colour ashy-grey-brown, rather darker rusty to distal portion of fore wing ; generally brownish on hind wing. Fore wing pattern of upperside not strongly represented, except on 1b. Hind wing discal patch suffused over and indistinct though apparent below costa. Black tornal mark fore wing variable in size and density.

Variation a. In one specimen there is a large white spot at base of 4 in fore wing ; otherwise similar to above.

Variation b. The discal mark in 1b is short so that the postdiscal spot in this area is quite free. The hind wing band is narrower than usual ; the submarginal line is obscured in the upper half ; the marginal border normal, reddish above upper tail, then olive to anal angle.

Males associated with females of this group do not exhibit any outstanding characters by which to distinguish them from nominate *ethalion* males. Fore wing length 31 mm., outer border slightly concave. Ground colour velvety black ; two obscure subapical blue spots and a trace of one beyond cell. Hind wing without submarginal dots ; border barely indicated, anal angle with double green spot. *Underside*. As in nominate race.

Kagera River, S. W. Uganda.

REGION 3. TANZANIA, EAST SIDE OF L. TANGANYIKA, KIGOMA AND KUNGWE AREAS.

♀ *ethalion* pattern.

A single specimen has the following characters : *Upperside*. Fore wing pattern bold, in the discal line the white mark in 3 is elongate, those in 1a-1b broad, suffused proximally with blue. There is an additional spot at base of 4 in postdiscal row which goes to 3 and is here contiguous with the discal spot in same area. In the hind wing the discal band is represented at the costa by a single quadrate mark, but the patch widens rapidly and is very broad in the cell area, the extension being basad ; the outer border is irregular, the whole is suffused with greenish blue

scales but mostly on the inner border. Submarginal line a series of strong white marks ; marginal border reddish and olive as usual.

The underside is unfortunately rather rubbed, the white pattern of upperside is well represented on both wings ; the tornal spot of the fore wing is strong. (Pl. 4, figs. 34, 35.)

Eastern side Lake Tanganyika. Mpanda-Kungwe.

♀ *rosae* pattern.

A very interesting specimen of this form was taken at Kungwe. Its characters are : *Upperside*. Fore wing discal curved band very wide, the subcostal white scaling extending to and contiguous with the two white spots beyond the cell end, the costa above also white, the mark in 2 is extended distad and that in 1b only a little less, while the streak in 1a is extended proximad. The hind wing discal band, mostly white, extends up to the costa, uniformly wide though irregularly dentate and sharply defined in mid area, then tapers gradually to above anal angle where it crosses the inner fold. Submarginal white linear marks well developed ; marginal border strongly marked reddish and green. *Underside*. Ground colour pale greyish brown, the pattern of upperside well represented ; basal black marks strong, especially in sub-base in 1b ; tornal black spot fore wing large, rounded and strong. (Pl. 4, fig. 31.)

Lake Tanganyika, east side Kungwe.

REGION 4. E. KATANGA, LAKE MWERU AREA.

♀ *ethalion* pattern.

A single specimen from near Lake Mweru seems to belong to this group. It exhibits interesting features : the upper discal and postdiscal spots are large and there is an extra spot at base of 4 ; the lower discal marks form a triangle, very broad at base and conjoined up to 3 in a solid block, the postdiscal spot in 1b part of the block. The hind wing band is comparatively wide, commencing at the costa and merging into the inner fold, mainly white with only a slight tinge of blue on the borders. Fore wing length 35 mm. The specimen is unfortunately very worn.

Lake Mweru, Katanga-Zambian Border.

A small series recently received from Major Iain Grahame, from the Kigoma area of Tanzania are illustrated on pl. 5, figs. 42, 45-48. The specimens are large and some of the *ethalion* and *rosae* ♀ forms are decidedly creamy in their light markings, thus showing a tendency toward the ♀ form *howardi*.

Note however that no example of the *rosae* pattern has so far been recorded from the region of the Kagera River in S.W. Uganda.

GROUP 5

Charaxes ethalion littoralis ssp. n.

(Pl. 4, figs. 37-39, Map 1)

MALE. Fore wing 33-34 mm. ; shape short, broad, outer margin fore wing very slightly concave at 2-3. *Upperside*. Fore wing, ground colour deep velvety black, almost immaculate but for a subcostal blue spot subapex and a trace of one in space below and sometimes an indication of a spot beyond end of cell ; fringe white, broken by dark veins. Hind wing velvety black, greyer on inner fold. Submarginal spots very obscured, bluish in region of tails ; border

obscured, very faintly reddish above upper tail, dully greenish to anal angle. *Underside*. Drab greyish brown, strongly satiny with a large quadrate darker brownish mark in subapex, followed by diffuse brownish marks in postdiscal row, submargin with row of dark contiguous marks, but tornal mark not accentuated. Black lines distinct but fine. Hind wing ground colour as fore wing, with a satiny bar in the discal line, bordered by a darker zone carrying the zigzag series of olive and maroon lunules outlined in black proximally; submarginal row of greyish lilac marks triangular in region of tails, accentuated with black distally; marginal border maroon to upper tail, then olive to anal angle. Black lines in base of wing very thin. Tails short, upper 4 mm., lower 5 mm.

The above description is based on specimens from Shimba Hills. Examples from Amani, Usambara, are slightly larger, slightly more incurved on outer margin of fore wing, with the apex thus more pointed. The fore wing may be immaculate or with only one large blue spot beyond end of cell. Hind wing as in Shimba examples; tails of about equal length, 5 mm. Males from the savanna bush country of Kibwezi-Voi-Taveta are smaller.

Holotype male. KENYA: Shimba Hills, Kwale Dist., x. 1960 (*van Someren*). In B.M.(N.H.).

REGION I. KENYA COAST BELT AND HINTERLAND TO TEITA HILLS, KILIMANJARO, DAR-ES-SALAAM, AMANI.

♀ *ethalion* pattern.

A large insect, fore wing length 40–41 mm., resembling somewhat the *ethalion*-like female of the Malawi series. *Upperside*. There is often a spot or an indication of one in the fore wing cell; there is usually a small white spot at base of 4. The discal marks are large, even larger than in the Malawi form, the mark in 3 is rounded or elongate and entirely free, but the other marks, increasing in size, are contiguous, longest at the streak in 1a on hind margin. The upper spots are white, but those in the lower portion are bluish white or strongly blue. The postdiscal spots are well developed and free to 2, then touching or merging with mark in 1b of discal row. The upper discal and postdiscal spots are rarely connected by rays. The hind wing discal patch is broad, as wide as or wider than the streak in fore wing 1a, at the costa, and in 6 but tapering toward anal angle and crossing the fold as a quadrate mark; a white discal bar is well marked but the patch is shaded on either border with strong blue. The submarginal line is obscured in the upper half though indicated by some white scaling, in the lower half violet, accentuated by black dots. Tails long, slender, 5–6 mm. long. *Underside*. Ground colour dark greyish with just a slight brownish tinge basad, and on the discal line but *not* with the silvery discal area seen in *Charaxes contrarius* Weymer, which this form resembles. Light spots and bars of upperside strongly represented, the postdiscal lunate marks on hind wing greenish and maroon, especially strongly marked in lower half of zigzag line.

♀ *rosae* pattern.

Form a. Size rather variable, fore wing length average 36 mm. *Upperside*. Very similar to *rosae* of nominate race but differing as follows: the curved white bar in fore wing tapers rapidly toward the costa but does not reach it; the two spots beyond the cell are elongate and entirely free; the postdiscal spots are elongate and extend as far as 3; at this point the discal marks are of equal width to the hind margin, the outer border dentate as the marks are angled on the outer ends. Hind wing band rather narrow, but goes through to the costa, and is mostly white with slight blue scaling along inner border. Submarginal linear marks hardly visible; marginal border normal. *Underside*. Ground colour pale drab greyish brown; the fore and hind wing patterns of above clearly indicated. Tornal black mark of fore wing small.

Form b. Fore wing curved bar narrower, of almost uniform width throughout; lower discal marks slightly blue on proximal ends, otherwise white; postdiscal smaller and rounder,

reaching to 2 but here joined to discal mark by some white scaling. Only one spot beyond the cell end. Hind wing patch not reaching the costa, though here represented by a dull bluish mark; band comparatively wide, dull blue all over with an indication of darker obscure marks in discal line; submarginal white linear marks strong; border as normal. *Underside*. Slightly more brownish than Form a, especially on hind wing. Fore wing white curved bar well represented but postdiscal spots obscured; hind wing without indication of discal band, but postdiscal zigzag olive-red line strong. Tonal black spot on fore wing small.

In spite of intensive trapping in the coastal region of Kenya, no examples of form *swynnertoni* have ever been taken.

REGION 2. KIBWEZI-VOI-TAVETA BUSH COUNTRY.

♀ *ethalion* pattern.

Specimens from the dry thorn bush country are placed to the coastal race, though they are in fact a small ecological form. The fore wing length varies from 33–34 mm. They are characterized on the upperside by the more restricted discal marks in the fore wing, less developed postdiscal spots and usually narrower hind wing band, which is less brightly blue on the borders. The underside is less greyish and more shaded with light rufous. The upperside pattern of fore wing clearly reproduced, but the hind wing discal band tapers out toward the anal angle, seldom crossing the inner fold.

♀ *swynnertoni* pattern.

The only record of this form that I know, from the thorn-bush area is that mentioned and figured by Rothschild & Jordan, 1900, (pl. 12, fig. 6.)

Other forms in this region are f. nr *ethalion* and f. nr *rosae*.

REGION 3. COAST REGION OF TANZANIA, DAR-ES-SALAAM, USAMBARA (AMANI) INLAND: MOROGORO, ARUSHA.

♀ *swynnertoni* pattern.

Specimens from this intermediate area are somewhat like those from Newala (Group 3, Region 3), but are larger. *Upperside*. The discal bar of the fore wing generally wider, the upper marks white, while the lower are bluish, or all marks may be blue; marks in 1a–1b are expanded in both directions. The postdiscal series of spots are white in the upper half, blue in the lower, with the double spot in 1b free or contiguous with the discal spot. Hind wing patch slightly narrower than the Newala specimens, but variable; marginal and submarginal lines similar. *Underside*. Ground colour more rufescent drab, the pattern of upperside obscured as a rule, but two specimens from Dar-es-Salaam exhibit this pattern clearly.

These Tanzanian specimens do not really belong to the Kenya Coast aggregate but are in fact a cline toward the Malawi group, but material from the intervening country is not available for study.

GROUP 6

Charaxes ethalion kikuyuensis ssp. n.

(Pl. 4, fig. 36)

MALE. Fore wing length 32–33 mm.; shape short and broad. Fore wing outer margin almost straight or very slightly incurved in 3. *Upperside*. Ground colour velvety black;

fore wing immaculate or with one subapical subcostal spot ; marginal white fringe very distinct in side view. Hind wing ground colour black, immaculate except for submarginal row of lilac, white centred spots, faint in upper part but very distinct in region of tails and double at anal angle. Marginal border narrow but distinct, reddish above upper tail, then olive to anal angle. *Underside*. Generally dark brownish, relieved by a slight satiny bar in discal line and in postdiscal zone to upper part of apex, bordered internally by fine black line expanding in 1b, and externally by a submarginal line of dark spots terminating in the large black tornal spot. Hind wing ground colour as fore, with a suggestion of a satiny discal bar ; the postdiscal zigzag line of olive and maroon lunules, accentuated in black proximally, very distinct from costa to above anal angle, where there is a pale quadrate mark above on inner fold and a black mark below ; submarginal pale line accentuated in black distally complete and clear ; marginal border reddish above upper tail, olive to anal angle.

Holotype male. KENYA : Nairobi district, Karura Forest, iii. 1949 (*E. Pinhey*). In B.M.(N.H.).

Range : Kenya Highlands, Nairobi, Meru, Mt. Kenya, Njombeni.

♀ *ethalion* pattern.

