

Genus 164.—*CHERITRELLA*, de N. (PLATE XXVIII).*Cheritrella*, de Nicotville, Proc. Zool. Soc. Lond., 1887, p. 456.

"FOREWING, with the *costal margin* slightly and regularly arched; *outer margin* highly truncated from the apex to the termination of the third median nerve, this truncated portion, moreover, being concave; below the third median nerve to the inner angle the margin is nearly straight and oblique; *inner margin* straight. *Costal nerve* very short, not nearly reaching to opposite the apex of the cell; *first, second, and third subcostal nerves* at regular distances apart before the origin of the upper disco-cellular nerve, the *fourth* springing from the third about the middle of its length; *upper disco-cellular nerve* directed outwards, *middle and lower* upright and concave; the bases of the *second and third median nerves* half the distance apart of the bases of the second and first, *submedian nerve* straight.

Inwardly margined with bluish. *Body* above greyish-brown, beneath with legs more or less concolorous with the wings, tarsi of legs with some blackish annulations.

"A female in the collection of Dr. Staudinger is my only knowledge of this species, the male has still to be discovered." (*Distant*, l. c.)

Genus *Jaccona*, Distant, Rhop. Malay, p. 241 (1884). "FOREWING, moderately long and subtriangular, *costal margin* strongly arched at base and then very slightly convex to apex, which is obtuse; *outer margin* convex, *inner margin* slightly sinuate, *costal nerve* short, terminating on the costa before the end of the discoidal cell, *first subcostal nerve* emitted about the middle of the cell and anastomosed with the *costal nerve*, *second subcostal* nearer to the third than to the first, *third subcostal* arising from the end of the cell, third and fourth bifurcating a little beyond the middle of the third, *lower disco-cellular nerve* somewhat concavely oblique, *third median nerve* at the end of the cell, *second median* about half the distance from first as from third. *HINDWING* elongate, and irregularly subovate, *costal margin* with its basal third convex and then deflected and oblique to the apex which is rounded, *posterior margin* oblique and rounded to the median nerves, where it is more or less waved and is provided with two teeth, a short one at the apex of the first median nerve, and a very long one at the apex of the submedian nerve. *Abdominal margin* convex, *costal nerve* reaching to about the apex of the wing, *subcostal nerves* bifurcating near the end of the cell, *third and second median nerves* emitted close together near the end of the cell. *First median* at about two thirds from the base of the cell. *Body and legs* moderately robust, *pilifer* erect, second joint raised above the level of the eyes, third joint very small and slender.

"This is probably a somewhat restricted genus, and the following species is alone known to the writer as at present belonging to it. The isostomatic condition of the costal nerve and first subcostal nerve of the forewing at once separates it from the allied genera." (*Distant*, l. c.)

The type species of the genus does not appear to possess secondary sexual characters in the male.

*Jaccona anasuya*, Felder. *Myrtana anasuya*, Felder. Reise Novara, Lep., vol. II, p. 237, n. 266, pl. xxx, figs. 3, 4, male (1885). *Jaccona anasuya*, Distant, Rhop. Malay, p. 242, n. 1, pl. xxi, fig. 15, male (1884). *HABITAT*: Malacca interior, Province Wellesley. *EXAMINE*: Male, 1.7 inches. *DESCRIPTION*: "MALE, forewing somewhat produced at the apex, the external margin most slightly concave, the internal margin straight, hindwing with the anal region somewhat produced a long tail at the tip of the upper internal nerve, an acute tooth at the end of the first median nerve. *UPPERSIDE* both wings blackish fuscous. *Forewing* with the internal border covering the base and an oblique fascia beyond the cell pale cyanous. *Hindwing* with the costal border more palely fuscous, a large internal area palely cyanous, the internal groove and anal process whitish, with two subanal spots, the line before the cilia and the tooth black, the tail whitish. *UNDERSIDE*, both wings ochraceous hoary about the outermost part rufescent brownish. *Hindwing* with the internal region, especially the anal, whitish, with eight anal black spots in a double series (the third spot of the inner sigma shaped, the first of the outer dot shaped, the second and fourth anal, outwardly marked with cyanous blue somewhat larger).

"One of the most splendid insects of the genus, known to us only by one single male specimen. It differs much from *M. (= Neacheritra) amrita*, Felder, both in the form, colour, and pattern of the wings, and also in the want of the fine mane like hairs on the edge of the inner margin of the forewing, and of the scaleless spots on the underside, and in the stouter structure of the body, the longer abdomen, and in the venation. The costal and subcostal nerves run close together, the latter is three branched, the first branch anastomosing for some distance with the costal nerve, the transverse vein of the forewing obliquely directed forwards, rather waved. The lower discoidal nerve takes its rise not far from the upper one, the first two median nerves stand considerably farther apart the one from the other, as in *M. amrita*, and the costal nerve of the hindwing ends not far from the apex of the costal margin." (*Felder*, l. c.)

"MALE *UPPERSIDE*, both wings bright violaceous blue. *Forewing* with a broad fascia crossing the apical half of the cell and terminating a little above the posterior angle, the costal margin beyond the fascia, the apex and outer margins all blackish. *Hindwing* with the costal and posterior margins (the last as far as between the third and second median nerves) broadly blackish, after which to the anal angle the posterior margin is whitish, containing a transverse black spot on each side of the first median nerve, a black outer marginal line. Tail whitish, more or less blackish at the base. *UNDERSIDE*, forewing pale brownish-ochraceous, more or less pale bluish green at the base and towards the posterior angle. *Hindwing* pale bluish-green, the costal and outer margins (the last as far as the median nerves) pale brownish-ochraceous, the white anal angular patch above larger beneath, inwardly margined with a much waved black line, and containing an additional black spot at the extreme anal angle. Tail beneath with a medial blackish line. *Body and legs* more or less concolorous with the wings."

"Of this beautiful and scarce species the writer, like Felder, is only acquainted with the male sex, and the female still remains to be discovered." (*Distant*, l. c.)

I have not seen this species. There is a remarkable difference in the length of the tail in the specimens figured by Felder and Distant, that part being in Felder's specimen 8 of an inch long, in Distant's 5 of an inch only. There is a considerable difference also in the outline of the forewing, Felder's specimen having the apex produced, the outer margin concave, Distant's the apex bluntly rounded, the outer margin convex. Otherwise the two figures agree fairly well.

**HINDWING**, with the *costal margin* strongly arched at the base, thence to apex nearly straight; *outer margin* to base of long tail at termination of first median nervule straight but waved, from thence to anal lobe at right angles; *abdominal margin* strongly convex at base, and highly excavated above the anal lobe; a short tail at the termination of the submedian nervule; *costal nervure* strongly arched at base, afterwards nearly straight; *first subcostal nervule* originating some little distance before the apex of the cell, nearly straight; *disco-cellular nervules* of nearly equal length, concave, outwardly oblique, the origin of the *third median nervule* at the lower end of the cell, the *second* just before its end, that of the *first* being fully four times as distant from that of the second as is the latter from the third, the latter traversing more than half the length of the long tail; *submedian nervure* nearly straight; *internal nervure* very short, ending on the abdominal margin above the deep excavation, and highly sinuous. *Antenna* very short, less than half the length of the costa of the forewing; *palpi* long, porrect, almost naked, much longer in the female than in the male; *eyes* naked."

"Nearest to *Ticherra*, de Nicéville, with which it agrees in having no secondary sexual characters in the male, in the neurulation of the hindwing; also in the length and position of the tails, the anal lobe, and the deep excavation above it, but differs from it in the truncation of the forewing, the costal nervure terminating long before the apex of the cell, and the fourth subcostal nervule springing from the third about its middle instead of considerably nearer the apex." (de Nicéville, l. c.)

When describing this genus, I adopted the formula used by Mr. Moore, I should now describe the veins of the forewing as follows:—Bases of first and second subcostals and upper discoidal nervules equi-distant, third subcostal arising from the costal nervure nearer to the apex of the cell than of the wing, long, no upper disco-cellular nervule, as the upper discoidal springs from the subcostal nervure, middle disco-cellular arising from the upper discoidal close to its base, slightly shorter than the lower disco-cellular.

*Cheritrella* contains but a single species, which is certainly one of the most curious of this group. It occurs in Sikkim and the Khasi Hills, and is very rare.

953. *Cheritrella truncipennis*, de N. (PLATE XXVIII, FIG. 223 ♂).

*C. truncipennis*, de Nicéville, Proc. Zool. Soc. Lond., 1887, p. 456, pl. xxxix, figs. 4, male; 3, female.

**HABITAT:** Sikkim, Khasi Hills.

**EXpanse:** ♂, 1'50 to 1'60; ♀, 1'45 to 1'55 inches.

**DESCRIPTION:** "MALE. UPPERSIDE, *both wings* black. *Forewing* with all but the costa narrowly, and the outer margin broadly deep dull purple, with a very slight gloss in certain positions. *Hindwing* with a large, brilliantly iridescent, rich bright steel-blue\* patch from the base of the wing, not reaching the outer margin, anteriorly bounded by the costal nervure, extending into the upper portion of the discoidal cell and into the upper portion of the second median interspace; the anal lobe and short tail beyond it deep ferruginous; the long tail becoming white towards its termination, pure white at its tip; an obscure round black spot between the bases of the two tails. **UNDERSIDE**, *both wings* umber-brown. *Forewing* with a darker brown pair of lines across the middle of the discoidal cell, another pair enclosing the disco-cellular nervules, a discal irregular fascia from the costa to the first median nervule, very broad and dark posteriorly, a submarginal series of dark dots between the veins, the inner margin very broadly pale fuscous without markings. *Hindwing* more or less covered with fuscous, dark brown, and umber fasciæ and spots, the most conspicuous of which are two black spots in the subcostal interspace, a ring-spot at the middle, and an oblong one at the end of the cell, a very dark oblique band from the middle of the abdominal margin to the middle of the wing, a discal irregular fascia recurved upwards to the abdominal margin, and a marginal dark fascia more or less sprinkled with whitish scales towards the anal angle. **FEMALE.**

\* "Very similar to the colour exhibited on the upperside in the male of *Jamides bochus*, Cramer, but not quite so brilliant, and more purple than blue in shade."

UPPERSIDE, *forewing* with the purple area in the male replaced by a smaller pale blue patch, leaving the apical half of the wing and the outer margin at the anal angle black, a diffused white spot at the end of the cell, and another beyond it divided by the second median nervule into two portions. *Hindwing* also pale blue, all except the costa widely and the outer margin decreasingly, which are black. UNDERSIDE, *both wings* paler than in the male, but similarly marked. *Cilia* pale ferruginous throughout."

"There are single males of this very beautiful species in the collections of Major Marshall and Messrs. Otto Moller and A. V. Knyvett, and a single female in that of Mr. Möller, all of them taken in Sikkim, Mr. Moller's specimens in June. It is quite unlike any species known to me." (*de Nicéville*, l. c.) The Rev. Walter A. Hamilton has obtained a pair of this species in the Khasi Hills, the female he has generously presented to me.

The figure shews both sides of a male specimen from Sikkim in my collection.

### Genus 185.—NEOMYRINA, Distant. (PLATE XXVIII).

*Neomyrina*, Distant, Rhop. Malay., p. 248 (1884).

"FOREWING, with the *costal margin* strongly arched; *outer margin* nearly straight; *apex* subacute; *posterior angle* rounded; *inner margin* slightly concavely sinuate; *costal nervure* short, terminating on the costal margin considerably before the end of the cell; *first subcostal nervule* emitted at about the middle of the cell and terminating on the costal margin nearly opposite [just beyond] the end of the cell, *second subcostal* emitted rather nearer the base of the third than first, *third subcostal* arising a short distance beyond [before] the end of the cell, *third and fourth subcostals* bifurcating at about two-thirds the length of the third; *third median nervule* from the end of the cell and emitted nearer to the second than the second is from the first, *first median* emitted fully two-thirds from the base of the median nervure. HINDWING, elongately subovate, *costal margin* oblique and very slightly convex, *apex* obtusely acute, *posterior margin* oblique, slightly waved, prominently angulated at the apex of the second median nervule, and with two tails, one very long at the apex of the first median nervule, the second short and slender at the apex of the submedian nervure; *costal nervure* about reaching the apex of the wing, *subcostal nervules* bifurcating about one-third before the end of the cell, *disco-cellular nervules* almost obsolete, *third and second median nervules* with an apparently common origin just before the end of the cell, *submedian nervure* almost straight, *internal nervure* curved and rounded inwardly. BODY short, moderately robust; *palpi* porrect, the second joint extending distinctly before the eyes, apical joint much more slender than the second, but moderately robust; "much longer in the female than in the male. *Eyes* naked.

"It is necessary to form a new genus for the following species, as *Myrina*, Fabricius, under which it was originally placed, and the type of which is the African *M. silenus*, Fabricius, possesses strongly distinct structural characters." (*Distant*, l. c.)

*Neomyrina* is a most distinct genus with no near Indian ally. In the forewing the costa is strongly convex, the costal and subcostal nervures lying very far apart, the costal nervure and first subcostal nervule are remarkably short, the base of the second subcostal is equidistant between the bases of the first subcostal and upper discoidal nervules, the third subcostal arises about midway between the apices of the cell and of the wing, the middle disco-cellular nervule is unusually short, thus bringing the discoidal nervules close together, the lower disco-cellular is slightly inwardly oblique and concave, the second median nervule arises some distance before the lower end of the cell. In the hindwing the upper disco-cellular nervule is very short, outwardly oblique, the lower disco-cellular is almost upright, slightly outwardly oblique, the second median nervule has its origin immediately before the lower end of the cell; the long tail is unusually broad at its base, and is traversed throughout its length by the first median nervule, the anal lobe is small, placed some little distance up the abdominal margin, its usual position being occupied by the short tail, the abdominal margin is slightly excavated above the lobe. The male has no secondary sexual characters.

As far as I am aware, *Neomyrina* contains but two species, one, *N. nivea*, Godman and Salvin, occurs in the island of Billiton, the other, *N. hiemalis*, Godman and Salvin, occurs only in Burma and the Malay Peninsula. They are of very large size, snow-white above, the forewing with the apical third black, this portion suffused with a beautiful blue colour in the male. The underside is also white, crossed by numerous slightly dusky black-margined catenulated bands. The two species are very closely allied. Mr. Doherty has observed that *N. hiemalis* frequents trees, and settles high up with closed wings on the underside of the leaves, disappearing as if by magic.

954. *Neomyrina hiemalis*, Godman and Salvin. (PLATE XXVIII, FIG. 224 ♀).

*Myrina hiemalis*, Godman and Salvin, Proc. Zool. Soc. Lond., 1878, p. 640, pl. xl, figs. 5, 6, male; *Neomyrina hiemalis*, Distant, Rhop. Malay., p. 249, n. 1, pl. xxii, fig. 13, female (1885); id., Moore, Journ. Linn. Soc. Lond., Zoology, vol. xxi, p. 44 (1886); *Sithon hiemalis*, Staudinger, Ex. Schmett., p. 276, pl. xcv, male (1888), (*S. nivea* on plate).

HABITAT: Burma, Malay Peninsula.

EXPANSE: ♂, 1'80 to 2'20; ♀, 1'65 to 2'40 inches.

DESCRIPTION: "FEMALE. UPPERSIDE, both wings pearly white. Forewing with the outer margin and a large curved apical space terminating on the costal margin at about one-third from the base, black. Hindwing with the posterior margin from the apex to the median nervules (where it becomes obsolete), black; an elongate black marginal spot on each side of the second median nervule; tails with a faint and slender medial blackish line. UNDERSIDE, both wings pearly white. Forewing with four transverse dark greyish fasciæ with still darker margins, the first two crossing the cell and terminating at the median nervure, the third and fourth wider and more irregular, situated between the end of the cell and the outer margin, and terminating near the first median nervule, marginal and submarginal dark greyish fasciæ, the colour between which is also dark greyish. Hindwing crossed by five irregular dark greyish macular fasciæ; the first near the base consisting of five spots, and terminating near the base of the abdominal margin, the second composed of three elongate spots, of which the lowermost two are joined, and terminate between the first median nervule and the submedian nervure, the third consists of four spots commencing beneath the second subcostal nervule and recurved and terminating on the abdominal margin, the fourth composed of six fused spots extending in an almost straight line from the costal margin to the first median nervule, and the fifth submarginal, recurved, and extending to the abdominal margin; a marginal dark greyish fascia extending from the apex to the third median nervule, followed by an elongate black marginal spot, a dark bluish spot between the second and first median nervules, two small bluish spots between that nervule and the submedian nervure, and a large bluish spot shaded with black at the anal angle, above which the submarginal fascia is also tinged with bluish; tails as above; body above pale greenish, beneath with legs more or less concolorous with the wings. MALE (figured and described in error as a female by Messrs. Godman and Salvin) differs from the female in having the apical area of the UPPERSIDE of the forewing bluish, the outer margin only being black; the posterior margin of the hindwing is also only slightly marked with blackish. UNDERSIDE, both wings as in the female." (*Distant*, l. c.)

Dr J. Anderson met with this most beautiful species at Mergui in December and March, and at Thapo and Yimiki, King Island, and at Sullivan Island, all in the Mergui Archipelago, in January and February. The type specimen was captured at Meetan in Upper Tenasserim, and the late Herr Kunstler obtained it at Perak. The only other known species of the genus, *N. nivea*, Godman and Salvin, which occurs on Billiton Island, differs from *N. hiemalis* in the male on the upperside of the forewing in the black blue-suffused apical portion being evenly curved and narrower, not twice prominently indented as in *N. hiemalis*, and in the bands of the underside being less distinct and pure white, instead of enclosing a greyish space.

The figure shows both sides of a female specimen from the Mergui Archipelago in the collection of the Indian Museum, Calcutta.



## Genus 156.—TICHERRA, de N. (PLATE XXVIII).

*Ticherra*, de Nicéville, Proc Zool Soc Lond, 1887, p. 457

"Closely allied to *Cheritra*, Moore, but differs in the male in the absence of the secondary sexual characters on the costal margin of the hindwing on the upperside; the third subcostal nervule of the forewing springing from the costal nervure much nearer its apex, consequently being shorter; the discoidal cell of the hindwing longer, the disco-cellular nervules being much more outwardly oblique"

"Type, *Ticherra acte*, Moore' (de Nicéville, l c)

Two species only come into this genus as far as I can ascertain. *T. acte* is a common Himalayan species, occurring also in Assam and Upper Burma. *T. symira*, Hewitson, is probably an aberration of *T. acte*, and was described from Sikkim. In *T. acte* a very marked seasonal dimorphism occurs, the form on the wing during the rains has a brilliant orange underside, whilst that found in the dry season, when the vegetation is much more scanty and arid, is of a brownish hue, closely simulating the shade of a dead leaf. Mr Doherty notes on this subject: "The very distinct dry season form, non-ocellate and dusky fuscous below, was first seen in November" at Margheita, in Upper Assam.

Key to the species of *Ticherra*.

- A Upperside, hindwing with two or three prominent white spots towards the anal angle  
955. *T. acte*, Kumaon, Sikkim, Phutan, Assam, Upper Burma.  
B Upperside, hindwing marked with two black spots only, the white spots of *T. acte* entirely wanting.  
956. *T. symira*, Sikkim

955. *Ticherra acte*, Moore (PLATE XXVIII, FIG. 225 ♂, WET-SEASON FORM).

*Myrina acte*, Moore, Horsfield and Moore, Cat Lep Mus. E. I C, vol. i, p. 47, n. 77, female (1857); id., Hewitson, Ill Diurn Lep., p. 30, n. 10 pl. xii, figs 8 & 9 male, wet season form (1863). *Cheritra acte*, Doherty, Journ. A. S. B., vol. iv, pt. 2, p. 127, n. 134 (1881). *Ticherra acte*, de Nicéville, Proc Zool Soc. Lond., 1887, p. 457, pl. xl, fig. 5, male, dry season form. *Sithon acte*, Staudinger, Ex. Schmett., p. 177, pl. xcv, male, wet season form (1888).

HABITAT: North India (Moore), Kumaon, Sikkim, Bhutan, Assam, Upper Burma.

EXPANSE: ♂, 1.2 to 1.8; ♀, 1.4 to 1.8 inches.

## Wet-season form.

DESCRIPTION: FEMALE. "UPPERSIDE, both wings dark smoky-brown. Hindwing with three spots of white near the anal angle, tail and anterior margin whitish. UNDERSIDE, both wings reddish chrome-yellow, with an indistinct undulating line crossing the wings, terminating abdominally on the hindwing in separate lighter spots, near the anal angle brownish, with two black spots bounded anteriorly with metallic blue" (Moore, l c). MALE UPPERSIDE, both wings dark purple, the outer margin narrowly black. Hindwing with the anal angle broadly black, bearing inwardly two small white spots divided by the first median nervule, four short white lines on the margin between the veins from the third median nervule to the anal angle. Two tails, which are blackish towards the base, then suffused with ochreous, with a dark middle line, quite white towards the tip. Cilia of the forewing black, of the hindwing ochreous anteriorly, whitish-ochreous posteriorly. UNDERSIDE, both wings coloured and marked as in the female.

The figure shows both sides of a male specimen of the wet-season form from Bhutan in my collection.

## Dry-season form.

"MALE and FEMALE. UNDERSIDE, both wings differ from the typical rainy-season form in the ground-colour being cinnamon-brown instead of rich ochreous-orange; the markings in the discoidal cells and the fine linear discal fasciæ are also much more prominent." Hindwing with the two black spots at the anal angle and the silvery blue metallic line above them obsolete.

"Described from specimens from Sikkim, Assam (Shillong), and the Daffa Hills. I considered these specimens at first to constitute a species distinct from *T. actæ*, but Mr. Otto Møller pointed out to me that all his dated specimens with the orange underside were captured in Sikkim during the rainy months, while all those with brown-coloured undersides were taken in either the spring or autumn, so I have but little doubt that this is another case of the extensive seasonal dimorphism which takes place in many of the *Lycanidæ* occurring in the oriental tropical and subtropical regions." (*de Nicéville*, l. c.)

The two forms described above are the extremes, but intermediate forms are by no means uncommon. Mr. Doherty records it from "Askot, 5,000 feet, Baghrihat, 2,500 feet, Eastern Kumaon, scarce," which is probably its most easterly range; it is very common in Sikkim and Bhutan at low elevations, and occurs in March, May, October and November, probably also in all the intermediate months; it is found also throughout Assam, and the Phayre Museum, Rangoon, possesses a female specimen captured at Tsenbo, Upper Burma, in May. Mr. Doherty obtained several specimens in Upper Tenasserim, and writes of a female specimen from Myitta, Tenasserim Valley, that it is "remarkable in having the white spots on the lower part of the hindwing united into a short very broad band such as occurs in some specimens of *Cheritra freya*" [= *freya*, Fabricius].

#### 956. *Ticherra symira*, Hewitson.

*Myrina symira*, Hewitson, Ent. Month Mag., vol. xiii, p. 152 (1876); idem, id., Ill. Diurn. Lep., Suppl. p. 26, n. 72, pl. nud., figs. 207, 208 (1878); idem, id., Desc. new Ind. Lep. Ins. Coll. Atkinson, p. 3 (1879).

HABITAT: Sikkim.

EXPANSE: 1.1 inch.

DESCRIPTION: "UPPERSIDE, both wings brown, tinted with purple, the outer margin dark brown. Hindwing with the anal angle dark brown, with two tails, a long one in continuation of the first median nervule and a short one inside of it. UNDERSIDE, both wings rufous-orange. Hindwing with a black spot crowned with silvery-blue at the base of each tail." (*Hewitson*, l. c. in Ent. Month Mag.)

As Mr. Hewitson's later description differs somewhat from the above, I give it below as a foot-note.\* He does not give the sex of the specimen he described, it was probably a male, as he says it is tinted with purple on the upperside. I think it most probable that this species is one of the protean forms of *T. actæ*, Moore, most likely an aberration or "sport" of the rains' form of that species. It entirely lacks the two white spots on the anal area of the hindwing on the upperside present in *T. actæ*, a variable feature in that species, some specimens having them very large, others very small.

#### Genus 157.—*CHERITRA*, Moore. (PLATE XXIX).

*Cheritra*, Moore, Lep. Cey., vol. i, p. 109 (1881); id., Distant, Rhop. Malay., p. 250 (1885).

"FOREWING, triangular; costa uniformly arched to the tip, exterior margin oblique, posterior margin straight; first subcostal nervule emitted at one-half, second subcostal at one-third, before the end of the discoidal cell, third subcostal immediately before the end, fourth subcostal at two-thirds from below the third and terminating at the apex, fifth subcostal from a slight angle at the end of the cell; disco-cellular nervules slightly waved, lower discoidal nervule from their middle; discoidal cell very broad, long, extending to more than half the wing; second median nervule from close to the end of the cell; first median at one-third before the end; submedian nervure slightly waved. HINDWING, short, broadly truncate hindwards; costa much arched at the base and very oblique to the apex; exterior margin angled at the ends of the third and [second] median nervules, with a very long tail from the

\* "UPPERSIDE, both wings brown tinted with purple, the outer margin dark brown. Hindwing with two tails and two caudal black spots. UNDERSIDE, both wings rufous orange, crossed beyond the middle by an indistinct linear brown band. Hindwing with the lobe and caudal spot black, crowned with blue." (*Hewitson*, l. c. in Ill. Diurn. Lep.)

first median nervule and a short one from the submedian nervule; anal angle excavated above the lobe. Male with a tuft of fine hair covering a glandular patch between the base of the costal and subcostal nervures; *costal nervure* arched at the base; *first subcostal nervule* at one-third before the end of the cell; *disco-cellular* nervules outwardly oblique, *discoidal* nervule from their middle; *discoidal cell* broad; *second median nervule* from immediately before the end of the cell, *first median* at nearly one-half before the end; *submedian nervure* nearly straight; *internal nervure* much recurved. BODY moderate; *palpi* porrect, *second joint* long, squamose, extending half length beyond the head, third joint one-fourth its length, slender; *legs* squamose, short; *antenna* gradually thickened to the end, tip pointed, Type, *C. jafra*, Godart [= *C. faga*, Fabricius] (Moore, l. c.)

In the forewing the costal nervure terminates opposite to the apex of the discoidal cell; the base of the second subcostal nervure is nearer to the base of the first subcostal than it is to the base of the upper discoidal; the third subcostal originates just midway between the apices of the cell and of the wing; the middle disco-cellular nervule springs from the upper discoidal close to its base, is a little shorter than the lower disco-cellular, and is slightly concave; the lower disco-cellular is nearly straight, both are upright; the second median nervule originates near the lower end of the discoidal cell; the inner margin is distinctly sinuous, being excavated in the middle. In the hindwing of the male is a brush of dark hairs springing from the base of the subcostal nervure and lying anteriorly across the subcostal interspace, and there is a small glandular oval white patch of scales beneath the area covered by the hairs, as stated by Mr. Moore. The palpi in the female are much longer than in the male. The eyes are naked.

As far as I am aware, this genus contains but two species, or perhaps it would be better to say, one species and a local race. It occurs in the north-east of India, Burma, the Malay Peninsula, and in two of the Malay islands, and again in South India and Ceylon. It is probably only to be found in forests, and frequents the lower trees and bushes. The great length of its pure white tails makes it a conspicuous object on the wing. Its flight is not very rapid. It has two well marked seasonal forms in Northern India.

### Key to the species of Cheritra.

- A. Underside of forewing and outer margin anteriorly of hindwing washed with ochreous.  
957. *C. FREJA*, Kumaon, Bhutan, Assam, Burma, Malay Peninsula, Java, Borneo.
- B. Underside of both wings almost entirely white.  
958. *C. JAFFRA*, South India, Ceylon.

### 957. *Cheritra freja*, Fabricius.

*Hesperia freja*, Fabricius, Ent. Syst., vol. iii, pt. i, p. 263, n. 19 (1793); *Myrina freja*, Butler, Proc. Zool. Soc. Lond., 1867, pp. 34, 36, figs. 1, 1a, female, idem, id., Cat. Fab. Lep. B. M., n. 183, n. 2 (1869); id., Moore, Proc. Zool. Soc. Lond., 1878, p. 834; *Sithon freja*, Druce, Proc. Zool. Soc. Lond., 1873, p. 351, n. 3; id., Standinger, Ex. Schmett., p. 277, pl. xcv, male (1888); *Cheritra freja*, Distant, Rhop. Malay., p. 251, n. 1, pl. xx, fig. 10, female (1885); id., Moore, Journ. Linn. Soc. Lond., Zoology, vol. xxi, p. 43 (1886); *Myrina jaffra*, Godart, Enc. Méth., vol. ix, p. 593, n. 1 (1823); id., Horsfield, Cat. Lep. E. I. Co., p. 118, n. 48 (1829); id., Lucas, Lep. Ex., p. 85, pl. xlii, fig. 4, female (1836); *Cheritra jaffra*, Doherty, Journ. A. S. B., vol. iv, pt. 2, p. 127, n. 135 (1886); *Myrina jaffra*, Horsfield, Cat. Lep. E. I. Co., pl. ii, figs. 5, 5a, female imago; 5b-8, structure of imago (1822); id., Guérin-Méneville, Icon. Rég. An., p. 489, pl. lxxxi, figs. 3, female imago; 3a-4, structure of imago (1844); id., Marshall and de Nicéville, Butt. of India, vol. i, pl. i, structure of imago (1882).

HABITAT: Tranquebar (*Fabricius*), Kumaon, Bhutan, Assam, Burma, Malay Peninsula, Java, Borneo.

EXPANSE: ♂, 1'5 to 1'9; ♀, 1'4 to 2'0 inches.

