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LEPIDOPTERA INDICA.

BY

F. MOORE, D.Sc.,

FELLOW OF THE ZOOLOGICAL SOCIETY OF LONDON, AND OF THE ENTOMOLOGICAL SOCIETY
OF LONDON; CORRESPONDING MEMBER OF THE ENTOMOLOGICAL SOCIETY OF STETTIN,
AND OF THE ENTOMOLOGICAL SOCIETY OF THE NETHERLANDS; ASSOCIATE
MEMBER OF THE LINNEAN SOCIETY, LONDON, AND OF THE ASIATIC SOCIETY
OF BENGAL.

VOL. II.

RHOPALOCERA.

FAMILY NYMPHALIDÆ.

SUB-FAMILIES SATYRINÆ (*continued*), ELYMNIINÆ, AMATHUSIINÆ,
NYMPHALINÆ (Group CHARAXINA).



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ERRATA.

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,, 206. Allied Chinese species of *Stichophthalma*. For *Stichoph. fusca*, read *suffusa*.

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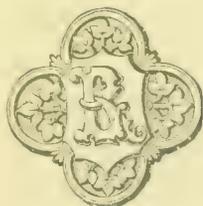
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LEPIDOPTERA INDICA.

BY

F. MOORE, F.Z.S.,

FELLOW OF THE ENTOMOLOGICAL SOCIETY OF LONDON; CORRESPONDING MEMBER OF THE ENTOMOLOGICAL SOCIETY OF STETTIN, AND OF THE ENTOMOLOGICAL SOCIETY OF THE NETHERLANDS; ASSOCIATE MEMBER OF THE LINNEAN SOCIETY, AND OF THE ASIATIC SOCIETY OF BENGAL.



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LEPIDOPTERA INDICA.

Sub family SATYRINÆ (*continued*).

Genus ORINOMA.

Orinoma, Doubleday in Gray's Lep. Insects of Nepal, p. 14 (1846); Westwood in Doubleday and Hewitson's Gen. D. Lep. p. 368 (1851); Butler, Ann. Nat. Hist. 1867, p. 50; Marshall and de Nicéville, Butt. of India, etc. i. p. 173 (1883).

IMAGO.—Male. *Forewing* somewhat narrow and elongate, triangular; costa arched, apex rounded, exterior margin very slightly concave in the middle, posterior angle rounded; cell more than half length of the wing; two subcostals emitted before end of the cell; upper discocellular short, inwardly oblique, lower deeply concave, upper radial from close to the subcostal, lower radial from angle near upper end; median veinlets at equal distances apart. *Hindwing* short, bluntly oval; apex, exterior margin, and anal angle rounded; exterior margin very slightly scalloped; cell half the length of wing; first subcostal emitted close to end of cell; discocellular outwardly oblique and angular in the middle, radial from the angle; middle median emitted immediately before end of cell. *Body* somewhat slender; thorax clothed with fine silky hairs; palpi compressed, obliquely porrected, clothed with fine short hairs in front, apical joint stout, pointed; legs rather long, femora slightly hairy beneath; antennæ very slender, with an extremely slender lengthened club; eyes hairy.

ORINOMA DAMARIS (Plate 95, fig 1, 1a, ♂ ♀).

Orinoma Damaris, Doubleday, in Gray's Lep. Ins. of Nepal, p. 14, pl. 7, fig. 2, 2a (1846). Westwood, in Doubleday and Hewitson's Gen. D. Lep. p. 369, pl. 63, fig. 3 (1851). Moore, Catal. Lep. Mus. E. I. Compy. i. p. 225 (1857). Butler, Ann. Nat. Hist. 1867, p. 50, pl. 2, fig. 4, 4a. Marshall and de Nicéville, Butt. of India, etc. i. p. 174, pl. 13, fig. 32, ♂ (1883). Staudinger, Exot. Schmett. p. 223, pl. 79, ♂ (1887).

IMAGO.—Male and female. Upperside dusky violescent-black when fresh, fading to dusky violescent-brown; cilia alternated with white. *Forewing* with a prominent ochreous-red patch occupying the basal half of the cell, the patch having two small obliquely-disposed black spots across its centre; a prominent pale olivescient yellowish-white streak extending along lower outer half and a less defined similar coloured speckled-streak along the upper half of the cell; four series of similar coloured streaks disposed transversely between the veins, the streaks being narrowest

anteriorly, longest interiorly, and the two outer series macular; the set between the median and submedian broadest and most connected. *Hindwing* with a broad divided-streak within the cell, and three outer series of similar-coloured streaks between the veins, the fourth or outer series being more or less obsolete. Under-side. Both wings marked as on upperside, except that all the markings are more prominent and somewhat broader; both wings with the outer row more transversely linear; also with an outer-marginal slender interrupted line; and the forewing also having some slender streaks along the costa. *Thorax* above clothed with glossy virescent-grey hairs, its front with orange-red hairs; abdomen above brown; body beneath yellowish-white; legs and palpi blackish; sides of palpi and collar white; antennæ black, annulated with white.

Expanse, $2\frac{1}{2}$ to $3\frac{1}{4}$ inches.

HABITAT.—N.W. and E. Himalayas; Assam; Cachar; Burma.

DISTRIBUTION AND HABITS.—“This is a somewhat local insect, nowhere very common. In the Kangra District, Mr. Hocking (P.Z.S. 1882, 235) records that it has been taken at Jatingri, but is very local and rare. In Kumaon, Mr. E. T. Atkinson obtained it in wooded lowlands, and Major C. F. L. Marshall has taken it in the neighbourhood of Nanai Tal. It occurs in Nepal and Sikkim, and also in the Khasia Hills in the autumn. In Cachar, Mr. Wood-Mason took it on Nemotha in October, and in Silhet. Capt. C. T. Bingham found it in Upper Tenasserim in the lower Thoungyeen forests from March to May. It apparently only occurs in the mountainous parts of North-East India, and at low elevations” (Butt. of India, i. 174). Mr. L. de Nicéville (J.A.S. Beng. July, 1885) records the capture of a “female in Sikkim, in October, at 3200 feet elevation.” Mr. H. J. Elwes writes (Trans. Ent. Soc. 1888, 322), “I never saw this insect myself in Sikkim, but Mr. Möller obtained it at 2000 to 4000 feet; and Mr. Gammie found it abundant in British Bhotan at 6000 feet, in June. At Cherra Punji, in Khasia, I found it common at 4000 feet, on the edge of the forest, and beat it from bushes by the path. Its flight is not strong, or quick, but dodging. The female seems rare, but Mr. de Nicéville caught it at 3000 feet in Sikkim, in October.” Dr. N. Manders (Trans. Ent. Soc. 1890, 519) obtained a single male in the neighbourhood of Bernardmyo, in the Shan States, Burma.” Signor Leonardo Fea obtained it in the Karen Hills in May and October.

Genus RHAPHICERA.

Rhaphicera, Butler, Ann. Nat. Hist. 1867, p. 164; Ent. Mo. Mag. 1868, p. 196; Catal. Satyr. Brit. Mus. p. 158 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 175 (1883).

IMAGO.—*Forewing* subtriangular; costa arched, apex bluntly pointed, exterior margin slightly oblique and even, posterior margin straight; costal, median, and

submedian slightly swollen at base; cell long, broad; discocellulars outwardly oblique, both radials from extremely close to the subcostal; upper median veinlet arched; discal area clothed with pale ochreous, rather long and broad scales, interspersed with a very few *narrow black androconia* of similar length, which have either an extremely slender, almost linear, lengthened base with a short filiform end and penicillate tip, or with a lengthened bulbous base and similar penicillate tip. *Hindwing* rather long, pyriform, exterior margin very convex, very slightly scalloped, and with a tendency to an angle at end of upper median vein; cell broad; middle median veinlet emitted at a short distance before end of the cell. Palpi very hairy in front, apical joint also hairy; middle and hind femora slightly hairy beneath; antennæ with an elongated slender club; eyes hairy.

Type, R. Satricus.

RHAPHICERA SATRICUS (Plate 95, figs. 2, 2a, ♂).

Lasiommata Satricus, Doubleday; Westwood and Hewitson, Gen. D. Lep. p. 387, pl. 64, fig. 4 (1851), ♀.

Rhaphicera Satricus, Butler, Ann. Nat. Hist. 1867, p. 164, pl. 4, fig. 3, ♀, Catal. Satyr. Brit. Mus. p. 158 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 175 (1883). Staudinger, Exot. Schmett, p. 228, pl. 81 (1887).

IMAGO.—Male. Upperside reddish-ochreous, with all the veins black; cilia reddish-ochreous. *Forewing* with two outwardly-oblique black bars crossing the cell, the inner bar narrowest, a broader outwardly angulated band crossing obliquely from middle of the costa to the lower median veinlet, this band being narrowest posteriorly and angled on the veins; a short subapical oblique macular-band and a rounded spot between the lower medians, followed by an irregular angulated marginal band; the median and submedian vein broadly black lined. *Hindwing* crossed by a black discal band, which is narrow anteriorly, acutely angled above the upper median, and from thence is broad to near lower median; beyond are four round large black submarginal spots, two upper and two lower, followed by three slender black marginal lines. Underside ochreous-yellow; veins more slenderly lined with black. *Forewing* with markings as on upperside, except that there is a well-formed subapical ocellus with a bluish-white pupil, and the lower black spot has a bluish-white pupil; the marginal band being represented by slender lines. *Hindwing* with a pale golden-yellow fascia extending through the cell to near the outer border; crossed by a very slender black subbasal line and an angular discal line, both indistinctly defined in crossing the pale fascia; beyond is a series of six ocelli, the sixth being duplex, the upper third being sometimes absent, each with a black centre and large bluish-white speckled pupil, a yellow ring and a black outer ring; beyond are three slender black marginal lines.

Female. Upperside somewhat paler; markings the same, but slightly broader and less prominent. Underside as in the male. *Body* above reddish-ochreous; thorax above and beneath, head, palpi in front, forelegs and middle and hind femora beneath, clothed with glossy virescent and golden hairs; middle and hind legs above brown; palpi edged in front with black; side of palpi and collar pure white; abdomen beneath pale ochreous-yellow.

Expanse, $2\frac{2}{8}$ to $2\frac{4}{8}$ inches.

HABITAT.—E. Himalayas; Sikkim; Bhotan: Naga Hills.

DISTRIBUTION.—This species is found in Sikkim, and Mr. E. T. Atkinson records it as occurring in the wooded hills beyond Almorah in Kumaon. This is probably the extreme western range of the species; further to the west it is replaced by the allied *R. Moorei* (Butt. Ind. i. 176). Mr. H. J. Elwes writes (Tr. Ent. Soc. 1888, 322), “I found this species not uncommon on Sinchul and Tonglo, in Sikkim, from 6000 to about 8000 feet, in the end of July and August, and more abundant at 7000 feet near Rikisum in British Bhotan. It flies quickly, with a darting flight, about the forest paths, settling on ordure and wet places, and returning when disturbed. It also settles to rest on damp shady rocks, and flies in wet and cloudy as well as in fine weather. I never saw the female.” Mr. Elwes also records its capture by Mr. W. Doherty in the Naga Hill. (P.Z.S. 1891, 266.)

RHAPHICERA MOOREI (Plate 95, figs. 3, 3a, ♂ ♀).

Rhaphicera Moorei, Butler, Ann. Nat. Hist. 1867, p. 164, p. 4, fig. 4, ♀; Catal. Satyr. Brit. Mus. p. 158 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 176, pl. xv. fig. 38, ♂ (1883).

IMAGO.—Male and female. Upperside yellowish-ochreous, the basal area somewhat olivescens-ochreous. *Forewing* with similarly disposed markings as in *R. Satricus*, but of a brown tint, broader, less sharply defined, and the veins also broadly bordered, thus giving it the appearance of a darker insect, with smaller and more restricted ochreous markings than those of *R. Satricus*. *Hindwing* also similarly marked, but less sharply defined; the submarginal spots smaller, there being either two upper and two lower, or sometimes a continuous series of six are present, when the third and the lowest are less distinctly defined, all having a minute whitish pupil, and the lower ones with a slight pale outer ring; the marginal lines are almost confluent and thus form a broad dusky brown border. Underside paler yellowish-ochreous. *Forewing* with the veins black lined, and similar markings to those in *R. Satricus*, but more defined. *Hindwing* also similar, but the markings more defined; there is also a slender inner-line within the cell, the discal angulated line is more irregular, the ocelli prominent, and the marginal lines more sinuous.

Expanse, ♂ $2\frac{1}{8}$ to $2\frac{2}{8}$, ♀ $2\frac{3}{8}$ inches.

HABITAT.—N.-W. and E. Himalayas.

DISTRIBUTION.—“This species is generally considered a rare insect, but in 1882 it was found in great profusion by Mr. W. Doherty in the Bhagi and Narkunda forests, and again at Theog, in the neighbourhood of Simla, in August, flying freely during heavy rain, and alighting on the leaves of bushes and trees. It was conspicuous when settled, and appears to have nothing protective in its coloration.” Col. A. M. Lang notes, “Observed only late in the autumn, in a forest glade in the Himalayas, near a stream with rich vegetation about its banks.” His collection contained five specimens from the neighbourhood of Simla, taken at 9000 feet elevation, and two from Lower Kunawar, at 7000 feet elevation. It is evidently a very local insect.” (Butt. India, 176.) Major Hellard, in his MS. Notes, records specimens from Ketruar, in the Valley of the Rupin River; taken in September. Mr. W. Doherty (J. A. S. Beng. 1886, 117) records it from “Dhankuri, Khati, Dwali, and Chaudans, at from 7000 to 11,000 feet in Kumaon.” “In Sikkim, this species seems rare, as Mr. Möller had never seen it until I got three specimens on Singalelah at 9000 to 11,000 feet, in July. It occurs higher up than its congener (*Satricus*), but seems to have much the same flight and habits. My Shikaris brought a few from the interior in 1883 and 1884. The female is rare.” (Elwes, Tr. Ent. Soc. 1888, 322.)

INDO-CHINESE SPECIES OF RHAPHICERA, AND ALLIED GENUS.—*R. dunicola* (*Satyrus dunicola*, Oberthür, Etudes Ent. 1876, p. 29, pl. 4, fig. 7. *Habitat*, Moupin, E. Tibet.—Genus nov. TATINGA.—Allied to *Rhaphicera*. *Forewing* with the costa less arched, apex rounded, exterior margin very slightly concave in the middle; discocellulars outwardly recurved, upper radial close to subcostal, lower radial near the middle; upper median straight; discal area clothed with long pale tridentate-tipt scales, a few shorter battledore-scales with dentate tips, and with many interspersing longer *black androconia*, which have a lengthened broad-bulbous base and elongated hair-like penicillated-tip. These androconia are about twice the length of those in *Rhaphicera*. *Hindwing* bluntly-ovate; exterior margin very oblique and slightly scalloped; discocellular undulated and angled in the middle, radial from the angle. Type.—*Tatinga tibetanus* (*Satyrus tibetanus*, Oberthür, Etudes Entom. 1876, p. 28, pl. 2, fig. 4). *Habitat*.—Moupin, E. Tibet.

Genus LASIOMMATA.

Satyrus, Latreille, Consid. Gen. p. 440 (1810).

Lasiommata, Westwood, in Westwood and Humphrey's British Butt. p. 65 (1840). Doubleday, List. Lep. Brit. Mus. pt. 1, p. 134 (1844). Westwood, in Doubleday and Hewitson's D. Lep. p. 385 (1851). Scudder, Amer. Acad. Arts and Sci. Boston (1875), p. 202.

Ameccera (*part*), Butler, Ann. Nat. Hist. (1867), p. 162; Catal. Satyr. Brit. Mus. p. 123 (1868). Kirby, Manual Eur. Butt. p. 50 (1862). Marshall and de Nicéville, Butt. of India, i. p. 178 (1883).

SATYRUS (part), Godart, Tabl. Méth. Lep. pp. 8, 18 (1823). Boisduval, Ind. Méth. Eur. Lep. p. 19 (1829), *id.* Edit. 1840, p. 30.

IMAGO.—*Forewing* subtriangular; costa slightly arched, apex obtuse, exterior margin oblique, even; with an inwardly oblique transverse discal narrow *glandular fascia* clothed with large rather broad basally-tapering raised scales, which have rounded very blunt-toothed tips, and are interspersed with numerous longer *blackish androconia* with elongated slender-bulbous base and lengthened filiform, penicillate tip; cell rather long, narrow; costal vein swollen at the base, median less swollen. *Hindwing* bluntly ovate; exterior margin very convex, slightly sinuous; cell long, broad; two upper medians from end of cell. *Palpi* clothed with very long hairs in front to the tip, apical joint small; antennal club spatular.

ADULT CATERPILLAR.—Head rather large, globose; body villose, slightly tapering at each end, with two short lateral caudal points; green, with darker dorsal line, and paler subdorsal and spiracular lines. Feeds on grasses.

CHRYsalis.—Suspended by the tail. Thorax convex; with two short points at the head; abdomen slightly arched on the back; green, or very dark brown.

Type.—L. Megæra.

HISTORICAL NOTE ON THE GENUS SATYRUS.—In 1746, Linnæus (Faun. Suecica, i. p. 238) gives to his *Papilio*, No. 785, the name of *Satyryus* as being the common one then applied to it. In 1758 (Syst. Nat. i. p. 473, No. 96) he altered the name of this butterfly to *Papila Mæra*, quoting the earlier name (*Satyryus*) in a synonymic form. In the edition of the "Fauna Suec. (1761), p. 275, No. 1049, and in the "Syst. Nat." of 1767, p. 771, No. 141, he also uses the name *Mæra*, referring, in both these works, to the name *Satyryus*, as its synonym. Retzius, in 1783 (Gen. et. Spec. Ins. p. 32, No. 16), gives *Satyryus* as the name of a species, and quotes *mæra* as its synonym. Latreille, in 1805 (Gen. Cr. et. Ins. xiv. p. 103), under his division "*Satyri*," of *Nymphalis*, among other species, gives that of *Satyryus* (as a synonym of *Megæra*), and as one of the species of that division.

From the above statement, it will be seen that *Satyryus* is the name of a species synonymous with the Linnæan *mæra*; the name *Satyryus*, therefore, cannot be used either in a subgeneric or generic sense, as has been subsequently done by the following authors, viz.: Panzer (Faun. Ins. Germ. Heft. 28—34 (1796), where he describes and figures *Papilio Satyryus Galathea*, *P. S. Hypsipyle* and *P. S. Fauna*, and again in Heft 76 (1801), the *P. S. Semele* and *P. S. Cinxia*. Cederheilm, in 1798 (Faun. Ingr. Prod. p. 208), describes *Pap. Satyryus Hyperanthus*, *P. S. Pamphilus*, *P. S. Mæra*, and other species, and in 1810 Latreille (Consid. Gén. p. 440) established his genus "*SATYRUS*," giving as types, *Teucer*, *Philippus*, *Sophora*, *Picra*, *Galathea*, and *Mæra*, but also intending it to embrace within it all the species of the group.

Subsequently the name "*Satyryus*" has been adopted in a generic form, in this Subfamily, by Godart Encycl. Méth. 460 (1819); by Swainson, Zool. Illust. 1, iii. pl. 159 (1822); by Boisduval, Index Méth. Eur. Lep. p. 19 (1829), and in Edit. (1840), p. 30; by Westwood, in Doubleday and Hewitson's Gen. D. Lep. p. 388 (1851); Butler, Entom. iii. p. 279 (1867), *id.* Catal. Satyridæ, Brit. Mus. p. 59 (1868), *id.* Ent. Mo. Mag. (1868), p. 194; Crotch, Cistula, Entom. i. p. 91 (1872); Kirby, Syn. Catal. D. Lep. p. 73 (1871); Staudinger, Catal. Lep. Eur. p. 27 (1871), and others.

Moreover, the name "*Satyryus*" was previously used for a genus of Mammals, by Tulpius, in 1739 (Observ. Medicæ, p. 270), and is also occupied, through "*Satyra*," in Diptera, by Meigen, in 1803.

LASIOMMATA SCHAKRA (Plate 96, fig. 1, 1a, ♂ ♀).

Satyrus Schakra, Kollar, in Hugel's Kaschmir, iv. 2, p. 446, pl. 15, fig. 3, 4, ♂ (1844).

Lasiommata Schakra, Westwood, in Doubleday and Hewitson's D. Lep. p. 387 (1851).

Amecera Schakra, Butler, Ann. Nat. Hist. (1867), p. 163; Catal. Satyr. Brit. Mus. p. 126 (1868).

Marshall and de Nicéville, Butt. of India, etc. i. p. 179, pl. xv, figs. 45, 46, ♂ ♀ (1883).

IMAGO.—Male. Upperside ochreous-brown, somewhat tinged with olive; cilia alternated with ochreous-white. *Forewing* crossed by an inwardly-oblique inner discal narrow sinuous dusky glandular fascia; followed by a large subapical black ocellus with white pupil and an irregular outer ochreous ring, below which are three decreasing somewhat darker ochreous spots, all being inwardly bordered by an indistinct recurved discal darker brown line and an outer or submarginal parallel line. *Hindwing* with a faint trace of a slender transverse discal dusky angulated line, beyond which is a series of three prominent median ocelli, and one, sometimes two, incipient very small upper ocelli, the three former with a black centre, white pupil and a broad ochreous ring, the two upper spots, when present, being ochreous with sometimes a minute black central dot; marginal lines pale brownish-ochreous. Underside grey basally, greyish-white externally. *Forewing* crossed by two slender recurved ochreous bars within the cell, the inner one continuing across the wing, a similar bar along the discocellulars, and a more sharply-defined outwardly-recurved wavy discal ochreous-brown line, and a submarginal and a marginal line; subapical ocellus as above, but with a smaller black centre, larger white pupil, a pale ochreous ring, and then a slender brown ring; above this, immediately before the apex, is a minute similar ocellus; below the ocellus the lower discal area is suffused with bright ochreous. *Hindwing* crossed by a subbasal and a discal slender ochreous-brown irregular wavy line, followed by a series of six prominent ocelli, the sixth being duplex, each with a small black centre and white pupil, a pale ochreous ring, a slender brown ring, another ochreous ring, and then another brown ring; the upper, second and third ocelli being the smallest; beyond are two slender ochreous-brown marginal lines.

