

SOME COMMON BUTTERFLIES OF THE NAIROBI DISTRICT.

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Kabete.

INTRODUCTION.

The lack of any handy review dealing with the butterflies of the Nairobi district has been keenly felt for many years. A study of butterflies during childhood has been to many their first introduction to the wonders of nature, and the attention paid by children to the cases of butterflies in the Coryndon Memorial Museum, gives ground for the belief that Nairobi children do not differ from those of other countries in their interest in these insects. It is hoped that these notes which are not intended to be an addition to the scientific knowledge of the butterfly fauna of Nairobi, will serve as an introduction to the subject for beginners.

The present article is based mainly on observations on the butterflies of Karura forest, of Kabete, and of Ruiru, made during the last two years. In determining their specimens, the authors have consulted the very valuable series of articles by Dr. V. G. L. van Someren and his collaborators, which have appeared in the *Journal* of the Society. Determinations would have been more simple, had this series been completed. We have also obtained most of our information on food-plants from these papers or from the exhibit which Dr. van Someren prepared for the Coryndon Museum. The "skippers" have been identified from Evans (1937) and revisions of the genera *Colotis* and *Terias* by Talbot (1939) and Corbett (1934) have been followed. For the rest we have had to rely almost entirely on Aurivillius (1908-1925). Notes at the end of the article explain a few other changes in nomenclature which we have made. It is hoped that, even if some of the names require revision in the light of modern knowledge, they will serve as a basis of classification for those who have no alternative source of information.

Unfortunately, the majority of our local species have no common, English names and, although the authors had thought of inventing some, on second thoughts they decided not to do so. To remember the scientific names requires little extra effort and in the end these names are of much greater use.

Some difficulty has been experienced in the choice of the species to be included. For the most part we have selected the species that in our experience have been encountered most

frequently. One or two less common species, however, have been described because they are either mimics of, or models for, species that are often collected.

COLORATION OF BUTTERFLIES.

No account of East African butterflies would be complete without some brief notes on coloration. The species described in this article include forms which illustrate cryptic and warning coloration, mimicry, and sexual and seasonal dimorphism. In fact, were all the known species of butterflies available from which to choose, it would be hard to find better examples to illustrate these subjects, some knowledge of which will add interest to the outdoor study of our local forms.

Cryptic and Warning Coloration.

Animals, in general, may be divided into those which are cryptically coloured, so that, at least when at rest, they are concealed from their enemies and those which advertise their presence by brilliant or contrasting colours. As a beautiful example of the former, the butterfly *Precis tugela* Trim. may be cited. When at rest on a twig this butterfly can easily be mistaken even by an experienced observer for a dead leaf. One of the classical examples of the latter is a wasp. The black and yellow warning colour of a wasp is readily recognised by predatory animals, who soon learn to associate it with a sting.

Insects with cryptic coloration usually have habits suited to their disguise. There would, for example, be no point in an insect looking like a dead leaf if it got up and flew away as soon as an enemy approached. The majority of insects with warning colours are unpleasant to the taste and are, therefore, left severely alone by insectivorous animals. They are bold in their habits, knowing full well that there is very little risk of their being attacked. Some insects with warning colours are, however, edible. They have frequently developed warning colours because such colours have caused them to be mistaken for other insects which are best left alone by predators. Such edible insects are usually described as mimics although the choice of this word is unfortunate since mimicry, in its usual sense, implies a voluntary effort to copy.

Mimicry.

As a general rule an insectivorous animal can only discover that a certain combination of colours goes with inedibility by experience, and it therefore follows that the model is usually a common species. It is obvious, too, that it is to the advantage of inedible species to have the same combination of colours, since their enemies learn all the more rapidly to leave them alone. There are, in consequence, two forms of mimicry, Batesian mimicry in which the mimic is edible and harmless and Mullerian mimicry in which the mimic is distasteful.

On Plate 38, there are illustrated the common, inedible species *Danaus chrysippus dorippus* with its Batesian mimic the female form *Hypolimnias misippus inaria*, and a Mullerian mimic, *Acraea encedon दौरa*. The typical form *Danaus chrysippus chrysippus* has as mimics the typical female form of *Hypolimnias misippus* and the form *Acraea encedon lycoides*. It will be seen from the Plate that the beautiful male *Hypolimnias misippus* is not a mimic. When disporting itself on flowers this is a most conspicuous insect; but numerous specimens, in a coconut plantation near Mombasa, were observed to settle almost exclusively on charred patches of grass and ashes, where coconut husks had been burned. In such a situation the coloration of the underside was definitely concealing.

One of the finest examples of mimicry occurs in the females of the swallowtail butterfly, *Papilio dardanus*. The male, as will be seen from Plate 42, is a typical swallowtail; but the local females have no tails. Several forms of female are known, each a mimic of an unpalatable species of the family, *Danaidae*. In the Nairobi area the females are very variable; but show a general resemblance to the forms *cenea* or *hippocoon*. These female butterflies are Mullerian mimics, and the local variability is attributed by some authorities to the scarcity of models in the area. Another good example of mimicry is illustrated on Plate 41 where the rather rare *Papilio rex* and the more common *Danaus formosa* are shown.

Sexual Dimorphism.

When an insect occurs in two, more or less dissimilar forms the phenomenon is called "dimorphism." Several butterflies in which the sexes are quite different have already been mentioned and many others will be detected from an examination of the Plates.

Seasonal Dimorphism.

Probably the best known example of seasonal dimorphism is the butterfly, *Precis octavia*. The dry-season form, *Precis octavia sesamus* is a blue insect with a row of red spots near the outer edge of each wing and other, black, markings. The wet-season form, however, is brick red with black markings. Intermediate forms occur, as, for example, that illustrated in Plate 40, Fig. 9. The dry-season form is often a larger, and more soberly-coloured insect than the wet-season form, the great size of the dry-season form being due, in all probability, to the fact that it develops from a larva which feeds during the wet season when food is more plentiful. Less-marked instances of seasonal dimorphism are common among the family, *Pieridae*.

CLASSIFICATION.

It is unusual in an article of this type to deal with classification from the scientific viewpoint. Owing, however, to the existence of mimicry amongst our local species, some notes on classification are really essential if the reader is to be able to satisfy himself on the identity of some of the mimetic forms. Reference to Plate 38 will show the very close similarity in general appearance between *Danaus chrysippus dorippus* and *Hypolimnas misippus inaria*. These two butterflies belong to the different families, *Danaidae* and *Nymphalidae* and from the wing diagrams on Plate 37 it will be seen that the cells of the wings in the *Danaidae* are closed, whereas those of the *Nymphalidae* are open. With this knowledge one is able to decide quite easily which species is under examination.

Butterflies are insects belonging to the order *LEPIDOPTERA*. The order is so called because the wings are covered with minute scales. If the insects are carelessly handled, these scales are easily detached, when they appear as a fine dust on the fingers, and it is they which are responsible for the marvellous colours on the wings. The *LEPIDOPTERA* are divided into a number of families, one group of which is usually referred to as "butterflies," the remainder of them being "moths." The group is, however, not a natural one and hence the differences between butterflies and moths are not clearly defined. The following characters will usually enable one to decide if an insect is a butterfly or a moth:—

Butterflies fly by day; antennae (feelers) clubbed at the tip; when at rest wings held vertically with the upper surfaces touching over the back. The "skippers" have the antennal clubs tapering gradually at each end and some of them rest with the wings flat to show the upper surface.

Moths, the majority fly by night; antennae usually threadlike or feathered; rest with wings folded horizontally over the back so that the upper surface of the forewings is exposed. A few bright-coloured moths fly by day and, of these, some, e.g., the "burnets," have antennal clubs resembling those of the "skippers." Some of the geometer moths rest with wings erect.

In East Africa, there are ten families the members of which are usually called butterflies. The main characters of the families are as follows:—

The first four families are treated by some authors as subfamilies of one family, *Nymphalidae*. They agree in having the front legs of both sexes reduced and useless for walking (Plate 37, Fig. 1). The chrysalis hangs by the tail.

Family *DANAIDAE*.

Cells of both wings closed, anal nervures of forewings forked at the base. Male with unjointed, female with jointed fore-tarsi; no claws on forelegs of either sex. Larvae smooth with fleshy protuberances.

Family *ACRAEIDAE*.

Narrow-winged butterflies, usually predominately brown or reddish brown, cells of both wings closed. Inner edge of hindwings without groove to enclose abdomen. Larvae with long branching hairs.

Family *NYMPHALIDAE*.

Cells of hindwings open or rarely closed by a very fine transverse vein; inner edge of hindwing with a groove to enclose abdomen. Larvae spiny or smooth.

Family *SATYRIDAE*.

Cells of both wings closed, subcostal nervure thickened near base. Fore-tarsi of male unjointed and long-haired; of female with short joints and less hairy. Palpi flattened, with long bristly hairs. Larvae with forked tail-segment, smooth or clothed with short hairs.

Family *RIODINIDAE*.

A small family, most of the members of which are found in tropical South America. The forelegs of the males are reduced and useless for walking; but in the female all six legs are perfect although the front pair may be rather smaller than the others. The wing neuration resembles that of the *Lycaenidae*. There are no species described in this article.

Family *LIBYTHEIDAE*.

Another small family of which no representative is included in this article. The family is characterised by having palpi almost four times as long as the head and projecting forwards like a snout.

Family *PAPILIONIDAE*.

All legs well-developed in both sexes, claws large but not toothed. Inner margin of hindwing concave and distinguished from all other families by having only one anal nervure which is parallel to the edge of the wing; wings often tailed. Larvae cylindrical, never hairy; but sometimes with fleshy knobs and a retractile horn behind the head. Pupae standing on the tail and held up by a silken girdle; two frontal tubercles.

Family *PIERIDAE*.

All legs well-developed in both sexes, claws bifid or toothed, venation similar to that of *Papilionidae*; but two anal nervures present in hindwings. Larvae cylindrical and hairy. Pupae as in *Papilionidae* but only one, central, frontal tubercle.

Family *LYCAENIDAE*.

Forelegs almost as large as the other two pairs, forefeet in the male usually unjointed and terminating in a simple hook, in the female jointed and having two claws: neuration as in the *Hesperiidae*; but only three or four radial nervures present, antennae inserted close together. Larvae strongly convex above and flat below, short and hairy. Pupae standing on the tail and held up by a silken girdle.

Family *HESPERIIDAE*.

All six legs well-developed, claws short and stout. Forewings with five equally-spaced radial nervures. Head broad, antennae widely separated at the base and eyes prominent: body relatively stout for size. Larvae with a large head and narrow thoracic segments. Pupae in a slight, silken cocoon.