DESCRIPTION: "MALE. UPPERSIDE, both wings blackish-brown, covered with a beautiful saturated cupreous gloss slightly varying to purple. Forewing immaculate. Hindwing with the anal extremity black separated by a regularly transverse boundary, marked with two white spots, one large, lunulate and marginal, the other oblong, narrow, and exactly opposed to the exterior one at the inner boundary of the anal region; a short white line at the extreme inner margin near the base, indicating the interior attachment of a small brush-like appendage. UNDERSIDE, both

wings white with a grayish shade covered with a slight lustre. *Forewing* has the exterior [costal] and posterior [outer] borders ferruginous, the tint being faint and diffuse interiorly, but more intense in contact with the margin; a very delicate discoidal line, a complete undulated striga behind the disc composed of interrupted lineolæ, and a very obsolete row of spots within the posterior margin are of the same colour. *Hindwing* has beyond the disc a very delicate black striga composed at the costal extremity of interrupted lunules, and in the anal region of arcuated marks disposed in regular succession; then follows a delicate interrupted streak passing in a curve over the entire surface of the wing, and exteriorly of this, just within the margin in the costal [outer] extremity, a macular series of four oblong obsolete brown spots followed by five diversified spots of an intense black tint pervading the anal region; the extreme ones on each side being linear, the next adjoining interiorly large, angular, subocellated, one of them being situated in the marginal series near the notch, the other on the anal appendage; the fifth, which is oblong and somewhat removed from the margin, occupies the medial space of the anal region; these spots are all covered along their inner edge by marks corresponding to their individual form of greenish silvery atoms, forming by their union an undulated streak passing along the inner boundary of the anal region. *Body* above and underneath agrees in colour with the adjoining portion of the wings. *Legs* white with distant white [black] bands, but the tarsi are closely banded. *Antennæ* brown, with a faint grayish crenulation along the inner groove. *Eyes* edged with white. *Palpi* beneath white. *Tails* white with a black medial streak. FEMALE. UPPERSIDE, *forewing*, immaculate. *Hindwing* with a broad snow-white band separating the anal from the middle region; it consists of three oblong spots, of which the exterior one is narrow and passes obliquely towards the margin; a very large lunule of the same colour occupies at the margin the extreme space between the tails." (Horsfield, l. c.) The FEMALE may at once be known from the male on the upperside of both wings by lacking entirely the beautiful purple gloss which is visible in certain lights in the male, as well as by the much greater size of the white markings towards the anal angle of the hindwing.

Mr. Doherty records this species from "Jhulaghat, Gori, and the Kali Valleys, 2-3,000 feet," all in Kumaon. I was previously unaware of *C. freja* being found to the west of Bhutan, where it is common, though it may occur in the Sikkim tarai. It occurs throughout Assam, in the Chittagong Hill Tracts, through Burma to the Malay Peninsula, and in Java and Borneo.

958. *Cheritra jaffra*, Butler. (PLATE XXIX, FIG. 226 ♂).

*Myrina jaffra*, Butler, Proc. Zool. Soc. Lond., 1867, pp. 34, 36, figs. 2, 2a, female; *Cheritra pseudojaffra*, Moore, Lep. Cey., vol. i, p. 110 (1881).

HABITAT: Kanara, Karwar, Western slopes of the Nilgiris, Wynnad, Travancore, Ceylon.

EXPANSE: ♂, 1·6 to 1" ♀, 1·5 to 1·8 inches.

DESCRIPTION: FEMALE. "Differs from *C. freja*, Fabricius, in having the subanal black band on the UPPERSIDE of the *hindwing* nearly divided in the middle, thus forming two quadrate spots; on the UNDERSIDE [of both sexes] it differs in the almost entire absence of yellow colouring in the *forewing*, and in the addition of a small intermacular subanal spot [in the submedian interspace] in the *hindwing*." (Butler, l. c.)

Of the characters given above as distinguishing this species, I find that the coloration of the underside is the only constant one, all the rest being variable. This single character is very slight, and it would perhaps be better to have treated *C. jaffra* as a local race only of *C. freja*. I do not understand how Mr. Moore could have described *C. pseudojaffra* as a distinct species. My Ceylon specimens are identical with South Indian ones of *C. jaffra*. Its description is appended.\* I am not certain if Mr. Butler intended his name to stand for this

*Cheritra pseudojaffra*, Moore, Lep. Cey., vol. i, p. 110 (1881). HABITAT: Ceylon. EXPANSE: Male, 1·6; female, 1·7 inches. DESCRIPTION: \*MALE, UPPERSIDE, both wings purplish violet-blue, olivaceous-brown



species or for the *jaffra* of Godart. The latter is clearly synonymous with *C. freja*, but as Mr. Butler has spelt this name differently to what Godart did, it can be retained for his (Butler's) species.

The figure shows both sides of a male specimen of this species from Ceylon in my collection.

I give below a description of a remarkable genus and species occurring in the Malay Peninsula and Borneo.\*

The eighth division that I have made in the Indian *Lycenida* I have called the *Horaga* group; it contains six genera within Indian limits, and one in the Malay Peninsula. In this group of genera both sexes of all species have three tails to the hindwing. They can be split up into two subgroups each containing three Indian genera. The first has the middle tail short, under a quarter of an inch in length, all the tails filiform and not ciliated; the forewing with two subcostal nervules only. The second subgroup has the middle tail longer, over a quarter of an inch in length, and all the tails strongly ciliated; one genus has three subcostal nervules to the forewing, the other two genera have two only. It is probable that all the genera are strictly oriental, although it is possible that some of them may be found in Africa.

In some lights; marginal line black. Hindwing with a large anal black patch bordered above and below by slender white lunules. Cilia and tail white. UNDERSIDE, both wings entirely white. Forewing with a very indistinct slender black discal broken line and linear submarginal line. Hindwing with a similar slender discal and submarginal sinuous line, and marginal lunules; a large inner and outer anal black spot and two smaller intervening spots, each speckled with metallic-green scales. FEMALES. UPPERSIDE, both wings violet-brown, with broad white borders to black anal patch. UNDERSIDE, both wings as in the male. (Moore, l. c.)

\* *Kornegalle* and *Lower Ambeganoa*. Scarce (Mackwood).

\* Genus *Ritra*, nov. Allied to *Cheritra*, Moore. Male differs in the outer margin of the forewing being slightly concave not straight, and in having a large round silky patch of scales differently formed to those on the rest of the wing in the middle of the wing, the patch occupying the outer end of the cell, bounded posteriorly by the first median nervule, anteriorly by the upper discoidal nervule. Type, *Sithon aurea*, Druce.

As far as I am aware, this genus contains but a single species, which occurs in Borneo and the Malay Peninsula, and of which the male alone is known. On the upperside it is coloured just like a male *Cupella*. Hübnér, being of an orange-coppery shade, the forewing with the large silky patch above described concolorous with the rest of the wing, but noticeable at once by the scales of which it is formed catching the light in different directions; it is also strongly visible when the butterfly is held up to the light owing of the opacity of the scales. The hindwing has the anal region white, marked with two black spots, the tails white, with a black medial line.

*Ritra aurea*, Druce. *Sithon aurea* Druce, Proc. Zool. Soc. Lond., 1873, p. 352, n. 12, pl. xxiii, fig. 2, male. HABITAT: Perak, Borneo. EXpanse: Male 1'12 (Druce), 1'55 to 1'80 inches. DESCRIPTION: "MALE. UPPERSIDE, both wings dark orange. Forewing with a silky spot at the end of the cell. Hindwing with the anal angle, which is marked with two black spots, and the tail white with a black centre. UNDERSIDE, both wings sooty-brown. Hindwing with the posterior half white crossed by two broken black bands, the lower one slightly marked with blue. Allied to *Myrina orpheus*, Felder," from Luzon. (Druce, l. c.)

On the upperside both wings have a fine anteciliary black line on the outer margin, the cilia of the forewing black, of the hindwing white. On the underside the inner margin of the forewing is paler than the rest of the wing, in the hindwing the outer series of black spots are centred with metallic blue, and there is a fine anteciliary fuscous line.

There is a single male of the species captured by the late Herr Küntler in Perak in the collection of the Indian Museum, Calcutta. The species is not included in Mr. Distant's "Rhopalocera Malayana," this specimen was sent to him, but he returned it unnamed, stating that as the tails were wanting it would be better to await the receipt of a perfect specimen before identifying it. I have but little doubt, however, that I have correctly named the specimen. The *M. orpheus* of Felder, from the Philippines, is quite a distinct species, and moreover apparently lacks the male sexual patch of scales on the forewing, and, therefore, in my opinion, should be placed in a different genus. Its description is appended.\*

\* "*Myrina*" *orpheus*, Felder, Wien. Ent. Monatsch., vol. vi, p. 292, n. 59 (1862); id., Hewitson, III. Diurn. Lep., p. 30, n. 8, pl. xvi, fig. 45, female (1873); *M. massiva*, id., l. c., pl. xii, figs. 20, 21, male. HABITAT: Luzon. EXpanse: Male, 1'7; female, 1'6 inches. DESCRIPTION: "Hindwing with two tails, the outer tail much the longer. UPPERSIDE, both wings fuscous, shining in certain lights with bronze and purple in the male, the veins and the margin of a delicate copper-yellow, the forewing of the female yellowish-brown on the disc. Hindwing in both sexes black in the anal region, in the male with two spots, in the female with three much larger spots marked with white. UNDERSIDE, both wings whitish, margined with yellow. Hindwing with a very oblique macular streak, and with three shapeless spots in the anal region, sprinkled with metallic leaden-green stoms, beyond this black."

This extraordinary species has the size of *M. jaffra*, Godart. On the underside it is very like *M. [Neocheritra] aurita*, Felder, from Malayana, but it differs much from it in the straightness of the wings, in the arrangement of the veins and the form of the palpi. As regards the branching of the subcostal nerve of the forewing, it is allied to *M. [Tajuria] longinus*, Fabricius (which we referred to erroneously as *Pseudolonginus* in our Lepidoptera Malayica, in Wien. Ent. Monatsch., vol. iv, p. 395), but really it has palpi extremely like those of *M. [Coxyliodes] thersites*, Hübnér. We have seen two females and one very lovely male specimen collected by Mrs. Anna Semper. (Felder, l. c.)

The first genus, *Rathinda*, Moore, is monotypic, and is found in India and Ceylon only. The opposite sexes in *R. amor*, Fabricius, are marked very much alike, they are brown on the upperside, with an oblique discal white or ochreous band on the forewing, the underside very beautifully variegated. The male has no secondary sexual characters.

The second genus, *Horaga*, Moore, contains about ten species, which occur in India, Ceylon, the Andaman Isles, the Malay Peninsula and Archipelago. The males are usually black on the upperside, the lower discal and basal areas of the forewing and nearly the whole of the hindwing except the margins are blue, the forewing always has a patch of pure white on the middle of the disc. On the underside this patch is usually continued across the disc of the hindwing as a band of varying width. Some of the species have secondary sexual characters in the male, which others have not.

The third genus, *Catapactima*, Butler, contains two species only; one occurs in India, Ceylon, the Malay Peninsula and Archipelago, the other so far has been found in Sikkim only. The male of *C. elegans*, Druce, is dark purple on the upperside, with narrow outer black borders. The female has the disc of both wings blue on the upperside, the rest of the surface black. The underside is most beautifully marked with numerous bands and spots, some of which are coloured exactly like mother-of-pearl. The other species, *C. delicatum*, de Nicéville, has the male almost entirely black on the upperside, the female is blue like that sex of *C. elegans*, the underside densely striated with yellow and black, with numerous metallic green spots scattered over the surface. The males have no secondary sexual characters.

The genus *Semanga*, Distant, is monotypic, and occurs in the Malay Peninsula and Borneo. It has an extra (third) subcostal nervule to the forewing. On the underside of the hindwing it resembles *Catapactima* in having metallic markings on the anal area. The female sex alone appears to be known. It is unique as regards the points from which the tails of the hindwing arise, i.e., each from the apex of a median nervule.

In the next subgroup all the genera have the middle tail long and highly ciliated instead of thread-like, and all the genera possess secondary sexual characters in the male. The first genus, *Biduanda*, Distant, has three subcostal nervules to the forewing, and the secondary sexual characters consist of a glandular patch of modified scales on either side of the base of the first subcostal nervule of the hindwing. The genus is found in Sikkim, Burma, the Malay Peninsula and Archipelago. Six species are known to belong to it.

The next genus, *Drupadia*, Moore, contains but three species, two of which are, in my opinion, probably reducible to one. The genus occurs in Burma, doubtfully in the Nicobar Isles, and in the Malay Peninsula and Archipelago. They are very beautiful butterflies, the forewing of both sexes of the Indian species with a very broad rich orange discal patch, the rest of the wing black, the hindwing in the male blue, in the female black; on the underside the forewing is orange with darker bands and spots; the hindwing is anteriorly orange posteriorly white, with blackish bands and spots, and some metallic markings towards the anal angle. Some of the species of the preceding genus are very similarly marked on the underside. The forewing has two subcostal nervules only, and the male has a glandular patch of modified scales on either side of the submedian nervure near the base of the wing on the underside, below which the inner margin of the wing is outwardly bowed; there is also a similar patch of scales in the subcostal interspace of the hindwing on the upperside.

The last genus of the group is *Eoxyklides*, mihi, and is monotypic. Both sexes have two subcostal nervules to the forewing, this in the male bears a glandular discal patch of scales on the upperside, the inner margin of the wing straight. *E. tharis*, Hübner, is rather a plain insect, the upperside is dark purplish-fuscon, the forewing unmarked, the hindwing with some white patches towards the anal angle, the underside rich orange, the anal third of the hindwing white marked with black. *E. tharis* is found in Burma, and in the Malay Peninsula and Archipelago.

**Genus 169.—RATHINDA, Moore. (PLATE XXIX).**

*Rathinda*, Moore, *Lep. Cey.*, vol. i, p. 99 (1881).

"Wings, small. FOREWING, short, triangular; *costa* arched in the middle, *exterior margin* slightly convex; *costal nervure* very short [normal in length], not extending to quite half the wing; *first subcostal nervule* emitted at half the length of the cell, *second* at one-third, and the *third* at one-fifth before the end, *fourth* from the end of the cell; *disco-cellular nervules* nearly erect, *radial* from their middle; *discoidal cell* extending to more than half the wing; *second median nervule* at one-sixth, *first median* at one-fifth before the end of the cell; *submedian nervure* slightly waved. HINDWING, short, broadly oval, *exterior margin* indented above the end of the third median nervule and thence broadly lobular to the anal angle; both sexes furnished with three slender *tails*; *costal nervure* arched at the base; *first subcostal nervule* at one-fourth before the end of the cell; *disco-cellular nervules* recurved, *radial* from their middle; *discoidal cell* broad; *second median nervule* at one-sixth, *first* at one-third before the end of the cell; *submedian nervure* straight, *internal nervure* recurved. BODY, moderate, *abdomen* extending to anal angle [in the male only, much shorter in the female]; *palpi* very long, porrect, slender, second joint extending two-thirds beyond the head, third joint one-third length of second; *legs* squamose; *antennæ* with a gradually-thickened club. Type, *R. amor*, Fabricius." (Moore, l. c.)

LARVA, cylindrical, armed with numerous curved upright tubercles of varying length. PUPA, normal.

In Mr. Moore's description above it will be observed that, in speaking of the forewing, he treats the upper discoidal as a fourth subcostal nervule, and terms the lower discoidal the radial nervule. In the forewing the *costa* is considerably arched, the *costal nervure* and *subcostal nervules* lying far apart; the *costal nervure* extends to about opposite to the apex of the discoidal cell; the first subcostal nervule is slightly bowed upwards soon after its origin towards the *costal nervure*, from which however it is well separated; the origin of the second subcostal is rather nearer to the base of the first than it is to the base of the upper discoidal; there is of course no upper disco-cellular nervule, the middle disco-cellular originates from the upper discoidal soon after the origin of the latter, and is slightly outwardly oblique; the lower disco-cellular as long as the middle disco-cellular, and slightly inwardly oblique; the second median nervule has its origin a little before the lower end of the cell. In the hindwing the first subcostal nervule originates some distance before the apex of the cell; the disco-cellular nervules are of about equal length, outwardly oblique (the lower slightly less outwardly oblique than the upper, the two veins therefore not quite in a straight line), the upper sinuous, the lower straight; the second median nervule originating just before the lower end of the cell; submedian nervure straight, internal nervure with its base straight and lying close to the base of the submedian nervure, then suddenly strongly bowed outwards, rather short. The tails are short and filiform, the middle tail at the termination of the first median nervule longer than the one on either side of it; the anal lobe is small. Eyes naked. Palpi much longer in the female than in the male.

The genus *Rathinda* contains but a single species, which is brown on the upperside, with an oblique transverse discal macular white or ochreous band on the forewing, and a submarginal reddish-ochreous band on the hindwing. The underside is very beautifully marked, the apex of the forewing is ochreous-brown, the base of the forewing and the entire hindwing is sometimes pure white, sometimes pale ochreous-brown or greyish-ochreous, sometimes entirely ochreous, marked with dark ochreous-brown lines, patches and spots; the hindwing with a submarginal metallic silvery-green line. The middle tail is about twice as long as the one on either side of it. The male has no secondary sexual characters. Its distribution is confined to eastern and southern India and Ceylon. Its full-grown larva is most aberrant, and were the characters exhibited by the skins of full-grown larvae of much if any value in showing the alliances of genera they would in this case seem to link *Rathinda* to *Spalgis*, Moore, which also has the larva furnished with tubercles; these appear in that genus to be even longer than in *Rathinda*.

959. *Rethinda amor*, Fabricius. (PLATE XXIX, FIG. 227 ♀).

*Papilio amor*, Fabricius, Syst. Ent., p. 528, n. 322 (1775); *idem*, id., Sp. Ins., vol. ii, p. 113, n. 402 (1792); *idem*, id., Mant. Ins., vol. ii, p. 65, n. 620 (1787); *idem*, Hérbst, Pap., vol. xi, p. 43, n. 89, pl. cccii, figs. 9, 30 (1804); *Hesperia amor*, Fabricius, Ent. Syst., vol. iii, pt. 1, p. 250, n. 7 (1793); *Polyommatus amor*, Godart, Enc. Méth., vol. ix, p. 620, n. 8 (1823); *Zephyrius amor*, Guérin-Ménéville, Icon. Règne Anim., Ins., p. 490, pl. lxxxj, fig. 6 (1844); *Myrina amor*, Butler, Cat. Fab. Lep. B. M., p. 184, n. 6 (1869); *Rethinda amor*, Moore, Lep., Cey., vol. i, p. 99, pl. xlii, figs. 1, 2a (1881); *Sithon amor*, Staudinger, Ex. Schmett., p. 277, pl. xcv, female (1888); *Papilio triopas*, Cramer, Pap. Ex., vol. iv, pl. ccxxx, figs. G, H (1780); *Myrina triopas*, Horsfield and Moore, Cat. Lep. Mus. E. I. C., vol. i, p. 49, n. 82, pl. xli, fig. 7, larva; 7a, pupa (1857); *idem*, Moore, Proc. Zool. Soc. Lond., 1865, p. 776.

HABITAT: Calcutta (Moore), Upper Assam, Orissa, South India, Ceylon.

EXPANSE: ♂, ♀, '95 to 1'30 inches.

DESCRIPTION: MALE and FEMALE: "UPPERSIDE, both wings violet-brown. Forewing with an ochreous-white spot beyond the end of the cell, and two less distinct smaller spots obliquely below it [divided by the second median nervule]. Hindwing with a marginal row of red lunules from the anal angle, outwardly bordered by a slender white line [and enclosing lunular black spots]. UNDERSIDE, both wings pale ochreous-brown or greyish-ochreous. Forewing, basal area with ochreous or white-bordered black spots; a curved white oblique black-bordered discal band, and a slender marginal line; a short waved streak on lower end of discal band. Hindwing, basal area with ochreous or white-bordered black spots, a curved medial sinuous black line, a more even discal line, and a submarginal line, the latter white within, and bordered by metallic-green lunules; the subanal spaces also black-speckled. Paip; brown above, white beneath. Legs white with black bands." (Moore, l. c. in Lep. Cey.)

LARVA, cylindrical, green, marked on the medial segments in the dorsal region with reddish, furnished with numerous curved fleshy tubercles of varying length. The food-plant is unknown. PUPA, green marked with violet, of the usual lycaenid form.

There is very considerable variation in the markings of the underside of the imago; in one Bombay specimen possessed by me the white ground-colour is entirely replaced by yellow, and in all specimens there is a yellow band on the hindwing within the metallic-green band, this band often more or less diffused inwardly and spreading on to the basal area of the forewing, obliterating the white ground. There is usually a prominent black spot on the margin of the hindwing in the first median interspace. In the Indian Museum, Calcutta, is a single specimen from Sibsagar in Upper Assam, obtained by Mr. S. E. Peal; Mr. Moore has recorded it from Calcutta, but I have never met with it in that locality; in Orissa Mr. W. C. Taylor has taken it in February, March and July; Mr. E. A. Minchin has taken it in Ganjam, and at Bangalore in August; at Karinja, Bombay, it occurs in September and October; Mr. E. H. Aitken states that "*R. amor* occurs almost everywhere in Bombay, but is common nowhere. It appears at the close of the rainy season. It is fond of taking its stand on the point of a prominent leaf, with wings closed and an air of decision not easy to describe. *Aphneus* has the same habit." Mr. Moore records it also from Canara; in the Nilgiris Mr. G. F. Hampson reports it as being "rare on the lower slopes, 2,000 to 4,000 feet," and in Ceylon it is found in the "Eastern and Western Provinces, in low country forests during the S.W. monsoon—May to September. Flies about amongst the trees and settles on the leaves. Easily captured" (Hutchinson). "Kandy; Galle. Common" (Wade).

The figure shows both sides of a female example from Orissa in my collection.

## Genus 159.—HORAGA, Moore. (PLATE XXV).

*Horaga*, Moore, Lep. Cey., vol. i, p. 98 (1881); *idem*, Distant, Rhop. Malay., p. 459 (1886).

"FOREWING, short, triangular; costa gently arched, apex acute, exterior margin slightly oblique, even; costal nervure recurved; first subcostal nervule emitted at half length of the cell, second at one-third, and third close to the end, fourth from its end; discoidal cell recurved, broad; disco-cellular nervules nearly erect; radial [lower discoidal] nervule from their middle



second median nervule from near the end of the cell; first median at one-third before the end; submedian nervure straight. HINDWING, short, broad, bluntly oval; exterior margin uneven, furnished with three slender tails, [the middle the longest]; costal nervure much curved its entire length; first subcostal nervule at one-third before the end of the cell; disco-cellular nervules oblique, discoidal nervule from their middle; third and second median nervules from the end of the cell, first median at one-third before the end; submedian nervure slightly curved, internal nervure recurved. BODY, short; thorax stout; palpi porrect, second joint squamose, slender, extending half beyond the head, third joint cylindrical, one-third the length of the second; legs short; antennæ short, gradually thickening to a pointed club. Type, *Horaga onyx*, Moore." (Moore, l. c.)

"The males of the genus *Horaga* [except *H. viola*, Moore, and *H. albimacula*, Wood-Mason and de Nicéville] may at once be distinguished from the females by an oval ochreous glandular patch of closely-packed scales on the underside of the forewing placed on and near the middle of the submedian nervure." (de Nicéville, Journ. A. S. B., vol. li, pt. 2, p. 97 (1883).)

In neuration *Horaga* comes very close to *Rathinda*, Moore. In the forewing the costal nervure and subcostal nervules in *Horaga* lie much closer together than in *Rathinda*; the costal nervure ends opposite to the apex of the discoidal cell; the first subcostal nervule is slightly bowed upwards towards the costal nervure soon after its origin; the base of the second subcostal is considerably nearer to the base of the first than it is to the base of the upper discoidal; the middle disco-cellular is much shorter than the lower, both are only very slightly concave and upright, and thus more in one straight line than in *Rathinda*; the second median nervule is given off some little distance before the lower end of the discoidal cell. In the males of those species which have a glandular patch of scales on the submedian nervure, the inner margin of the wing is bowed outwards opposite this patch. In the hindwing the costal nervure is much shorter than in *Rathinda*, not nearly reaching the apex of the wing; the disco-cellular nervules are strongly outwardly oblique and in one straight line, and are slightly concave; the second and third median nervules have a common origin at the lower end of the cell, the internal nervure is straighter than in *Rathinda*. The eyes are naked. The palpi are longer in the females than in the males. The antennæ are considerably less than half as long as the costa of the forewing.

Like *Catapactima*, Butler, *Rathinda* and *Drupadia*, Moore, and *Eooxylides*, mihi, this genus is furnished with three tails to the hindwing in both sexes, and has only two subcostal nervules to the forewing. The outline of *Horaga* is somewhat variable, as *H. albimacula*, Wood-Mason and de Nicéville, and *H. viola*, Moore, have the outer margin of the forewing in both sexes much convexed, this feature being usually seen in the female only. I do not quite know what Mr. Moore means by calling the discoidal cell of the forewing "recurved." The outer tail at the end of the second median nervule is the shortest, the inner one at the apex of the submedian nervure is about twice as long, and the middle one at the termination of the first median nervule the longest of all, twice as long as the innermost one. About ten species of the genus have, as far as I can ascertain, been described, all of which, except the "*Myrina*" *menala* of Hewitson from Borneo, which may belong to a different genus, have in both sexes a prominent pure white patch in the middle of the forewing on the upperside, which patch on the underside is usually larger, and crosses the hindwing in the form of a medial fascia. All the species are more or less blue or purple on the upperside, except *H. viola*, Moore, which is violet-brown in both sexes. The genus is a purely Oriental one, its head-quarters being in India, where it occurs in the Himalayas and Assam, Orissa, South India, Ceylon, and Burma, it is found also in the Malay Peninsula and the Andaman Isles, also in some of the Islands of the Malay Archipelago. Many of the species are very closely allied, and are consequently very difficult to discriminate, and where more than one species occurs in the same locality, it is by no means easy to pair the sexes correctly. Their flight is rapid, but they do not fly far, quickly settling again, usually on a leaf of a bush or tree.

## Key to the Indian species of Horaga.

A. Males with an oval ochreous patch of closely-packed scales differently-formed from those on the rest of the wing on the underside of the forewing near the middle of the submedian nervure.

a. Discal white patch on underside of forewing extending above subcostal nervure.

α<sup>1</sup>. Male, upperside, forewing with discal white patch large, not crossed by black veins, blue coloration extending into cell.

α<sup>2</sup>. Underside, discal white band broad in hindwing.

960. *H. ONYX*, Himalayas, Assam, Orissa, South India.

β<sup>2</sup>. Underside, discal white band narrow in hindwing.

961. *H. CINGALENSIS*, Ceylon.

β<sup>2</sup>. Male, upperside, forewing with discal white patch small, crossed by black veins, blue coloration not extending into cell.

962. *H. RANA*, South Andaman Isles.

β Discal white patch on underside of forewing not extending above subcostal nervure.

α<sup>1</sup>. Underside, forewing, discal band very narrow.

963. *H. MOULMEINA*, Burma.

β<sup>1</sup>. Underside, forewing, discal band broad.

964. *H. SIKKIMA*, Sikkim, Bhutan, Khasi Hills.

B. Males with no secondary sexual characters.

a. Male, upperside, both wings violet-brown.

965. *H. VIOLA*, Himalayas, Nilgiris.

β. Male, upperside, forewing black, hindwing dark violet-blue, outwardly bordered with black.

966. *H. ALBIMACULA*, South Andaman Isles.

960. *Horaga onyx*, Moore

*Thecla onyx*, Moore, Horsfield and Moore, Cat. Lep. Mus. E. I. C., vol. i, p. 30, n. 35 (1857); *Horaga onyx*, Moore, Proc. Zool. Soc. Lond., 1882, p. 247.

HABITAT: Himalaya (Moore), Deyra Doon, Dharmasala, Sikkim, Assam, Orissa, South India.

EXPANSE: ♂, ♀, 1.15 to 1.35 inches.

DESCRIPTION: MALE. "UPPERSIDE, forewing dark brown with a patch of white in the middle, the posterior base, from the subcostal nervure to the middle of the disc, cyaneous. Hindwing light brown, the middle, from base to near exterior margin, cyaneous, paling to light bluish-brown along the abdominal margin. Tails three, two inner ones longish. UNDERSIDE, both wings pale ferruginous-brown, a white fascia crossing both wings towards the anal angle, and ending on the hindwing upwards to abdominal margin in a greenish-metallic line, the latter being bounded inwardly by a narrow blackish line; a blackish spot and line at the anal angle, and another spot some distance off on the exterior margin." (Moore, l. c. in Cat. Lep. Mus. E. I. C.)

"MALE. UPPERSIDE, both wings violet-brown. Forewing with the lower basal and discal areas cyaneous-blue, discal white spot large, the same size as in the female of *H. viola*, Moore. Hindwing paler, the medial area cyaneous-blue. UNDERSIDE, both wings pale olivaceous brownish-ochreous, the discal band on the forewing attenuated anteriorly and extending to the costal border, the band on the hindwing very broad and irregular; anal and subanal spots small. FEMALE. UPPERSIDE, both wings paler. Forewing with the discal spot very large and oval, band on UNDERSIDE as in male."

"Taken by Mr. Hocking on quince tree, at 6,000 feet elevation."

"The type specimen described above is now in the British Museum collection. Its locality label is 'Himalaya,' not Burmah, as stated in my original description." (Moore, l. c. in Proc. Zool. Soc. Lond.)

A very common species in Sikkim, and occurring in April, July, October and November. The specimens which are on the wing in the cold weather have all the markings below more blurred and larger and the ground-colour paler than rains' examples. I possess specimens also from Kulu taken by Mr. A. Grahame Young; from Deyra Doon, taken in August by Mr. P. W. Mackinnon; Colonel A. M. Lang, R.E., took a single specimen on 10th September, 1887, at Khairna, Kosi Valley, 3,200 feet, Kumaon, and another in December on the Choka river, in

the sâi forests of the Pilibhit Terai; Mr. J. L. Sherwill has sent me a male taken in July at Jorehât, Assam; Mr. W. C. Taylor has taken it in Orissa in March; Mr. G. F. Hampson has sent it to me from the Nilgiris, and writes regarding it: "A rare species, occurring on the lower slopes;" and there is a single female in the Indian Museum, Calcutta, from Cannanore, South India.