Female. Upperside paler, and more olivaceous-brown. *Forewing* with the ocellus, its ochreous ring, and the posterior spots somewhat broader and paler, their lateral bordering line more defined, and the interspace between the ocellus and its upper discal border being more or less whitish. *Hindwing* with the ochreous ring of the ocelli broader and less defined. Underside coloured and marked as in male. *Body* above brown; thorax clothed with glossy virescent hairs, thorax beneath clothed with greyish hairs; abdomen beneath pale greyish-ochreous; legs brownish above, greyish beneath; collar and sides of palpi greyish-ochreous; antennæ brown, with darker ochreous-tipt club.

Expanse, 2 to 2 $\frac{2}{3}$ inches.

CATERPILLAR.—“Apple-green, with pale yellow lateral lines. Feeds on various grasses.” (A. G. Young.)

HABITAT.—N.W. and E. Himalayas.

DISTRIBUTION.—“This is one of the commonest butterflies of the Western Himalayas, extending eastwards as far as Sikkim. Mr. A. Graham Young states that in Kulu it is very common, appearing in July and again in September and October, the larva being apple-green with pale yellow lateral lines, and feeds on grasses.” (Butt. Ind. i. 179.) According to Col. A. M. Lang (P.Z.S. 1865, 499), it is “a very common Himalayan species; to be seen at all seasons flitting about the rocky roadside in Lower Kunawar and the Simla Hills, and pitching on rocks and banks; more abundant on the outer ranges, on bare grassy slopes.” In his MS. Notes, 1865, Col. Lang also says, “Schakra appears within ten miles of the plains at Kussowli, frequenting all cliff and rocky ground. It continues for 200 miles, very scarce in the last fifty of this distance, and I have taken one specimen here, at Pangi; March to October.” Major Hellard, in his MS. Notes, records it from “Simla, Masuri, and Kashmir; June and October.” Major J. W. Yerbury (P.Z.S. 1886, 358) records specimens from “Murree, August and September; between Abbottabad and Kala Pani, September. Very common in August and September. Found all along the hills as far as Thundiani, and as low as Tret and Bugnoter; probably not above 5000 feet elevation.” Mr. L. de Nicéville (Indian Agriculturist, January 1st, 1880), says, “This insect is to be met with at all seasons and everywhere in the N.-W. Himalayas, flitting along rocky roads and paths, and continually settling on stones, etc. I have taken it in Kashmir and far up into Ladak.” Mr. W. Doherty (J. A. S. Beng. 1886, 117) records it as being found in “Kumaon generally, up to 9000 feet; seen as low as Dharchula, 3500 feet.”

LASIOMMATA MÆRULA (Plate 96, figs. 2, 2a, b, ♂ ♀).

Lasiommata Mærula, Felder, Reise Novara, Lep. iii. p. 496, ♂ (1867).

Ameocera Mærula, Butler, Catal. Satyr. Brit. Mus. p. 126 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 180 (1883).

IMAGO.—Male. Upperside ochreous-brown; cilia alternated with ochreous-white. *Forewing* not possessing a glandular fascia; the subapical ocellus with its ochreous ring larger than in *L. Schakra*, and only two narrow ochreous spots present below it, these spots being also situated somewhat further from the outer margin. *Hindwing* with two prominent median ocelli, and sometimes one or two upper incipient spots. Underside similar to *L. Schakra*. *Forewing* with the two cell bars closer together, these bars and the discocellular, and also the wavy bar beyond the cell, are brown, the latter being more outwardly-oblique; the slender brown outer

ring of the large subapical ocellus ~~is~~ joined to the minute apical ocellus, and the bright ochreous colour of the lower discal area extends somewhat into the cell. *Hindwing* with the transverse subbasal and the discal irregular line dark brown, and more zigzag in their course; ocelli with paler ochreous rings.

Female. Upperside similar to *L. Schakra*. *Forewing* with the ocellus larger, its outer ring paler, and its contiguous inner border whiter, the lower ochreous spots narrower and less defined. Underside as in the male, except that on the *forewing* the outer ring of the ocellus and its contiguous inner border is whiter, and on the *hindwing* the ocelli have pale ochreous-white rings.

Expanse, ♂ ♀, $2\frac{2}{3}$ inches.

HABITAT.—N.-W. Himalaya (Kunawur, Pangi).

DISTRIBUTION.—Major Hellard, in his MS. Notes, records this species from “Pangi in Busahir, in August.”

LASIOMMATA MÆROIDES (Plate 96, fig. 3, ♀).

Lasiommata Mæroides, Felder, Reise Novara, Lep. iii., p. 496, pl. 69, fig. 1, ♀ (1867).

Ameocera Mæroides, Marshall and de Nicéville, Butt. of India, etc. i. p. 181 (1883).

IMAGO.—Male. “Upperside as in *L. menava*, but paler; the streaks more obsolete. *Forewing* with the ocellus distinctly surrounded with fulvous, and with two large spots irrorated with fulvous below it. *Hindwing* with two ocelli coloured as in *L. menava*, but more broadly ringed and a little nearer the margin; a fulvous spot annexed to the upper ocellus. Underside as in *L. menava*, but the hindwing with the streaks of the basal half fuscous, scarcely margined with fulvous; that beyond the cell a little more directed outwards towards the costa.”

Female. Upperside. *Forewing* with the ocellus placed on a broad triangular ochreous patch paler than in *L. menava*, distinctly defined throughout, the traversing veins being also ochreous and scarcely perceptible; the subapical ocellus is smaller and further from the discal edge of the patch. *Hindwing* with two prominent ocelli, the lowest small. Underside as in the male.

Expanse, ♂ ♀ 2 to $2\frac{2}{3}$ inches.

HABITAT.—Dras and Indus Valley; Ladak.

DISTRIBUTION.—The type specimens were taken by the late Dr. F. Stohczka, in the “Dras Valley, Ladak, and at Chulichang, at 12,000 feet.” Major H. B. Hellard, in his MS. Notes, records it from the “lower part of Dras River Valley, and from Indus Valley between Skardo and Dras River; taken in July.”

LASIOMMATA MENAVA (Plate 96, figs. 4, 4a, ♂ ♀).

Lasiommata Menava, Moore, Proc. Zool. Soc. 1865, p. 499, pl. 30, fig. 3, ♂.

Ameocera Menava, Butler, Ann. Nat. Hist. 1867, p. 163; Catal. Satyr. Brit. Mus. p. 126 (1868).

Marshall and de Nicéville, Butt. of India, etc. i. p. 180 (1883).

IMAGO.—Male. Upperside dark olivescent ochreous-brown, with an ænescent gloss; cilia alternated with white. *Forewing* with a transverse inwardly-oblique discal straight *dusky glandular fascia*, which extends from the upper median to the posterior margin; two very indistinct slender dusky bars crossing the cell, a similar discocellular bar, and an upper outer-discal outwardly-recurved line, the latter with a slightly paler external bordering edge; beyond is a suffused submarginal line; a moderately large prominent subapical black ocellus and a minute apical ocellus, each with a white pupil and narrow ochreous outer ring. *Hindwing* with two, sometimes three, similar outer ocelli, the lowest, and when present the upper, being the smallest. Underside pale brownish-grey. *Forewing* with the lower discal area suffused with bright ochreous; markings as on upperside, with the cell bars, discal and submarginal line prominent, dark brown, and externally bordered with pale grey, the inner cell-bar extending across the wing; ocelli prominent. *Hindwing* crossed by a subbasal and a discal irregular recurved ochreous-brown line; a series of six prominent ocelli, the sixth duplex, each with two pale ochreous rings and two brown rings; marginal lines pale grey bordered.

Female paler. *Forewing* with a broad inverted-pyriform bright ochreous exterior patch, on which the two ocelli are very prominent, the patch traversed by the brown veinlets and the large ocellus inwardly bordered by an incurved brown streak. *Hindwing* with the ocelli as in male, but more prominent. Underside as in the male. Thorax above clothed with virescent-brown hairs; body beneath brownish-grey; legs above brown; palpi clothed with brownish-grey hairs; collar and side of palpi greyish-white; antennæ dark brown, annulated with white.

Expanse.—♂ ♀ $1\frac{6}{8}$ to $2\frac{2}{8}$ inches.

HABITAT.—N.-W. Himalayas; (? Beluchistan).

DISTRIBUTION.—“According to Col. A. M. Lang’s MS. notes, this species is very local, and seems to have its headquarters at Pangî, in Middle Kunawur, and to disappear within fifteen miles on either side. On the Werang Pass, nearly 14,000 feet high, and about twelve miles from here, Tibetwards, I have taken this insect in June and July.” Col. Lang also obtained it at Chini, 9000 feet, in September. Major Hellard took it at Pangî in July and August. Mr. L. de Nicéville (Butt. Ind. 181) observes that “it is found in the Pangî and Chini districts in June and July, but it appears to be local, and nowhere very common. I took a male at Nurla, Ladak, on July 5th, and two females at Chanagund and Charjil, Ladak, in June and July; these were all the specimens I saw, the extremely scanty vegetation of this dry and barren region not being favourable to an abundant insect fauna.”

A female specimen, doubtfully referable to this species, and differing from

the same sex of the Persian species (*L. Nasshreddini*) has the ochreous patch on the forewing paler and with the inner discal border of the patch suffused with ochreous, was taken by Lieut. E. Y. Watson at Quetta on May 10th, 1885. Mr. L. de Nicéville (Butt. of India, 81) also refers to "a female specimen taken by Col. A. M. Lang, in the Kawas Valley, Beluchistan, at 8000 feet elevation, in September."

ALLIED PERSIAN AND CHINESE SPECIES OF LASIOMMATA.—*L. Nasshreddini* (Pararge Nasshreddini, Staudinger; Christoph, Hor. Soc. Ent. Ross. xii. p. 240, pl. 5, figs. 13, 14, ♂ ♀ (1876); Romanoff, Mem. Lep. 1890, p. 487. Nearest allied to but distinct from *L. menava*. *Habitat.* Shahrud, N. Persia.—*L. mæsa*, Leech (Lep. China and Japan). *Habitat.* W. China.

The following are Chinese allied genera:—Genus nov. LOPINGA. Male. *Forewing* rather narrow, subtriangular; costa nearly straight, apex obtuse; exterior margin oblique and slightly convex; cell long, narrow; discocellulars outwardly-oblique, upper radial from end of cell in a direct line with the subcostal, lower radial from above middle of the discocellulars; no androconial patch. *Hindwing* bluntly ovate, exterior margin convex, somewhat sinuous; cell, broad; discocellulars undulated, radial from the middle; two upper medians from end of the cell, upper median much arched. Palpi densely clothed in front to the tip; antennæ short, stout, with a well-formed thick elongated club. TYPE.—*L. dumetorum* (Pararge dumetorum, Oberthür, Etudes Ent. 1886, p. 23, pl. 4, fig. 20). *Habitat.* W. China.—*L. nemorum* (Pararge nemorum, Oberthür, Etudes Ent. 1890, p. 42, pl. 9, fig. 103). *Habitat.* Yunan.—*L. catena* (Pararge catena, Leech, Entomologist, 1890, p. 30). *Habitat.* C. China.—*L. fulvescens* (Pararge fulvescens, Alpheraky, Romanoff's Mem. Lep. v. 1889, p. 118). *Habitat.* China.

Gen. nov. CREBETA. Male. *Forewing* longer and narrower than in typical Lasiommata (*L. megæra*); costa more arched, exterior margin more oblique, the posterior margin comparatively shorter and with an indistinctly defined inner discal short *glandular fascia*, which is clothed with short, very broad, battledorescales, some elongate narrow foliate scales with rounded tip, and a few long fine tapering hairs; cell more than half length of wing, broad. *Hindwing* short, exterior margin convex, slightly scalloped; cell longer. Palpi slender, clothed with shorter hairs in front; antennæ longer, more slender, and with a longer gradually-thickened club. TYPE.—*Crebeta Deidamia* (Pararge Deidamia, Eversm. Bull. Mosc, 1851, p. 617. H. Schæffer, Schmett, Eur. i. figs. 609, 610). *Habitat.* Amurland.—*C. Menetriesii* (Satyr. Menetriesii, Bremer and Grey; Motsch. Etud. 1852, p. 59. Menetries, Catal. Acad. Mus. Petr. i. pl. 6, fig. 4 (1855). Pryer, Butt. Japan, p. 31, pl. 9, fig. 5. *Habitat.* N. China; Japan. *C. erebina* (Pararge erebina Butler, Ann. N.H., 1883, p. 277). *Habitat.* S. Corea.

Genus AMECERA.

Amecera (part), Butler, Ann. Nat. Hist. 1867, p. 162.

Pararge, Marshall and de Nicéville, Butt. of India, etc. i. p. 177 (1883), *nec* Hübner.

IMAGO.—Male. Wings broad; woolly at their base. *Forewing* subtriangular; costa well arched, apex obtuse, exterior margin slightly scalloped and convex; costal vein much swollen at the base; the median and submedian much less so; cell broad; discocellulars angled close to subcostal and before the middle, radials from the angles. No androconial patch present. *Hindwing* short; exterior margin convex, scalloped; cell short, broad; first subcostal emitted at some distance before end of the cell; discocellular outwardly-oblique and angular in the middle, radial from the angle; two upper medians emitted from lower end of the cell, upper median much curved. *Thorax* hairy; palpi long, slender, hairy in front, apical joint somewhat cylindrical; legs rather long, slender, middle and hind femora slightly hairy beneath; antennæ slender and with a well-formed, elongated, slightly grooved club; eyes hairy.

AMECERA CASHMIRENSIS (Plate 97, figs. 1, 1a, b, ♂ ♀).

Pararge Cashmirensis, Moore, Proc. Zool. Soc. 1874, p. 265, pl. 43, fig. 3, ♂. Marshall and de Nicéville, Butt. of India, etc. i. p. 177 (1883).

IMAGO.—Male. Upperside ochreous-yellow, suffused with ochreous-brown at the base of the forewing, and darker on the hindwing; cilia yellowish-white alternated with dark brown. *Forewing* with a black dentate discocellular bar, and an ochreous-black exterior marginal band, the inner edge of which commences on the costa about one-third before the apex, and curves exteriorly half round a black white-pupilled subapical spot, and thence attenuates to the posterior angle; no androconia present. *Hindwing* with a broad dusky ochreous-brown exterior marginal band with waved inner edge, before which are three or four discal black spots, each with a minute white pupil, the middle spot being the largest, and the anterior the smallest. Underside. *Forewing* paler ochreous, markings as on upper-

HISTORICAL NOTE ON THE GENUS AMECERA.—This genus was founded in 1867 by Mr. Butler, with *megara* as the indicated type. As this species (*megara*) became the type of Westwood's genus LASIOMATA, in 1840, it cannot therefore be taken for the type of *Amecera*. All the other species mentioned by Mr. Butler, under *Amecera*, are strictly congeneric with *megara*, except *Eversmanni* and *Baldiva*, the latter species (*Baldiva*) being congeneric with *Semele*—the type of Hübner's genus EUMENIS—consequently *Eversmanni* is the only species remaining in *Amecera*, and must therefore be retained to represent the genus.

The *Pap. Climene*, Fabricius, of S. E. Europe, being congeneric with *Eversmanni*, will also come into *Amecera*, as here defined.

side, but greyish-brown; also three slender brown transverse streaks within the cell, and an irregular streak beyond it: two prominent subapical black ocelli with white pupil, the upper one very small, beneath them is a white dot, indicating an incipient ocellus, all three being encompassed by a slender brownish line. *Hindwing* with greyish-brown basal area and exterior border, the discal area being whitish-grey, the division defined by a dark brown irregular zigzag discal line, there being also a similar brown subbasal line, and a wavy submarginal line, the pale area traversed by a series of six prominent ocelli, the lowest being duplex, each with a black centre and white pupil, an ochreous ring, and then a brown ring, the upper, second, and third ocellus being the smallest, the others of nearly equal size.

Female. Upperside. *Forewing* differs only in the two subapical spots being more prominent, the discocellular bar and the marginal border are broader. *Hindwing* as in male. Underside as in male.

Expanse, ♂ 2 to $2\frac{2}{3}$, ♀ $2\frac{2}{3}$ to $2\frac{3}{4}$ inches.

HABITAT.—N.-W. Himalayas (Kashmir).

DISTRIBUTION.—*A. Cashmirensis* is "a rare and very local butterfly. It was captured by the late Capt. R. Bayne Reed at Goolmurg, an elevated plateau above 6000 feet, in Kashmir. Specimens have since been taken by Mr. R. Ellis in Pangi, in July and August, at considerable elevations. It was also captured by Mr. Atkinson in Kashmir, but no other record of its capture can be traced." (Butt. Ind. i. 178.) The late Major H. B. Hellard obtained specimens at Ooramboo and Goolmurg.

ALLIED SPECIES OF AMECERA.—The allied *A. Eversmanni*,* F. v. W. Moscow Bull. 1847, pl. ii. fig. 5, 6, of Central Asia. Specimens which we have examined differ from *A. Cashmirensis*, on the upperside, in the exterior marginal band being much darker and more pronounced, this band on the hindwing being also conspicuously narrow, and very sharply defined on its inner edge, the discal black spots being five in number, sharply defined, and placed in a more regularly linear sequence, the entire discal and basal area of this wing being also as bright ochreous in colour as the forewing. On the underside *A. Eversmanni* differs in the forewing being brighter ochreous, the cell streaks and outer markings darker and sharply defined, the cell streaks less sinuous and wider apart, the outer streak being much nearer the discocellular veinlet. In the hindwing the basal area and outer brown portions are darker, the subbasal and discal irregular line prominent, the outer edge of the latter strongly defined, and prominently white bordered; the ocelli are more regular in size, though smaller, the three upper ocelli being of uniform size, and all are placed in more regularly linear sequence.

* Also described and figured by Erschoff, Lep. Turkestan, p. 19, pl. 2, fig. 15. See also Romanoff's Mem. Lep. 1890, p. 487. It is placed, erroneously, in Staudinger's Catal. Eur. Lep. (1871), p. 30, as a variety of *Pararge Roxelana*. This latter named insect is not even congeneric.

The following is an allied genus: *Gen. nov.* KIRINIA. Male. Wings short, broad. *Forewing* somewhat triangulate; costa much arched, apex obtusely rounded, exterior margin very slightly oblique, posterior angle rounded; costal vein much swollen at the base, median and submedian slightly swollen; cell very broad, and extending to more than half the wing; discocellulars outwardly oblique, angled close to subcostal and deeply incurved before the middle, radials from the angles; median veinlets very wide apart; the basal half of the wing, including the cell, hairy, and clothed with brownish short, broadly oval, more or less dentate-tipt scales, and conspicuously interspersed with numerous *jet-black androconia*, which have broad oval bulbous base, and very long fine tapering hair-like tip. *Hindwing* broadly ovate, exterior margin scalloped; cell broad across its middle; first subcostal emitted fully one-third before end of cell; discocellulars very oblique, angled in the middle, radial from the angle; two upper median branches from extreme end of cell, the upper median being much arched; submedian and median widely separated. Palpi long, slender, clothed with long fine hairs in front, apical joint long. Antennæ short, slender, with a lengthened, very slender club. Eyes hairy.

TYPE.—*K. Epimenides* (Lasiommata *Epimenides*, Ménétr. Schrenk's Reise Amurland, Lep. p. 39, pl. 3, figs. 8, 9, ♂ ♀ (1859). Pryer, Butt. Japan, p. 31, pl. 9, f. 9. *Syn.* Neope Fentoni, Butler, Ann. N. H., 1877, p. 91. *Habitat.* Amurland; Japan.—*K. Epimenondas* (Pararge *Epimenondas*, Staudinger, Romanoff's Mem. Lep. iii., p. 150, pl. 17, fig. 12). *Habitat.* Amurland.

Genus CHONALA.

IMAGO.—Wings short, broad. *Forewing* triangularly-ovate, with the costa much arched, apex rounded, exterior margin convex, posterior angle rounded; cell more than half length of wing, broad; discocellulars outwardly-recurved, upper radial from a slight angle very close to subcostal, lower radial from above the middle; medians wide apart. No perceptible discal glandular fascia, but a few long *black androconia* with stout bulbous base and hair-like penicillate-tip, are present among the ordinary scales. *Hindwing* bluntly ovate; exterior margin convex, and with a slight tendency to an angle at end of upper median veinlet; anal angle round; abdominal margin long; cell broad, long; first subcostal emitted at some distance before upper end of cell; discocellulars very oblique, angular in the middle, radial from the angle; middle median emitted from extremely close to end of the cell. *Body* slender; palpi clothed in front to the tip with long fine hairs; antennæ with a well-formed lengthened club.

TYPE.—*C. Masoni*.

CHONALA MASONI (Plate 97, figs. 2, 2a, b, ♂ ♀).

Debis (Tansima) Masoni, Elwes, Proc. Zool. Soc. 1882, p. 405, pl. 25, fig. 2.

Lethe Masoni, Marshall and de Nicéville, Butt. of India, etc. i. p. 159 (1883). Elwes, Trans. Ent. Soc. Lond. 1888, p. 315.

IMAGO.—Male and female. Upperside dark olivescence-brown. *Forewing* with a broad white transverse discal outwardly-oblique band, which is most sharply defined and somewhat sinuous on its inner edge; the outer border of the wing being darker brown, and with a subapical small white spot between the subcostal and upper radial, sometimes also with a smaller slender spot above it, and an indistinct blackish larger spot below it; cilia broad, alternated with white. *Hindwing* with a slight white streak bordering the anterior angle; cilia white anteriorly, brownish posteriorly. Underside slightly paler. *Forewing* with the white band more prominent and somewhat broader; subapical white spot more distinct, above which is an intersected paler spot, and below it a prominent black ocellus, with white pupil and ochreous ring; a short cinereous-white wavy outer line ascending from the upper spot, beyond which are two whitish-ochreous marginal lines. *Hindwing* thickly irrorated with cinereous scales; crossed by a subbasal and a discal undulated wavy brown line, beyond which is a curved series of six prominent ocelli, each with a black centre and white pupil (the lowest bipupilled), a broad dull ochreous ring, and then a black ring; followed by two cinereous-white marginal lines, the inner one being slightly dilated at its apical end. *Body* beneath, and legs cinerescent-brown; palpi edged and clothed with black hairs; collar and side of palpi white; antennæ black, annulated with white.

Expanse, $2\frac{2}{8}$ to $2\frac{4}{8}$ inches.

HABITAT.—Sikkim.

This insect, so far as is yet known, "has only been found in the interior of Sikkim to the eastward by my native collectors, probably in Bhotan or the Chumbi Valley" (Elwes, l. c. p. 315).

