XI. *On the Species of the Genus* Larinopoda *Butler.*

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Plates X, XI.

[Read May 3rd, 1922.]

The genus *Larinopoda* was founded by Butler in 1871 (Trans. Ent. Soc. p. 172, 1871). Doubtless at that time the classification of the Rhopalocera on the structure of the feet was not generally understood. In any case, Butler seems to have had some difficulty in placing the genus, and states that though "evidently belonging to the Pierinae" it seems to be intermediate between *Eronia* and *Deloneura*. He states that its "natural position in the Pierinae is between *Nepheronia* and *Euchloe*."

His description of the genus is as follows :—

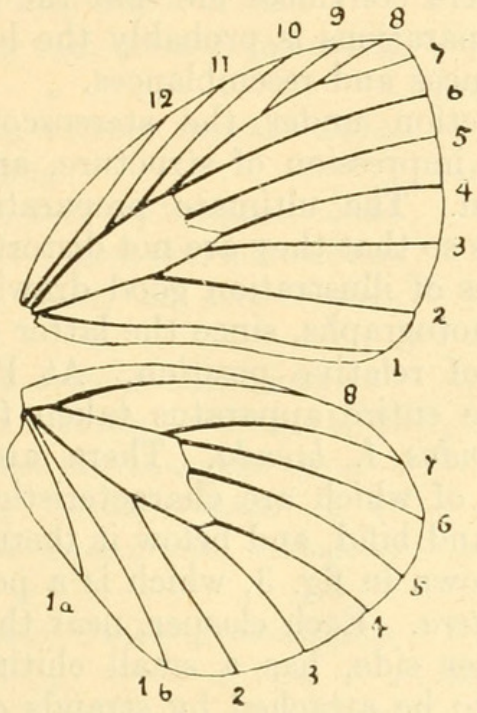
"Wings pyriform; front wings with five subcostal branches, the first emitted at a short distance before the end of the cell, the second immediately before the end, the third half-way between the cell and apex; the fourth and fifth at two-thirds the distance from the cell to the apex; upper discocellular short, slanting obliquely inwards; lower three times the length of upper, angulated, slanting obliquely outwards; median branches emitted near together; hind-wings with subcostals emitted close together, so as to reduce the upper discocellular to a point; lower discocellular very oblique, about eight times the length of the upper; second and third median branches emitted at about half the distance from each other that exists between the second and first; body short, robust; abdomen swollen beneath; legs thick, antennae short, slender, feebly clubbed; palpi long, slender, not hairy."

The type of the genus is given as *Larinopoda lycaenoides*, but the same insect had been described by Hewitson five years previously as *Liptena lircaea*. It is rather remarkable that Hewitson recognised this species as a Lycaenid and in the same year not only placed the species now known as *Citrinophila erastus* amongst the Pierinae, but exhibited considerable annoyance when its real affinity was pointed out by the late Roland Trimen. (See Proc. Roy. Soc. B. vol. 91, 1920, pp. xxiv, xxv.)

Smith and Kirby mention the genus again in 1887 (Rhop. Exot. Lycaen. vol. 1, Oct. 1887), referring it to the Lycae-

nidae, but they immediately proceed to include in the genus species of *Pentila* and *Liptena*, the neuration of which does not agree with that of *Larinopoda*. The neuration is correctly illustrated by Röber (Staud. & Schatz, Exot. Schmett, pl. 50, 1892) and also in the accompanying text figure.

Larinopoda belongs to that section of the Lycaeninae in which there is no precostal nervure in the hind-wing, a character which distinguishes it from *Alaena*, *Pentila*, and *D'urbania*. Nervures 6 and 7 in the h.-w. do not arise from a common stalk, thus distinguishing the genus from



Mimacraea, *Pseuderesia*, *Citrinophila*, *Eresina*, and *Argyrocheila*.

Its further characters as given by Aurivillius (Rhop. Aeth, p. 253, 1898) are as follows :—

F.-w. nervure 6 arises from the end of cell, the f.-w. has 12 nervules, the inner margin of the h.-w. is straight or slightly convex. The cell of both wings is posteriorly sharply edentate so that the posterior angle is projecting, especially in h.-w. The lower discocellular of the h.-w. is very long, straight or somewhat bent outwards. Nervures 3 and 4 of the h.-w. always widely separated at origin. The two antepenultimate abdominal segments in the female hemispherically swollen.