The important distinguishing features are illustrated in Plate 37 and it is hoped that with the help of these figures the reader will have no difficulty in deciding to what family a butterfly belongs whether it be described in this article or not.

DESCRIPTION OF SPECIES.

Family *DANAIDAE*.

Genus *Danaus* Klug.¹

Danaus chrysippus (Linn)

The "golden danaid." General colour brownish-orange with black margins to the wings and white and black spots. Four different forms occur. The typical form, *D. chrysippus chrysippus* (Linn) (Plate 38, Fig. 1), has the whole of the apical portion of the forewing black with a series of white spots forming a bar across the tip. The form, *D. chrysippus dorippus* Klug. (Plate 38, Fig. 2), has only the margin black and is without the white bar of the typical form. A form similar to *dorippus*, but with a white centre to the hindwing is sometimes encountered. This is *D. chrysippus albinus* Lanz. (Plate 38, Fig. 3). The fourth form, which is not illustrated, is *D. chrysippus alcippus* (Cr.). This is similar to the typical form; but like *albinus* has white centres to the hindwings. The sexes are similar except that the males have four black spots on the hindwing instead of three as in the female. The extra spot is a sex pouch.

By far the commonest form is undoubtedly *dorippus*; but, at Ruiru for instance, all the above forms have been collected. The species is on the wing throughout the year and is frequently seen in most types of country with the exception of forest. The flight is slow. The larvae feed on species of *Asclepias* and on *Gomphocarpus fruticosus*.

Danaus (Melinda) formosa (Godm.) (Plate 41, Fig. 5).

Has the inner portion of the wings rufous and the outer chocolate-brown. The spots are a pale cream. The sexes are very similar, but as in the last species the male can be distinguished by the sex pouch on the hindwing.

This species is most frequently found in forests. The flight, unless the insect is alarmed, is slow. The food-plant of the larvae is *Secamone platystigma*.

¹ See Notes on Nomenclature, page 228.

Genus *Amauris* Hbn.

Amauris albimaculata (Butler) (Plate 42, Fig. 6)

Is a black and white butterfly with a buff-coloured rectangular patch on the hindwing. The sexes are similar.

This is a forest insect, not common in the Nairobi District and included to illustrate the principle of mimicry. It is the model for *Papilio dardanus* ♀-form *cenea* Stoll. (Plate 42, Fig. 2) as well as for females of *Papilio jacksoni* Sharpe and *P. echerioides* Trim. The larvae are found on *Cynanchum* sp.

Amauris niavius dominicanus (Trim.) (Plate 42, Fig. 7)

Is black and white, although when floating slowly along a forest track the wings appear to have a bluish sheen. It is a forest species which we have not collected near Nairobi and like the last is included since it is the model for a ♀-form of *Papilio dardanus* in this case, form *hippocoon* Fab. (Plate 42, Fig. 3). The food-plants are members of the asclepiad genera *Tylophora* and *Cynanchum*.

Family ACRAEIDAE.

Genus *Acraea* Fab.

Acraea bonasia (Fab.) (Plate 38, Fig. 11)

Has an orange-red ground colour and black markings. The sexes are very similar; but the female is slightly larger, a little less bright in colour and has a series of orange spots along the posterior margins of the hindwings.

At some seasons this species is very common in gardens and along forest paths. The larvae feed on a species of *Hibiscus*.

Acraea cabira (Hoppfer) (Plate 38, Fig. 10)

Is black and yellow. As in the last species the females can be distinguished by their larger size and by the presence of pale spots along the margins of the hindwings.

This species is common at some seasons and the larvae occur on a species of *Hibiscus*.

Acraea insignis (Distant) (Plate 38, Fig. 12)

Has the front half of the forewings transparent. The dark patch in the centre of the forewings and the margins of the hindwings are an intense black and, in fresh specimens the rest of the wings is a bright, brick red. In some examples the black central patch on the hindwings will be found to be broken up into a number of fairly large spots.

This species is found in forest and open park country and in some years is one of the commonest species in gardens around Nairobi. The caterpillars can be a serious garden pest stripping the leaves off grenadilla vines. They will also feed on a number of other garden plants.

PLATE 37.—STRUCTURAL DIAGRAMS.

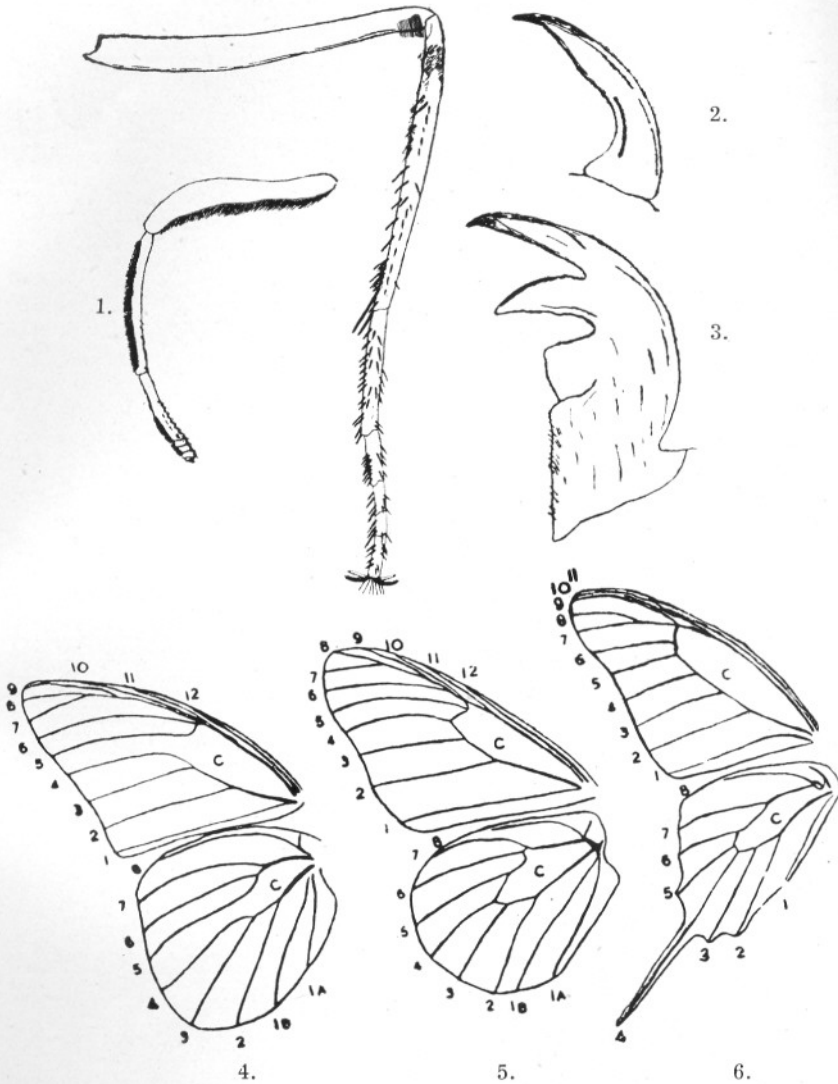
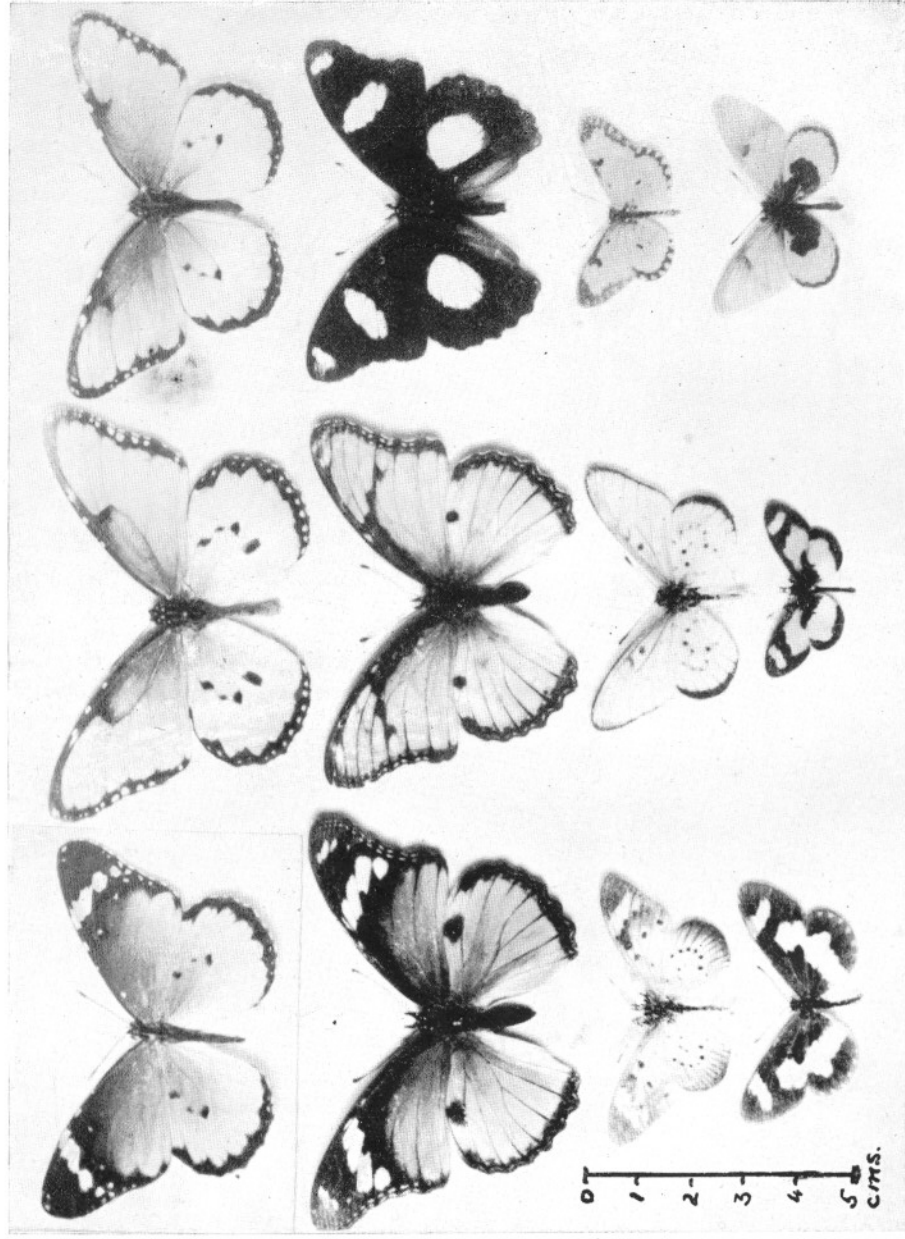


Fig. 1. Foreleg (on left) and midleg (on right) of *Hypolimnas misippus* ♀ drawn to the same scale to show the greatly-reduced foreleg in the *Nymphalidae*.