Slightly larger than the savanna form, fore wing length 35–37 mm. *Upperside*. Rather variable, specially in regard to the hind wing patch. Fore wing discal and postdiscal spots white and well developed ; a small spot often present at base of 4 ; discal spots in 2–3 well separated, but marks on 1b–1a increasingly large, the streak in 1a often extending proximad so that the inner border of the discal bar is concave. The postdiscal spots are entirely free up to 1b, though the spot here may merge with the discal mark. Hind wing discal patch wide, extending through to the costa, widening slightly in the cell area and tapering gradually to the inner fold, which is crossed above the anal angle. This patch is often pure white or with just a slight bluish tinge on its borders. Submarginal linear marks white and well developed ; marginal border dull red and olive, strong. Tails slender, upper one slightly spatulate at end, lower pointed, 7–6 mm. long. *Underside*. Greyish brown, slightly more rusty on hind wing ; light markings of upperside strongly represented, those of hind wing divided into discal and postdiscal bars ; submarginal whitish line strong, accentuated in region of tails by black marks.

Variation a. Differs only in that the discal bar in 1b is less wide, so that the postdiscal spot in this area is free. The hind wing band is narrower and more bluish on borders, so that the oblique white discal zone is clearly visible.

Variation b. Slightly larger, with fore wing discal and postdiscal spots connected by diffuse rays. Hind wing band narrow from costa to cell area, shaded blue only on the proximal side where it reaches the inner fold.

♀ *swynnertoni* pattern.

The *swynnertoni*-like form occurs sparingly in the Nairobi area and upper Kikuyu and Meru, but does not appear to go west of the Rift Valley.

Upperside. Ground colour black, slightly brownish at base of fore wing, which has a slight blue sheen in side light. Fore wing blue discal spots comparatively large in upper half, though second spot beyond the cell may be vestigial ; spots in 3–2 large and free, the spot in 1b not much larger, may be free or fused with longer mark in 1a, the lower part of the discal bar is thus not expanded to any extent. The postdiscal spots are whitish in the subapex, the rest bluish, the double spot in 1b is free. Hind wing patch not reaching to the costa as a rule, but there may be a diffuse subcostal mark in the discal line ; the patch is relatively wide, whitish in the disc but strongly violet-bluish on the borders. Submarginal linear marks whitish or mauve ; the marginal border as usual, reddish above upper tail then olive to anal angle. *Underside*.

Ground colour greyish brown, slightly stronger brown to outer margin of fore wing. The upperside pattern clearly indicated on the fore wing, tornal black spot well marked but discal band on hind wing less apparent, submarginal pale line strong ; marginal border clear.

♀ *rosae* pattern.

This form is represented in the Kenya Highlands by rather large specimens, fore wing length 38–40 mm. *Upperside*. Fore wing ground colour rather brownish at the base but blacker on distal half. The curved white band is uniformly wide, the costal and subcostal narrow white marks clear, the two marks beyond the end of the cell large and oval ; discal mark in 2 longest, with obliquely cut ends ; marks in 1b–1a of equal length, rectangular, 10 mm. wide. Postdiscal white spots clear, those in subapex very white, that in 3 rather obscured. Little or no blue scaling on lower discal marks. Hind wing discal band well developed and extending through to the costa by a rectangular mark ; the band widens in the cell area, then tapers toward the inner fold and crosses it above the anal angle ; band generally white with some bluish violet scaling on proximal border. Submarginal linear marks obscured and greenish ; marginal border well marked. *Underside*. Drab greyish brown on fore wing, browner on hind wing. The curved discal bar well represented below, but postdiscal marks obscured. Tornal black spots strong.

On the hind wing the discal band is moderately distinct. The postdiscal zigzag line not very strong. The submarginal line present but more strongly marked above in the region of the tails, accentuated distally by black spots and crescentic greenish marks above anal angle.

Marginal border reddish and olive as usual.

GROUP 7

Charaxes ethalion marsabitensis ssp. n.

(Pl. 5, figs. 40, 41, 43, 44, Map 1)

MALE, Fore wing length 35 mm. outer margin slightly incurved. *Upperside*. Fore wing, ground colour velvety black, almost immaculate but for one minute dot subcostal beyond cell, and one or two subapical blue dots. Marginal white fringe conspicuous when viewed from side. Hind wing velvety black, dull black at inner fold. Submarginal row of lilac spots obscured in upper half but clear in region of tails ; marginal border dull red to between tails, then green to anal angle. Tails 5–6 mm. long, lower slightly up-curved, upper with reddish central line, lower slightly reddish or ochreous. *Underside*. Very similar to the Kenya Highland race *kikuyuensis*, brownish on fore wing with satiny patches beyond the cell and upper part of apex with darker brown patches between and on the border ; black lines in basal half of wing fine, postdiscal lines faint except for black mark in 1b, submarginal dark marks indistinct but strong in tornus. Hind wing ground colour more rusty brownish but with satiny flush in side light in discal line ; postdiscal zigzag line not bold except in region of tails ; submarginal linear lilac marks obscured in upper half, stronger at tails and accentuated with black angles. Marginal border red, including upper tail, then mixed red and olive to anal angle.

Holotype male. KENYA : Northern Frontier Province, at Mt. Marsabit, iii. 1946. In B.M.(N.H.).

Range : Mt. Marsabit, Northern Frontier Province, Kenya.

♀ *swynnertoni* pattern

FEMALE. The only female form taken in the Marsabit area, in spite of intensive collecting, has been of the *swynnertoni* pattern. Fore wing length in a majority of a long series, 42 mm. (a few smaller examples may occur in drought periods). *Upperside*. Fore wing, ground colour brownish black, slightly darker in the disc. Fresh specimens blacker. Discal and post-

discal spots white, above area 1b large and bold ; discal spots in 2-3 rounded and usually free ; postdiscal spots in these areas angular, double spot in 1b free or may be slightly joined to discal mark by some violet-blue scaling, the mark in 1a-1b are widest and violet-blue in colour. Hind wing discal patch broad, carried up to the costa as two separate spots in discal and post-discal lines, the intervening area blackish. The patch is generally suffused all over with violet-blue scaling but there is an indication of a paler central zone, especially toward the inner fold ; the outer border of the patch irregular. Submarginal linear mauvish white line, blackish edged distally, is strongly indicated ; marginal border, strongly reddish above upper tail or between tails, is olive to the anal angle. Tails long, upper one rounded at end, lower pointed, 10-9 mm. long, the upper tail with red central line, lower with pale ochre line. *Underside.* Ground colour greyish brown, greyer in the disc of fore wing but strong rufous on distal border ; the upperside pattern clearly indicated in discal line and upper part of postdiscal series. Hind wing generally suffused with rusty bloom, the discal band only slightly indicated ; submarginal line strongly marked ; marginal border strongly reddish then green to anal angle.

BIOLOGICAL NOTE.

The following races of *Charaxes ethalion* have been bred :

ethalion ethalion, which lays on *Albizzia sassa* (*fastigiata* Oliv.) and *Albizzia charindensis* (teste Platt.) (Mimosaceae).

ethalion littoralis, which lays on *Parkia filicoidea*, *Albizzia adianthifolia*, *A. sassa*, *A. coriaria*, *Newtonia* (*Piptadenia*) *buchanani*, *Tamarindus indicus* (Mimosaceae), and *Scutia myrtina* (Rhamnaceae).

ethalion kikuyuensis, which lays on *Albizzia sassa*, *A. coriaria*, *A. gummifera* (Mimosaceae) and *Scutia myrtina* (Rhamnaceae).

SYSTEMATIC LIST

Charaxes ethalion Boisduval

With an indication of the female forms within Groups and Regions.

Group 1

Charaxes ethalion ethalion Boisduval, 1847. Type locality : " Natal ".

♀ f. *ethalion* Boisduval, 1847. Type locality : Natal.
 et vars.

♀ f. *swynnertoni* Poulton, 1919. Type locality : Mt. Selinda, Rhodesia.
 et vars.

♀ f. *rosae* Butler, 1845. Type locality : Natal.
 et vars.

♀ f. *aurantimacula* forma n.

Range : From Durban area north to Beira, extending inland to Rhodesia.

Group 2

Charaxes ethalion pondoensis ssp. n. Type locality : Port St. Johns.

♀ *ethalion* pattern.

Range : Pondoland, Port St. Johns. Transkei, Bashee River, Embuyti Forest.

Group 3

Charaxes ethalion nyasana ssp. n. Type locality : Malawi and Nkata Bay.

♀ f. *ethalion* pattern = *nyasana* forma n.

♀ f. *swynnertoni* pattern.

♀ f. *cithaeronoides* forma n.

♀ f. *suppressa* forma n.

♀ f. *demaculata* forma n.

♀ f. *rosae* pattern *imitans* forma n.

et vars.

Region 1, Malawi.

Region 2, Zambia, western block.

Region 3, Tanzania, southern highlands and Ruvuma River area.

Group 4.

Charaxes ethalion nyanzae ssp. n. Type locality : S. W. Uganda, Kikagati and Kagera River.

Region 1, ♀ *ethalion* pattern.

♀ *rosae* pattern = *howardi* van Someren & Jackson. Kenya, west of Rift, Chepalungu-Mara area, east side Lake Victoria.

Region 2, ♀ *ethalion* pattern.

Uganda, S. W. Kagera River and area south.

Region 3, ♀ *ethalion* pattern.

♀ *rosae* pattern.

Tanzania : eastern side L. Tanganyika, Kigoma and Kungwe areas.

Region 4, ♀ *ethalion* pattern.

E. Katanga, Lake Mweru area.

Range : S. W. Uganda, Kagera River ; Kenya, E. side L. Victoria ; Tanzania, Kigoma, Kungwe.

Group 5

Charaxes ethalion littoralis ssp. n. Type locality : Shimba Hills.

Region 1, ♀ *ethalion* pattern, et vars. *ethalionoides* Carpenter.

♀ *rosae* pattern, et vars.

Kenya Coast belt and adjacent hinterland ; Tanga and ? Zanzibar.

Region 2. ♀ *ethalion* pattern.

♀ *rosae* pattern.

♀ *swynnertoni* pattern.

Kenya, Dry bush country : Voi, Kibwezi and southern Ukambani.

Intergrading cline between Groups 3 and 5

♀: *ethalion* pattern, *swynnertoni* pattern and *rosae* pattern.

The area embracing the central Tanzania Highlands, Morogoro, Dodoma; north to Usambara, western Kilimanjaro, Mt. Meru and Arusha.

Group 6

Charaxes ethalion kikuyuensis ssp. n. Type locality: Nairobi.

♀ *ethalion* pattern, *swynnertoni* pattern and *rosae* pattern.

Range: Kenya Highlands east of the Rift: Ngong, Nairobi, Kikuyu, to Nyeri and Meru Mt. Kenya.

Group 7

Charaxes ethalion marsabitensis ssp. n. Type locality: Mt. Marsabit.

♀, *swynnertoni* pattern only.

Range: Mt. Marsabit, Northern Frontier district Kenya.

***CHARAXES ANSORGEI* ROTHSCILD,**
AND ITS SUBSPECIES

The species *Charaxes ansorgei* can be divided into two groups, based on the character of the hind wing band: (a) a northern group in which this band is entirely white with slight blue scaling, and (b) a southern group in which the band is divided into two sections, tawny orange in the upper half and bluish white in the lower.

The species appears to have a somewhat restricted distribution (Maps 2, 3) and is found on the high ground in the regions of the Eastern Rift and the Western Rift in Eastern Africa. It is limited to montane evergreen forest at elevations of 6000–9000 feet and is closely associated with its food plant *Bersama abyssinica* et ssp. (Melanthaceae) which may occur in the forest, on the forest margins or as saplings and shoots from roots left in de-afforested land. Females may thus be noted outside the forest when ovipositing on these young plants, which they seem to prefer to the old trees.