961. *Horaga cingalensis*, Moore.

*H. cingalensis*, Moore, Proc. Zool. Soc. Lond., 1883, p. 325; *H. ciniata*, Moore (nec Hewitson), Lep. Cey., vol. 1, p. 99, pl. xxxix, figs. 2, 2a, male (1881).

HABITAT: Ceylon.

EXPANSE: ♂, 1.10; ♀, 1.25 inches.

DESCRIPTION: "MALE. UPPERSIDE, both wings very like *H. onyx*, Moore; the blue basal areas of similar tint. Forewing with the discal white spot smaller. UNDERSIDE, both wings very dark violaceous brownish-ochreous. Forewing with the discal band narrower but extending to the costa. Hindwing with the band also narrower and much more regular, anal spots much less prominent."

"A much smaller species than and quite distinct from *H. ciniata*, Hewitson, which latter is confined to the Malay Island of Batchian." (Moore, l. c. in Proc. Zool. Soc. Lond.)

In Mr Moore's figure of this species in the "Lepidoptera of Ceylon" the discal white band on the underside of the hindwing appears to be narrow, of nearly equal width throughout, with its inner edge very straight and even. In *H. onyx*, Moore, the band is usually broader, with its inner edge irregular, but neither of these features are constant, and I can find no character by which to separate the two species; however I know *H. cingalensis* by Mr. Moore's figures and descriptions only. I append Mr. Moore's earlier description of the species.\* In Ceylon it is recorded from "Kandy. Rare. Easy to capture. Rests on low bushes. Is by no means shy, and when disturbed does not fly far" (Wade).

962. *Horaga rana*, de N. (PLATE XXV, FIG. 149 ♂).

*H. rana*, de Nicéville, Journ. A. S. B., vol. lvii, pt. 2, p. 283, n. 13, pl. xiv, fig. 10, male (1888).

HABITAT: South Andaman Isles.

EXPANSE: ♂, 1.15 to 1.25; ♀, 1.20 to 1.35 inches.

DESCRIPTION: "MALE. UPPERSIDE, both wings differ from *H. albimacula*, Wood-Mason and de Nicéville, in the violet-blue coloration being replaced by pure cærulean blue. Forewing in having the oval discal white patch smaller, bounded by the lower discoidal and first median nervules, in one specimen only extending very slightly into the submedian interspace, divided into three portions by the black crossing nervules; in one specimen there is a considerable patch of pure cærulean blue scales on the basal half of the wing below the median nervure, this patch is obsolete in another specimen and entirely absent in a third. UNDERSIDE, forewing differs in having the median white band extending conspicuously almost to the costa and pure white throughout, its anterior portion not washed with fuscous as in *H. albimacula*. Hindwing with the median white fascia averaging twice as broad, this, however, is a variable feature in both species. FEMALE, much larger than the male in three out of four specimens. UPPERSIDE, forewing with the discal white patch twice as large, extending from the subcostal almost to the submedian nervure, and proportionally broad; a few pale grey-blue scales placed below the median nervure towards the base in two specimens. Hindwing with some scattered pale grey-blue scales on the disc. UNDERSIDE, both wings bright fulvous. Forewing with the discal white patch almost touching the costa, its

\* "MALE and FEMALE. UPPERSIDE, both wings violet-black; lower basal and discal areas blue. Forewing with a large oval white medial discal spot. Hindwing with a slender white marginal line. UNDERSIDE, both wings pale brownish-ochreous, crossed by a white band, the band bulged outwards on the disc of the forewing. Hindwing with a slender white marginal line, a series of black spots from the anal angle, the penultimate spot nearly obliterated by grey scales; a lunular band of metallic-green scales above each spot, and two streaks above the anal angle. Pupa black, grey-speckled at the sides. Legs white, with black bands." (l. c. in Lep. Cey.)

anterior portion narrow and outwardly slightly hooked; the ground-colour beyond the white patch increasingly to the costa fuscous; inner angle and margin pale. *Hindwing* with the outwardly-diffused discal band outwardly bordered by a pale fuscous fascia, widest at the costa and obsolete at the third median nervule. Otherwise as in *H. alhimacula*."

"Described from two males and three females collected by the late Mr. A. R. de Roepstorff, and now in the Indian Museum, Calcutta, and another pair taken by Mr. R. Wimberley in my own collection." (*de Nicéville*, l. c.)

The figure shows both sides of the type male specimen from the South Andaman Isles in my collection.

963. *Horaga moulmeina*, Moore.

*H. moulmeina*, Moore, Proc. Zool. Soc. Lond., 1883, p. 525; *Myrina syriax*, Hewitson (nec Felder), Ill. Diurn. Lep., *Lycenidæ*, pp. 34, 40, n. 24, pl. xiv, figs. 32, 33, male (1863).

HABITAT: Moulmein.

EXPANSE: 1'1 to 1'3 inches.

DESCRIPTION: "Allied to *H. onyx*, Moore. MALE. UPPERSIDE, *forewing* differs in having a smaller and more trilobate-formed white discal spot. UNDERSIDE, *both wings* of a much brighter ochreous colour. *Forewing* with the discal band only half the width of that in *H. onyx*, and does not extend above the subcostal nervure. *Hindwing* with the band narrower, regular, and of uniform width, anal and two subanal spots large. FEMALE. UPPERSIDE, *both wings* paler. UNDERSIDE, *both wings* also of the same brighter colour, and the band similar to that of the male."

"The *H. syriax* of Felder is an Amboina species." (Moore, l. c.)

I have never seen this species, and from Mr. Hewitson's figure of it can discover no character by which to separate it from *H. sikkima*, Moore, except that the discal band on the underside of the forewing is a little narrower, and of the hindwing somewhat broader.

964. *Horaga sikkima*, Moore.

*H. sikkima*, Moore, Proc. Zool. Soc. Lond., 1883, p. 525; *Horaga* species, de Nicéville, Journ. A. S. B., vol. III, pt. 2, p. 96, n. 235 (1883).

HABITAT: Sikkim, Bhutan, Khasi Hills.

EXPANSE: 1'2 to 1'4 inches.

DESCRIPTION: "MALE. UPPERSIDE, *both wings* differ from *H. onyx*, Moore, in the lower basal and discal areas being of a darker blue tint. *Forewing* with the discal white spot intermediate in size. UNDERSIDE, *both wings* of a slightly brighter ochreous tint than in *H. syriax*, [as figured by] Hewitson, [= *H. moulmeina*, Moore]. *Forewing* with the discal band somewhat broader. *Hindwing* with the band very much narrower, being about the same width as in *H. viola*, Moore." (Moore, l. c.) FEMALE. UPPERSIDE, *both wings* differ from the male in the blue areas being duller and of a more purple shade. *Forewing* with the discal white patch larger. UNDERSIDE, *both wings* bright ochreous as in the male, the white discal band rather wider.

Mr. Otto Möller possesses three males and five females of this species, two of which were taken in July and August, and one in October, and I possess seven males and one female, also from Sikkim, as well as a male from the Khasi Hills, the latter taken by the Rev. Walter A. Hamilton. In the Indian Museum, Calcutta, is a single male from Bhutan. It agrees with *H. viola*, Moore, and differs from *H. onyx*, Moore, in the discal white patch on the underside of the forewing not reaching the costa; its bright ochreous coloration below is also very distinctive. I described this species independently, but gave it no name,\* as I considered

\* "MALE. UPPERSIDE, *both wings* black. *Forewing* with the discal white spot small and distinctly indented at the nervules, outwardly twice, inwardly twice; below the median nervure basally cyanaceous-blue. *Hindwing* paler, the disc blue; a fine marginal pale blue line not reaching the apex. UNDERSIDE, *both wings* bright ochreous. *Forewing* with the discal spot divided posteriorly by a brownish line, the spot not quite reaching the subcostal nervure. *Hindwing* with the discal band somewhat narrow, white, inwardly nearly straight and sharply defined with a dark brown line; the black spot on the anal lobe large; a large quadrate patch



it then to be too near the species figured by Mr. Hewitson under the name of *Myrina onyx* (*M. syrinx* on the plate) to be given distinct specific rank, but I find that *H. sikkima* differs from that figure in always having the discal band on the hindwing on the underside narrower, but it is rather variable in width, and specimens may hereafter be found linking *H. sikkima* to *H. moulmeina*.

*Horaga halba*, Distant, has been described as below\* from the Malay Peninsula. The sex of the specimen described is not stated, but to judge from the outline of the wings it is almost certainly a female, nor to what species it is nearest allied, but from the figure it appears to be nearest on the upperside to *H. albimacula*, Wood-Mason and de Nicéville; the coloration is violet-blue, while in all the other species of the genus it is blue. *H. halba* on the underside is near to *H. sikkima*, Moore, and *H. moulmeina*, Moore, the colour of the ground is the same, and the discal white patch on the forewing does not nearly reach the costa.

965. *Horaga viola*, Moore.

*H. viola*, Moore, Proc. Zool. Soc. Lond., 1882, p. 248.

HABITAT: Dharmasala, N.-W. Himalayas; Sikkim; Nilgiris.

EXPANSE: ♂, 9; ♀, 10 inch.

DESCRIPTION: "MALE. UPPERSIDE, both wings violet-brown. Forewing with a small white discal spot. UNDERSIDE, both wings darkish violaceous brownish-ochreous, the white discal spot continued to the posterior margin. Hindwing with the band narrowly white in both sexes. FEMALE. UPPERSIDE, both wings violet-brown, palest on the hindwing; lower basal and discal areas dull cyaneous-blue. Forewing with the discal spot larger than in the male." UNDERSIDE, both wings as in the male. (Moore, l. c.)

"A rare species occurring on the lower slopes of the Nilgiris, 2,000 to 4,000 feet" (G. F. Hanipson). Rare also in Sikkim, Mr. Otto Möller possesses eight males and two females. The male of this species does not possess the "male mark" on the underside of the forewing, which is present in all the other species of the genus known to me, except *H. albimacula*, Wood-Mason and de Nicéville. I think Mr. Moore has described the female of this species incorrectly. The sexes are alike in coloration, at least in Sikkim; specimens from thence in my collection have been identified by Mr. Moore as *H. viola*. It is the smallest known species of the genus, my specimens measuring exactly an inch in expanse. Male specimens from the Nilgiris have the white discal patch on the upperside of the forewing outwardly sullied with ochreous.

of irrorated black and white scales beyond, then another large black spot in the first median interspace, with a smaller linear one in the interspace beyond all anteriorly defined with a pale metallic greenish line, also a line of the same colour in continuation of the discal white band, recurved to the abdominal margin. FEMALE larger, wings broader, apex of forewing more rounded, discal spot larger. Hindwing with the blue colour paler and more restricted, four irrorated bluish spots between the nervules at the anal angle within the marginal pale blue line. UNDERSIDE, both wings as in the male."

"The species described above may be known from Sikkim specimens of *H. cinnata*, Moore, (= *H. onyx*, Moore), by the ground colour of the underside being bright ochreous, and the discal spot not nearly reaching the costa, in this respect it agrees with Sikkim specimens of *H. viola*, Moore, but is otherwise abundantly distinct from that species. It is well figured by Hewitson (Ill. Diurn. Lep., *Lycenidæ*, pl. xiv, figs. 32, 33, 1863) under the name of *Myrina onyx* (*Myrina syrinx* on the plate, the specimen figured being probably a male by reason of the pointed apex to the forewing). The *Myrina syrinx*, Felder, female, (Sitzb. Ak. Wiss. Wien, Math.-Nat. Cl., vol. xl, p. 452, n. 24, 1860) from Amboyna is probably a distinct species." (de Nicéville, l. c.)

\* *Horaga halba*, Distant, Rhop. Malay, p. 460, n. 1, pl. xlv, fig. 23 (1886). HABITAT: Penang. EXPANSE: 11 inches. DESCRIPTION: UPPERSIDE, both wings violaceous-blue. Forewing with the costal, apical and outer areas fuscous (the last two very broadly), and containing a discal whitish spot situated at about the end of the cell. Hindwing with the costal and outer areas fuscous, a submarginal greyish white line, and the tails with their apices greyish. UNDERSIDE, both wings pale ochraceous, crossed by a discal greyish-white fascia, broadest on the forewing, where it commences at a little beyond the end of the cell, and narrowing on the hindwing below the median nervure, where it is recurved and continued upwards to the abdominal margin as a metallic-greenish fascia inwardly margined with blackish, and followed beneath by a similar fascia. Hindwing with a series of marginal blackish spots near the anal angle, inwardly margined with metallic-greenish and black; one at the anal angle greyish dusted with black, posterior margin with two blackish lines bordered on each side with greyish. Body much dilated.

"*H. halba* belongs to a group of species in which great similarity of colour and markings is found. I have, however, carefully compared it with the other described species of the genus, and in the shape of the white spot above, and the width and pattern of the white fascia beneath find sufficient characters to separate it." (Distant, l. c.)

966. *Horaga albimacula*, W.-M. & de N. (PLATE XXV, FIG. 148 ♂).

\* *Sithon* <sup>?</sup> *albimacula*, Wood-Mason and de Nicéville, Journ. A. S. B., vol. i, pt. 2, p. 299, n. 26 (1881); *Horaga albimacula*, de Nicéville, l. c., vol. i, pt. 2, p. 284, pl. xiv, fig. 9, male (1882).

HABITAT: South Andaman Isles.

EXPANSE: ♂, 1.09 to 1.20 inches.

DESCRIPTION: "MALE. UPPERSIDE, *forewing* brown-black of a vinous tint, with a large conspicuous oval white discal spot equal in length to half the breadth of the part of the organ on which it lies, equally distant from the opposite margins, and so placed that its major axis and more pointed anterior end are directed towards the middle of the costa. *Hindwing* dark violet-blue, bordered increasingly from the base of the anterior margin to the apical angle and thence decreasingly to the anal angle with fuscous-black, and from the submedian nervure to the abdominal margin with greyish-black; with a fine black anteciliary line and, immediately internal to this, a very faint and fine silver-grey line decreasing from the anal angle and dwindling to nothing before reaching the apical angle; with the *cilia* dark brown, evenly tipped with silvery-white; and with the *tails* black-brown, the unequal submedian and second median shorter ones edged internally with silvery-white cilia, and the longer intermediate first median one white-tufted at its inner extremity. UNDERSIDE, *both wings* much lighter. *Forewing* with a broad and prominent white band bordered both sides with fuscous of a darker shade than the rest of the ground-colour, passing off from the greyish-white basal portion of the inner margin across the organ to within a short distance of the costa, increasing in its course to a little beyond the first median nervule, and thence decreasing to its anterior extremity (which is washed with fuscous), so that its outline, while almost straight internally, is bluntly obtuse-angled externally; and with the outer margin at the inner angle obsoletely trineated with white as in the hindwing. *Hindwing* with a narrower and less conspicuous discal whitish band of uniform width throughout, not sharply defined, but on the contrary diffused externally, and bordered internally with a line of fuscous which is darker than the ground, sharply bent inwards at right angles to itself to the abdominal margin, and externally margined with brassy at its posterior end; with the deep black spot of the small anal lobe, a large patch of grey scales between the ends of the submedian nervure and the first median nervule, an intense black spot next to and about half the size of this between the ends of the first and second median nervules, and a very short and transversely elongated or narrow similar but inconspicuous black spot between the ends of the first and second median nervules, all internally margined with a discontinuous line of brassy scales which extends from the point where the dark discal striga with its brassy edging reaches the abdominal margin all along the outer margin of the organs, following the inner contours of the above-described spots, up to the second subcostal nervule; and with the external margin finely lined with three regularly concentric silvery-white lines separated from one another by the black anteciliary line and the brown bases of the cilia" (Wood-Mason and de Nicéville, l. c.)

In the Indian Museum, Calcutta, are two males of this species collected by the late Mr. A. R. de Roepstorff, and in my own collection are five more males obtained by Mr. R. Wimberley, all from the Andaman Isles. This species shares with *H. viola*, Moore, the peculiarity of having no "male-mark." The female has yet to be discovered.

The figure shows both sides of the male type specimen from the South Andaman Isles in the collection of the Indian Museum, Calcutta. It gives a very poor representation of the species, and hardly shews the large well-defined violet discal patch of the hindwing.

## Genus 100.—CATAPCEILMA, Butler. (PLATE XXIX).

*Catapceilma*, Butler, Trans. Linn. Soc. Lond., Zoology, second series, vol. i, p. 547 (1872); *id.*, *Moses*, Lep. Cey., vol. i, p. 97 (1881); *id.*, *Distant*, Rhop. Malay, p. 234 (1884).

"Allied to *Lampides*, Hubner and *Miletus*, Hubner, but differs from both in having three tails to the hindwing; the antennæ are long, slender and acuminate; the wing-cells and

decoration generally are very like that of *Lamproidea*; the wings below are spangled with silver, much as in *Milvina* (*Hypochrysops*, part, Felder)." (Butler, l. c.)

"FOREWING, subtriangular; costal margin only slightly convex, apex obtusely rounded, outer margin moderately convex and scalloped, inner margin slightly concavely sinuate; costal nervure short, terminating on the costa nearly opposite the end of the cell; first subcostal nervule emitted near the middle of the cell, second about midway between the bases of the first and third, third emitted close to the end of the cell and continued to the apex; second median nervule emitted about one-fifth before the end of the cell, first median a little beyond the middle. HINDWING, irregularly subovate; costal margin convex at the base and then nearly straight to the apex, which is rounded, posterior margin very slightly scalloped, with three slender tails situated respectively at the apices of the second and first median nervules and of the submedian nervure; costal nervure extending to about the apex of the wing; subcostal nervules bifurcating about one-third before the end of the cell, third and second median nervules emitted close together near the end of the cell. Palpi moderately long, much compressed, second joint projecting more than half beyond the head and longly hirsute beneath; apical joint slender, but well-formed. Antennæ with a gradually-formed but well-developed apical club." Eyes hairy. (Distant, l. c.)

The nervation of *Catapacilma* agrees very closely with that of *Horaga*, Moore, but the male never has secondary sexual characters as are found in most of the species of the latter genus. In the forewing the middle disco-cellular nervule is upright, shorter than the lower, the latter slightly concave and slightly inwardly oblique. In the hindwing the upper disco-cellular nervule is slightly concave and a little outwardly oblique, the lower the same length as the upper, straight and upright; the second and third median nervules have a common origin at the lower end of the discoidal cell; the internal nervure is very short, shorter even than in *Rathinda*, Moore. The tails are exactly as in *Rathinda* and *Horaga*.

Two species only are certainly known up to the present time; one, *C. elegans*, Druce, has a wide range in India, occurring also in Ceylon, Burma, the Malay Peninsula, Nias Island, and Borneo; the other, *C. delicatum*, de Nicéville, has hitherto been found in Sikkim only. A third species has been recorded from Malacca, but, as it is described and figured as having two tails only, it may belong to another genus. The two Indian species possess three very slender tails to the hindwing, the middle one about twice as long as the others. All the species are very beautifully marked with silvery-green or metallic-violet bands and spots on the underside of both wings.

### Key to the Indian species of *Catapacilma*.

- A. Male, upperside dark violet-blue; underside, both sexes with rufous bands marked with glittering and metallic violet colour.  
967. *C. ELEGANS*, India, Ceylon, Burma, Malay Peninsula, Nias Island, Borneo.
- B. Male, upperside smoky purplish-black; underside both sexes striated throughout with chrome-yellow and black, and with scattered silvery-green spots.  
968. *C. DELICATUM*, Sikkim.

### 967. *Catapacilma elegans*, Druce. (PLATE XXIX, FIG. 228 ♀).

*Hypochrysops elegans*, Druce, Proc. Zool. Soc. Lond., 1873, p. 350, n. 1, pl. xxxii, fig. 22, female; *Catapacilma elegans*, Butler, Trans. Linn. Soc. Lond., Zoology, second series, vol. i, p. 348, n. 1 (1877); id., Moore, Lep. Cey., vol. i, p. 98, pl. xxxix, figs. 3, 3<sup>a</sup> male (1881); id., Distant, Rhop. Malay, p. 235, n. 1, pl. xxii, fig. 27, male (1884); id., Staudinger, Ex. Schm., p. 282, pl. xvi, female (nec male) (1888); *Catapacilma elegans*, Wood-Mason and de Nicéville, Jour. A. S. B., vol. iv, pt. 2, p. 368, n. 129, pl. xv, fig. 6, male (1886).

HABITAT. Masuri, Sikkim, Orissa, South India, Ceylon, Assam, Burma, Malay Peninsula, Nias Island, Borneo.

EXPANSE: ♂, 1·1 to 1·4; ♀, 1·0 to 1·4 inches.

DESCRIPTION: "MALE. UPPERSIDE, both wings dark violet-blue, with the costal and outer margins somewhat narrowly dark fuscous. Hindwing with an inner greyish marginal

line from beneath the subcostal nervules, and with three transverse greyish submarginal streaks near the anal angle divided by the median nervules. *Tails* fuscous, with their apices greyish-white. *Cilia* of both wings greyish. *UNDERSIDE*, both wings greyish-brown. *Forewing* with three rufous spots margined with black and silvery crossing the cell; a series of silvery spots in the subcostal area, two beyond the cell divided by the lower discoidal nervule, two or three beneath the cell (both of these followed by ochraceous and black), an outer and irregular discal series of five spots crossing the wing, and a submarginal series in which the silvery hue is somewhat less intense; between the discal and submarginal series of spots are some dark fuscous markings. *Hindwing* with the following rufous spots, margined with black and silvery:—two beneath the costal nervule, one (round) about the middle of the cell, and one (transverse) at the end of the cell; two beneath the cell and situated between the submedian nervule and the first median nervule, and one (transverse) about the middle of the abdominal margin; on about the basal third of the costal margin are some rufous, black, and silvery markings; two discal series of silvery spots margined with black across the wing, between and beyond which are some black spots on a rufous ground-colour, a submarginal series of pale silvery spots placed between the nervules, that between the second and first median nervules replaced by a black spot margined with rufous, and the silvery spots at the anal angle margined with black; *tails* pale fuscous with their apices greyish-white. *Cilia* of both wings silvery grey. *Body* above and beneath more or less concolorous with the wings. *FEMALE*. *UPPERSIDE*, both wings pale violet blue, with the costal and outer margins broadly dark fuscous. *Hindwing* with three pale transverse spots near the anal angle, divided by the second and first median nervules, and the inner margin also narrowly silvery at this area. *UNDERSIDE*, both wings with the ground-colour much paler than in the male, but with the markings similar." (*Distant*, l. c.)

This species was first described as below\* from Borneo. It occurs also at Penang, Perak, Malacca, Johore and Sungai Ujong in the Malay Peninsula. Mr. Wood-Mason obtained it in Cachar in May and June; it occurs commonly in Sikkim in March, April and October, the males much more often seen than the females; Mr. P. W. Mackinnon has sent me a single female taken at Masuri, 3,000 feet, in April; Mr. W. C. Taylor has obtained it in Orissa; Mr. E. H. Aitken records it from Bassein, Tanna District, Bombay, in March and April; Mr. G. F. Hampson has found it fairly common on the lower slopes of the Nilgiris from 2,000 to 4,000 feet; there is a single specimen from Cannanore in South India in the Indian Museum, Calcutta; Mr. A. W. Morris reports that *C. elegans* occurs commonly in the Shevaroy Hills in May and August, and may be taken on the leaves of the orange trees during the heat of the day, and that it has a curious habit of returning to the same twig from which it has been disturbed, it occurs at Kandy in Ceylon, "common" (*Wade*); and Mr. W. Doherty obtained it at Mergui and Myittha in Upper Tenasserim.

The figure shows both sides of a female example in my collection from the Shevaroy Hills in South India.

### 968. *Catapceglis delicatula*, de N.

*C. delicatula*, de Nicéville, Proc Zool Soc Lond, 1887, p. 455, *Catapceglis bubastes*, de Nicéville (nec Hewitson), Journ. A. S. B., vol. liv, pt. 2, p. 128, pl. II, figs. 11, male; 12, female (1885).

*HABITAT*: Sikkim.

*EXpanse*: ♂, ♀, 1.25 inches.

\* *FEMALE* "UPPERSIDE, both wings greyish blue. *Forewing* with the costal margin dark brown. *UNDERSIDE*, both wings pale brown. *Forewing* crossed beyond the cell by a rufous band, with a row of small black spots in the middle, and numerous metallic dots from the base to the costal margin. *Hindwing* with two rufous bands, the first, with a row of black spots, below the middle, the second near the outer margin, with a metallic streak crossing both the rufous bands, several metallic spots close to the base." (*Druce*, l. c.)

Druce's "figure, which is extremely rough, represents the species with three to four tails to the hindwing; but either the fourth [uppermost] has been broken off in all the examples which I have examined, or does not really exist." (*Butler*, l. c.)

**DESCRIPTION:** "MALE. **UPPERSIDE**, both wings smoky purplish-black, obscurely shot with purple in some lights. **Forewing** with the lower discal and basal areas powdered with dull blue scales, which are obsolete in some specimens. **Hindwing** with two very fine silvery lines on the margin at the anal angle. **Tails** black, tipped with white. **Cilia** blackish, marked with white towards the anal angle of the forewing, and throughout the hindwing. **UNDERSIDE**, both wings chrome-yellow, densely and evenly striated with black, and with scattered greenish-silvery metallic spots and streaks, some of which form a marginal series. **FEMALE**. **UPPERSIDE**, forewing pale blue, with the costa, the apex widely, and the outer margin blackish. **Hindwing** with all but the outer margin, which is blackish, pale blue; towards the anal angle there is first a fine pale blue line, then a yellow one defined on both sides by a black one, and then another pale blue line. **UNDERSIDE**, both wings as in the male." (de Nicville, l. c. in Journ. A. S. B.)

Mr. Otto Moller possesses five males and five females of this species taken in Sikkim in April and May, and the type male, also obtained by him, is in the collection of the Indian Museum, Calcutta; my own collection contains two males and a female. It appears to be a very rare species, and strictly confined to Sikkim.

What is almost certainly a third species of the genus has been described from Malacca as below.\* Though the inner tail at the anal angle of the hindwing is missing, it agrees in the general style of its coloration and markings with the two known species. The sex of the type specimen is not stated, but from Mr. Distant's figure of it I should judge it to be a female.

Below will be found a description of the genus *Semanga*, Distant†. It is monotypic, a single sex only is known, and it occurs in the Malay Peninsula and Borneo. It is said to have three subcostal nervules to the forewing. The genus is apparently nearest allied to *Catapacilma*, Butler.

\* *Catapacilma*? *bubastes*, Hewitson *Hypochrysois* *bubastes*, Hewitson, Ent. Month. Mag., vol. xii, p. 38 (1875). *Catapacilma*? *bubastes*, Distant, Rhop. Malay., p. 459, n. 2, pl. xiv, fig. 26 (1886). **HABITAT**: Malacca. **EX-PANSE**, 1.6 inches. **DESCRIPTION**: "UPPERSIDE, both wings cerisean-blue with all the margins broadly brown. **Hindwing** with two slender tails, the outer margin rufous, broadest near the anal angle, where it is bordered above and below with silver. **UNDERSIDE**, both wings rufous, undulated throughout with black, and marked by several irregular black spots, and by numerous small silvery-blue spots, some of which form two submarginal bands." (Hewitson, l. c.)

† Genus *Semanga*, Distant, Rhop. Malay., p. 239 (1884). "FORWING, somewhat short and broad; costal and outer margins slightly convex, inner margin very slightly concave; costal nervure terminating on the costa a little before the end of the discoidal cell, where it is somewhat recurved; first subcostal nervule emitted at about one-third before the end of the cell, second subcostal about midway between the first and third, third subcostal at the end of the cell, third and fourth bifurcating at about two-thirds the length of the third, disco-cellular nervules somewhat oblique, third median nervule emitted at about the end of the cell, second median emitted about two-thirds nearer the base of the third than the base of the first. **HINDWING**, subovate; costal margin rounded at base and then straight and oblique to the apex, apex obtuse, posterior margin rounded, very slightly waved or scalloped, with three slender tails situated at the apices of the median nervules; abdominal margin concavely excavated a little below (above) the anal angle; costal nervure extending to about the apex; subcostal nervules bifurcating a little before the end of the cell, and opposite to the apparently common origin of the third and second median nervules, submedian nervules slightly curved outwardly, internal nervure strongly curved inwardly. **PALPI**, robust and correct, the second joint clothed with coarse and closely compressed hairs and extending for two-thirds its length before the eyes, apical joint much more slender than the second, but moderately robust. **HOUS**, robust.

"*Semanga* is founded on a species already received from both Borneo and the Malay Peninsula, and its colour affinities are with *Catapacilma*, Butler, especially by the metallic markings of the underside of the hindwing; an additional subcostal nervule to the forewing, however, sufficiently separates it from that genus." (Distant, l. c.)

I have not seen a specimen of any species of this genus, but as described and figured by Mr. Distant it differs remarkably from *Catapacilma*: having the inner tail to the hindwing the longest, the middle tail half as long, the outer tail half as long as the middle tail; in *Catapacilma* the inner tail is at the apex of the submedian nervure, in *Semanga* it is at the apex of the first median nervule, consequently the outermost tail arises from the end of the third median nervule, these being very important structural differences between the two genera. The female of the type species is alone known, so whether or no the male has secondary sexual characters must await solution till that sex is discovered.

*Semanga superba*, Druce *Ilerda*? *superba*, Druce, Proc. Zool. Soc. Lond., 1873, p. 350, n. 1, pl. xciii, fig. 11, ♀ female; *Semanga superba*, Distant, Rhop. Malay., p. 239, n. 1, pl. xxi, fig. 13, female (1884). **HABITAT**: Malacca, Borneo. **EX-PANSE**: Female, 1.2 inches. **DESCRIPTION**: "UPPERSIDE, both wings dark blue-black, costal and outer margins dark brown. **Hindwing** with three orange spots close to the anal angle, and a narrow white line round the outer margin. **UNDERSIDE**, both wings pale brown. **Forewing** crossed near the middle by a rufous band. **Hindwing** with the apical half red, crossed by a broken blue line, with a row of black spots close to the outer margin; three orange spots at the anal angle." (Druce, l. c.)