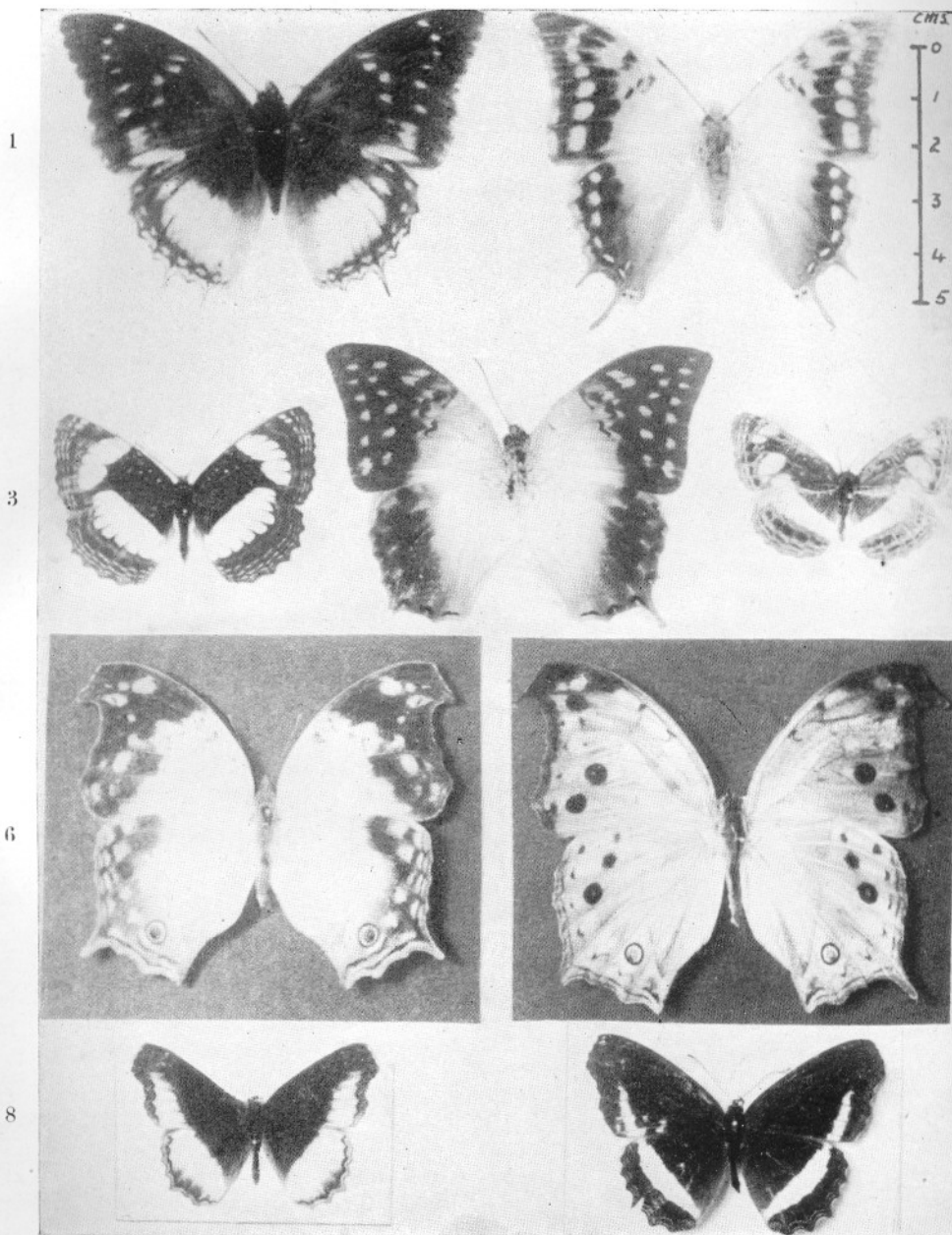
Fig. 2 & 3. Single claw of *Papilio nireus* ♂ (*Papilionidae*) and bifid claw of *Colotis antevippe* ♀ (*Pieridae*). Not to scale

Fig. 4—6. Diagrams of wing venation. The numbers are those used in referring to the veins. The discoidal cells are marked "C." Fig. 4. *Hypolimnas misippus* ♀ to show the open discoidal cell of the *Nymphalidae*. Fig. 5. *Danaus chrysippus* ♂ to show the closed cell of the *Danaidae*. Fig. 6. *Papilio porthaon* Hew. to show the single anal vein (vein 1) of the *Papilionidae*.



1. *Danaus chrysippus chrysippus* (L.)
2. *Danaus chrysippus dorippus* Klug.
3. *Danaus chrysippus albinus* Lanz.
4. *Hypolimnas misippus* ♀-f. *misippus* (L.)
5. *Hypolimnas misippus* ♀-f. *inaria* Cram.
6. *Hypolimnas misippus* (L.)
7. *Acraea encedon lycoides* Le Doux.
8. *Acraea encedon daira* G. & S.
9. *Acraea terpsichore* (L.)
10. *Acraea cabira* Hopff.
11. *Acraea bonasia* (Fab.)
12. *Acraea insignis* Dist.

PLATE 39.



1. *Charaxes cithaeron* Feld.

3. *Neptis agatha* Stoll.

4. *Charaxes varanes vologeses* Mab.

6. *Salamis anacardii nebulosa* Trim.

8. *Eurytela dryope* Cram.

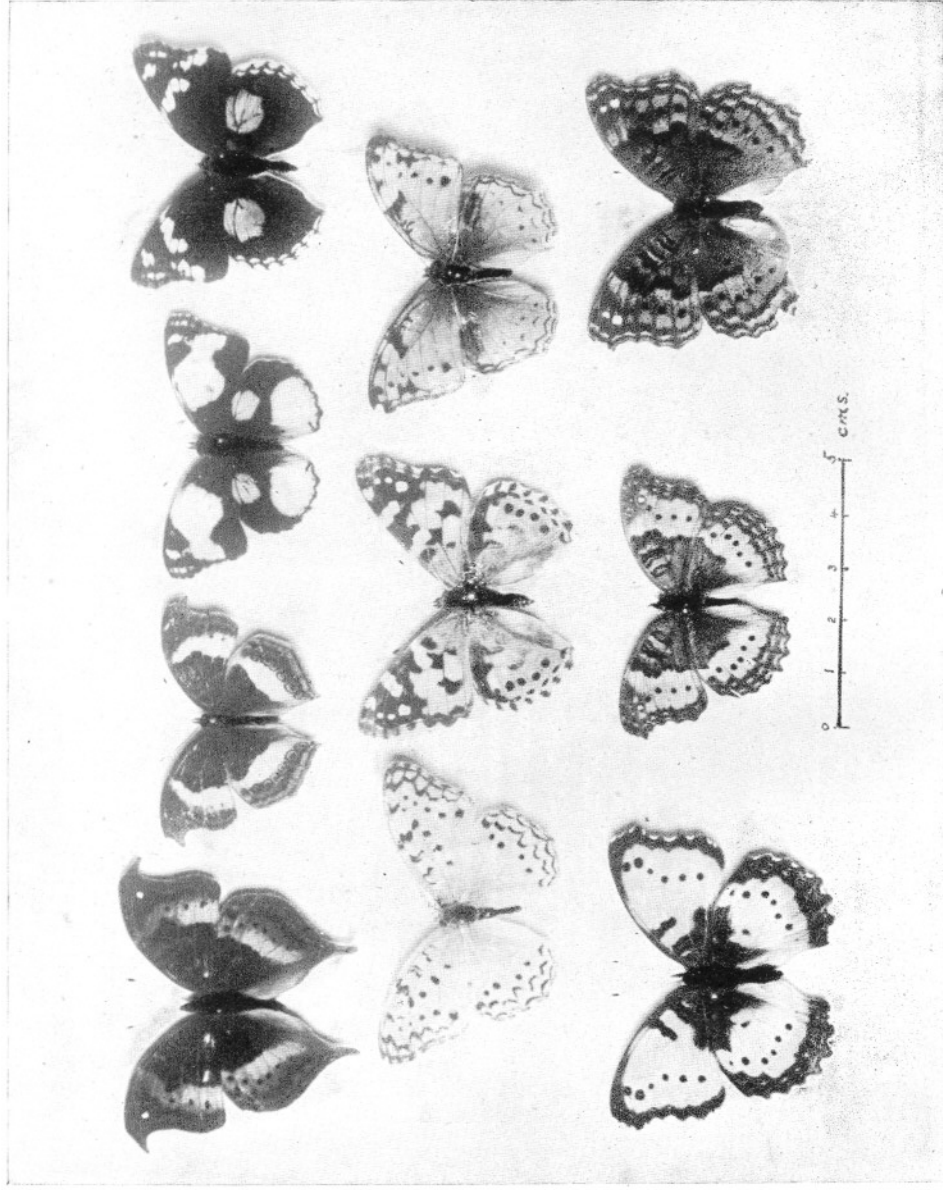
2. *Charaxes candiope* (Godt.).

5. *Neptis saclava* Boisd.

7. *Salamis parhassus aethiops* Pal.

9. *Eurytela hiarbas* Drury.

PLATE 40.