Because of its restricted habitat, the species exhibits a strong tendency to split up into well defined localized races or subspecies, most of which are readily recognizable. Poulton (1933) reviewed the species and races known up to that time, and gave a very full comparative description of the subspecies and their respective distributions. One or two aggregates were however "left in the air" and undecided as to their relationship with adjoining defined races. *Vide* also Poulton (1932: 6–9).

A large amount of additional material has come to hand of recent years, some from outside the range of the species as cited by Poulton and three new subspecies are described. I have also taken the opportunity to re-examine the doubtful specimens mentioned by Poulton in 1932.



MAP 2. Distribution of *Charaxes ansorgei* Rothschild and subspecies.

There is still some doubt concerning the status of those aggregates which inhabit the forests of the several mountain ranges and more isolated volcanoes to the west and east of Lake Kivu and north west of Lake Tanganyika ; these are dealt with in the appropriate place.

Charaxes ansorgei ansorgei Rothschild

(Pl. 6, figs. 49, 53)

Charaxes ansorgei Rothschild, 1897 : 181.

Charaxes ansorgei Rothschild ; Rothschild & Jordan, 1898, pl. 5, f. 2.

Charaxes ansorgei ansorgei Rothschild ; Poulton, 1933 : 12.

MALE. Fore wing length 44 mm. (average), outer border slightly incurved at 2-4 ; margin bluntly dentate, hind wing margin serrate. *Upperside*. Ground colour fore wing base to discal line rufous, with some quadrate black marks, one in cell, one elongate transverse at end of cell, a mark at base of 4, triangular marks sub-basal in 3-2 and a black dot below in 1b, a quadrate mark beyond cell and a triangular black patch between the V formed by the discal and post-discal orange spots ; the remaining discal and postdiscal orange marks fused together, but with an indication of black scales at line of fusion in 2 and 3 ; the lower part of the band in 1b 6-7 mm. wide. Border of wing black, with small orange spots on the margin, often double in 1b. Hind wing basal area more brownish, paling to greyish on the inner fold ; disc of wing crossed by a white band, narrow and white at costa, slightly constricted in 6, then widening over cell area and tapering to inner fold above anal angle, the borders of lower half suffused over with blue scaling. Border black, with orange admarginal spots most distinct above upper tail ; edge black with slight white fringe between dentate projections ; tails rather short, tapering quickly to a point, 4-3 mm. long ; anal angle with double bluish white to lilac dots. *Underside*. Pattern rather complex, the ground colour of the cell and bases of 2-7 chestnut, crossed by black lines heavily edged in silvery white ; the lower discal bar pinkish, shading to orange distally, with a series of black dots down the mid line to 2 ; a submarginal row of black spots increasing in size to tornus, those from 3 to subapex accentuated with white ; border of wing more greyish with small orange marginal spots with black between. Hind wing basal ground colour chestnut, crossed by an intricate pattern of black lines strongly outlined in white, bordered distally by irregular discal bar, widest at costa then tapering to 2 but extending through the inner fold above the anal angle as a triangular patch ; beyond the bar, the border of the wing is olive-brownish, with a series of black ocelli outlined in white, the ocelli at anal angle and in space above with lilac spots ; on the admarginal a line of white and black linear marks, bordered by a marginal band of tawny-olive ; edge black with slight white line internally running into mid line of tails ; fringe slightly white.

FEMALE. Somewhat male-like but much larger, fore wing length 48 mm. *Upperside*. Base of fore wing slightly darker rufous chestnut ; the black marks similar, but the discal and postdiscal spots paler orange-ochre ; distal border of wing not so blackish, thus the marginal inter-nervular orange spots and white fringe slightly less distinct. Hind wing darker brownish at extreme base and brownish black on border ; the discal band rather narrow for size of insect, white at costa, more shaded with bluish on borders of lower half, especially in the cell ; border with orange admarginal spots duller and limited to the three or four above upper tail, those at upper angle distinct, the rest fading out ; a purplish spot at anal angle ; margin black, with white fringe especially strong at anal angle ; margin strongly serrate ; tails relatively short, 6-7 mm. *Underside*. General pattern as in the male but bolder, and distal borders of wings more olive.

The female lays on *Bersama abyssinica*. For full account of life history *vide* van Someren & Rogers, 1927-28.

Range : The nominate race of *Charaxes ansorgei* is confined to the high country west of the Rift Valley and is found in the outlying hills and forests of W. Mt. Elgon, on S. Elgon also on the east and in the higher riverine forests of the Trans Nzoia ; on the Nandi Hills, Lumbwa, Mau, Cherangani and Elgeyu. Specimens taken by Harrison, labelled " Nairobi " belong here.

***Charaxes ansorgei jacksoni* Poulton**

(Pl. 6, figs. 50, 54, Map 2)

Charaxes ansorgei Rothschild ; Butler, 1900 : 915.

Charaxes ansorgei Rothschild ; van Someren & Rogers, 1928 : 31-32, 153-156.

Charaxes ansorgei jacksoni Poulton, 1933 : 13.

MALE. Fore wing length 38-40 mm. ; shape as nominate race. *Upperside*. Ground colour fore wing slightly darker rufous chestnut, shading into the black marks which extend to 1b on the proximal side of the discal bar, this bar narrower than in nominate *ansorgei* ; the postdiscal spots darker than the discal and the dark spots indicating the line of junction of the two series more apparent ; the bar not more than 4 mm. wide at 1b, the distal black border thus slightly wider from tornus to 3. Marginal orange spots slightly stronger than in *ansorgei ansorgei*. Hind wing ground colour as in nominate race, the discal white patch, though narrow at costa, widens out more basad over cell area and is slightly tinged with blue ; the admarginal orange spots are bolder and often extend from upper angle to a point mid way between the tails ; the serrate margin is black with distinct white fringe ; the tails longer, 7-5 mm. *Underside*. Much as in nominate race but the chestnut areas of fore wing rather larger, as also are the black bars in bases of 1b-3 ; the pinkish ochreous discal band, shading into the postdiscal line, is narrower in 1a-2, the intervening dark spots reaching to 1b ; the submarginal black dots with the distal lunate white stronger and extending to the tornal black spots. Hind wing shows less difference, but the postdiscal black and white ocelli larger and more conspicuous in the olive border of the wing ; the marginal orange-olive border more defined.

FEMALE. Fore wing length 47-48 mm. *Upperside*. Ground colour darker rufous chestnut at base than in nominate *ansorgei*, so that the black spots show up less, but the spots of the discal series are white, slightly ochre tinged from 2 to subcosta, the spot in 4 is set well in and there are two tawny streaks between it and the costa ; the postdiscal spots are tawny-orange, distinct in the subapex and less strong to 3, so that the whole wing bar is narrow, 6 mm. in 1b. Hind wing much as in the nominate race but the discal white patch is wider, extending more proximad over the cell area ; the admarginal orange spots are strong from upper angle to upper tail, then obscured ; a blue and green mark present at the anal angle. Margin black, with white fringe which outlines the strong serrations and the tails, which are 7-6 mm. long. *Underside*. There is a similar difference on the underside of this race when compared with nominate *ansorgei*, as noted in the males. In the fore wing, the discal bar is whiter and narrower, in the hind wing the discal bar is narrower and whitish ; the postdiscal line of irregular ocelli is stronger and the ground colour is tinged with chestnut ; the marginal border stronger greenish orange, then olive green toward the tails, this colour running down the mid line of the tails, which are black bordered with white.

Range : This subspecies is found east of the Rift Valley in the high forests on the eastern side of the Aberdare Mountains and also at the south end in the upper Kikuyu country at Uplands and the Kirita forest on the Katamayu River.

A slightly differentiated aggregate is found on the eastern side of Mt. Kenya in the upper Meru forests and also on the Njombeni Range to the north east of Mt. Kenya. Too few examples are available for study to judge the constancy of the characters,

which are : female, fore wing length 50 mm. ; discal band entirely white and wider ; hind wing discal patch larger. Ground colour darker. Poulton (1932 : 800) records a female taken by Maj. Moysey on the high country between the Imatong and Acholi Hills in Southern Sudan, which may belong to a distinct race.

Charaxes ansorgei ruandana Talbot

(Pl. 6, figs. 51, 52, 55, 56, Map 2)

Charaxes ansorgei ruandana Talbot, 1938 : 289. [♀].

Charaxes ansorgei ruandana Talbot; Poulton, 1933 : [♂].

It is rather unfortunate that the name *ruandana* should have been selected by Talbot for this subspecies since the type locality is not within the country of Rwanda, but in Burundi ; it is also unfortunate that the type male should be one from further north-west, of Lake Tanganyika ; furthermore, the female figured by Poulton (1933, pl. 2, fig. 2) is one from the Congo-Uganda border. Poulton's quotation from LeCerf's communication indicates the differences to be found amongst the several aggregates of this very complex country. Although this area, taken as a whole, can be looked upon as an ecological entity within certain limits, the broken nature of the terrain due to mountain ranges and isolated ancient volcanic forested mountains, which originated during and after the period of rifting of the Western Rift, we find that certain montane species tend to break up into localized aggregates with no very decided characters to distinguish them. This is definitely so in the case of males of *ansorgei*, and the females are hardly at all known. However, until much more material becomes available, especially females, the subspecific name *ruandana* can be applied to the whole. I shall indicate the differences in the aggregates where possible.

MALE. a. (Topotypical, N.W. Lake Tanganyika, Grauer Coll., 5 specimens.) Fore wing length 37-38 mm. *Upperside*. Rufous chestnut at base of wing, darker than in nominate *ansorgei* and resembling more that of *jacksoni* ; pattern of black spots adjoining the discal pale bar heavier than nominate race but not so heavy as in *jacksoni* ; the upper discal-postdiscal orange spots forming the V clearer than in *jacksoni*, the conjoined spots from 3 to hind margin broader, but less broad than in nominate *ansorgei*, with the dark spots at line of fusion extending to 1b. Marginal spots smaller and paler. Hind wing discal white band very constricted at the upper end at costa at 6-7, the whole band narrower than in *jacksoni* ; admarginal orange spots small and rather indistinct. *Underside*. Fore wing pattern very similar to nominate race but bolder, the discal bar wider than in *jacksoni* ; distal border more olive and postdiscal ocelli bolder.

This agrees with type specimen figured by Poulton (1933, pl. 2, fig. 1).

b. (S.W. Uganda, Kigezi ; Ruhiza, Mafuga, Kanaba Gap). Compared with topotypical *ruandana*, the fore wing basal chestnut brighter, more rufous ; the discal-postdiscal orange bar wider at 1a-2 ; the hind wing discal white band wider and much less restricted at costal end ; admarginal orange spots stronger. Underside very similar to form (a) but hind wing white bar wider, especially at costal end.

c. (Mountains west of Lake Kivu). 3 specimens. Very similar to the S.W. Uganda form (b) in fore wing pattern ; hind wing white band as wide or wider at costal end. Underside similar.

FEMALE : a. No females are available.

b. (S.W. Uganda, Kigezi, Mafuga Forest.) Fore wing length 45–47 mm. *Upperside*. Base of wing chestnut ; black marks : one in upper part of cell, a line beyond end of cell, quadrate marks contiguous with the discal white spots from costa to 2 ; discal spots white or very slightly tinged ochre to 1b, streak in 1a white ; postdiscal spots : two upper ones white or slightly tinged ochre, a faint indication of other spot 3–2. Hind portion of band narrow, seldom more than 6 mm. wide at 1b. Distal portion of wing black ; marginal spots small. Hind wing brownish at base ; black border wide, admarginal spots obscured ; discal band slightly narrow at costa, then widening over disc and fading out in greyish inner fold, but narrower than in *jacksoni*. Cf. description of female and figure, Poulton (1933, pl. 2, figs. 2) from the Uganda–Congo border.

c. No females available from west of Lake Kivu.

The female lays on *Bersama abyssinica* var. Specimens were raised from larvae found on this plant at edge of Mafuga Forest, Kigezi, Uganda.