## Genus 161.—BIDUANDA, Distant. (PLATE XXIX).

*Biduanda*, Distant, Rhip. Malay., p. 257 (1894).

"FOREWING, globosely subtriangular, costal margin arched, outer margin convex, inner margin nearly straight; costal nervure terminating on the costa before the apex of the cell, first subcostal nervule emitted about the middle of the cell, second about midway between the first and the third, third arising a little before the end of the cell, third and fourth bifurcating at a short distance from the apex of the wing; disco-cellular nervules somewhat perpendicular; third median nervule emitted at the end of the cell, second nearer to the first than to the third, first emitted beyond the middle of the cell. HINDWING, subovate, costal margin arched at the base, and then straight and strongly oblique to the apex, which is obtuse, posterior margin as in *Drupadia*, Moore, abdominal margin angulated but not so strongly cleft as in that genus; costal nervure reaching the apex of the wing, other neurotation much as in *Drupadia*. Type, *Myrina thesmia*, Hewitson." (Distant, l. c.)

In the forewing the costa is evenly arched throughout, the apex is rather rounded, the outer margin slightly convex, the inner angle rounded, the inner margin strongly bowed outwardly in the middle in the male, nearly straight in the female; the costal nervure is unusually short, ending some distance before the apex of the discoidal cell, the base of the second subcostal nervule is slightly nearer to the base of the first than it is to the base of the upper discoidal, the third subcostal nervule is very short, emitted close to the apex of the wing; the middle disco-cellular nervule is emitted from the upper discoidal a short distance from its base, the lower disco-cellular is slightly longer than the upper, both are upright, and in one straight line; the second median nervule is emitted a short distance before the apex of the cell; the submedian nervure is slightly sinuous. In the hindwing the costa is very strongly and regularly arched in the male, much less arched in the female, the apex is very much rounded in the male, less so in the female, the outer margin strongly angled at the termination of the second median nervule, the abdominal margin is rather deeply incised above the anal lobe; the costal nervure hardly reaches the apex of the wing, the disco-cellular nervules are almost in one straight line, slightly outwardly oblique, the second median nervule is emitted a little before the lower end of the cell, the internal nervure is long and recurved; there is a distinct anal lobe and three tails, the outermost at the end of the second median nervule the shortest of all, reduced to a mere notch in the male of *B. thesmia*, Hewitson, but quite distinct and well-formed in the female; the middle tail at the end of the first median nervule the longest; the innermost tail at the end of the submedian nervure half as long as the middle tail. The secondary sexual characters in the male consist of the strongly bowed inner margin of the forewing covering a glandular patch of black differently-formed scales on the upperside of the hindwing placed around the base of the first subcostal nervule, the larger portion of the patch lying between that nervule and the costal nervure. Eyes naked.

Mr. Distant describes the inner margin of the forewing of the type of the genus, *B. thesmia*, Hewitson, as "nearly straight." Hewitson quite correctly described it as regards the male as "curved, projecting;" it is, however, nearly straight in the female.

\* FEMALE. UPSIDE, forewing dark violaceous with the costal and outer margins (broadest at the apex) dark fuscous. Hindwing with the costal, posterior and abdominal margins fuscous, the posterior margin darkest, and containing some irregularly sized and arranged ochraceous submarginal spots, one below the first median nervule and the submedian nervure, and one at lobular anal angle, each containing a dark fuscous centre; these spots are followed outwardly by a narrow whitish line, and the apices of the tails are also whitish. UNDER-SIDE, dark wings pale brownish. Forewing crossed by a narrow pale castaneous fascia, outwardly bordered with greyish, commencing at lower subcostal nervule and terminating at submedian nervure, and there are faint indications of a greyish submarginal fascia, which is only clearly visible at the posterior angle. Hindwing with the apical half reddish ochraceous, containing firstly an irregular transverse series of metallic bluish spots, followed by a more or less obscure and very irregular series of black spots, the outer margin broadly blackish, powdered with metallic bluish scales, and with a pale submarginal whitish line; a distinct black spot at lobular anal angle, inwardly margined with bluish. Body above more or less concolorous with the wings, beneath greyish; legs greyish, annulated with dark brownish.

"I have not seen the male of this species, which will probably prove to be similar to the female, but without the broad blackish margins to the upperside of the wings." (Distant, l. c.)

In Mr. Druce's figure of this species the basal half of the hindwing on the underside is white, in Mr. Distant's figure it is concolorous with the rest of the wings. The appearance of the two figures is therefore entirely different.

I include in this genus the *Myrina melisa*, *M. cyara*, and *M. scava*, all of Hewitson. They are rather small butterflies, with three tails to the hindwing, and a very persistent style of markings on the underside; these consist of a large brown blotch at the apex of the forewing in both sexes of *B. scava* and in the male of *B. melisa*, but before the apex in the females of *B. melisa* and *B. cyara*; and with numerous brown spots and lines covering the base and disc of both wings on the underside in all of them. The males of *B. melisa* and *B. scava* have the outer half of the hindwing on the upperside rich metallic blue, with a patch of blue in the middle of the disc of the forewing also in the latter; the female of *B. melisa* is also blue on the hindwing, with a patch of white on the disc of the forewing; the female of *B. scava* is fuscous on the upperside, with the outer third of the hindwing white. Of these three species I possess but a single male specimen of *B. melisa*, and a pair of *B. scava*, all of which differ in many points of structure from *B. thesmia*, remarkably so in having the inner margin of the forewing less strongly outwardly bowed, the costal nervure and first and second subcostal nervules more widely separated owing to the costa being more arched, and the antennae being shorter. It is more than probable that these three species represent a genus or even genera distinct from *Biduanda*, but the matter must rest in abeyance, as far as any rate as I am concerned, until specimens can be obtained in sufficient numbers to enable me to sacrifice one of each species by bleaching the wings so that I can study their venation carefully.

The genus *Biduanda* is a small but very interesting one. Its known distribution at present is confined to Sikkim, Burma, the Malay peninsula, Nias and Daat Islands, Sumatra and Borneo: its range will doubtless hereafter be greatly extended in the Malay Archipelago. Mr. Moore described a species which he called "*Drupadia fabricii*" from Burma. It is not a *Drupadia* at all, as the outline of the hindwing in the male is normal, the costal nervure reaches the apex of the wing instead of terminating about the middle of the costa as it does in the genus *Drupadia*, and both sexes have three instead of two subcostal nervules to the forewing. I am unable even to maintain the species as distinct, as it appears to have no constant characters by which it can be distinguished from *Biduanda thesmia*, Hewitson.

The markings of the underside in some of the species of the genera *Biduanda* and *Drupadia* are strikingly similar; whether this is due to mimicry or not I am unable to say.

Mr. Doherty records the following note on the genus. "*Drupadia* differs from *Biduanda* in having the third subcostal nervule [I call this vein the terminal portion of the subcostal nervure] undivided (in *Biduanda* it is forked just before its termination), and a conspicuous sex-mark on the hindwing on the upperside between the bases of the costal and subcostal nervures. Nevertheless the two genera are extremely similar in the entire structure of the egg, the [newly-born] larva, and the imago, and in any system of classification ought to be brought together." (Journ. A. S. B., vol. lviii, pt. 2, p. (1889).

### Key to the Indian species of *Biduanda*.

- A. Both sexes, underside, forewing with the discal band narrow throughout.
  - a. Male, upperside, hindwing not densely irrorated with bluish-white scales.
    969. *B. thesmia*, Burma, Malay Peninsula, Nias and Daat Islands, Sumatra.
  - b. Male, upperside, hindwing densely irrorated with bluish-white scales.
    970. *B. scynnerii*, Burma.
- B. Both sexes, underside, forewing with the anterior portion of the discal band three or four times as broad as the posterior portion below the second median nervule.
  - a. Both sexes with the anal half of the hindwing on the upperside ceruleous blue, female with a discal white patch on the forewing.
    971. *B. melisa*, Sikkim, Burma.
  - b. Female (?) with the entire hindwing on the upperside rufous-brown, a blid orange patch on the disc of the forewing.
    972. *B. cyara*, Sikkim.
  - c. Male, upperside, both wings rich dark violet, with an even narrow outer black margin; hindwing fringed with white at the anal angle,
    973. *B. nixonii*, Burma.

969. *Biduanda thesmia*, Hewitson. (PLATE XXIX, FIG. 229 ♂).

*Myrina thesmia*, Hewitson, Ill. Diuro. Lep., p. 32, n. 15, pl. xiv, figs. 25, 27, male; 26, female (1863); *Biduanda thesmia*, Distant, Rhop. Malay., p. 238, n. 1, figs. 76, male; 77, female (1884); id., Doherty, Journ. A. S. B., vol. lviii, pt. 2, p. (1889); *Drupadia fabricii*, Moore, Journ. A. S. B., vol. liii, pt. 2, p. 32 (1884); *Biduanda fabricii*, id., Journ. Linn. Soc. Lond., Zoology, vol. xxi, p. 42, pl. iv, figs. 2, male; 3, female (1886).

HABITAT: Burma, Malay Peninsula, Nias and Daat Islands, Sumatra.

EXPANSE: ♂, 1.25 to 1.60; ♀, 1.20 to 1.50 inches.

DESCRIPTION: "MALE. UPPERSIDE, both wings: purple-brown. Forewing with the inner margin curved, projecting. Hindwing with the outer margin and base of the tails black; a submarginal line between the tails, the *cilia*, and the three tails, white. UNDERSIDE, forewing rufous-orange, with two spots in and below the cell, a spot at the end of the cell, three transverse lines (the first, which is near the second, indistinct), the outer margin, and the *cilia*, all brown. Hindwing white (the apex rufous), with eight brown spots, followed by several zigzag black lines; the caudal spot, the lobe, and the space between them crowned with silvery blue; a spot above the [anal] lobe also powdered with blue; the outer margin black; the *cilia* white. FEMALE. UPPERSIDE does not differ from the male, except that it is rufous-brown, and has the anal angle of the hindwing grey, marked with the caudal spots."

"Closely allied to *M.* [= *Drupadia*] *ravindra*, Horsfield, [from Java and Nias]; although the males are very different, the females are alike on the upperside. On the underside this species differs from *D. ravindra* chiefly in having the lower spots of the hindwing represented by double lines [in *D. ravindra* they are solid. The coloration of the ground is very different]. A male has a rufous spot in the middle of the forewing, as represented in the figure." (Hewitson, l. c.)

"I cannot find any constant difference between Mergui [specimens of *B. fabricii*, Moore] and Perak specimens [of *B. thesmia*]." (Doherty, l. c.)

I quite agree with Mr. Doherty's note above as regards the males from Burma and the Malay Peninsula, as they seem to be practically identical, but the Burmese females have always a very much larger orange patch on the upperside of the forewing than the females from the Malay Peninsula, and the latter have usually a greater extent of white irroration in the anal region of the hindwing on the upperside than the former. I append a description of *B. fabricii*.\*

Dr. J. Anderson obtained this species in considerable numbers in December, January and March in the Mergui Archipelago; Major C. T. Bingham captured a single male specimen on the Donat Range, Upper Tenasserim, in April; Mr. Doherty found it in the cold season of 1888-89 both at Mergui and at Myitta in the Tenasserim valley; it appears to occur throughout the length of the Malay Peninsula, and in the Islands of Daat, Nias, and Sumatra.

The figure shews both sides of a male specimen from the Mergui Archipelago now in the collection of the Indian Museum, Calcutta.

\* *Biduanda fabricii*, Moore. *Drupadia fabricii*, Moore, Journ. A. S. B., vol. liii, pt. 2, p. 32 (1884); *Biduanda fabricii*, id., Journ. Linn. Soc. Lond., Zoology, vol. xxi, p. 42, pl. iv, figs. 2, male; 3, female (1886). HABITAT: Mergui Archipelago. EXPANSE: Male and female, 1.25 to 1.37 inches. DESCRIPTION: "MALE. UPPERSIDE, both wings similar to the same sex of *Biduanda thesmia*, Hewitson, except that on the forewing there is a less amount of cuprescent-red on the disc. UNDERSIDE, forewing paler, the markings within the cell, the discal and marginal bands uniformly paler. Hindwing with the basal and discal spots brown, and much less defined." (Moore, l. c. in Journ. Linn. Soc.) "FEMALE. UPPERSIDE, forewing violet-brown, with a slightly broader and more irregular-shaped oblique medial red band than in the female of the typical *Drupadia liasis*, Fabricius, the band also having its outer border scalloped. Hindwing paler brown, with grey-bordered anal marginal spots. UNDERSIDE, forewing also differs from *Drupadia liasis* in the apical area being suffused with a dusky tint; at the base of the cell is a small round pale-bordered spot, not an elongated triangular mark as in *Drupadia liasis*, the short band crossing the middle of the cell is black, the streak at the end of the cell is more distinct, the transverse discal band black-lined and blackish internally at the upper end, the submarginal line also being broader and more prominent. Hindwing with the markings less prominent than in *Drupadia liasis*, the basal bar shorter, the outer costal narrow streak further from the second, the first bar between the subcostal nervules being midway below the two outer costal spots, instead of being in continuation of the inner of these two spots, the three subbasal spots are small and widely-separated, the bar at the end of the cell and the spot beneath it are pale-centred, the zigzag discal interrupted band is composed of duplex streaks, which are wide apart with the interspace white." (Moore, l. c. in Journ. A. S. B.) "The forewing of the female on the upperside has a broad, irregular-shaped, oblique median red band, whereas in *Biduanda thesmia* the band is nearly obsolete." (Moore, l. c. in Journ. Linn. Soc.)

970. *Biduanda scudderii*, Doherty.*B. scudderii*, Doherty, Journ. A. S. B., vol. lviii, pt. 2, p. (1889).

HABITAT: Mergui, Burma.

EXPANSE: ♂, 1.1 inches.

DESCRIPTION: "Allied to *B. thesmia*, Hewitson, and somewhat resembling the female of that species. MALE. UPPERSIDE, both wings dark fuscous. Forewing with an orange area occupying about a sixth of the surface, including the lower angle of the discoidal cell, and the disc from the base of the lower discoidal to below the first median nervule; a somewhat large, obscure violet-blue subapical area (not refulgent in any light), not reaching the costa or the outer margin; the inner margin is also tinged with violet. Hindwing dull fuscous, a large dull violet area between the second subcostal and the first median nervules from the discoidal cell to the marginal black line, its inner part densely irrorated with bluish-white scales, beyond which lies a transverse darker discal fascia; subanal area nearly black; cilia whitish subanally; tails chiefly black, except at the tip. UNDERSIDE, both wings much as in *B. thesmia*, Hewitson." (Doherty, l. c.)

I have seen the type and only known specimen of this pretty little species. The obscure violet-blue coloration of the upperside is only seen in a strong light, in a dull light it is quite invisible. The bluish-white irrorated disc of the hindwing above is very distinctive.

971. *Biduanda melisa*, Hewitson.*Myrina melisa*, Hewitson, Ill. Diurn. Lep., Suppl. p. 6, n. 57, pl. iii, figs. 82, 83, female (1869); *Biduanda melisa*, Doherty, Journ. A. S. B., vol. lviii, pt. 2, p. (1889).

HABITAT: Darjeeling and Maulmain (Hewitson); Burma.

EXPANSE: ♂, 9 to 1.1; ♀, 1.1 inches.

DESCRIPTION: "MALE. UPPERSIDE, both wings dark brown. Hindwing with two [three] tails, the anal half cerulean blue, marked by two lunular black spots; the cilia and a submarginal line at the base of the tails, white. UNDERSIDE, both wings white. Forewing with three spots near the base, a large spot beyond the middle of the costal margin, a spot and some lines below it, and the apex, rufous-brown. Hindwing with many outline spots of brown, the anal angle silvery blue, with two black spots. FEMALE does not differ from the male, except in having a medial white spot in the forewing on the UPPERSIDE."

"Nearly allied to *M. [B.] scava*, [Hewitson, from Singapore], but differs from it in being without the blue medial spot of the forewing on the upperside, and in having the spots on the underside in outline only." (Hewitson, l. c.)

I possess a single male specimen of this species taken by Major C. T. Bingham in the Pegu Hills in December. It is remarkable in having the costal margin of the hindwing on the upperside broadly orange. This feature is not described by Mr. Hewitson, but as it is hidden when the insect is set by the overlapping inner margin of the forewing, it may have been overlooked by him. The female not only differs from the male in having the white patch on the upperside of the forewing not present in the other sex, but also on the underside in the costal brown patch of the same wing not nearly extending to the apex, as it does in the male. Mr. Doherty notes (l. c.) "One male of this rare little species taken at Myitta, Tenasserim valley. A similar kind occurs at high elevations in Perak, but whether it is this species or *B. scava*, Hewitson, I am unable to say."

972. *Biduanda cyara*, Hewitson.*Myrina cyara*, Hewitson, Ill. Diurn. Lep., Suppl., p. 26, n. 73, pl. iii, figs. 109, 110 (1878).

HABITAT: Darjeeling (Hewitson).

EXPANSE: 1.35 inches.

DESCRIPTION: "UPPERSIDE, both wings rufous-brown. Forewing with a medial bifid orange spot. Hindwing with three tails, and three black caudal spots crowned with white, and bordered below with white; the outer margin black. Cilia white. UNDERSIDE, both

scings grey and white, marked by several brown spots and black lines. Forewing with a large brown spot beyond the middle [on the costa], the outer margin rufous-brown. Hindwing with a caudal black spot, crowned with gold." (Hewitson, l. c.)

Mr. Hewitson does not attempt to describe in detail the numerous markings which cover the entire surface of both wings on the underside, most of which are in outline only, nor does he state the sex of the type specimen, which appears to me to be almost certainly a female. It should not be easily mistaken for any other species; the markings of the underside, combined with three tails to the hindwing and a discal orange patch on the upperside of the forewing, rendering it quite unique. I have not seen a specimen.

I append a description of the *Myrina scava* of Hewitson, described from Singapore, but not included by Mr. Distant in his work on the butterflies of the Malay Peninsula.\*

973. *Biduanda nicévillei*, Doherty.

*B. nicévillei*, Doherty, Journ. A. S. B., vol. lviii, pt. 2, p. (1889).

HABITAT: Myitta, Tenasserim Valley, Burma.

EXPANSE: ♂, 1·2 inches.

DESCRIPTION: "MALE. UPPERSIDE, both wings violet, (much richer and bluer than in *B. thesmia*, Hewitson), slightly paler in the middle of the forewing; a narrow, even, black border. Hindwing with two subanal black spots bordered inwardly by an area irrorated with whitish scales: a marginal black and white line subanally; the *cilia* partly white, as well as most of the tails. UNDERSIDE, both wings, much like *B. melisa*, Hewitson, the markings more rufous, less fuscous, the basal spots simple, not annular. Forewing with the transverse discal band and the outer margin rufous-brown and ferruginous of various shades. Hindwing with the apical part of the outer margin light ferruginous, the metallic green anal area large, extending unbroken from the third median nervule to the internal nervure, the submarginal line straighter, and less undulated on both wings" (Doherty, l. c.)

Mr. Doherty obtained two males of this very distinct species at Myitta, Tenasserim Valley, in the cold weather. The rich purple upperside, with an even outer black border about one-sixteenth of an inch in breadth, will easily distinguish this from all the known species of the genus.

I append a description of *B. cinesoides*, mihi, which occurs in the Malay Peninsula.† It has a distinct "male-mark" on the upperside of the forewing on the disc.

\* *Biduanda scava*, Hewitson. *Myrina scava*, Hewitson, Ill. Diurn. Lep., p. 30, n. 11, pl. xv, figs. 30, 40, male (1863). HABITAT: Singapore. EXPANSE: Male, 1·05 inches. DESCRIPTION: "MALE. UPPERSIDE, both wings dark brown. Forewing with a medial spot of blue dots. Hindwing cerulean silvery blue; the base, the costal margin, and the outer margin from the apex to the middle, dark brown; two caudal spots and the three tails black; a submarginal line and the *cilia* white. UNDERSIDE, both wings white. Forewing with a triangular spot on the costal margin, the apex, and outer margin, rufous-brown; the base, two large spots in and below the cell, the end of the cell, several spots on the costal margin, a broken macular band beyond the middle, and a submarginal line, all black. Hindwing with several spots, short lines in pairs, a submarginal line, and the outer margin, black; the caudal black spots crowned with silvery blue." (Hewitson, l. c.)

This species appears to have the markings on the underside so characteristic of *B. melisa* and *B. cyara*, Hewitson. The male may be distinguished from that sex of *B. melisa* by the presence of the small irrorated blue spot on the upperside of the forewing. All the markings on the underside of *B. scava* appear to be better defined, and of a darker and richer brown than in *B. melisa*. I have not seen a specimen.

† *Biduanda cinesoides*, de Nicéville, Journ. Bombay Nat. Hist. Soc., vol. iv, p. 166, n. 5, pl. A, fig. 7, male (1889). HABITAT: Selangore, Malay Peninsula. EXPANSE: Male, 1·6 inches. DESCRIPTION: MALE. UPPERSIDE, both wings violet-blue. Forewing with a marginal narrow black line; a large round black glandular patch of modified scales beyond the end of the cell, extending slightly into it, anteriorly bounded by the upper discoidal nervule, posteriorly by the second median nervule. Hindwing with an oblique black band extending from the base of the short outermost tail to the abdominal margin above the anal notch, beyond which the outer margin is white, bearing a very fine black line; the tails white, black at their bases; a very large intensely black elongated patch of modified glandular scales below the costa. *Cilia* of the forewing blackish, of the hindwing anteriorly blackish, posteriorly white. UNDERSIDE, forewing orange-rufous, the inner margin broadly pale and highly polished. Hindwing with the anterior half orange-rufous, gradually merging into the white area of the posterior half of the wing; an oblique zigzag narrow black band extending from the middle of the abdominal margin to near the end of the second subcostal nervule, where the band is much attenuated and turned upwards parallel with the outer margin; beyond this narrow band is another still narrower and more zigzag band enclosing a ferruginous line, with a band of metallic amethystine-violet placed outwardly against it, the inner portion of the latter above the anal notch enclosed by a short black line centred with ferruginous; a black spot on the anal lobe, and another larger one in the first median interspace just within the margin; a fine marginal black line; tails as above."



Genus 102.—**DRUPADIA**, Moore. (PLATE XXIX).

*Drupadia*,\* Moore, Journ. A. S. B., vol. lili, pt. 2, p. 37 (1884); id., Distant, Rhop. Malay., p. 236 (1884).

"FOREWING, differs from typical *Hypolycena*, Felder, in its more triangular form, the *costa* being longer and more regularly convex, the *exterior margin* more oblique, and the *posterior* margin shorter and convex towards the base [in the male only, this convex portion placed opposite to an oval glandular patch of scales differently-formed to those on the rest of the wing, and lying on both sides of the submedian nervure near its base]. HINDWING, somewhat shorter, the *costa* being very convex in the middle, the *exterior margin* truncated from the second median nervule; with three *tails*, the middle one long, the others short. *Palpi* with the second joint much longer, and the third shorter and stouter [than in *Hypolycena*]. MALE with a prominent glandular patch of scales between the costal and subcostal nervures on the upperside of the hindwing, lacking in the female. Type, *Myrina ravindra*, Horsfield," (Moore, l. c.)

"This genus is allied to *Catapacilma*, Butler, in having only three subcostal nervules to the forewing, and in possessing three tails to the hindwing. The differential points exist most strongly in the hindwing, which [in the male] is convex at the base and then strongly oblique to the apex, which is subacute; the posterior margin is oblique to the apex of the second median nervule, when it is [suddenly] more produced, and contains a tail at the apices of the second and first median nervules and of the submedian nervure; the abdominal margin is very strongly cleft near the anal angle; the costal nervure does not extend to about the apex of the wing as in *Catapacilma*, but terminates on the costal margin at about two-thirds of its length; the subcostal nervules bifurcate a little beyond the middle of the cell, and the third and second median nervules have an apparently common origin a little before the end of the cell; the internal nervure is straight, and terminates just above the excavation of the abdominal margin. The palpi are robust and porrect, projecting fully two-thirds of their length beyond the eyes; the second joint clothed with coarse adpressed hairs; the third joint is slender compared with the second joint, but robust compared with the corresponding joint of many other somewhat allied genera; the palpi are longer in the female than in the male. Legs moderately robust." Eyes naked.

"*Drupadia* superficially resembles the genus *Biduanda*, Distant; and, as arranged by Mr. Moore, it included the species which here stands as the type of *Biduanda* [*themis*, Hewitson]. The resemblance, however, is only superficial, as one genus possesses three subcostal nervules to the forewing, and the other genus is provided with four." (Distant, l. c.)

In the forewing of *Drupadia boisduvalii*, Moore, the costal nervure terminates about opposite to the apex of the discoidal cell, the second subcostal nervule is given off from the subcostal nervure rather nearer to the base of the first than to that of the upper discoidal; the middle disco-cellular is shorter than the lower, both are concave and slightly inwardly oblique; the second median nervule is given off some little distance before the end of the cell; in the male there is a patch of glandular scales on either side of the submedian nervure near the base on the underside of the wing, and the inner margin of the wing is strongly bowed outwards below this point; in the female there is no glandular patch, and the inner margin is straight. Mr. Distant describes the hindwing of the male nearly correctly, but does not point out how it differs from that of the female. The hindwing of the male has the costal margin abnormally produced and arched to cover the glandular patch on the inner margin of the forewing, but there is no need for this extension in the female, which has therefore the *costa* of the hindwing

\*Very near to the "*Myrina*" *cinesia* of Hewitson,† from Borneo, from which it appears to differ in the presence of the "male-mark" on the upperside of the forewing; on the upperside of the hindwing there is a black band in the anal region, with a considerable white band beyond it, which latter is not found in *B. cinesia*, and on the underside of the hindwing in the inner black band being half as wide, the outer band also much narrower, and enclosing a ferruginous line, in *B. cinesia* it is wholly black; the middle tail is also more than one-third longer in my species." (de Nicéville, l. c.)

† "*Myrina cinesia*, Hewitson, Ill. Diurn. Lep., p. 29, n. 5, pl. xiii, figs. 18, 19, male; 20, female (1863).

\*This name should fall before *Narmesius* of Hübner, Verz. bek. Schmett., p. 8: (1816), of which the type is the *Psyllis litias* of Fabricius.

only gently and regularly arched; and the costal nervure is much longer (extending nearly to the apex of the wing) than in the male, in which it is extraordinarily short.

This genus cannot be mistaken for any other, being abundantly distinct. From the genera with two subcostal nervules to the forewing and three tails to the hindwing, it may be known, in the male, by the abnormal shape of the hindwing, and the costal nervure reaching to about the middle only of the costal margin, instead of to the apex, as in *Rathinda*, Moore, *Catapecilma*, Butler, and *Eooxylides*, de Nicéville. It has also a round glandular patch of scales on the hindwing of the male near the costa, which is not found in any of the allied genera. It contains four species only, all of which, except *D. ravindra*, Horsfield, (which occurs in Nias Island (*Kheil*) and Java) are described in this work.

### Key to the Indian species of *Drupadia*.

A. Both sexes, upperside, forewing with discal orange patch small.

974. *D. LISIAS*, Nicobar Isles.

B. Both sexes, upperside, forewing with discal orange patch large.

975. *D. BOISDUVALII*, Chittagong Hill Tracts, Burma.

### 974. *Drupadia lisias*, Fabricius.

*Papilio lisias*, Fabricius, Mant. Ins., vol. ii, p. 65, n. 615 (1787); id., Donovan, Ins. India, p. 60, pl. 21, figs. 1, female (1800); *Hesperia lisias*, id., Ent. Syst., vol. iii, pt. 1, p. 261, n. 12 (1793); *Myrina lisias*, Godart, Enc. Méth., vol. ix, p. 593, n. 2 (1823); id., Butler, Cat. Fab. Lep. B. M., p. 184, n. 5 (1869); *Hypolycana lisias*, Moore, Proc. Zool. Soc. Lond., 1878, p. 833; *Drupadia lisias*, Moore, Journ. A. S. B., vol. lvi, pt. 2, p. 32 (1884); id., Waterhouse, Aid., vol. ii, pl. clxv, figs. 2, 3a, male; 3, female (1886).

HABITAT: Pulicandor, = Pulo Kondul, one of the Nicobar Isles (*Fabricius*); on this side of the Ganges (*Godart*); India (*Westwood*); Barrackpore (*Butler*); Ahsown; Meetan, April; Moolai, 3—6,000 feet, all in Upper Tenasserim (*Moore*).

EXPANSE: ♂, 1'35; ♀, 1'30 inches.

DESCRIPTION: MALE. UPPERSIDE, forewing differs from *D. boisduvalii*, Moore, described below, in the orange patch being much smaller, about half as large, not nearly reaching the outer margin or anal angle. Otherwise as in *D. boisduvalii*. FEMALE. UPPERSIDE, forewing also with the orange patch much restricted, even smaller than in the male.

The above description is drawn up from Mr. Waterhouse's figures of the type specimens n "Aid." Mr. Moore identifies "Pulicandor" the habitat of the type specimens with Kondul Island in the Nicobars. Although I have received collections from those islands almost continually for many years, no specimen of this species has reached me from there. It is probable that all the other localities given above for the species are incorrect; they should be applied to *D. boisduvalii*, Moore, except Barrackpore, which is almost certainly entirely erroneous for both. Mr. Butler correctly remarks that "Donovan's figure" of this species "is most incorrect; the hindwing should be dark brown, not fulvous." Mr. Moore also notes "*Drupadia lisias* (*Papilio lisias*, Fabricius), badly figured in Donovan's Insects of India, is distinct from *D. boisduvalii*, Moore. Both sexes of the type of *D. lisias*, Fabricius, are in the British Museum collection." Except these last named specimens, no others are known, and the species has to be rediscovered.