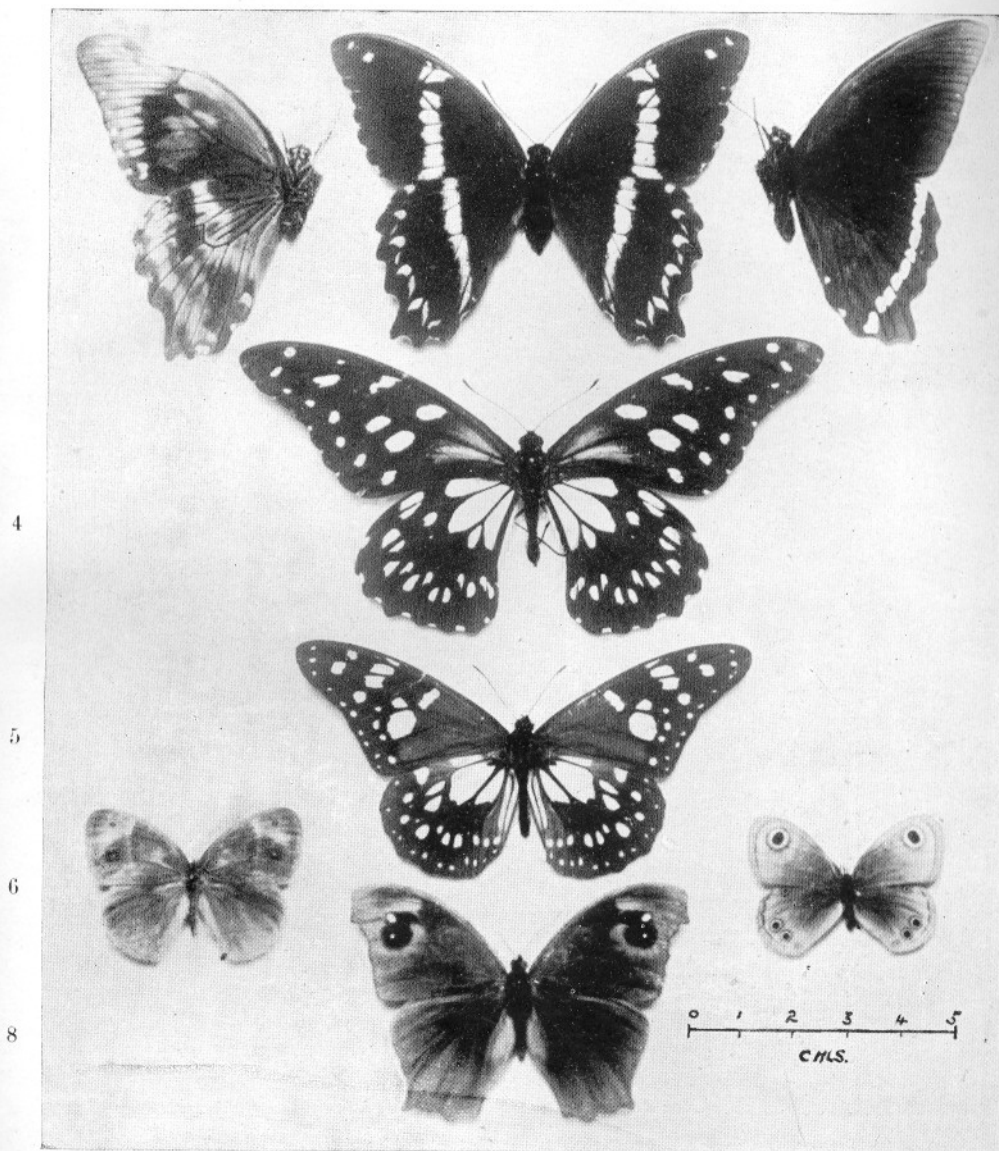
1. *Precis tugela* Trim.
2. *Precis terea elgina* Hew.
3. *Precis oenone cebrene* Trim.
4. *Precis clelia* Cram.
5. *Atella columbina* Cram.
6. *Vanessa cardui* (L.).
7. *Lachnoptera ayresi* Trim.
8. *Precis octavia natalensis* Stgr.
9. *Precis octavia intermediae*.
10. *Precis octavia sesamus* Trim.

PLATE 41.

1.

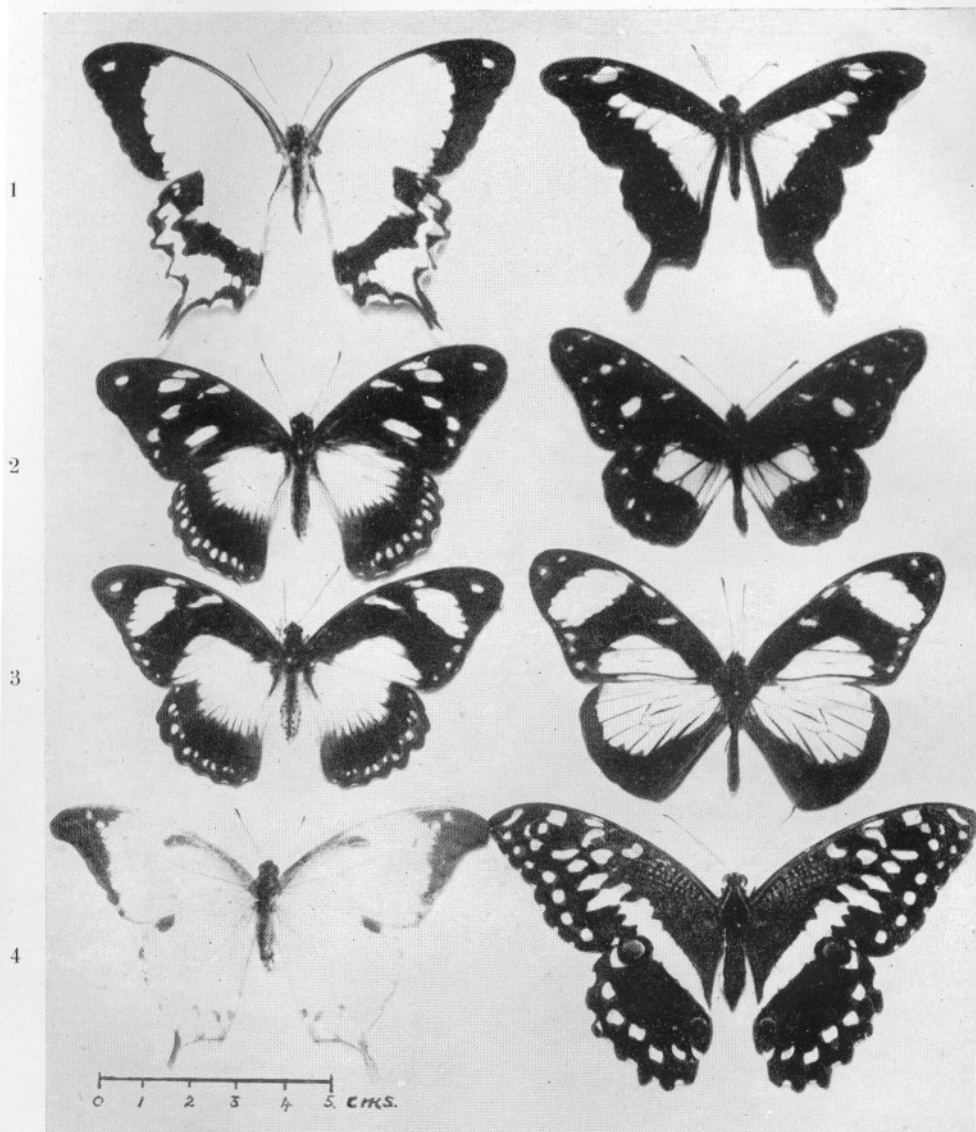
2.

3.



1. *Papilio nireus lyaeus* Dbl. ♀ underside. 2. The same, ♂ upperside. 3. The same, ♂ underside.
 4. *Papilio rex* Oberth.
 5. *Danaus (Melinda) formosa* (Godm.).
 6. *Mycalesis safitza* Hew. 7. *Neocoenyra gregorii* Butl.
 8. *Melanitis leda* (L.).

PLATE 42.

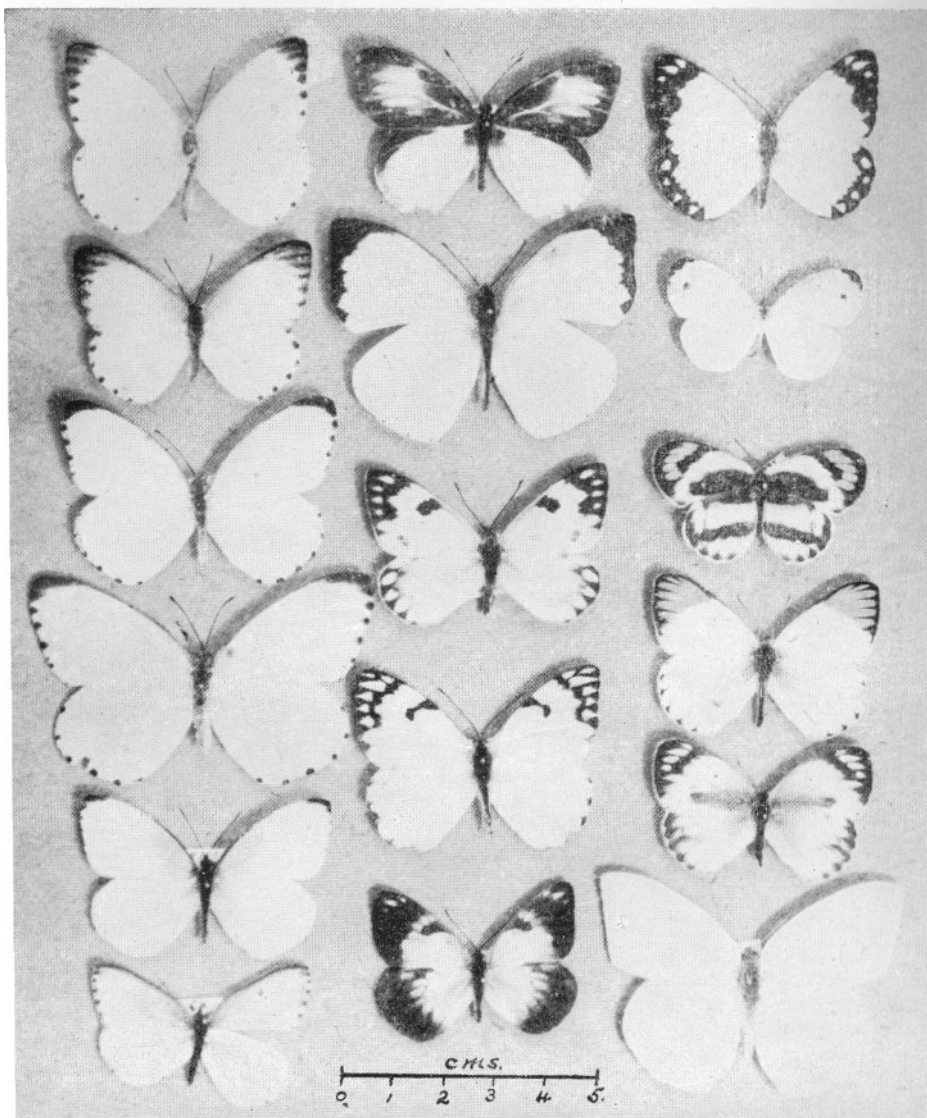


1. *Papilio dardanus tibullus* Kirby ♂.
2. *Papilio dardanus* ♀-f. *cenea* Stoll.
3. *Papilio dardanus* ♀-f. *hippocoon* Fab.
4. *Papilio nobilis* Rog.