Range : Type female recorded from N.E. end Lake Tanganyika, 12 miles north of Usambura, (Urundi). Type male from N.W. Lake Tanganyika. Specimens placed to *ruandana* from forests west of Lake Kivu ; a long series from the high forests of Kigezi, S. W. Uganda : Mafuga, Ruhiza, Kanaba Gap. Also one specimen from Namwamba Valley, east side of Ruwenzori.

Ch. ansorgei ssp. nr. *ruandana* Poulton, 1933. Mention is made of a series of six males taken in the Kitembo area on the west side of Lake Kivu in 1931–32, at about 7–9,000 feet. The characters are : the fore wing band is much broader and more heavily marked with black than in *ruandana* ; the postdiscal spots rather larger and continued posteriorly as far back as area 1a ; the fore wing marginal spots more developed ; the hind wing band much broader and with no constriction toward costa. (Paris Museum).

Charaxes ansorgei kungwensis ssp. n.

(Pl. 8, figs. 65, 66, 69, 70, Map 2)

MALE. Fore wing length 40 mm. *Upperside*. Fore wing, general colour closely resembling nominate *ansorgei*, the basal areas of the wing being a bright rufous chestnut, but the black marks bolder, the discal and postdiscal orange spots paler, more orange ; the lower part of the discal bar wide, 7–8 mm. in 1b ; the marginal orange spots large and distinct. Hind wing, basal area brownish black, forming a rather strong angle with the greyish brown of the inner fold and accommodating the discal white patch, which has a rather strong black spot where the band is constricted below the costa, then widens out over the disc ; the band is almost as wide as in *jacksoni* ; and as in that race, the admarginal orange spots are large from upper angle to just above the upper tail, then more obscured to anal angle, which has a violet spot and a green admarginal line. Border as in other races ; tails short, sharply pointed, 3–4 mm. long. *Underside*. Basal chestnut of ground colour slightly more obvious, due to narrowing of black and white bars ; discal-postdiscal band wider and pinkish ochreous ; dark spots as in nominate race. Hind wing very like nominate, but fore part of discal bar wider and pinker.

FEMALE. Unfortunately, the only two females available for study are both rather battered but they are sufficiently good to show that the females of *kungwensis* differ from *ruandana* by having a considerably wider fore wing discal bar, the upper discal spots larger ; the two upper postdiscal spots are white, the remainder very obscured. On the hind wing the discal white

bar is wider than in *ruandana*. The underside is too worn to show up details, but the most obvious character is the increased width of both fore and hind wing discal bands.

Holotype male. TANZANIA: East shore, Lake Tanganyika, in Mahali forest on the Kungwe Peninsula, vii. 1954 (*T. H. E. Jackson*). In B.M.(N.H.).

Allotype female. Same data as holotype.

A series of six males and two females, not considered paratypes.

Range: Tanzania, East shore, Lake Tanganyika, Mahali forest, Kungwe Peninsula.

Charaxes ansorgei levicki Poulton

(Pl. 7, figs. 60, 64, Map 2)

Charaxes ansorgei levicki Poulton, 1933: 15.

MALE. Fore wing length 38–39 mm. *Upperside*. Fore wing, general tone of ground colour and pattern very similar to male of *ansorgei jacksoni*, the discal-postdiscal bar equally narrow; the black marks more distinct, and the orange marginal spots stronger, almost quadrate in some examples. Hind wing basal area blacker, the discal bar almost divided into two blocks in form and colour: the two upper costal spots long ovoid, the next small, all orange, the rest of the band a long "droplet" with the apex toward the anal angle, pale bluish with a whitish bar crossing it obliquely; admarginal orange spots large and distinct from upper angle to mid point between tails; border black with very thin white fringe; tails short, black, 4–5 mm. long. *Underside*. Fore wing, a basic pattern similar to other races but chestnut area strong in costal area; the dark bars at basal area of wing, especially in 1b–2, broadly black; the discal bar ochreous orange with a central pale line, the margin with orange and black spots. Hind wing discal band creamy with silvery sheen; the border ground colour chestnut with the row of ocelli strong; the margin reddish ochre, then more olive to anal angle; marginal line white and black, the white going up the middle of the tails.

FEMALE. Fore wing length 45–47 mm. *Upperside*. Fore wing, ground colour at base dark chestnut, shading to almost blackish toward the discal line, with the usual black marks in cell and beyond; upper discal spots are a streak in subcosta, followed by an elongate then quadrate spot, spot in 4 set well in, spots in 3 to hind margin increasing in size, the spot in 1b 6–7 mm. All spots in discal line yellowish ochre, slightly more whitish in 1a. Postdiscal spots in almost a straight line, those in 5–6 very slightly off-set, all spots bold and orange-ochreous in colour, spot in 2 may touch the lower point of discal mark. Border of wing deep brownish black; margin with distinct though not large orange marks. Hind wing basal triangle black, shading to greyish brown on inner fold; disc crossed by a wide cream-white band with slight greenish blue on inner border, greenish tinged on outer border. Border black, admarginal orange spots clear to upper tail, then more obscure to lower tail; margin black with thin white fringe; tails black, robust but tapering rapidly. *Underside*. Pattern basically similar to that of male, chestnut areas bold; black marks in mid wing strong; discal bar creamy white with ochre tinge proximally; border of wing orange-olive with submarginal arrow-head marks strong. Hind wing boldly marked, the discal bar creamy; the border of wing light chestnut to olive, with submarginal ocelli strong, that at anal angle and space above olive, black ringed; border orange-olive, black edged and outlined in white proximally, fringe white.

This race has been bred in some numbers on *Bersama abyssinica* at Njombe, S. Tanzania Highlands, by Dr. C. H. McCleery.

Range: The Southern Highlands of Tanzania, the Rungwe and Poroto Mts. Manow, Njombe, and Iringa; and on the Nyika Plateau in Malawi.



MAP. 3. Montane Forest areas, Eastern Africa (adapted from Vegetation Map, UNESCO, 1958), in relation to distribution of *Charaxes ansorgei* Rothschild and subspecies.

***Charaxes ansorgei kilimanjarica* ssp. n.**

(Pl. 7, figs. 57, 58, 61, 62, Map 2)

MALE. Fore wing length 38 mm. *Upperside*. Fore wing, general colour and pattern very similar to *levicki* and as dark, the black marks proximal to the discal line slightly heavier; the discal and postdiscal spots conjoined from 3-1b, the postdiscal series slightly darker rufescent than the discal; border of wing black, with orange spots on margin well developed. Hind wing as in *levicki* but orange marks in upper part near costa more defined as three streaks, the lower part of band a long ovoid, bluer and smaller than in *levicki*. The admarginal orange spots large and extending to just above lower tail. Tails slightly longer and thinner, 5 mm. *Underside*. Basic pattern as in *levicki*, fore wing white lines more silvery; the discal bar narrower. Hind wing white lines and the discal bar silvery; submarginal marks bolder, the mark opposite the upper tail is a strong silvery rosette, ocelli below dark olive ringed in black, that at anal angle olive, ringed in black and with two blue dots.

FEMALE. Fore wing length 45 mm. *Upperside*. Fore wing, basal area slightly darker chestnut than *levicki*, thus black marks more obscured. Discal and postdiscal spots as in *levicki* but spots in 2-3 touch, all spots orange-tawny; marginal spots small and may be partially obscured. Hind wing discal band narrower than *levicki*, first two marks at costal end square-cut on inner ends and forming a defined angle with the expanded patch over the disc, the costal marks ochreous, the rest white with a blue suffusion on the borders. Admarginal spots strong. Hind wing discal bar narrow; the ground colour of the border lighter olive-chestnut; the submarginal marks bold, the spot in 6 strongly silvery, that in 4 a silvery rosette outlined in black, the lower spots bold and olive, ringed in black, that at anal angle with two lilac spots; border orange with olive tinge edged black and white as in the male.

Holotype male. TANZANIA: Western foot hills, 6-7000 ft., Kilimanjaro. ii. 1964 (*A. Brown & J. G. Williams*). In B.M.(N.H.).

Allotype female. Same data as holotype. In B.M.(N.H.).

Range: Known only from the western side of Mt. Kilimanjaro, Tanzania.

***Charaxes ansorgei rydoni* ssp. n.**

(Pl. 7, figs. 59, 63, Map 2)

Two male specimens, unfortunately very damaged, were taken recently on the Usambara Range, Tanzania. They belong to the southern group of *ansorgei* in that the hind wing band is bicolored as in *levicki*. One specimen, though damaged, is reasonably fresh.

MALE. Fore wing length 40 mm. *Upperside*. Fore wing, colour brighter chestnut at base than in either *levicki* or *kilimanjarica*, more like *ruandana*, so that the black marks stand out strongly to 1b. The discal and postdiscal series of orange-tawny spots well developed, conjoined from 3 to hind margin 1b, the band relatively narrow, but wider than *kilimanjarica* and paler; marginal spots very bold. Hind wing discal band in two sections, the upper part at costal end orange-tawny, the third mark not strongly defined, the bluish white portion of the band larger and paler than *kilimanjarica*, even larger than in *levicki* and extending basad in cell area; marginal orange spots large and bold and extending to lower tail; there is also a short blue line in the black border basad to the tails. *Underside*. Less dark than in either *levicki* or *kilimanjarica*, the chestnut basal areas paler and conspicuous, but the black marks of sub-base in 1b large and linked up with black mark sub-basad in 2; the discal bar comparatively narrow, mostly orange, slightly paler on proximal side; marginal spots strong. On the hind

wing the chestnut patches are conspicuous ; the discal bar narrow ; the submarginal irregular marks strong in the olive-chestnut ground, which fades to olive-ochre toward the anal angle ; the marginal border orange, then orange-olive to anal angle ; edge narrowly white and black.

Holotype male. TANZANIA : Usambara Range, Magamba Forest, nr. Lushoto, 8.x.1962 (A. H. B. Rydon). In B.M.(N.H.).

Female unknown.

Range : Known only from the higher forests of the Usambara Range, Tanzania.

SYSTEMATIC LIST

Charaxes ansorgei Rothschild

Charaxes ansorgei ansorgei Rothschild, 1897. Type male. Type locality, Patsho, Nandi ; in B.M. (N.H.). Type female. Type locality, Lumbwa, W. Mau in University Museum, Oxford.

Range : Uganda, W. & S.W. slopes of Mt. Elgon ; Bufumbo, Bulago, Butandiga, Mt. Kokamjero. N.W. Kenya, eastern slopes of Mt. Elgon, Trans Nzoia, Kitale, Turbo, Nandi forests, Lumbwa, Kericho, Mau, Elgeyo, Cherangani. All west of the Rift valley.

Charaxes ansorgei jacksoni Poulton, 1933. Type male. Type locality, Katamayo Riv. Uplands, Upper Kikuyu ; in University Museum, Oxford. Allotype female, Roromo, Kikuyu ; in B.M. (N.H.).

Range : Kenya, east of the Rift Valley, in high forest of the Kikuyu country : Uplands, Katamayo ; eastern Aberdares, Mweiga, Moyo.

Specimens from Mt. Kenya at Embu, Meru and Njombeni Range, slightly different.

Charaxes ansorgei ssp. (?) Poulton, 1932, records a female taken by Maj. Moysey on the high country between the Imatong and Acholi Hills in Southern Sudan.

Charaxes ansorgei ruandana Talbot, 1932. Type female. Type locality. 12 miles north of Usambura, north end of Lake Tanganyika, Kibera Forest, Burundi. In B.M. (N.H.).

Allotype male. Type locality. N. W. Lake Tanganyika. In B.M. (N.H.).

Range : (Nominate form) Mountains N.E. and N.W. of Lake Tanganyika. (Atypical form) : Mountains east of Lake Kivu ; Uganda : In Kigezi, S.W. : Mafuga, Kanaba Gap, Ruhiza ; Ruwenzori eastern side, Nawamba Valley. These are slightly different and agree with specimens from west side Lake Kivu, in Congo : Lushasha, 2°22'S, 38°51'E ; Bobandana, 1°42'S, 29°E. ; Katana, 50°S, 22°9'E.