At present the genus is known to contain only a few species of small white or cream-coloured butterflies with

shaded or black markings. They are all found in the Ethiopian Region and are principally of W. African origin. Specific diagnosis on the somewhat feeble external characters is unsatisfactory, and I have therefore endeavoured to rearrange the known forms in accordance with the structure of the male armature.

This organ is of a rather complicated type. To give illustrations of the whole apparatus in each case would be misleading, since the slightest difference in the point of view would suggest differences of structure not really existing. Indeed, a considerable experience of these organs in different genera convinces me that the person actually making the preparations is probably the best qualified to judge of differences and resemblances.

Careful dissection under the stereoscopic microscope gives a general impression of structure, and above all of relative position. The ultimate preparations should be mounted in cells so that they are not distorted by pressure, and for purposes of illustration good drawings are always preferable to photographs, since the latter convey little or no impression of relative position. At Pl. X, fig. 2, I have drawn the entire apparatus taken from a form of *Larinopoda aspidos* f. *brenda*. There are two claspers the distal ends of which are characteristically lobed, the uncus is blunt and bifid, and below it there are two hooks more clearly shown in fig. 3, which is a posterior view of this part in *L. tera*. Each clasper, near the proximal end and on its lower side, has a small chitinous projection which appears to be attached by strands of rather tough connective tissue to a ventral projection on the aedeagus. The latter is a rather unusually shaped organ, the duct enters it more or less in the middle, and the part more proximally situated is apparently in the form of a lever.

The uncus and claspers are connected by webs of tough membrane not shown in the figure.

After some experiment I have decided that the best type of illustration for exhibiting the specific differences between the armatures in this genus is a dorsal view of the two claspers placed as nearly as possible in their natural position. For this purpose the rest of the armature is cut away and the claspers left with their natural membranous connection and mounted in that position in a cell. The remaining illustrations are all drawings of the claspers taken from this point of view.

On the posterior end of the thorax just above the attachment of the abdomen there appears to be a membrane divided into two nearly circular tympana. Whether this is merely the structure of that part of the thorax or is an organ comparable to the thoracic tympanum in Geometridae, Uranidae and other moths, I am unable to decide until I can obtain material in a proper condition for dissection.

KEY TO SPECIES AND FORMS OF *LARINOPODA*.

H.-w. beneath with a spot in cell.	(*a*).
H.-w. beneath without a spot in cell.	(*b*).
(*a*) H.-w. beneath with delicate undulating shading.	*tera*.
H.-w. beneath without delicate undulating shading	*eurema*.
(*b*) H.-w. beneath with dark border, broad and even or broken into more or less triangular spots, or even merely suffused.	(*c*).
H.-w. beneath without dark border.	(*g*).
(*c*) Ground-colour cream white, h.-w. border broken into triangular spots.	(*d*).
Ground-colour chalk white, h.-w. border not broken into triangular spots.	(*e*).
(*d*) H.-w. beneath with submarginal spots.	*lircaea* f. *spuma*.
H.-w. beneath without submarginal spots.	*lircaea* f. *hermansi*.
(*e*) H.-w. beneath with submarginal spots.	*aspidos* f. *brenda* (*part*).
H.-w. beneath without submarginal spots.	(*f*).
(*f*) H.-w. above with broad dark border.	*aspidos aspidos*, ♂.
H.-w. above without broad dark border.	*aspidos aspidos*, ♀.
(*g*) Ground-colour creamy white . .	*lircea*.
Ground-colour chalky white.	(*h*).
(*h*) H.-w. with submarginal spots.	(*i*).
H.-w. without submarginal spots.	*lagyra*.*

* Occasional examples of *aspidos* female have hardly any brownish scaling beneath and are very difficult to distinguish from *lagyra*. Generally, however, at least a few such scales can be distinguished.

(*i*). H.-w. beneath with brownish dusting at inner angle . . . . *aspidos* f. *brenda* (*part*).
H.-w. beneath without brownish dusting at inner angle. . . . *lagyra* f. *punctata*.