5. *Papilio phorcus ansorgei* Rothsch.
6. *Amauris albimaculata* (Butl.).
7. *Amauris niavius dominicanus* (Trim.)
8. *Papilio demodocus* Esp.

PLATE 43.

7.



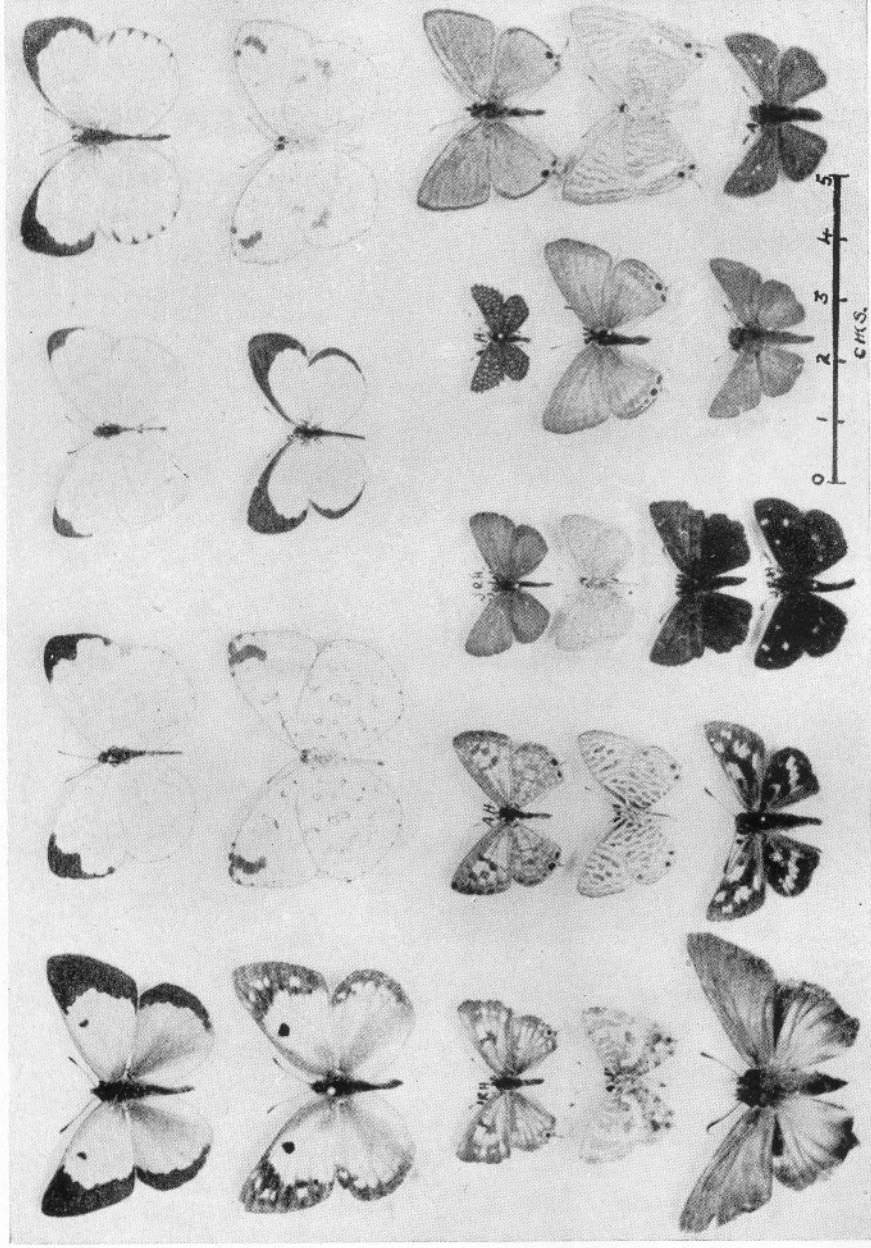
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|--|--|
| 1. <i>Phrissura sabina phoebe</i> Butl. ♂. | 12. <i>Glycestha severina</i> (Cram.) ♂. |
| 2. <i>Phrissura sabina phoebe</i> Butl. ♀. | 13. <i>Leptosia alceste</i> (Cram.). |
| 3. <i>Mylothris agathina</i> Cram. ♂. | 14. <i>Colotis evippe omphale</i> (Godt.). |
| 4. <i>Mylothris agathina</i> Cram. ♀. | 15. <i>Colotis antevippe zera</i> (Lucas) ♂. |
| 5. <i>Mylothris rupelli</i> Koch. | 16. <i>Colotis antevippe zera</i> (Lucas) ♀. |
| 6. <i>Mylothris rubricosta</i> Mab. | 17. <i>Catopsilia florella</i> (Fab.) ♂. |
| 7. <i>Mylothris sagala jacksoni</i> E. Sharpe. | |
| 8. <i>Eronia thalassina</i> Bsdv. | |
| 9. <i>Syncloë helice johnstoni</i> Crowl. | |
| 10. <i>Glycestha zochalia</i> (Bsdv.). | |
| 11. <i>Glycestha severina</i> (Cram.) ♀. | |

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24.

- 1. *Colias electra* (L.), ♂
- 5. *Colias electra* (L.), ♀
- 9. *Cacyreus lingens* (Cram).
- 14. *C. lingens* underside.
- 19. *Coeliades forestan* (Cram)
- 2. *Terias hecabe maculata* Auriv.
- 6. *Terias hecabe maculata* ♀ underside.
- 10. *Synantarus telicanus* (Lang).
- 15. *S. telicanus* underside.
- 20. *Zenonia zeno* (Trim).
- 3. *Terias lupale* Mab.
- 7. *Terias brigitta zoe* Hoppl. ♂
- 11. *Cupido gaika* Trim.
- 16. *C. gaika* Trim underside.
- 21. *Eretis lugens* (Rogen).
- 22. *Metisella q. nanda* Evans.
- 4. *Terias desjardinsi marshalli* Butl.
- 8. *Terias d. marshalli* ♀ underside.
- 12. *Cupido stellata* Trim.
- 17. *C. boeticus* ♀
- 23. *Gegenes l. brevicornis* (Plotz) ♀
- 13. *Cosmolyce boeticus* (L.), ♂
- 18. *C. boeticus* ♂ underside.
- 24. *G. l. brevicornis* ♀

Acraea terpsichore (Linn) (Plate 38, Fig. 9)

Has the ground colour brownish-orange and the markings a brownish-black. The markings in this species are very variable, particularly in the females; but specimens are almost certainly this species if they resemble the illustration generally and have a small, black, rod-shaped marking amongst the dots in the centre of the hindwing. This rod is usually a deeper black than the surrounding dots. The sexes can be distinguished by the greater size of the females and the more sharply-defined markings of the males.

This is a common and widely distributed species. The larvae feed on species of *Triumfetta*.

Acraea encedon (Linn)

Has a large number of forms only the two which we have collected in the Nairobi district being illustrated. *A. encedon lycoides* le Doux (Plate 38, Fig. 7) is a mimic of the typical form of *Danaus chrysippus*. The general ground colour is yellow-brown: there are brownish-black markings and a white band across the tips of the forewings. *A. encedon दौरα* G. & S. (Plate 38, Fig. 8) is orange-brown with black markings and is a mimic of *D. chrysippus dorippus*.

Although perhaps not so common as the four preceding species of this genus, this butterfly is fairly frequent in the Nairobi district. The larvae feed on *Commelina* spp.

Family NYMPHALIDAE.

Genus *Charaxes* Oberth.

Charaxes candiope (Godt.) (Plate 39, Fig. 2)

Is a very beautiful butterfly. The basal half of the forewing is yellow with green veins and the outer half orange with very deep sepia-brown markings. The hindwing has a small yellow-green area near the base: the outer half is more chocolate than on the forewing and the markings are again a very deep brown. The female can be distinguished by its larger size and by the fact that the tails are more nearly equal in length. The different lengths of the tails in the male can be seen in the figure.

In the Nairobi district, this is one of the commonest species of the fine genus *Charaxes*. All the species are very strong fliers and are best captured on bait. They are attracted by the gummy exudations of certain trees, by fermenting fruit juices, and by the dung of carnivorous mammals, some baits proving more attractive for males, others for females. *Charaxes candiope* larvae feed on the leaves of *Croton* trees.

Charaxes cithaeron Feld.

The male (Plate 39, Fig. 1) is black with the spots on the fore- and hindwings blue. The large patch on the hindwing is white with a slightly bluish tinge. The first two spots near the apex of the forewing are also white. The female is black with an arc of almost contiguous, white spots on the forewing, the arc being continued as a broad, white band on the hindwing. The white is tinged in places with pale violet or buff.

This species is common in Karura forest. According to Dr. V. G. L. van Someren, the larvae feed on no less than five species of trees. Of these *Craibia elliottii* Dunn. and *Chaetacme microcarpa* Rendle are found in Karura.

Charaxes varanes vologeses Mab. (Plate 39, Fig. 4)

Has the basal half of both wings white with a suspicion of a bluish tinge. The outer half is orange with the darker portions orange-brown and with orange spots. The sexes are similar.

Whilst this species of *Charaxes* occurs in forest areas it is seen frequently in open savannah country also. It is easier to net in the absence of bait than the majority of the other species of the genus. At Ruiru, it may be observed visiting mango flowers. The food-plants are species of *Allophyllus*.

Genus *Neptis* Fab.

This is a small genus of forest butterflies with a characteristic hovering flight.

Neptis saclava marpessa Hpffr. (Plate 39, Fig. 5)

Is a small species. In colour it is a very dark brown, almost black, with white spots. At certain times it is a very common species in the forests of the Nairobi district.

Neptis agatha Stoll. (Plate 39, Fig. 3)

Is somewhat larger than the last species. The ground colour is similar; but the white markings are arranged differently. The ground colour of the underside is a paler brown than that of the upper surface.

This species is common in forests; but is also found in more open types of country.

Genus *Lachnoptera* Dbl.

Lachnoptera ayresi Trim. (Plate 40, Fig. 7)

Has the upper surface orange-brown with black markings. The under surface is grey-brown with a faint, bluish sheen. Near the posterior angle of the forewing there is a black, rectangular spot. The insect illustrated is a male, the female is very similar, but has the markings on the upper surface less sharply defined.

