

JOURNAL
OF THE EAST AFRICAN NATURAL HISTORY SOCIETY

Special Supplement No. 6

DECEMBER 1960

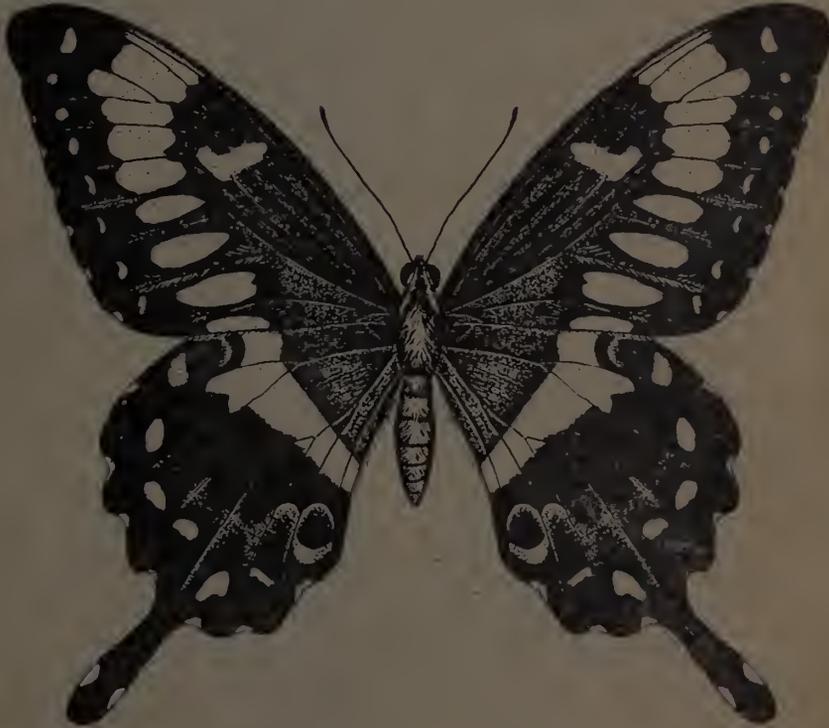
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THE SWALLOWTAIL BUTTERFLIES OF EAST AFRICA
(LEPIDOPTERA, PAPILIONIDAE)

by

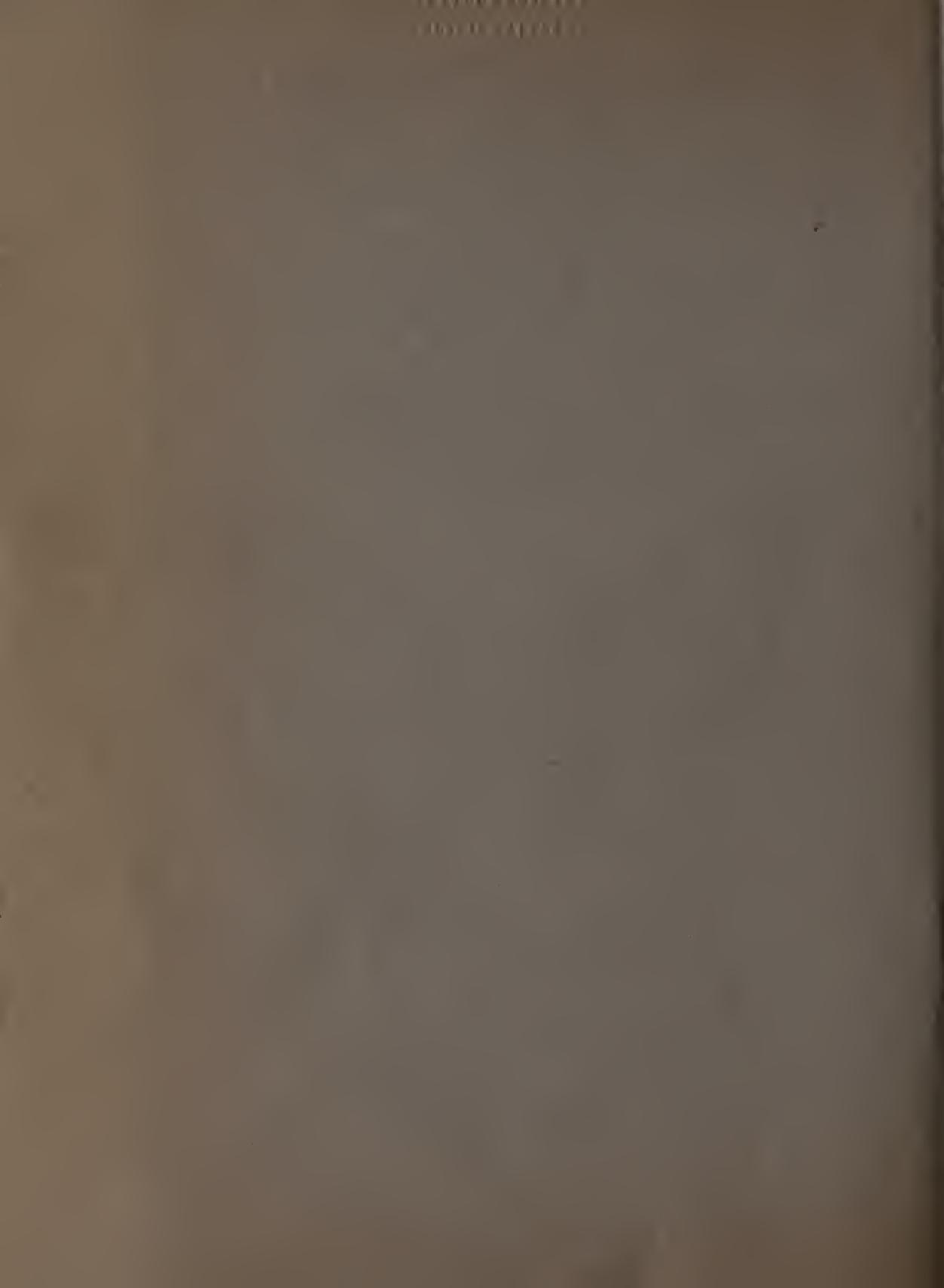
R. H. Carcasson F. R. E. S.

(Entomologist Coryndon Museum, Nairobi)



With illustrations
by the author.

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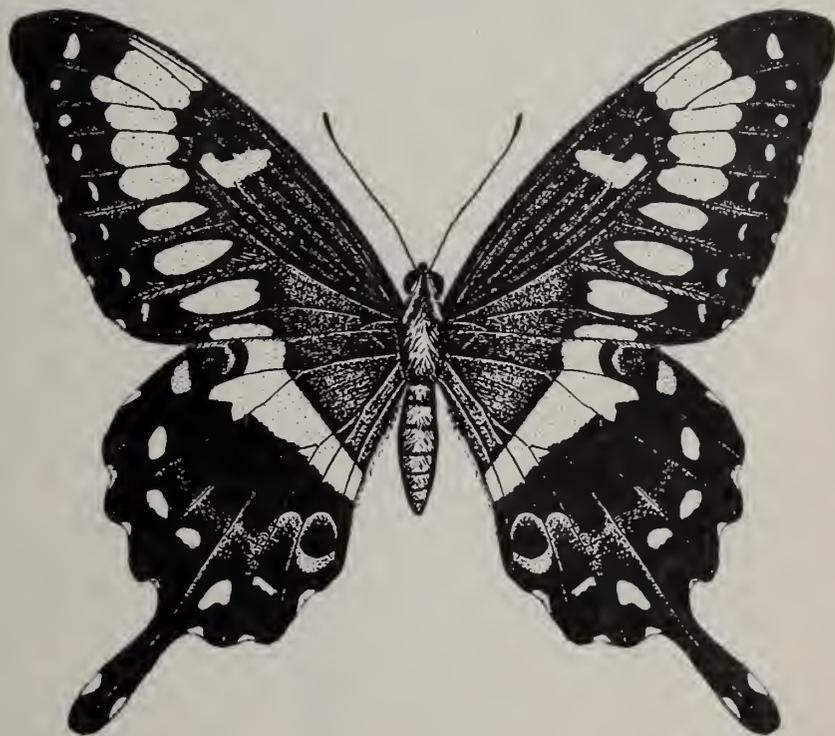
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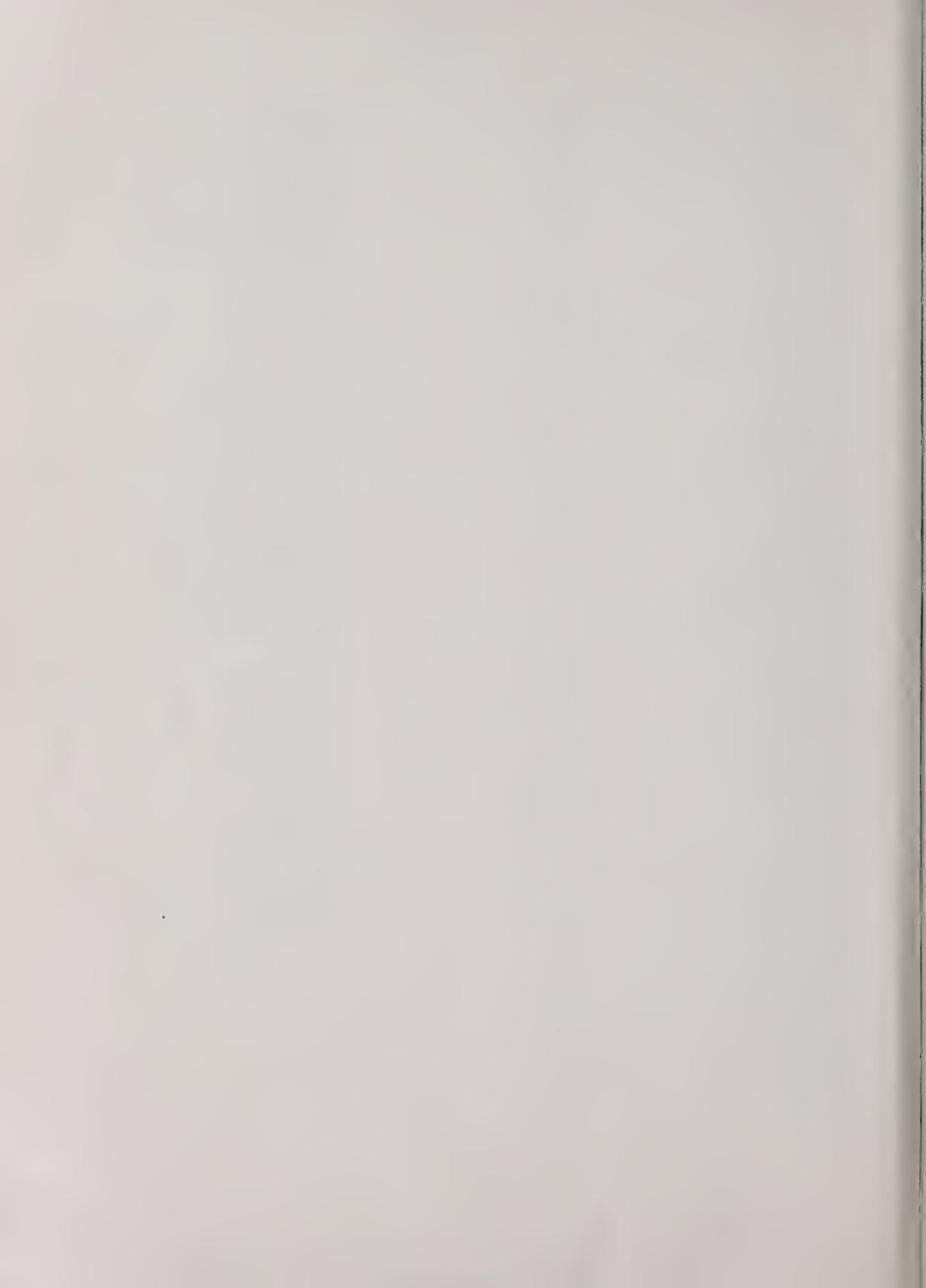
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ABBREVIATIONS and SYMBOLS
used in this work.

ssp - subspecies	uns - underside
fw - forewing	♂ - male
hw - hindwing	♀ - female
ups - upperside	

GLOSSARY

Anal angle	- Tornus.
Anal vein	- Vein arising from base of wing, below discoidal cell.
Basal	- Portion of wing nearest to the body.
Cilia	- Long hair-like scales at margin of wings.
Discal area	- Area of the wings immediately outside the discoidal cells.
Distal	- Away from the centre of the insect.
Fringe	- See Cilia.
Frons	- Area in front of head, between the eyes.
Internervular	- Between two veins.
Palpi	- Short projections below the head, between which the tongue is coiled.
Proximal	- Towards the centre of the insect.
Subapical	- Just inside apex of wing.
Submarginal	- Just inside margin of wing.
Subterminal	- See submarginal
Subspecies or race	- Local population which differs constantly from others, but not enough to be a species.
Terminal	- Touching the margin.