### 975. *Drupadia boisduvalii*, Moore. (PLATE XXIX, FIG. 230 ♂).

*D. boisduvalii*, Moore, Journ. A. S. B., vol. lvi, pt. 2, p. 31 (1884); *Bidwanda boisduvalii*, id., Journ. Linn. Soc., Lond., Zoology, vol. xxi, p. 42 (1886); *Myrina lisias*, Boisduval (*nec Fabricius*), Sp. Gén., vol. i, pl. xxii, fig. 2, male (1836).

HABITAT: Chittagong Hill Tracts, Rangoon, Mergui, Moulmein.

EXPANSE: ♂, 1'25 to 1'45; ♀, 1'20 to 1'50 inches.

DESCRIPTION: MALE. UPPERSIDE, forewing purplish violet-brown, with a broad oblique transverse discal almost quadrate red band. Hindwing cobalt-blue, darkest and purplish-violaceous anteriorly; costal border and abdominal margin violet-brown. Cilia and

tails edged with white. UNDERSIDE, *forewing* ochreous-red, with a brighter red pale-bordered streak at the base of the cell, a band across the middle of the cell, another at its end, and a similar discal band which has a slightly dusky lunulated border at the upper outer end, a submarginal slender black slightly sinuous line. *Hindwing* white, the costal border and apex being slightly red, with the basal and subbasal spots entirely black; a duplex slender black streak at the end of the cell, a similar one above it, a discal zigzag duplex line, and a single black submarginal line; a large anal and a subanal black spot surmounted by metallic-blue scales, which also traverse the intervening subanal space. FEMALE. UPPERSIDE, *forewing* somewhat paler brown than in the male, the red band of the same width and quadrangular form. *Hindwing* pale violet-brown, the discal area somewhat red-streaked; above the tails are four black spots surmounted by lilac scales." UNDERSIDE, *both wings* as in the male. (Moore, l. c.)

This is probably the commonest species of the genus, and seems to be particularly plentiful at Rangoon. It occurs as far north as the Chittagong Hill Tracts, where it was obtained by Mr. H. M. Parish in February and November. The female of this species has a strong superficial resemblance to that sex of *Biduanda thesmia*, Hewitson, and in the Mergui Archipelago the two species occur together. They are very similar on the upperside, but on the underside *D. boisduvalii* may be distinguished by having the apex of the forewing concolorous with the rest of the wing, while *B. thesmia* has it dusky, and moreover the duplex discal band anteriorly filled in with the same colour; in the hindwing in *D. boisduvalii* the outer double costal bar extends from the costal nervure to the second subcostal nervule, the discal double fascia commences from the second subcostal nervule; in *B. thesmia* the outer double costal bar crosses the subcostal interspace only, stopping short at the first subcostal nervule, and the discal double fascia commences from the first subcostal nervule instead of from the second. These differences in the hindwing hold good for the males also. I have a strong suspicion that *B. thesmia* is a mimic of *D. boisduvalii* on the underside in both sexes, but on both sides in the female, Mr. Doherty being of opinion that *Drupadia* is a protected genus, of which *Biduanda* is a mimic.

The figure shews both sides of a male specimen in my collection from Rangoon.

*D. moorei*, Distant, occurs in the Malay Peninsula, Sumatra, and Daat Island. On the upperside of the forewing in the male it resembles *Biduanda thesmia*, Hewitson; the hindwing however resembles *D. boisduvalii*, Moore, so the male combines the characters of both these species. The female of *D. moorei* differs from Burmese specimens of *B. thesmia* in having only a reddish suffused spot on the disc of the forewing on the upperside instead of a broad orange band, but agrees in this particular with specimens from the Malay Peninsula. Its description is appended.\*

\* *Drupadia moorei*, Distant. *Sithon moorei*, Distant, Ann. and Mag. of Nat. Hist., fifth series, vol. x, p. 246 (1886); *Drupadia moorei*, Distant, Rhop. Malay., p. 236, n. 1, pl. xx, figs. 21, male; 20, 30, female (1884); idem, id., l. c., p. 460, pl. xlv, fig. 11, female variety (1886). HABITAT: Province Wellesley, Perak, Sungai Ujong, Malacca, Singapore, Sumatra, Daat Island, North Borneo. EXPANSE: Male and female, 8 to 16 inches. DESCRIPTION: "MALE. UPPERSIDE, *forewing* very dark and glossy fuliginous-brown, [sometimes] with an irregular reddish spot or suffusion situated at the end of the cell and at the bases of the median nervules. *Hindwing* bright and somewhat pale bluish; the posterior margin black, inwardly bordered with white near the anal angle, where there are two transverse black marginal spots; the *cilia* white; *tails* blackish, with marginal white cilia; costal area pale byaline, darker near base; upper portion of cell and basal area between subcostal nervules talc-like and pale transparent stramineous; above, beneath, and beyond which the colour is fuscous. UNDERSIDE, *forewing* reddish-ochraceous; a broad basal and a transverse medial fuscous streak in the cell, a pale fuscous line at the end of the cell, and two transverse, narrow, waved fuscous fasciae between the end of the cell and the outer margin. *Hindwing* greyish-white; the costal margin more or less suffused with reddish-ochraceous, and with two large fuscous discal spots, the upper six of which are subquadrate but irregular in size, and the posterior four are more irregular in shape, and have their centres more or less greyish; a submarginal and marginal fuscous line, the first of which is broken and irregular, and between which and the margin is a narrow fuscous streak, leading to a long, pale bluish-fuscous spot; beneath the submarginal line near the abdominal margin are two narrow ochraceous fasciae, which amalgamate inwardly, and between which the colour is pale metallic-bluish. *Body* above fuliginous-brown, beneath greyish-white. *Legs* greyish-white, annulated and streaked with fuscous. FEMALE. UPPERSIDE, *both wings* much paler than in the male. *Hindwing* pale fuliginous-brown, excepting near the anal angle, where there is an obscure bluish patch with a few obscure fuscous marginal spots. UNDERSIDE, *both wings* as in the male, but the *forewing* paler in hue."

## GENUS 163.—EOXYLIDES, nov. (PLATE XXIX).

**FOREWING**, costa considerably arched, slightly indented at the base; apex rather acute in the male, much rounded in the female, outer margin nearly straight, perhaps slightly concave in the male, much rounded in the female, inner margin straight; costal nervure extending to opposite the apex of the discoidal cell; first subcostal nervule well separated from the costal nervure, second subcostal with its base considerably nearer to the base of the upper discoidal than to that of the first subcostal; middle disco-cellular nervule originating from the upper discoidal close to its base, straight, upright, exactly in the same straight line as the lower disco-cellular, the latter a little longer than the middle; second median nervule given off some little distance before the lower end of the cell; submedian nervure sinuous. MALE with a circular glandular patch of modified scales on the middle of the disc, occupying the bases of the median interspaces and extending slightly into the cell, bearing itself outwardly in the first median interspace a conspicuous silky perfectly round patch of very densely packed scales. **HINDWING**, with three tails, all highly ciliated ("fluffy"), not filiform, the two at the ends of the second median nervule and submedian nervure very short, the one at the end of the first median nervule very long (about half an inch in length), all the tails traversed more than half way to their apices by their respective veins; costa much arched at base, then straight to apex, outer margin increasingly sinuous; abdominal margin deeply excavated below the apex of the internal nervure; costal nervure arched at base, then straight to apex, which it reaches; first subcostal nervule gently arched at base; disco-cellular nervules almost in one straight line, slightly outwardly oblique, the upper somewhat shorter than the lower; second median nervule originating at the lower end of the cell; submedian nervure straight; internal nervure rather long and sinuous. Antennæ short, less than half the length of the costa of the forewing, gradually clavate; eyes naked; body short, rather robust. Type, the "*Oxylides*" *tharis* of Hübner.

Mr. W. Doherty, who has closely studied these butterflies in life, places this genus, *Yasoda*, Doherty, MS., and *Loxura*, Horsfield, in a subfamily which he names *Loxurina*. He has given me the following MS. notes on the subject: "The *Loxurina* seem to come between the *Amblypodias* and *Theclas*. *Loxura* most nearly approaches the former, and *Eoxylides* the latter. The egg resembles that of one group of the *Amblypodias*, which, however, lacks the apical carina. It is also something like those of the first genera of the *Theclas*, such as *Drupadia*, Moore. These differ from the *Loxurina* in the absence of the carina, and in the great size and depth of the green depressions (which in the *Loxurina* are minute), and from the other *Theclas* in the smoothly-rounded white coating, free from tubercles. The young larvæ of the *Loxurina* are somewhat intermediate between those of *Drupadia* and the above-mentioned group of the *Amblypodias*, but possess peculiar features of their own."

"As a group, the *Loxurina* are very slow in flight, and not at all timid; they are very conspicuous, being bright orange in colouring, though *Eoxylides* is black above. The

"This species varies very much in size, and is probably somewhat widely distributed. It is allied to the *Myrina ravindra*, Horsfield, a Javan species which belongs to, and is the type of, this genus. We thus find *D. moorei* inhabiting Borneo, Sumatra, and the Malay Peninsula, and differing from a closely-allied Javan species, as is so frequently the case in all branches of Malayan Zoology, and has been so well and ably pointed out by Mr. Wallace. (*Distant*, l. c. in Rhop. Malay.)

*D. moorei*, Distant, is very much nearer to *D. boisduvalii*, Moore, than to *D. ravindra*, Horsfield; it differs from the former in both sexes on the upperside in having the orange band almost obliterated, reduced to a few irrorationes only or entirely absent, and on the underside in all the markings being much heavier and darker. I have seen numerous specimens of this species from Singapore, Silangor, and North Borneo, kindly sent to me by Mr. W. Davison. Mr. Doherty notes (*Journ. A. S. B.*, vol. lviii, pt. 2, p. 188a), that he "cannot find any constant difference between Mergui [specimens of *D. boisduvalii*] and Perak specimens" [of *D. moorei*]. As far as I am able to judge from the material at my disposal, the two species can be distinguished at a glance. *D. boisduvalii* on the upperside of the forewing in both sexes has two-thirds of the surface orange, this colour in *D. moorei* is confined to a very small patch in the middle of the disc, or is entirely absent. A perfect gradation between these two extremes may however be hereafter obtained. The differences between Burmese specimens of *Bidua theminis*, Hewitson (= *B. fabricii*, Moore,) and typical specimens of that species from the Malay Peninsula are almost exactly paralleled in *Drupadia boisduvalii* and *D. moorei*, but whereas in the former the males from both regions are almost identical, though the females differ considerably, in the latter the two sexes are widely different.



antennæ are short, and very gradually clavate. I counted about forty joints in *Loxura* and *Eooxylides*, and thirty-five in *Yasoda*. The eyes are naked, the palpi are very long and porrect, the costa of the forewing is very convex, the two bifurcations of the median nervure of the forewing are very close together in the male. The legs are short, thick and scaly. The fore tarsi of the female are longer than the tibiae in *Loxura*, shorter in the others. They are spinous, five-jointed, with the underside emarginate, scaleless, and finely pubescent, edged by lines of strong spines (less prominent in *Eooxylides*), the first joint about as long, or longer (*Loxura*) than the others united; the pulvillus broad and truncate, with four terminal hairs, two minute, slender, hairy paronychiae, and two small simple claws almost hidden. The fore tarsi of the male resemble those of *Drupadia* and in a less degree those of the *Amblypodia*; they are slender, scaly, with two lines of spines underneath (obsolescent in *Eooxylides*), ending in a mass of short spines bent at a right angle with the tarsus. The tarsus is not articulated, and is much shorter than the tibia; in *Loxura* there seem to be paronychiae.\* The tibia is shorter than the femur (except in *Loxura*), and in *Loxura* has two long unequal appressed terminal spines, obsolescent in the other genera. *Eooxylides* has the first joint of all the tarsi greatly enlarged, the others tapering; this is also the case to a less extent with *Yasoda* (but not in the fore feet of the male), while *Loxura* has them all filiform and regular."

"*Eooxylides tharis*, Hubner, is a dominant Oriental species. It is placed by Distant in the genus *Hypolycaena*, Felder, from which the structure of the fore tarsi of the male separates it. Of its position in this group there cannot be much doubt."

I give below† a description of the genus *Oxylides* of Hübner, the type of which, *O. faunus*, Drury, an East African species, is apparently the nearest ally of *Eooxylides*.

As far as is known, *Eooxylides* has but a single species, which is found from Burma through the Malay Peninsula to Java. Mr. Doherty considers it to be a protected genus, and that where *Neocheritra gama*, Distant, occurs, that species mimics it.

#### 976. *Eooxylides tharis*, Hübner. (PLATE XXIX, FIG. 231 ♂).

*Oxylides tharis*, Hübner, Zutr. Ex. Schmetz., figs. 883, 884 (1837); *Myrina tharis*, Horsfield and Moore, Cat. Lep. Mus. E. I. C., vol. i, p. 47, n. 78 (1857); id., Hewitson, Ill. Diurn. Lep. p. 31, n. 12 (1863); *Stethotharis*, Kheil, Rhop. Ins. Nias, p. 34, n. 108 (1884); *Hypolycaena tharis*, Distant, Rhop. Malay., p. 257, n. 3, pl. xx, fig. 19, female (1885); *Myrina tharis*, Doubleday and Hewitson, Gen. Diurn. Lep., vol. ii, p. 476, n. 12, pl. lxxiv, fig. 3, female (1892).

HABITAT: India (*Horsfield and Moore*); Clittagong Hill Tracts, Arakan and Bassein District (*Doherty*), Province Wellesley, Perak, Sungei Ujong, Malacca, Johore, Nias Island, Java.

EXPANSE: ♂, ♀, 1'2 to 1'5 inches; length of middle tail, '5 of an inch.

DESCRIPTION: "UPPERSIDE, both wings brown. Forewing [hindwing] with a broad band from angle of abdominal margin across the wing to middle of exterior margin; a spot near to, and the margin of anal angle, tails and broad cilia, pure white. UNDERSIDE, forewing chrome-red, basal half of hindwing slightly paler, anal half white, with patches of black disposed at anal angle and between the veins along the exterior margin; across the wing, from the abdominal margin to near the anterior angle (separating the red and white colours), is a zig-zag line." (*Moore, l. c.*)

\* "In this group the paronychiae of the fore feet are hard to find, being minute, deciduous, and partly concealed by hairs."

† Genus *Oxylides*, Hübner, Verz. bek. Schmetz., p. 77 (1816). MALE and FEMALE. Differ from *Eooxylides*, de Nicéville, in the FOREWING being shorter, apex and outer margin much more rounded, inner margin shorter; second subcostal nervule with its base equidistant between the bases of the first subcostal and upper discoidal nervules instead of being twice as far apart from the former as in *Eooxylides*; middle disco-cellular nervule much shorter; MALE with no secondary sexual characters. HINDWING with the first subcostal nervule arising half as near to the apex of the cell as in *Eooxylides*; the upper disco-cellular nervule shorter; the internal nervure one-third shorter, owing to the much more shallow but longer excavation above the anal lobe; tails similar. Eyes naked. Antennæ with a well-formed distinct club quite different from the club in *Eooxylides*, the joints apparently far less numerous, as the conspicuous white annulations are much wider apart. Type, the *Papilio faunus* of Drury, from West Africa.

Dr O. Staudinger has kindly sent me a pair of specimens of this species from Sierra Leone, from which the above description has been drawn up. The male is brilliantly blue on the upperside, quite different from *E. tharis*, Hübner.



Both Messrs. Moore and Distant have described this species, but neither of them say what sex they had before them. The male has the outer margin of the forewing very straight, almost concave; the female has it convex and the apex more rounded; the male has a conspicuous deep black shining round discal glandular patch of modified scales on the upperside of the forewing which is crossed by the median nervules; this is of course absent in the female; the male has some scattered blue scales on either side of the submedian nervure. In other respects the opposite sexes do not differ.

Mr. Doherty informs me that it occurs in the Chittagong Hill Tracts, in Arakan, and in the Bassein district; Mr. Distant records it from numerous localities in the Malay Peninsula; it occurs also in the islands of Nias and Java, and probably elsewhere in the Malay Archipelago. In the Indian Museum, Calcutta, are two males from Perak, and a female labelled "India" from the old East India Company's Museum. I append as a foot-note Mr. Distant's description of this species.\*

The figure shows both sides of a male specimen from Perak in the collection of the Indian Museum, Calcutta.

The ninth division that I have made in the Indian *Lycenidæ* I have called the *Loxura* group; it contains two genera only occurring within Indian limits, though Mr. Doherty includes in it the last genus, *Eoskylides*, mihi, which differs from *Loxura*, Horsfield, and *Yasoda*, Doherty, MS., so entirely in appearance and structure. The *Loxura* group, as understood by me, is characterised by having one very long tail to the hindwing, which wing is greatly elongated posteriorly and is lobate at the anal angle. Both genera have both sexes coloured rich orange on the upperside with outer black margins, and the underside yellow. In *Loxura* both sexes have three subcostal nervules to the forewing, in *Yasoda* they have two only. *Loxura* has no secondary sexual characters in the male, while *Yasoda* has an elongated glandular patch of scales on the upperside of the hindwing on the first median nervule, which is quite a unique position amongst the *Lycenidæ* for such a character. The two genera are, I believe, strictly confined to the Indo-Malayan region. Several closely-allied species have been described as appertaining to *Loxura*, two doubtfully distinct species to *Yasoda*.

#### Genus 164.—LOXURA, Horsfield. (PLATE XXIX).

*Loxura*, Horsfield, Cat. Lep. E. I. C., p. 219 (1829); id., Moore, Lep. Cey., vol. i, p. 110 (1881); id., Distant, Rhop. Malay., p. 280 (1885).

"FOREWING, subtriangular; costa very convex to the tip, apex pointed, exterior margin straight, slightly oblique, posterior margin long, nearly straight; costal nervure extending to half the wing; first, second and third subcostal nervules at equal distances apart, first subcostal emitted at more than one-half before the end of the cell, second at one-third, third at one-fifth, fourth subcostal at one-half from below the third and terminating at the apex, fifth subcostal from a slight angle at the end of the cell; disco-cellular nervules slightly concave, erect; radial [lower

\* UPPERSIDE, both wings dark chocolate-brown. Forewing with two obscure streaks of scattered bluish scales situated one on each side of the submedian nervure. Hindwing with a transverse macular white fascia crossing the wing from the apex of the second subcostal nervule to the notch at the anal angle; beneath this is a white spot at the anal angle and a narrow submarginal white line; submedian nervure tinged with greyish; tails white, with faint dark median lines. Cilia white. UNDERSIDE, both wings ochraceous. Forewing reddish-ochraceous. Hindwing with the anal angular area largely white, anteriorly defined by a wavy blackish line bordered with greyish, and from which some very obscure narrow pale linear fasciae radiate towards the costa; this white area includes the following black spots:—a submarginal row of six, of which the first, second and fifth are small and linear; above the fifth and sixth is a broad irregular spot, and another is placed above the notch at the anal angle; tails and cilia as above. Body more or less concolorous with the wings. Legs greyish, broadly annulated with black; antennæ dark fuscous, narrowly annulated beneath with greyish. (Distant, l. c.)

† See foot-note page 398. This group should be known as the *Myrina* group, as the type species of that genus is evidently closely allied to the species here included in the genus *Loxura*, and *Myrina* is a much older generic name than *Loxura*. The genus *Myrina* differs from *Loxura* according to Mr. Trimen, in the discoidal nervules of the forewing having a common origin at the apex of the cell, so that the middle disco-cellular nervule is obsolete.

discoidal] nervule from their middle; discoidal cell broad, longest at its upper end; second median nervule at one-fifth and first median at one-third before the end of the cell; submedian nervure almost straight. HINDWING, short, produced hindwards into a broad lengthened tail; exterior margin even, very oblique below the apex, abdominal margin very long; anal lobe moderate; costal nervure arched at the base and thence straight to near the apex; first subcostal nervule at one third before the end of the cell; disco-cellular nervules recurved; radial [discoidal nervule] from their middle; discoidal cell broad, third median nervule from immediately before the end of the cell; first median at nearly one-half before the end; submedian nervure long, extending to the anal angle; internal nervure recurved. BODY small, short; palpi porrect, very long, [still longer in the female than in the male], flattened and squamose throughout, second joint projecting two-thirds beyond the head, third joint half its length, legs short, thick, squamose, antennæ short, one-third only of the length of the costa, thickened throughout their length. Eyes naked. Type, *L. atymnus*, Cramer" (Moore, l. c.)

In the forewing the costal nervure reaches to opposite the apex of the discoidal cell; the base of the second subcostal nervule is nearer to that of the upper discoidal than to that of the first subcostal, the third subcostal originates at about the middle of that portion of the subcostal nervure which extends from the apex of the cell to the apex of the wing; the disco-cellular nervules are concave, of nearly equal length slightly inwardly oblique; the median nervules lying close together leave a wide submedian interspace, second median nervule originating just before the lower end of the cell. In the hindwing the costal nervure is arched at base, curved thence to the apex of the wing, the disco cellular nervules of about equal length, slightly concave and outwardly oblique, the second median nervule originating just before the lower end of the cell, tail long, broad at base, traversed for more than half its length by the first median nervule; anal lobe small, abdominal margin shallowly excavated above the anal lobe. In the female the wings are broader than in the male, and the costa of the forewing is much more arched. The male has no secondary sexual characters.

The transformations of this genus are normal, the larva and pupa presenting no especial peculiarities.

The genus *Loxura* is found almost throughout India, in Ceylon, the Andaman and Nicobar Isles, in Burma, and throughout the Malay Peninsula and Islands. It has a close superficial resemblance to the genus *Yasoda*, Doherty, MS, which follows.

Four species of the genus *Loxura* have been recorded from Indian limits. I am unable to give a single character by which these species can infallibly be identified. Two of them are recorded from islands only, where for countless years they must have been completely shut off from communication with the mainland—a *Loxura* is a very weak-flying insect—and yet the parent form has become but little modified, and what slight modifications have arisen are not constant. Not only are the uppersides of these several so-called species variable in the shade of orange they exhibit, and in the breadth of the outer black margins, but the undersides present the greatest diversity of markings and shades of colour, some specimens being very pale saffron yellow with hardly a single marking, others are deep brownish-yellow, profusely marked over their entire surface. I am quite certain that if a considerable number of specimens of these four recorded Indian species had their locality labels removed and they were mixed up, no one could ever correctly sort them into their respective localities again. Individual specimens may perhaps be recognised if they represent the typical extreme form of the species, but intermediate specimens are quite unrecognisable. I will not attempt to give a key to the species, as from it they could not be determined with certainty were the locality of the specimens lost. I have kept the descriptions of these four species separate to enable students to study them the more easily, though I hold very strongly to the opinion that these so-called distinct species are not even worthy of the rank of local races. They are very conspicuous butterflies on the wing, and are usually to be found amongst trees and bushes, especially bamboos. They have rather a weak flight, and their long tails soon get broken.

977. *Loxura atymnus*, Cramer. (PLATE XXIX, FIG. 232 ♂).

*Faghtis atymnus*, Cramer, Pap. Ex., vol. iv, p. 82, pl. cccxxvi, figs. D, E (1780); *id.*, Fabricius, Mant. Ins., vol. li, p. 70, n. 66a (1797); *id.*, Donovan, Ins. China, p. 70, pl. xxxix, fig. 1 (1798); *Hesperia atymnus*, *id.*, Ent. Syst., vol. iii, pt. 1, p. 263, t. 88 (1793); *Marmessus atymnus*, Hübner, Verz. bek. Schmett., p. 87, n. 828 (1816); *Myrina atymnus*, Godart, Enc. Méth., vol. ix, p. 504, n. 5 (1823); *id.*, Horsfield, Cat. Lep. E. I. Co., pl. ii figs. 6, 6a, *image*; 6b, *structure of imago*; *Loxura atymnus*, *id.*, l. c., p. 121, n. 49 (1829). *id.*, Boisduval, Sp. Gén., pl. vii, fig. 3 (1836); *id.*, Horsfield and Moore, Cat. Lep. Mus. E. I. C., vol. i, p. 51, n. 90 (1837); *id.*, Distant, Rhop. Malay., p. 281, n. 7, pl. xxiv, fig. 7, *male* (1885); *id.*, Standinger, Ex. Schmett., p. 278, pl. xcv, *male* (1888); *Myrina atymnus*, Druce, Proc. Zool. Soc. Lond., 1873, p. 353, n. 1.

HABITAT: Coromandel Coast (Cramer); throughout India (except the higher Himalayas and the desert tracts), Burma, Malay Peninsula, the Nicobar Isles, Siam, Nias Island, Java, Borneo, China.

EXPANSE: ♂, ♀, 1'25 to 1'80 inches.

DESCRIPTION: "MALE and FEMALE. UPSIDE, *both wings* fulvous, the intensity of the tint varying in different individuals, from florid but not glossy orange to pale saffron yellow. Forewing with the exterior and posterior margins blackish-brown, the intermediate boundary being regular, and passing in an arch from the middle of the costa to the inner apical angle, leaving the greatest breadth at the tip. Hindwing with a narrower and paler apical border, whose inner edge is slightly dentate and gradually diffused in the ground-colour of the surface, or entirely covered with a diluted yellowish tint; inner margin dirty grayish and downy, lengthened in the direction of the anal appendage, which is irrorated with dusky white. UNDERSIDE, *both wings* covered with a yellow ochraceous pulverulent tint which is uniformly diffused over the whole surface; marked with four brownish parallel strigæ, the two interior ones being very obsolete and apparent only in fresh and well-conditioned specimens, the third extending over the middle of both wings is the most distinct and composed of darkish lunules in close succession, the fourth just within the margin is faint and interrupted. Hindwing, the transverse anal extremity is marked with a brownish streak consisting of three confluent spots, which are covered along the margin with whitish irrorations, the inner spot being diffused over the rounded extremity of the anal appendage. Body brownish above with a slight admixture of yellow; the thorax bears delicate silky hairs; underneath these parts are covered with a short close whitish down. Antennæ brown. Tail pale fulvous with an obscure brownish margin and a whitish tip. The FEMALE, according to my observation, can be distinguished only by the structure of the anterior tarsi; in colour and painting it differs not perceptibly from the male." (Horsfield, l. c.) The female may also be known from the male by the forewing being broader, the costa more arched, the inner margin is longer than in the male, thus giving the wing a blunter appearance.

In suitable localities, *L. atymnus* may be found almost throughout India. It does not occur in the purely desert tracts of Sind and Rajputana, nor perhaps in the plains of the Punjab or the North Western Provinces. It is common in the outer Himalayas, Bengal, Assam, Burma, Orissa, and in South India, except in the tracts where it is replaced by *L. surya*, Moore. In the Nicobars it occurs on Kamorta, Nankowri, Little and Great Nicobar.

The figure shows both sides of a male specimen from Calcutta in my collection.

978. *Loxura surya*, Moore.

*Loxura surya*, Moore, Horsfield and Moore, Cat. Lep. Mus. E. I. C., vol. i, p. 52, n. 95, pl. 14, fig. 28.

HABITAT: Canara (Moore), Karwar, Travancore.

EXPANSE: ♂, ♀, 1'4 to 1'6 inches.

DESCRIPTION: MALE. "UPSIDE, *both wings* differ from *L. atymnus*, Cramer, in having the fulvous colour more intense and brighter. Forewing with the blackish-brown border darker, extending to the base of the wing, and occupying the whole space between the costal nerve and the anterior margin. Hindwing with a patch of blackish-brown near the base of

the anterior margin, abdominal margin brown. **UNDERSIDE**, *both wings dark ochraceous*.<sup>4</sup> (Moore, l. c.) **FEMALE**. **UPPERSIDE**, *forewing* with the outer black border broader than in the male, the base of the wing more dusky. *Hindwing* with almost the entire surface thickly invested with black scales. Otherwise as in the male.

This species or local race is probably confined to the heavy damp forests of South India. It was originally recorded from Canara, which is one of the localities Mr. Moore gives for *L. atymnus*. The female I have described above is identical with females of *L. prabha*, Moore. There are specimens of it in the Indian Museum, Calcutta, from Karwar in Canara, and from Travancore.

*L. cassiopeia*, Distant, a description of which is given below,\* is closely allied to *L. surya*. It has been recorded hitherto only from Perak in the Malay Peninsula.

### 979. *Loxura prabha*, Moore.

*Myrina prabha*, Moore, Proc. Zool. Soc. Lond., 1877, p. 583, pl. lviii, fig. 5, female.

**HABITAT**: South Andaman Isles.

**EXPANSE**: ♂, 1.25 to 1.70; ♀, 1.50 to 1.80 inches.

**DESCRIPTION**: "MALE. **UPPERSIDE**, *both wings* red. *Forewing* with a black apical band, base of wing and costa dusky rufous-brown. *Hindwing* with a blackish costal border, subcostal veins, and narrow border on outer margin, abdominal margin dusky rufous-brown. **UNDERSIDE**, *both wings* ochraceous-yellow, with two outer indistinct rows of small brownish spots on the *forewing*, and two indistinct bands on the *hindwing*, a speckled black-and-white mark at the angle of the tail. **FEMALE**. **UPPERSIDE**, *both wings* red. *Forewing* with a broad black apical band and dusky rufous-brown base. *Hindwing* dark rufous-brown, disco-cellular nervules, median and internal nervures, and tail streaked with red, tip of tail white. **UNDERSIDE**, *both wings* as in the male. *Body* black above, white beneath; *palpi* and *legs* white-speckled."

"Quite a differently-marked insect from its ally *Myrina atymnus*, Cramer." (Moore, l. c.)

This species, though from a limited and narrowly restricted locality, shows perhaps as great variation as *L. atymnus*, which has an immense distribution. In the male on the upperside of the forewing the costa is sometimes black, though never so broadly so as in *L. surya*, Moore, and *L. cassiopeia*, Distant, the outer margin of the hindwing is sometimes narrowly black, sometimes concolorous with the rest of the wing. Some females are hardly at all dusky on the upperside, being coloured nearly as in the male. It is a very common species in the Andaman Isles.