This species is often numerous in forests such as Karura. The food-plant of the larvae is *Rawsonia usambarensis* K. Schum.

Genus *Atella* Dbl.

This genus is closely related to the last.

Atella columbina Cr. (Plate 40, Fig. 5)

Is orange-brown with black markings above. On the underside the ground colour varies from yellow to a pinky-brown. Near the posterior angle of the forewing there are two round black spots, that nearer the angle being the larger. On the hindwing is a row of orange-brown spots of varying size and both wings show other, smaller, brown markings somewhat analogous to those of the upper surface.

There is another species of the genus which is much less common and which we have not collected. This species *Atella phalantha aethiopica* Rothsch. and Jord. is very similar in appearance to *A. columbina*. The latter is distinguished by the angle on the margin of the hindwing at vein 4, and by other fine characters.

Atella columbina is a common species throughout the Nairobi district.

Genus *Eurytela* Bdv.

Eurytela dryope Cr. (Plate 39, Fig. 8)

Is dark brown with an orange band beginning near the apex of the forewing and increasing in width as it passes across the wings to a maximum near the middle of the hindwing. Thereafter it narrows somewhat to its end on the inner margin of that wing.

Although it never seems to appear in great numbers this species is very widely distributed in Kenya.

Eurytela hiarbas Drury (Plate 39, Fig. 9)

Is very dark brown with a white band, similar to but narrower than the orange band in the last species.

This species occurs in bush and forest country. The larvae feed on a species of *Tragia*.

Genus *Hypolimnas* Hbn.

Hypolimnas misippus (Linn)

Is one of the best known examples of sexual dimorphism. The male (Plate 38, Fig. 6) has the upper surface black with white spots. Close examination will reveal a faint, purple sheen. The females occur in forms which are Batesian mimics of the forms of *Danaus chrysippus*. The type form *Hypolimnas misippus* ♀-form *misippus* (Plate 38, Fig. 4) is a mimic of the typical *Danaus chrysippus* whilst *H. misippus inaria* Cr. (Plate 38, Fig. 5)

is a mimic of *D. chrysippus dorippus*. In addition, there is a form which we have taken at the coast, and which resembles *D. chrysippus alcippus*. Like their models the females are orange-brown with black markings and in the case of *H. misippus misippus* there is, of course, a white bar across the apex of the forewing.

Whilst there is little resemblance between the male and the female forms of this butterfly on the upper side, on the underside the sexes are not unlike except for the presence of a broad white transverse band on the hindwing of the male. In differentiating model and mimic it should be remembered that the cells of the wings are open in *Hypolimnias* but closed in *Danaus*.

This species is a common insect throughout the Nairobi area. The two female forms illustrated appear to be equally frequent. The food-plant of the larvae is a small *Portulaca* with linear leaves.

Genus *Salamis* Bdv.

This genus contains a few large and striking butterflies with a marked hook behind the apex of the forewing and a tail at the end of vein 4 of the hindwing.

Salamis parhassus aethiops Pal. (Plate 39, Fig. 7)

Is sometimes known as the "mother of pearl" butterfly. It is an insect of great beauty, the ground colour being a delicate shade of green with, when viewed from different angles, a violet sheen of varying intensity. The markings are black with the exception of the "eye" near the rear margin of the hindwing which has a reddish-orange centre.

This butterfly is unlikely to be mistaken for any other insect.

The species is often common in wooded areas where it floats gracefully along about 12 feet from the ground.

Salamis anacardii nebulosa Trim. (Plate 39, Fig. 6)

Has a white or cream ground colour; but in this species also there is a mother of pearl sheen although the sheen is much less obvious than in the preceding one. The markings are black and more extensive than in *S. parhassus aethiops*. Like the latter, this butterfly is found in forests; but we have seen it in large numbers in more open, bush country also.

Genus *Precis* Hbn.

This is a large genus of pretty, medium-sized butterflies many of which occur at all altitudes from the coast up to, at least, 7,000 feet.

Precis oenone cebrene Trim. (Plate 40, Fig. 3)

Is an orange and black butterfly with a round, blue or purple spot near the anterior margin of the hindwing. It is an ubiquitous species in fairly open country and marshy areas.

Precis clelia Cr. (Plate 40, Fig. 4)

Has the forewings black with white patches and a few, small, orange-red markings. Two of the latter are "eyespot" with blue centres surrounded by black rings and then with orange-red. The hindwings are black with white lines along the outer margins, a large, brilliant blue or purple circular spot near the anterior margin and two eyespots similar to those of the anterior wings. This species is common wherever the preceding is found. Like *Precis cebrene* it is fond of basking in the sun on bare patches of soil.

Precis terea elgiva Hew. (Plate 40, Fig. 2)

Is a dark brown species with a yellow band running across both wings, lighter brown markings near the front margin of the forewings and a row of "eyespot" bordering the outer edge of the yellow band of the hindwings. Unlike the two previous species of the genus this is a forest-loving species.

Precis tugela Trim. (Plate 40, Fig. 1)

Merits the name of the "dead-leaf precis." On the upper surface the ground colour is dark brown and a reddish orange bar, deeper and richer in colour than in the previous species crosses both wings. There are some indistinct brown markings near the anterior margin of the forewing and three white dots, of which the centre one is much the more prominent, in a line near the apex. Black dots occur in the transverse band on both wings: there is a marked hook behind the apex of the forewing as in the genus *Salamis* and the hindwings come to a point at the posterior angle. When the butterfly is at rest on a twig the "tails" of the hindwings resemble a leaf-stalk and the brown colour of the underside, darker on one side of where the midrib would be, gives the insect the appearance of a dead leaf. This species does not appear to be so common as the three preceding species.

Precis octavia Cr.

Is one of the best examples of seasonal dimorphism. The dry season form that occurs locally is *P. octavia sesamus* Trim. (Plate 40, Fig. 10) the southern race of the species. The general colour is blue. The markings are black, with the exception of two white spots near the apex of the forewing and a band of red spots extending from below the second white spot across both wings to the inner margin of the hindwing.

Precis octavia natalensis Stgr. (Plate 40, Fig. 8) is the wet season form of *P. octavia sesamus* and is a rosy-pink or red insect with black markings. In addition, we have photographed (Plate 40, Fig. 9) a specimen caught in Karura forest of a form intermediate between the wet and dry forms. This specimen is similar to the dry season form, but the red spots form a continuous band which on its inner edge diffuses into a lilac coloured area. The black dots on the inner edge of the band are, therefore, prominent as in the wet season form. The dry season form is usually larger than the wet. In the Nairobi district, it is not uncommon to see both forms flying together.

This species is not so common as *Precis cebrene* or *P. clelia*; but is seen quite often in gardens and in wooded areas. Like some of the other species of the genus, it enjoys basking on bare soil. The larvae feed on *Coleus barbatus*.

Genus *Vanessa* Fab.¹

Vanessa cardui (Linn) (Plate 40, Fig. 6).

The "painted lady" is one of the few insects that have an almost world-wide distribution. It occurs in Europe (including England), Asia, Africa, and America. In Kenya, it has been seen by us at altitudes from sea-level to 10,000 feet and it is quite probable that it occurs even higher. The upper surface is orange-brown with dark brown markings. There are white spots in the dark apical area of the forewings and fine, curved, white lines between the nerves along the outer margins of both fore- and hindwings. The under surface is very beautiful; but the complicated pattern is difficult to describe.

V. cardui, although so widely distributed, is never plentiful. Individuals appear to be long-lived and to take possession of a definite territory, for example, a certain flower-bed where they are to be seen on sunny days for several weeks. They flit from flower to flower and sun themselves on open patches of bare soil like some of the *Precis*.

The caterpillar, which is black with yellow spines is found in Europe on thistles, and many other plants. In Kenya, *Malva verticillata* and a species of *Cynoglossum* are eaten.

Family SATYRIDAE.

Most members of this family are brown in colour hence they are often spoken of as "the Browns."

Genus *Melanitis* Fab.

Melanitis leda (Linn) (Plate 41, Fig. 8).

The "twilight brown" has the ground colour dark brown. Towards the apex of the forewing is an orange-red area contain-

¹ See Notes on Nomenclature, page 228.

ing a fairly large, black spot in which are two, smaller white spots. Near the rear of the hindwing is a very small white spot. This butterfly, in shape, colouring and markings is rather variable.

The species has a very wide distribution in Africa, Asia, and Australia. During the sunny periods it hides in shady spots in woods and it flits about in the evening. The caterpillar is yellow with green stripes and two horns on the head. The food-plants, as of most of the family, are grasses.

Genus *Mycalesis* Hbn.

Mycalesis saftza Hew. (Plate 41, Fig. 6)

Is dark brown above, with a small area tinged with yellow towards the apex of the forewing. On the forewing are two, black, white-pupilled "eyespot." Near the rear margin of the hindwing is a very small pin-point of white. This species occurs throughout Africa, south of the Sahara, and is often very common in the forests around Nairobi.

Genus *Neocoenyra* Btlr.

Neocoenyra gregorii Btlr. (Plate 41, Fig. 7).

The general colour is dark brown, the inner portions of the wings being slightly darker than the rest. The black "eyespot" on the forewing contains two pin-points of white which do not show up in the illustration. The light-coloured ring in this "eyespot" is reddish-yellow. On the hindwing are four more "eyespot," the two central ones being the larger. Like the last two species, this butterfly is found in forest glades or where there are enough trees to give heavy shade.

Family *PIERIDAE*.

The *Pieridae* or "Whites" are a large family of world-wide distribution. Three species of *Pieris*, known as "cabbage-whites," are responsible for much damage to cabbages and other cruciferous plants in England; but these species do not occur in Kenya.

Genus *Phrissura* Btlr.

Phrissura sabina phoebe Btlr.

Male (Plate 43, Fig. 1), upperside white with black, triangular tips to the forewings; underside white with the anterior edge of the hindwing orange and with small black dots at the extremities of the veins. Female (Plate 43, Fig. 2), ground colour of the upperside white, dusted in places with lemon-yellow and the anterior half of the basal area orange. In some specimens the upper surface of the hindwings is yellow. The forewings have black anterior margins and tips, the edges of the black being more or less speckled. There are black dots at the ends of the veins of the hindwings. The underside of the female

resembles that of the male except that the base of the forewing is orange anteriorly.

During 1942, this species was very common in Karura forest. It has also been seen in much smaller numbers in other parts of the district.

Genus *Mylothris* Hbn.

Mylothris agathina Cr.