INTRODUCTION

The family Papilionidae (Swallowtails) is represented in East Africa by 43 species, just over half the number described from the Ethiopian Region.

The Papilionidae are found throughout the world and the tropical areas of the Oriental Region and of South America are particularly rich in species. Only the typical subfamily Papilioninae, numbering some 450 species, including some of the largest and most beautiful butterflies in the world, is represented in Africa.

The Papilioninae are easily recognised by the following characters:

Front legs fully developed in both sexes; discoidal cell of both wings closed distally; only one anal vein in hw; palpi very short, frons very hairy.

The African Swallowtails belong to two genera, Papilio and Graphium. There is a single species of the Oriental and Neotropical genus Atrophaneura in Madagascar.

The majority of the African Swallowtails are forest dwellers and the largest number of species is to be found in the equatorial forest belt of the Congo and West Africa. Several endemic species occur in Madagascar, in the Comoro islands and in Mauritius.

EARLY STAGES.

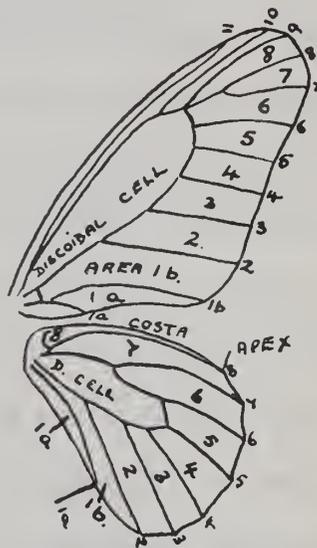
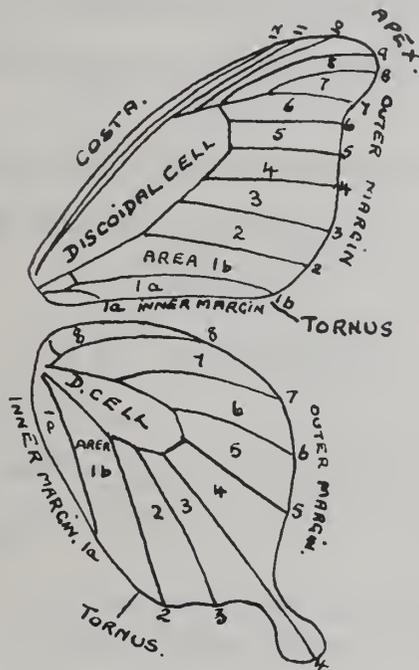
Egg Smooth, nearly spherical, laid singly.

Larva Smooth, with thoracic segments swollen. When alarmed the larvae extrude a brightly coloured Y shaped organ (osmeterium) which emits a repulsive odour. There are five changes of skin (instars). Most larvae of Papilio feed on plants of the family Rutaceae, whereas Graphium larvae feed on Anonaceae.

CHRYSLIS Usually the chrysalis (pupa) has two projections in front and several lateral and dorsal projections. It is attached in an upright position by its anal extremity (Cremaster) and held in position by a thread of silk round the middle.

In this paper all the species known to occur in Kenya, Uganda and Tanganyika have been illustrated and dealt with in the text.

African species not recorded from East Africa are mentioned in their proper taxonomic sequence and their distribution is given, thus enabling the reader to understand the relationship between the East African Papilionid fauna and that of the rest of Africa.



Venation of PAPILIO

Venation of GRAPHIUM

Family PAPILIONIDAE

Subfamily PAPILIONINAE

Key to East African genera.

- 11 veins in fw..... GRAPHIUM Scopoli
 12 veins in fw..... PAPILIO Linnaeus

Key to the East African species of Papilio.

- Hw without tail at vein 4 22-63
- Hw tailed at vein 4; tail always more or less lobed, never straight and narrow 1-21
- 1 Ground colour yellow 5-6
- 2 Ground colour black with pale yellow or white markings 7-19
- 3 Ground colour black, with markings green.....
..... (6) phorcas ♂ ♀
- 4 Ground colour black, light markings metallic blue 20-21
- 5 Dark markings black (4) dardanus ♂
- 6 Dark markings rusty brown or absent (7) nobilis ♂ ♀
- 7 No light markings in cell of hw. . (11) mackinnoni ♂ ♀
- 8 Light markings invade cell of hw 11-17
- 9 Orange and blue eye spots present on hw 18-19
- 10 Orange and blue eye spots absent on hw 12-17
- 11 Pale band straight and continuous; no submarginal or discal spots above (26) leucotaenia ♂ ♀
- 12 Submarginal light spots present in both wings above... 14-15
- 13 Light discal spots in hw only 16-17
- 14 Large yellow spot in fw cell above. (5) constantinus ♂ ♀
- 15 No light areas in cell of fw above.....
..... (6) phorcas f. thersander ♀
- 16 Pale discal spots in areas 2 and 5 of hw above absent.
..... (8) hesperus ♂ ♀
- 17 Pale discal spots in areas 2 and 5 of hw present
..... (9) pelodorus ♂ ♀

- 18 A large, bold yellow spot in cell of fw above
 (29) ophidicephalus ♂ ♀
- 19 No such spot; at most a faint, ill defined streak ..
 (28) lormieri ♂ ♀
- 20 Blue band reaches hw margin in area lb
 (14) charopus ♂ ♀
- 21 Blue band does not reach hw margin in area lb
 (13) hornimani ♂ ♀
- 22 Abdomen very long, reaching level of anal angle
 of hw (1) antimachus ♂ ♀
- 23 Abdomen does not reach level of anal angle of hw... 24-63
- 24 Blue and red eye spots present on hw.....
 (33) demodocus ♂ ♀
- 25 Blue and red eye spots on hw absent 26-63
- 26 Ground colour black, light areas blue 53-63
- 27 Light areas white, yellow or orange 28-52
- 28 No brown or orange basal area on hw below
 (4) dardanus ♀
- 29 Basal portion of costa on hw below orange; base of
 cell white (3) rex ♂ ♀
- 30 Basal area of hw below, including cell, brown or
 orange brown 31-52
- 31 Continuous thick black streak in area 7 of hw below,
 from base to distal edge of dark basal area
 (35) mechowi ♂ ♀
- 32 A thin black streak in area 7 occupies distal half
 of dark basal area only; sometimes accompanied by
 a small black dot near base.. (46) sjöstedti ♂ ♀
- 33 2 heavy black spots in base of area 7 of hw below,
 the distal spot more or less elongated..... 34-52

- 34 No faint dark streaks in distal half of cell on hw below..
.....(37) zenobia ♂ ♀
- 35 2 or 3 faint dark streaks on distal half of cell on hw
below..... 36-52
- 36 White spots on hw above absent or reduced to
internervular fringes..... 39-42
- 37 White spots on hw above touch, or nearly touch margin.. 43-44
- 38 White spots on hw above well inside margin..... 45-52
- 39 A prominent pale preapical bar on fw above.....
..... (41) cynorta ♀
- 40 No such bar..... 41-42
- 41 Pale median band 12-15 mm. wide at inner margin of fw
above..... (41) cynorta ♂
- 42 Pale median band 5-7 mm. wide at inner margin of fw
above..... (45) fulleborni ♂
- 43 Pale areas arranged in a straight median band.....
..... (43) echerioides ♂
- 44 Pale areas not arranged in a straight median band.....
..... (45) fulleborni ♀
- 45 Pale areas arranged on a straight median band..... 47-48
- 46 Pale areas not arranged in a straight median band..... 49-52
- 47 Pale areas pure white; usually a white spot in fw
cell above and an extra white streak at base of area
6 in fw..... (47) zoroastres ♂
- 48 Pale areas somewhat creamy; no white spot in cell, no
extra spot at base of area 6..... (44) jacksoni ♂
- 49 White apical spot touches fw margin..... 51-52
- 50 White apical spot does not touch fw margin.....
..... (44) jacksoni ♀
- 51 Distal half of hw above uniformly black.....
..... (43) echerioides ♀

- 52 Distal half of hw above mainly dark brown, black near costa only..... (47) zoroastres ♀
- 53 Blue median band always present in both wings above... 55-63
- 54 Blue median band absent; complete series of blue submarginal spots in both wings.... (20) thurai ♂ ♀
- 55 Median band greenish blue..... 57-60
- 56 Median band pure blue, without green tinge, never less than 8 mm. wide in area lb of fw..... 61-63
- 57 No submarginal white spots in fw below..... 59-60
- 58 White submarginal spots always present, sometimes faint..... (19) bromius bromius ♂ ♀
- 59 Median band irregular, never wider than 6 mm. in lb of fw, nearly always much less..... (23) nireus ♂ ♀
- 60 Median band straight and regular, never less than 7 mm. in lb of fw, nearly always much wider.(22) sosia ♂ ♀
- 61 Hw below very dark brown, without paler mottling..... (18) brontes ♂
- 62 Hw below mottled.....(19) bromius chrapkowskii ♂ ♀
- 63 The females of brontes and chrapkowskii differ from the males in being very much paler below, without the characteristic chain of silvery spots on the hw; they are practically indistinguishable, but no confusion is possible because they never occur together.

1 PAPHIA ANTIMACHUS Drury (Pl.1,fig.1)
Drury (Ill.Exot.Ins.3,p.1) 1782.

RANGE Heavy forest from Sierra Leone to the Congo and W.Uganda.

Ssp. antimachus Drury

RANGE West Africa.

Ssp. parva Jackson(J.E.Afr.Nat.Hist.Soc.98,p.72)
1956.

DESCRIPTION A very large butterfly with long narrow wings.Orange brown with black markings, resembling a gigantic

Acraea. Average length of fw 95 mm. in parva, 107 in antimachus, which is the largest African butterfly and indeed, one of the largest in the world.

RANGE Forests of W. Uganda and probably E. Congo; rare, female very rare.

RECORDS Uganda: Kalinzu (Ankole), Kayonza (Kigezi), Bwamba (Toro), Kibale forest (Toro).

2 PAPILIO ZALMOXIS Hewitson (Exot. Butt. Pap. t. 6) 1864.

RANGE Nigeria to the Congo.

3 PAPILIO REX Oberthür (Pl. 1, fig. 2)
Oberthür (Bull. E. Fr. (6) 6, p. 114) 1886.

RANGE Highland forests of East Africa, Ethiopia, E. Congo, S. Sudan and Cameroons.

Ssp. rex Oberthür

DESCRIPTION A large species which mimics Melinda formosa formosa Godn. particularly in the ♀. Black, with numerous white markings; base of fw orange brown, sometimes black with a white streak in ♂; ♀ has the orange brown area always present and larger. f. rex Ob. was described from Kilimanjaro and has orange brown base to fw; f. regulus Le Cerf (1919) from Kenya, has an ochreous base to fw and was originally described as a ssp. However, as both the Kilimanjaro and Kenya populations show great variability in the colour of the base of the fw, they must be regarded as members of a single ssp.

RANGE Highland forest in Kenya East of the Rift and in N. Tanganyika

RECORDS Kenya: Nairobi, Thomson's Falls, Nyeri, Meru, Kikuyu Escarpment. Tanganyika: Mt. Kilimanjaro, Mt. Meru.