Larinopoda lircaea. Pl. X, fig. 1, Pl. XI, fig. 6.
Hew., Exot Butt. (*Pentila and Liptena*), pl. 1, f. 10, 11 (1866); Staud., Exot. Schmett., 1, p. 268, pl. 94 (1888); Smith and Kirby, Rhop. Exot., 24, Lyc. Afr., p. 95, pl. 21, f. 10 (1893); Auriv., Ent. Tidskr., 16, p. 199 (1895); Rhop. Aeth., p. 272 (1898); Strand, Archiv. f. Natursgesch. Abt., 12, p. 133 (1913); Auriv., in Seitz, Macrolep., p. 329, pl. 63*d* (1914–18).
= *lycaenoides*. Butl., Trans. Ent. Soc. Lond., p. 173, pl. 7, f. 2–5 (1871).
Nigeria. Gaboon. Cameroon. Congo. Angola. Bahr-el-Ghazal.
lircaea ab. *alaenica*. Strand, Archiv. f. Natursgesch. Abt. A, 12, p. 133 (1913).
Spanish Guinea (Alen Benito).
lircaea ab. *alenicola*. Strand, *l.c.*
Spanish Guinea (Makomo Campo).
lircaea ab. *benitonis*. Strand, *l.c.* p. 134.
(Alen Benito).
lircaea ab. *makomensis*. Strand, *l.c.*
(Makomo Campo).
lircaea ab. *simekoa*, Strand, *l.c.*
Cameroon (Simekoa).
lircaea ab. *bibundica*. Strand, *l.c.*
Cameroon (Bibundi).
lircaea f. *hermansi*, Auriv., Öfvers. Vet. Akad. Förhl., 53, p. 435 (1896); Rhop. Aeth., p. 273 (1898); in Seitz, Macrolep., p. 329 (1914–18). Pl. X, fig. 2 (*prox.*).
Congo (Uhangi R.).
lircaea f. *spuma*, Druce, Proc. Zool. Soc. Lond., p. 361 (1910); Auriv., in Seitz, Macrolep., p. 329, pl. 63f. (1914–18). Pl. X, fig. 3.
Cameroon (Bitje, Ja River).
lircaea f. *innocentia*. Gaede, Int. Ent. Zeit. Guben, 9 Jahrg., No. 21, p. 111 (1916) (as *Larynopoda*).
Cameroon (Dengdeng).

lircaea lircaea.

Exp. 40–50 mm. Sexes not specially differentiated in pattern. Ground-colour creamy white. F.-w. costa slightly blackened at

base, the dark scales reduced to a very fine line a little beyond middle. Apex with sepia scaling forming a border about 1·5 to 2 mm. wide at apex, with a tendency to invasion of the ground-colour on nervule ends. This apical darkening extends as far as nervule 3. H.-w. all cream white.

Underside. F.-w. much as above but apical dark colour reduced to faint subtriangular marginal marks or even to a fine marginal line. On costa, just above cell end, a well-defined subtriangular, almost black mark, its base on costa. H.-w. with a rounded sepia black submarginal spot in 6, and a small similar spot in 1*c* opposite origin of nervule 2.

There is a certain amount of variability in more or less typical forms of this species, especially in the extent of the f.-w. apical blackening. The costal black varies in width and is sometimes rather sharply cut off opposite cell end. It can be distinguished from other species except *tera* by its cream-white ground-colour, and *tera* has a spot in h.-w. cell beneath. Strand has described and named several variations. Whether they all really belong to the present species it would be impossible to say without examination, but as the descriptions are published I give a short account of them here.

lircaea ab. **alenica.**

F.-w. apical black 3 mm. wide at apex and reaches beyond nervule 2.

lircaea ab. **alenicola.**

F.-w. apical black 4 mm. broad at apex but does not reach 2, its inner edge somewhat dentate. Beneath, apex and margin suffused with greyish. H.-w. beneath with two black quadrate spots near anal angle. In female the f.-w. black reaches inner margin, and in h.-w. underside there is in all areas an obsolescent black submarginal spot. In cell a minute black dot.

I think it extremely improbable that this is a form of *lircaea* at all. It is probably a variety of *eurema*.

lircaea ab. **benitonis.**

Apical band as in *alenicola*. The black marginal band in basal half of costal area is slightly broader and square cut at end. Underside of h.-w. with six distinct black submarginal spots.

lircaea ab. **makomensis.**

Apical band 3·5 mm. broad and extending backwards to 2. H.-w. with black marginal band of ·5 mm. but increased to 1 mm. at apex, and similar on both sides, below with dark grey spots in 1*c*, 2, 4, and 5. Black marginal band in basal half of f.-w. costa not square cut at end.

lircaea ab. **simekoa.**

Resembles Kirby and Smith's figure of *lircaea* female, but marginal band not quite so broad, and more pointed posteriorly. The black quadrate costal spot merely indicated. Underside differs considerably from the figure alluded to, in that the apical and marginal border, though nearly as broad as above, is only a little darkened, without distinct apical spots, whilst in h.-w. submarginal spots are present in 1*c* to 5, in addition to the usual large black spot in 6.

lircaea ab. **bibundica.**

Both sides pure white. Apical band at apex 3·5 mm. broad, ending in a line shortly beyond 2. On underside this band shows through somewhat. A small black spot at apex, and the costal spot projects sharply. The costa between this and base merely lined with black. H.-w. below with only the two usual black spots.