CHINESE ALLIED SPECIES OF CHONALA.—*C. episcopalis* (Pararge episcopalis, Oberthür, Etudes Entom. 1886, 22, pl. 4, f. 24). *Habitat.* W. China.—*C. præusta* (Pararge præusta Leech, Entomologist, 1890, p. 188). *Habitat.* W. China.

Genus AGAPETES.

Arge,* Hübner, Verz. Bek. Schmett. p. 60 (1816). Boisduval, Ind. Méth. p. 25 (1840). Westwood in Doubleday and Hewitson's Gen. D. Lep. p. 383 (1851). Butler, Catal. Satyridæ Brit. Mus. p. 153 (1868).

Agapetes, Billberg, Enum. Ins. p. 78 (1820). Seudder, Amer. Acad. Arts and Sci. Boston, 1875, p. 104.

Melanargia, Meigen, Eur. Schmett. i. p. 97 (1829). Kirby, Syn. Catal. D. Lep. p. 71 (1871).

* Founded on the name of one of the species, therefore not admissible.

Melanargia, Staudinger, Catal. Lep. Eur. p. 9 (1861). H. Schæffer, Prod. Syst. Lep. pp. 13, 58 (1865).

Satyrus (part) Latreille.

IMAGO.—Male. *Forewing* subtriangular; costa arched at base, apex obtuse, exterior margin very slightly oblique, slightly convex and slightly scalloped; costal vein swollen at base; cell broad, extending to half the wing; discocellulars outwardly oblique, angled close to subcostal, concave below the angle, upper radial from the upper angle, lower radial emitted before the middle; median veinlets long and wide apart. *Hindwing* short, rather broad; exterior margin convex, sinuous; cell broad, short; discocellulars very oblique; middle median veinlet starting considerably before end of the cell. *Palpi* clothed in front with long porrect hairs. Antennæ thick, with a gradually-formed stout club. Eyes naked.

ADULT CATERPILLAR.—“Cylindrical, stout, tapering towards each end; head proportionally small, almost globular; anal segment with two short lateral points; minutely villose; colour buff, with the longitudinal lines more or less brown, or very pale yellowish-green; the dorsal line dark green, a subdorsal line paler green with yellowish borders; subspiracular line paler; spiracles small, round, black; head pale pinkish-brown; anal points pink; front legs brownish, ventral and prolegs green. Feeds on grasses.” “Changes to a pupa among moss without suspending itself in any way, or making a cocoon.”

CHRYsalis. “Stout, plump, widest where the wing-cases end; headpiece sloping from the shoulders, but ends squarely; thorax rounded; abdomen curved to the tail; abdomen ending in a square piece, on which is placed a short blunt spike, set at the end with two little groups of short straight spines; colour pale ochreous-white; wing and antennæ cases freckled with pale brown; the segmental rings marked with yellow; a brownish stripe down the middle; spiracles large, brown; anal spike chestnut-brown.”

EGG. “Large and plump, stumpy, ovate in outline, the shell looking like dull bone-white china, and is covered all over with very shallow rhomboidal network, with very tiny knobs at the knots, and with a central patch of finer meshes on the top.” (Buckler’s *Larvæ Brit. Butt.* i. p. 161.)

TYPE.—*A. Galathea*.

No species of this genus has yet been recorded from within our northern limits. Specimens of a species closely allied to *A. Cleanthe*, from Tekes, Kashgar, are in the British Museum Collection. *A. montana*, Leech, occurs in E. Tibet and Western China; *A. Leda* (Leech, *Entom.* 1891, p. 57) is also described from W. China. Also *A. Halimede*, Menetries (Leech, *Trans. Ent. Soc. Lond.* 1889, p. 101, pl. 8, figs. 5, 6). *Habitat.* Amurland; Corea. *A. meridionalis*, Felder (Staudinger in Romanoff’s *Mem. Lep.* 1887, p. 147, pl. 16, fig. 9, 10). *Habitat.* W. China.

Genus EUMENIS.

Eumenis, Hübner, Verz. bek. Schmett. p. 58 (1816); Samml. Exot. Schmett. 11, pl. 85 (1820-26).

Stephens, Catal. Brit. Lep. B. M. p. 7 (1850). Scudder, Amer. Acad. A. and Sci. Boston, 1875, p. 171.

Hipparchia (part) Auctorum (nec Fabricius).

IMAGO.—Male. *Forewing* elongate, subtriangular, rather narrow; costa slightly arched, apex obtusely pointed, exterior margin oblique, posterior angle rounded, posterior margin long, straight; base of wing hairy; costal and median vein swollen at the base; cell long, extending to three-fifths the length, rather narrow; discocellulars outwardly-oblique, upper radial emitted from close to subcostal, lower radial from the middle; median veinlets very wide apart; crossed by a medial discal inwardly-oblique *glandular patch*, which also extends within lower edge of the cell to beyond its end, and is clothed with laxly-raised, outwardly-curved elongated claviform almost transparent scales, between which are interspersed numerous dark coloured short *androconia*, which are extremely slender, attenuating to their end, and have a dilated tip, the androconia being scarcely perceptible, unless forcibly dislodged from their positions. *Hindwing* bluntly-ovate, exterior margin scalloped; base hairy; cell long, extending more than half the wing; discocellular very long, oblique, recurved; middle median starting at some distance before end of the cell. *Palpi* densely clothed in front to the tip; antennæ slender, with a very short, broad, slightly pointed, flattened spatular club. *Eyes* naked.

ADULT CATERPILLAR.—“One and a half inch in length, tapering much to the anal forked extremity, and a little towards the head, which is globular; ground colour of the back delicately mottled drab, with longitudinal stripes broadest along the middle segments, viz. a dorsal stripe of olive brown, very dark at the beginning of each segment, with a thin edging of brownish-white; subdorsal region with three longitudinal stripes, the first composed of a double narrow line of yellowish-brown, the second wider, and of the mottled ground colour, edged with paler above and with white beneath, the third, of similar width, is of a dark grey-brown, edged above with black; spiracular stripe broader, and of nearly equal width, pale ochreous-brown, edged with brownish-white above and below; spiracles black; ventral surface and legs drab colour. Head brown, delicately marked with darker brown stripes. Feeds on grasses.”

CHRYSALIS.—“Obtuse, rounded, tumid, and smooth; abdominal rings scarcely visible, and wholly of a deep red mahogany colour. Formed in a hollow space below the surface, close to the roots of the grass, yet free from them, with the particles of sand and earth very slightly cohering together.” (Buckler.)

Type.—E. Semele.

EUMENIS DIFFUSA.

Hipparchia diffusa, Butler, Proc. Zool. Soc. 1880, p. 147, ♂. Marshall and de Nicéville, Butt. of India, etc., i. p. 186 (1883).

IMAGO.—Male. Upperside similar to *E. Semele*, with the glandular patch on the forewing less prominent, the ochreous patches enclosing the ocelli obscured and more diffused, and also those between the intervening veins. On the *hindwing* the discal ochreous-band is very much broader, extending to the costa, and is uniformly ochreous from its sinuous outer edge to its medial angulated edge—this band thus being more like that in the female of *Semele*, and the subanal ocellus is not ringed with paler yellow. On the underside of the forewing the pale outer discal band is broader than in *E. Semele*. *Hindwing* similar, but more densely mottled.

Expanse, ♂ 2½ inches.

HABITAT.—N.-W. Himalaya.

We have examined the type specimen of this species, now in the British Museum collection, and find that it is a male, not a female—as erroneously indicated by Mr. Butler in his original description.

The only specimen we have had under examination is that of the type above referred to. Mr. A. Graham-Young (Ent. Monthly Mag. 1885, p. 130) records its capture as follows:—“*Hipparchia diffusa* was, when I first took it in the Ravi Basin (I found it not uncommon in 1866 and 1867), at once recognized by me as merely a variety of *H. Semele*, and I had the less difficulty in coming to this conclusion, for whereas the specimens of *H. Semele* (which is very common in Persia) I took near Tabriz and other parts of Azerbaijan, agreed exactly with English specimens, those taken in the Shemron, due north of Tehran, had a slight tendency to vary, and specimens from Sharood-i-Bostan and the mountains near Meshed showed a further, but still very slight variation. I have no doubt the ‘missing links’ will turn up in Afghanistan, and that this form from the Ravi Basin, as far as we know, the eastern limit of *H. Semele*, will prove inseparable from the European type.”

EUMENIS BALDIVA (Plate 98, fig. 1, 1a, ♂ ♀).

Lasiommata Baldiva, Moore, Proc. Zool. Soc. 1865, p. 499, pl. 30, fig. 4 ♂.

Ameocera Baldiva, Butler, Ann. Nat. Hist. 1867, p. 163; Catal. Satyr. Brit. Mus. p. 127 (1868).

Hipparchia Baldiva, Marshall and de Nicéville, Butt. of India, etc. i. p. 188 (1883).

IMAGO.—Male. Upperside. *Forewing* dusky cinerescent-brown; with a more or less dusky-black inner discal oblique broad *glandular patch*, which is clothed with laxly-disposed raised outwardly-curved elongated clavate scales, interspersed with long bulbous *androconia*, having a fine hair-like end, and a divergent feathery-tip, these *androconia* varying in length, and some being extremely fine and hair-like

throughout; across the outer disc is a bright ochreous band of nearly equal width, the outer edge of which is defined by a dusky lunular line, the inner edge being sinuous; within the band is a small upper and a lower black spot, and sometimes two intervening white dots. *Hindwing* paler cinereous-brown; with a similar-coloured medial-discal curved band, within which is a very small black spot between the lower median veinlets. Cilia cinerescence-white, very slightly alternated with brown on the forewing. Underside whitish-cinereous. *Forewing* with the inner-discal area and middle of the band, as above, paler ochreous, the upper black spot with a white pupil and pale ochreous outer ring, the lower spot minute; costal border and exterior margin crossed by greyish-black strigæ. *Hindwing* thickly covered with greyish-black, or ochreous-grey, strigæ; crossed by an ill-defined subbasal zigzag blacker line, a well-defined discal line with pale outer border, and by a submarginal sinuous line; between the two latter is a small white-pupilled black spot above the lower median veinlet.

Female. Upperside paler. *Forewing* with the discal band broader, its inner edge angulated at the upper median and below the lower median, the black spots larger than in male, the upper one with a minute white pupil, and between them is one, sometimes two, small white spots surrounded by brown speckles. *Hindwing* as in the male. Underside similar to the male. *Forewing* with the two white dots between the discal spots. *Hindwing* with the transverse zigzag lines less defined. *Body* cinerescence-brown; abdomen paler; collar, side of palpi, and legs beneath cinereous-white. *Antennæ* cinereous-brown, the broad spatular club black beneath.

Expanse, ♂ $1\frac{7}{8}$, ♀ $2\frac{3}{8}$ inches.

HABITAT.—Spiti, Upper Kunawur; W. Tibet.

DISTRIBUTION.—Obtained by Col. A. M. Lang (P.Z.S. 1865, 499) “on the bare, brown, stony mountain slopes of Spiti, Upper Kunawur, Tibet, where this species seems to delight in the hot weather of June and July;” and in his “MS. Notes” says, “taken between Shipkee and Broopcha, 10,000 feet, Tibet, in July.” It was also collected by Mr. J. H. Leech at Skardo, 7–8000 feet elevation, in July, 1887.

EUMENIS LEHANA (Plate 98, fig. 2, 2a, ♂ ♀).

Hipparchia Lehana, Moore, Annals, Nat. Hist. 1878, p. 227; *id.* Yarkund Mission, Lep. p. 1, pl. 1, fig. 4, ♂ (1879). Marshall and de Nicéville, Butt. of India, etc. i. p. 188, pl. xvi. fig. 48, ♀ (1883).

IMAGO.—Allied to *E. Baldiva*. Upperside paler in colour, the discal transverse ochreous-band broader on both wings, and on the forewing the posterior inner edge of the band, in both sexes, is inwardly oblique. In both sexes the small ocellus on the band above the anal angle is absent on the upper and underside. The underside is also much paler, and the transverse sinuous lines wider apart.

Expanse ♂ 2 to $2\frac{2}{8}$, ♀ $2\frac{3}{8}$ to $2\frac{4}{8}$ inches.

HABITAT.—Leh, Kharbu ; Ladak.

DISTRIBUTION.—The type specimens were obtained by the late Dr. F. Stoliczka, at Leh, in September, and at Kharbu, 13,000 feet, in Ladak. Mr. L. de Nicéville “took one male and two females at Chanagund, Ladak, in June” (Butt. Ind. i. 188). Capt. H. B. Hellard obtained specimens in the “Indus Valley, between Skardo and Dras River, in July.” Mr. J. H. Leech caught it on the road to Skoro La and Braldo in July, at 12,000 feet, and Mr. MacArthur obtained it at Kardong at 14,000 feet, in August, 1889.

Our illustrations of this species on Plate 98, fig. 2, represents the male type, reproduced from the plate in “Yarkund Mission” above referred to, and fig. 2a that of a female from the Indus Valley, in our own collection.

EUMENIS THELEPHASSA.

Eumenis Thelephassa, Hübner, Samml. Exot. Schmett. II. pl. 85, figs. 14, ♂ ♀ (1820-26).

Hipparchia Thelephassa, Klug, Sym. Phys. Ins. pl. 29, figs. 1-4 (1832), Butler, Catal. Satyr. Brit. Mus. p. 51 (1868), Marshall and de Nicéville, Butt. of India, etc. i. p. 187 (1883).

Satyrus Thelephassa, H. Schæffer, Eur. Schmett. I. figs. 178-9, et figs. 305-6 (1844-6).

Satyrus Antholea, Boisd. Icones Hist. Lep. pl. 41, figs. 3, 4 (1832), ♀; Doubleday and Hewitson, Gen. D. Lep. pl. 65, fig. 3 (1851), ♀.

IMAGO.—Male. Upperside cinerescent-brown, cilia broadly alternated with cinereous-white. *Forewing* with a broad transverse outer-discal bright ochreous or fulvous band, the outer edge of which is almost even and is parallel with the exterior margin, the inner edge being angulated outward at the upper median vein; within the band is an upper and a lower black spot with minute white pupil, and between them are two small white spots. An oblique discal dusky-grey black-speckled *glandular patch* extends narrowly below the cell, and also broadly within the anterior half of the cell, where it is traversed by a prominent longitudinal oblique-streak of black scales; this black cell-streak is clothed with densely-packed raised narrow oval scales, and the lower area beneath it, within the cell, with raised elongated pale grey claviform scales, which overlap broader-tipt oval dark scales interspersed with a few black very slender attenuated feather-tipt *androconia*; below the cell the scales are elongated and pale grey, with a few underlying shorter oval dark scales, and many long slender attenuating feather-tipt *androconia*. *Hindwing* with a broad medial discal bright ochreous lunular-edged band, enclosing two very small white-pupilled spots between the radials. Underside. *Forewing* pale cinereous-brown, the discal area and lower part of the cell bright ochreous, the edges of the discal band defined by a dusky line, the two black spots and intermediate white dots, as in upperside, the upper spot being pale ringed; costal border crossed by dusky-black strigæ, and exterior border traversed by a similar-coloured lunular line. *Hindwing*

pale cinereous-brown, transversely mottled with darker brown; crossed by an indistinctly-defined subbasal and a more prominent brown irregular angulated discal line, the latter broadly outwardly-bordered by cinereous-white, and beyond which is a very small subanal black spot with white pupil, and a submarginal lunular dusky line.

Female. Upperside similar to the male (except in the absence of the sexual patch). *Forewing* with the inner edge of the discal band more acutely angular, and the outer edge lunular. Underside paler than in male, with similar markings, but less defined. *Body* cinereous-brown; collar, sides of palpi, and legs beneath cinereous-white; antennæ brown, with broad blackish spatular club.

Expanse ♂ $2\frac{2}{8}$, ♀ $2\frac{4}{8}$ inches.

HABITAT.—S. Russia; Syria; Persia; Beluchistan; S. Afghanistan.

DISTRIBUTION.—Within our limits this species has been taken by Major Howland Roberts in the neighbourhood of Kandahar, who notes that it is “very common at the beginning and middle of May in the nullahs and on the rocky slopes at the foot of the hills, resting under the shade of rocks and stones during the heat of the day, and flying about in the early morning and evening, when it is easily captured. In June scarcely a specimen was to be found.” (P.Z.S. 1880, 405.) Colonel C. Swinhoe also obtained it in S. Afghanistan, at “Chaman in May, at Quetta in May and September, and at Gwal in May. Fairly common.” It was also obtained by Colonel A. M. Lang at “Quetta at 5500 feet elevation, in the Hanna Valley 6500 feet, and the Kawas Valley, 8000 feet elevation, where it was not uncommon among boulders in the gorges of the high valleys.” (Butt. Ind. 187.)

Genus CHAZARA.

Both sexes more robust than typical *Eumenis* (*E. Semele*), and the general pattern of the markings on the upperside different. MALE.—*Forewing* more triangular, the *glandular patch* shorter, *confined immediately below the cell*, the patch clothed with laxly-raised outwardly-curved elongated broad-tipt dark claviform scales, interspersed with numerous longer very slender tapering dark *androconia* with feathery tips, the patch also being densely covered with overlapping hairs; cell broader and shorter. *Hindwing* broader, more convex externally. *Palpi* much stouter, apical joint thicker and shorter. *Antennæ* with a shorter, broader, spatular club. *Eyes* naked. *Type*. C. Briseis.

CHAZARA SHANDURA (Plate 98, figs. 3, 3a, ♂ ♀).

Hipparchia Shandura, Marshall, Journ. Asiatic Soc. Bengal, 1882, p. 38, pl. 4, fig. 3, ♀; Marshall and de Nicéville, Butt. of India, etc., i. p. 191 (1883).

IMAGO.—Male. Upperside fuliginous-black. Cilia alternated with white.

Forewing with a darker black broad oblique inner-discal *glandular fascia*; costal border with a few short black strigæ; a broad yellowish-white streak occupying two-thirds of the cell from the base, and a transverse outer-discal series of longitudinal short streaks, the outer one, below the radial, being the longest, and divided in its middle by a black spot, the streak between the middle and lower median veinlets nearly obliterated by a large black spot with a slight white pupil. *Hindwing* with a broad medial posteriorly-decreasing angular yellowish-white band. Underside. *Forewing* with the costal and exterior margin greyish-white, mottled with short transverse black strigæ; the cell and discal area washed with very pale yellow; a broad black bar crossing before end of the cell, and an irregular angulated discal band outwardly-bordering the cell from the subcostal vein to the posterior margin, beyond which is an upper and lower discal black spot with a white pupil, followed by a slender black lunular submarginal line. *Hindwing* greyish-white, mottled with blackish strigæ, which are more thickly disposed partly across the middle and across the disc, and there forming two ill-defined curved bands, the latter slightly showing a small pale central spot between the veins.

Female. Upperside. *Forewing* with similar yellowish-white markings, which are somewhat longer, and more confluent, that above the lower median veinlet much longer, and a small black spot being present below the latter. *Hindwing* as in the male, with the medial angular-band less defined. Underside similar to the male. *Body* fuliginous-black above, ochreous-white beneath; collar, side of palpi, and legs beneath ochreous-white.

Expanse ♂ $2\frac{1}{8}$, ♀ $2\frac{1}{8}$ inches.

HABITAT.—Northern Kashmir.

Allied to *C. Heidenreichi*, from the Altai mountains. Somewhat smaller; wings shorter; similarly marked above. On the forewing above, the male has a longer inner pale upper spot, the upper and lower discal black white-centred patch smaller, the lower pale spot more oval in shape. Hindwing with a broader pale irregular angulated discal patch, but with no white-centred black spot between lower and middle medians. On the underside of the forewing the two black white-centred discal spots are smaller, and the submarginal wavy black line is further from the margin. On the hindwing, the transverse mottling is much darker but more irregular, the discal portion having no well-defined black outer demarcating edge, this portion also being further from the outer margin of the wing, and has no ocellus on it between the lower and middle medians.

DISTRIBUTION.—The female type specimen was "taken by Major J. Biddulph on the Shandur plateau in Northern Kashmir. Both sexes were also taken on the Skoro La, Baltistan, 13,000 feet, in July, 1887, by Mr. J. H. Leech. A male and

female, from Kashgar, are in the British Museum collection, and also in that of Mr. H. Grose-Smith.

The illustrations of this species on our Plate 93, fig. 3, represent a male from Skoro La, kindly lent by Mr. L. de Nicéville, and fig. 3a the female, reproduced from Major Marshall's figure above referred to.

Genus PHILARETA.

MALE.—*Forewing* much broader, shorter, and less triangular, than in typical *Chazara* (*C. Briseis*); *costa* much arched before the end, exterior margin almost erect; cell much shorter; *glandular patch not present*. *Hindwing* large, very broad, exterior margin scalloped, cell much shorter. *Palpi* clothed with shorter hairs in front, apex more pointed. *Antennæ* with a stouter, longer, flat, more truncate-tipt spatular club. *Eyes* naked. *Type*. P. Hanifa.

PHILARETA PERSEPHONE.

Papilio Persephone, Hübner, Eur. Schmett. I. pl. 115, figs. 589-90, et pl. 140, figs. 710-11 (1805).

Hipparchia Persephone, Butler, Catal. Satyr. Brit. Mus. p. 55 (1868).

Papilio Anthe, Ochsenheimer, Schmett. Eur. I. p. 169 (1807).

Satyrus Anthe, Boisduval, Icones, pl. 40, figs. 3, 4 (1832), ♀.

Hipparchia Anthe, Marshall and de Nicéville, Butt of India, etc. i. p. 192 (1883).

IMAGO.—Male and female. Upperside dusky-brown, cinereous-brown basally. Cilia alternated with white. *Forewing* with an outer-discal interrupted band composed of whitish spots, the upper portion being elongated and divided in its middle by a square black spot, and its inner end angled upward to the *costa*, the next portion, between the upper medians, shorter and curved on its upper edge, the next longer and divided in its middle by a round black spot, the two lower portions shorter. *Hindwing* crossed by a medial-discal curved sinuous whitish band, the inner edge sharply defined. Underside cinereous. *Forewing* with the costal and outer border mottled with blackish and brown strigæ, the middle of the wing and macular band pale ochreous, the latter almost white and laterally defined by narrow black edging; the two black spots distinct; posterior border dusky. *Hindwing* densely mottled with black and brown strigæ; a more or less distinct angulated transverse sub-basal and a discal line, and a lunular submarginal line, the two latter with pale cinereous outer border. *Body* beneath, palpi, and legs brownish-cinereous; antennal club blackish.