Ssp. mimeticus Rothschild (Entomolog. 30, p. 165) 1897

DESCRIPTION White markings smaller than above; basal area of fw dark red brown. Mimics M. formosa mercedonia Karsch.

RANGE Uganda, E. Congo.

RECORDS Uganda: Kampala, Jinja, Fort Portal, Mulange, Kibale forest (Toro), Busia.

Ssp. commixta Aurivillius (Seitz Macrolep. 13, p. 12) 1908.

DESCRIPTION Similar to above, but basal area of fw paler.

RANGE Highlands of western Kenya.

RECORDS Kenya: Kakamega, Kaimosi, Kitale, Elgon, Cherangani.

- (4) PAPHILIO DARDANUS Brown (Pl.2,figs.1,2,3,4,5.)
Brown (Ill.Zool.p.52) 1776.

RANGE Forested areas throughout the Ethiopian Region. Females of the Abyssinian, Comoro and Madagascar races (antinorii Ob., humbloti Ob. and meriones Feld.) are tailed and similar to the males; elsewhere the females are tail-less, usually mimetic and incredibly variable.

Ssp. dardanus Brown.

DESCRIPTION ♂ large, tailed, pale yellow with black border to fw and black markings in discal and submarginal area of hw. Tail yellow with dark streak along vein 4. ♀ always tail-less; the principal ♀ forms are:

f. hippocoon Fab.: black and white, imitates Amauris niavius niavius L., by far the commonest form.

f. acenides Le Cerf: has a black fw with white markings and a pale ochreous hw with black border and white submarginal spots. It is a generalised mimic of several species of Amauris of the echeria group; it may be separated from the ♀♀ of the echerioides group by the absence of the sharply truncated chestnut basal area on the hw below.

f. trophonissa Aurivillius: mainly bright orange with black markings and a white subapical bar; imitates D.chrysippus f. chrysippus L.

f. niobe Aur.: as above, but all light markings bright orange.

f. planemoides Trimen; fw mainly bright orange, hw white with a black border. Imitates several species of Bematistes.

RANGE W. Africa and Angola to the Congo, Uganda and Kenya west of the Rift Valley; occurs in all forested areas. xanthocaudatus Stoneham., from the Trans-Nzoia must be regarded as a ♂ form of this race.

Ssp. polytrophus Rothschild & Jordan (Nov.Zool.10,p.488) 1903.

DESCRIPTION ♂ smaller than above; amount of black on hw variable, but usually more than in dardanus. Tail lacks dark central streak, but usually has dark edges; nairobianus Stoneham must be treated as a ♂ form of this race; polytrophus is intermediate between dardanus and tibullus Kirby.

♀ f. hippocoonoides Haase corresponds with hippocoon Fab.

♀ f. cenea Stoll corresponds with acenides Le Cerf.

♀ f. lamborni Poulton is similar to trophonissa Aur.,

but has a pale yellow subapical bar and some yellow in the fw cell.

♀ f. salaami Suffert: All light areas orange; corresponds with niobe Aurivillius.

♀ f. trimeni Poulton is similar to hippococonoides Haase but has all light areas pale yellow.

Ssp. polytrophus has a greater variety of ♀ forms than any other race and many of them are imperfect mimics.

RANGE Highland forest in central Kenya.

RECORDS Kenya Nairobi, Nyeri, Nanyuki, Kikuyu escarpment, Aberdares, Gil Gil, Thomson's Falls.

DESCRIPTION Ssp. tibullus Kirby (Proc.R.Dublin Soc.(2),2,p.338)1880. All dark markings very well developed in ♂. A broad, entire black discal band in hw. ♀ ♀ as above, but not so variable; imperfect mimics, rare.

RANGE Coastal district from Kenya to Delagoa Bay; inland to Ukamba, Kilimanjaro, Southern Highlands of Tanganyika, Nyasaland and S. Rhodesia.

Ssp. flavicornis Carpenter (Proc.R.Ent.Soc.(B)16(5-6)p.55) 1947.

DESCRIPTION Differs from all other races in having yellowish brown antennae in both sexes. ♂ larger than two preceding races, with very prominent terminal yellow lunules on fw. The commonest ♀ form resembles cenea Stoll, but has all light markings deep ochreous yellow and mimics Amauris echeria septentrionis Poulton.

RANGE Mt.Kulal, south east of Lake Rudolf.

Ssp. ochracea Poulton (Proc.R.Ent.Soc.27-28) 1924.

DESCRIPTION ♂ very similar to above, but has black antennae; ♀ variable; the dominant form (ochracea Poulton) has all pale areas deep ochreous yellow and imitates Amauris echeria septentrionis Poulton.

RANGE Mt.Marsabit, in the Northern Frontier District of Kenya.

Ssp. meseres Carpenter (Proc.R.Ent.Soc.(B)17(1-2)p.11) 1948.

DESCRIPTION A variable race, intermediate between dardanus and polytrophus, but has the same genitalial characters as polytrophus and the other Eastern races (presence of a strong spine on inner side of valve). ♂ very variable.

RANGE Southern and eastern shores of Lake Victoria.

RECORDS Kenya: Suna (Kisii), Masai Reserve, Mara River.
Tanganyika: Mwaya, Mwanza, Bukoba, Ukerewe Island.

NOTE Only a few of the most important ♀ forms of dardanus are mentioned above. Over 40 forms have been described, many of which are trivial modifications of the basic forms.

(5) PAPILIO CONSTANTINUS Ward (Pl.5,fig.3)
Ward (Ent.M.Mag.8,p.34) 1871.

RANGE Dry woodland and riverine forest from Natal and the Transvaal to Mozambique, Nyasaland, Rhodesia, Katanga, Tanganyika, Kenya and Ethiopia.

Ssp. constantinus Ward.

DESCRIPTION Dark brown with pale yellow markings; orange and blue eye spots of hw absent; sexes alike.

RANGE The specific range, excluding Katanga, N. Rhodesia and inland areas of Kenya. In East Africa it occurs below 4000 ft., in the eastern districts of Kenya and Tanganyika.

RECORDS Kenya: Mtwapa Creek, Masongaleni, Kibwezi, Voi, Kilifi, Shimba Hills, Diani, Moyale. Tanganyika: Moshi, Morogoro.

Ssp. monticolus Le Cerf (Bull.Hill Mus.I,3,p.387) 1924.

DESCRIPTION Smaller than the nominate race, yellow markings broader.

RANGE High country in central Kenya.

RECORDS Kenya: Kikuyu Escarpment, Nairobi, Kedong River.

Ssp. mweruana Joicey & Talbot (Enc.Ent.B3,Lep.2,p.I)1926.

DESCRIPTION As large as the nominate race, but yellow markings broader.

RANGE Katanga and Rhodesia. No definite records of this race are available from East Africa, but its occurrence in S.W. Tanganyika is probable.

(6) PAPILIO PHORCAS Cramer (Pl.3,figs.2,3.)
Cramer (Pap.Exot.I,p.4) 1775.

RANGE Forested areas throughout Africa, excluding Ethiopia and Africa south of the Zambesi.

Ssp. phorcas Cramer.

RANGE Sierra Leone to Nigeria.

Ssp. congoanus Rothschild (Nov.Zool.3,p.325) 1896.

DESCRIPTION ♂ black with bright green discal band. A green spot always present in area 5 of fw; There are two forms of the ♀; the typical one is like the ♂, the other is dark

brown with a yellow discal band and a complete series of yellow submarginal spots (f. thersander Fabricius.)

RANGE Cameroons to Congo and Uganda.

RECORDS Uganda: Bwamba (Toro), Kibale Forest (Toro), Mubende, Kalinzu, Kampala, Entebbe, Sango Bay, Kayonza, Jinja.

Ssp. ruscoei Bryk & Kruger (Zool. Auz. Leipzig, 74, p. 77) 1927.

DESCRIPTION Somewhat smaller than preceding race; green band narrower. This race is transitional between congoanus and ansorgei Roths. and is of doubtful validity.

RANGE West Kenya, E. Uganda.

RECORDS Kenya: Kakamega, Tiriki, Kaimosi, Kitale, Elgon, Cherangani, Kericho, Sotik.

NOTE P. nandina Rothschild 1901 is an aberration of this race in which the light area is pale yellow and the discal band is joined to a large yellow spot in the cell of the fw.

Ssp. ansorgei Rothschild (Nov. Zool. 3, p. 324) 1898.

DESCRIPTION As above, but no green spot in area 5 of fw. There is a common aberration in which the light area is very pale, sometimes nearly white. ♀ f. thersandroides Aurivillius corresponds with thersander Fabricius.

RANGE Very common in all the highland forests in central Kenya; does not occur at the coast, or at Marsabit.

Ssp. nyikanus Rothschild & Jordan (Nov. Zool. 10, p. 489) 1903.

DESCRIPTION Larger than above; green spot in area 5 usually present; green spots in 6 and 7 of fw smaller than in other races. Light areas often have a strong bluish tinge; submarginal spots better developed than in other races.

RANGE Highland forest in Tanganyika and Nyasaland.

RECORDS Tanganyika: Lushoto, Amani, Mt. Meru, Kondoa, Dabaga, Mt. Rungwe (Mbeya).

NOTE Casphor Suffert (Iris 17, p. 97, 1904) is an aberration from Tabora.

(7) PAPILIO NOBILIS Rogenhofer (Pl. 3, fig. 1).
Rogenhofer (Verh. z. b. Ges. Wien 41, p. 563) 1891.

RANGE Forests up to 8000 ft. in Kenya, N. Tanganyika, Uganda, S. Sudan, E. Congo, Ruanda Urundi.

Ssp. nobilis Rogenhofer.

DESCRIPTION Deep ochre yellow with reddish brown markings; ♀ more heavily marked than ♂.

RANGE Highland forest in Kenya and N. Tanganyika.

RECORDS Kenya: Trans-Nzoia, Thomson's Falls, Nyeri, Nanyuki, Aberdares, Nairobi (common), Kikuyu Escarpment, Uplands, Katamayo, Kakamega. Apparently not at Marsabit and absent at the coast.

Ssp. crippeianus Stoneham (Bull. Stoneham Mus. 27) 1936.

DESCRIPTION All brown markings with the exception of costal spot in hw, dull whitish; ♀ similar to that of the nominate race.

RANGE W. Uganda and Kivu.

RECORDS Uganda: Mitano Gorge, Kalinzu forest, Fort Portal.

NOTE There is a ♂ in the Coryndon Museum collection from the Mabira forest (Jinja, Uganda), which has a very pale ground colour, but very dark markings and approaches the form leroyi Berger, described from Kivu.

(8) PAPILIO HESPERUS Westwood (Pl. 6, fig. ⁴5).
Westwood (Arc. Ent. 1, p. 189) 1843.

RANGE Heavy forest from Sierra Leone to the Congo, Uganda and S. Sudan in the north, and from Angola to Katanga and N. Rhodesia in the south.

Ssp. hesperus Westwood.

DESCRIPTION Black with pale yellow markings; ♀ larger and paler with an orange spot at tornus of hw.

RANGE The specific range, excluding Sierra Leone and the S. Sudan.

RECORDS Uganda: Jinja, Kampala, Entebbe, Mubende, Kayonza, Kalinzu, Sango Bay, Budongo.
Tanganyika: Bukoba.

(9) PAPILIO PELODORUS Butler (Pl. 6, fig. ³4).
Butler (Proc. Zool. So. Lond. 1895, p. 720).

RANGE Highland forest in Nyasaland, southern and eastern Tanganyika.

Ssp. pelodorus Butler.

RANGE Nyasaland.

Ssp. vesper Le Cerf (Bull. Hill Mus. 1, 3, p. 383) 1924.

DESCRIPTION Very similar to P. hesperus Westw., but has an extra yellow spot in area 2 and another in area 5 of hw and one or two orange dots at the tornus in both sexes.

RANGE Highland forest in eastern and southern Tanganyika.
 RECORDS Tanganyika:Lushoto, Amani, Mufindi.