### 980. *Loxura arcuata*, Moore.

*L. arcuata*, Moore, Lep. Cey., vol. i, p. 111, pl. xlii, figs. 4, male; 4a, female; 4b, larva and pupa (1881).

**HABITAT**: Ceylon.

\* *Loxura cassiopeia*, Distant, Ann. and Mag. of Nat. Hist., fifth series, vol. xiv, p. 202 (1884); idem, Id., Rhop. Malay., p. 282, n. 2, figs. 88, male; 89, female (1885). **HABITAT**: Perak. **EXPANSE**: Male and female, 1.6 inches. **DESCRIPTION**: "MALE. **UPPERSIDE**, *both wings* dark reddish-ochraceous. *Forewing* with the costal margin (as far as the subcostal nerve) and the outer margin (broadest at the apex) fuscous or black, the base tinged with olivaceous-brown. *Hindwing* with the outer margin fuscous (darkest at the apex), the *clitus* ochraceous, the base and abdominal area more or less olivaceous brown, tail ochraceous, with an obscure medial reddish line, and the apex whitish. **UNDERSIDE**, *both wings* bright ochraceous, with the following brownish spots:—*forewing* with one about the middle of the cell, three disco-cellular and contiguous at the end of the cell, and beyond these are two separated by the second subcostal nervule; a waved macular discal band, and a submarginal series of very small and somewhat obsolete spots. *Hindwing* with some obscure basal spots, a macular band crossing the disc, but not extending below the first median nervule, and a submarginal series of small obscure spots as on the forewing. *Body* above fuscous, beneath greyish; *palpi* blackish, speckled with greyish. **FEMALE**. **UPPERSIDE**, *both wings* resembling the male. *Hindwing* shaded with fuscous, which is darkest on the costal and outer margins." **UNDERSIDE**, *both wings* as in the male.

"The nearest ally of this species is the *L. prabha*, Moore, from the Andaman Isles." (Distant, l. c., in Rhop. Malay.)

The type specimens of this species are contained in the Indian Museum, Calcutta. The species is nearest to *L. surya*, Moore, than it is to *L. prabha*, as the costal margin of the forewing on the upperside is broadly black as in that species. I cannot distinguish it from *L. surya* on the upperside, but it is much paler on the underside, of a different shade of yellow (paler, more gamboge-like), and all the markings less macular than in the South Indian form.

EXpanse: ♂, 1.4; ♀, 1.5 inches

DESCRIPTION: "MALE. UPPERSIDE, both wings bright falcous. Forewing with a blackish pical marginal band, curving from the middle of the costa to the posterior angle. Hindwing with a very slender indistinct blackish marginal band; abdominal margin and anal lobe, and tail, yellowish or brownish-fulvous. UNDERSIDE, both wings yellowish-ochreous, crossed by two outer very indistinct narrow lunular bands. FEMALE. UPPERSIDE, both wings with broader marginal bands; basal areas, abdominal margin and tail more dusky than in the male." UNDERSIDE, both wings as in the male. "Palpi and legs white, speckled with black."

"An intermediate species, nearer to *L. prabha*, Moore, than to *L. atymnus*, Cramer."

"LARVA slender, limaciform, anterior segments thickened, head small; green, with two dorsal white-striped marks. Feeds on *Smilax*. PUPA green; thorax oblique in front, anal segments attenuated." (Moore, l. c.)

This species is variable, though perhaps not to the extent shewn by *L. atymnus* and *L. prabha*. It occurs commonly throughout Ceylon.

#### Genus 165.—YASODA, nov. Doherty, MS. (PLATE XXIX).

Superficially resembling *Loxura*, Horsfield. FOREWING, with the costa highly arched, slightly indented at the base, apex acuminate, outer margin very slightly concave to first median nervule and outwardly oblique, then convex and inwardly oblique (straight in the female) to inner angle, inner angle rounded, inner margin straight; costal and subcostal nervures lying far apart except at the base; costal nervure reaching to opposite the apex of the discoidal cell; bases of the first and second subcostal and upper discoidal nervules equidistant; middle and lower disco-cellular nervules of about equal length, concave, slightly inwardly oblique; discoidal cell short, not reaching to the middle of the wing, broad; median nervules lying close together, second median nervule with its origin a little before the lower end of the cell; submedian interspace broad; submedian nervure straight. HINDWING, with the costa arched at base, then straight to apex; apex rounded, outer margin straight to base of tail, then at right angles to its former course and straight to anal angle; a very small anal lobe, above which the abdominal margin is somewhat shallowly excavated; a long broad curled tail from the first median nervule, the vein running half way down the tail; costal nervure slightly arched at the base of the wing, afterwards straight and reaching the apex of the wing; first subcostal nervule given off rather near to the apex of the cell; disco-cellular nervules of about equal length, concave, outwardly oblique; second median nervule with its origin immediately before the lower end of the cell; submedian and internal nervures straight. MALE with an elongated patch of scales differently formed to those on the rest of the wing occupying the middle two-thirds of the first median nervule (excluding that portion of the vein which traverses the tail). BODY small, short; palpi very long, porrect, longer in the female than in the male; antenna very short, about one-third of the length of the costa of the forewing, with no distinct club; eyes smooth. Type, *Loxura pila*, Horsfield.

"This genus is in many respects intermediate between *Loxura*, Horsfield, and *Eooxylides*, de Nicéville. From the former it is easily distinguished by the absence of the fourth subcostal nervule, from the latter by having only one tail instead of three. The last joint of the palpi which in *Eooxylides* is rather slender, flattened and tapering (though not so long as in *Loxura*), is in *Yasoda* shorter (less than one-half of the preceding), broad, flat, and elliptical. *Yasoda* has the sex-mark between the submedian nervure and first median nervule of the forewing. *Loxura* has no sex-mark." (Doherty, MS.)

*Yasoda* is a very remarkable and distinct genus. Superficially it resembles *Loxura*, Horsfield, in which genus the species now placed in *Yasoda* have hitherto been included. The coloration is much the same in both, the upperside being orange, with a more or less broad outer black margin. The body, antennæ, palpi, long tail, and small anal lobe to the hindwing are also the same in both, but the outline of the wings is very different; the forewing in *Yasoda*



has two subcostal nervules instead of three, and the male has a very remarkable and unique "sexual mark" on the hindwing not found in *Loxura*. *Yasoda*, as far as I am aware, occurs only in North-East India (Sikkim and Assam), the Malay Peninsula, the Nicobars, and in Java, and is represented by two closely-allied species only.

981. *Yasoda tripunctata*, Hewitson. (PLATE XXIX, FIGS. 233 and 234 ♀).

*Loxura tripunctata*, Hewitson, Ill. Diurn. Lep., p. 26, n. 4 (1863); *Myrina pita*, Doubleday and Hewitson (nec Horsfield), Gen. Diurn. Lep. vol. ii, pl. lxxiv, fig. 2, male (1851); *Loxura pita* (part), Westwood, l. c., p. 475, n. 2.

HABITAT: Sikkim, Assam, Burma, Perak.

EXPANSE: ♂, 1·3 to 1·5; ♀, 1·4 to 1·5 inches.

DESCRIPTION: MALE. UPPERSIDE, both wings usually deep orange, sometimes fulvous. Forewing with the costa usually narrowly but increasingly black, the apex broadly and the outer margin somewhat broadly black, the inner edge of this black portion evenly rounded, the disco-cellular nervules usually marked with a black line, three somewhat rounded black spots on the disc divided by the first and second median nervules, in some specimens from Sikkim there are only two of these black spots, divided by the second median nervule; the base of the wing dusky. Hindwing with the costal and outer margins usually somewhat broadly black, the abdominal margin usually more broadly black, the disco-cellular nervules marked with a black line, a broad discal irregular band at right angles to the body across the disc of the wing joining the black abdominal and outer margins, sometimes much narrower and not reaching the narrow outer black margin. UNDERSIDE, both wings yellow, shaded with brownish in the anal region of the hindwing. Forewing with two subbasal series of black-outlined spots, three discal series of similar spots but filled in with pale brown, placed in echelon, the upper series consisting of two spots near the costa, the middle series below of three spots, the lower series of four spots. Hindwing with subbasal spots as in the forewing, a discal catenulated band filled in with pale brown, two indistinct marginal series of connected lunules, some whitish black-outlined marks above the anal lobe. Tail throughout blackish, tipped with white. FEMALE marked similarly to the male, but all the markings usually broader.

The male can at once be distinguished on the upperside by the hindwing being longitudinally folded in the neighbourhood of the "sexual mark," the latter marked inwardly by a rather conspicuous narrow long orange line. *Y. tripunctata* is a rare species; it occurs in Sikkim in April and October. Mr. Wood-Mason obtained four specimens in Cachar in May and July, and Mr. J. L. Sherwill has sent me a single female from Jorhât, Assam, taken in June. Professor Westwood records it from Sylhet. Both sexes show much diversity in the prominence or otherwise of the black markings on the upperside. Judging from analogy I think it will be found that the lighter-coloured specimens will be observed on the wing in the dry-season. This latter form is the one figured by Hewitson in the "Genera of Diurnal Lepidoptera." On one side he has given two black spots on the forewing in the submedian interspace; this is either an error, or an individual peculiarity of the example figured.

Figure 233 shows both sides of a female example from Sikkim, figure 234 shows both sides of a female specimen from Jorhât in Assam, both in my collection. These figures exhibit to some extent the variability in the extent of the black markings on the upperside which obtains in this species.

I append a description of the only other known species in the genus, *Y. pita*, Horsfield.\*

\* *Yasoda pita*, Horsfield. *Loxura pita*, Horsfield, Cat. Lep. E. I. C., p. 182, n. 30 (1809). HABITAT: Java. EXPANSE: female, 1·25 inches. DESCRIPTION: "FEMALE. UPPERSIDE, both wings fulvous, the tint being insaturated and inclining to orange. Forewing with the exterior and apical borders blackish brown, meeting the orange portion in a regularly arched boundary line, extending from the middle of the anterior costa to the inner apical angle. Hindwing with the apical border and an oblique band composed of four contiguous spots extending from the outer apical angle to the middle of the inner margin, of the same colour; anal semicircular of the apical border diffuse and evanescent internally and marked with a few obsolete white dashes; outer margin excavated to receive the abdomen, gray. UNDERSIDE, both wings ochraceous-yellow, uniformly

Mr. W. Doherty has given me notes of a species of *Yasoda* which he took on Larut Hill, Penak, Malay Peninsula, between 3,000 and 5,000 feet. The male agrees with *Y. pila*, Horsfield, in having no black spots on the upperside of the forewing on the disc, but the female has "a small dusky spot usually present on the disc, on both sides of the first median nervule." (Doherty, MS.) These specimens would appear to be about exactly intermediate between *Y. tripunctata* and *Y. pila*, the male resembling the latter, the female the former. He describes the organs of generation in the males of these specimens as follows:—"PREHENSORES, *Uncus* seen from above broad, with parallel sides, bifid, incised by two entering straight lines meeting at a right angle, the two apices rather acute. Seen from the side it is narrow, rounded and projecting at its lower angle. Branches long, bent first forwards (towards the body), then inwards (towards each other), then backwards, the end straight, slender and acute. *Clasps* tapering slightly, the tip enlarged, truncate and dentate on its upperside. *Intromittent organ* enlarged and obliquely truncate at the tip, a short corneous spine diverging from its lower side near the end." This is the first time any species of this genus has been recorded from the Malay Peninsula. Mr. Doherty also informs me that "on the island of Little Nicobar I captured a single female butterfly apparently of this genus, and not uncommon there." He took *Y. tripunctata* also at Mergui, Burma, in the cold weather.

The tenth division that I have made in the Indian *Lycanda* I have called the *Deudorix* group. It contains ten Indian and one Malay Peninsula genus. It shares with the *Loxura* group which precedes it the feature of possessing only one tail to the hindwing variable in length. The hindwing is elongated and produced posteriorly, with a well-formed anal lobe in all the genera except *Drina*, mihi. The forewing in all the genera (except the genus *Sithon*, Hübner, which has two only, and has not so far been recorded from the strict Indian limits of this work), has three subcostal nervules in both sexes. The group may be divided into two subgroups, the first without, the second with secondary sexual characters in the males on the wings.

The first genus, *Drina*, mihi, contain three species, one occurs in Burma and the Malay Peninsula, the second in the Malay Peninsula only, and the third appears to be confined to the Philippine Islands. In this genus the anal lobe to the hindwing is very small, the tail is rather broad, not filamentous, about a quarter of an inch in length; all the species are silvery-white on the underside, as in the genus *Curetis*, Hubner, both sexes of one species are black on the upperside, with a double submarginal series of white spots to the hindwing, the males of the other two species are more or less blue above.

The next two genera, *Lehera*, Moore, and *Araotes*, Doherty, MS, have the anal lobe to the hindwing large, the tail filiform in the male, much longer and highly ciliated or "fluffy" in the female. At present but few species are known to occur in both genera. The females of all of them are fuscous on the upperside of both wings, with a large white patch in the anal region in the hindwing. The first genus, *Lehera*, Moore, contains two species only, the male of one of them is rich dark purplish-blue on the upperside, on the underside one species is verdigris-green, the other clear-yellow. In the forewing the first subcostal nervule is quite free from the costal nervule, in *Araotes* they touch for a short distance. *Lehera* occurs in the Eastern Himalayas, Assam, Burma, and China. The genus *Araotes* contains at present but a single

covered with an opaque pulverulent tint; medial portion of the surface marked with numerous very minute and obsolete brown arcs, which in the hindwing are arranged in two parallel interrupted strigæ, the posterior one increasing in distinctness towards the inner margin, where it bears externally a luscious white cloud, extreme anal margin bearing an irregularly diffuse brown stripe terminating in a distinct ocellate spot on the anal appendage, the latter surrounded internally by a white lunule from which an obscure striga passes over the extreme anal region. Tail ferruginous-brown, tipped with white. Body brown above pale yellowish underneath. Legs whitish, marked with numerous well-defined black bands, which are more crowded on the tarsi. (Horsfield, l. c.)

The female of this species may be known from both sexes of *Y. tripunctata*, Hewitson, by the absence of all black markings on the disc of the forewing on the upperside. The male is said by Hewitson to be without spots on either wing on the upperside.

species, which has a very wide range, being found in Sikkim, the Chittagong Hill Tracts, Burma, the Malay Peninsula, and Borneo. *A. lapithis*, Moore, is a very small but beautiful species; the male more or less blue on the upperside, richly coloured and marked on the underside.

The genus *Silken*, Hubner, which occurs in the Malay Peninsula and Archipelago, is highly aberrant, as it has only two subcostal nervules to the forewing, and the male has a tuft of hairs attached to the inner margin of that wing and turned under and forwards. The male of the type species, *S. nedymond*, Cramer, is of the richest and most glorious blue on the upperside, having but few rivals in this respect. The underside is marked somewhat as in *Tajuria jalindra*, Horsfield, and allies, and *Charana mandarinus*, Hewitson.

The next two genera, *Deudorix*, Hewitson, and *Zinaspa*, mihi, have the anal lobe to the hindwing large, and the tail in both sexes short and filamentous. The first genus is probably monotypic, the male is red on the upperside, the margins black, the female is fuliginous above. *D. epijarbas*, Moore, has a wide range in the Indo-Malayan region, occurring almost everywhere. The second genus, *Zinaspa*, mihi, contains but two species, which are very closely allied, and are found in Sikkim, Assam, Burma, and Southern India only. Both sexes are blue or purple on the upperside, dull brown inconspicuously marked on the underside.

In the second subgroup of the *Deudorix* group all the genera possess secondary sexual characters on the wings in the male, the hindwing invariably bearing a round depressed or cup-like space on the upperside of the hindwing below the costa, which is correspondingly raised on the underside. This peculiar "male-mark" is strictly confined to this subgroup of genera. The subgroup may again be split up; the first genus, *Hysudra*, Moore, not possessing a tuft of hairs on the forewing near the base of the inner margin turned under and forwards, this being found in all the other genera. *Hysudra* contains but a single species, which is confined to the Western Himalayas. Both sexes are fuscous on the upperside, the forewing with a discal, the hindwing with a marginal orange patch.

The next genus, *Rapala*, Moore, is a very large one, and appears to be strictly confined to the Indo-Malayan region. The tail to the hindwing is short and filamentous, as it is also in the genera *Virachola* and *Sinthusa*, Moore, which follow. These three genera can be distinguished in the male by the size and position of the "scale-mark" on the hindwing; in *Rapala* it does not extend into the discoidal cell, in *Virachola* and *Sinthusa* it does so. The species of *Rapala* are either blue, purple, or red on the upperside, often very richly glossed with a different shade of blue or purple in some lights.

The genus *Bundahara*, Moore, contains four species, which are confined to the Indo-Malayan region. They are all remarkable butterflies; the hindwing is furnished with a very long tail which is highly ciliated and broad at its base, ochreous in the male, white in the female. The male is very deep velvety black on the upperside, and two species have a patch of blue on the outer margin of the hindwing. The females are smoky-black on the upperside, with a large patch of white towards the anal angle of the hindwing.

The next two genera of the group are *Virachola* and *Sinthusa* of Moore; they have the tail short and filamentous. *Virachola* contains up to the present three species only, which occur in India, Ceylon, and the Andaman Isles. The markings of all of them are very similar to those of *Deudorix epijarbas*, Moore, and like that species the larvæ of two of them feed on different fruits. They are all more or less blue or purple on the upperside. They are of rather large size.

The last genus of the group, *Sinthusa*, Moore, may be known by the butterflies being of much smaller size than in *Virachola*, Moore, and in the forewing the middle disco cellular nervule arises a little beyond the base of the upper discoidal cell instead of exactly at the base of that vein as in that genus. The males are always more or less blue on the upperside, the females are smoky black, with no blue coloration, sometimes with a discal orange or ochreous-white patch on the forewing, the hindwing usually more or less white towards the anal angle. The genus occurs in the Himalayas, Assam, Burma, the Malay Peninsula, and in Sumatra and Java.

**Genus 100.—DRINA, nov. (PLATE XXIX).**

**FOREWING**, *costa* somewhat strongly and regularly arched, *apex* acute, *outer margin* slightly concave, *inner margin* slightly sinuous; *costal nervure* ending on the margin considerably beyond the apex of the discoidal cell; *second subcostal nervule* with its base equi-distant between the bases of the first subcostal and upper discoidal nervules; *third subcostal* long, originating about midway between the apices of the cell and of the wing; terminal portion of *subcostal nervure* reaching the extreme apex of the wing; *upper discoidal nervule* originating immediately before the apex of the cell; *middle* and *lower disco-cellular nervules* upright, slightly concave, the lower a little the longer; *second median nervule* originating some distance before the lower end of the cell; *submedian nervure* nearly straight. **HINDWING**, *costa* arched, *apex* rounded, *outer margin* nearly straight to the base of the tail, then at right-angles to anal angle, *abdominal margin* recurved, *costal nervure* curved throughout its length; *first subcostal nervule* originating far before the apex of the cell; *upper disco-cellular nervule* straight, outwardly oblique; *lower disco-cellular* concave, upright, a little longer than the upper; *second median nervule* originating a little before the lower end of the cell; *submedian nervure* straight; *internal nervure* rather long, recurved. *Antenna* short, much less than half the length of the *costa* of the forewing, with a gradually-formed, rather long, slender club. *Eyes* naked. *Palpi* porrect, reaching to about the middle of the eyes, clothed with adpressed close scales. *Body* moderately robust. *Tail* rather short, less than one-third of an inch in length, rather broad, placed at the termination of the first median nervule. Type, *Myrina donina*, Hewitson.

*Drina* is perhaps nearest to *Cheritra*, Moore, from which it may at once be known by the much shorter single tail to the hindwing, the absence of an anal lobe, the disco-cellular nervules more upright; in the forewing by the costal nervure being much longer; the palpi are also much shorter. My knowledge of the genus is derived from a single female specimen of the type species, which is so unusual in appearance on both surfaces, and moreover so very different in structure from its apparently nearest ally, that I have no doubt that it constitutes the type of a very good genus. The genus contains possibly three species, two of which are included in this work, and occur in Burma and the Malay Peninsula, the third is the *Myrina mavoria* of Hewitson, which was described from Mindanao, one of the Philippine Isles.

**98a. *Drina donina*, Hewitson. (PLATE XXIX, FIG. 235 ♀).**

*Myrina donina*, Hewitson, Ill. Diurn. Lep., p. 39, n. 41, pl. xvii, figs. 61, 62, female (June, 1865); *Myrina* (*Purissa*?) *donina*, Doherty, Jour. A. S. B., vol. iv, pt. 2, p. 260, n. 12 (1886); *Myrina usira*, Felder, Reise Novara, Lep., vol. ii, p. 238, n. 268, pl. xxx, figs. 5, 6, male (Oct., 1865).

**HABITAT:** Burma (*Hewitson*); Sirtai Mountain, Lushai country, near the frontier of the Chittagong Hill Tracts; Mergui; Myitta (*Doherty*); Malacca interior (*Felder*).

**EXPANSE:** ♂, 1.8; ♀, 1.9 to 2.2 inches.

**DESCRIPTION:** "MALE. UPPERSIDE, *both wings* fuscous. *Hindwing* clothed with dull whitish, the external border darker, adorned with two series of whitish spots, the inner one bent, the outer one incomplete. **UNDERSIDE**, *both wings* silky whitish, a blackish-fuscous line before the cilia, a stigma beyond the disc, straight in the forewing, wavy in the hindwing, another external broader, marked on the hindwing with a black subanal spot, and a third obsolete before the margin, hoary-fuscescent. *Forewing* with the internal border hoary-fuscescent. *Hindwing* with a black anal spot circled with hoary and fuscous."

"This not less remarkable insect belongs, as does the preceding [*Myrina discophora*, Felder, from the Philippines] to the neighbourhood of *M. manca*, Hewitson" [see foot-note, p. 443]. (*Felder*, l. c.)

"FEMALE. UPPERSIDE, *both wings* dark brown, paler towards the base. *Hindwing* crossed beyond the middle by two bands of white spots. *Cilia* rufous-white. **UNDERSIDE**, *both wings* glossy white, crossed beyond the middle by two indistinct pale rufous bands.

*Hindwing* with a small black spot at an unusual distance from the base of the tail, the outer margin rufous."

"This is a species of peculiar interest, and unlike anything we have yet seen. I place it here with some doubt. In its form and the colouring of the underside it resembles *Anopis*" [= *Curetis*, Hübner]. (Hewitson, l. c.)

I have no doubt that Hewitson and Felder described, within a few months of each other, opposite sexes of one species as two distinct species, though Hewitson says that the *Myrina* *msira* of Felder is "very near to *M. donina*, but differs from it, according to Felder's figure, in the arrangement of the inner band on the underside of the forewing." (Ill. Diurn. Lep., Suppl. p. 4, n. 49 (1869). There is a slight difference certainly, but I think it is due to the rough drawing of Felder's figure. The male and female are very nearly alike, the former is rather smaller, the wings less broad, the double series of white spots near the outer margin of the hindwing on the upperside about half as large. Mr. W. Doherty obtained this species in the Chittagong Hill Tracts, Major C. T. Bingham captured a single female specimen in the Donat Range, Upper Tenasserim in January, Mr. Hewitson recorded it from Burma, and Dr. Felder from Malacca interior. It is not included in Mr. Distant's "Rhopalocera Malayana."

The figure shows both sides of the female specimen from the Donat Range, Upper Tenasserim, in my collection.

An apparently allied species has been described as below\* from Singapore. It differs in coloration in the male very considerably from *D. donina*, Hewitson, as the basal two-thirds of the forewing on the upperside is brilliant blue, which colour is absent in the female, in which sex the two species would be more nearly alike.

#### Genus 167.—LEHERA, Moore. (PLATE XXIX).

*Lehera*, Moore, Proc. Zool. Soc. Lond., 1883, p. 528; *Artipe* (preoc.), Rousduval, Léop. Guat., p. 14 (1870).

"MALE. Wings large, broad. FOREWING, triangular, first subcostal nervule emitted at nearly half before the end of the cell, second at one-fourth, third bifid and emitted from near the end of the cell, fourth at half from below the third and terminating at the apex, fifth from the end of the cell; disco-cellular nervules slightly recurved, discoidal nervule from the middle; second median nervule at one-fifth before the end of the cell, first median at one-third before the end; submedian nervule recurved; no tuft on the posterior margin. HINDWING, broadly ovate; exterior margin slightly sinuous below the apex; anal lobe large; furnished with a single long slender tail; no costal glandular patch; costal nervule much arched and terminating at the apex; first subcostal nervule emitted at one-third before the end of the cell; disco-cellular nervules oblique, discoidal nervule from the middle; second median nervule emitted at one-eighth before the end of the cell; first median at nearly one-half before the end; submedian nervule straight; internal nervule recurved. Body very robust; antennæ with a long thickened club. Type, *L. cryx*, Linnaeus." (Moore, l. c.)

In the forewing of the male the outer margin is very straight and oblique, the second subcostal nervule originates nearer to the base of the first than to the base of the upper discoidal, the third subcostal nervule is given off from the costal nervule about midway between the

\* *Drina maneia*, Hewitson. *Myrina maneia*, Hewitson, Ill. Diurn. Lep., p. 29, n. 6, pl. xii, figs. 54, 55, male (1863). HABITAT: Singapore. EXPANSE. Male and female, 1.55 inches. DESCRIPTION: "MALE. Upperside, both wings dark brown. Forewing brilliant blue from the base to beyond the middle. Hindwing with one tail, the anal angle and a marginal line black; a [subanal] band of four spots, two caudal spots (one reaching the margin), the tail and the cilia, white. Underside, both wings white. Forewing with its outer half rufous, marked at the anal angle by two white spots, and bordered inwardly by darker colour, forming a transverse band across the wing. Hindwing with a short rufous band at the apex; the outer margin, two spots near it (one on each side of the tail), a band above them, and a spot above the band, all black. FEMALE, does not differ from the male, except that it is without the blue colour on the upperside of the forewing." (Hewitson, l. c.)

This species is not included in Mr. Distant's "Rhopalocera Malayana." I place it a little doubtfully in this genus, though it has many points in common with the type species, the shape of the wings is much the same, the tail is the same, both species have white spots on a blackish ground on the upperside of the hindwing, and the ground-colour of the underside is the same. Both species appear to lack secondary sexual characters in the male. I have seen no specimen of it.



apices of the cell and of the wing, and is rather short, not nearly reaching the apex of the wing, the middle disco-cellular nervule originates from the upper discoidal quite close to its origin, and is about one-third shorter than the lower disco-cellular, both are slightly concave and upright, the second median nervule arises some little distance before the lower end of the cell. In the hindwing the disco-cellular nervules are concave, of equal length, and together form a very obtuse angle, the second median nervule originating immediately before the lower end of the cell, the internal nervule strongly recurved, tail moderately long, very slightly ciliated. Male without secondary sexual characters. In the female the wings are broader, the forewing has the outer margin regularly convex, the hindwing has the tail fully four times as long as in the male and very fluffy, being heavily ciliated on both edges. The eyes are hairy. The neurulation of *Lehera* is very much as in typical *Deudorix*, Hewitson, but the very different *facies*, and the length of the tail in the female are sufficient to keep *Lehera* distinct.

The genus contains but two known species, one of which is represented by a unique example. The male of *L. eryx*, Linnaeus, is brilliantly glossed with rich dark purplish-blue on the upperside, the anal lobe is green, as is also the underside throughout except an inconspicuous discal series of white spots, the anal lobe of the hindwing is black, the tail black tipped with white. The female is very much larger than the male, the upperside shining fuscous, the hindwing with the outer anal third pure white enclosing some marginal black spots between the veins, the cilia and tail entirely white, the latter very long. *L. skinneri*, Wood-Mason and de Nicéville, differs only in having all the green coloration replaced by clear ochreous. It occurs in Cachar, while *L. eryx* is found in Sikkim, Assam, Burma, and has been recorded from China.

### Key to the species of *Lehera*.

- A. Underside emerald-green.  
983. *L. eryx*, Sikkim, Assam, Burma, China.
- B. Underside clear ochreous.  
984. *L. skinneri*, Cachar.

### 983. *Lehera eryx*, Linnaeus. (PLATE XXIX, FIG. 236 ♂).

*Papilio eryx*, Linnaeus, Mant. Plant., p. 537 (1771); id., Fabricius, Syst. Ent., p. 522, n. 336 (1775); *Deudorix eryx*, Butler, Cat. Fab. Lep. B. M., p. 180, n. 1 (1869); id., Staudinger, Ex. Schmett., p. 279, pl. xcvi, female (1888). *Lehera eryx*, Moore, Proc. Zool. Soc. Lond., 1883, p. 549; *Papilio amyntor*, Herbst, Pap., vol. xi, p. 27, n. 70, pl. ccc, figs. 5, 6, female (1804); *Deudorix amyntor*, Hewitson, Ill. Diurn. Lep., p. 17, n. 1, pl. viii, figs. 19, 20, male (1863).

HABITAT: Sikkim, Assam, Burma, China.

EXPANSE: ♂, 1'4 to 1'8; ♀, 1'9 to 2'4 inches.

DESCRIPTION: MALE. UPPERSIDE, both wings black. Forewing with the basal two-thirds glossed with rich steely purplish-blue, gradually merging into the black ground-colour, not sharply-limited. Cilia black. Hindwing almost entirely glossed with the same shade of purple, the costal and abdominal margins alone free, the latter somewhat pale fuscous, and thickly clothed with long fur-like modified scales; the anal lobe emerald green, extending narrowly up the abdominal margin; the tail black tipped with white. Cilia cinereous. UNDERSIDE, both wings uniformly emerald green. Forewing with the inner margin paler, a very indistinct greenish-white somewhat macular discal band not reaching the costa. Hindwing with a macular whitish irregular discal band, the anal lobe centred with deep black, two indistinct submarginal irrorated black spots beyond, a whitish anteciliary fine line towards the anal angle. FEMALE. UPPERSIDE, both wings shining fuscous. Hindwing with the outer anal third of the wing from the abdominal margin decreasingly to the discoidal interspace pure white, its inner edge very irregular, the black area extending into the white portion anteriorly and marginally as far as the second median nervule, posterior to which are two large oval black spots, the large anal lobe centred with green, the tail long, pure white and strongly ciliated, the abdominal margin pale fuscous. Cilia long, pure white, becoming fuscous towards the apex of the wing. UNDERSIDE, both wings green as in the male.