Expanse, ♂ $2\frac{2}{8}$ to $2\frac{3}{8}$, ♀ $2\frac{2}{8}$ to $2\frac{3}{8}$ inches.

HABITAT.—S. Russia; Persia; S. Afghanistan.

DISTRIBUTION.—Within our limits, this species has been taken in the neigh-

bourhood of Kandahar by Colonel C. Swinhoe, who obtained a single "female at Chaman on the 14th May, 1880" (Ann. N. H. 1882, 206). This specimen has been under our examination for verification.

Genus NYTHA.

Nytha, Billberg, Enum. Ins. p. 77 (1820). Scudder, Amer. Acad. A. and Sci. Boston, 1875, p. 231.
Hipparchia, Butler, Ent. Mo. Mag. 1868, p. 194; Catal. Satyr. Brit. Mus. p. 50 (1868), *nec* Fabricius.

IMAGO.—Male. Wings large, broad. *Forewing* triangular; costa arched, apex obtuse, exterior margin oblique, posterior margin short; costal and median vein swollen at the base; crossed by a broad medial-discal inwardly-oblique *glandular patch*, which also extends within lower part of the cell to its end only, and is densely clothed with raised very long slender serrate-tipt scales, and numerous interspersed long very slender attenuated *androconia* with truncate base and tasselled-tip; cell very long, rather broad. *Hindwing* very broad, exterior margin convex, sharply scalloped; abdominal margin very long; cell long; discocellular much recurved, very oblique. *Palpi* densely clothed to tip. *Antennae* long, slender, with short broad spatular club. Eyes naked.

Type.—N. Hermione.

NYTHA PARISATIS (Plate 98, figs. 4, 4a, ♂ ♀).

Satyris Parisatis, Kollar, Ins. Fauna S. Persia, p. 11 (1849); id. Denkschr. Akad. Wien. Math. Nat. Cl. 1, p. 52 (1850). Staudinger, in Romanoff's Mem. Lep. 1890, p. 483.
Hipparchia Parisatis, Butler, Catal. Satyr. Brit. Mus. p. 58 (1868). Marshall and de Nicéville Butt. of India, etc. i. p. 184, pl. xvi. fig. 47 ♀ (1883).

IMAGO.—Male. Upperside deep dusky-brown, with an olivescient gloss in some lights. Cilia greyish-white, slightly alternated with dark brown at end of the veins, more strongly on the hindwing. *Forewing* with the costal edge from near the base more or less thickly studded with greyish-white scales, forming a narrow bordering fascia, which is dilated before the apex, and the exterior margin posteriorly also studded with greyish-white scales forming a narrow band intersected by the brown veins; a broad dusky-black oblique inner-discal *glandular fascia*, which is clothed with densely-packed very long narrow foliate serrate-tipt scales, very numerous interspersed with long *androconia* with bulbous base, hair-like end and feather-tip; an indistinctly-defined subapical and a lower outer-discal black spot, the upper one white-pupilled, and between them are generally visible two minute narrow white spots, which are situated above and below the upper median veinlet; beyond is a narrow dusky-black lunular submarginal line edging the grey-white outer border. *Hindwing* with a broader greyish-white marginal sinuous-edged band

intersected by the brown veins, the extreme outer marginal edge being also brown speckled at the vein tips; a single subanal black spot with white pupil between the lower median veinlets. Underside pale purpurescent brownish-cinereous, palest on the basal area, thickly mottled, except on the lower part of forewing, with dark brown slender transverse strigæ. *Forewing* crossed by an angulated dark brown discal line outwardly edged with white, and a slender nearly even submarginal line, the latter also slightly pale edged; the subapical and lower black spot both larger, their intermediate narrow white spots also larger, and very prominent, the subapical and lower spot each with an ochreous and then a narrow brown outer ring, the upper spot also white pupilled. *Hindwing* crossed by a prominent dark brown angulated discal line outwardly bordered with white, and less-defined brown submarginal lunular line, between them is an upper and a lower prominent black ocellus, each with a white pupil, ochreous ring, and then a slender brown outer ring; sometimes there is a minute ocellule present above the upper one.

Female. Upperside slightly paler than the male. *Forewing* with the greyish-white costal and marginal border, discal black spots, and the two intervening white spots more prominent, and the discal transverse angular line of the underside slightly traceable. *Hindwing* with the marginal greyish-white band broader and more or less enclosing the subanal spot. Underside as in the male. *Body* above brown, cinereous beneath; collar, side of palpi, and legs beneath cinereous-white.

Expanse, $2\frac{1}{8}$, to $3\frac{2}{8}$ inches.

HABITAT.—N.-W. Himalayas; Afghanistan; Beluchistan; S. Persia.

DISTRIBUTION.—The first record of the capture of this insect within our area is that by Col. A. M. Lang (P. Z. S. 1865, p. 500), who "obtained it on steep precipices over bare hill-sides above the Sutlej; the aspect of the insect on the wing is quite Nymphalidian, a soaring flight, swift if frightened, and pitching in all sorts of inaccessible spots. Subsequently found very common in Upper Kunawur, always on steep cliffs, pitching on rocks;" and, in his MS. Notes, also says, "This is a Kunawur insect; only to be seen on cliffs on *bona-fide* cliff ground, sailing about with rather a Nymphalidian flight, and perching on rocks with closed wings. Rather numerous in such localities as it frequents. Kotghur, taken in May; in Kumaon, from July to September." The Rev. J. H. Hocking (P. Z. S. 1882, 236) obtained it in the "Kangra Valley, during the rains, June to September. Always settles underneath overhanging rocks." Major H. B. Hellard (MS. Notes) records it from "Pangi and Urni in Busahir, July and August; Kashmir in September, and Skardo in July." Mr. L. de Nicéville (Butt. Ind. 184) obtained it near Simla, and at Kotghur in the autumn, in Chumba in May, at Budruwah and Junglewah on the frontiers of Kashmir in June, and late in July near Bajaura, Kulu. Mrs. Deane obtained specimens in Chini in June, and in Gilgit by Major J. Biddulph in August."

Major J. W. Yerbury (P. Z. S. 1886, 357): "Common between Bugnoter and Abbottabad, 4000-5000 feet, September; between Abbottabad and Kali Pani in September; also on the lower slopes of Thundiani; seen near Tret, in October." Common also on the hills round Abbottabad in August, and common at Kairabad in May and June. Seen also at Attock." (Ann. N. H. 1888, 134.) Major Howland Roberts (P. Z. S. 1880, 405) obtained it in the neighbourhood of Candahar in 1880; it "frequents nullahs and shady places, and may be caught by dozens at a time. Abundant but local at the end of May, and in June in shady, moist places among the low, rocky, barren hills." Colonel C. Swinhoe (Trans. Ent. Soc. 1885, p. 338) records its capture at Mach, Bolan Pass, Beluchistan, in July and August, 1879; and at Chaman and Balgoi in May, 1880. The type specimen described by Kollar is recorded from S. Persia.

Genus AULOCERA.

Oreas * Hübner, Tentamen, p. 1 (1816). Oken, Lehrb. l. p. 740 (1815).

Aulocera, Butler, Entom. Monthly Mag. 1867, p. 121, fig. 1; Catal. Satyr. Brit. Mus. p. 49 (1868).
 Scudder, Amer. Acad. A. and Sc. Boston, 1875, p. 124. Marshall and de Nicéville, Butt. of India, etc. i. p. 195 (1883).

IMAGO.—Male. *Forewing* broad, triangular, base hairy; costal vein swollen at the base; costa slightly arched, exterior margin oblique and slightly convex; with an indistinctly-defined dusky-black inner discal *glandular patch*, which is clothed with moderately long broadly-oval dentate-tipt pale scales, very long narrow foliate acutely-dentate tipt scales, interspersed with long blackish *androconia* † with lengthened bulbous base and short hair-like end and tasselled tip; cell long, more than half length of wing; discocellulars recurved, upper angled close to subcostal, upper radial from the angle, lower radial from above the middle. *Hindwing* broad, base hairy; exterior margin convex, slightly scalloped, anal angle rounded; cell half the length, rather broad; discocellulars recurved. *Palpi* clothed with fine long hairs in front to the apex. *Antennæ* rather slender, with a lengthened slender club.

CATERPILLAR.—"A. Swaha. Colour probably black, but so very thickly clothed with short bright yellow hairs, that it is almost impossible to see what its ground colour is; head and legs black. Found upon the wild blue Iris."

* Preoccupied in 1804 for a genus of Mammals.

† In *A. Swaha*, *Loha*, and *Chumbica* the androconia are absent, though the patch is present. In the European species, *Proserpina*, the androconia are very slender, with an attenuated lengthened truncate base.

CHRYsalis.—“Attached to the centre of the leaf by the tail, with a bright yellow thread across, head upwards.” (Captain A. Graham-Young.)

Type.—A. Brahminus.

AULOCERA BRAHMINUS (Plate 99, figs. 1, 1a, ♂ ♀).

Satyris Brahminus, Blanchard, Jacquemont's Voy. dans l'Inde, IV. Ins. p. 22, pl. 2, fig. 4 (1844) ♂ only (*nec* figs. 5, 6).

Aulocera Brahminus, Butler, Entom. Monthly Mag. 1867, p. 121, fig. 1. Marshall and de Nicéville, Butt. of India, etc. i. p. 198, pl. XVI. fig. 49, ♂ (1883).

Aulocera Werang, Lang, Entom. Mo. Mag. (1868), p. 247 ♂ ♀.

Aulocera Weranga, Lang, Ent. Mo. Mag. (1869) p. 35. Moore, Proc. Zool. Soc. 1874, p. 266.

IMAGO.—Male. Upperside dark olivescient blackish-brown, bronzy in some lights. Cilia broadly alternated with white. *Forewing* with an indistinctly apparent dusky-black inner-discal *glandular fascia* which is clothed with moderately-long broadly-oval dentate-tipt pale scales, very long narrow foliate acutely dentate-tipt scales, interspersed with long blackish *androconia* with lengthened bulbous base and short hair-like end and tasselled tip; across the disc is a series of well-separated small white spots, with a divergent spot and slender streaks to the costa beyond the cell, and with an intervening black spot between the radials. *Hindwing* crossed by a slightly-recurved medial narrow sinuous-edged white band cut by the dark veins, the contour of the outer edge of the band being somewhat angulated at the upper median veinlet, and the entire band decreasing in width to the anal angle. Underside paler, but brighter coloured, and of a more or less olivescient ochreous-brown. *Forewing* with the costal and apical border thickly mottled with darker strigæ edged with ochreous; discal band broader, duller in tone, and olivescient-white, more diffused externally, the lower portion and the divergent portion each continuous, the subapical black spot with white pupil and conspicuous. *Hindwing* densely mottled with brighter olivescient-ochreous edged blackish transverse strigæ, some of which at the end of the veinlets are edged with cinereous white, the disc most clouded, and with a more or less apparent series of three or four whitish spots; medial transverse band olivescient ochreous-white, broader than on upperside and more angulate externally.

Female. Upperside. *Forewing* with the transverse series of spots somewhat longitudinally narrower and elongated; the band on the hindwing more regular in its course, but of the same width as in male. Underside as in the male.

Expanse, ♂ $2\frac{1}{8}$ to $2\frac{6}{8}$, ♀ $2\frac{2}{8}$ to $2\frac{7}{8}$ inches.

HABITAT.—N.-W. Himalayas.

DISTRIBUTION.—The “Himalayas” is given as the locality of this species by Blanchard (Jacq. Voy. 22). Col. A. M. Lang (Ent. M. Mag. 1868, 247) gives “Werang Pass, Upper Kunawur,” as the habitat of his species (*Weranga*), also

remarking that "it appears, however, to be very rare, as I have seen but three specimens; these were all taken by me at an altitude of 12,000 feet, about 1000 feet below the bleak and bare summit of the Werang Pass, amidst the rocky, grassy ground just clear of the forests of pine and cedars. Dr. Jerdon obtained a single specimen at Goolmurg, 9000 feet above the Valley of Cashmere." The authors of "Butterflies of India, &c." (p. 199) state that "*A. Brahminus* is found, so far as we have any certain knowledge, only in the N.-W. Himalayas at from 7000 to 13,000 feet elevation. Mr. Graham Young took numerous specimens in 1880, in June, on the Ser-ka-joth in North Mandi, two miles south of the Kulu frontier, and forty miles south of the snowy range at barely 8000 feet elevation; these were typical *Brahminus*. Mr. de Nicéville found it very plentifully on the banks of the Chandra Bhaga river, in July, near Koksir on the borders of Lahul at 7000 feet elevation, and again at Kailing in Lahul at about 9000 feet in the same month; all these specimens being of the *Weranga* form with the ochreous predominating on the underside, and one, a female, from Kailang, has the nervures powdered with white scales and the whitish black-encircled spots of *Scylla*. In Lahul, specimens were taken by the Rev. A. Heyde, at Patseo, 11,000 feet, in July, which differ from the usual form in the great predominance of the grey irrorations. In Pangi, on the Sach Pass, Mr. R. Ellis took at an elevation of 13,000 feet, in August and September, some examples in which the prevailing ochreous is beautifully contrasted with the grey markings, and dark brown striæ; the veins in these are powdered with white, as in *Scylla*; and finally a large series were taken by Mrs. Bazett at Goolmurg, in Kashmir, in July at from 9000 to 10,000 feet elevation, showing every gradation between typical *Brahminus* and typical *Weranga*." Mr. de Nicéville (Indian Agriculturist, January 1st, 1880) states that "it always settles on the ground with its wings closed, and then shuts the upper wings into the lower ones, so that only the lower wings and the extreme tips of the upper are visible." Major H. B. Hellard obtained it at "Pangi, in Busahir, in July and August, and in Cashmere in August and September" (MS. notes). Mr. J. H. Leech obtained specimens in the Deosi plains in August, 1887.

AULOCERA SCYLLA.

Aulocera Scylla, Butler, Ent. Monthly Mag. 1867, p. 122, ♂.

Doherty, Journ. Asiat. Soc. Beng. 1886, p. 118.

Male. "Upperside blackish-fuscous, with a whitish discal fascia, macular on the forewing, slender and obsolete near the anal angle on the hindwing, bifurcate at the apex of forewing, and including an oval black spot. Cilia whitish, variegated with black. Underside paler, covered with blackish striæ; the subapical spot of forewing ocellated; hindwing very slightly yellowish, an outer discal series of whitish spots tinged outwardly with black, the discal fascia distinct at the anal angle. Most

nearly allied to *A. Brahminus*, but differs in its much smaller size, less sinuated margins, more slender central band, and on the underside in having a row of white spots placed in an arc outside the central band. I have seen three specimens of this species, which all appear to agree in size, pattern, and coloration." Mr. Butler adds (*Ent. M. Mag.* 1868, 248) that "the veins on the underside of the hindwing are powdered with whitish scales."

Expanse, ♂ ♀ $2\frac{1}{8}$ inches.

HABITAT (of type).—Between Nepal and Tibet Tartary.

Both sexes smaller in size than typical *Brahminus*. Upperside. *Forewing* with the macular band composed of smaller and longitudinally narrower spots, the band on hindwing also composed of transversely narrower portions. Underside of both wings also with the bands narrower. *Hindwing* with the veins *white-speckled* throughout, and with a series of distinct small white spots, each with a dark brown outer border. Expanse, $2\frac{1}{8}$ inches.

DISTRIBUTION.—The type specimen of *A. Scylla*, described by Mr. Butler, and now in the British Museum collection, bears a label with the inscribed locality of "near Tibet," which was evidently misread by that author for "Silhet," and was erroneously so printed in the original description. I was fortunate enough to discover this error of the locality on the label when examining the type specimen, and upon referring to the "Museum Register" it was found that this specimen was taken "by Major Charlton between Nepal and Tibet Tartary." There are also two female specimens in the British Museum, captured by Dr. Duthie "near Kutta, 13-14,000 feet, N.-E. Kumaon, in August." Mr. W. Doherty (*J. A. S. Beng.* 1886, 118) records *A. Scylla* "from the Pindari Glacier, and North Byeri above Furkya, North-West Kumaon, 12-14,000 feet; at Garbyan, 12,000 feet; Lepu Lek, 16,000 feet, North-East Kumaon," remarking also that the prehensores are distinct from those of *Brahminus*. The latter has the uncus, seen from above, longer and its branches more slender. Seen from the side, *Scylla* has the uncus and its branches parallel and nearly in the same horizontal plane, and the top of the uncus is knobbed, while in *Brahminus* it is smooth, and the branches diverge downwards from it. The clasp has its upper limb toothed horizontally, in *Scylla* vertically. The present species is small, ochreous-grey below, with a discal line of white spots on the hindwing below, the band there crooked; on the forewing below, the ocellus is pupilled with white and the band is wide and united. I have caught it flying with *Brahminus*, from which I consider it distinct, in the meadows near Furkya."

AULOCERA BRAHMINOIDES (Plate 99, figs. 2, 2a, ♀).

Satyrus Brahminus, Elwes, *Trans. Ent. Soc.* 1888, p. 324 (*nee* Blanchard).

Comparatively smaller than *A. Brahminus*. *Forewing* with the macular band

composed of shorter spots, those between the medians regularly oval in shape, the subapical black spot entirely absent. *Hindwing* with a broader medial band, which is of uniform width throughout its length to the anal angle. Underside much darker than in *Brahminus*, with blacker strigæ, and which are all edged with cinereous-white (not with olivescens-ochreous); the band on both wings as on the upperside, and the subapical white-pupilled black spot (always present in *Brahminus*) entirely absent.

Expanse, $2\frac{2}{8}$ inches.

HABITAT.—Chumbi Valley, Sikkim-Tibet.

Obtained by Mr. H. J. Elwes' native collectors in the Chumbi Valley, Sikkim-Tibet, in July and August, 1883.

AULOCERA CHUMBICA (Plate 99, figs. 3, 3a, ♂ ♀).

Satyris Padma, Elwes, Proc. Zool. Soc. 1882, p. 406 (*nec* Kollar).

Smaller than *A. Loha*. Male. Upperside. *Forewing* with the transverse series of discal spots half the size of those in Sikkim examples of *Loha*, the glandular patch broadly dusky-black, which is clothed with moderately long and broad dentate-tipt pale scales and longer foliate acutely dentate-tipt scales only, *no androconia* present in the specimens under examination. *Hindwing* with the transverse band also half the width of that in Sikkimese *Loha*. Underside of a similar dusky-brown colour and mottled markings; both wings with the bands narrower, as on upperside. Female. Both wings with the transverse bands narrower than in *Loha* on both the upper and underside.

Expanse, ♂ $2\frac{4}{8}$, $2\frac{6}{8}$ inches.

HABITAT.—Chumbi Valley, Sikkim-Tibet.

Obtained by Mr. H. J. Elwes' native collectors in the Chumbi Valley on the Tibetan frontier of Sikkim, at 1000 to 15,000 feet elevation, in August and September.

AULOCERA LOHA (Plate 99, figs. 4, 4a, ♂ ♀).

Aulocera Loha, Doherty, Journ. Asiatic Soc. Bengal, 1886, p. 118.

Satyris Loha, Elwes, Trans. Ent. Soc. Lond. 1888, p. 323, pl. 9, figs. 6, ♂.

IMAGO.—Smaller than *A. Padma*. Male. Upperside very dark olivescens blackish-brown. Cilia narrowly alternated with white. *Forewing* with an indistinctly defined discal *glandular fascia*, which is clothed with a few short broad serrate-tipt scales, and numerous long broad acutely-serrated tipt scales; *no androconia* present; crossed by a discal series of very widely-separated pale ochreous-white spots, there being also two inwardly-divergent spots to the costa beyond the cell, all these spots

being conspicuously smaller than in *A. Padma*, more medially placed across the wing than in *Padma*, and transversely shorter, and those between the medians pyriform. *Hindwing* crossed by a narrower medial pale ochreous-white band. Underside brighter coloured, darker, and of a more olive-brown tint than in *A. Padma*. *Forewing* with the costa, interior of cell, and apical border slightly mottled with darker brown pale-bordered strigæ, those at the apex bordered with lilac; transverse discal spots medially-disposed as on upperside, and with an intermediate ill-defined white-pupilled black spot between the radials. *Hindwing* densely mottled with dark brown strigæ more or less edged with lilac; transverse band narrow, as on upperside.

Female. Upperside with similar transverse pale ochreous-white markings, medially-disposed as in male, but somewhat less prominently defined. Underside also with similar markings, those on the forewing somewhat larger, but less prominently defined; the bands narrower than in *Padma*.

Expanse, ♂ 2 $\frac{1}{2}$, ♀ 3 inches.

HABITAT.—N.-W. Kumaon; Sikkim.

The above description is taken from male and female typical specimens obtained by Mr. Doherty at Dankuri, N.-W. Kumaon, kindly lent for this purpose by Mr. L. de Nicéville. Mr. Doherty's original description (l. c. p. 118) is as follows: "*A. Loha*. N. sp. Smaller than *Padma*; cell of male smooth, sex mark not very plain; male distinguished by the divergent white spots from the median band to the costa; the female by the band of the hindwing below being narrow, well defined and ochreous. The insect is darker than *Padma*, the apex of both wings glossed with lilac below, and the base of the hindwing greenish. It may perhaps be only a seasonal form of *Padma*."

DISTRIBUTION.—Mr. W. Doherty (l. c. 118) says: "I found *Loha* common on Bireg mountain, N.-W. Kumaon, from 9000 to 12,000 feet, in August and September." We possess a male and female identical with the typical specimen above described, from the late General G. Ramsay's Nepal collection. Mr. H. J. Elwes obtained it in Sikkim, remarking (l. c. 323), "I took it only on the Singalelah Range which bound Sikkim on the West between Tonglo and Phallut, at elevations of from 10,000 to 12,000 feet, in July, but it was most abundant on the grassy ridge beyond Sundukpho above the pine-forest, where it flies strongly above the trees, resting on their trunks, and settling on flower-heads in the open parts and on the edge of the forest." In examples of these Sikkim specimens, under our examination, the glandular patch is clothed with somewhat differently-shaped scales from those present in the typical male above described, one form being longer and more oval with scarcely definable serrate-tip, the other lengthened serrate-tipt form being somewhat shorter, and with tapering base, the androconia being also absent.