(10) PAPHILIO EUPHRANOR Trimen (Trans.Ent.Soc.Lond. 1868,p.70).
 RANGE South Africa.

(11) PAPHILIO MACKINNONI E.Sharpe (Pl.3,fig.4)
 E.Sharpe (Proc.Zool.Soc.Lond. 1891,p.187).

RANGE Highland forest in East Africa,Ruanda Urundi,E.Congo,
 Katanga,N.Rhodesia and Angola.

Ssp. mackinnoni E.Sharpe.

DESCRIPTION ♂ very dark brown, nearly black with a continuous
 series of large yellow spots from apex of fw to area 2 of
 hw. ♀ larger, paler, without row of pale gold spots on hw
 below.

RANGE Highlands of Kenya,Uganda,Ruanda Urundi,E.Congo and north-
 west Tanganyika.

RECORDS Kenya: Kitale,Nyeri,Elgon,Tiriki,Uplands,Meru,Mt.Kenya,
 Nairobi,Gil Gil,Thomson's Falls,Rumuruti,Kakamega,Subukia,
 Kericho.

Uganda: Fort Portal,Kayonza.

(12) PAPHILIO DELALANDEI Godart (Mem.Soc.Linn.Paris 2) 1823.
 RANGE Madagascar.

(13) PAPHILIO HORNIMANI Distant (Pl.4,fig.3).
 Distant (Proc.Zool.Soc.Lond. 1879,p.647).

DESCRIPTION Black with metallic blue discal band and submarginal
 spots. ♀ lacks chain of silvery spots on hw below.

RANGE Highland forest in E.Kenya and N.Tanganyika.

RECORDS Kenya: Chyulu Hills.

Tanganyika: Amani (Usambara),Lushoto,Tengeru (Arusha),
 Mt.Meru.

(14) PAPHILIO CHAROPUS Westwood (Pl.4,fig.6)
 Westwood (Arc.Ent.1,p.189) 1843.

RANGE Forests in West Africa,E.Congo,Ruanda Urundi and W.Uganda.

Ssp. charopus Westwood.
 RANGE Ghana and Cameroons.

Ssp. juventus Le Cerf (Bull.Hill Mus.1,3,p.385)1924.
 DESCRIPTION Similar to above, but smaller and lacks series of
 silvery spots in hw below in both sexes; blue band broader.
 RANGE North-east Congo and W.Uganda.
 RECORDS Uganda: Kayonza,Kibale forest, Fort Portal.

(15) PAPILIO MANGOURA Hewitson (Ent.M.Mag.11,p.226) 1875.
 RANGE Madagascar.

(16) PAPILIO ORIBAZUS Boisduval (Spec.Gen.Lep.1,p.233) 1836.
 RANGE Madagascar.

(17) PAPILIO EPIPHORBAS Boisduval (Faune Madag.p.13) 1833.
 RANGE Madagascar.

(18) PAPILIO AETHIOPS Rothschild & Jordan(Nov.Zool.12,p.190).
 1905.
 RANGE Ethiopia.

(19) PAPILIO THURAUUI Karsch (Pl.1,fig.3)
 Karsch (Ent.Nachr.26,p.126) 1900.

DESCRIPTION Tail-less; median band completely absent; submarginal
 blue spots large and fully developed in both wings. Sexes
 alike. Genitalia as in P.bromius Dbl. and very closely
 allied to that species, despite strong superficial
 differences.

RANGE Highland forest in S. Tanganyika.
 RECORDS Tanganyika: Mufindi,Njombe, Poroto Mts. (Mbeya).

- (20) PAPHIA BROMIUS Doubleday (Pl.4,fig.4)
Doubleday (Ann.Mag.N.H.(16),p.176) 1845.

RANGE Forests from Sierra Leone to Angola, the Congo and East Africa, with a distinct isolated race in Nyasaland (ssp. cyclopis R.&.J.)

Ssp. bromius Doubleday

DESCRIPTION Black with a broad median blue band; small blue submarginal spots on fw usually present, white submarginal spots on fw below absent, or reduced to traces. ♀ paler and duller.

RANGE West Africa and parts of the Congo.

RECORDS Uganda: Bwamba Valley (Toro).

NOTE Occasional specimens approaching this race, but somewhat smaller, occur elsewhere in Uganda and at Kakamega.

Ssp. chrapkowskii Suffert (Iris 17,p.98) 1904.

DESCRIPTION Smaller than above, blue band narrower. Submarginal spots on fw below well developed. Hw below strongly mottled with silky purplish brown.

RANGE Kenya Highlands. Very common in most forest areas above 5000 ft., but apparently absent at Marsabit, the Chyulu and Teita Hills.

Ssp. chrapkowskoides Storace (Lamb.52,p.9) 1952.

DESCRIPTION Very similar to above, but pale mottling and submarginal spots below not so well developed. Cilia of fw black, not white, as in chrapkowskii. A somewhat unstable race with frequent transitions to the two previous races.

RANGE Very common throughout Uganda, Ruanda Urundi, N.W.Tanganyika and the N.E.Congc.

Ssp. ufipa Carcasson (Coryndon Mus.Occ.Pap.7)

DESCRIPTION Median band narrower, straighter and bluer than in other East African races. Submarginal spots below very large, paler mottling absent. Very similar to P. brontes and can only be determined with certainty by dissection.

RANGE Ufipa plateau, S.W.Tanganyika.

NOTE See P. brontes, Notes 1 & 2.

- (21) PAPHIA BRONTES Godman (Pl.4,fig.5)
Godman (Proc.Zool.Soc.Lond. 1885,p.540).

DESCRIPTION Very similar to chrapkowskii, but median band bluer, submarginal spots of fw below large and very white, purplish

mottlings on nw below absent.

Form desmondi van Someren, described from the Chyulu Hills, has sharp nervular indentations at the margin of the blue band in the fw.

RANGE Highland forest in Nyasaland, Tanganyika and E.Kenya.

RECORDS Kenya: Chyulu Hills, Teita Hills.

Tanganyika: Amani, Lushoto, Mt.Meru, Dabaga, Mufindi, Poroto Mts.(Mbeya), Njombe, Mt.Rungwe(Mbeya), Tengeru (Arusha), Uluguru Mts.

NOTE I There is a very distinct race of brontes in the Teita Hills (S.E.Kenya) in which the blue band is much broader at the inner margin of the fw, but narrower at the cell. This and other forms of this species will be discussed in a forthcoming paper on the bromius-brontes complex by Dr.V.G.L. van Someren.

NOTE II Although P.brontes is very similar to some forms of P.bromius and has been confused with that species, it has consistently different genitalia and must be treated as a good species.

(22) PAPILIO SOSIA Rothschild & Jordan (Pl.4,fig.2)
Rothschild & Jordan (Nov.Zool.10,p.488) 1903.

RANGE Forests from Sierra Leone to the Congo and Uganda.

Ssp. sosia Rothschild & Jordan.

RANGE West Africa.

Ssp. debilis Storace (Lambillionea LI (1951),n.5-8,pp.47-48).

DESCRIPTION Similar to typical P.bromius, but somewhat smaller; blue band narrower and much greener, of even width and with straight parallel edges. A complete series of small blue submarginal dots on fw above, Uns very dark, without submarginal spots on fw, but with a series of small white marginal dots. The ♂ can always be separated from that of P. nireus L. by the shape of the valve, which is rounded in sosia, but triangular, with a sharp apex in nireus. This character can be observed with the naked eye. The ♀ can only be separated with certainty from that of nireus by dissecting the genitalia.

RANGE Uganda.

RECORDS Tororo, Jinja, Busia, Bwamba.

- (23) PAPILIO NIREUS Linnaeus (Pl.4,fig.1)
Linnaeus (Syst.Nat.Ed.10,p.464) 1758.

RANGE Very common throughout the Ethiopian Region, with a distinct race in the Comoro islands (aristophontes Oberthur).

Ssp. nireus Linnaeus.

DESCRIPTION Similar to sosia; median band greenish, as in sosia, but narrower and more irregular. Submarginal blue spots in fw usually absent, cilia of fw black, uns as in sosia. ♀ paler and duller, without row of silvery spots on hw below.

RANGE West Africa and the Congo.

RECORDS Uganda: Bwamba Valley (Toro).

Ssp. lyaeus Doubleday (Ann.Mag.N.H.(16),p.178) 1845.

DESCRIPTION Similar to above, but smaller, blue band narrower, cilia of fw white. In forms dimidiatus Le Cerf and pseudonireoides Storace the median band is even more reduced.

RANGE Ubiquitous in eastern and southern Africa.

Ssp. pseudonireus Felder (Reise Novar.Lep.p.94) 1865.

DESCRIPTION Smaller than above; median band extremely reduced, often not reaching fw cell. Submarginal blue dots of fw usually present.

RANGE Ethiopia, Somalia, S.Sudan, N.Karamoja and Northern Frontier District of Kenya.

RECORDS Kenya: Moyale.

- (24) PAPILIO PHORBANTA Linnaeus (Mant.Plant.p.525) 1771.

RANGE Bourbon and Seychelle islands.

- (25) PAPILIO MANLIUS Fabricius (Ent.Syst.Suppl.,p.422) 1798.

RANGE Mauritius.

- (26) PAPILIO LEUCOTAENIA Rothschild (Pl.3,fig.5)
Rothschild (Ent.M.Mag.44,p.249) 1908.

DESCRIPTION Very dark sooty grey, nearly black with a broad greenish white median band. ♀ paler, with broader median band. Uns intricately variegated in various shades of brown, grey and black.

RANGE Montane forest in Ruanda Urundi and Kigezi; rare.
 RECORDS Uganda: Mafuga forest (Kigezi).

(27) PAPHILIO MENESTHEUS Drury (Ill.Exot.Ins.2,p.15) 1773.
 RANGE West Africa.

(28) PAPHILIO LORMIERI Distant (Pl.5,fig.1)
 Distant (Ent.M.Mag.11,p.129) 1874.

RANGE Forests from the Cameroons to Angola, the Congo and East Africa.

Ssp. lormieri Distant.

RANGE West Africa and the Congo.

Ssp. crocea Storace (Mem.Soc.Ent.Ital.33,p.132) 1955.

DESCRIPTION A very large tailed species. Blackish with narrow pale yellow median band and submarginal spots; an orange and blue eye spot at tornus of hw and another at costa. Hw below beautifully marked with blue and orange. Sexes alike.

RANGE Uganda and W.Kenya.

RECORDS Uganda: All forests below 6000 ft.

Kenya: Kakamega, Kaimosi, Tiriki.

NOTE Semlikana Le Cerf (Bull. Hill Mus.I,3,p.388,1924), originally described as a ssp. from the Semliki valley, has a very narrow median band, particularly in the hw. According to Berger (Ann.Mus.Congo Belge 3,I p.39,1950) it is only a varietal form. Semlikana appears to be the dominant form in the Kalinzu forest (Ankole).

(29) PAPHILIO OPHIDICEPHALUS Oberthür (Pl.5,fig.2)
 Oberthür (Et.d'Ent.3,p.13) 1878.

RANGE Forests from Kenya to South Africa.

Ssp. ophidicephalus Oberthür.

DESCRIPTION Very similar to above, but pale band much broader; sexes alike.

RANGE E.Kenya, eastern and southern Tanganyika and N.Mozambique.

RECORDS Kenya: Meru, Donyo Sabuk, Kibwezi and all coastal forests.

Tanganyika: Amani, Morogoro, Abercorn (N.Rhodesia,) Lake Rukwa, coastal forests.