*Forewing* with the macular discal fascia more prominent. *Hindwing* with the discal fascia more prominent also, the outer anal third of the wing white, bearing a series of green spots, commencing with a linear one from the abdominal margin, then a very large round one in the submedian interspace centred with black and white, a rather smaller round spot in the first median interspace with a medial black spot crowned with white, above which are two lunular spots with a green lunular line within, a fine green anteciliary line, anal lobe black.

The green colouring of the underside of this species is unique as far as I know amongst Indian butterflies, but is paralleled by the European "Green Hairstreak," *Thaïs rubi*, Linnaeus. It must be an efficient protection for the insects when at rest with closed wings on the surfaces of leaves, but it is strange that in the female it is apparently rendered less protective than in the male by the large patch of white towards the anal angle of the hindwing. *L. eryx* is, I believe, a rare species wherever it occurs. I have received both sexes from the Khasi Hills obtained by the Rev. Walter A. Hamilton; one female from Sibsagar, Upper Assam, taken by Mr. S. E. Peal; and several specimens from Rangoon taken in September by Mr. B. Noble.

The figure shews both sides of a male specimen from the Khasi Hills in my collection.

984. *Lehora skinneri*, W.-M and de N.

*L. skinneri*, Wood-Mason and de Nicéville, Journ. A. S. B., vol. lv, pt. 2, p. 369, n. 138, pl. xv, fig. 1 female (1886).

HABITAT: Cachar.

EXPANSE: ♀, 1.8 inches.

DESCRIPTION: "FEMALE. UPPERSIDE differs only from the same sex of *L. eryx*, Linnaeus, in the anal lobe of the *hindwing* being centred with clear ochreous instead of emerald-green. UNDESIDE differs only from that species in having the ground-colour clear ochreous also instead of emerald-green." (*Wood-Mason and de Nicéville*, l c)

The single female obtained by Mr. Wood Mason at Irangmara, Cachar, on 21st July, 1881, remains unique in the collection of the Indian Museum, Calcutta. It differs only from *L. eryx* in the green colour being replaced by yellow, which may be due to an accident or to extraneous agency, chemical or otherwise.

Genus 168.—*ARAOOTES*, Doherty, MS., nov. (PLATE XXIX).

FOREWING, *costa* gently curved, *apex* rounded, *outer margin* slightly convex, *inner margin* straight, *costal nervure* sinuous, terminating on the margin about opposite to the apex of the discoidal cell; *first subcostal nervule* emitted at two-thirds of the length of the cell from the base, bent upwards soon after its origin and almost touching the costal nervure for a short distance; *second subcostal* with its base nearer to the base of the first subcostal than to the base of the upper discoidal; *third subcostal* emitted about midway between the apices of the cell and of the wing, lying very close to the subcostal nervure; *disco-cellular nervules* upright, slightly concave, the middle rather shorter than the lower; *second median nervule* given off a short distance before the lower end of the cell. HINDWING, *costa* evenly curved, *outer margin* very straight to the apex of the second median nervule, where it is toothed or angled; a somewhat long narrow tail at the termination of the first median nervule, rather longer in the female than in the male; a prominent elongated narrow anal lobe; *disco-cellular nervules* very straight of equal length, and outwardly strongly oblique; *second median nervule* given off some little distance before the lower end of the cell. *Eyes* hairy. Male with no secondary sexual characters. Type, *Myrina lapithis*, Moore.

I cannot say that *Araotes* is nearly related to *Biduanda*, Distant, in which genus Mr. Distant places the type species of *Araotes*, as the neural characters differ very largely; and besides in the typical species, *B. thersma*, Hewitson, the hindwing has three tails instead of only a long middle one from the termination of the first median nervule, one half as long from the submedian nervule, and one from the second median nervule the shortest of all, in addition to a small anal lobe. Mr. Distant places two species only in the genus *Biduanda*, but I am

obliged to remove one of them for the reasons above given, and to make it the type of a new genus.

*A. lapithis*, Moore, is a small but very beautiful species. The male has the hindwing on the upperside entirely rich blue, the basal half of the forewing is also blue but of a deeper shade and hardly to be seen except in certain lights. The underside is ochreous-rufous marked across the disc with a broad white band, which covers the whole of the base of the hindwing, and bears numerous black markings scattered over it, with some metallic green ones at the anal angle. The female is plain fuscous on the upperside, with a broad patch of white on the lower third of the hindwing. *A. lapithis* has a wide range, and occurs in Sikkim, the Chittagong district, and from Burma to Singapore, and again in Java and Borneo, but appears to be nowhere common. Mr Doherty informs me that he has taken "two or perhaps three species of *Araotes* in the Malay Peninsula," which are as yet undescribed.

985. *Araotes lapithis*, Moore. (PLATE XXIX, FIG. 237 ♂).

*Myrina lapithis*, Moore, Horsfield and Moore, Cat. Lep. Mus. E. I. C., vol. 1, p. 48, n. 70 (1857); I. Hewitson, Ill. Diurn. Lep., p. 36, n. 32, pl. xv, figs. 35, 36, male 37, 38, female (1863), id., Butler, Trans. Linn. Soc. Lond., Zoology, second series, vol. 1, p. 549, n. 5 (1877); *Sithon lapithis*, Drury, Proc. Zool. Soc. Lond., 1873, p. 351, n. 7. *Biduanda lapithis*, Distant, Rhop. Malay., p. 238, n. 2, pl. xx, fig. 25; female (1884); id., Moore, Journ. Linn. Soc. Lond., Zoology, vol. xxi, p. 42 (1886), id., Doherty, Journ. A. S. B., vol. 17, pt. 2, p. 260, n. 13 (1886).

HABITAT: Sikkim, Chittagong Hill Tracts, Burma, Malay Peninsula, Java, Borneo.

EXPANSE: ♂, ♀, '90 to 1'25 inches

DESCRIPTION: FEMALE. "UPPERSIDE, both wings glossy-brown. Hindwing, anal area, tail, and *cilia*, white, with a patch of light glistening blue at the anal angle and between the median nervules. UNDERSIDE, forewing chrome-yellow, darker on the anterior half; a white fascia from the middle of the anterior margin, spreading widely across to the posterior margin, and bordered by blackish; three separate blackish short lines across the anterior half of the wing. Hindwing white, extreme base and anterior angle yellow, at the base and in the middle of the wing are disposed several spots and short lines of black, anal angle black, a black spot at the angle on the exterior margin, these being bounded anteriorly with metallic silvery-green, and then yellow." (Moore, l. c. in Cat. Lep. Mus. E. I. C.)

"MALE. UPPERSIDE, forewing dark brown [black] Hindwing brilliant blue, with one tail. UNDERSIDE, forewing rufous, crossed transversely before the middle by a band of white, bordered on both sides with dark brown, a transverse line of the same colour beyond the middle. Hindwing silvery white, with several black spots; the apex broadly rufous; the caudal spot, a spot outside of it, the lobe, a spot between them, and a spot above them irrorated with silvery blue; the outer margin black, traversed by a line of white; the tail [and anal lobe] black. FEMALE UPPERSIDE, both wings rufous-brown. Hindwing with the apex [anal region] and tail white. UNDERSIDE does not differ from the male, except that the tail [and anal lobe] are white."

"On the underside this species varies considerably in the form of the line which crosses the forewing beyond the middle, as well as in the size of the black spots of the hindwing." (Hewitson, l. c.)

I possess a single male of this species from the collection of the late Mr. L. Mandelli, taken in Sikkim, and another male taken in June in Rangoon. There is a single female in the Indian Museum, Calcutta, taken by Dr. J. Anderson at Yimiki, King Island, Mergui Archipelago, in February; which are all the specimens I have seen. Mr. Distant's figure of this species is incorrect in showing a tail at the anal angle of the hindwing instead of a lobe. *Sithon chitra*, Horsfield, is remarkably like *A. lapithis* on both surfaces, but on the underside of the forewing there is no transverse white band, and on the hindwing the discal black spots are less numerous.

Mr. Doherty describes the egg of this species as follows:—"Egg small, green, with tetragonal reticulations and short truncate spines." He also notes that the female has a pointed abdomen bearing an elongate ovipositor, and that the male prechensores are remarkable in having

the short clasps soldered to the long intramittent organ. He found the species scarce at Mengui and Myitta, Burma, in the cold weather; also at Barakhal in the Chittagong Hill Tracts.

The figure shows both sides of a male specimen from Rangoon in my collection.

I give below a description of the very beautiful and highly-aberrant genus *Sithon*,\* Hübner, which is found in the Malay Peninsula.

\* Genus *Sithon*, Hübner, Verz. bek. Schmetz., p. 77 (1816), id. (part), Moore, Proc. Zool. Soc. Lond., 1883, p. 326, id., Distant, Rhop. Malay, p. 252 (1885). FOREWING, costa slightly arched at the base, apex acute, (rounded in the female), exterior margin very slightly convex, posterior angle not acute, posterior margin slightly convex, tufted beneath (in the male). Costal nerve recurved, first subcostal nerve ascending and touching the costal nerve near its end, emitted at one-third before the end of the cell, second at one fifth third and fourth from the end of the cell, no fifth branch. discoidal cell broad, disco-cellular nerves slightly concave, of equal length, discoidal nerve from their middle, second median nerve from close to the end of the cell, first median at one-third before the end, submedian nerve straight. Hindwing, oval, costa almost angular in its middle, apex convex, exterior margin lobular near the anal angle, discoidal cell short, triangular, first subcostal nerve emitted at one third before the end of the cell, disco-cellular nerves oblique, recurved, discoidal nerve from their middle, third and second median nerves from the end of the cell, first median at one half before the end, submedian nerve straight, internal nerve recurved, furnished with a longish slender tail from the end of the first median nerve, and a short lobate tail from the submedian nerve. Club of the antennæ slender, palpi perfect, laxly squamose beneath, second joint extending half beyond the head, third joint slender, legs squamose. Type, *S. nedymond*, Cramer, from the Malay Peninsula, Sumatra, and Java (Moore, l. c.).

In the forewing of the male of the type species, the costal nerve extends to beyond the end of the cell; there are only two subcostal nerves, Mr Moore counting the terminal portion of the subcostal nerve and the upper discoidal nerve as additional subcostal nerves, the middle disco-cellular nerve is distinctly shorter than the lower, both disco-cellulars are almost upright. The shape of the hindwing is peculiar, though almost exactly as in the genus *Drapadia*, Moore, but differs in the costal nerve being much longer; the costa forming almost a right angle, of which the basal portion is the shorter side, the disco-cellular nerves are extraordinarily outwardly oblique, more so than in any other genus known to me, the anal lobe is very long and narrow, the antennæ are considerably more than half as long as the costa of the forewing; the eyes are very hairy.

The type and, as far as I know, the only species of this genus hitherto described (except its probable female *S. chitra*, Horsfield), is *S. nedymond*, Cramer. Mr Moore, when redescribing the genus in 1883, placed in it a species which he named "*Sithon*" *indra*, thereby implying that the allied species *jalindra*, Horsfield, and *farphina*, Hewitson also belong to this genus. From my point of view these latter are widely separated from *Sithon* in having three instead of two subcostal nerves to the forewing, the male not furnished with a tuft of hair on the underside of the forewing attached to the inner margin, present in *S. nedymond*, and two tails instead of one to the hindwing. Overlooking the absence of one tail and a certain elongation of the hindwing, *S. nedymond* has a remarkable superficial likeness to those species, which probably led Mr Moore to place them in that genus. In all of them the males are rich blue on the upperside and have the underside remarkably and distinctively coloured, the base of both wings being pure white, the outer half deep brown. Such strong superficial resemblances, combined with marked structural differences, do not often occur.

With regard to the Indian *Lycaenids* in being furnished with two subcostal nerves to the forewing, this is the only genus, except *Thecla* Fabricius, and *Isoda*, Doherty, MS, which has one tail only to the hindwing, and in this group it is absolutely unique in being furnished in the male with a tuft of hair on the underside of the forewing.

*Sithon nedymond*, Cramer. *Papilio nedymond* Cramer. Pap. Ex., vol. iv, p. 19, pl. cccxix, figs E, F, male (1783). *Sithon nedymond*, Hübner, Verz. bek. Schmetz., p. 17, n. 776 (1810), id., Moore, Proc. Zool. Soc. Lond., 1883, p. 326, id., Staudinger, Ex. Schmetz., p. 277, pl. xcv, n. 1016 (1888). *Sithon nedymond*, var., Distant, Rhop. Malay, p. 253, n. 1, pl. xxii, fig. 1, male (1885). *Thecla nedymond*, Horsfield Cat. Lep. E. I. C., p. 96, n. 28 (1829). HABITAT. Coromandel Coast (Cramer), Java, Sumatra (Moore), Sungei Ujong (Distant), Selangor. EXPANSE. Male, 2.55 inches (Cramer's figure) 1.35 inches (Distant) 1.50 (Selangor specimen). DESCRIPTION: MALE. "UPPERSIDE, both wings black. Forewing with a deep cyanaceous patch covering the whole discoidal area, broader anteriorly and gradually attenuated towards the interior margin. Hindwing with a broad posterior border of the same cyanaceous tint, passing parallel with the margin over one-third of the entire surface, with a regularly defined inner edge. UNDERSIDE, both wings white with a silvery gloss from the base to the middle and ferruginous brown posteriorly, the boundary between the basal and apical portions being regularly transverse, extending from the middle of the costa over the disc to the anal region. Forewing with the apical portion almost equally divided by an undulating blackish striga, the inner portion being of a more saturated reddish brown tint. Hindwing has the dark portion decreasing in breadth towards the anal region and terminating in a curve following the outline of the wing, a deep black streak regularly transverse and tending to the inner margin, stands at a small distance from the anal curve, accompanied by a solitary dot at each extremity, the anal region is either entirely ferruginous or clouded with the brown ground-colour of the apical portion of the wing, ending off two short evanescent ferruginous strigæ parallel with the margin, this region is likewise adorned with several irregularly-defined black marks, covered with rich greenish metallic irrorations: the first of these is an ocellate spot, exterior of the tail near the marginal notch bearing a broad bluish lunule next follow two short opposite transverse streaks tending to the anal appendage and finally a short narrow attenuated line, parallel with the oblique portion of the anal angle; the posterior margin is confined by a black marginal thread, edged interiorly by a narrow white striga, which is more pronounced at the internal angle, the surface of the anal appendage is black, the tail tip with white. Body black above, white underneath the sides of the abdomen being annulated. Antennæ delicately banded. Legs marked with broad alternate rings of black and white." (Horsfield, l. c.).

I have only seen one specimen of this species from the Malay Peninsula, which Mr Godfrey writes me that he caught "in a forest-path near the banks of the Linggi in Sungei Ujong." It is evidently an extremely rare species. I have no knowledge of the female if it is not to be found in the following species? [*S. chitra*, Horsfield] and have treated the form here figured as a variety, owing to the transverse black streak above the anal angle on the underside of the hindwing containing some ochraceous markings not observed in typical *Sithon* specimens." (Distant, l. c.).

I have seen only one small male specimen of this species from Selangor. It has the blue *Aglaornis* of the upperside of a most brilliant and vivid iridescent shade.



Genus 106.—**DEUDOKIA**, Hewitson. (PLATE XXIX).

*Deudoria* (part), Hewitson, Ill. Diurn. Lep., p. 26 (1863); *Id.*, Moore, Lep. Cey., vol. 1, p. 208 (1881); *Id.* (part), Distant, Rhop. Malay., p. 277 (1893).

"**FOREWING**, triangular; apex acute, exterior margin oblique, almost even, anal angle acute, posterior margin straight; costal nervure arched in the middle; first subcostal nervule emitted at two-fifths, second subcostal at one-fifth, and third subcostal immediately before the end of the discoidal cell, fourth subcostal at one-half from below the third and terminating at the apex, fifth subcostal [upper discoidal] from the end of the cell; disco-cellular nervules concave, angled in the middle, lower discoidal nervule from their angle; discoidal cell long, widest in the middle, second median nervule at one-sixth, and first median at two-fifths before the end of the cell; submedian nervure recurved. **HINDWING**, short, produced hindwards, exterior margin uneven; both sexes with a slender tail from the first median nervule; anal angle lobed; costal nervure much arched at the base; first subcostal nervule emitted at one-fourth before the end of the cell, disco-cellular nervules oblique, slender; discoidal nervule from their middle, discoidal cell short, broad at the end; second median nervule from very near the end of the cell, first median at one-third before the end; submedian nervure straight, internal nervure recurved. **BODY** robust; palpi porrect, second joint projecting one-third beyond the head, attenuated at the apex, clothed with adpressed compact scales, third joint very slender, about one-fourth the length of the second in the male, longer in the female; legs squamose, femora slightly pilose beneath; antennæ long, extending beyond half the wing, club evenly-formed. Type, *D. epjarbas*, Moore" (Moore, l. c.)

*Seton chitra*, Horsfield. *Thecla chitra*, Horsfield, Cat. Lep. E. I. C., p. 97, n. 89, pl. 1, fig. 3, female (1839); *Myrina chitra*, Butler Trans. Linn. Soc. Lond. Zoology, second series, vol. 1, p. 549, n. 3 (1877); *Seton chitra*, Distant, Rhop. Malay., p. 254, n. 2, pl. xxiii, fig. 15, female (1885). **HABITAT** Java (Horsfield), Malacca, Singapore (Butler), Jelebu. **EXpanse** Female, 1.8 inches (Horsfield's figure), 1.85 inches (Distant); 1.40 inches (Distant's figure). **DESCRIPTION** **FEMALE**. "Wings agreeing in form, longitudinal extent, and in the notch and anal appendage of the hindwing, with *S. nedymond*, Cramer. **UPPERSIDE** both wings dark brown, with a very slight ferruginous lustre, being paler on the disc and more saturated at the borders. **Hindwing** has the anal region covered by a broad white patch, confined posteriorly by a delicate black marginal thread, and bearing two irregularly round black spots, the exterior one being dotted with white. The anal appendage bears a black dash, attenuated anteriorly and marked laterally with a greenish silvery line. The extreme *cilia* of the hindwing and the *tail* throughout being white. **UNDERSIDE**, forewing fulvous paler at the base with an obscure yellowish tinge on the disc behind this a curved brown striga increasing in breadth and intensity of tint towards the interior margin, and finally a black marginal thread. **Hindwing** silvery white with a broad fulvous posterior border attenuated towards the anal region, and continued by a narrow striga passing irregularly flexuose to the inner margin with a very delicate linear yellowish transverse streak on the disc, a medial band of brown dots more saturated near the costa, and continued at the inner boundary of the anal areola by a very deep black broad regularly transverse streak, tending to the inner margin and accompanied, a little above its termination by a solitary black dot. The anal region is interiorly bounded by a series of diversified marks of an intense black colour disposed in a simple curve. It commences near the outer apical angle with an oblong black streak touching a wedge shaped streak with a minute dash of green. Silvery irroration on its inner extremity, this is followed by two large irregularly defined black spots, which also appear on the upperside. The exterior one being bordered at its inner margin by a crescent of silvery irroration. The next divided into two portions by the passage of the fulvous striga bearing near the middle two silvery lantules opposed to each other, the series is terminated by a black streak extending in contact with the fulvous band along the oblique portion of the inner margin being nearly concealed by a corresponding streak of silvery irroration; the anal appendage is black and surrounded by a lax ciliated white *cilia* which is broader internally. **Thorax** and **abdomen** brown above and white underneath the latter being banded at the sides. **Feet** white annulated with black. **Antennæ** also delicately annulated, and the club has a broad white ring at its base and a ferruginous tip."

The resemblance in general habit in the outline of the wings, and in the characteristic marks of the lower surface, between the species and *S. nedymond*, Cramer is so striking as to cause an inquiry whether, notwithstanding the palpable difference in colour, they might be no more than different sexes of the same species. A careful examination has however convinced me that this is not the case. In *S. nedymond* the upperside of the hindwing is without the least indication of the ocellate spots in the anal region. In the underside the fascia, dividing the posterior portion of the forewing has a different direction, and in the hindwing of the same species the discal portion has not any indication of a transverse discoidal striga, whereas *S. chitra* has a very distinct transverse line on the disc of the same wing. Our collection contains six specimens of *S. chitra* and seven of *S. nedymond*, which individually do agree with the description given of them. (Horsfield l. c.)

"Dr. Horsfield's description evidently applies to a female specimen and of the male sex I can find no account. It probably has a bluish gloss above and is evidently allied to the preceding species. What is the female of *S. nedymond*? and what is the male of *S. chitra*? There is certainly no great reason why the two species (if as at present known, should not be classed as male and female *S. nedymond*. The only reason why that course is not followed here is owing to the fact, that the female *S. chitra* has a more curved upper tail than the male *S. nedymond*, and the ground colour beneath being somewhat diverse. When the insects are bred the above supposition may not improbably prove correct." (Distant, l. c.)

I have only seen one specimen of this species sent me by Mr. W. Davison from Jelebu. The difference in the coloration and markings on the underside between *S. nedymond* and *S. chitra* is certainly very great, and I do not know a parallel instance in the *Lycenidæ*, except to a less extent in the genus *Budakhara*, Moore. Notwithstanding this fact, I have but little doubt that the two are opposite sexes of one species. The markings and coloration of both sides of *S. chitra* are almost exactly the same as in *Arctes ingilitis*, Moore.



In the forewing the costal nervure terminates opposite to the end of the discoidal cell; the base of the second subcostal nervule is nearer to the base of the first than it is to the base of the upper discoidal nervule, the third subcostal originates about midway between the base of the upper discoidal nervule and the apex of the wing, which it does not reach, the middle and lower disco-cellular nervules are concave, upright, the middle one-third shorter than the lower, originating from the upper discoidal nervule but a little distance from its base; the second median nervule originates some little distance before the lower end of the cell, submedian interspace broad. Male without secondary sexual characters on either wing. In the hindwing the costal nervure is very strongly arched at the base, the first subcostal nervule originates some little distance before the apex of the cell, the disco-cellular nervules are strongly outwardly oblique and in a straight line, the upper slightly shorter than the lower, the second median nervule originates just before the lower end of the cell. The palpi are conspicuously thicker and longer in the female than in the male. The eyes are hairy.

It is more than probable that true *Deudorix* is confined to the single type species, and that the other species here included in it is not a true *Deudorix* at all. Mr. Trimen in his "South-African Butterflies" gives four South African species of *Deudorix*, but as they all have the secondary sexual characters in the male found in *Rapala*, Moore, and allied genera, they are not true *Deudorices* from my point of view. The male of *D. epijarbas* is rather deep red on the upperside, the costa and outer margin of the forewing black, the costal base of the hindwing black. The female is fuliginous-black on the upperside, somewhat inclined to fulvous on the disc of the forewing. Both sexes have a broad catenulated white band on the disc of both wings on, the underside, the disco-cellular nervules also marked with a white line on either side, the anal lobe of the hindwing black, a black spot with outer orange ring in the first median interspace on the margin, with some metallic greenish scales between the anal lobe and black spot. *D. barthema*, Distant, I have not seen, but it is evidently a very different-looking insect. The female alone is known. On the upperside it is probably very similar to the same sex of *D. epijarbas*, on the underside however it is quite different, having a yellow instead of a pale brown ground, the catenulated band of *D. epijarbas* replaced by a linear fascia. The transformations of *D. epijarbas* will be found detailed under the description of the species.

### Key to the Indian species of *Deudorix*.

A. Female, underside, ground-colour pale brown, a prominent discal white catenulated band.

986. *D. EPIJARBAS*, India, Ceylon, Andamans and Nicobars, Burma, Malay Peninsula and Archipelago.

B. Female, underside, ground-colour yellow, an obscure discal linear fascia.

987. *D. BARTHEMA*, Chittagong district, Malay Peninsula.

### 986. *Deudorix epijarbas*, Moore. (PLATE XXIX, FIG. 238 ♂).

*Dipsas epijarbas* (recte *epijarbas*), Moore, Horsfield and Moore, Cat. Lep. Mus. E. I. C., p. 32, n. 96 (1857); *Deudorix epijarbas*, Hewitson, Ill. Diurn. Lep., p. 20, n. 8, pl. vii, figs. 16, 18, male; 17, female (1863); id., Moore, Proc. Zool. Soc. Lond., 1877, p. 589; idem, id., Lep. Cey., vol. i, p. 103, pl. xxxix, figs. 4, male; 4a, female (1881); id., Distant, Rhop. Malay., p. 464, n. 6, pl. xli, fig. 5, male (1886); id., Standinger, Ex. Schmiett., p. 278, pl. xcvi, male (1888); *Deudorix epijarbas*, Butler, Proc. Zool. Soc. Lond., 1888, p. 370, n. 57; *Deudorix epijarbas*, Doherty, Journ. A. S. E., vol. iv, pt. 2, p. 126, n. 125 (1886).

HABITAT: Throughout India (except the desert tracts and very high elevations in the Himalayas), Ceylon, the Andaman and Nicobar Isles, Burma, the Malay Peninsula, Nias Island, Borneo, Macassar, Celebes.

EXpanse: ♂, 1'4 to 1'9; ♀, 1'3 to 2'0 inches.

DESCRIPTION: "Larger than *D. [Rapala] jarbas*, Fabricius. MALE. UPPERSIDE, forewing with the dark brown border occupying the whole space between the costa and the median nervure (in the latter of which it is nearly black), and then branching off to the exterior margin, and ending in a point at the middle of the hind margin. UNDERSIDE, both wings of a dusky cast, with two whitish undulating lines crossing both wings, as also two short lines from the

median to the subcostal nervure [enclosing the disco-cellular nervules. *Hindwing*]. The outer black spot is entirely encircled with yellow, and above the anal spot is a well-defined lunar-shaped streak of metallic green. FEMALE, somewhat larger, with rounder wings. UPPERSIDE, both wings fulvous-brown. UNDERSIDE, both wings marked as in the male." (Moore, l. c. in Cat. Lep. Mus. E. I. C.)

LARVA when full-fed and extended in walking, 9 of an inch in length; ground-colour dull ochreous, blotched with leaden-black, the surface of all the segments smooth and shining, the constrictions between the segments well-marked, each segment with a shallow dorsal pit, a subdorsal pit on each side, and a lateral pit which bears the deep-black spiracles; the entire lateral edge of the larva furnished with rather long bristly hairs; the larva is of the usual lycenid shape, the head small and entirely retractile into the second segment, dull ochreous marked with leaden-black as are the segments; the body increasing in width to the fourth segment, then gradually decreasing to the anal segment; the larva is rather depressed, broader than high, the three anal segments are scutate, the shield being used to block up the entrance to the fruit on which the larva feeds; the second and third segments are brighter ochreous than the rest, the blackish markings more sparse, wholly absent on the anterior portion of the second segment. I can find no trace whatever of the special organs found in many *Lycenidæ* larvæ which are affected by ants. Feeds on the fruit of the pomegranate. PUPA .55 of an inch in length, light reddish-brown speckled with black in no decided pattern; the surface rather rough above and covered sparsely with short stout white bristles, below quite smooth, of a lighter colour, and without the black speckles and bristles; shape everywhere rounded except anteriorly, where the head is anteriorly bounded by a sharp ridge, the thorax very slightly humped, the anal segment depressed, pointed. Described from specimens sent to me by Mr. P. W. Mackinnon and obtained by him at 4,000 feet elevation below Masuri.

*D. epijarbas* (*epiarbas* would be a more correct rendering of this name) is a very widespread and common species occurring almost everywhere in India (except the desert tracts of the North-West), throughout the outer ranges of the Himalayas and in Kashmir (but not on the inner higher ranges), in Ceylon, the Andamans, on Teressa and Great Nicobar, in Perak, Nias Island, and several islands in the Malay Archipelago. It has an extremely rapid flight, but often settles, and is then easily caught. In Sikkim it occurs in March, May, June, and October, probably throughout the warmer months. I give as a foot-note\* a later description of this species by Mr. Moore.

The figure shews both sides of a male example from Kulu in my collection.

### 987. *Deudorix barthema*, Distant.

*D. barthema*, Distant, Rhop. Malay., p. 283, n. 5 (1885); id., Doherty, Journ. A. S. B., vol. iv, pt. 2, p. 260, n. 14 (1886); *Deudorix xenophon*, Hewitson (nec Fabricius), Ill. Diurn. Lep., p. 27, n. 10, female (1869); *Myrina megistia* (?), Butler (nec Hewitson), Trans. Linn. Soc. Lond., Zoology, second series, vol. 1, p. 549, n. 1 (1877).

HABITAT: Dimagiri and Barakhal, Chittagong Hill Tracts (Doherty); Province Wellesley, Malacca, Singapore (Distant).

EXPANSE: ♀, 1.2 to 1.4 inches.

DESCRIPTION: "FEMALE. UPPERSIDE, both wings fuliginous-brown. *Hindwing* with a black spot at the lobe of the anal angle. UNDERSIDE, both wings yellow, with a very

\* "MALE. UPPERSIDE, both wings red, veins black. *Forewing* with a broad black costal and outer marginal band, the posterior margin also black. *Hindwing* with the costal area broadly black, abdominal margin greyish-brown, an anal spot, cilia, and tail black. UNDERSIDE, both wings pale vinous-brown. *Forewing* with two slender white disco-cellular streaks, two transverse discal lines, and a less distinct marginal line. *Hindwing* with two disco-cellular streaks, two curved discal broken lines and a less distinct marginal line; anal lobe black; a red-bordered black spot between the second and first median nervules, a metallic green and black-speckled streak above the anal lobe. FEMALE. UPPERSIDE, both wings olive-brown. UNDERSIDE, both wings ochreous-grey; otherwise as in the male. Head with the front and sides, palpi beneath, and legs white; palpi above and the bands on the legs black." (Moore, l. c. in Lep. Cey.)

narrow and linear slightly darker fascia outwardly margined with greyish, situated between the ends of the discoidal cells and the outer margins, angulated and inwardly margined with fuscous from the second median nervule of the hindwing to the abdominal margin, where it is duplex. Hindwing with three marginal spots near the anal angle, the first and third black, the medial one composed of greenish scales; extreme outer margin narrowly greyish. Cilia pale brownish."