Of the illustrations of this species on our Plate 92, fig. 4 represents the male, from Dhankuri, in Kumaon, and fig. 4a, the female, from a Nepal example.

AULOCERA PADMA (Plate 100, fig. 1, 1a, ♂ ♀).

Satyrus Padma, Kollar, in Hügel's Kaschmir, iv. 2, p. 445, pl. 15, figs. 1, 2 (1844), ♀.

Aulocera Padma, Butler, Ent. Mo. Mag. 1867, p. 122; Catal. Satyr. Brit. Mus. p. 49 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 196 (1883). Doherty, Journ. Asiat. Soc. Beng. 1886, p. 118.

Satyrus Avatara, Moore, Catal. Lep. Mus. E. I. Compy. i. p. 229 (1857), ♂.

IMAGO.—Male. Upperside very dark olivescient blackish-brown. Cilia alternated with white. *Forewing* with a broad distinct dusky-black inner-discal *glandular patch*, which is clothed with long pale foliate serrate-tipt scales, and long blackish *androconia* with short broad bulbous base and hair-like tasselled tip—no short scales present; crossed by a discal linear-series of broad yellowish-white spots (those ordinarily proceeding inward to the costa being obsolescent or entirely absent). *Hindwing* crossed by a medial yellowish-white band. Underside nearly as dark coloured as the upperside. *Forewing* the palest, the costal and apical border broadly mottled with black strigæ slightly edged with cinereous; the transverse discal white spots broader, diffused externally, with the usual divergent costal portion entire, the subapical black spot with white pupil, and distinct. *Hindwing* thickly mottled with cinereous-edged black strigæ, which are more clouded externally; the transverse medial white band sharply defined on its inner edge, but diffused externally; submarginal black lunular line diffused, and with a more or less indistinct subanal black spot with white pupil.

Female. Upperside. *Forewing* crossed by similar but slightly larger spots and with a broken set extending inward to the costa beyond the cell. *Hindwing* with the transverse band as in the male. Underside of the same dark colour as in the male. *Forewing* with the transverse white spots larger and more disconnected. *Hindwing* with the mottled outer border more thickly flecked with cinereous, and the submarginal line less apparent; the transverse white band broader and more diffused externally than in male. *Body* and legs dark brown; collar and side of palpi cinereous-white; antennæ dark brown, slightly reddish at the tip beneath.

Expanse, ♂ $3\frac{1}{8}$ to $3\frac{3}{8}$, ♀ $3\frac{2}{8}$ to $4\frac{2}{8}$ inches.

HABITAT.—N.-W. Himalayas.

DISTRIBUTION AND HABITS.—Of this species, Col. A. M. Lang remarks (Ent. Mo. Mag. 1868, 246), "I have always found *Padma* and *Avatara* in company, and they have appeared to me as sexes of the same species. They frequent quite different ground to *Swaha* and *Saraswati*, and appear at a different season, flying in May and June on the borders of oak and rhododendron forests at the summits of ranges





1.



1a



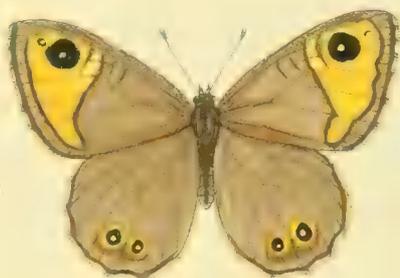
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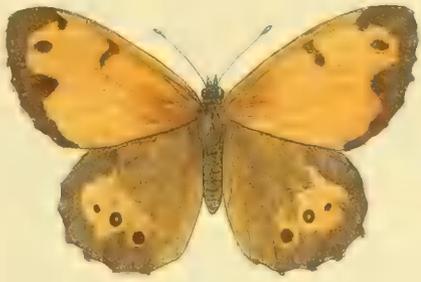


4a

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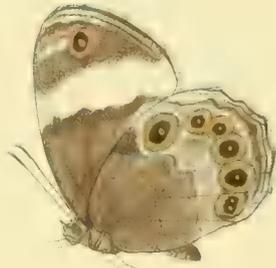
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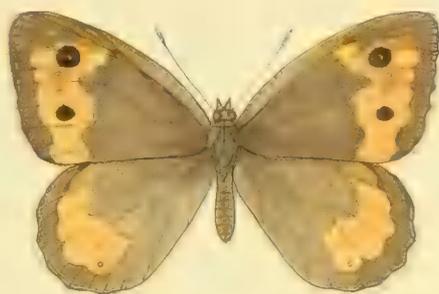
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2a



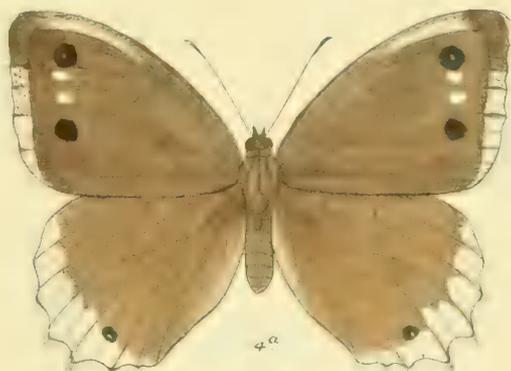
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3a



4



4a

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1



7a



2



2a



3



3a



4



4a

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1.



1a



2.



2a



3



3a

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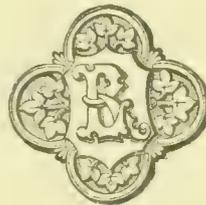
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of from 8000 to 10,000 feet altitude. A second brood appears in July in the same localities. They fly with much bolder Nymphalidian flight than their tamer congeners *Swaha* and *Saraswati*, and they do not extend out of the Simla district into Kunawur." On the other hand, Mr. A. Graham Young holds that *Padma* and *Avantara* are two distinct species. He writes of *A. Padma* that "it is fairly common in Kulu, and is double-brooded, the first brood appearing in June on the grassy slopes amongst and above the upper forests, at an elevation of 10,000 feet or so; the second brood appears at a much lower elevation, from 3000 to 4000 feet. It is very punctual in its appearance, as, in the fifteen years that I have observed this insect, it has never appeared earlier than the 1st or later than the 3rd of October. It is an extremely powerful insect on the wing, and very difficult to take; it flies down one hill, straight across the valley, and up the opposite hill at a great pace, keeping some ten feet from the ground, and very rarely settling." While of *A. Avantara* he writes, "Confounded with the above by superficial observers and cabinet naturalists; it is smaller in size than *A. Padma*, and much weaker in flight, taking but short flights, and is easily captured; a succession of broods appear throughout May, June, and July." (Butt. Ind. i. 197, 1883.) Mr. A. G. Young subsequently writes (Ent. Mo. Mag. 1885, 129), "I first took *A. Padma* near Rajaori, in the Kashmir territory, in July, 1864, at but little over 3000 feet, and have in June, 1883, taken the same sex at Barkli, in the Mundi State, in a Deodar forest on the banks of the Beas, at barely 3000 feet. For some reason that I cannot explain, the females never appear to descend as low as the males do, and it is a very curious circumstance, that as far as my experience goes, the June and July broods seem to consist almost entirely of males. It was not until 1880 that I succeeded in obtaining a female in June, whereas in October the females are in a great majority, some faded, as though they had come out at the higher levels in the summer, and been driven down by the cold, whilst the greater number, to judge from their fresh condition, had but just emerged from the pupa. I never took but one worn and battered male along with this autumnal brood, which seems a true Amazonian one, all females, and appears in October between 3500 and 4500 feet." Mr. W. Doherty (J. A. S. Beng. 1886, 118), "There are two allied species passing under the name of *Padma*. Of the true *Padma* I have both sexes from Narkunda, near Simla, and from the Galis north of Mari, but in Kumaon I obtained only females, taken in October and November in the Kali Valley, ranging from 7000 feet at Juti, in Chandans, to 2500 feet at Garjiaghat, and even lower. This species is the larger of the two; the other species, *A. Loha*, is smaller."

AULOCERA SWAHA (Plate 100, figs. 2, 2a, ♂ ♀).

Satyrus Swaha, Kollar, in Hügel's Kaschmir, IV. 2, p. 444, pl. 14, figs. 1, 2 (1844).

Aulocera Swaha, Marshall and de Nicéville, Butt. of India, etc. i. p. 197 (1883).

Satyrus Brahminus, Blanchard, Jacq. Voy. pl. ii. figs. 5, 6 (nec. fig. 4).

IMAGO.—Male. Upperside dark olivescent bronzy-brown. Cilia alternated with white. *Forewing* with an inner-discal short broad dusky-black *glandular fascia* extending within the cell, which is clothed with moderately-short broad slightly serrate-tipt scales, and long foliate acutely serrated-tipt scales, but *no androconia*; crossed by a medial-discal series of creamy-white or ochreous-yellow spots, which are somewhat short and small, a spot being always present (and sometimes an incipient narrow streak) diverging to the costa beyond the cell. *Hindwing* with a similar-coloured medial-discal band. Underside paler olivescent bronzy-brown. *Forewing* with the costal and apical border indistinctly mottled with pale-edged blackish strigæ, the discal band creamy-white or ochreous-yellow, broad, its lower portion continuous, the divergent costal portion entire and continued to the edge; subapical black spot with white pupil more or less prominent. *Hindwing* more or less densely mottled with black strigæ, the strigæ being more or less edged with cinereous; the base tinged with green; the submarginal lunular line irregular and diffused.

Female. Upperside with the transverse band as in male, but somewhat broader. Underside as in the male. Collar and side of palpi, ochreous-white; legs brown.

Expanse, $2\frac{5}{8}$ to 3 inches.

CATERPILLAR.—“Colour probably black, but it is so very thickly clothed with short bright-yellow hairs that it is almost impossible to see what its ground-colour really is; head and legs black. Feeds on wild blue Iris.”

CHRYSLIS.—“Attached to the centre of a leaf by the tail, and a bright-yellow thread across the pupa, head upwards, like a *Lycænid*. Colour shining olive-brown; head, spines, and tail black; a white patch crossed by an irregular black band upon each side of the thorax; a circular yellow spot on each shoulder; on each side of the dorsal segments is an irregular white mark. The colours, very vivid in the living pupa, fade rapidly upon the death of the insect. The imago emerges in a fortnight.” (A. Graham Young.)

HABITAT.—N.-W. Himalayas.

DISTRIBUTION.—This species is the commonest of the group, and according to Col. A. M. Lang (*Ent. Mo. Mag.* 1868, 246) “abounds in the Simla and Kunawur districts of the N.-W. Himalayas during the rainy season, from July to October, chiefly on grassy slopes and in fields near woods, also in open woods; from the outer spurs overlooking the Indian plains for 200 miles into the interior of the mountain ranges towards the treeless regions of Spiti and Tibet.” Major H. B. Hellard obtained it in “Simla, Masuri, Pangi in Busahir, and in Kashmir, from June to October.” (MS. notes.) Major J. W. Yerbury (*P. Z. S.* 1836, 357) records it as “common at Murree, August and September; Atabul, 9000 feet; Thundiani, September.” In Kulu, Mr. A. Graham Young writes, “Not uncommon in its peculiar

haunts, grassy hills at 7000 to 8000 feet elevation, from June to September." (Butt. Ind. 197), and subsequently (Ent. Mo. Mag. 1886, 103) he records "the discovery, after many years' hunting, of the larva of *A. Swaha*," having "found it on the wild blue Iris during the first week in August, at about 8000 feet elevation, in the Upper Parbutti Valley, in Kulu." In Kumaon, Mr. W. Doherty (J. A. S. Beng. 1886, 118) "found it on all the hills of the Pindari district, 7000 to 10,000 feet, also on the outer ranges, Jagheswar, Takula, and the Dhoag, 5500 to 9000 feet, and in Chaudans in East Kumaon, 5000 to 7000 feet. A common species."

AULOCERA SARASWATI (Plate 100, figs. 3, 3a, ♂ ♀).

Satyris Saraswati, Kollar, in Hügel's Kaschmir, IV. 2, p. 445, pl. 14, figs. 3, 4 (1844), ♀, Staudinger, Exot. Schmett. pl. 82 (1887).

Aulocera Saraswati, Butler, Ent. Mo. Mag. 1867, p. 121; Catal. Satyr. Brit. Mus. p. 49 (1868); Marshall and de Nicéville, Butt. of India, etc. i. p. 200 (1883).

IMAGO.—Male. Upperside dark olivescient blackish-brown. Cilia broadly alternated with white. *Forewing* crossed by a medial-discal broad yellowish-white compact macular band, composed of almost quadrate spots, with a black spot dividing the two longitudinally disposed between the radials; a more or less prominent narrow discal black angular *glandular patch*, which is clothed with very long foliate acutely serrate-tipt pale scales, some short broad serrate-tipt scales, and interspersed with blackish *androconia* with broad bulbous base, hair-like end, and tasselled tip. *Hindwing* crossed by a broad yellowish-white uninterrupted discal band, which slightly decreases in width above anal angle. Underside pale olivescient-ochreous; crossed by a pale ochreous-white band, which is whitest on the forewing, as on upperside, the inner edge of the band being defined by a dark brown line, the outer edge being diffused, the subapical black spot prominent and white-pupilled; the basal area and the broad outer border delicately mottled with transverse black strigæ, and the outer border traversed by a blackish diffused fascia, which latter, on the hindwing, is more or less sinuous, and where the marginal strigæ beyond are more or less whitish-edged.

Female. Upperside of both wings with the white macular band, as in the male, but slightly broader, the subapical intervening black spot on the forewing generally having a minute white pupil. Underside as in the male, the blackish submarginal fascia being much less defined. *Body* above dark olivescient-brown; abdomen beneath pale olivescient-ochreous; collar, side of palpi, and femora beneath ochreous-white; tibiæ and tarsi ochreous.

Expanse, ♂ $2\frac{1}{8}$ to $2\frac{6}{8}$, ♀ $2\frac{6}{8}$ to 3 inches.

HABITAT.—N.-W. Himalayas.

DISTRIBUTION.—According to Col. A. M. Lang (Ent. Mo. Mag. 1868, 246), "*A.*

Saraswati is not quite so widely spread as *A. Swaha*, appears later, and disappears earlier; in August it swarms, in localities affected by it, amongst the luxuriant grass pastures on the less wooded slopes of the hills in the Simla and Kunawur district." "In Simla it is not uncommon on the grassy slopes in the neighbourhood in the autumn months. In Pangi Mr. R. Ellis and Dr. Henderson took numerous specimens of both sexes in July and August." Major H. B. Hellard, in his MS. Notes, records its capture at "Pangi, Busahir, in July and August, and in Kashmir during August and September." Major J. W. Yerbury (P. Z. S. 1886, 357) obtained it at Dewal in August, also commonly at Murree in August, and also taken in September." In Kulu, according to Mr. A. Graham Young, it appears in July, and remains on the wing until the middle of October; it is common from 4000 feet and upwards, and greatly affects the thistle flowers, upon which numbers may be captured in their peculiar haunts." (Butt. Ind. i. 200.) Mr. W. Doherty (J. A. S. Beng. 1886, 119) obtained it at "Pyura, above Loharkhet, the Dhoaj, Takula, 5000 to 7000 feet, in Kumaon." Specimens in our own collection are from the late Colonel Impey's and General Ramsay's Nepal Collection.

AULOCERA sp. — ?

Satyrus Loha, Elwes, Proc. Zool. Soc. 1891, p. 266.

HABITAT.—Manipur frontier, Naga Hills. Mr. H. J. Elwes (l. c. p. 266) records "two female specimens taken by Mr. W. Doherty at Mao, on the Manipur frontier of the Naga Hills, at 8000 feet elevation, in August."

ALLIED CHINESE SPECIES OF AULOCERA.—*A. Sybillina* (*Satyrus Sybillina*, Oberthür, Etudes Ent. 1890, p. 40, pl. 10, fig. 106). *Habitat.* W. China.—*A. Merlina* (*Satyrus Merlina*, Oberthür, *id.* p. 40, pl. 10, fig. 105). *Habitat.* Yunan.—*A. magica* (*Satyrus magica*, Oberthür, *id.* 1886, p. 24, pl. 4, fig. 21). *Habitat.* E. Tibet.

Genus PARCENEIS.

Forewing similar in shape to typical *Eneis* (*Æ. Norna*); venation similar, except that the cell is very much shorter, and there is *no androconial patch* in the male. *Hindwing* with the cell also considerably shorter, and the discocellulars less outwardly oblique. *Palpi* somewhat shorter and more delicate, the apical joint being shorter and less conspicuous. Antennal club shorter and comparatively thicker.

Type.—*P. pumilus*.

Typical *Eneis* (*Norna*, *Jutta*, etc.) has the forewing, in the male, furnished with a conspicuous oblique androconial patch, and the cell area in both the fore and hindwing being much longer. The antennæ in *Eneis* has a longer gradually-

thickening club; the palpi are somewhat longer. The pattern of the markings on the wings in the species of *Ceneis* is also somewhat different, the forewing generally having two or three small submarginal ocellated spots on a pale ferruginous band, the hindwing also mostly having similar submarginal ocelli, whereas in *Parceneis* the pattern of the markings resemble those pertaining to the species of *Aulocera*.

PARCENEIS PUMILUS (Plate 101, figs. 1, 1a, ♂ ♀).

Chionobas pumilus, Felder, Reise Novara, Lep. iii. p. 490, pl. 69, figs. 6, 7 (1867) ♂.

Ceneis pumilus, Marshall and de Nicéville, Butt. of India, etc. i. p. 238, pl. 15, fig. 37, ♂.

IMAGO.—Male. Upperside pale ochreous-brown, darker externally; the veins externally lined with darker brown. Cilia ochreous-white alternated with dark brown at the vein points. *Forewing* crossed by a medial-discal ill-defined pale brownish-ochreous narrow macular band, with an inward-divergent portion proceeding to the costa from between the radials, and where there is a slightly-defined pale intervening-spot, this band being very similar in form to that in *Aulocera*. *Hindwing* crossed by a similar ill-defined pale brownish-ochreous narrow continuous band, which is angulated above the radial and at the upper median veinlet. Underside. *Forewing* pale brownish-ochreous, the transverse band, as above, with dusky-brown edges; costal and apical border cinerous, sparsely flecked with short transverse dusky-brown strigæ. *Hindwing* pale ochreous-cinereous, the veins cinereous-white, the transverse angulated-band pale ochreous and well-defined by dusky-black edges, the basal area and outer border thickly mottled with blackish strigæ with pale ochreous edges.

Female. Upperside slightly paler, with the transverse band also less distinct, the apical border of the forewing and the outer border of the hindwing indistinctly mottled with darker strigæ. Underside as in the male. *Body* above darker ochreous-brown; thorax beneath clothed with dusky-brown hairs; palpi in front, and legs dusky-brown; palpi above pale ochreous. *Antennæ* blackish above, annulated with ochreous-white, pale ochreous beneath with bright ochreous tip.

Expanse, ♂ $1\frac{4}{8}$, ♀ $1\frac{5}{8}$ inch.

HABITAT.—Ladak.

DISTRIBUTION.—The type specimens were collected by the late Dr. F. Stoliczka at "Trantse Sumdo on the Lanak Pass at about 15,000 feet elevation, and at Pangchog." Mr. W. Doherty (J. A. S. Bengal, 1886, 119) records "a single female found on the moist ground at the edge of the snow-line on the northern side of the Lepu Pass, Chinese-Tibet, at 17,000 feet (N.-E. Kumaon). Specimens of both sexes are in Mr. J. H. Leech's collection, captured at Gya, in August, at 14,000 feet, by Mr. MacArthur.

The illustrations of this species on our Plate No. 101, fig. 1, represents the

upperside of a male, and fig. 1a, the underside of a female, both figures being taken from Gya specimens kindly lent by Mr. J. H. Leech.

PARGENEIS SIKKIMENSIS (Plate 101, fig. 2, 2a, ♂).

Eneis Sikkimensis, Staudinger, Stett. Ent. Zeit. 1889, p. 21.

Chionobas pumilus, Elwes, Proc. Zool. Soc. 1882, p. 404, pl. 35, fig. 3 (*nec Felder*).

Eneis pumilus, Elwes, Trans. Ent. Soc. Lond. 1888, p. 327.

IMAGO.—Male. Upperside uniform dark ochreous-brown. Cilia white alternated with dark brown. *Forewing* crossed by a well-defined medial-discal series of small ochreous spots, with an inward divergent portion extending to the costa from between the radials, where there is also a small intervening blackish spot with a minute white pupil. *Hindwing* crossed by a well-defined curved discal ochreous narrow broken band, the two portions beyond the cell being somewhat elongate and pointed externally, the other portions being more lunular. Underside paler ochreous-brown. *Forewing* with the costa and apex cinereous speckled; across the cell are some blackish strigæ; the transverse discal series of prominent pale ochreous spots, as on upperside, black edged. *Hindwing* with the basal area and outer border densely mottled with black strigæ and speckles, edged with cinereous; crossed by a prominent pale ochreous curved discal irregular band, the inner edge of which is well defined by a black angulated line, and the outer edge by a lunular line, inwardly bordered with blackish speckles; all the veins cinereous-white speckled. *Body* above dark brown, thorax and front of palpi clothed with black-tipt cinerescent hairs; sides of palpi and legs beneath cinerescent; legs above ochreous-brown. *Antennæ* above blackish, annulated with white, entire length below reddish ochreous.

Expanse, ♂ $1\frac{4}{8}$ to $1\frac{7}{8}$, ♀ $1\frac{7}{8}$ inch.

HABITAT.—Chumbi, Sikkim-Tibet.

This species differs from *P. pumilus* on the upperside in its uniformly darker colour, the macular band on the forewing being very distinctly defined and composed of smaller spots; the band on the hindwing is also narrower. On the underside it is also very much darker in colour, and the band on both wings much more prominently defined.

Obtained by Mr. H. J. Elwes' native collectors in the Chumbi Valley, Sikkim-Tibet, in 1881 and 1882.

ALLIED SPECIES OF PARGENEIS.—*P. Buddha* (*Eneis Buddha*, Gr.-Gr. Hor. Soc. Ent. Ross. 1891, p. 458). *Habitat.* C. Asia.—*P. palæarcticus* (*Eneis palæarcticus* Staudinger, Stett. Ent. Zeit. 1889, p. 20). *Habitat.* C. Asia.

Genus KARANASA.

Satyris (part) Auctorum. *Hipparchia* (part) Auctorum.