The male (Plate 43, Fig. 3) has the upperside white: the forewings have a black front margin and black tips and there are round black dots along the outer margins of both wings. The female (Plate 43, Fig. 4) is yellow, slightly tinged with pink towards the base of the wings, with a black margin, black tips and black dots as in the male. The underside is yellow with similar black markings to those of the upperside.

This is a widely-distributed species, common in most parts. The food-plant is *Loranthus woodfordianus*.

Mylothris ruppelli Koch. (Plate 43, Fig. 5).

The upperside is white except for the basal area of the forewing which is orange. The forewing has a black front margin, a black tip and black dots along the outer margin: the hindwing has a little orange and dusky scaling near its base. In the female the orange basal area is more extensive and less bright than in the male and the black dots along the outer margins of the forewings are larger. The underside is white with the orange basal area as on the upperside of the forewings and with faint dots on the margin of the hindwings.

This species is seasonally common at Kabete.

Mylothris rubricosta Mab.

The male (Plate 43, Fig. 6) of this species is rather like the last in appearance but smaller. The orange basal area is, moreover, restricted to the anterior portion of the wing and it extends in a thin line behind the anterior black margin. The black tips are less obvious than in the last species and the white scaling of both wings is rather thin so that the wings are partially transparent. The female differs in having the ground colour of the wings greyish instead of white.

This species is common in the neighbourhood of ponds and swamps. The food-plant of the larvae is *Polygonium barbatum*.

Mylothris sagala jacksoni E. Sharpe (Plate 43, Fig. 7).

The upperside of the forewings is black with white markings as in the figure and the hindwings are pale lemon-yellow with a small, black basal area and a broad, black band around the anterior edge except near the base. The underside of the forewing is white: of the hindwing pale lemon-yellow.

This species is fairly common at Kabete. The larvae feed on *Loranthus friesorum*.

Genus *Eronia* Bdv.

Eronia thalassina Bsdv. (Plate 43, Fig. 8).

This is a large species with the upper surface a very pale duck-egg blue in the male or white in the female and with black markings as in the figure.

This species is common in Karura forest during November to February; but is very difficult to capture owing to its habit of flying around the tops of the trees. It rarely comes sufficiently low to be within reach of the net.

Genus *Syncloë* Hbn.

Syncloë helice johnstoni Crowl. (Plate 43, Fig. 9)

Has the upperside white with black markings. The underside of the forewings is white with green-grey markings along the veins near the apex of the wings and some golden scales; the hindwings have the veins broadly delineated with green-grey scales, the lines being edged with gold. The underside of the wings forms a ready character for differentiating this species from some of the next genus which it resembles superficially.

This species occurs in open grassland and adjacent gardens. The larvae feed on *Reseda pruinosa*.

Genus *Glycestha*.

This genus contains a number of common "whites" which are not easy to differentiate. The males are usually white or cream with dark grey or black markings on the upper surface. On the under surface the forewings carry markings similar to those of the upperside. The hindwing undersides are white or yellow with the veins prominently demarcated with brown scales. The females are white or yellowish, sometimes with a pearly iridescence, and have dark brown or black borders.

Glycestha zochalia (Bsdv.).

The male (Plate 43, Fig. 10) is distinguished by the fact that the cell on the underside of the hindwings has two, fine, longitudinal, brown lines in it and that the pale spots in the apex of the forewing reach to the edge of the wing, there being no continuous black line along the margin. The female is similar to the male but has, above, a creamy ground colour with a faint pearly sheen. There are only indistinct light spots in the broad marginal band of the forewing and the hindwing has a dark network around the margin. As in the male the cell in the hindwing underside contains two longitudinal brown lines.

This species seems to be the most common in gardens at Sabete.

Glycestha severina (Cr.).

The male (Plate 43, Fig. 12) has a broad, black border to both wings with only small spots of ground colour in the band. The female (Plate 43, Fig. 11), on the upperside, has the basal two-thirds of the wings cream with a pearly lustre and the outer third brownish-black. The underside has a creamy-yellow ground colour deepening to a golden or ochre shade near the base; the forewings are marked with a broad border in which are situated a number of triangular spots of ground colour and the hindwings with a similar border and with a network of brown lines extending along the veins to the base.

The food-plants of the larvae are *Capparis* spp.

Glycestha aurota (Fab.)²

Is another species perhaps not so common generally as the last two, although at certain times it appears in large swarms. The male is similar to that of *G. zochalia*; but may be distinguished by the absence of the two longitudinal lines in the cell on the underside of the hindwing. The female is somewhat similar to that of *G. severina* but has the spots in the broad border on the underside of the forewings at least as broad as the dark edge of the band on the inner side.

The larvae of this species also feed on *Capparis*.

Genus *Leptosia* Hbn.

Leptosia alcesta (Cr.).

The "flip-flop" (Plate 43, Fig. 13) is a small white butterfly with rather rounded wings. The forewings on the upperside have black markings at the tip and a round black dot. This species is common along the lanes in Karura forest. It flies low and has a characteristic, slow flight. The larvae feed on *Richiea* sp.

Genus *Colotis* Hbn.

This large genus of fascinating butterflies is widely distributed through Africa and parts of Asia. It includes the local orange, red and purple-tipped species. Most of them are very variable since they show seasonal and sexual dimorphism and have many local races. Generally speaking the wet-season forms show more black than dry-season forms. The two species selected for illustration are probably the commonest occurring in the western part of the Nairobi district with which we are better acquainted.

Colotis evippe omphale (Godt.) (Plate 43, Fig. 14)

Is a black and white butterfly with red or orange markings in the black apical area of the forewings. The wet female forms sometimes have the ground colour yellow and are often heavily marked with black.

At Kabete this species is not so common as the following.

² See Notes on Nomenclature, page 228.

Colotis antevippe zera (Lucas)

Is a very common species in open Kikuyu-grass country. The male (Plate 43, Fig. 15) is white with scarlet tips and black markings. The specimen illustrated is a dry-season form; but more extreme examples with less-conspicuous black markings at the ends of the veins of the hindwings are sometimes seen. The wet-season forms show more black; in particular some black will be found between the scarlet at the tip and the white ground colour. The underside is white with a variable amount of blackening of the veins and some orange at the apex of the forewings. The female (Plate 43, Fig. 16) is a pale primrose yellow with a deeper yellow or golden-brown apical area and very dark brown to black markings. The yellow or golden-brown apical area of the forewings includes the spaces at the tip and extends a small but variable distance to the inside and behind the inner dark band before fading off gradually into the ground colour. The underside of the female forewing is pale yellow with a pale salmon tip and with grey or black markings. The hindwings beneath are sandy with very fine, brown flecking.

Genus *Catopsilia* Hbn.

Catopsilia florella (Fab.) (Plate 43, Fig. 17).

Throughout the year at Kabete this species is seen more often than any other. On the upperside the ground colour of the male is a greenish-white and that of the female pale yellow. The upper surface has a black dot at the end of the cell, the dot being larger in the female than in the male. In addition, the female has small brown spots at the marginal ends of the veins of the forewings and minute ones similarly placed on the hindwings. The under surface has a delicate mottled pattern. The shape of the wings of this butterfly is fairly characteristic.

This species is common and will be found throughout the year visiting flowers during sunny periods. The food-plant of the caterpillars is *Cassia* sp.

Genus *Terias* Swains.

This is a genus of small butterflies, all of which are yellow with dark brown or black markings. Four species occur in Africa; but some of the species have a number of forms and identification by wing pattern is often difficult.

Terias hecabe maculata Auriv.

The upperside (Plate 44, Fig. 2) is yellow with a dark apex and outer border to the forewings. There are black dots at the ends of the veins on the hindwings. The underside (Fig. 6) has a dark brown pattern of fine lines and a reddish-brown spot near the apex of the forewing.

Terias hapale Mab.

The upperside (Plate 44, Fig. 3) is pale yellow with dark brown markings at the tip of the forewings. These markings do not extend so far posteriorly as in the previous species.

Terias desjardinsi marshalli Btlr.

The upperside (Plate 44, Fig. 4) is yellow with a black border reaching to the posterior angle. The hindwings have a very narrow black border or the line is broken into dots. The underside (Fig. 8) is yellow with a rusty area at the tip of the forewings and darker brown spots and markings.

Terias brigitta zoe Hopff.

The male (Plate 44, Fig. 7) is a bright yellow form with a black or dark brown border to both wings. The female is larger and has the border of the forewings broken near the posterior angle. Its yellow areas are usually dusted with grey scales. The under surface, in both sexes, is a paler yellow, particularly on the hindwings where there are faint greyish markings in the form of short arcs.

Genus *Colias* Fab.

A widespread genus, the members of which are usually called "clouded yellows."

Colias electo (Linn).

Male (Plate 44, Fig. 1) has the wings rich orange with a broad, dark brown border around both wings, a black spot at the end of the cell of the forewing and an orange-red spot at the end of the cell of the hindwing. The female occurs in two forms. The typical form has the ground colour rich orange as in the male. The other, ab. *aurivillius* Kef. (Plate 44, Fig. 5), is a pale, greenish-white. In both forms the broad border of the wings is interrupted by spots, yellow in the case of the typical form and of the ground colour in the other. On the under surface, the forewings have a broad, greenish border and the hindwings have a greenish ground colour, deeper towards the base. The hindwing has two silver spots edged with brown near the end of the cell.

The larvae feed on lucerne and other herbaceous, leguminous plants.

Family *PAPILIONIDAE*.

Genus *Papilio* Linn.

Although some of our East African species have no tails, the butterflies of this genus are usually called "Swallowtails." Amongst them are some of our most beautiful insects. Most of them are large and related genera contain the "Birdwings," the largest of all insects.

Papilio demodocus Esp. (Plate 42, Fig. 8)

Has the sexes similar. The upperside is black with yellow markings and on the hindwing are areas near the base and in the centre where a mixture of black and yellow scales produces a grey effect. The inner margin of the hindwing has an "eyespot" with blue markings anteriorly and a red half-moon posteriorly. The anterior margin of this wing also carries an "eyespot" consisting of an orange-brown centre surrounded by a silver-blue line and then a black ring. The underside is dark brown with yellow markings generally similar to those above. The "eyespot" of the hindwing are reproduced below and there are other, short, silver-blue and orange-brown marks.

An aberration, *nubila* Capr., occurs differing from the type form in having the ground colour dark brown instead of black and the markings a dull, deep yellow instead of bright. This aberration appears to be much less common near Nairobi than it is at the coast where it is often as common as the typical form.