This form is probably a variety of *lagyra*.

lircaea f. **hermansi.**

Ground-colour cream white. F.-w. costa rather narrowly black, usually suddenly narrowing to a line opposite anterior angle of cell, and then widening into a dark apical border, 4–6 mm. wide, which, gradually diminishing in width, extends round margin to the hind angle. H.-w. with a marginal black border 2–3 mm. wide, invaded by the ground-colour at nervule ends so that it has a dentate or subtriangular appearance in the internervular spaces.

Underside. F.-w. as above but dark markings paler, and a well-marked black subquadrate spot on costa opposite end of cell. H.-w. as above but with a large rounded spot in 6, and a spot in 1*c* opposite origin of nervule 2.

lircaea f. **spuma.**

Resembles f. *hermansi*, but has a submarginal row of spots on underside of h.-w.

In the Tring Museum there is a remarkable form of *hermansi* labelled "Tambura, S. Bahr el Ghazal," in which the dark borders, though greyer, are much extended. That of the costa reaches to the subcostal, and the apical darkening, though barely reaching the hind angle, is 8 mm. wide at apex. The h.-w. hind-marginal border is 3 mm. wide, and above shows little indentation. Beneath, the h.-w. shows no trace of submarginal spots, and the usual rounded spot in 6 is merged in the dark border. This is the only example I have seen from this locality, and curiously enough there is also one example of *lircaea lircaea* bearing the same label, and it is quite typical, though if anything with rather less black at f.-w. apex. It would be interesting to have more specimens from this locality. The armature of the *hermansi* form is the same as in the other examples. The *lircaea* form is a female. When Druce described his *Larinopoda spuma* he added that it might be a form of *lircaea*, though he does not give any reason for the suggestion. I have not found in collections any examples of *lircaea* from localities agreeing with those of *spuma* and *hermansi* except the two specimens from Bahr el Ghazal above mentioned. The armatures of *lircaea* and *hermansi* are not distinguishable from each other or from that of *spuma*, though easily recognised as different from those of the other described species, and I am satisfied that these three forms are specifically identical.

lircaea f. **innocentia.**

Described as resembling Strand's *makomensis*, but differing from all other forms of *lircaea* in the smallness of f.-w. costal spot and the spots in h.-w. 1*c* and 6. All other markings absent.

Larinopoda eurema. Pl. X, fig. 10; Pl. XI, fig. 5.

Plötz, Stett. Ent. Zeit., 41, p. 199 (1880); Smith and Kirby, Rhop. Exot., 11, p. 38, pl. 9, ff. 7, 8 (1890); Auriv., Rhop. Aeth., p. 273 (1898); in Seitz, Macrolep., p. 329, pl. 63 f. (1914–18).

♂ = *varipes*. Kirby, Ann. Nat. Hist., (5), 19, p. 363 (1887); Smith and Kirby, Rhop. Exot., 2, pl. 2, ff. 5, 6 (1887).

= *libussa*. Staud., Exot. Schmett., 1, p. 268 (1888).

Africa, W. Coast. S. Leone to French Congo.

Typical examples may be thus described :—

Exp. about 40 mm. ♂ chalky white. F.-w. with costa rather broadly blackened, slightly wider at cell end, then narrower, and again widening out into apical black which is about 6 mm. wide at apex, and continues in a gradually narrowing hind-marginal border to hind angle.

H.-w. with a marginal black line and within this a dusting of sepia black scales, slight at apex but considerably extended at ends of areas 3 and 2. Black spots of underside showing through rather conspicuously.

Underside. F.-w. as above but dark markings paler. A costal spot above end of cell at which costal black abruptly terminates.