"I have not seen the male of this species. [The female] is, however, closely allied in colour to the male of *D. domitia*, Hewitson, wanting, however, the black spots on the underside of the forewing, which renders it easily distinguishable." (*Distant*, l. c.)

"The yellow colour of the underside of the female, which is not uncommon in the Chittagong Hill Tracts, varies greatly in different specimens. I suspect that the male will be found to be of the usual dull rufous hue of below, characteristic of the group, and will perhaps be difficult to distinguish from some well-known species." (*Doherty*, l. c.)

I have not seen this species, but it may be known at once from the other species of the genus occurring within Indian limits by the yellow colour of the ground on the underside. I do not know why Mr. Distant gives the *Deudorix* (*Rapala*) *xenophon* of Hewitson as a synonym of this species, unless there are specimens of *D. barthema* in the Hewitson collection which Hewitson has identified as *xenophon*. As far as the description goes the only differences I can detect between *D. barthema* and females of *R. xenophon* are that in the latter the anal lobe of the hindwing on the upperside has more than the larger half ochreous-ferruginous, on the underside the short disco-cellular lines on both wings are not mentioned in *D. barthema*, and that in *R. xenophon* the outer black spot on the hindwing in the first median interspace is crowned with orange. *D. barthema* is still nearer to *Rapala suffusa*, Moore, the latter possessing all the characters distinguishing *R. xenophon* from *D. barthema*, except that the black spot on the margin in the first median interspace on the underside of the hindwing is crowned with orange in only one specimen in my possession. It probably possesses in the male secondary sexual characters, and does not therefore belong to the genus *Deudorix* at all. It is a most puzzling species, and not having seen specimens or a figure I can make nothing out of it.

#### Genus 170.—ZINASPA, nov. (PLATE XXIX).

Allied to *Rapala*, Moore, from which it differs in both sexes in the antenna being shorter, the palpi nearly twice as long and stouter (much longer in the female than in the male), and the male lacking the tuft of hair on the inner margin of the forewing, and the glandular patch below the costa of the hindwing present in that genus. The eyes are naked.

As far as I can ascertain without destroying a specimen, the venation of the two Indian species I include in the genus does not differ from that of *Rapala*. The markings of the underside, however, are so entirely different from those of any species of *Rapala*, that from them alone one would come to the conclusion that *Z. todara*, Moore, and *Z. distorta*, de Nicéville, must be generically distinct from *Rapala*. They at once remind one, however, of those obtaining in the genus *Surendra*, Moore, though they differ a good deal in detail. In *Zinaspa* the forewing on the underside has no markings towards the base whatever, in *Surendra* there is a bar across the middle of the cell, a double line closing the cell, and several short streaks on the costa. On the hindwing there are usually no basal markings in *Zinaspa*, and the discal markings are more regular and nearer the margin. There is also a small black spot crowned with orange in the first median interspace never found in *Surendra*. *Zinaspa* is perhaps nearer even to *Deudorix*, Hewitson, than it is to *Rapala*, but the male may at once be known by the costa of the forewing being arched instead of straight, and the inner margin much longer, thus giving a more square appearance to that wing.

Two species only are known, one occurs in Sikkim, Assam, and Burma, the other in the Nilgiri Hills of South India. The females appear to be very much commoner than the males; as obtains also in the genus *Surendra*.

**Key to the species of Zinaspæ.**

- A. Male, upperside, hindwing uniformly brown; female, upperside, forewing with the discal area blue  
988. *Z. TODARA*, Nilgiri Hills.
- B. Male, upperside, hindwing with a large patch of shining purple; female, upperside, forewing with the discal area bluish-purple.  
989. *Z. DISTORTA*, Sikkim, Assam, Burma.

**988. *Zinaspæ todara*, Moore.**

*Surendra todara*, Moore, Proc. Zool. Soc. Lond., 1883, p. 530; *Rapala distorta*, Hampson (nec de Nicéville), Journ. A. S. B., vol. lvii, pt. 2, p. 359, n. 238 (1888).

HABITAT: Coonoor, Nilgiris.

EXPANSE: ♂, 1·25; ♀, 1·55 inches.

DESCRIPTION: "MALE. UPPERSIDE, both wings dark violet-brown. Forewing with the basal area below the costal nervure pale violet-blue. Hindwing uniformly brown. UNDERSIDE, both wings pale ochreous-brown, indistinctly grey-speckled. Forewing with a discal transverse indistinct white lunular line, and two less distinct marginal lines. Hindwing with a sub-basal and two discal transverse white lunular zigzag lines, and a small black subanal spot surmounted with ochreous-red."

"In this species the forewing is narrower than in its allies [of the genus *Surendra*], and the hindwing is more convex. It is quite distinct from the Madras species, *S. biplagiata*, Butler, the figure of which does not well represent the angular margin of the hindwing of the type specimen." (Moore, l. c.)

"Nilgiris, 3,000 feet. One female in August of this year on the southern slopes, and eight females on the western slopes, 1,000-2,500 feet, in September, 1888. Differs from the description and figure of *R. [=Z.] distorta*, de Nicéville, in having the blue area on the upperside of both wings more restricted, and on the underside the white lines more regular and split up into well defined lunules." (Hampson, l. c.)

I have not seen a male of this species; it appears to differ from that of *Z. distorta*, mihi, in having the upperside of the hindwing uniformly brown, while in *Z. distorta* there is a large patch of shining deep purple on the disc. The female of *Z. todara* differs from that of *Z. distorta* in having the discal patch on the upperside of the forewing blue instead of purple, and more restricted. The markings of the underside appear to be much the same.

Mr. G. F. Hampson examined the type of this species, and kindly informed me that it is not a *Surendra*; I should otherwise have been unable to have recognised the species. He has also given me two specimens.

**989. *Zinaspæ distorta*, de N. (PLATE XXIX, FIG. 239 ♂).**

*Rapala distorta*, de Nicéville, Proc. Zool. Soc. Lond., 1887, p. 461, pl. xl, fig. 6, female.

HABITAT: Sikkim, Assam, Burma.

EXPANSE: ♂, 1·40 to 1·55; ♀, 1·60 inches.

DESCRIPTION: MALE. UPPERSIDE, both wings black. Forewing with the basal and lower discal areas very deep shining purple, the costal margin broadly, the outer margin still more broadly and the apex broadest of all, of the ground-colour, the purple coloration occupying about two-thirds of the surface of the wing. Hindwing with the basal and lower discal areas very deep shining purple, the costa and apex extremely broadly, the outer margin narrowly black, the abdominal margin pale fuscous. UNDERSIDE, both wings as in the female but of a deeper vinous colour, all the markings rather less prominent. FEMALE. UPPERSIDE, both wings almost black, somewhat paler on the hindwing. Forewing with all but the costa widely, the apex and outer margin still more widely (which are of the ground-colour), rich bluish-purple. Hindwing with a lengthened discal patch of bluish-purple, which occupies the lower half of the discoidal cell and extends beyond it into the discoidal and median interspaces, but does not nearly reach the outer margin, [this patch is sometimes entirely wanting]. Tail dull ferruginous, tipped with white. UNDERSIDE, both wings dull ferruginous or cinnamon-coloured,

glossed with vinous. *Forewing* with a narrow white discal line formed of short lunules between the veins, that portion below the first median nervule shifted inwards; a double submarginal series of short white lines, more diffused than the discal line, placed between the veins, which give the appearance of six increasing spots of the ground-colour defined with white. *Hindwing* with a discal white line as in the forewing, but much more distorted and irregular; an obscure similar basal line, and a submarginal very dentate one; the area beyond the latter irrorated with whitish, including an obscure rounded ferruginous spot in the first median interspace [sometimes centred with black]; a fine white anteciliary line obsolete anteriorly. *Cilia* brownish-ferruginous throughout."

"Allied to *Rapala* [*Surendra*] *amisena*, Hewitson, who describes and figures the female while Mr. Distant figures the opposite sex, both from Singapore. Differs from the same [female] sex of that species, judging from the figure and description only, in having the purple area of the upperside of the forewing of less extent and sharply defined (in *R. amisena* it appears to be suffused over nearly the whole wing, with no sharp edges), and on the underside of both wings in the markings being fewer and white throughout, instead of dark fuscous; with no trace of the dull light blue irroration at the anal angle of the hindwing, with a lunular black spot between the tails, described by Hewitson as occurring in his "*Amblypodia*" *amisena*." (*de Nicéville*, l. c.)

Mr. Otto Moller possesses a single male of this species taken in Sikkim on 1st August, 1888, and four females taken in March, May, and July, all at about 1,500 feet elevation. Colonel Swinhoe possesses a single female example, also from Sikkim. In the Phayre Museum, Rangoon, is a single male taken in the Karen Hills, Burma, in March, 1887. It differs from the type specimen described above on the upperside in having the purple coloration of a lighter more blue shade and more extensive, the ground-colour of the underside more reddish. These slight differences seem to be hardly of specific value, and may be due to season, the Burmese specimen having been captured in the dry season, most of the Sikkim ones in the middle of the rains.

The figure shews both sides of the type male specimen from Sikkim in the collection of Mr. Otto Moller.

### Genus 171.—HYSUDRA, Moore. (PLATE XXIX).

*Hysudra*, Moore, Proc. Zool. Soc. Lond., 1882, p. 250.

"Allied to *Bidasps*, [Moore, = *Rapala*, Moore]. *FOREWING*, less triangular in form, the exterior margin slightly convex, no tuft on the posterior margin of the male. *HINDWING*, less produced hindwards, no costal depressed granular spot, tail shorter." (*Moore*, l. c.)

In the forewing the costa is straight, slightly emarginate in the middle, the outer margin is convex, the inner margin straight; the costal nervure ends opposite to the apex of the discoidal cell; the first subcostal nervule is bent upwards soon after its origin and almost touches the costal nervure in the male, well separated in the female; the base of the second subcostal nervule is nearer to the base of the first than to that of the upper discoidal nervule; the third subcostal emitted about midway between the apices of the cell and of the wing; the middle disco-cellular nervule originates from the upper discoidal soon after the latter is given off from the subcostal nervure, the disco-cellular nervules are nearly upright, only slightly outwardly oblique, both are slightly concave, the middle one rather shorter than the lower; the second median nervule is given off some little distance before the lower end of the cell; there is no long thick tuft of hairs turned upwards from the inner margin near the base in the male as in so many allied genera. In the hindwing the costal nervure is very short, not nearly reaching the apex of the wing; the disco-cellular nervules are of nearly equal length, very straight and outwardly oblique; the second median nervule originating just before the lower end of the cell; there is a depressed (as seen from above) semicircular glandular patch of scales in the male placed above and touching the subcostal nervure, its outer edge not reaching the base of



the first subcostal nervule. This "sexual mark" must have been overlooked by Mr. Moore when characterising the genus. Eyes extremely hairy. Antennæ with a well-formed club.

As far as is known at present, *Hysudra* contains but a single species, which is confined to the Western Himalayas. The genus is aberrant, as the male has no tuft of hairs on the inner margin of the forewing, this feature being unique amongst Indian *Lycenidæ* when combined with the glandular patch on the hindwing, and would tend to show that the two organs have no interrelation. I have often thought it possible that the "glandular patch" excreted some odour which is agreeable to the females of the species, or that an odour is given off which is distasteful to its enemies, which odour is disseminated by the brush of hairs which comes in exact contact with it. If this is the case, we have in *Hysudra* the scent gland without the scent disseminator.

990. *Hysudra selira*, Moore. (PLATE XXIX, FIG. 240 ♂).

*Deudorix selira*, Moore, Proc. Zool. Soc. Lond., 1874, p. 272, n. 76; *Hysudra selira*, id., l. c., 1882, p. 250; id., Doherty, Journ. A. S. B., vol. iv, pt. 2, p. 126, n. 127 (1886); *Deudorix nissa* (part), Hewitson (nec Kollar), Ill. Diurn. Lep., p. 23, n. 19, pl. x, fig. 44, female (nec figs. 42, 43), (1863).

HABITAT: Western Himalayas, Kashmir.

EXPANSE: ♂, 1.25; ♀, 1.25 to 1.45 inches.

DESCRIPTION: "MALE. UPPERSIDE, both wings blackish-brown, suffused with bluish-purple. Cilia dull yellow. Forewing with a large quadrate orange-red discal patch. Hindwing with a broad orange-red exterior marginal band crossed by the dark veins. UNDERSIDE, both wings pale fawn-colour, [disco-cellular nervules marked with two short lines], crossed by a brown discal narrow band with white outer border. Hindwing with a white marginal line, a small subanal black spot bordered with red, and a large black anal spot bordered with white." FEMALE. UPPERSIDE, both wings with the orange-red markings larger than in the male. UNDERSIDE, both wings as in the male.

"Allied to *D. [=Rapala] nissa*, Kollar, and figured as its female by Hewitson." (Doherty, l. c. in Proc. Zool. Soc. Lond., 1874).

"A few taken in Naini Tal, 5,500-6,500 feet, in April and May, one in the middle of September" (A. M. Long). "Almora, Pyura, 4-6,000 feet, Kumaon" (Doherty). I have found this species somewhat rarely in many parts of the Western Himalayas and Kashmir. At Masuri Mr. F. W. Mackinnon has observed the female ovipositing on the wild Indigo, *Indigofera atropurpurea*. The imago probably hibernates, and lays her eggs in the Spring.

The figure shews both sides of a male specimen from Masuri in my collection.

Genus 172.—RAPALA, Moore. (PLATES XXV and XXIX).

*Rapala*, Moore, Lep. Cey., vol. i, p. 105 (1881). id., Distant, Rhop. Malay., p. 276 (1885); *Nadisepa*, id., Proc. Zool. Soc. Lond., 1882, p. 249; *Baspa*, *Hidaspa*, id., l. c., p. 250; *Vadebra*, id., l. c., 1883, p. 528.

"Allied to *Virachola*, Moore. WINGS, small. FOREWING, comparatively shorter and less acutely triangular in form; exterior margin slightly convex; furnished with a broad tuft of hair on the middle of the posterior margin beneath [in the male]. HINDWING, less produced hindwards, more convex exteriorly; anal angle lobed; a single tail from the end of the first median nervule, male with a broad conical-shaped glandular depression between the costal and subcostal nervures, but which does not extend below the subcostal. Palpi shorter than in *Virachola*, second joint more laxly squamose. Type, *R. varuna*, Horsfield." (Moore, l. c.)

In the forewing the costal nervule terminates at about opposite to the apex of the cell, the base of the second subcostal nervule is much nearer to the base of the first than to that of the upper discoidal nervule; the disco-cellular nervules are nearly upright (only slightly outwardly oblique), both are concave, the middle rather shorter than the lower; the second median nervule originates a short distance before the lower end of the cell; male with tuft of hair as described by Mr. Moore; and, in addition, there is in some species a patch of differently-formed scales from those on the rest of the wing on the upperside at and beyond the end of the

discoïdal cell. In the hindwing the disco-cellular nervules are outwardly oblique, straight, and of equal length, the second median nervule originating just before the lower end of the cell; male with a glandular patch of scales placed above and against the subcostal nervure, extending a little distance along the base of the first subcostal nervure, usually semicircular, but variable both in shape and size. Eyes finely hairy.

It will be observed from the synonymy above that I have sunk four of Mr. Moore's quite modern genera. In any case *Vadebra* has to go, as Mr. Moore used that name twice in the same year for two distinct genera, its earlier application to a group of *Euplexa* will have to stand (*Vide Proc. Zool. Soc. Lond.*, 1883, p. 260). I have carefully bleached and mounted as microscopic slides specimens of both sexes of typical species of all these five genera. I cannot find a single structural character by which any one of them can be separated off from the rest. By general *facies* I can divide the genus *Rapala* as understood by me into two groups; in the first the males are all of some shade of blue on the upperside (this includes the true *Rapalas*, *Bidaspa*, and one species of *Vadebra*, viz. *lankana*, Moore); in the other group the males are all of some shade of red (this includes *Nadisipa*, *Baspa*, and all the Indian species of *Vadebra* except *lankana*). It is probable that my *Rapala tara* is not a true *Rapala*, as it has a conspicuous black patch in the male in the middle of the forewing on the upperside, and also a large shining polished space on the inner margin of the hindwing on the underside, across which lies the long black tuft of hairs, which is a character found in no other species of the genus. Lastly there is the *Deudorix deltochus* of Hewitson, the male of which I have never seen. It cannot be a true *Deudorix*, as it has male secondary sexual characters. I do not know what genus to put it in, so have placed it here. It is quite aberrant in coloration and markings, the upperside is very like the male of *Camuna scelus*, Hewitson, the underside is quite peculiar, having four parallel white linear bands. Neither of these aberrant species can however come into those genera of Mr. Moore which I have discarded; should they ultimately be found to represent genera distinct from *Rapala*, new ones must be erected for them. I append descriptions of these synonymic genera as given by Mr. Moore, with some remarks of my own upon them.\*

The transformations of three species are known, viz., *R. schistacea*, Moore, *R. jarbas*, Fabricius, and *R. xenophon*, Fabricius, and will be found detailed under the separate descriptions of those species. The first differs widely in structure from the other two.

\* Genus *Nadisipa*, Moore, *Proc. Zool. Soc. Lond.*, 1882, p. 249. "Allied to *Deudorix*, Hewitson. FOREWING, more acuminate at the apex, male furnished with a tuft of hair on the middle of the posterior margin. HINDWING, more attenuated hindwards, exterior margin slightly sinuous, a broad conical depressed glandular spot between the costal and subcostal nervures. Venation similar to *Deudorix*. Palpi, smaller, shorter, second joint of more equal width, club of the antenna shorter." (Moore, l. c.) Type *Lupio jarbas*, Fabricius. *Nadisipa* has the neurulation and male secondary sexual characters as in *Baspa*, Moore, but differs in the shape of the wings, which are broader, the forewing with the costa slightly less emarginate, the outer margin less inwardly oblique, the inner margin consequently longer; the hindwing has the outer margin convex, the abdominal margin shorter, the wing more compact, and less produced towards the anal angle. The sexes differ conspicuously in colour, in *Baspa* they are nearly alike. The genus contains two Indian species, *N. jarbas*, Fabricius, and *N. xenophon*, Fabricius.

Genus *Baspa*, Moore, *Proc. Zool. Soc. Lond.*, 1882, p. 250. "Differs from typical *Deudorix* (*D. epijarbas*, Moore). MALE with a less triangular form of FOREWING. HINDWING more oblique on the costal and exterior margins, the apex very convex. Venation similar. FEMALE, forewing more triangular, hindwing narrower and less convex. Second joint of palpi much shorter, club of antenna much shorter and abruptly formed. Sexes alike in colour." (Moore, l. c.) Type *Papilio melampus*, Cramer.

The forewing has the costa sinuous in both sexes, being slightly emarginate in the middle, the outer margin very straight and oblique, the inner margin short, with, in the male only, a tuft of hairs concolorous with the underside of the wing attached to the margin and folded upwards, the margin at that point being slightly bowed outwardly. Hindwing with the outer margin very straight and oblique, slightly angled at the termination of the second median nervule, with, in the male only, a round glandular depression (as viewed from the upperside) placed against the subcostal nervure, its outer lower edge extending slightly along the base of the first subcostal nervule.

*Baspa* has the same neurulation and secondary sexual characters as *Nadisipa*, Moore, differing from the latter in the outline of the wings, the forewing being distinctly narrower, the costa slightly more emarginate, the outer margin straighter and more oblique, the inner margin shorter; the hindwing is also distinctly narrower, the outer margin straighter and more oblique. The sexes are nearly alike in colour on the upperside, the female being a duller brick red than the male, while in *Nadisipa* the sexes differ in colour conspicuously.

Mr. Distant places the genera *Nadisipa*, *Baspa*, and *Vadebra* (the latter name is preoccupied) as synonyms of *Deudorix*. The diagnoses of these genera are certainly very insufficient, but they are at once distinguishable from *Deudorix* by the presence of the secondary sexual characters above described, which *Deudorix* entirely lacks. A single species of *Baspa* is at present known, viz., *B. melampus*, Cramer, which occurs more or less throughout India (except the desert tracts, Assam and Burma), and in Ceylon, Nicot Islands, and Sumatra.

**Key to the Indian species of Rapala.****A. Both sexes of some shade of blue or purple on the upperside.**

- a.** Both sexes, upperside, forewing with lower discal area, hindwing except costa broadly, lilac blue (more restricted in the female); underside, forewing with four parallel white linear bands.  
991. *R. DELIOCHUS*, Burma.
- b.** Male, upperside, both wings black, shot with iridescent blue in certain lights only.  
**a**<sup>1</sup>. Male, upperside, forewing with round black sexual patch on disc; underside with polished patch from inner margin; ground-colour ochreous-brown.  
992. *R. TARA*, Kumaon, Sylhet.
- b**<sup>1</sup>. Male without secondary sexual characters as in *R. tara*; upperside in certain lights most brilliant deep ultramarine-blue; underside, ground-colour dull pale fuscous.  
993. *R. SPHINX*, Sylhet, Burma, Java.
- c**<sup>1</sup>. Male, upperside rather less brilliantly shot than *R. sphinx*; underside, ground-colour pale ochreous, sometimes glossed with purple.  
994. *R. DUXARIA*, Sikkim, Bhutan.
- d**<sup>1</sup>. Male, upperside deep slaty-blue, lower discal area only of forewing and disc of hindwing shot with blue; underside, ground-colour buff-grey.  
995. *R. SCHISTACEA*, Himalayas, N.-W. Provinces, Bengal, Assam, Orissa, Ganjam, Nilgiri, Ceylon, Andamans.
- e**<sup>1</sup>. Male, upperside, pale violet-brown, lower discal area only of forewing and disc of hindwing shot with purple; underside, ground-colour pale ferruginous.  
996. *R. (Vadobra) LANKANA*, North Kanara, Nilgiri, Ceylon.
- c.** Male, upperside, both wings very dark indigo-blue, hindwing only shot with brilliant iridescent blue in certain lights.  
997. *R. SCINTILLA*, Sikkim.
- d.** Male, upperside, both wings deep steely-blue, no iridescent shot.  
**a**<sup>1</sup>. Underside dull brownish, discal band broad.  
998. *R. ORSEIS*, Sikkim, Malda, Bengal, Orissa, Nilgiri, Bombay, Assam, Burma, Andamans and Nicobars, Singapore, Sumatra.  
999. *R. GRISIA*, Western Himalayas.  
1000. *R. LAZULINA*, Nilgiri, Ceylon.
- b**<sup>1</sup>. Underside rosy pink, discal band narrow.  
1001. *R. ROSACEA*, Sikkim, Khasi Hills.
- c**<sup>1</sup>. Underside pale or ochreous-brown, discal band narrow.  
1002. *R. (Bulaypa) NISSA*, Himalayas, Assam, Sumatra.
- d**<sup>1</sup>. Underside pale vinous brownish buff, discal band narrow.  
1003. *R. (Bulaypa) RECTIVITA*, North Cachar.
- B. Male of some shade of red on the upperside, shot with iridescent purple in some lights; females various.**
- a.** Male, upperside, rufous, forewing with outer margin narrowly and decreasingly black; female, upperside dull steely blue.  
1004. *R. (Vadobra) PETOSIRIS*, Sikkim, Orissa, Assam, Burma.
- b.** Male, upperside, rufous; forewing with outer margin broadly black; female, upperside, shining fuscous, very similar to that sex of *R. xenophon*.  
1005. *R. (Vadobra) SUFFUSA*, Sylhet, Burma.
- c.** Male, upperside, scarlet; forewing, with outer black margin not ending in a point; hindwing with anal lobe black marked with ochreous and metallic greenish; female, upperside dull brick-red.  
1006. *R. (Raspa) MELAMPUS*, India, Ceylon, Nias Island, Sumatra.
- d.** Male, upperside scarlet, wings broader than in *R. melampus*; forewing with outer black margin ending in a point; hindwing with anal lobe ochreous-scarlet, bearing outwardly a small black spot; female, upperside testaceous, with a slight cupreous lustre.  
1007. *R. (Nadisepa) JARBAS*, Sikkim, Bhutan, Assam, Burma, Malay Peninsula, Siam, Java.
- e.** Male, upperside scarlet, but that colour confined to a small patch on forewing, base of hindwing black; female, upperside uniformly deep brown.  
1008. *R. (Nadisepa) XENOPHON*, Bengal, Assam, Burma, Malay Peninsula, Andamans, Nias, Sumatra, Java.

Genus *Bulaypa*, Moore, Proc. Zool. Soc. Lond., 1882, p. 250. "Nearest to *Vinachola*, Moore, FOREWING, comparatively more triangular, third subcostal nervule emitted at a slight angle before the end of the cell. HINDWING, less produced hindwards, costal margin longer, apex less convex, discoidal cell triangular, first subcostal nervule emitted at one-fifth before the end of the cell, the broad conical depressed glandular spot

991. *Rapala deliochus*, Hewitson.

*Deudorix deliochus*, Hewitson, Trans. Ent. Soc. Lond., 1874, p. 359; idem, id., Ill. Diurn. Lep., Suppl., p. 31, n. 36, pl. va. figs. 68, 69, male (1878).

HABITAT: East India (*Hewitson*); Rangoon.

EXPANSE: ♂, 1·3; ♀, 1·5 inches.

DESCRIPTION: "MALE. UPPERSIDE, *forewing* dark brown; the inner margin (which is slightly curved outwards where ornamented by a tuft of hair) from its base to its middle, and bounded above by the median nervure, lilac-blue. *Hindwing* with one tail, lilac-blue; the costal margin polished near the base, dark brown below; the lobe, which is very prominent, orange and black. UNDERSIDE, *both wings* ferruginous, crossed by four distinct linear bands of white, the fourth band [in the *forewing*] near the apex, short; both crossed by two submarginal bands of lunular white spots. *Hindwing* with a black caudal spot, bordered with orange, and an anal black spot, irrorated with silver-blue." (*Hewitson*, l. c. in Trans. Ent. Soc. Lond.)

This is a very extraordinary species, and as far as I know has no near ally, certainly not in India. The four parallel white linear bands on the underside have a very curious appearance, and would enable one at a glance to recognise it. On the upperside it is a good deal like *Camena icelas*, Hewitson, but has one tail only. I have removed it from the genus *Deudorix*, as Mr. Hewitson expressly says that it has male secondary sexual characters.

Since the above was written, I have received two females of this species from Rangoon, taken in June and August. They differ from the figure of the male on the upperside in having the blue coloration of a duller shade, of greater extent, in the *forewing* the disco-cellular nervules marked with a black line; in the *hindwing* the blue colour does not nearly reach the outer margin as it does in the male, and all the veins are black. The white linear markings of the underside of this species are quite peculiar and are very prominent. In the *forewing* there is a white line across the cell near its end, continued beneath the cell to the submedian nervure; then a straight line beyond the cell from the subcostal almost to the submedian nervure; beyond which is another line, curved, anteriorly twice dislocated inwards, which meets the second line posteriorly; the fourth line is short, reaches from near the third median nervure to the costa, anteriorly broken; there is a very faint line defining the disco-cellular nervules, and two highly lunulated submarginal lines. The *hindwing* is crossed by four discal highly fractured white lines, the submarginal lines as in the *forewing*, the anal markings as described by Mr. Hewitson.

992. *Rapala tara*, de N. (PLATES XXV, FIG. 150 ♂, and XXIX, FIG. 241 ♀).

*R. tara*, de Nicéville, Journ. A. S. B., vol. lvi, pt. 2, p. 284, n. 14, pl. xiv, fig. 11, male (1888).

HABITAT: Sylhet, Naini Tal.

EXPANSE: ♂, 1·60; ♀, 1·65 inches.

DESCRIPTION: "MALE. UPPERSIDE, *both wings* black glossed with rich deep purple-blue in some lights, somewhat as in *R. sphinx*, Fabricius (a common species in Sylhet and Burma, and figured by Hewitson as *Deudorix varuna*), but not of so brilliant or rich a shade. *Forewing* with a prominent round velvety black sexual patch on the middle of the disc extending slightly into the discoidal cell and traversed by the bases of the two lower median

terminates before reaching the first subcostal nervule, and does not extend below into the cell; tail slender, *palpi* less compactly squamose, club of the *a. tenne* shorter. Type *B. nissa*, Kollar." (*Moore*, l. c.)

This genus is of course quite distinct from *Crachola*, but it does not differ structurally from *Rapala*, *Moore*, *Nadiseba*, *Moore*, and *Bazpa*, *Moore*. Mr. Moore incorrectly describes the glandular spot on the *hindwing*, it is exactly similar in shape and occupies the same position as in the above-named genera, and extends a short distance along the base of the first subcostal nervule. The genus contains *B. nissa*, Kollar, and *B. rectivitta*, *Moore*.

Genus *Nadiseba*, *Moore*, Proc. Zool. Soc. Lond., 1883, p. 528. "Intermediate between *Nadiseba*, *Moore*, and *Rapala*, *Moore*. MALE with the outline of the wings more of the form of the latter. *FOREWING*, however, more acuminate, *exterior margin* more oblique and even, tuft of hairs on the inner margin the same. *HINDWING*, somewhat broader posteriorly, glandular depression prominent. *Palpi* smoother, club of the *antennae* longer and more pointed. Type *V. petosiris*, *Hewitson*." (*Moore*, l. c.)

This genus contains *V. petosiris*, *Hewitson*, *V. diffusa*, *Moore*, and *V. lankana*, *Moore*.