Charaxes ansorgei kungwensis ssp. n.

Range : Tanzania: Mt. Kungwe, Mpanda district east side Lake Tanganyika. Types in B.M. (N.H.).

Charaxes ansorgei levicki Poulton, 1933. Type male. Type locality. N. Lake Nyasa (no exact loc.) Allotype female. Manow, north of Lake Nyasa in S. Tanzania, west of New Langenberg. In B.M. (N.H.)
Range: The southern Tanzania Highlands: Porto, Rungwe, Manow, Njombe and Owindi; extending to the Nykka Plateau in N. Malawi.

Charaxes ansorgei kilimanjarica ssp. n.

Range: Known only from the western slopes of Mt. Kilimanjaro at Wasendo, 6000 ft. Types in B.M. (N.H.).

Charaxes ansorgei rydoni ssp. n. Kilimanjaro at Wasendo, 6000 ft. Type ♂.

Range: Tanzania, Usambara Range, high forests at Lushoto. In B.M. (N.H.).

***CHARAXES POLLUX* CRAMER AND ITS SUBSPECIES**

This is a common species with an almost continuous distribution from the West Coast of Africa to Kenya on the east, extending southward on the western side to North Angola and Katanga, and on the eastern side to Mozambique and Rhodesia but not extending into Transvaal. (Map 4.)

It has been divided into two main aggregates, a northern group and an eastern group with some evidence of transitionals in the south-east of Katanga Province of the Congo and in Zambia. The subspecies will be discussed in detail hereafter.

It is mainly a forest species, but is also found in gallery forest and heavy woodland associated with its food plants, which in Eastern Africa are: *Bersama abyssinica* et ssp., (Melanthaceae), *Fluggea microcarpa* (Euphorbiaceae), *Deinbollia kilimanjarica* and *D. burbonica* (Sapindaceae). I cannot find any records of the species having been bred on the West Coast.

A full synonymy is given by Rothschild & Jordan (1898-1900) and need not be repeated here, but will be modified, as necessary, when dealing with the geographical races.

The manuscript name *euronotus* Le Cerf appears under the series of *Charaxes pollux* from Mozambique and Rhodesia, in both the British Museum (Natural History) and the Paris Museum and in the latter, one specimen bears a type label. Extensive search through relevant literature has failed to provide evidence that this name was ever published.

***Charaxes pollux pollux* Cramer**

(Pl. 9, figs. 75, 76, 79, 80, Map 4)

Charaxes pollux Cramer, 1775: 61.

Charaxes pollux Cramer; Rothschild & Jordan, 1900: 427.

Charaxes pollux pollux Cramer; van Someren & Rogers, 1927-28: 146-149. [Life history.]

MALE. Fore wing length 36-40 mm.; *Upperside*. Fore wing, outer border very slightly concave at 3-4; basal area rufous tawny, followed by a broad, orange-tawny, disco-postdiscal band, broken in the upper half by black marks, one at upper angle of cell, a black quadrate spot at end of cell, sometimes joined to black mark basal in 3, a black mark beyond continuous with black mark in 4 and forming a triangle, a further triangular black mark separating the two

arms of the V of orange marks of the upper part of disco-postdiscal band, which is slightly incurved at 3-4. Border broadly black, almost uniform in width, sometimes with very small tawny internervular spots on margin. Hind wing basal triangle rufous tawny, slightly paler toward costa, merging into tawny greyish on inner fold, the outer edge almost straight; discal band orange-tawny, paler at costal end, narrowing toward inner fold above anal angle; outer border almost straight, leaving a broad black border 10 mm. wide at 4-6, without any tawny spots on admargin; two bluish spots in anal angle often tinged violet; fringe narrowly white between veins; margin strongly serrate; tail moderately long 5-4 mm., sharply pointed. *Underside*. Basal half of fore wing rusty chestnut, with heavy black bars outlined in silvery white, the black bars in sub-bases of 1b-3 heavier and edged in white; the disco-postdiscal band whitish ochre, shading to orange distally; the postdiscal line with a series of black linear marks from subcosta to 2; border of wing tawny rufous with triangular black marks outlined in white to bluish in submarginal zone, blacker at tornus; border of wing more rusty with black marks at ends of veins. Hind wing, basal half up to discal bar deep chestnut, divided up into segments by silvery lines, the costal and subcostal ones double, the lines in the centre of the disc forming a somewhat diamond-shaped mark; black and white marks on inner fold form elongate triangles, with apices toward base of wing. Discal bar comparatively narrow, silvery white to buffish, clear cut on inner edge but more diffuse on outer, where it merges into the rusty tawny olive of the wide border; in the mid line of the latter there is a chestnut zone bordered in the postdiscal line by rather irregular black triangles edged with white; and in the submarginal line by linear black marks; anal angle with a large greyish ocellus outlined in black and with two lilac central spots; border rufous tawny shading to greenish olive on anal angle; edge black.

FEMALE. Fore wing length 45 mm., (average). Very similar to the male, but larger and usually paler. Shape as male. *Upperside*. Fore wing pattern like male, basal colour similar or slightly paler; black spots basad in 2-3 may be less strong. Black border wide, margin with very small tawny spots, usually complete. Hind wing pattern similar to that of male, but discal band may be paler; black border wide, without any yellow spots or just the slightest indication of a spot at upper angle.

Anal angle with or without blue spots. Margin serrate, with slight white fringe. Tails long, upper 8 mm., lower 5 mm. *Underside*. General pattern as in the male but lower portion of discal bar fore wing wider, and the series of linear black marks from costa to 2 in disco-postdiscal line stronger; the submarginal triangular spots stronger; the marginal border interrupted by black streaks through 5-6, the black marks shorter. Hind wing pattern as in the male but bolder; the postdiscal black and silvery marks stronger, especially that in 4, which is more silvery; submarginal lunate black marks strong; ocellus at anal angle very bold; admarginal rusty brown with olive tinge, more olive toward anal angle; margin black with slight white fringe. In older specimens the chestnut bases and border tend to be paler and brighter.

Variation: a. Very similar to nominate form but subcostal and sub-basal black marks 3-4 of fore wing greatly reduced or obsolete. Sex not stated; but a female character. *Var. ongeus* Stoneham (1932: 2).

b. A strongly marked colour variety in which the basal areas are darker than usual and the black borders more intense blue-black. Sex not stated. . . . *Var. bungense* Stoneham (1932: 2)

Both are trivial variations.

c. Original description: "♂ *Upperside*: Fore wings with the whole of the black subcostal and discal spots fused together with the marginal border, so that rather more than the apical third of the wing is solidly black; all the yellow discal spots above vein 3 obliterated. *Underside*: The ground colour of the whole of the costal area of fore wings is white, without any trace whatever of the red patches of *pollux*; black spots normal, the post-discal spots between vein 3 and the costa more broadly bordered with silvery grey. Hind wings normal, but the white discal band a little broader than usual."

Sierra Leone. . . . *ab. subalbescens* Hall (1930: 279).

Range: The nominate subspecies, with slight variations not related to environment, ranges from the West African countries of Guinea, Sierra Leone, Ghana, Nigeria, Cameroon, Gabon, Congo Republic, Central African Republic, Katanga and north Angola to parts of Zambia bordering on Katanga, thence to Rwanda, Burundi, Uganda and southern Sudan, to N.W. Kenya, Elgon, Mamdi, Sotik, Mau then across the Rift Valley to the Aberdares, Mt Kenya, Meru and Kikuyu to the Nairobi District.

Charaxes pollux geminus Rothschild

(Pl. 8, figs. 67, 68, 71, 72, Map 4)

Charaxes pollux geminus Rothschild in Rothschild & Jordan, 1900 : 497.

Charaxes pollux geminus Rothschild ; van Someren & Rogers, 1927-28 : 149.

Charaxes pollux zingense Stoneham, 1932 : 2, **syn. n.**

Rothschild was in error when he referred to the specimens of *Charaxes pollux* Trimen (nec Cramer) as belonging to *geminus*. (See under *gazanus* ssp. n.)

The subspecies *geminus* Rothschild, is a mixed aggregate, as indicated in the original description. It consists of three forms which occur together, in greater or lesser degree, within the type area and throughout its distribution ; the forms are : (a) typical *geminus* (as type) ; (b) a transitional form and (c) which is very like nominate *pollux* but with narrow black borders to both wings.

MALES. a. Nominate *geminus* from Lauderdale, Malawi. Similar to nominate *pollux* in general appearance but upperside of fore wing disco-postdiscal band wider from 3 to hind margin and slightly paler, thus reducing the width of the black border, which has rather strong tawny spots on the margin ; hind wing discal band wider, the black border reduced in width in consequence ; the admarginal with conspicuous orange tawny spots, distinct above upper tail, less so at tails, the spots well divided by black ; anal lobe with one blue spot. Tails rather thin and sharply pointed. Border of wing serrate. The underside exhibits a broader discal band ; the basal pattern of fore wing as in nominate *pollux* but arrow marks in submarginal border rather more distinct from sub apex to tornus. Hind wing pattern basically similar to nominate race but discal band very slightly wider ; the ground colour of the border slightly paler so that the postdiscal and submarginal dark marks show up more distinctly, the anal ocellus clear. (Pl. 8, figs. 67, 71, type.)

b. Topotypical : in this form the fore wing marginal tawny spots are as well developed as in the type *geminus*, but the hind wing admarginals are clear above upper tail but obscured to anal angle. Pl. 8, fig. 68.

c. Topotypical. Fore wing marginal spots minute, those of the hind wing admarginal limited to one or two at upper angle ; black borders narrow. Pl. 8, figs. 72.

FEMALES. This sex exhibits variations similar to those in the males. Since all three forms are found in and around the type locality and throughout Malawi extending northward to Tanzania, the Kenya coastal belt and adjacent hinterland, the name *geminus* must apply to all forms within this aggregate. It should be noted however that the nominate *geminus* form is found almost to the exclusion of the others along the Kenya coastal belt and inland to the Teita Hills and the Taveta Forest, on the Usambara Range and on the foothills of East Kilimanjaro.

The name *zingense* Stoneham, proposed for specimens from the Kenya Coast just north of Mombasa is a synonym of nominate *geminus*.

Range : From Malawi and adjacent parts of Zambia east of the Loangwa Valley, north through southern Tanzania to Usambara, the coastal belt of Kenya and hinterland, Teita Hills, Taveta to East Kilimanjaro.

When this paper was in galley proof, a new subspecies of *C. pollux* was recognised. For its description, see Appendix, p. 316.

***Charaxes pollux gazanus* ssp. n.**

(Pl. 9, figs. 73, 74, 77, 78, Map 4)

Charaxes pollux Trimen, 1894 : 41, nec Cramer, 1775.

Charaxes geminus Rothschild ; Pinhey, 1948 : 284.

When Trimen reported on the F.C. Selous collection of butterflies from Manicaland in 1894, he made the following observation : " A female from Christmas Pass and male from Mineni Valley . . . are both distinguished from West African examples . . . by possessing considerably larger ochre-yellow spots . . . on the margin of the fore wing . . . and a complete and conspicuous series of ochre-yellow lunules along the entire (*outer*) margin of the hind wings ; . . . they further both lack the . . . lowermost black spots between 2nd and 1st median nervules . . . " Trimen adds further that he believed these specimens to be the furthest south-east records of the species.

Rothschild (1900 : 497) quoted this reference as applicable to his subspecies *geminus* but he selected as the type of his new subspecies a specimen from Lauderdale, Malawi which belongs to a different ecological race, and he mentions other specimens from Zomba, also in Malawi. The low Zambesi Valley is the ecological barrier between the Malawi and the Manicaland-Gazaland aggregates.