IMAGO.—Male. Wings somewhat elongated and narrow. *Forewing* subtri-

angular; costa very slightly arched, apex obtusely-pointed, exterior margin slightly oblique, convex, posterior angle very convex; costal vein swollen at the base, median very slightly swollen; cell extending beyond half the wing; discocellulars outwardly recurved, concave before the middle, upper radial from a slight angle very close to subcostal, lower radial from above the middle; median veinlets widely separated; crossed by an ill-defined broad inwardly-oblique discal *glandular patch*, which is clothed with a few short oval and some longer narrower sharply dentate-tipt scales, interspersed with several longer slender *androconia*, which have lengthened-bulbous base and short hair-like tasselled-tip. *Hindwing* ovate; exterior margin very convex, slightly denticulated; cell extending to half the length; discocellular very oblique; middle median emitted at some distance before end of cell. *Body* rather stout; thorax and head very hairy; palpi clothed with lengthened fine hairs to the tip; antennæ with a rather stout short club, the tip being obtuse. Eyes naked.

Type.—K. Hubneri.

KARANASA HÜBNERI (Plate 101, figs. 3, 3a, ♂ ♀).

Satyris Hübneri, Felder, Reise Novara, Lep. III. p. 494, pl. 69, figs. 8, 9 (1867), ♀.

Hipparchia Hübneri, Butler, Catal. Satyr. Brit. Mus. p. 52 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 189 (1883).

Hipparchia Cadesia, Moore, Proc. Zool. Soc. 1874, p. 565, pl. 66, fig. 7, ♂. Marshall and de Nicéville, Butt. of India, etc. i. p. 190 (1883).

IMAGO.—Male. Upperside deep fulvous, exterior marginal line blackish, the end of the median veinlets on both wings ochreous-speckled. Cilia ochreous-white, alternated with dusky-brown. *Forewing* with the base, costal border, and exterior margin cinereous ochreous-brown; an incipient upper portion of a dusky brown pale-bordered excurved discal line beyond the cell, which also curves along the subcostal veinlet, extends along the radials, and then sinuously edges the dark outer border of the wing; between the radials is a prominent subapical black spot with white pupil, and on the lower part of the disc is a short broad dusky-black *glandular patch*, which is clothed with a few short oval and some long, broad, dentate-tipt pale scales, and blackish *androconia* with lengthened-bulbous base and hair-like tasselled tip. *Hindwing* with the base and abdominal border cinerescent purplish-brown; crossed by an ill-defined inner-discal excurved angulated diffused dusky line, and a darker outer-discal obtusely-sinuuous blackish line, and thus enclosing a curved medial-discal fulvous band. Underside. *Forewing* paler fulvous, yellowish below the costal border; the base, the costal and outer border brownish-cinereous, finely flecked with brown scales, the ends of the outer veins being white speckled; some short blackish strigæ crossing the base and the cell, the upper discal curved line (the lower portion being also very finely indicated) and sinuous sub-

marginal line, and the subapical black spot, as on the upperside. *Hindwing* ochreous-cinereous, numerous covered with short blackish strigæ and intervening speckles, which are thickest disposed at the base; veins prominently white lined; crossed by an indistinctly-defined angulated subbasal and a more distinct medial-discal excurved angulated black line, the latter having a whitish outer border, and beyond is a submarginal distinct black sinuous line.

Female. Upperside slightly paler fulvous. *Forewing* with the base pale cinereous purplish-brown, the outer border somewhat darker; crossed by an inner discal diffused blackish line, which is acutely angled outward on the upper median veinlet, the line also extends along the subcostal and then sinuously and prominently edges the dark outer border, thus enclosing a discal fulvous band, within which is an upper and a lower black spot. *Hindwing* with the entire basal area and outer border cinereous purplish-brown, enclosing a prominent fulvous medial-discal band, which is edged with an inner and outer black sinuous line. Underside. *Forewing* somewhat paler; markings as in the male, except that the discal line is more distinct, and the submarginal line more sinuous, there being also two black spots of the same size as those above. *Hindwing* also somewhat paler, with the transverse black lines more acutely defined, the subbasal line more distinctly angled within the cell, and both the discal and outer sinuous line being pale-bordered externally. *Body* cinereous-brown; collar, side of palpi, and legs beneath cinereous-white; antennæ cinereous-brown, tipped with ochreous, with a rather stout short club, the tip being obtuse.

Expanse, ♂ $1\frac{5}{8}$ to $1\frac{6}{8}$, ♀ 2 inches.

HABITAT.—Lahul; Spiti; Deosi Plains, Stakpila Pass, N. Kashmir.

DISTRIBUTION.—Dr. Felder (Reise Nov. 494) gives "Lahul and Spiti" as the localities of the type specimens. Under this species, a specimen of the female is recorded in "Second Yarkund Mission," Lep. p. i., as having been taken by the late Dr. F. Stoliczka at Leh in September.

Major H. B. Hellard records it in his "MS. Notes" as having been taken on the "south side of Stakpila Pass in the upper part of the Boorzil Valley, North Kashmir, in July, 1873," but whether these specimens of Major Hellard's and those above noted from Leh refer to *Hübneri*, as here defined, we are unable to certify. Mr. J. H. Leech obtained many specimens of both sexes in the Deosi plains N.-E. of Kashmir, at 13,000 feet, in August, 1887; others were taken by Mr. McArthur in the Chonging Valley, 15-17,000 feet elevation in July. Mr. L. de Nicéville (Butt. Ind. 190), under this species, records "two females taken by Major J. Biddulph at Gilgit in August." Neither of these two specimens, which are now before me for examination, agree with true *Hübneri*. One of them, certainly, is not this species—it is a larger insect, with very much paler discal band on both wings, and is two and a quarter inches in expanse.

KARANASA LEECHII (Plate 101, figs. 4, 4a, ♂ ♀).

Male. Similar to *K. Hubneri*, somewhat larger. Upperside of a paler fulvous, the ends of the median veinlets ochreous-speckled, the outer borders uniformly dark-coloured. *Forewing* with the basal area, including the cell, cinerous ochreous-brown; with a well-defined blackish broad inner-discal *glandular patch* extending throughout its length to the inner edge of the fulvous band, the patch clothed with broad serrate-tipt pale scales and numerous long bulbous *androconia* with tasselled-tip, these latter being narrower than in *K. Hubneri*; the sinuous submarginal edge of the fulvous band more acutely defined; within the band is a subapical blind black spot, a very small spot also being present between the lower median veinlets, and below the upper spot are sometimes two or three minute black speckles. *Hindwing* with a somewhat broader fulvous band, the outer edge of the band more acutely sinuous; the ends of the median veinlets not ochreous. Underside. *Forewing* paler than upperside, but somewhat clouded in the middle, *the basal and cell strigæ obsolete*, the subapical black blind-spot prominent, the lower median small spot sometimes absent. *Hindwing* paler than in *K. Hubneri*, the strigæ less, and more speckled throughout with whitish-cinereous edgings to the markings; with similar disposed subbasal, median, and submarginal sinuous lines, but the two latter are more acutely pointed, and the subbasal line is excurved within the cell (not angled as in *Hubneri*); veins white lined.

Female. Upperside paler fulvous than in *K. Hubneri*, the costa and outer borders, and the basal areas also paler. *Forewing* with the edges of the discal band less defined; the subapical and lower black spot as in male. *Hindwing* with the fulvous band comparatively broader, its outer sinuous-edge being slightly nearer the exterior margin of the wing. Underside. Both wings as in male.

Expanse, ♂ $1\frac{6}{8}$ to $1\frac{7}{8}$, ♀ $1\frac{7}{8}$ to $2\frac{1}{8}$ inches.

HABITAT.—Skoro La, Baltistan; Chonging Valley, N. Ladak.

DISTRIBUTION.—Obtained by Mr. J. H. Leech on the “Skoro La, Baltistan, at 15,000 feet elevation, in July, 1887,” and by Mr. H. McArthur, in the “Chonging Valley, 15—17,000, July and August, 1889,” this valley being situated between the Upper Shayok river and the Dépsang plains in North Ladak.

KARANASA MODESTA (Plate 102, figs. 1, 1a, ♂ ♀).

Male. Smaller than *K. Leechii*. Upperside with the entire basal areas and outer borders darker brown, and of a vinescent tint, the discal band narrower on both wings, prominently defined, and of a paler ochreous. *Forewing* with a large conjoined black subapical spot situated above and below the lower radial veinlet, and a smaller black spot between the lower median veinlets; *glandular patch* indis-

tinct. Underside. *Forewing* similar to *Leechii*, the conjoined black subapical spot with its upper portion minutely white pupilled; the lower median spot as above. *Hindwing* with similar markings to *Leechii*, the discal and submarginal sinuous-line being nearer together; the veins white lined.

Female. Upperside slightly paler than in male, the discal band on both wings also paler and somewhat broader; a single black subapical spot only present on the forewing. Underside. *Forewing* much paler than in male; a single subapical spot only, as on upper side. *Hindwing* as in the male.

Expanse, ♂ $1\frac{5}{8}$, ♀ $1\frac{6}{8}$ inch.

HABITAT.—Deosi Plains; Kokser, Lahul.

DISTRIBUTION.—The type specimens were taken by Mr. J. H. Leech in the Deosi Plains, 13,000 feet elevation, in August, 1887; other specimens were also obtained by Mr. McArthur at Kokser, on the Chandra River in Lahul, in July, 1888, and on the Bara Lacha Pass in August.

Genus KANETISA.

Satyrus (part) auctorum.

Hipparchia (part) auctorum.

Male. Wings much broader and comparatively shorter than in *Karanasa*. *Forewing* broad, short, triangular; costa well-arched, apex obtuse, exterior margin oblique and hardly convex, posterior margin short; with a very broad transverse discal dusky *glandular patch*, which is clothed with slightly-raised dark-coloured claviform scales with deep jagged-pointed tip, interspersed with very numerous long slender *androconia* with attenuated end and feather-tip; cell somewhat shorter; median veinlets much wider apart. *Hindwing* short, broadly ovate, exterior margin very convex, scalloped; cell longer and narrower; discocellular more oblique. *Palpi* more compactly clothed in front; antennal club shorter. Eyes naked.

TYPE.—K. Digna.

KANETISA DIGNA (Plate 102, figs. 2, 2a, ♂ ♀).

Hipparchia Digna, Marshall, Journ. Asiatic Soc. Beng. 1882, p. 67, ♀. Marshall and de Nicéville, Butt. of India, etc. i. p. 189 (1883) ♀.

IMAGO.—Male. Upperside dark vinescent-brown. Cilia cinereous-white alternated with dusky-brown. *Forewing* crossed by a broad decreasing discal deep fulvous sinuous-edged macular band, cut with the brown veins, and enclosing a large black blind subapical spot; between the band and the cell is a broad inner-discal blackish *glandular patch*, which is clothed with slightly-raised claviform scales with deep jagged-pointed tip, interspersed with very numerous long slender *androconia* with

attenuated end and feather-tip. *Hindwing* crossed by a discal curved narrow fulvous macular band, the spots being elongated, narrow, and with somewhat blackish edges. Underside. *Forewing* with the basal cell and discal area fulvous, paling to ochreous below the costa; costal border, the outer border, and base of posterior border brownish-cinereous mottled with blackish strigæ; inner line of the discal band indistinct except at its costal end, its outer line sinuous; subapical black spot with white pupil. *Hindwing* pale brownish-cinereous, thickly mottled with blackish strigæ; crossed by a wavy subbasal and a somewhat angulated blackish discal line, the interspace between them forming a darker band, with its inner and outer edge broadly bordered with whitish-cinereous; submarginal sinuous black line distinct.

Female. Upperside. *Forewing* with the discal fulvous band entire, somewhat broader and slightly paler, its sinuous inner and outer edge darkly defined, subapical black spots large. *Hindwing* with the discal fulvous band also entire, broader and with less sinuous outer edge. Underside as in male, except that both wings are paler; markings the same.

Expanse, ♂ ♀ $2\frac{3}{4}$ inches.

HABITAT.—N.-W. Himalayas.

This species is nearest allied to the European congener *K. Erythia*, Hübner.

DISTRIBUTION.—The type specimen was "taken by Major J. Biddulph, on the Shandur Plateau, in Northern Kashmir" (Butt. Ind. 189.) A male, labelled "Gilgit," is in the collection of Mr. L. de Nicéville.

Of the illustrations of this species on our Plate 102, fig. 2 represents the Gilgit male, and fig. 2a the type female, both of which have been kindly lent for this purpose by Mr. L. de Nicéville.

KANETISA PIMPLA (Plate 102, figs. 3, 3a, ♂ ♀).

Satyrus Pimpla, Felder, Reise Novara, Lep. iii. p. 494, pl. 69, figs. 10, 11 (1867), ♀. Butler, Catal.

Satyr. Brit. Mus. p. 60 (1868).

Hipparchia Pimpla, Marshall and de Nicéville, Butt. of India, etc. i. p. 185 (1883) ♂ ♀.

IMAGO.—Male. Upperside dark glossy olivescent-brown. Cilia alternated with white. *Forewing* with a black subapical spot, sometimes minutely pupilled with white and with an obsolescent pale iris; with a broad short inner-discal ill-defined dusky-black *glandular patch*, which is clothed with claviform scales with deep jagged-pointed tip, some underlying shorter fusiform scales, interspersed by several long slender *androconia* with attenuated end and feather-tip. Underside. *Forewing* pale cinereous vinaceous-brown, the lower part of the cell and middle of the disc ferruginous, leaving the costa, outer border and posterior margin broadly brown; the costal border and upper part of cell mottled with darker strigæ; crossing the disc is a

slightly-defined blackish angular line, and beyond a lunular submarginal line; and between them is a large prominent subapical black spot with minute white pupil and pale outer ring. *Hindwing* pale cinereous vinaceous-brown, mottled with fine darker brown strigæ; crossed by a subbasal and a discal curved angulated black line, and a submarginal sinuous line, the two latter outwardly-bordered with whitish speckles.

Female. Upperside somewhat paler glossy olivescient-brown. *Forewing* with a larger subapical black ocellus, with a distinct white pupil and pale ill-defined ochreous outer ring, below which are also two ill-defined pale ochreous spots between the medians. Underside with the broad borders of the forewing, and the entire hindwing pale brownish-cinereous, finely mottled with delicate brown strigæ. *Forewing* with the disc pale bright fulvous; crossed by faint traces of an inner discal fulvous-brown angular line and a brown lunular submarginal line, the white pupilled ocellus with very pale outer ring. *Hindwing* crossed by a subbasal and a discal blackish angulated line, and sinuous submarginal line, the two latter with pale outer border. *Body* beneath pale brownish-cinereous; legs above brown.

Expanse, ♂ 2, ♀ 2 $\frac{2}{3}$ inches.

HABITAT.—Western Himalayas; Afghanistan; Beluchistan.

DISTRIBUTION.—The type specimen, a female, is recorded by Dr. Felder (Reise Nov. 494), as having been taken at “Chalichang in Ladak.” A “female was also taken by Major J. Biddulph on the Shandur plateau in Northern Kashmir; a male was taken by Lieut. H. Whistler-Smith at Sher Darwaza near Kabul during the late Afghan War; and again quite recently by Colonel A. M. Lang, in the neighbourhood of Quetta, at Kawas, on a rocky peak 8500 feet altitude, in September.” (Butt. Ind. i. 185.) Mr. J. H. Leech obtained the female at Skardo, Baltistan, at 8000 feet elevation, in July, 1887.

Of our illustrations of this species on Plate 102, fig. 3 represents the male from Kabul, and fig. 3a a female from the Shandur plateau, both kindly lent by the Indian Museum, Calcutta, and Mr. L. de Nicéville.

Genus MANIOLA.

Maniola, Schrank, Fauna Boica, ii. i. pp. 152, 170 (1801). Scudder, Amer. Acad. A. and Sci. Boston, 1875, p. 211.

Epinephele,* Hübner, Verz. bek. Schmett. p. 59 (1816). H. Schæffer, Schmett. Eur. i. p. 81 (1843). Butler, Ent. Mo. Mag. 1868, p. 194; Catal. Satyr. Brit. Mus. p. 64 (1868).

Epinephila, Stephens, Catal. Brit. Lep. B.M. p. 7 (1850).

IMAGO.—Male. *Forewing* short, broad, subtriangular; costa arched, apex obtuse, exterior margin slightly oblique, posterior angle rounded; subcostal, median,

* Preoccupied by *Epinephelus* in 1801, for a genus of Fishes.

and submedian vein swollen at the base; base of wing hairy; with a short, broad, very oblique dusky-black *glandular patch* extending below the cell, the patch densely clothed with raised narrow rather long slightly serrated-tipt scales, broader and shorter round-tipt claviform scales, some still shorter oval round-tipt scales, and very numerous long slender *androconia* with attenuated end and tasselled tip. *Hindwing* short, broad, somewhat produced at the anal angle, exterior margin very obliquely convex, and very slightly scalloped, abdominal margin long. *Palpi* hairy to the tip. *Antennæ* rather thick, with a very lengthened gradually-thickened slender club. *Eyes* naked.

ADULT CATERPILLAR.—“Green, with darker dorsal line, and with two pink anal points. Feeds on Grasses.”

CHRYsalis.—“Suspended by the tail; the shrivelled skin of larva remaining and enveloping the tail. Stout; head with two little horns; tail ending in a short stout curved spike, on top of which are a few straight feeble bristles, quite unfit for suspending it; on the ventral surface close to this spike is a rounded scutcheon with a central cicatrice, and on the front edge two little projecting knobs, which with the spike no doubt keep a hold on the cast larval skin. Colour green, with some brown spots and lines.” (Buckler Larvæ Brit. Butt. 66.)

Type.—M. Jurtina.*

MANIOLA DAVENDRA (Plate 103, figs. 1, 1a ♂ ♀).

Epinephele Davendra, Moore, Proc. Zool. Soc. 1865, p. 502, pl. 30, fig. 7, ♂ ♀. Butler, Catal. Satyr. Brit. Mus. p. 65 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 201, pl. 15, fig. 39, ♀ (1883).

Epinephele Rocane, Felder, Reise Novara, Lep. iii. p. 491, pl. 69, figs. 12, 13, ♀ (1867). Butler, Catal. Satyr. Brit. Mus. p. 69 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 202 (1883).

IMAGO.—Male. Upper side greyish-brown. Cilia of forewing greyish, of hindwing white. *Forewing* with the area including the cell to near the apex and to near the posterior margin fulvous, enclosing a single black subapical spot, and thus leaving the brown borders well-defined; obliquely below the cell is a short prominent dusky-grey *glandular patch*, which is clothed with raised large broad claviform scales with slight bluntly-serrated tips, some short broad oval rounded-tipt scales, and with numerous intervening long slender *androconia* with attenuated end and feather-tip. *Hindwing* without markings; cilia white, tipt with brown at end of the veins. Underside paler greyish-brown. *Forewing* with the brown borders narrower, the

* An impression on waxed-paper, of a female of true *M. Jurtina* is in our possession, labelled ‘Kunawur,’ which we received from the late E. T. Atkinson, but as no specimen of this species has been recorded as occurring within our area, we are, consequently, very doubtful as to correctness of the locality, and have therefore not included it in the ‘Lepidoptera Indica.’

apex clouded, the outer border defined by a submarginal slender dark-brown line; across the disc is a slender very ill-defined brown angular line, which is obsolescent posteriorly; the ocellus prominently black, with white pupil, pale fulvous ring, and a brown outer ring. *Hindwing* indistinctly flecked with delicate brown speckled-strigæ; across the disc is an angulate wavy dark brown line and an even submarginal line, both with an outer white border; between them is a series of three small prominent black ocelli, one of which is situated between the radial and subcostal, the next between the lower medians, and the other between the latter and the submedian veinlet but nearer to the outer margin of the wing, each ocellus with a white pupil, white ring, and then an outer brown ring; sometimes there is also a minute ocellule present between the subcostals.

Female. Upperside somewhat paler. *Forewing* with the fulvous area also paler and confined more towards the apex; across the disc is a more or less ill-defined slightly-angulate brown line; the subapical black spot slightly paler ringed, and a smaller spot, also, sometimes present between the upper medians. *Hindwing* with the discal line and ocelli of the underside indistinctly visible. Underside as in the male, except that on the forewing the lower black spot is sometimes present, and on the hindwing the upper ocellus is either absent or very minute. *Body* beneath pale greyish brown; collar, side of palpi, and legs beneath white; antennæ brown, annulated with white and tipped with ochreous. Expanse 2 to 2½ inches.

HABITAT.—N.-W. Himalayas (? Kabul).

DISTRIBUTION.—According to Colonel A. M. Lang (P. Z. S. 1865, 502) "this is a Tibetan and Spiti insect, affecting the dry hot summer of the rainless region of the Chinese frontier. On a hot June or July day, these sober insects may be seen flitting about the stony hillsides, 9000 to 12,000 feet altitude—hill-sides where the Graminaceæ are scarce and brown, and grey Artemisiæ and Ephedra form the principal vegetation. They do not occur in the moister and more wooded regions of the Himalayas; but first appear on the confines of Upper Kunawur, in Spiti, and the Chinese provinces of Gughe and Nari Khorsum, Tibet," and in his MS. Notes records its capture on the road from 'Pangi to Tibet in July,' and at Rogi in September and October." The localities given by Dr. Felder (R. Nov. iii., 491) for his "Roxane" are "Kumaon, Spiti, Losar, Ladak, Kargil." The figure given by the authors of the "Butterflies of India," referred to above, is stated to be from a specimen taken in Kabul by Lieut. H. Whistler-Smith.

MANIOLA LATISTIGMA (Plate 103, figs. 2, 2a ♂ ♀).

Epinephele Roxane, Butler, P. Z. S. 1880, p. 405 (*nec* Eelder).

Epinephele Davendra, var. *Roxane* (part), Swinhoe, Trans. Ent. Soc. 1885, p. 338.

Larger than typical *M. Davendra*. Male. Upperside. *Forewing* with the

glandular patch comparatively broader and longer, the subapical spot less prominent. *Hindwing* more deeply scalloped, and with the angulate pale discal line, the submarginal line, and the ocelli of the underside visible by transparency. Underside similar to *M. Davendra*. *Forewing* with the discal and submarginal line outwardly whitish bordered anteriorly. *Hindwing* with the upper and lower ocelli larger, the angulate discal line straighter in its upper and lower course. Female. Upperside. *Forewing* somewhat brighter than *M. Davendra*, the transverse discal brown line distinct and more or less outwardly pale-bordered, the ocelli pale ringed, the lower sometimes obsolete. *Hindwing* with the discal pale-bordered angulate line, the submarginal line and the ocelli of the underside more apparent. Underside with the borders of the forewing and the entire hindwing paler. *Forewing* with the discal line very distinct and pale-bordered anteriorly. *Hindwing* with the angulate pale-bordered discal line more prominent, and the ocelli somewhat larger, the upper generally obsolete.