- (30) PAPILIO GROSE-SMITHI Rothschild (Ann.Mag.N.H.(9)17,p.113)
1926.
RANGE Madagascar.
- (31) PAPILIO MORONDAVANA Grose-Smith (Ann.Mag.N.H.(6)7,p.78)
1891.
RANGE Madagascar.
- (32) PAPILIO ERITHONIOIDES Grose-Smith (Ann.Mag.N.H.(6)p.122)
1891.
RANGE Madagascar.
- (33) PAPILIO DEMODOCUS Esper (Pl.5,fig.4)
Esper (Aust.Schmett.,p.205) 1798.
RANGE Very common throughout the Ethiopian Region, including
Madagascar. Prefers open country and cultivation to forest.
- Ssp. demodocus Esper.
DESCRIPTION Large, tail-less, pale yellow, mottled and marked
with black; hw. decorated with a large bluish eye spot at
the costa and a blue and red eye spot at the tornus.
Sexes alike.
RANGE Ubiquitous.
NOTE This species occurs throughout Africa and the islands in
the nominate race; only one other race has been described
(ssp. bennetti Dixey, 1898) and it occurs on the island
of Socotra.
- (34) PAPILIO DEMOLEUS Linnaeus (Syst.Nat.Ed.10) 1758.
RANGE India and Arabia.
- (35) PAPILIO MECHOWI Dewitz (Pl.6,fig.1)
Dewitz (Berl.Ent.Zeitschr.,25,p.286) 1881.
RANGE Forest region surrounding the Congo basin; Angola,
southern and eastern Congo, S. Sudan, Ubangi-Shari, Cameroons
and Uganda. In the lower and denser forests of the Congo
it is replaced by P.gallienus Distant, with which it has
been confused.

Ssp. mechowi Dewitz.

DESCRIPTION Large, tail-less. Hw sharply angled at vein 4; a

continuous pale yellow median band in hw, broken into large internervular spots in fw. A series of large, prominent yellow spots at margin of hw. ♀ has a broader yellow band.

RANGE The specific range, excluding eastern and central Uganda.
RECORDS W.Uganda: Bwamba valley (Toro), Fort Portal.

Ssp. whitnalli Neave (Nov.Zool.11,p.342) 1904.

DESCRIPTION Wider median band and larger marginal spots than in the nominate race.

RECORDS Uganda: Budongo forest, Mabira forest (Jinja), Kampala, Entebbe.

(36) PAPHIA GALLIENUS Distant (Proc.Zool.Soc.Lond.1879,p.649).
RANGE Nigeria to the Congo.

(37) PAPHIA ZENOBIUS Godart (Enc.Meth.)1819.
RANGE West coast, from Sierra Leone to Angola.

(38) PAPHIA MECHOWIANUS Dewitz (Ent.Nachr.11,p.305) 1885.
RANGE Congo and Angola.

(39) PAPHIA ZENOBIA Fabricius (Pl.6,fig.2)
Fabricius (Syst.Ent.p503) 1775.

DESCRIPTION Tail-less; black with a very broad white median band; in the ♀ the median band usually invades the discoidal cell of the fw.

RANGE Forests from Sierra Leone to the Congo and Uganda.

RECORDS Uganda: Kayonza (Kigezi), Kibale forest (Toro), Bwamba (Toro), Fort Portal.

(40) PAPHIA ANDRONICUS Ward (Ent.M.Mag.11,p.305) 1871.
RANGE Cameroons.

(41) PAPHIA CYNORTA Fabricius (Pl.8,figs.3 & 6)
Fabricius (Ent.Syst.,3.p.37) 1793.

RANGE From Sierra Leone to Angola, the Congo, Uganda and W.Kenya; represented in Ethiopia by ssp. arnoldi Poulton. A forest species.

Ssp. cynorta Fabricius.

DESCRIPTION ♂ black with a broad white median band; outer edge of band straighter than in P.zenobia. The ♀ mimics several forms of Bematistes epaea Cramer (Acraeidae).
 ♀ f. boisduvalliana Westwood has dark areas nearly black and the light areas white; rare in E.Africa.
 ♀ f. lavochrea Le Cerf has dark areas dark brown, pale areas of fw white, pale band of hw ochreous, with distal margin ill-defined.
 ♀ f. ochrospila Le Cerf: As above, but all pale areas ochreous yellow.
 ♀ f. peculiaris Neave: All pale markings very reduced; the commonest form in East Africa.
 In ssp. arnoldi Poulton from Ethiopia the ♀ is a mimic of Amauris niavius L. (Danaidae). All the ♀ forms of cynorta may be separated from the ♀ ♀ of P. dardanus Brown by the presence of a truncated orange brown basal area on the hw below. This basal area is present in both sexes of all the species of the mechowi, cynorta, echerioides, sjostedti group.

RANGE The specific range, excluding Ethiopia.

RECORDS Uganda: Katera, Bwamba, Kibale forest, Kayonza, Tororo, Kalinzu, Kampala, Entebbe, Jinja.

(42) PAPILIO PLAGIATUS Aurivillius (Ent.Tidskr.19,p.183) 1895.
 RANGE Cameroons to North Congo.

(43) PAPILIO ECHERIOIDES Trimen(Pl.7,figs.1 & 4)
 Trimen (Trans.Ent.Soc.Lond.p.72) 1868.

RANGE Forests from Natal to Rhodesia, Nyasaland, East Africa and Ethiopia.

Ssp. echerioides Trimen.

DESCRIPTION ♂ similar to cynorta, but the median band, which is very pale yellow, tapers more strongly towards the apex. The pale spot in area 6 of the fw is always present (usually absent in cynorta). The ♀ is a mimic of Amauris echeria Stoll and of A. albimaculata Butler (Danaidae). The fw is black with white spots, the hw black with a large pale ochreous discal area and white submarginal spots.

RANGE South Africa to Nyasaland (excluding S.Rhodesia).
 E.Tanganyika and E.Kenya.

RECORDS Kenya: Meru, Nairobi, Chyulu Hills, Emali, Teita, (East of Rift only).

Tanganyika:Kimboza,Turiani,Moshi,Tengeru,Amani,Songea.

- (44) PAPILIO JACKSONI E. Sharpe (Pl.7, figs. 2 & 5)
E.Sharpe (Proc.Zool.Soc.Lond. 1891,p.188).
RANGE Montane forests in Kenya, Uganda and E.Congo.
- Ssp. jacksoni E.Sharpe
DESCRIPTION ♂ as in ssp. echerioides, but black more sooty, median band narrower, reduced to very well separated spots in fw, white with faint ochreous tinge. ♀ as in echerioides, but white apical spot does not touch the margin; white spots in hw in both sexes well inside margin.
RANGE Montane forests in Kenya and East Uganda.
RECORDS Kenya: Elgon, Cherangani, Kakamega, Nairobi, Thomson's falls, Lugari, Nyeri, Meru, Uplands.
Uganda: Mbale.
- Ssp. ruandana Le Cerf (Bull.Hill Mus.1,3,p.393) 1924.
DESCRIPTION Larger than the nominate race, light markings pure white in ♂.
RANGE E.Congo and Kigezi district of Uganda.
RECORDS Mafuga forest, Kigezi.
- (45) PAPILIO FULLEBORNI Karsch (Pl.8, figs. 1 & 4)
Karsch (Ent.Nachr.26,p.353) 1900.
- DESCRIPTION ♂ : Deep black, median band pure white, very narrow in fw, very wide in hw.
♀ similar to other species of the group, but white spots of hw large and placed at the margin.
RANGE Montane forests in Tanganyika.
RECORDS Poroto Mts. (Mbeya), Mt.Rungwe (Mbeya), Mufindi, Mbisi forest, (Ufipa), Uluguru Mts.
- (46) PAPILIO SJÖSTEDTI Aurivillius (Pl.8, figs 2 & 5)
Aurivillius (Seitz.Macrolep.13,p.15) 1908.
- RANGE Montane forest in N.Tanganyika.
- Ssp. sjöstedti Aurivillius
DESCRIPTION ♂ very similar to above, but white band very narrow in both wings. ♀ similar to above, but ochreous discal area of hw much smaller. Both sexes may be distinguished from all other species of the group by the very much darker uns..
RANGE Slopes of Mt. Meru, between 7000 and 9000 ft.

Ssp. atavus Le Cerf (Bull.Soc.Ent.Fr.,p.336) 1912.
 DESCRIPTION Median band of hw wider than in nominate race.
 RANGE Slopes of Kilimanjaro, between 7000 and 9000 ft..

(47) PAPILIO ZOROASTRES Druce (Pl.7,figs 3 & 6)
 Druce (Ent.M.Mag.14,p.226) 1878.

RANGE Forests in the Cameroons, Fernando Po, Congo, Angola,
 S.Sudan and East Africa.

Ssp. zoroastres Druce.
 RANGE Cameroons.

Ssp. joiceyi Gabriel (Entomologist,78,p.152) 1945.
 DESCRIPTION Smaller than two previous species. ♂ has a pure white
 median band and can be separated from all other species
 of the group by the presence of a white spot in the cell
 of the fw, and an extra elongated white spot in area 6
 of fw. ♀ : ochreous discal area of hw smaller than in all
 other species of the group.

RANGE S.E.Sudan, E.Congo,N.W.Tanganyika,Uganda, W.Kenya.

RECORDS Kenya: Kakamega, Kaimosi, Elgon, Tiriki.

Uganda: All forest areas.

Tanganyika: Bukoba, Ukerewe island.

NOTE P.zoroastres joiceyi was described from the Sudan, while
P.zoroastres homeyeri Plotz (Stett.E.Z.41,p.306, 1880)
 was described from Angola; despite the fact that the
 female of joiceyi was described from Uganda, the
 E. African race appears to be intermediate between
homeyeri and joiceyi.

Genus ATROPHANEURA Reakirt.

(48) ATROPHANEURA ANTENOR Drury (Ill.Exot.Ins.2,p.4) 1773.
 RANGE Madagascar.

Genus GRAPHIUM Scopoli.

Key to the East African species of Graphium.

- Vein 4 of hw prolonged into a long narrow tail..... 12-23
- Hw without tail..... 1-11
- 1 Ups red or brown with black markings.....
..... (53) ridleyanus ♂ ♀
- 2 Ups very dark brown with pale olive green or creamy
markings; uns bright coppery with conspicuous black
spots in hw..... (56) latreillianus ♂ ♀
- 3 Ups black with very pale blue markings.....
..... (72) leonidas ♂ ♀
- 4 Ups brown and pale ochreous yellow; uns never bright
coppery..... 5-6
- 5 Light markings of fw arranged in a wide band.....
..... (58) ucalegon ♂ ♀
- 6 Light markings of fw not arranged in a wide band.....
..... (64) almansor ♂ ♀
- 7 Ups white and black..... 8-11
- 8 Uns white with bright ochreous markings and a large
crimson area at base of both wings..... 10-11
- 9 No ochreous markings below; traces of dull red at
base of wings..... (70) philonoe ♂ ♀
- 10 Sides of abdomen white and orange with a prominent
black vertical line on each segment. (51) taboranus ♂ ♀
- 11 Sides of abdomen orange without black vertical lines...
..... (52) pylades ♂ ♀
- 12 Ups black with green markings..... 14-21
- 13 Ups black with white or very pale yellow markings..... 22-23
- 14 No green discal spots on hw above, except in area 2.... 15-16

- 15 Green bars in cell of fw distinct and reaching lower edge of cell..... (76) colonna ♂ ♀
- 16 Green bars in cell of fw narrow and ill-defined, not reaching lower edge of cell..... (75) gudenusi ♂ ♀
- 17 Green discal spots present in areas 4,5 and 6 of hw.... 18-21
- 18 Green bars of fw straight..... 20-21
- 19 Green bars in fw cell S shaped.....(81) antheus ♂ ♀
- 20 Green discal spots in 4,5 and 6 of hw contiguous and in line.....(79) policenes ♂ ♀
- 21 Green discal spots in 4,5 and 6 of hw out of line and not contiguous.....(77) polistratus ♂ ♀
- 22 Fw cell above black, marked with 4 light cross-bars..... (83) porthaon ♂ ♀
- 23 Fw cell above black without light markings..... (73) kirbyi ♂ ♀

(49) GRAPHIUM ENDOCHUS Boisduval (Spec.Gen.Lep.1,p.243)1836.
RANGE Madagascar.

(50) GRAPHIUM MORANIA Angas (Kafirs in.t.30) 1849.
RANGE South Africa, S.Rhodesia, Ovamboland.

(51) GRAPHIUM TABORANUS Oberthür (Pl.9,figs.1 & 4)
Oberthür (Ann.Soc.Ent.France (6),6 Bull.,p.114)1886.