MALE. Fore wing length 38–40 mm. but on an average smaller than the nominate *pollux*. *Upperside.* Fore wing, general pattern similar to other subspecies but basal and discal areas wider and paler, the disco-postdiscal band wider, the bars being fused up to area 6 ; the subcostal black areas reduced, the black spots in 3–2 reduced, often missing in 2 ; the marginal black border thus reduced in width and on its margin are conspicuous ochre-yellow spots complete from apex to tornus. Hind wing basal discal band paler and wider with a consequent reduction in the width of the black border which carries a conspicuous and complete row of admarginal ochre-yellow lunules almost contiguous and only narrowly separated by black veins. *Underside.* Fore wing generally paler than in other races, the white edging to the basal black lines slightly more conspicuous ; the disco-postdiscal band wider ; ground colour of border paler so that the submarginal dark arrow marks and the marginal internervular marks are more conspicuous. Hind wing generally paler, the discal pale band usually wider, and the marginal lunules more conspicuous. A few males may be more strongly orange-tawny at bases of wings, but the general paler pattern is maintained.

FEMALE. Fore wing length 43–45 mm. *Upperside.* Fore wing, pattern very similar to that of the male, exhibiting a general paleness compared with females of other races ; the disco-postdiscal band considerably wider and the black marks in 3–4 reduced in size ; the black border narrower but the marginal orange-ochre spots large. In the hind wing, there is a corresponding narrowing of the black border but the admarginal ochre-yellow lunules are large and very conspicuous and continuous to lower tail. *Underside.* This exhibits a corresponding paleness due to the increase in the width of the disco-postdiscal bands ; the hind wing with more conspicuous marginal lunules.

Holotype male. S. MOZAMBIQUE : Amatongas, v. 1962 (G. van Son).

Allotype female. Same data as holotype. Types ♂, ♀ in Transvaal Museum.

Paratypes. Same data, in British Museum (Natural History) presented by Transvaal Museum. Other paratypes in the National Museums of Rhodesia, Bulawayo and in the National Museum (Coryndon Museum), Kenya, from Vumba Mountains.

Range : This southern race inhabits the area of Manicaland-Gazaland to Amatongas in S. Mozambique and extends to the Vumba Range to as far as Mt. Selinda, Rhodesia. It does not appear to go north of the Zambesi River nor south to the Transvaal.

SYSTEMIC LIST

Charaxes pollux Cramer

Charaxes pollux pollux Cramer, 1775, Type locality : " Guinea ".

Range : West Africa, Guinea, Sierra Leone, Ghana, Nigeria, Cameroon, Gabon, N. Angola ; Congo Republic and Katanga and adjacent area of Zambia west of the Loangwa Valley, Rwanda, Burundi, S. Sudan. Uganda to N.W. Kenya, Elgon, Nandi, Sotik and Mau then crosses the Rift Valley to the Aberdares, Kikuyu to Mt. Kenya and Meru and in the Nairobi district.

Charaxes pollux geminus Rothschild, 1900. Type locality : Lauderdale, Zomba, Malawi.

Range : Malawi and adjacent Zambia east of the Loangwa Valley ; southern and eastern Tanzania to Kenya coastal belt and hinterland to Teita and East Kilimanjaro.

Charaxes pollux maua ssp. n. Type locality : western foothills, Mt. Kilimanjaro, Maua. (See Appendix).

Range : western foothills, Mt. Kilimanjaro and Mt. Mweru.

Charaxes pollux gazanus ssp. n. Type locality : Amatongas.

Range : Southern Mozambique, Manicaland and Gazaland, eastern Rhodesia, Vumba Mts. to Mt. Selinda.

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REFERENCES

Full details of references will be found in earlier parts of this issue.

- VAN SOMEREN, V. G. L. 1963. Revisional Notes on African Charaxes (Lepidoptera : Nymphalidae). Part I. *Bull. Br. Mus. nat. Hist. (Ent.)* **13**(7) : 195-242, 19 pls, 5 text-figs.
 — 1964. Part II. *Ibid.*, **15** (7) : 181-235, 23 pls, 4 maps.
 — 1966. Part III. *Ibid.*, **18** (3) : 45-100, 16 pls, 5 maps.

APPENDIX

Charaxes pollux maua ssp. n.

Specimens of *pollux* from the foothills of Western Kilimanjaro differ appreciably from *p. geminus* Rothschild of Malawi and the Tanzania coastal belt, the Kenya coast to the Teita Hills of the hinterland. Whilst retaining some of the characters of *geminus*, i.e. the orange spotting on the submargin of the hind wing, the West Kilimanjaro insects are generally darker above and below, in both sexes.

MALE. Fore wing length 39-40 mm. *Upperside*. Basal triangle rufous chestnut, darker than in *geminus* and in greater contrast to the orange disco-postdiscal bar ; subcostal black marks bolder and stronger ; the marginal black border wider from 4 to apex ; marginal orange spots distinct. Hind wing basal area darker so that the subcostal portion of the discal band is noticeably creamy but stronger orange toward the inner fold above the anal angle ; black border wider, with large orange spots 4-5 in number, decreasing in size from upper angle to upper tail. *Underside*. Pattern strong and darker than in *geminus*.

FEMALE. *Upperside*. follows the general darker tone and wider black border, noted in the male. *Underside* also darker and more boldly marked.

Holotype male. TANZANIA : western foothills, Mt. Kilimanjaro, Maua, ix. 1966 (African collector for Major Grahame).

Allotype female. Same data. Types will be deposited in B.M. (N.H.).

A long series of both sexes, taken over a period of three months in 1966 and throughout all months during previous years, exhibits a constancy in characteristics throughout the year.

Range : In the forested areas of the foothills of western Mt. Kilimanjaro and Mt. Meru, 6-9,000 ft. Arusha, Ngurdoto Crater, 1963 (*A. H. Rydon*) ; Maua Estate, West Kilimanjaro (*A. F. Brown*) ; Lyamungu Moshi, Marangu.

On map 4 the sign for *pollux geminus* west of Mt. Kilimanjaro refer to this new subspecies.

PLATE I

Charaxes ethalion Boisdual

Figs. 1 and 2. *ethalion* Boisd., ♂ (Portuguese East Africa) and ♀ (Vumba District, Bomponi), upper and undersides.

Fig. 3. *ethalion* ♀ form *rosae* Butler, ♀ (Rhodesia: Umtali), hind wing discal bar much reduced in upper half.

Figs. 4 and 7. *ethalion* ♀ form *rosae* Butler, Type ♀ (Natal), upper and underside. Photos B.M. (N.H.), Nos. 34015 and 34016.

Figs. 5 and 8, 6 and 9. *pondoensis* ssp. n., Holotype ♂ (Pondoland, Port St. Johns) and Allotype ♀ (Bashee River), Bridges leg., upper and undersides.

Approx. 2/3 natural size.

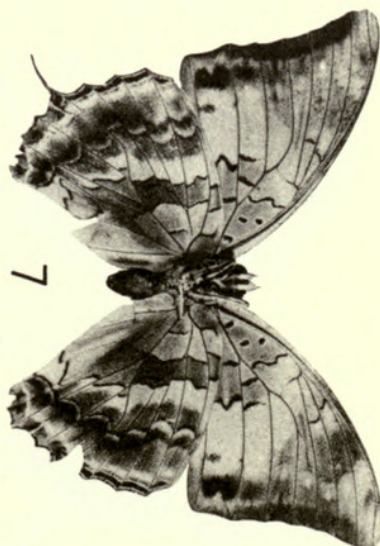
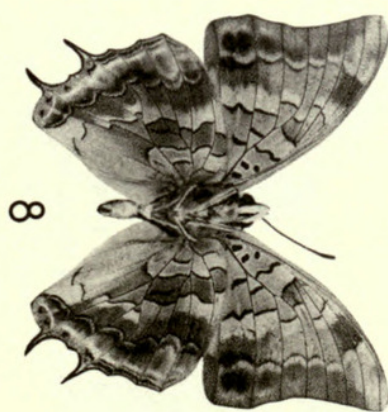
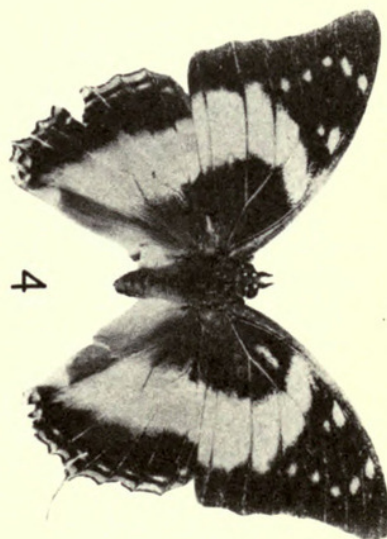
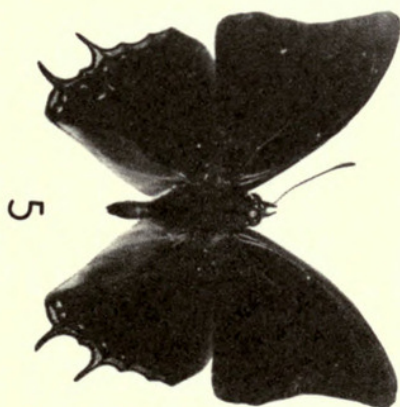
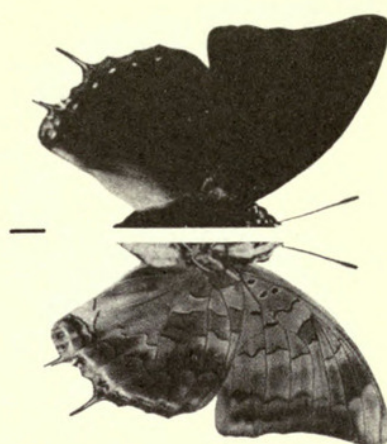
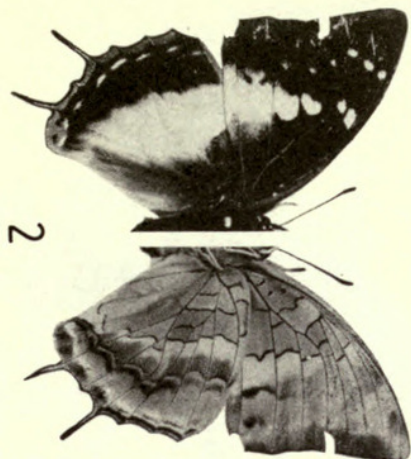


PLATE 2

Charaxes ethalion Boisduval

FIG. 10. *ethalion* ♀ form *swynnertoni* Poulton, ♀ (Portuguese East Africa : Amatongas), upper and underside.

FIGS. 11 and 12. *nyasana* ssp. n., Holotype ♂ (Lake Nyasa, Nkata Bay), Handman leg., upper and underside.

FIGS. 13 and 14. *nyasana* ♀ form *nyasana* forma n., Allotype ♀ (Malawi [Nyasaland] : Mlaye), fore wing spots white, no spot in cell or 4 of distal row ; hind wing bar narrower, strongly blue on lower portion, upper and underside.

FIG. 15. *nyasana* ssp. n., ♀ variety (Lake Nyasa, Nkata Bay), base of wings with green sheen ; spot in cell and base 4 ; all spots large and white ; hind wing discal band white extending proximad, upper and underside.

FIGS. 16 and 17. *nyasana* ♀ form *initians* forma n., Type ♀ (Malawi [Nyasaland] : Mlaye, Mlosa stream), fore wing white bar wide at costa ; hind wing band strongly blue, upper and underside.

FIG. 18. *nyasana* ♀ form *initians* forma n., ♀ (Malawi [Nyasaland] : Mlaye), hind wing band very narrow, not reaching costa ; strongly blue, upper and underside.

Approx. 2/3 natural size.