H.-w. with margin as above. In 6 a sub-marginal rounded dark spot and often a minute one above it in 7. A small rounded spot in 1c opposite origin of nervule 2, and a larger conspicuous black spot in cell, and sometimes a second minute one above it. ♀ like the ♂ but with only a dark marginal line on h.-w., and reduced dusting of dark scales beneath.

The amount of sepia black scaling in this species varies in both sexes, and minute additional spots sometimes occur on the underside. A male example from Kumassi has nearly as much dark marginal border as *aspidos*, and on the underside there is a second small dark spot beneath that in h.-w. 6.

In some females the dark scaling is reduced to a mere greyish suffusion, but in all the 44 examples before me the spot in h.-w. cell beneath is constant, and this serves to distinguish it from other species except *tera*, from which it can be separated by the pure chalky whiteness of the underside.

The species is very closely allied to *aspidos*, and there is but little difference between the male armatures.

Larinopoda aspidos. Pl. X, figs. 7, 8; Pl. XI, fig. 4.

H. H. Druce, Ann. Nat. Hist., (6), 5, p. 25 (1890); Karsch, Berl. Ent. Zeit., 38, p. 215 (1893); Auriv., Rhop. Aeth., p. 273 (1898); in Seitz, Macrolep., p. 329 (1914–18).

Togoland. Nigeria (Lagos, Benin).

f. *latimarginata*.

Gr. Smith, Novit. Zool., 5, p. 354 (1898); Auriv., Rhop.

Aeth, p. 273 (1898); in Seitz, Macrolep., p. 329, pl. 63 f. (1914–18).

NIGERIA (Warri, Lagos).

f. *brenda*. Pl. X, fig. 9; Pl. XI, fig. 2.

H. H. Druce, Ann. Nat. Hist., (7), 11, p. 69 (1903); Auriv., in Seitz, Macrolep., p. 329 (1914–18).

With type form.

Exp. about 40 mm. ♂ chalky white. F.-w. with sepia black on costa extending rather beyond end of cell, where the dark colour widens into a black subapical and marginal border 5–8 mm. wide at apex, gradually narrowing to hind angle, where it is 2–3 mm. wide. H.-w. with a dark border of fairly even width (about 2–3 mm.) extending from apex to anal angle.

Underside with sepia black markings as on upperside. F.-w. with a black dentate mark about middle of costa and h.-w. with a round black spot opposite origin of nervule 2, and a larger submarginal spot in 6, often merged into the black border.

♀ variable, but with less black than in ♂. Generally only with a blackened f.-w. apex, and little or no black beneath except the f.-w. costal spot and the two spots on h.-w.

f. brenda.

In this form, the type of which is a male, the upperside has the appearance of the female of the typical form. Beneath, the f.-w. has the costa rather broadly black as far as end of cell, where the dark colour is somewhat abruptly terminated by the dentate costal spot. Apex paler than on upperside. H.-w. with the usual spots in 1*c* and 6, but with a row of delicate submarginal marks in the internervular spaces in 1*c* to 5, that in 1*c* doubled. Hind and inner margins with a fine black line.

f. latimarginata.

Appears to differ from typical *aspidos* only in that the dark h.-w. marginal border beneath is continued, though more narrowly, along the inner margin. Probably Grose Smith had not seen *aspidos* when he described this form as a species, but it is difficult to understand why Prof. Aurivillius keeps it as a separate species in Seitz's work. It occurs commonly in long series of the type form from Lagos.

The Hope Department possesses long series of *aspidos* taken near Lagos by Mr. Lamborn. Several pairs were taken *in coitu*, and the female is always much less black

than the male. There is, however, considerable variation, and some females have the h.-w. underside much darkened along the margin, especially at anal angle, and where this marginal darkening is obsolescent a submarginal series of spots remains. Some females have also a darkened h.-w. margin on upperside, but apparently never so complete a border as in the male. There is variation from the typical male to the *brenda* form, some males having a reduced blackening on the h.-w. margin. The *brenda* form seems really to be a male with the pattern of the female, the black h.-w. border being practically absent above and reduced to submarginal spots beneath. Occasional female examples are all white above with the f.-w. apices merely greyish. The species and probably the whole genus would appear to be very distasteful, as they are very easily caught, and in fact can be picked up with the fingers.

LARINOPODA TERA. Pl. X, figs. 11, 12; Pl. XI, figs. 1, 3.

Hew., Ent. Mo. Mag., 10, p. 125 (1873); Auriv., Rhop. Aeth., p. 273 (1898); Neave, Proc. Zool. Soc. Lond., p. 43 (1910); Auriv., in Seitz. Macrolep., p. 329, pl. 63 f. (1914–18).