RANGE Savana from Angola and Ovamboland to Katanga,N.Rhodesia, Nyasaland and Tanganyika.

Ssp. taboranus Oberthür.

DESCRIPTION Small, tail-less, black with white markings above, with an orange spot at tornus of hw. The ♀ has all white markings much reduced. Uns: Base of both wings crimson, apical half of fw and margin of hw bright ochreous marked with black and white.

RANGE E.Katanga, N.Rhodesia, Nyasaland, and Tanganyika.

RECORDS Tanganyika: Tabora, Fwambo, Morogoro, Mbozi, Abercorn (N.Rhodesia.)

NOTE G.taboranus schafgotschi Niepelt (Int.Ent.Zeitschr.21,p.53) 1927 from Ovamboland and Angola occurs as an occasional dry season form amongst the nominate race in Katanga. It is smaller and whiter than the typical form and is very similar to the South African G.morania Angas, with which it has often been confused. There is no doubt however, that G.morania and G.taboranus are specifically distinct. (See Berger, Ann.Mus.Congo Belge (3),8,1,p.58,1950).

(52) GRAPHIUM PYLADES Fabricius (Pl.9,figs.2 & 5)
Fabricius (Ent.Syst.3,1,p.34) 1793.

RANGE A species of savana and bush country, common throughout most of Africa, excluding Madagascar and the islands.

Ssp. angolanus Goeze (Entom.Beytr.31:87) 1779.

DESCRIPTION Very similar to G.taboranus, from which it can be separated by the following characters; sides of abdomen bright ochreous yellow in angolanus, black and white in taboranus. Sexes alike.

RANGE Natal to Angola and the S.Congo in the west, to Rhodesia, Nyasaland, Mozambique, Tanganyika and E.Kenya in the east.

RECORDS Kenya: All the eastern areas as far inland as Thika and Nairobi.
Tanganyika: Throughout, with the exception of the extreme north-west.

Ssp. pylades Fabricius.

DESCRIPTION White areas better developed than in angolanus. White spots in cell and area 4 of fw fused with white discal area. Sexes alike.

RANGE Senegal to N.Congo, Sudan, Uganda and W.Kenya.

RECORDS Kenya: Cherangani, Kitale, Lugari, Kisumu.
Uganda: Open country everywhere, except on high mountains and in desert areas.
Tanganyika: Probably in the extreme north-west.

(53) GRAPHIUM RIDLEYANUS White (Pl.10,fig.5)
White (Ann.Nat.Hist.12,p.262) 1843.

DESCRIPTION Tail-less, bright red with black markings. ♀ similar, but more rounded, sometimes dusky brown. A mimic of several

large species of the genus Acraea.

RANGE Forests from Sierra Leone to the Congo, Angola, and Uganda.

RECORDS Uganda: Kalinzu forest (Ankole), Mubende, Bwamba.

(54) GRAPHIUM TYNDERAEUS Fabricius (Ent.Syst.3,1,p.35) 1793.
RANGE Sierra Leone to the Congo.

(55) GRAPHIUM CYRNUM Boisduval (Gen.Spec.Lep.1,p.239) 1836.
RANGE Madagascar.

(56) GRAPHIUM LATREILLIANUS Godart (Pl.10,fig.4)
Godart (Enc.Meth.9,p.44) 1819.

RANGE Forests from Sierra Leone to Angola, the Congo and W.Uganda.

Ssp. latreillianus Godart.

RANGE West Africa.

Ssp. theorini Aurivillius (Ent.Tidskr.2,p.45) 1881.

DESCRIPTION A large, tail-less species. Black with pale olive green markings. The ♀, which is very rare, has smaller spots, pale cream instead of green. Both sexes can be separated from other species of the group by the beautiful metallic coppery colour of the uns.

RANGE Cameroons to Angola, the Congo and Uganda.

RECORDS W.Uganda: Bwamba valley (Toro).

(57) GRAPHIUM HACHEI Dewitz (Berl.Ent.Zeitschr.25,p.286)1881.
RANGE Cameroons to the Congo and Angola.

(58) GRAPHIUM UCALEGON Hewitson (Pl.10,fig.1)
Hewitson (Exot.Butt.Pap.t.7) 1865.

RANGE Forests from Nigeria to the Congo and Uganda.

Ssp. ucalegon Hewitson.

RANGE Nigeria, Cameroons, Gaboon, W.Congo, N.W.Angola.

Ssp. schoutedeni Berger (Ann.Mus.Congo Belge(3)8,1,p.73)
1950.

DESCRIPTION Smaller and more rounded than above. Brown with pale ochreous yellow markings arranged in a continuous

- band in fw. Sexes alike.
 RANGE Central and East Congo to W.Uganda.
 RECORDS W.Uganda: Bwamba, Fort Portal-Mbarara road (Toro).
- (59) GRAPHIUM WEBERI Holland (Ann.Carnegie Mus.11,p.14) 1917.
 RANGE Cameroons.
- (60) GRAPHIUM AURIGER Butler (Ent,M.Mag.13,p.57) 1890.
 RANGE Gaboon.
- (61) GRAPHIUM SIMONI Aurivillius (Rhop.Aeth.p.485) 1898.
 RANGE Cameroons to Congo.
- (62) GRAPHIUM UCALEGONIDES Staudinger (Exot.Schmett.1,p.10)
 1884.
 RANGE Ghana to Cameroons, Congo and Angola.
- (63) GRAPHIUM FULLERI Grose-Smith (Ent.M.Mag.19,p.234)1883.
 RANGE Cameroons.
- (64) GRAPHIUM ALMANSOR Honrath (Pl.10,fig.2)
 Honrath (Berl.E.Z.28,p.210) 1884.
 RANGE Forests from French Guinea to the Congo,S.Sudan,Angola,
 Uganda, W.Kenya and Ethiopia.
 Ssp. almansor Honrath.
 RANGE Angola, Katanga, N.Rhodesia.
 Ssp. uganda Lathy (Trans.Ent.Soc.Lond. 1906,p.9)
 DESCRIPTION A small dark brown species with pale ochreous yellow
 markings; light markings not arranged in a band, as in
 G. ucalegon. Sexes alike.
 RANGE Uganda, N.W.Tanganyika, W.Kenya.
 RECORDS Kenya: Kakamega.
Uganda:Tororo, Mawakota,Bugalla (Sesse islands),Kayonza,
 Kalinzu, Bwamba.
Tanganyika: Bukoba, Muleba.
 NOTE Specimens from Kayonza and Bwamba lack the submarginal
 pale spots in hw and may constitute a separate race.

- (65) GRAPHIUM ODIN Strand (Wien Ent.Ziet.,29:1,p.30) 1910.
RANGE Cameroons to the Congo.
- (66) GRAPHIUM OLBRECHTSI Berger (Ann.Mus.Congo Belge(3)8,1,p.85)
1950.
RANGE Congo.
- (67) GRAPHIUM AURIVILLIUSI Seeldrayers(Ann.Soc.Ent.Belge 40,
p. 499) 1896.
RANGE Congo.
- (68) GRAPHIUM AGAMEDES Westwood (Ann.Mag.N.H.9,p.38) 1842.
RANGE Ghana to Congo.
- (69) GRAPHIUM ADAMASTOR Boisduval (Gen.Spec.Lep.1,p.371) 1836.
RANGE West Africa to Congo.
- (70) GRAPHIUM PHILONOË Ward (Pl.9,fig.3)
Ward (Ent.M.Mag.10,p.152) 1873.
RANGE Wooded areas and riverine forest on the coast of Kenya
and Tanganyika, in the S.Sudan,S.W.Ethiopia and N.Uganda.
Ssp. philonoë Ward.
DESCRIPTION White with black markings; may be separated from
pylades and from taboranus by the absence of the crimson
and ochreous markings below. Sexes alike.
RANGE Coast of Kenya and Tanganyika.
RECORDS Kenya: Witu,Kilifi,Diani,Gazi,Kwale,Mtwapa,Mrima Hill,
Meru (?).
Tanganyika: Amani,Kimboza,Pugu Hill (Dar es Salaam).
Ssp. whalleyi Talbot (Bull.Hill Mus.3,p.72) 1929.
DESCRIPTION Inner margin of fw black, not white, as in philonoë;
submarginal white spots larger in both wings.
RANGE Sudan, S.W.Ethiopia, N.Uganda.
RECORDS Uganda: West Suk.
- (71) GRAPHIUM LEVASSORI Oberthür (Et.d'Ent.13,p.10) 1881.
RANGE Comoro Islands.

- (72) *GRAPHIUM LEONIDAS* Fabricius (Pl.9,fig.6)
Fabricius (Ent.Syst.3,1,p.35) 1793.

Ssp. leonidas Fabricius.

DESCRIPTION Black, with very pale greenish blue markings; it appears to be a mimic of Tirumala limniace petiverana Dbl. & Hew. (Danaidae).

RANGE A very common species throughout continental Africa. A number of distinct forms have been named and some have been given subspecific status by some authors. However, in view of the continuous distribution of this species and its variability, no real subspecies can be recognised on the continent; there are two well marked races inhabiting the islands of Principe and Sao Thome, in the Gulf of Guinea.

RECORDS East Africa: Ubiquitous, except in high mountains and desert areas.

- (73) *GRAPHIUM KIRBYI* Hewitson (Pl.10,fig.3)
Hewitson (Ent.M.Mag.9,p.146) 1872.

DESCRIPTION Black, with a narrow, straight, white median band. Tails long and tipped with white. Sexes alike.

RANGE Coastal forests in Kenya and Tanganyika.

RECORDS Kenya: Kilifi, Mtwapa, Diani, Kwale.

Tanganyika: Turiani forest, Kimboza forest (Morogoro), Usambara.

NOTE Form ottonis Aurivillius (Rhop.Aeth.p.492,1898), described from the Usambara Mts., in Tanganyika, has a pale green median band. Though treated as a race by some authors, it should be regarded as a varietal form, as it appears to fly with the nominate race.

- (74) *GRAPHIUM ILLYRIS* Hewitson (Ent.M.Mag.9,p.146) 1872.
RANGE West Africa to the Congo.

- (75) *GRAPHIUM GUDENUSI* Rebel (Pl.10,fig.6)
Rebel (Ann.Hofmus.Wien.24,p.409) 1911.

DESCRIPTION Black, with wide, straight green median band; in the apical half of the fw the green band breaks up into internervular spots.

RANGE Montane forest in Ruanda Urundi, the E.Congo and the Kigezi district of Uganda; rare.

RECORDS Uganda: Kayonza forest (Kigezi).

(76) GRAPHIUM COLONNA Ward (Pl.11,fig.1)
Ward (Ent.M.Mag.10,p.151) 1873.

DESCRIPTION Black, with very narrow green markings. No green spots in areas 3,4,5 of hw; 2 prominent crimson spots near tornus of hw. Discal spots in areas 6 and 7 of hw absent. Sexes alike.

RANGE Coastal forests from South Africa to Kenya.

RECORDS Kenya: Thika, Kibwezi, Meru, Malindi, Kilifi, Kwale, Diani, Mtwapa.
Tanganyika: Amani, Morogoro.

(77) GRAPHIUM POLISTRATUS Grose-Smith (Pl.11,fig.2)
Grose-Smith (Ann.Mag.N.H.(6) 3,p.121) 1889.

DESCRIPTION Similar to above, but green stripes and spots broader and more numerous and present in areas 3,4, and 5 of hw. Discal spots in 6 and 7 of hw small and much nearer base than spots in 3,4, and 5; no crimson spots at tornus. Sexes alike.

RANGE Forests of eastern Africa, from Delagoa Bay to Nyasaland Tanganyika, and E.Kenya.

RECORDS Kenya: Diani, Kwale, Kilifi, Mrima Hill.
Tanganyika: Amani, Morogoro.

(78) GRAPHIUM NIGRESCENS Eimer (Artb.bei d.Schm.1,p.233) 1889.
RANGE Cameroons to the Congo.

(79) GRAPHIUM POLICENES Cramer (Pl.11,fig.5)
Cramer (Pap.Exot.1,p.61) 1775.