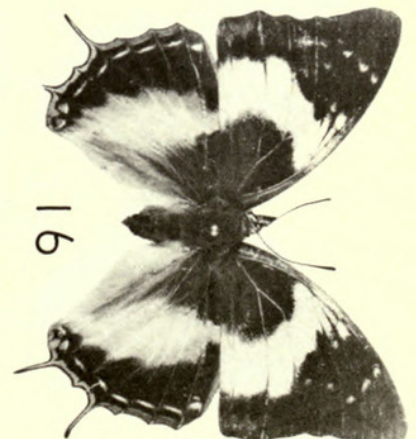
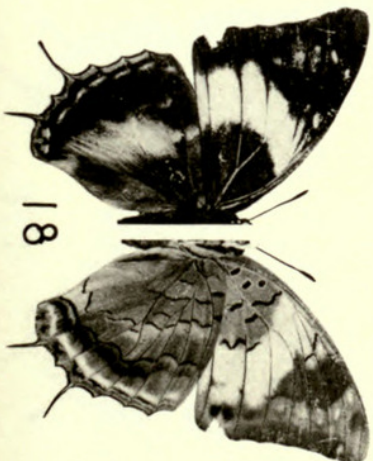
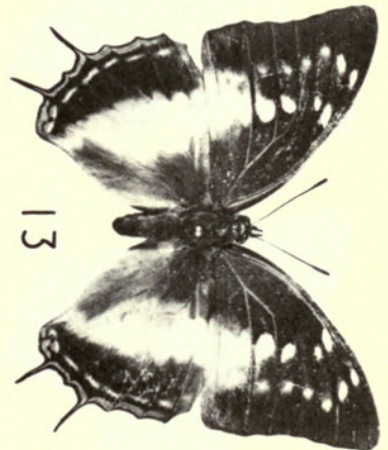
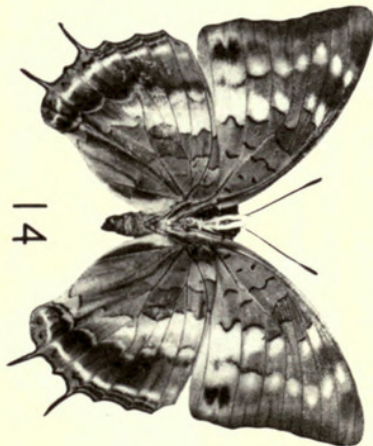
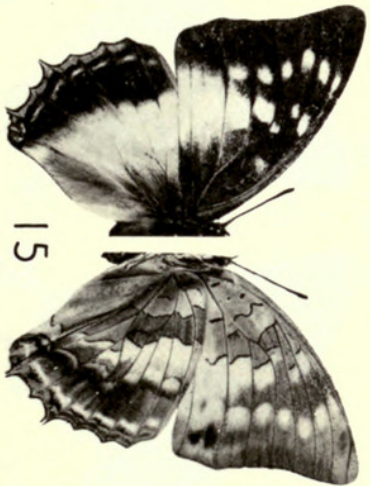
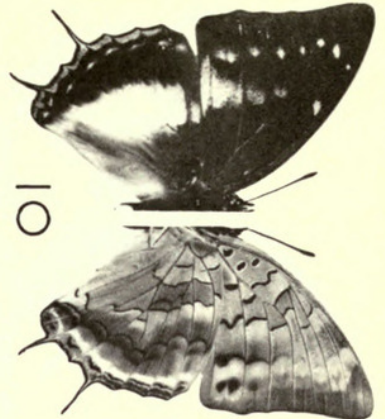
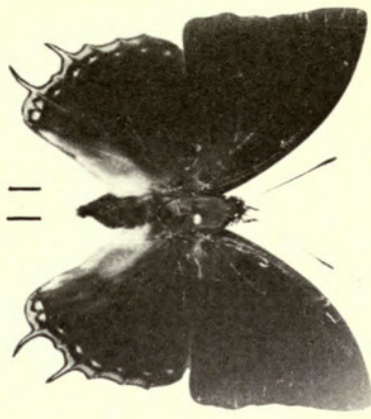


PLATE 3

Charaxes ethalion nyasana ssp. n.

FIGS. 19 and 22. Variety of ♀ form *imitans* forma n., (Mlanje, Chitakali), fore wing discal curved bar very narrow and broken ; spot beyond cell large, postdiscal spots, except in subapex, missing ; hind wing band reduced, strongly blue, upper and underside.

FIGS. 20 and 23. ♀ form *suppressa* forma n., Holotype ♀ (Malawi [Nyasaland] ; Port Herald, Mlosa stream), fore wing discal bar almost entirely suppressed ; postdiscal spots strong and complete ; hind wing band strongly blue, upper and underside.

FIGS. 21 and 24. ♀ form *demaculata* forma n., Holotype ♀ (Malawi [Nyasaland] : Luger stream), fore wing discal bar strong but postdiscal spots almost absent ; hind wing band goes to costa but is narrow, white in discal line, strongly blue on borders, upper and underside.

FIGS. 25 and 28. ♀ form *cithaeronoides* approaching form *swymertoni* (Malawi [Nyasaland] : Port Herald), fore wing spots large, mauvy blue ; hind wing band white with mauvy blue suffusion, upper and underside.

FIGS. 26 and 29. ♀ form *cithaeronoides* forma n., Type ♀ (Malawi [Nyasaland] : Mlaye, Mlosi stream), fore wing spots greeny blue ; hind wing band strongly greeny blue upper and underside.

FIGS. 27 and 30. ♀ form near *rosae* (Lake Nyasa, Monkey Bay), fore wing bar and spots beyond well developed ; hind wing band broad, reaching costa ; mostly white especially in disc, faintly blue on borders, underside strongly marked, upper and underside.

Approx. 2/3 natural size.

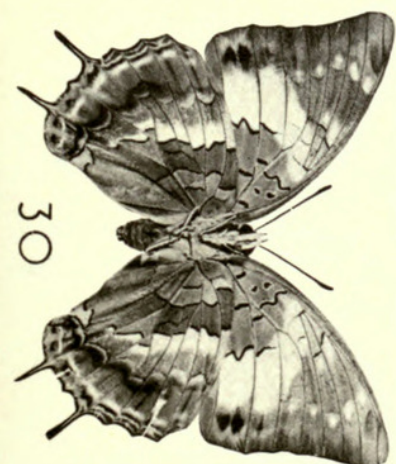
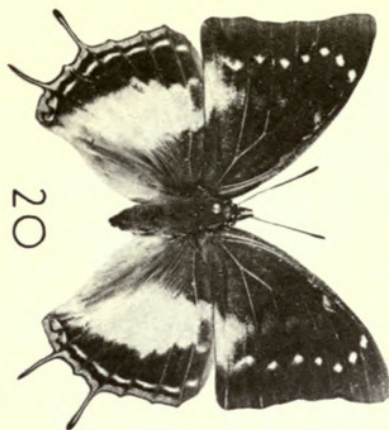


PLATE 4

Charaxes ethalion Boisduval

FIG. 31. *nyanzae* ssp. n., ♀ *rosae* pattern (E. side Lake Tanganyika, Kungwe).

Figs. 32 and 33. *nyanzae* ♀ form *howardi* van Someren & Jackson, Type ♀ (Kenya: Chepalungu), *rosae* pattern but fore wing curved band very wide in lower portion, upper spots large; all pale marks in fore and hind wings ochreous, upper and underside. Photos B.M. (N.H.), Nos. 35017 and 35018.

Figs. 34 and 35. *nyanzae* ssp. n., ♀ *ethalion* pattern (E. side of L. Tanganyika, Mpanda-Kungwe), fore wing discal spots large, an extra spot in 4; upper spots white, lower strongly blue; hind wing band wide, narrowly white in discal line, strongly blue on borders, upper and underside.

FIG. 36. *kikuyuensis* ssp. n., ♀ *ethalion* pattern (Kenya: Nairobi District), fore wing discal and postdiscal spots white, slightly bluish over 1a-1b; hind wing band very broad, white in disc, borders slightly bluish, upper and underside.

FIG. 37. *littoralis* ssp. n., ♀ *ethalion* pattern (Kenya Coast: Sekoke-Arabuku forest), fore wing discal and postdiscal spots conjoined in posterior area, rayed in upper, spots large, discal bar wide; hind wing band very broad even toward costa, white with pale blue on borders, upper and underside.

FIG. 38. *littoralis* ssp. n., ♀ (Kenya Coast: Shimba Hills, Kwale), fore wing discal bar narrow, no spot in cell or base 4, white with slight bluish on hind margin in 1a; hind wing band going through to costa, rather narrow, white in disc, strongly blue on borders, upper and underside.

FIG. 39. *littoralis* ssp. n., ♀ (Tanzania [Tanganyika]: Usambara Range, Amani), fore wing discal bar reduced in width, postdiscal spots small but clear; hind wing band white, extending to costa, strongly white in discal line, bluish on borders, upper and underside.

Approx. 2/3 natural size.

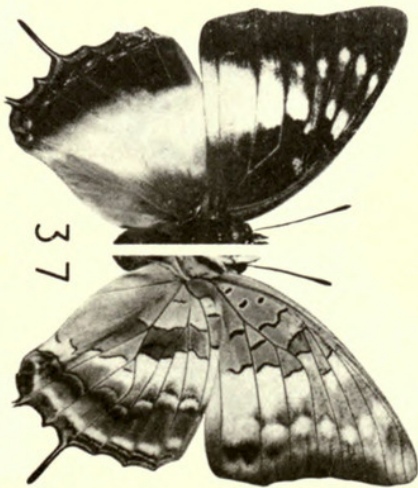
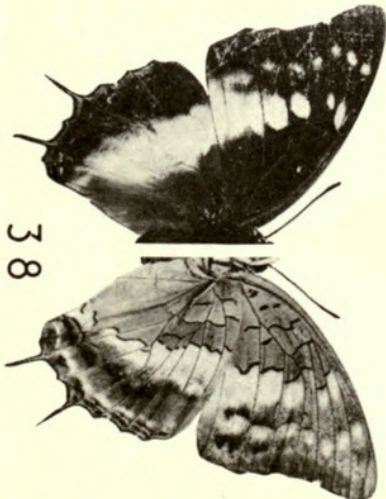
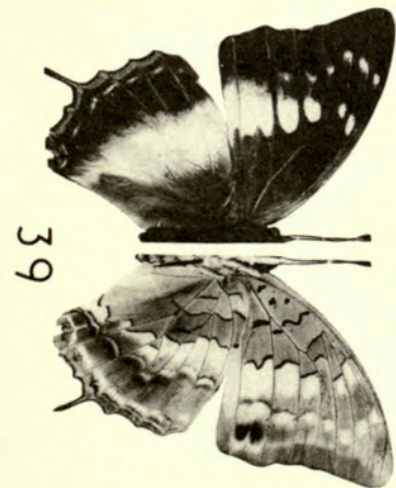


PLATE 5

Charaxes ethalion Boisduval

FIGS. 40 and 43, 41 and 44. *marsabitiensis* ssp. n., Holotype ♂ and Allotype ♀ (Kenya : Northern Frontier Province, Mt. Marsabit), fore wing of ♀ with upper discal and postdiscal spots white, though spots in ra-rb are mauvy blue ; hind wing band mauvy blue ; submarginal linear marks strong, upper and underside.

FIGS. 42 and 45-48. *nyanzae* ssp. n., ♂ and 4♀, (North-eastern side Lake Tanganyika, Kungwe and Kigoma region at Mukuyu), Group 4 Region 4 ; 45 and 46, ♀ *ethalion* pattern variety ; 47, ♀ *swynnertoni* pattern ; 48, ♀ *rosae* pattern ; these ♀ forms are characterized by very bold, enlarged patterns. Cf. Plates 2 and 3, ♀ of *nyasana*, upper and undersides. Specimens in Coll. I. Grahame.

Approx. 2/3 natural size.