= *soyauxii*. Dew., Nov. Act. Acad. Nat. Cur., 41, 2, p. 201, pl. 26, f. 10 (1879); Smith and Kirby, Rhop. Exot., 15, p. 51 (1891); pl. 12, f. 9, 10, (as *soxauxii*) (1891); Auriv., Rhop. Aeth., p. 273 (1898).

CAMEROON to UGANDA.

Exp. 30 to 40 mm. Sexes not markedly different. Typical examples are white or dusky white. F.-w. dusted with sepia on costa and with a sepia brown apical patch some 6 mm. wide at costa and gradually narrowing posteriorly, sometimes reaching hind angle but generally ending in 2. H.-w. often brownish at inner angle and the shaded markings of underside produce a faint pattern.

Beneath the f.-w. has a brown triangular mark on costa opposite end of cell and the apex is shaded with pale brown. The h.-w. has a spot in cell, sometimes two or three, and there may be a spot in 7 and 1*c*, and another on discocellulars. The discal and marginal areas have pale brown undulating markings of a pattern too inconstant to be usefully described.

The undulating shading of the h.-w. underside suffices to distinguish this species. Western examples generally

have the dusky markings most highly developed, and as we proceed eastwards these are gradually reduced until examples from the Toro Forest have a chalky white ground-colour, a mere suffusion of brownish at f.-w. apex, and only a trace of the h.-w. markings beneath. As an exception there are examples from Sesse I., Uganda, as dark as Western forms.

The claspers show a structure allied to that in *aspidos*, but the upper edge is smoother and the spatulate processes less expanded.

LARINOPODA LAGYRA. Pl. X, figs. 4, 5, 6; Pl. XI, figs. 7, 8, 9.

Hew., Exot. Butt. (*Pentila* and *Liptena*) Pl. 1. f. 4 (1886); Smith and Kirby, Rhop. Exot., 24, p. 93, pl. 21, f. 6 (1893); Auriv., Öfvers, Vet. Akad. Förhandl., 53, p. 435 (1896); Rhop. Aeth., p. 272 (1898); H. H. Druce, Proc. Zool. Soc. Lond., p. 362 (1910); Auriv., in Seitz. Macrolep., p. 329 (1914–18).

= *lara*. Staud., Iris, 4, p. 218 (1891); Smith and Kirby, Rhop. Exot., 21, p. 73, pl. 18, f. 1, 2 (1892).

= *lircaea*. Smith and Kirby, Rhop. Exot., 24, p. 95, pl. 21, f. 11, 12 (1893).

CAMEROON. CONGO. TORO.

lagyra f. *gyrala*.

Suff. Iris, xvii, p. 49 (1904); Auriv., in Seitz, Macrolep., p. 329, pl. 63 f. (as *gyrula*) (1914–18).

With typical forms.

lagyra f. *emilia*.

Suff. *l. c.* p. 48 (1904); Auriv., *l. c.* p. 329 (1914–18).

With typical forms.

lagyra f. *punctata*.

Druce, Proc. Zool. Soc. Lond., p. 361 (1910); Auriv., *l. c.* (1914–18).

The name *lagyra* is at present applicable to forms of *Larinopoda* described below, but it would appear that there are in fact three species which are not distinguishable on outward characters.

lagyra lagyra.

Exp. 30 to 50 mm. No constant difference in markings of sexes. Ground-colour chalky white. F.-w. with sepia black scaling on

costa from base to about middle, where it may be suddenly narrowed or may run over into apical black. The latter varies from about 10 to 3 mm. wide at apex, and may extend as a marginal border as far as 2 or to hind angle. H.-w. chalky white, spots of underside showing through from beneath.

Underside. F.-w. as above, but apical black paler. Every gradation from this to a mere black marginal line and a blackish spot at apex in 7. A subtriangular costal spot opposite end of cell. H.-w. chalky white with a rounded dark spot in 6, sometimes a smaller one in 5, or in 5 and 7. A small spot in 1c opposite origin of nervule 2. Sometimes a double spot at anal angle.

The *lagyra* forms are distinguished from *eurema* by the absence of a spot in h.-w. cell beneath, and from *aspidos* female by the fact that the latter nearly always has at least a dusting of brownish scales near anal angle of h.-w. beneath. This character is not, however, quite constant and there are females of *aspidos* that cannot with certainty be distinguished from *lagyra*.