Except in the forests this species is probably the commonest *Papilio* in the Nairobi district. The eggs are laid singly on the small tender leaves near the ends of the shoots of citrus trees and the larvae are usually very easy to rear. The indigenous "Cape Chestnut," *Calodendron capense* Thunb. is another food-plant.

Papilio dardanus tibullus Kirby.

The male (Plate 42, Fig. 1) is pale yellow with black markings as in the figure. On the underside the ground colour is yellow and there are brown markings generally similar to those above; but with, in addition, the veins of hindwing delineated. Whereas the male is a typical swallowtail with fine tails the local females have rounded hindwings and mimic various danaiids. The two forms illustrated are those most frequently seen near Nairobi. *Papilio dardanus* ♀-form *cenea* Stoll. (Plate 42, Fig. 2) is a mimic of *Amauris albimaculata*. The forewings are black with white spots and the hindwings a sandy-yellow with a broad, black border containing small, pale spots. The ♀-form *hippocoon* Fab. is a mimic of *Amauris niavius dominicanus* and like its model is black and white with a bluish sheen when flying. In distinguishing mimics and models, the fact that the *Papilionidae* have only one anal nervure on the hindwing should be kept in mind.

Papilio dardanus is a fairly common species in Karura forest and other parts of the district throughout the year. The male has a typical, swallowtail flight; but the females float about in the air in the same way as their models. Citrus trees and *Teclea trichocarpa* Engl. are among the food-plants of the larvae.

Papilio nobilis Rog. (Plate 42, Fig. 4)

Is brownish-yellow with deeper brown markings. It is a fairly common species in Karura forest, and we have seen occasional specimens in other parts of the district. The larvae feed on *Warburgia ugandensis* Sprague.

Papilio nireus lyaeus Dbl. (Plate 41, Fig. 2)

Is a beautiful velvet-black butterfly with a line of contiguous, metallic, blue-green spots extending across both fore- and hindwings. There are two further spots near the apex of the forewing and a row near the outer margin of the hindwing. On the underside, the male (Fig. 3) can be distinguished from the female (Fig. 1) by the row of buff-coloured spots running parallel to the outer margin of the hindwing.

This species is fairly common in the Nairobi area, large numbers often being present in Karura forest in November. We have reared the adults from larvae collected on citrus trees.

Papilio phorcas ansorgei Rothsch. (Plate 42, Fig. 5)

Is a velvet black insect with green spots near the apex of the forewing and a triangular green patch extending across both wings. There are, in addition, faintly green spots a short distance from the margin of the hindwing. The under surface is in parts brown and in parts grey with silvery reflections. There are pale duck-egg blue markings corresponding to the green ones on the upper surface. The sexes are similar but ♀-forms in which the green on the upper surface is replaced by yellow or yellowish-green also occur.

This species is essentially a forest insect and at certain times is very common in Karura forest. The yellow and yellowish-green forms of female are much less numerous than the typical form. The larvae feed on *Teclea viridis* Verdoon.

Papilio rex Oberth. (Plate 41, Fig. 4)

Is a black butterfly with the spots pale yellow except for the two at the base of the forewings, which are brown. This butterfly is not common; but it has been reported from Karura forest and is included in this article because it is a mimic of *Danaus (Melinda) formosa*. The larval food-plant is *Teclea trichocarpa* Engl.

Family LYCAENIDAE.

This is a large family of small butterflies commonly known as blues, coppers or hairstreaks, according to their prevailing colours. Many of them are very beautiful. Identification is often difficult and particular attention should be paid to the undersides. Only a few of the commonest species can be mentioned here.

Genus *Cacyreus* Btlr.

Cacyreus lingeus (Cr.).

The male is light blue above, somewhat darker at the margin. The female (Plate 44, Fig. 9) is dark grey-brown with a bluish reflection when seen from certain angles. In the latter sex there is a black mark, bordered on both sides with white, at the end of the forewing cell, pale, poorly-defined spots near the margin of the forewing and pale spaces between the veins of the hindwing. The underside (Plate 44, Fig. 14) is white with characteristic, dark brown or almost black markings as in the figure and two peacock-green spots, the outer of which is the larger near the posterior angle of the hindwing. There is one short tail.

This species is common in gardens at Kabete. The larvae feed on species of *Coleus*.

Genus *Syntarucus* Btlr.

Syntarucus telicanus (Lang)³ (Plate 44, Fig 10)

Is a grey-brown butterfly with pale markings as in the figure. As in the last species, the wings show a bright blue reflection when the light is correct. The underside (Plate 44, Fig. 15) is white with many grey-brown spots of various shapes. The hindwings have short tails and at the posterior angle there are, on the upperside, two black spots and, on the underside, two peacock-green ones surrounded by yellow rings.

This is a common African species. The larvae are found on *Plumbago*.

Genus *Cosmolyce* Tox.

Cosmolyce boeticus (Linn).¹

The male of this species (Plate 44, Fig. 13) is one of the most beautiful of our "blues." The upper surface is a bright violet-blue, both wings having a narrow, brown-black line around the outer margin and a narrow white fringe. At the posterior angle of the hindwing there is a short tail and two blue-black dots, the outer of which is considerably larger than the inner. The female (Fig. 17) is smaller and greyish-brown in colour with faint, pale markings and a blue reflection most marked over the inner two-thirds of the wing surface. The underside (Fig. 18, a male) is mainly greyish-yellow with brownish markings and an almost white band across the hindwings a short distance from the margin. The two posterior spots on each hindwing underside are peacock-green nearest the margin and black on the inside.

³ See Notes on Nomenclature, page 228.

¹ See Notes on Nomenclature, page 228.

The larger, more lateral spot is enclosed in a small orange square, the outer edge of which it touches and, in addition, there is a little orange on the inner side of the other spot.

This butterfly has an almost world-wide distribution being found in parts of all the five continents. At times it is plentiful near Nairobi. The larvae feed in the pods of leguminous plants.

Genus *Cupido* Schrank.

Cupido gaika Trim.⁴ (Plate 44, Fig. 11)

Is a dark brown butterfly. The whole of the wing surface, except near the margins, which in the female are somewhat darker than the rest of the wing, shows blue reflections. There are no tails; but a whitish fringe, slightly broader on the hindwing than on the forewing is present. The under surface (Plate 8, Fig. 16) is silver-grey with black-centred, white spots and brownish markings. The larvae of this very common species feed on *Justicia* sp.

Cupido stellata Trim. (Plate 44, Fig. 12)

Is a small, dark brown species with numerous white spots on the upper surface of both wings and pale fringes. This species is fairly easy to recognise.

It is a common insect in open grassland where numbers may be found on the flowers of *Erlangea marginata*.

Family HESPERIIDAE.

In many ways the "skippers" differ from the majority of other butterflies. For example, the body is relatively stout, the pupae are in a cocoon and many species fly in the cool of the evening rather than during the heat of the day. Most of the members of the family are small and of sombre coloration, but there are a few outstanding exceptions. They occur throughout the world.

Genus *Coeliades* Hbn.

This genus contains the majority of the larger African "skippers" and some of them are rather striking insects. They are rapid fliers darting from flower to flower so fast that it is often difficult for the eye to follow them.

Coeliades forestan (Cr.) (Plate 44, Fig. 19)

Is a dull, brown insect with a pale, whitish area on the hindwing. The fringe inside the posterior angle of the hindwing is orange and on the underside the hindwing is crossed by a broad white band. There is another small white spot on the inner margin of this wing just in front of the posterior angle.

This species is common in the more open parts of the district. The larvae are found on *Indigofera tinctoria*.

⁴ See Notes on Nomenclature, page 228.

Genus *Eretis* Mab.

Eretis lugens (Rogen.) (Plate 44, Fig. 27)

Is a black butterfly with thin patches of deep copper-coloured scales on the wings. The underside is dark brown. A closely-related species, *E. djaelaelae* (Wall.) has the underside of the hindwing and of most of the forewing red.

Eretis lugens is a common species in most parts of the district. It is usually found in shady spots. The food-plant of the larvae is a species of *Justicia*.

Genus *Metisella* Hemming.

Metisella quadrisignata nanda Evans (Plate 44, Fig. 22)

Is a black butterfly, lightly dusted with orange scales near the bases of the wings, with four bright orange spots on the forewings and with a number of rather indistinct orange markings on the hindwings.

This species is probably more numerous in forested than in open country.

Genus *Zenonia* Evans.

Zenonia zeno (Trim) (Plate 44, Fig. 20)

Has the upperside dark brown with orange markings. On the under surface the markings of the forewing resemble those above. The underside of the hindwings carries ochre-yellow markings.

This and the next species are the commonest "skippers" of the district. The larvae feed on grasses.

Genus *Gegenes* Hbn.

Gegenes letterstedti brevicornis (Plotz).

The male (Plate 44, Fig. 23) is a brown insect slightly paler near the base of the wings. The whole of the surface has an old-gold sheen and there is a pale fringe to the hindwings. The female (Fig. 24) has some small yellow spots on the forewing. The under surface of the hindwing is ochre-yellow with fine brown markings.

This species appears to be the commonest skipper throughout the district. There is another, less common, species *Gegenes hottentota* (Latr.) which is very similar.

NOTES ON NOMENCLATURE.

For those interested we submit the following explanations of changes in names from those used in Seitz.

1. We have accepted the recommendations of the Royal Entomological Society's Committee on Generic Nomenclature in adopting the following combinations:—

Vanessa cardui (Linn., 1758).
Cosmolyce boeticus (Linn., 1767).

and in accepting *Danaus Kluk*, 1802, as the correct generic name for *Danaus plexippus* (Linn., 1758) with which *chysippus* (Linn., 1758) is congeneric. See Hemming, F., (1933 and 1934 a & c).

2. This species has, until recently, been known as *Belenois mesentina* (Cram., 1780). *Mesentina* is, however, a homonym and the next available name is *aurota* Fab., 1793. The type of *Belenois* Hbn. is *calypso* Drury with which *aurota* is not now considered congeneric. Hemming (1934 b) refers *aurota* to *Anaphaeis*; but more recently Wiltshire (1940) uses the combination *Glycestha aurota* (Fab.). Unfortunately, we have not traced a definition of this genus; but we have tentatively referred both *severina* Cr. and *zochalia* Bsdv. to it.

3. This name is used *sensu lato*. We have not attempted to differentiate the closely related species by dissection of the male genitalia.

4. We have retained *Cupido gaika* Trim. while realising that it may be necessary to alter the specific name to *hylax* (Fab., 1775). See Corbett (1940).

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