Expanse, $2\frac{1}{8}$ to $2\frac{3}{8}$ inches.

HABITAT.—S. Afghanistan; Beluchistan.

DISTRIBUTION.—Major Howland Roberts (P. Z. S., 1880, 405) records it from the neighbourhood of Kandahar, being "found commonly at the end of May and in June in company with two species of *Hipparchia* (*H. parisatis* and *H. Thelephassa*.)" Colonel C. Swinhoe obtained both sexes fairly common in the "Hanna Valley at 6500 feet, Quetta, in October, also at Quetta in August, 1880, at Maach in the Bolan Pass, July, and at Ispingil in June, 1882." Specimens were also obtained at Quetta in June, 1885, by Capt. E. Y. Watson.

MANIOLA BREVISTIGMA (Plate 103, figs. 3, 3a ♂ ♀).

Male. Smaller than *M. Davendra*; cilia white throughout both wings. Upperside. *Forewing* with somewhat narrower cinereous-brown borders; the *glandular patch* very short, not extending upward beyond the middle median veinlet; subapical black spot small. *Hindwing* with the pale angulate discal line, and large upper and lower ocellus of the underside visible. Underside with the borders of the forewing and the entire hindwing greyer. *Hindwing* with the discal white-bordered line more acutely angulate in its middle; and a much larger single upper and single lower ocellus each with broader white outer ring.

Female. Upper side similar to *M. Davendra*, except that on the forewing the discal line is more excurved, and the subapical spot larger, and sometimes a lower minute spot is also present. On the hindwing the discal angulate line and ocelli of the underside are visible. Underside as in the male, except that in some specimens there is a lower minute black spot on the forewing, and on the hindwing an incipient

minute ocellule sometimes present above the large upper ocellus, and one also beneath the lower.

Expanse ♂ ♀ $1\frac{7}{8}$ inch.

HABITAT.—N.-W. Himalayas (Dras and Indus Valley).

DISTRIBUTION.—Specimens of both sexes were taken in Dras, at 11,000 feet elevation, in June, 1887, by Mr. J. H. Leech, and at Kardong, 14,000 feet, in August, 1889, by Mr. H. McArthur. Major H. B. Hellard also obtained it in the “Dras River Valley in July, 1873, and in the Indus Valley on the Skardo Road, in July.”

Of our illustrations of this species on Plate 103, fig. 3 represents a male from Dras, and fig. 3a the female from Kardong, kindly lent by Mr. J. H. Leech.

MANIOLA TENUISTIGMA (Plate 103, figs. 4, 4a, ♂).

Male. Smaller than Quetta examples of *M. latistigma*; the cilia on both wings being cinerous-brown throughout and with a fine white inner bordering-line. Upperside. *Forewing* with the fulvous area of a duller tint, the *glandular patch* very narrow, being only half the width of that in *M. latistigma*; the subapical blackish spot small and pale ringed; markings of the underside of hindwing not visible. Underside similar to *M. latistigma* except the forewing having the pale-bordered discal line much waved and more erect, and the discal line on the hindwing also somewhat more erect; ocelli a little smaller.

Expanse, $1\frac{6}{8}$ inch.

HABITAT.—Kojak, Beluchistan.

Nearest allied to *M. comara*, Lederer, from Shahrud, North Persia, but differing from it on the upperside in the forewing being darker fulvous, the sexual patch also darker and half its width, the apical spot somewhat smaller. On the underside the forewing is also darker fulvous, with a distinct transverse discal wavy brown line, and the ocellus somewhat smaller; the hindwing having a more even angulate line, which is broader bordered externally with white, the upper and the two lower ocelli each somewhat smaller and white pupilled.

DISTRIBUTION.—The type specimen was obtained by Colonel C. Swinhoe on the Kojak, near Chaman, in June, 1880.

MANIOLA NARICA.

Papilio Narica, Hübner, Eur. Schmett, 1, figs. 704—707 (1805).

Satyrus Narica, Boisduval, Icones Lep. p. 212, pl. 62, figs. 3, 4, 5, ♂ ♀ (1832).

Epinephele Narica, Butler, Catal. Satyr. Brit. Mus. p. 68 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 204 (1883).

IMAGO.—Male. Upperside cinereous-brown; cilia white, slightly alternated

with brown at end of the veins. *Forewing* with the discal area fulvous; the *glandular patch* brown; subapical ocellus black. *Hindwing* without markings.

Female. Upperside cinereous-brown. *Forewing* with the discal area paler fulvous; crossed by a slightly-defined angulate discal line; subapical spot large and slightly pale-ringed, sometimes a smaller lower spot also present. Underside of both sexes paler. *Forewing* with the borders pale brownish-cinereous, slightly flecked with darker strigæ; discal area paler fulvous; subapical ocellus prominent, white-pupilled and pale-ringed; transverse discal angulate line indistinct; a distinct submarginal denticulated brown line. *Hindwing* brownish-cinereous, indistinctly flecked with darker strigæ; crossed by a subbasal and a discal irregular brown line and a sinuous submarginal line, the subbasal inwardly-bordered and both the latter outwardly-bordered broadly with white, the space between the subbasal and discal line thus forming a darker medial band.

Expanse, $1\frac{3}{4}$ to 2 inches.

HABITAT.—S. Russia; Western Asia; Afghanistan.

DISTRIBUTION WITHIN OUR LIMITS.—Colonel C. Swinhoe obtained a single female at Chaman in S. Afghanistan, on the 11th May, this specimen having been erroneously referred to *M. interposita* by Mr. Butler, in Ann. Nat. Hist. 1882, p. 207.

MANIOLA INTERPOSITA.

Epinephele interposita, Erschoff, Lep. Turkestan, p. 22, pl. 2, fig. 16, ♀ (1874). Butler, Proc. Zool. Soc. 1880, p. 405, pl. 39, fig. 1, ♂. Marshall and de Nicéville, Butt. of India, etc. i. p. 206 (1883).

IMAGO.—Male. Upperside olivescence-brown. Cilia cinereous-white, lined with pale brown. *Forewing* with an oblique inner-discal short broad black *glandular patch*, and a large subapical black spot with a pale ochreous outer ring. Underside pale cinereous. *Forewing* with the discal area pale fulvous; crossed by a very indistinct discal slender angulate pale brown line, and a more defined sinuous submarginal line, the latter line also bordering the upper half of the pale yellow-ringed white-pupilled ocellus; costal and outer border very indistinctly flecked with brown strigæ. *Hindwing* flecked with indistinct brown strigæ, and crossed by a very ill-defined irregular discal brown line and a submarginal lunular line, the discal line outwardly bordered by a whitish-cinereous fascia; between the lower medians is a very small subanal ocellule and another between the lower median and submedian vein.

Female. Upperside brown, with an obsolete paler outer band. *Forewing* with the subapical pale-ringed black spot. Underside similar to male, except that the discal area of forewing is brighter fulvous, and the transverse discal angular brown

line distinct. *Hindwing* also with the discal irregular pale-bordered line more distinct, the two subanal ocellules also present.

Expanse, ♂ ♀ $1\frac{4}{8}$ to $1\frac{6}{8}$ inch.

HABITAT.—Turkestan; Afghanistan.

DISTRIBUTION WITHIN OUR LIMITS.—Major Howland Roberts (P. Z. S. 1880, 405) obtained a male and female in May in the neighbourhood of Kandahar. Colonel C. Swinhoe obtained a single male at Chaman in S. Afghanistan on the 5th May, 1880. It is from this latter specimen that our description of the male is taken.

MANIOLA CHEENA (Plate 104, fig. 1, 1a, ♂ ♀).

Epinephele Cheena, Moore, Proc. Zool. Soc. 1865, p. 501, pl. 30, fig. 6, ♂ ♀. Butler, Catal. Satyr. Brit. Mus. p. 65 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 205 (1883).

IMAGO.—Male. Upperside dark olivaceous umber-brown. Cilia brownish-cinereous. *Forewing* with a prominent short inner-discal glossy grey-black *glandular patch* obliquely below the cell, the patch clothed with raised elongated rather broad claviform scales with acutely serrated tips, some shorter and broader similar-tipt scales, and some short and broad oval scales with an obtuse tip, interspersed with numerous long very slender *androconia* which have an elongated truncate-base, short hair-like end and tassel-tip; a subapical prominent black ocellus with minute white pupil and broad dark ochreous outer ring; in some specimens there are also two lower small incipient ocelli situated between the median veinlets, and in others there is only a lower but prominent small ocellule. Underside paler, cinerescent-brown. *Forewing* with the costal and outer border very indistinctly flecked with brown strigæ, the cell and discal area dark ochreous; crossed by a slender discal angulate brown line, and a straight even submarginal line; a prominent subapical ocellus with pale ochreous outer ring. *Hindwing* indistinctly flecked with numerous brown strigæ; crossed by a very indistinctly-defined slender brown angulated sinuous line, and a less distinct lunular submarginal line; a more or less apparent minute ocellule above the anal angle. Body beneath cinereous-brown; collar, sides of palpi, and legs beneath, pale whitish-cinereous; antennæ above brown, tip black, cinereous beneath and ochreous at tip.

Female. Upperside. *Forewing* with three prominent discal ocelli, the upper and lower larger than in male, the middle one small, each with broad pale ochreous outer ring, the upper one with a minute white pupil; between the ocelli and the cell the bright ochreous colour is somewhat slightly continued between the veins. Underside as in the male, except that on the forewing there are two larger pale-ringed ocelli.

Expanse, ♂ 2 to $2\frac{1}{8}$, ♀ 2 to $2\frac{2}{8}$ inches.

HABITAT.—Western Himalaya (Kunawur).

DISTRIBUTION.—According to Col. A. M. Lang (P. Z. S. 1865, 202) this is “the ‘meadow-brown’ of the meadows of Rogi and Cheeni, in Kunawur (taken at 10,000 feet altitude, in June and July). It is limited in its range, not appearing to the westward, nor venturing further north and east into the drier lands affected by the two other Satyri (*Epin. Davendra* and *Las. Baldiva*).” Major H. B. Hellard obtained it at “Pangi in Bushasir, in July and August.” (MS. Notes.)

MANIOLA KASHMIRICA (Plate 104, fig. 2, 2a, ♂ ♀).

Comparatively smaller than *M. Cheena*. Male. Upperside. *Forewing* with the apical ocellus much less defined, duller black, and with an indistinct very narrow brownish-ochreous outer ring; a minute blackish spot sometimes also present between the lower median veinlets; *glandular patch* similar. Underside with the margins of the forewing and the entire hindwing more ochreous in tint. *Forewing* with the discal area pale ochreous, the transverse discal line less angulate and less distinct, the ocellus somewhat smaller. Female. Upperside. *Forewing* with an upper and lower discal black spot, both with a pale ochreous outer ring. Underside as in the male, except that the discal area of forewing is paler ochreous, and with the two spots present.

Expanse, ♂ $1\frac{6}{8}$ to $1\frac{7}{8}$, ♀ $1\frac{7}{8}$ inch.

HABITAT.—Kashmir.

DISTRIBUTION.—Obtained by Capt. R. Bayne Reid at Gulmurg. Both sexes also obtained in Kashmir, in July and September, by Major H. B. Hellard. Mr. L. de Nicéville obtained several specimens “at Budrawah and Jora in Kashmir in June” (Butt. Ind. i. 205).

Genus **CHORTOBIUS**.

Chortobius, Guénee, in Doubleday's List of British Lep. Edit. 2, p. 2 (1859); Lep. Dept. Eure et Loir, p. 29 (1867-75). Scudder, Amer. Acad. Arts and Sci. Boston, 1875, p. 293.

Cœnonympha (part). Hübner, Verz. bek. Schmett. p. 65 (1816). Doubleday, List Lep. Brit. Mus. p. 141 (1844). Stephens, Catal. Brit. Lep. p. 9 (1850). Westwood, Gen. D. Lep. p. 396 (1851). Rambur, Catal. Lep. Andal. p. 23 (1858).

IMAGO.—Differs from typical *Cœnonympha* (*œdipus*, Linn.) in the *forewing* being comparatively longer, narrower, and more triangular in shape, thus having the exterior margin oblique and the posterior margin short. *Hindwing* also comparatively longer and more triangularly-oval in shape; abdominal margin distinctly excavated before the anal angle; exterior margin also somewhat scalloped; subcostal branches short. Antennæ somewhat stouter, the club shorter and slightly grooved.

TYPE.—*C. Pamphilus* (Linn.).

This genus embraces a group of European and N. Asian butterflies, which are intermediate between typical *Maniola* (*Jurtina*)—the males of which possess an androconial patch on the forewing—and *Cænonympha*, distinguishable by the above characters. It also includes the well-known *C. Typhon* (Darus, Fabr.) and its allies.

CHORTOBIUS PULCHRA (Plate 104, fig. 3, 3a, ♂ ♀).

Epinephole pulchra, Felder, Reise Novara, Lep. 111, p. 491 (1867), ♂. Marshall and de Nicéville, Butt. of India, etc. i. p. 209 (1883).

IMAGO.—“Male. Upperside as *pulchella*. Forewing with the fulvous patch less bright, divided by the fuscous veins, and cut through beyond the middle by an obsolete fuscous angulate streak, within which it is irrorated with fuscous; the margin of the ground-colour beyond wider than in *pulchella*, the blackish spot larger. Hindwing irrorated with fulvous in the disc. Underside as in *pulchella*, but the patch of the forewing more restricted and brighter fulvous, divided beyond the middle by the streak of the upperside, but obscure ferruginous and more distinct, and the ocellus larger” (*Felder*). Male. Larger than this sex of typical *Neozæ*. Upperside similar, except that the brownish-fulvous patch on the forewing is duller and is less apparent, it is more restricted within the discal area, and thus leaving broader brown margins, it is also crossed by an indistinct angulate slightly-diffused brown discal line; the subapical black spot is also larger. On the underside, the greyish-brown borders on the forewing are also broader, the discal angulate-line distinct, the submarginal line is sinuous, and the ocellus much larger.

Female. Upperside duller fulvous than in *Neozæ*, the discal angulate brown line more distinct and diffused. Underside as in the male.

Expanse, ♂ ♀ $1\frac{6}{8}$ to $1\frac{7}{8}$ inch.

HABITAT.—N.-W. Himalayas.

DISTRIBUTION.—Dr. Felder gives “Kunawur; Pangî, Bisahir, and Chini” for this species. “Mr. L. de Nicéville took several males at Dras and Tashgam, Ladak, in June; Mr. R. Ellis took it in Pangî in July; Mrs. Bazett obtained it in Kashmir at Baba Marishi, at 8400 feet elevation in June, at Katabal at 10,000 feet, and at Goolmurg at 9400 feet in July. Major J. Biddulph took a pair, male and female, on the Shandur plateau in northern Kashmir. Mr. A. Graham Young took a single female in the Kulu Valley” (Butt. Ind. i. 210). Specimens in our collection from Col. A. M. Lang, were obtained “below Rupin Pass, North, at 12,600 feet, in September,” a male also, taken by Capt. R. Bayne Reid at Goolmurg, and a male from “Tashgam in Dras Valley, Ladak,” taken by Major H. B. Hellard.

CHORTOBIUS NEOZA (Plate 104, figs. 4, 4a, ♂ ♀).

Epinephele Neoza, Lang, Ent. Monthly Mag. 1868, p. 35. Marshall and de Nicéville, Butt. of India, etc. i. p. 209 (1883).

Epinephele pulchella. Marshall and de Nicéville, Butt. of India, etc. pl. xv. fig. 40, ♂ (right hand half only).

IMAGO.—Male. Upperside cinereous olivescence-brown; cilia dark cinereous-brown. *Forewing* with the discal area broadly suffused with a glossy brownish-fulvous and indistinctly traversed by the brownish veins; a subapical blackish spot. Underside ochreous cinereous-brown. *Forewing* with the discal area bright fulvous, crossed by a very faint trace of an angulate discal red-brown line, and a lunulate blackish submarginal line; subapical ocellus prominent, with a minute white pupil and pale ochreous outer ring; costal and outer border very indistinctly flecked with brownish strigæ. *Hindwing* indistinctly flecked with brownish-speckled strigæ, and crossed by an indistinct subbasal and a discal sinuous angulate blackish line, and a more lunulate submarginal line.

Female. Upperside paler brown. *Forewing* with the discal area brighter brownish-fulvous than in the male; crossed by a very indistinct angulated brownish discal line; subapical spot larger, with a pale ochreous outer ring, and sometimes with a minute white pupil. *Hindwing* with the submarginal lunulate line of the underside very slightly apparent. Underside. *Forewing* brighter fulvous than in upperside, the angulate discal line very indistinct, submarginal lunulate blackish line slender; ocellus with white pupil and pale ochreous outer ring. *Hindwing* as in the male.

Expanse ♂ ♀ $1\frac{5}{8}$ to $1\frac{6}{8}$ inches.

HABITAT.—Western Himalayas.

The male of *C. Neoza* is distinguishable from that sex of *C. pulchra* by its somewhat smaller size, wider area of the brownish-ochreous patch on the upper-side, and in the absence of the transverse discal angulate line. Colonel Lang, in his original description of the male of *Neoza* (*l.c.* p. 35) certainly refers to this form, and in a letter received (dated January 1st, 1875) he says, "The original *Neoza* (from which I described) were larger than *pulchella*, and free from the angular transverse line outside the end of the disc."

DISTRIBUTION.—According to Col. A. M. Lang (Ent. Mo. Mag. 1868, 35), "this species appears to be common in Goolmurg, Kashmir, although in Kunawur it seems to be rare and confined to only a few localities." Our collection contains specimens taken by Major H. B. Hellard at "Pangi and Runang Pass in Busahir; at 10,000 to 12,000 feet elevation, in July and August, 1871, and at Tashgam in Dras River Valley, July, 1873." Both sexes are in Mr. J. H. Leech's collection, taken by Mr. McArthur at "Dana, June, 1888."

CHORTOBIUS PULCHELLA (Plate 105, figs. 1, 1a, ♂ ♀).

Epinephele pulchella, Felder, Reise Novara, Lep. iii. p. 490, pl. 69, fig. 16 (1867), ♂. Moore, Proc. Zool. Soc. 1874, p. 566. Marshall and de Nicéville, Butt. of India, etc. i. p. 208, pl. xv. fig. 40, ♂ (left hand half only).

IMAGO.—Male. Upperside brown; cilia cinereous-brown. *Forewing* with a large fulvous discal patch extending to near the base; a rather large black subapical spot. *Hindwing* unmarked. Underside pale olivescient cinereous-brown. *Forewing* with the fulvous patch as above, the costal and outer border indistinctly flecked with browner strigæ and hoary scales, the outer border edged with a very ill-defined brownish denticulated line; the subapical spot larger, white-pupilled, and encircled with a pale ochreous ring. *Hindwing* flecked with browner strigæ and hoary scales, and crossed by an ill-defined subbasal and a discal very flexuous brownish line, and a more macular submarginal line.

Female. Upperside as in male, except that on the forewing there is sometimes a lower median small black spot. Underside also as in the male, except that on the forewing the ocellus is somewhat larger and has a slightly broader encircling pale ochreous ring, and sometimes having a very small spot between the lower median veinlets. *Body* beneath pale cinereous-brown; hairs in front of palpi blackish-tipt; collar, sides of palpi, and legs beneath whitish-cinereous; antennæ brown above, whitish-cinereous beneath.

Expanse, ♂ $1\frac{5}{8}$, ♀ $1\frac{6}{8}$ to $1\frac{7}{8}$ inch.

HABITAT.—Western Himalayas.

Distinguishable from *C. Neoza* by the much brighter fulvous colour of the upper side of the forewing in both sexes, and also in the absence of the transverse discal angulate brown line in both the male and female.

DISTRIBUTION.—The localities given for this species by Dr. Felder (l. c. p. 490) are “Spiti; Losar, Dishungdeo, Kibber, Shalkar, Lupshu, and Rumbog in Ladak; Karnag; Niri Sundo, 15,000 feet; Padam; Abrang; and Marsmag.” Mr. L. de Nicéville (Butt. Ind. 208) records the capture of a large series of the male and of a single female at Dras and Tashgam in Ladak, in June, and Major J. Biddulph took a male at Astor at 7700 feet altitude in September, “and that it appears to affect higher elevations and to occur further in the interior than *E. Neoza*.” Major H. B. Hellard obtained it in Kashmir in September, 1872, and Mr. J. H. Leech collected specimens on the Skoro La, 12,000 feet, in July, 1887.

CHORTOBIUS CÆNONYMPHA (Plate 105, fig. 2, ♀).

Epinephele Cænonympha, Felder, Reise Novara, Lep. iii. p. 492, pl. 69, figs. 14, 15, ♀ (1867). Marshall and de Nicéville, Butt. of India, etc. i. p. 210 (1883) ♂ ♀.

IMAGO.—“Male. Upperside fuscous, with the forewing below and the hindwing

above the internal nervure obscurely and shingly hoary. *Forewing* with an ocellus between the discoidal nervules, and another between the first median nervules, blackish-fuscous, blind, incomplete. Underside hoary-fuscous, paler in the exterior region, with a very obsolete submarginal line. *Forewing* with a large fulvous discal patch, ill-defined, divided by a fuscous discocellular streak, and a most indistinct small fuscous fascia beyond the cell; the ocelli of the upperside blacker, the upper one with an indistinct ochraceous iris. *Hindwing* densely irrorated with blackish at the base, with a large fulvous patch on the upper base, with a smaller one above coalescing with it, circled with fuscous; the basal region darker, defined by an interrupted flexuous fuscous streak, and margined externally by seven unequal spots, the larger median one excepted, fulvescent, contiguous; with a minute posterior ocellus, obsolete, broadly circled with ochraceous."

"Female. Upperside as in the male. *Forewing* beyond the cell shaded with darker, with two blind black ocelli, broadly circled with ochraceous, especially the upper smaller one. *Hindwing* showing the markings of the underside. Underside as in the male, but darker. *Forewing* with the ocelli larger, more distinct, and with minute white pupils. *Hindwing* with two blind, whitish, subanal spots." (Felder.)