DESCRIPTION Green markings broader and brighter than in polistratus crimson spots at tornus of hw usually present. Discal spots of hw larger and placed in an evenly curved line. Green bars in cell of fw. straight, as in 3 proceeding species. Sexes alike.

RANGE Forested areas throughout continental Africa.

RECORDS East Africa: All forest areas below 6000 ft.

NOTE 1 Form laurentia Le Cerf 1924, with more iridescent grey on the uns and less black than in the typical form, from S.Tanganyika and Natal, has been treated by some authors

as a distinct race; however, as the distribution of the species is virtually continuous and both forms occur throughout its range, no subspeciation can be recognised.

NOTE II Specimens from Uganda are usually larger than coastal ones.

(80) GRAPHIUM JUNODI Trimen (Trans Ent.Soc.Lond.1893,p.138).
RANGE Mozambique.

(81) GRAPHIUM ANTHEUS Cramer (Pl.11,fig.4)
Cramer (Pap.Exot.3,p.71) 1779.

DESCRIPTION Very similar to policenes, but larger, tails shorter and more curved. Green bars in cell of fw S shaped, sexes alike.

RANGE Very common; wooded areas throughout most of continental Africa.

RECORDS E.Africa: Wooded areas below 5000ft. Very common at the coast and in Uganda. Uganda specimens are usually larger than coastal ones.

NOTE I Several forms and aberrations have been described: evombaroides Eimer, utuba Hampson, nyassae Butler, lurlinus Butler and mercutius Smith & Kirby. No true subspecies can be recognised.

NOTE II G.antheus has been treated as a subspecies of G.evombar Bsd. by some authors. It must be emphasised that evombar is a very distinct species occurring in Madagascar only.

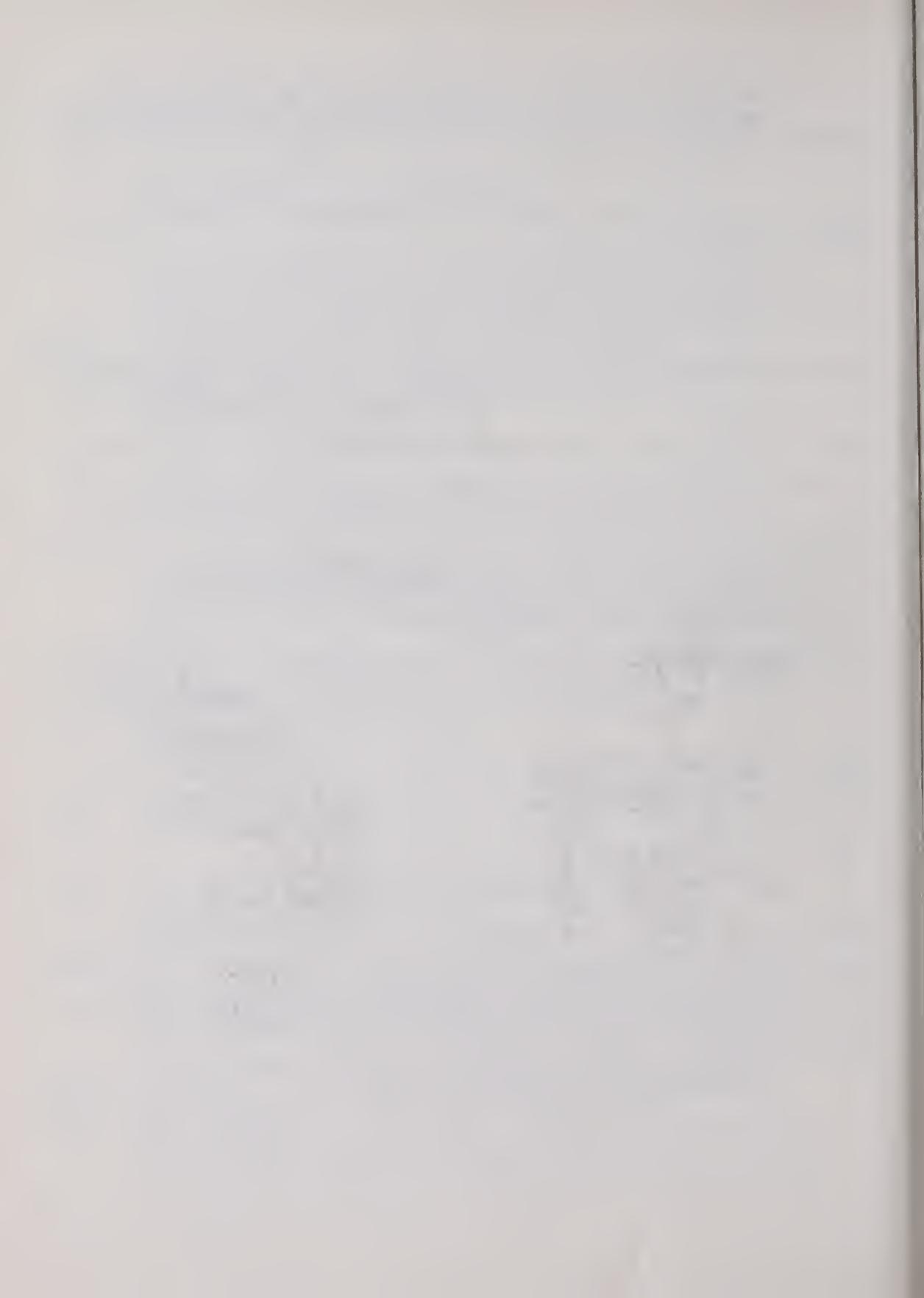
(82) GRAPHIUM EVOMBAR Boisduval (Spec.Gen.Lep.1,p.254) 1836.
RANGE Madagascar.

(83) GRAPHIUM PORTHAON Hewitson (Pl.11,fig.3)
Hewitson (Exot.Butt.Pap.t.7) 1865.

DESCRIPTION Smaller than antheus. All light markings creamy white, not green. Tails long and straight; light markings in fw cell S shaped, sexes alike.

RANGE Wooded areas from the Transvaal and Mozambique to Rhodesia, Nyasaland, Tanganyika, and the coastal areas of Kenya.

RECORDS Kenya: All coastal forests.
Tanganyika: All well wooded areas below 5000 ft., excluding the north-west.





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PLATE I

I.P. antimachus ♂ 2 *P. rex rex* ♂ 3 *P. thurai* ♂

1875

1876



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PLATE 2

1 *P. dardanus dardanus* ♂ 2 *P. d. polytrophus f. lamborni*

3 *P. d. polytrophus f. hippococonoides* 4 *P. d. polytrophus f. cenea*

5 *P. d. dardanus f. planemoides*



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PLATE 3

1 *P.nobilis nobilis* ♂ 2 *P.phorcas ansorgei* ♂ 3 *P.p.ansorgei*
♀ *f.thersandroides* 4 *P.mackinmoni mackinmoni* ♂ 5 *P.leucotaenia* ♂

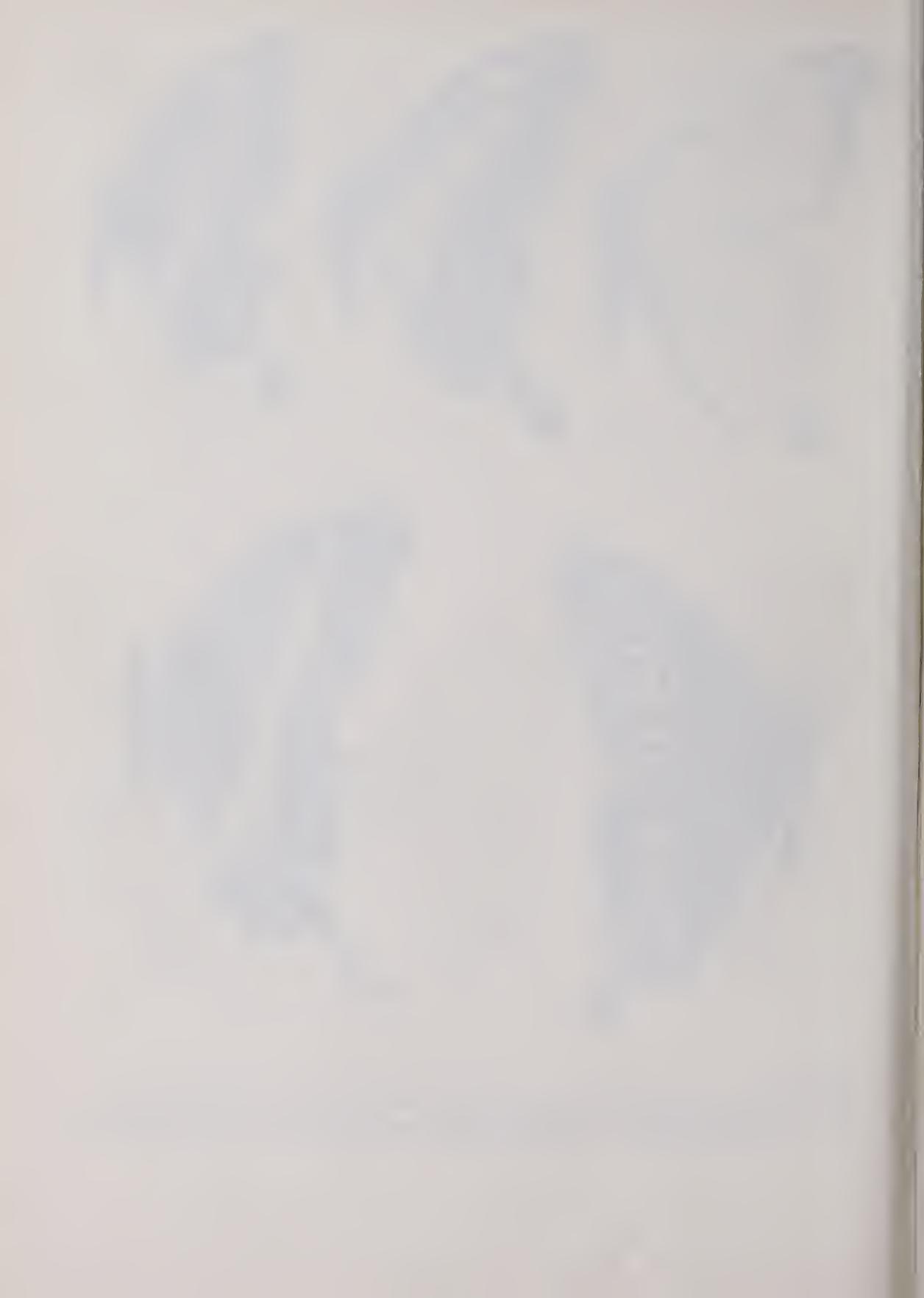
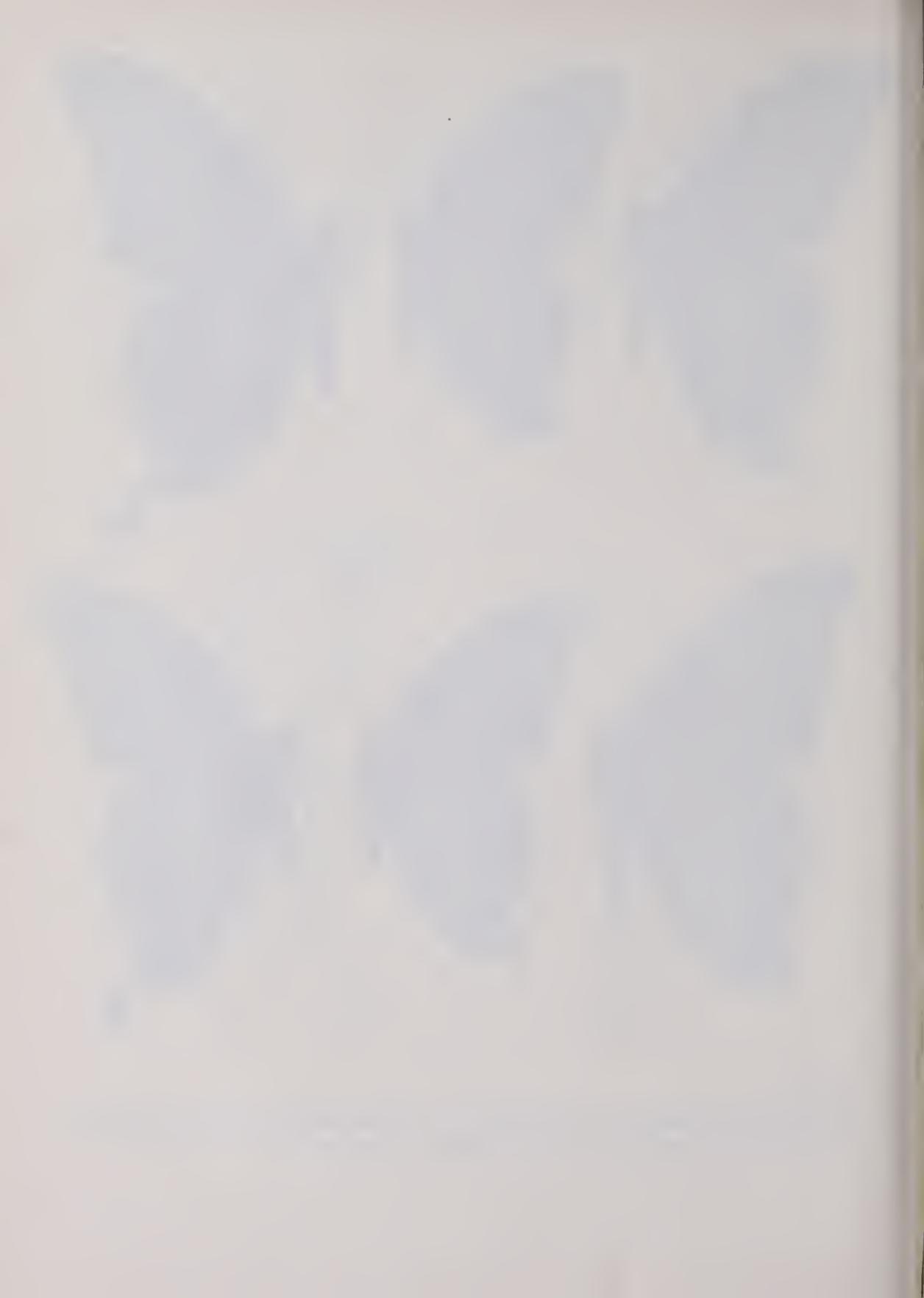