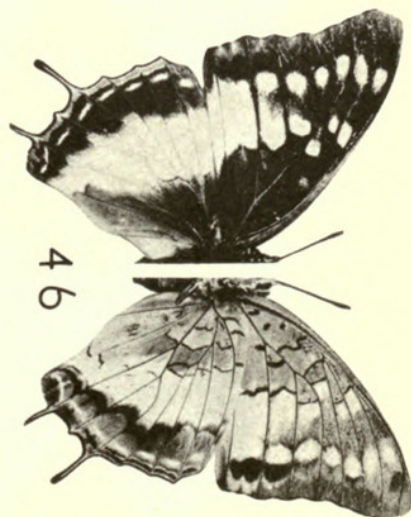
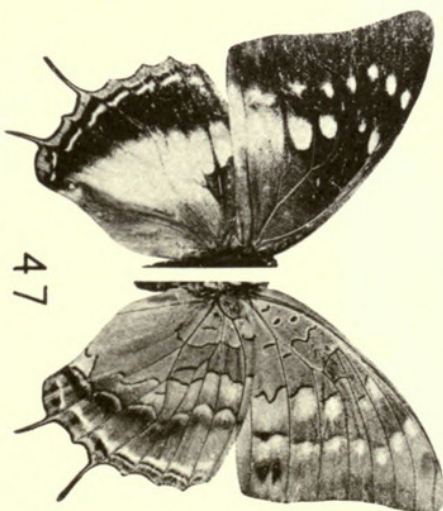
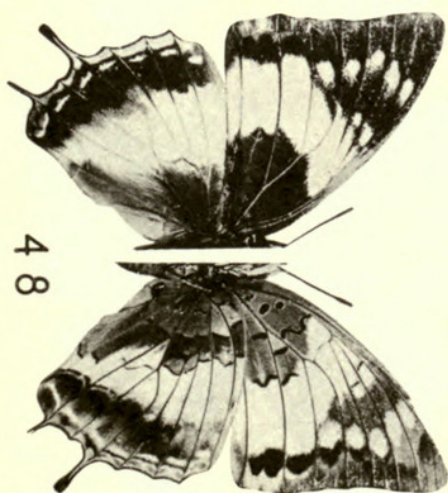
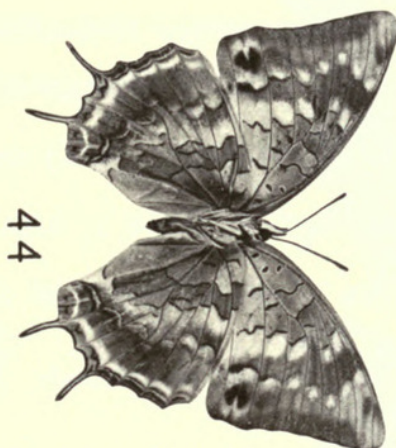
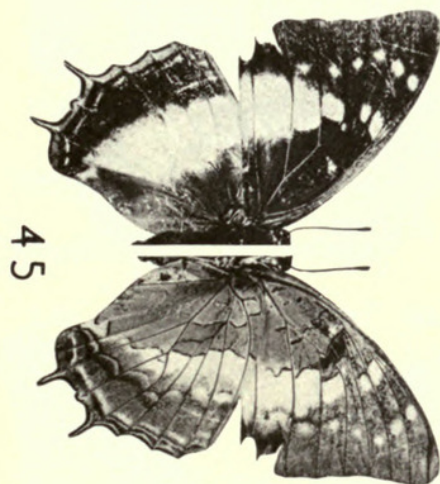
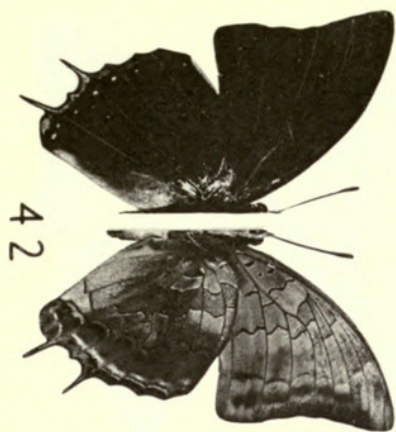


PLATE 6

Charaxes ansorgei Rothschild

FIGS. 49 and 53. *ansorgei* Rothschild, ♂ and ♀ (topotypical Kenya : Mt. Elgon and Nandi Hills), upper and undersides.

FIGS. 50 and 54. *jacksoni* Poulton, ♂ and ♀ (topotypical Kenya : Upper Kikuyu, Katamayu forest), upper and undersides.

FIGS. 51 and 55. Near *ruandana* Talbot, ♂ and ♀, (Uganda : Rutenga District, Mafuga forest, Kigezi), upper and undersides.

FIGS. 52 and 56. *ruandana* Talbot, ♂ (topotypical N.W. of Lake Tanganyika), upper and underside.

Approx. 2/3 natural size.



49



53



50



54



51



55



52



56

PLATE 7

Charaxes ansorgei Rothschild

FIGS. 57 and 61, 58 and 62. *kilimanjarica* ssp. n., Type ♂ and Type ♀ (Tanzania [Tanganyika] : West Kilimanjaro, 6-7,000 ft.), A. Brown and J. G. Williams, upper and undersides. Types in B.M. (N.H.).

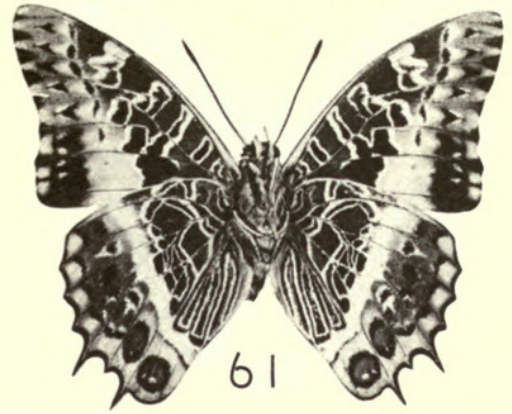
FIGS. 59 and 63, *rydoni* ssp. n., Type ♂ (Tanzania [Tanganyika] : Usambara Range, Magamba forest, Lushoto), A. Rydon leg., upper and underside . Type in B.M. (N.H.).

FIGS. 60 and 64, *levicki* Poulton, ♂ and ♀ (Tanzania [Tanganyika] : Southern Highlands, Njombe). C. H. McCleery leg., upper and undersides.

Approx. $\frac{2}{3}$ natural size.



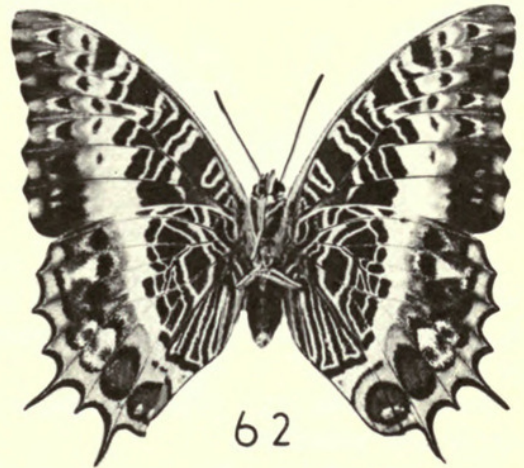
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61



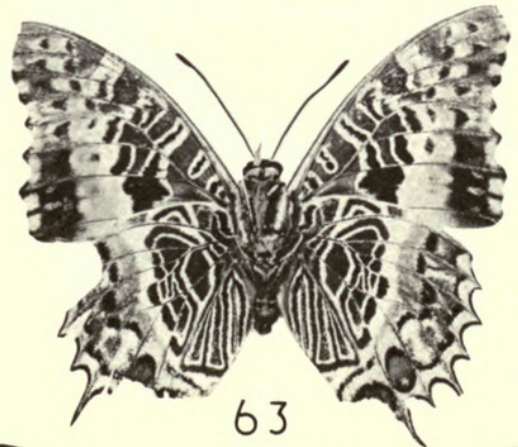
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62



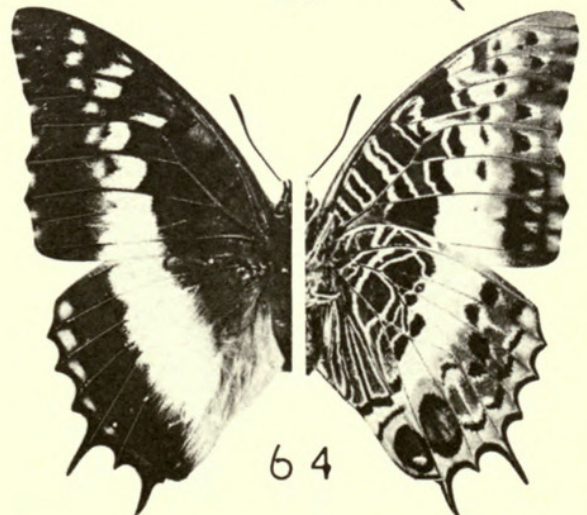
59



63



60



64

PLATE 8

Charaxes

FIGS. 65 and 69, 66 and 70. *ansorgei kungwensis* ssp. n., Holotype ♂ and Allotype ♀ (Tanzania [Tanganyika]: Eastern side of Lake Tanganyika, Kigoma District, Buholo area, Kungwe Peninsular, Mahali Mountains), T. H. E. Jackson, leg., upper and undersides. Types in B.M. (N.H.).

FIGS. 67 and 71. *pollux geminus* Rothschild, Type ♂ (Malawi [Nyasaland]: Lauderdale), upper and underside.

FIGS. 68 and 72. *pollux geminus* Rothschild, ♂ and ♀ topotypical form b (Malawi [Nyasaland]: Zomba), upper and undersides.

Approx. 2/3 natural size.

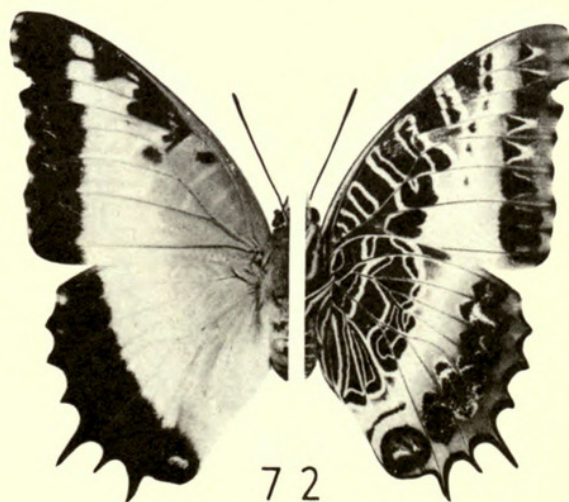


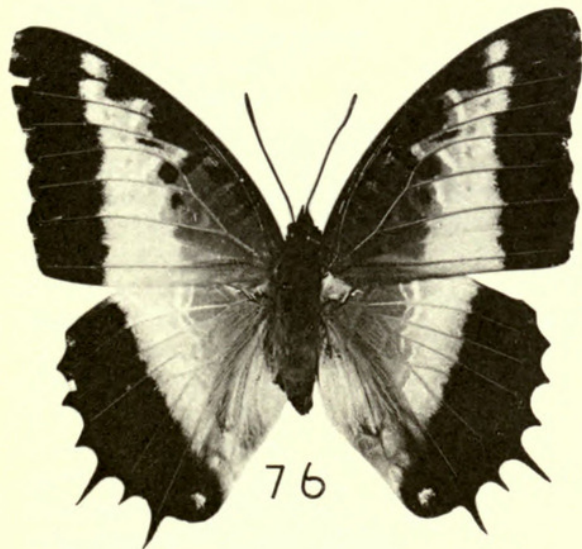
PLATE 9

Charaxes pollux Cramer

FIGS. 73 and 77, 74 and 78. *gazanus* ssp. n., Holotype ♂ and Allotype ♀ (Portuguese East Africa : Amatongas), upper and undersides.

FIGS. 75 and 79, 76 and 80. *pollux* Cramer, ♂ and ♀ (W. Uganda : Bwamba Valley), upper and undersides.

Approx. $\frac{2}{3}$ natural size.





Van Someren, Victor Gurner Logan. 1967. "Revisional notes on African Charaxes (Lepidoptera: Nymphalidae) Part IV." *Bulletin of the British Museum (Natural History) Entomology* 18, 277–316.

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