Suffert's name *gyrala* is applicable to forms in which the f.-w. costal black is rather broad and runs over into the apical black, whilst there are small spots on h.-w. underside in 5 and 7. The same author's *emilia* is even less distinctive, merely having the f.-w. apical black rather broader than in the type. Druce's *punctata* has a submarginal row of spots on the h.-w. underside.

The forms referable to *lagyra* present considerable difficulties from a taxonomic point of view. If we deal with them on the structure of the male armature, then we must conclude that there are at least three species, one of them very distinct. On Plate XI are drawings of the armatures of these three forms. Fig. 9 represents the claspers of a specimen from the Ja River district in S. Cameroon. The claspers are bifid, thus differing from those of other species of the genus. Fig. 8 is taken from an example from the Upper Kassai district. Here the claspers are still bifid, but the lower fork is much longer than the upper. Fig. 7 is from a specimen taken at Port Victoria, Cameroon, and differs entirely from 9 and 8 and from all other preparations examined. Nearly 60 specimens of the *lagyra* form are before me, and careful comparison shows that whilst they vary in the extent of the f.-w. black, and in the spotting of the h.-w. underside, there are no constant pattern characteristics correlated

to the three forms of genitalia described that would enable us to separate them into three species. There are examples from Gaboon, Ituri Forest, and Toro, but unfortunately most of them are females. One male Toro specimen has claspers like 8, and an example from Buamba Forest, Semliki Valley, is somewhat intermediate between 8 and 9, though closer to 8.

In the genus *Neptis* we have *N. swynnertoni* and *N. neavei* from Mt. Chirinda and Mt. Mlanje respectively, presenting differences in the claspers without constant differences in the external characters, but here there is comparative isolation by separate elevated positions.

Judging from a modelled map of Africa there would seem to be no insuperable physical barrier to account for an asyngamic isolation of the Ja River and Port Victoria specimens, and yet the difference between these two is very marked. In the absence of sufficient material from intermediate localities, if indeed the butterfly occurs in such districts, we can do little more than record the fact that the name *lagyra* at present applies to a series of forms so far outwardly indistinguishable, but including at least three probably asyngamic communities.

With the exception of the forms of *lagyra* the species of *Larinopoda* seem well defined and the armatures distinctive and constant. An incident in the present investigation supports this view. Amongst the material of *lagyra* I found a single example from Sierra Leone. On making a preparation of the armature I was surprised to find that the structure was the same as in *eurema*, the species which is distinguished by having a black spot in the h.-w. cell beneath. There appeared to be no trace of this spot till I made a microscopical examination, when I found, where the spot should be, a few grey-black scales. The specimen is, in fact, an example of *eurema* with the spot almost obsolete.

Explanation of Plate X.

Fig. 1. *Larinopoda lircea lircea* Butl. ♂, N. Cameroon (Coll. Joicey).

2. „ *lircea* ♀, near *hermansi* Auriv. (intermediate between *hermansi* and *lircea*), Ja River, Bitje, Cameroon (Coll. Joicey).

3. „ *lircea* f. *spuma* Druce ♂, Ja River (Mus. Tring).

4. „ *lagyra* Hew. ♀, Upper Kassai River (Oxford).

5. „ „ ♀, Ja River (Tring).

6. „ „ ♀, „ „ „

(This example is figured to show that the shape and extent of the f.-w. apical black is not constantly different in Ja River and Kassai River examples.)

7. *Larinopoda aspidos* Druce ♂, Oni, Nigeria (Oxford).

8. „ „ „ ♀ „ „ „

9. „ „ f. *brenda* Druce ♂, Oni, Nigeria (Oxford).

10. „ *eurema* Plotz. ♂, S. Leone (Tring).

11. „ *tera* ♀, Ogowe (London).

12. „ „ ♂, Toro Forest (London).

(Examples from the last locality are whiter, generally larger, and have less shading in h.-w. beneath.)

Explanation of Plate XI.

Male Armatures.

Fig. 1. *Larinopoda tera* (claspers).

2. „ *aspidos* f. *brenda*.

3. „ *tera* (girdle).

4. „ *aspidos aspidos*.

5. „ *eurema*.

6. „ *lircea lircea*.

7. „ *lagyra* (Port Victoria).

8. „ „ (Upper Kassai River).

9. „ „ (Ja River, Cameroon).