PLATE 4

1 *P.nireus lyaeus* ♂ 2 *P.sosia* ♂ 3 *P.hornimani* ♂ 4 *P.b.bromius* ♂
5 *P.brontes brontes* ♂ 6 *P.charopus juvenus* ♂





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PLATE 5

1 *P.lormieri crocea* ♂
3 *P.c. constantinus* ♂

2 *P.o. ophidicephalus* ♂
4 *P.d. demodocus* ♂



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PLATE 6

I P.mechowi mechowi ♂ 2 P.zenobia ♂
3 P.pelodorus vesper ♂ 4 P.h.hesperus ♂



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PLATE 7

1 *P. e. echerioides* ♂ 2 *P. j. jacksoni* ♂ 3 *P. zoroastres joiceyi* ♂
4 *P. e. echerioides* ♀ 5 *P. j. jacksoni* ♀ 6 *P. zoroastres joiceyi* ♀



1



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PLATE 8

I P.fulleborni ♂	2 P.s.sjostedti ♂	3 P.cynorta ♂
4 P.fulleborni ♀	5 P.s.sjostedti ♀	6 P.cynorta ♀ f.lavochorea



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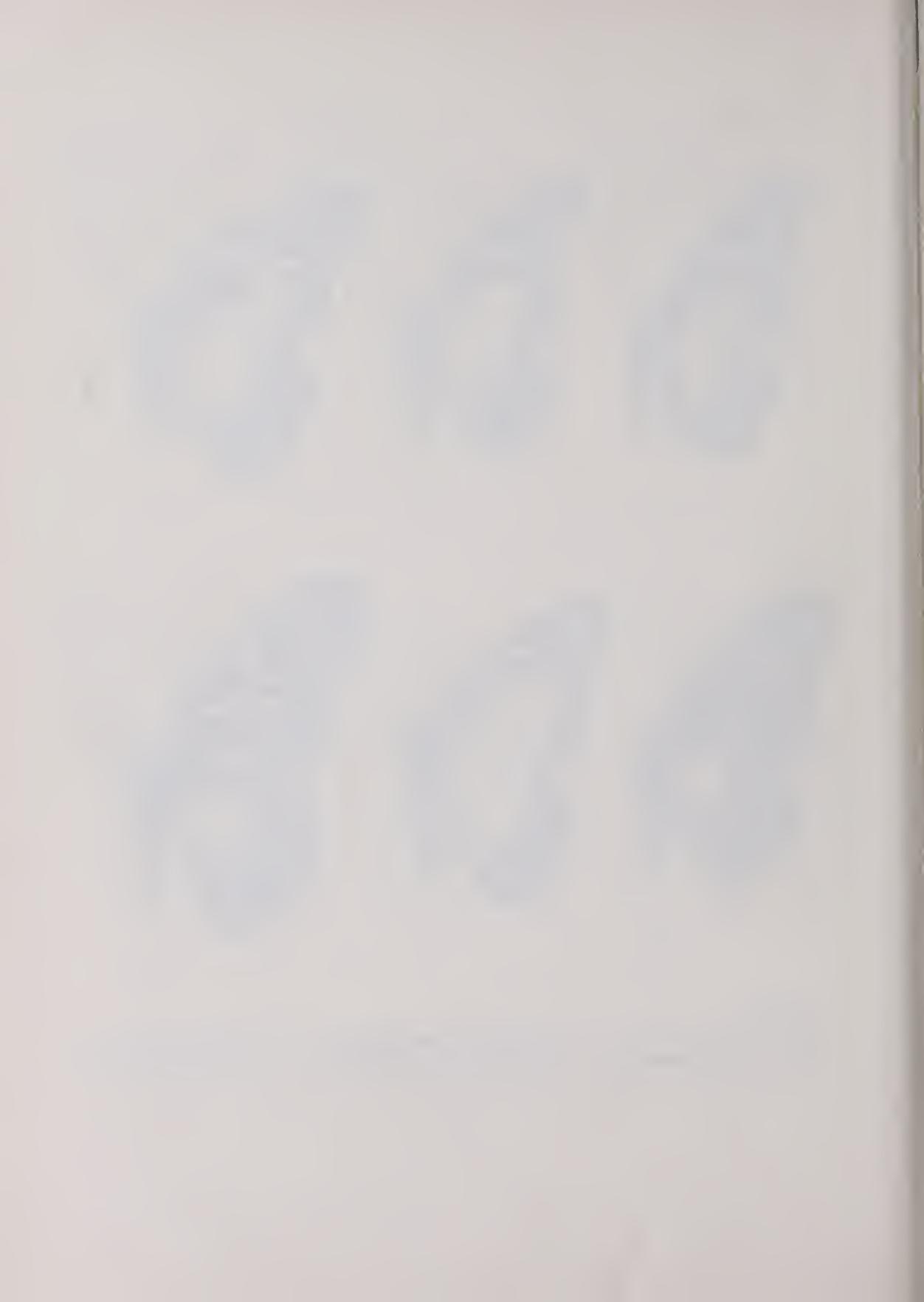
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PLATE 9

1 *G. t. taboranus* ♂ 2 *G. pylades angolamus* ♂ 3 *G. p. philonoe* ♂
4 *G. t. taboranus* ♀ 5 *G. pylades pylades* ♂ 6 *G. l. leonidas*. ♂





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PLATE IO

1 *G. ucalegon schoutedeni* ♂ 2 *G. almansor uganda* ♂ 3 *G. kirbyi* ♂
4 *G. latreillianus theorini* ♂ 5 *G. ridleyianus* ♂ 6 *G. gudenusi* ♂



1



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3



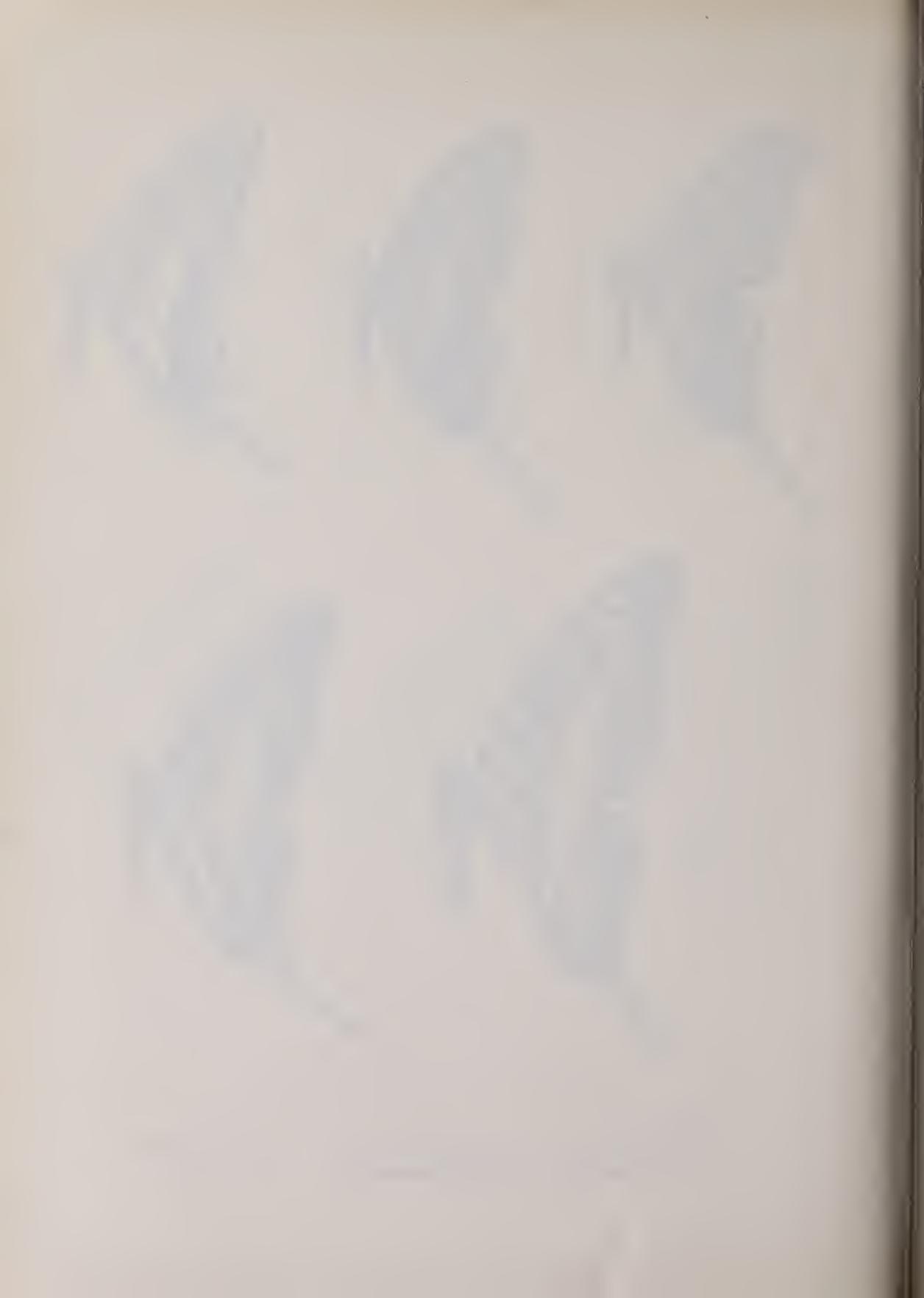
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5

PLATE II

1 *G. columna* ♂ 2 *G. polistratus* ♂ 3 *G. porthaon* ♂
4 *G. antheus* ♂ 5 *G. policenes* ♂



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