Expanse, 1 $\frac{6}{8}$ inch.

HABITAT.—Suroo, Ladak.

Dr. Felder's type specimens are recorded from Suroo, in North Ladak. We have not seen any examples from that district.

Our illustration of this species on Plate 105, fig. 2, is a reproduction of Dr. Felder's figure in the *Novara Reise*.

CHORTOBIUS MAIZA (Plate 105, fig. 3, 3a, b, ♂ ♀).

Epinephele Maiza, Lang, Entom. Monthly Mag. 1868, p. 36, ♀. Moore, Proc. Zool. Soc. 1874, p. 265, pl. 43, fig. 6, ♂. Marshall and de Nicéville, Butt. of India, etc. i. p. 211, pl. xv. fig. 41, ♀.

IMAGO.—Male. Upperside dark fulvescent-brown, with an olivaceous gloss in some lights; cilia cinereous brown. *Forewing* with the dusky angular discal line of the underside very faintly traceable; a very small indistinct subapical blackish spot with slightly pale outer ring; and sometimes a lower minute spot is also apparent between the lower medians; sometimes both these spots are absent. Underside paler, but brighter coloured. *Forewing* with the discal area fulvous, traversed by the dark veins, the brown borders broad and diffused; crossed by an angulated discal distinct diffused brown line; a small subapical distinct ocellus with white pupil and pale fulvous outer ring, sometimes also there is a minute blind ocellule present between the lower medians. *Hindwing* sometimes uniformly coloured

fulvescent-brown, but generally with the basal half more or less darker and olivescent-hoary, the dark portion sinuously-bordered by a discal interrupted series of pale fulvous cuneiform spots, these spots in some specimens being very pale, and those between the medians sometimes yellowish-white; there is also an outer minute pale subanal spot or ocellule between the lower medians, and a large fulvous subbasal patch cut by the subcostal vein.

Female. Upperside somewhat paler brown. *Forewing* with the discal angulate diffused dusky line apparent, and an upper and lower prominent black spot, each with a pale olivescent-yellow outer ring, these spots in some being small, in others larger. *Hindwing* with the pale discal spots of the underside more or less traceable. Underside paler than in the male. *Forewing* with the fulvous discal-area generally more defined, the angulate discal diffused line distinct; two ocelli always present, the upper one sometimes the largest, both with white pupil and pale yellow outer ring. *Hindwing* as in the male. *Body* beneath fulvescent-brown; legs beneath and side of palpi paler; antennæ with dusky-black club; eyes fulvous.

Expanse, ♂ ♀ $1\frac{5}{8}$ to $1\frac{6}{8}$ inch.

HABITAT.—Kashmir.

DISTRIBUTION.—We possess specimens of both sexes of this species, obtained by the late Capt. R. Bayne Reed in Kashmir, and at Goolmurg in July and August. Also examples from the Pir Pinjal, Kashmir. "A large series of the male were collected by Mrs. Bazett at Goolmurg, in July, at from 9000 to 10,000 feet elevation." (Butt. Ind. i. 212.)

Of our illustrations of this species on Plate 105, figs. 3, 3a represent the male, and fig. 3b the female, the latter a reproduction of Col. Lang's original drawing of the type specimen.

CHORTOBIUS GOOLMURGA (Plate 105, figs. 4, 4a, ♂ ♀).

Epinephete Goolmurga, Lang, Entom. Monthly Mag. 1868, p. 36, ♀. Marshall and de Nicéville, Butt. of India, etc. i. p. 212, ♀.

IMAGO.—Male. Upperside similar in colour to *C. Maiza*. *Forewing* with a very small indistinct subapical pale-ringed black spot; no discal angulate line visible. Underside brighter fulvous-brown. *Forewing* with the discal area bright fulvous, well defined, and with only a faint trace of the upper end of a transverse discal line visible; a small subapical pale-ringed ocellus with white pupil. *Hindwing* with the basal area dark olivescent hoary-brown, the dark portion bordered by a discal series of cuneiform pale fulvous-yellow spots, beyond which are two upper and two lower very small submarginal ocellules, sometimes one only of the latter series are present; a large subbasal fulvous patch cut by the subcostal vein.

Female. "Upperside dark brown. *Forewing* with a rather large subapical and

a lower black spot, both broadly-ringed with pale fulvous-yellow. Underside more olivescient greyish-brown. *Forewing* with the discal area fulvous; ocelli as above, but with narrow ring and white pupil; crossed by a very indistinct discal angulate line. *Hindwing* with the basal area darker and olivescient-hoary, the outer border paler, the dark portion bordered by a discal curved series of seven irregular cuneiform pale fulvous spots, followed by two upper and two lower submarginal small black spots, each with a yellowish ring; a large subbasal fulvous patch crossed by the subcostal vein.

Expanse, $1\frac{4}{8}$ to $1\frac{5}{8}$ inch.

HABITAT.—Western Himalayas.

DISTRIBUTION.—The type specimen, a female, described by Colonel Lang, was taken by the late Dr. Jerdon at Goolmurg, in Kashmir. The male, which we have described above, was taken by Major H. B. Hellard, in the Boorzil Valley, North Kashmir, in July, 1873. Males and females have also been taken by Mr. J. H. Leech in the Deosai Plains, at 12,000 to 13,000 feet elevation, in August, 1887, and in the Goorais Valley, 11,000 feet, in September, 1887. Among these Deosai specimens is a male with the underside of the forewing possessing a very small lower ocellule between the medians, and the hindwing having but faint traces of the fulvous subbasal patch and discal series of spots; and in a female, also from Deosai, the underside of the forewing has the outer border clouded with dark fulvous-brown, the hindwing also being uniformly tinted and all the markings obsolete.

Of our illustrations of this species on Plate 105, fig. 4 represents the male, above described, from the Boorzil Valley, and fig. 4a is a reproduction of Colonel Lang's original drawing of the type female.

ALLIED CHINESE CHORTOBIUS.—*C. Sinica* (Epineph. Sinica, Alpheraky, Romanoff's Mem. Lep. 1889, p. 121, pl. 5, fig. 7, ♀). *Habitat.* China.—*C. pavonica* (Cœnonympha pavonica Alpheraky, *id.* p. 119, pl. 5, f. 8, ♂). *Habitat.* China.

Genus YPTHIMA, auctorum.

KEY TO THE DIVISIONS OF THE GENUS YPTHIMA, of authors.

1. *Androconial patch* on forewing of male *prominent*.
 - a. Underside of *hindwing* with six ocelli, in three pairs, placed in echelon.
 - b. " " " " placed in linear series THYMIPA (type *Baldus*).
2. *Androconial patch* on forewing *not visible*, but the *androconia present*; underside of *hindwing* with four ocelli—one apical, three anal YPTHIMA (type *Hübneri*).
3. *No androconia*. Underside of *hindwing* with four ocelli KOLASA (type *Chenui*).
4. *No androconia*. Underside of *hindwing* with five ocelli—three apical, two anal NADIRIA (type *Bolanica*).

5. *No androconia.* Underside of *hindwing* with *three ocelli*—one apical between the *subcostals*, two anal PANDIMA (type *Narela*).
6. *Androconial patch not visible*, but the *androconia present.* Underside of *hindwing* with *three ocelli*—one apical between the *lower subcostal and radial*, two anal LOHANA (type *Inica*).
7. *No androconia.* Underside of *hindwing* with *four ocelli*—two apical, two anal DALLACHA (type *Hyagriva*).

Genus THYMIPA.

Ypthima (part) auctorum.

IMAGO.—Distinguished from typical *Ypthima* by its comparatively broader forewing, the venation being similar, except that it has a broader and posteriorly-longer cell, the linear outwardly-obliqueness of the discocellulars, and in the *male* possessing a prominent broad oblique discal *androconial patch*, which, in the type (*Baldus*), is clothed with very pale rounded-tipt battledore scales, a few longer pale scales with attenuated base and bluntly serrate-tip, and extremely numerous long blackish *androconia* with very slenderly-dilated base and tassel-tip. *Hindwing* also broader, the cell longer posteriorly, and the discocellulars more oblique. Palpi larger, apical joint long, slender, and slightly hairy in front. Antennæ with a slight, but imperceptibly-increasing, slender club.

CATERPILLAR.—“On emergence from the egg pinkish-white, hairy; when full grown, one inch in length, body compressed, flattened to a ridge line below the spiracles; head rounded; second, third, and fourth segments gradually increasing to the fifth, then very gradually decreasing to the anal segment, which is furnished with two very small pointed processes.”

CHRYSALIS.—“Very narrow; thorax longitudinally humped above, with another ridge just before the abdominal segment.” (de Nicéville.)

Type.—T. *Baldus*.

The species of this genus are also distinguishable in having a different formula in the position of the ocelli on the underside of the hindwing. There are six ocelli, which in the first section are disposed in echelon, in three inwardly-oblique groups of two across the wing; and in the second section the two lower pairs are linearly disposed.

SECTION 1.—Ocelli on underside of hindwing placed in three pairs.

THYMIPA BALDUS.

WET-SEASON BROOD (Plate 106, fig. 1; *larva and pupa*, 1 a, b, c, d, e, f, ♂ ♀).

Papilio Baldus, Fabricius, Syst. Ent. App. p. 829 (1775). Donovan, Ins. of India, pl. 36, fig. (1800).
Satyrus Baldus, Godart, Encycl. Méth. ix. p. 551 (1819).

Ypthima Baldus, Doubleday, List Lep. Brit. Mus. p. 139 (1844). Westwood, in Doubleday & Hewitson's D. Lep. p. 395 (1851). Hewitson's (part) Trans. Ent. Soc. Lond. 1864, p. 286.

Ypthima Baldus, Butler, Catal. Fabr. Lep. Brit. Mus. p. 36 (1869).

Ypthima Newboldi, Distant, Annals of Nat. Hist. 1882, p. 396; Rhopalocera Malayana, p. 57, pl. 4, fig. 6, ♀ (1882).

Ypthima methora, Distant, Rhop. Malayana, p. 56, pl. 6, fig. 9, ♂ ♀ (1882)—*nec Hewitson*.

Ypthima Philomela, Marshall and de Nicéville, Butt. of India, i. p. 216 (1883). de Nicéville, Journ. Asiat. Soc. Bengal, 1886, p. 232, pl. xii. fig. 22a, larva and pupa (*nec Linnæus*).

IMAGO.—Male. Upperside brown; a sub-marginal fascia on both wings, and an undulated discal fascia on the hindwing, darker brown; the ocelli-area paler and slightly sprinkled with cinereous strigæ on the hindwing; cilia pale cinerescent-brown. *Forewing* with a large prominent bipupilled ocellus, and a prominent discal dusky-black *glandular patch*, which extends also over the end of the cell, the patch clothed with short rounded-tipt pale battledore-scales, a few longer narrow pale scales with attenuated base and bluntly serrate-tips, interspersed with very numerous long blackish *androconia*, which are extremely slender and filiform with slightly thickened base and tassel-tip. *Hindwing* with two prominent median ocelli, and generally two minute anal ocelli, sometimes one only of the latter being present, in others, also, either one or two subapical small ocelli are sometimes present, and thus form a continuous series. Underside cinerescent-white, sometimes more ochreous-white, numerous covered with olivescient-brown strigæ, and crossed by a subbasal, a discal, and a submarginal more or less defined brown fascia. *Forewing* with a large apical ocellus, as above, bipupilled with silvery-blue. *Hindwing* with six prominent ocelli, two apical, two median, and two minute anal, each with a silvery-blue pupil, the series being disposed in echelon across the wing; sometimes a small ocellus occurs between the upper and median pairs.

Female. Upperside paler, the ocelli-area on both wings mottled with cinerescent-whitish strigæ, the base also somewhat more or less similarly mottled; ocelli as in the male, but larger. Underside as in the male. Body above brown; body beneath, palpi, and legs beneath cinereous-white; hairs of palpi tipt with brown; legs above brown.

Expanse, $1\frac{2}{10}$ to $1\frac{8}{10}$ inches.

DRY-SEASON BROOD (Plate 106, figs. g, h, i, ♂ ♀).

Ypthima Marshallii, Butler, Annals of Nat. Hist. 1882, p. 373. Marshall and de Nicéville, Butt. of India, etc. i. p. 217 (1883).

Male. Upperside somewhat paler than in the wet-season brood, the ocelli slightly smaller; *glandular patch* and transverse brown fasciæ also the same. Underside also paler, the strigæ paler and more numerous, the transverse fasciæ the same, but generally less defined and somewhat narrower. *Forewing* with the ocellus as

above. *Hindwing* with six minute ocelli, which are generally well-defined and silvery-white pupilled.

Female. Upperside as in wet-season brood. Underside as in male dry-season brood.

Expanse, $1\frac{5}{10}$ to $1\frac{8}{10}$ inches.

ADULT CATERPILLAR.—“One inch in length. Body more compressed than in *Y. Hübneri*, and flattened to a ridge line below the spiracles. Head rounded. Second segment a little larger than the head, third and fourth segments gradually increasing to the fifth, then very gradually decreasing to the anal segment, which is furnished with two very small immovable pointed processes or tails. Colour reddish-ochreous throughout, with an indistinct darker dorsal line, two narrow subdorsal lines, and several other very narrow lines placed very close together in the spiracular region above the lateral ridge; there is also a subdorsal series of about eight short oblique streaks. Head and body throughout also shagreened, being covered with small tubercles bearing very fine short hairs.”

CHRYSLIS.—“The pupa is either pale ochreous with darker ochreous and brown markings, or pale green with dark brown markings. It is very narrow, the thorax longitudinally humped above, with another ridge just before the abdominal segments placed transversely.” (de Nicéville.)

HABITAT.—India; Burma; Malay Peninsula; Sumatra; Borneo.

REARING OF WET AND DRY SEASON BROOD FROM THE EGG.—Mr. L. de Nicéville (Journ. Asiatic Society of Bengal, 1886, 234) gives the first recorded instance of rearing, in Calcutta, both the wet and dry season brood of this insect from the egg, as follows:—“On September 10th Captain Sage sent me a tin box, with net cover, containing several females of *Y. philomela* [Baldus]. The insects had laid numerous eggs on the net, which differ considerably in colour from those of *Y. Hübneri*, being at once distinguishable by the naked eye. On September 14th two larvæ emerged. On September 18th eighteen more emerged, and I placed all the young caterpillars in a stoppered glass jar on the same grass as that which was used for *Y. Hübneri*. The larvæ are at first exceedingly small, pinkish-white in colour, hairy, and with a pinkish head. When full-grown, they are a full inch in length, rather larger therefore than *Y. Hübneri*, reddish-ochreous coloured throughout; the head and body throughout are shagreened, being covered with small tubercles bearing very fine short hairs [for full description see above]. On October 8th, one larvæ; on October 9th, seven larvæ; on October 10th, two larvæ; and on October 11th, one larva changed to a pupa. On October 17th three females emerged; on October 19th, two males and one female; on October 23rd, two females, and on October 24th, one female emerged; and two larvæ died. All these butterflies proved to be true *Y. philomela* [Baldus] like their female parent.

“On my return from Darjiling, on November 8th, Captain Sage gave me eight

very small larvæ which had emerged on November 4th from eggs laid by a female of *Y. philomela* [Baldus] on October 29th. On December 16th, one larva changed to a pupa, which disclosed a male imago on January 5th; on December 18th, a larva changed, a female imago emerging on January 10th; on December 24th, a larva changed to a pupa, a female emerging on January 16th; and on December 28th, two larvæ changed to pupæ, a female emerging on January 19th from the one, and a male on January 20th from the other. Two larvæ died, having shrivelled up in the act of turning, possibly in consequence of the atmosphere of the glass-jar in which I bred them not being sufficiently moist, for in nature these animals must get heavily drenched with dew every night. All these butterflies bred from eggs laid by *Y. philomela* proved to be true *Y. Marshallii*. I may add that Captain Sage, who kept a careful register of his captures from day to day, first observed 'wild' specimens of *Y. Marshallii* on November 18th, having for months before caught *Y. philomela* only."

VARIABILITY IN SIZE.—In this widely-distributed species the size of the specimens vary considerably. Specimens, under examination, from Western India (Kattywar, Bombay, Mahableshwar) are the smallest—and also the palest in tone of colour on both the upper and undersides, in both the wet and dry-season broods. Examples from South India (Nilgiris) are variable in size, some being small, others large, and of darker tint throughout the upper and underside. Those from the Plains of Lower Bengal are large and prominently marked in the wet-season brood, but are paler in the dry-season brood. Chittagong and Upper and Lower Burmese specimens are also of the larger size.

DISTRIBUTION.—Specimens of *T. Baldus*, as here described, have been examined and verified from the following localities:—In our own collection are examples of the *wet* and *dry-season* broods from Kattywar, Bombay, Poona, and Mahableshwar, in Western India; from the Wynaad, Nilgiris, and Travancore, in South India; from Calcutta and the Khasia Hills, in Eastern India; of the wet-season brood from Chittagong, taken in September; Mandalay; Bhamo, taken in November; Karen Hills; Toungoo, in Tenasserim, and of both the wet and dry-season brood, taken in the Mergui Archipelago, by Dr. J. Anderson, from December to March.

Mr. G. F. Hampson (J. A. S. Beng. 1888, 349) obtained it in the Nilgiris, the wet-season brood in May and August, and the dry-season brood from December to April; being very common on the lower slopes of the Hills.

In Captain E. Y. Watson's collection are specimens of the wet-season brood from Mysore, taken in November, from the Nilgiris, taken in August, and of the dry-season brood, in December and January; the wet-season brood from Rangoon, in August; Toungoo, in November; Pougadaw, near Thyetmyo, in October and November; Pauk Yaw, in November, and Tilin Yaw, in December; and of the dry-season brood from Toungoo, in March, from Beeling in March and April, from

Sittang, in Tenasserim, in January, the Shan States, in January, and from Tilin Yaw, in February, March, and May. In the British Museum collection is the type specimen of *Y. Marshallii*—the dry-season form, from Mepley, Tenasserim.

We have not seen any specimens of true *Baldus* from either the Western or Eastern Himalayas. Marshall and de Nicéville (Butt. of India, p. 216) state that it "is found in the Western Himalayas in July; in Sikkim, from July to December; in Shillong, in March, April, and May, and again in July; in Lower and Eastern Bengal it is very common from May to July, and again in November, and probably throughout the year; in Cachar, Mr. Wood-Mason took it in profusion from April to October; from Arakan, Pegu, Tenasserim, and the Mergui Archipelago, from October to March; specimens from Khandalla and the Coessi Ghat, in the South Konkan, were taken by Mr. G. Vidal at the end of March; and from Travancore, by Mr. H. Fergusson, at 2000 feet elevation, in March and April. It is found not uncommonly in the Ashamboos Hills, in Travancore, in the extreme south of the Peninsula, and through the Wynaad along the Western Ghats as far as Khandalla. We have no certain record of its occurrence on the East coast or in the Dekkan, though it probably will be found in suitable localities throughout the Peninsula and Central India. We have specimens from Manbhoom and Orissa, and in Lower Bengal, Eastern Bengal, and Assam it is one of the commonest species. In the Himalayas, also, it is found as far West as Chumba, and probably throughout the range Eastward; in Sikkim it is not uncommon; it is found in the Khasia and Naga Hills, Cachar, and in Arakan, Pegu, and Tenasserim."

Mr. W. Doherty (Journ. As. Soc. Beng. 1886, 120) records its capture "in the Kumaon Valleys up to 6000 feet elevation." In Sikkim, according to Mr. H. J. Elwes (Trans. Ent. Soc. 1888, 325), it is "the commonest species of the genus at low elevations, from the Terai up to about 5000 feet. In the rains it is more abundant, and the form with ocelli well-marked is then the only one found, but the species occurs during the whole year in greater or less numbers; the cold-weather brood, which has the ocelli small or obsolete, agrees very well with those which Mr. de Nicéville has bred from eggs of *Philomela* in Calcutta." Mr. J. A. Betham (Journ. Bombay Nat. Hist. Soc. 1890, 158) says "the *Yphthimæ* are generally found fluttering about where there is grass, and flying in and amongst the stems; they are feeble little things, and not difficult to capture."

DISTRIBUTION OUTSIDE INDIAN AREA.—Mr. W. L. Distant, in "Rhop. Malayana," p. 56, has described and figured (pl. 6, fig. 9) this species (*Baldus*) erroneously as the *Y. Methora* of Hewitson, and on p. 57, pl. 4, fig. 6, has also described and figured a variety of the species as *Y. Newboldi*, both being from Malacca and Province Wellesley in the Malay Peninsula. Specimens of both sexes are also in the British Museum collection from Penang. In our own collection are examples from Malacca, Singapore, Sumatra, and Borneo.

Of the illustrations of *T. Baldus* on our Plate, No. 106, fig. 1 represents the larva and pupa reared in Calcutta by Mr. L. de Nicéville, figs. 1a, b, c, male and female from Bombay, fig. d, a Calcutta male, fig. e, an Assam male, and fig. f, a Calcutta female of the *wet season brood*; and fig. g, a Bombay female, fig. h, a Travancore male, and fig. i, a Calcutta male, of the *dry season brood*.

THYMIPA INDECORA.

WET-SEASON BROOD (Plate 107, figs. 1, 1a, ♂).

IMAGO.—Male. Upperside brown; both wings with a darker dusky-brown submarginal line. *Forewing* with a broad dusky-black medial-discal oblique *glandular patch* extending within the cell, the patch being clothed with short broad serrate-tipt battledore-scales, long narrow basally-attenuated acutely serrate-tipt scales, interspersed with numerous very long and extremely slender filiform *black androconia* with tassel-tips; a prominent large subapical bipupilled ocellus. *Hindwing* with a slightly-apparent dusky median fascia, two large median ocelli, and the small duplex anal ocellus and the apical ocellus of the underside slightly apparent. Underside pale cinereous-ochreous thickly covered with slender brown strigæ; with faint traces of a transverse discal fascia and of a submarginal line on the forewing. *Forewing* with the apical ocellus as above. *Hindwing* with three geminated pairs of large prominent ocelli disposed in echelon—two upper, two median, and two anal, the latter being the smallest.

Expanse, $1\frac{2}{3}$ to $1\frac{5}{8}$ inch.

DRY-SEASON BROOD (Plate 107, fig. 1b, ♂).

Ypthima indecora, Moore, Proc. Zool. Soc. Lond. 1882, p. 238, pl. 12, fig. 7, ♂. Marshall and de Nicéville, Butt. of India, etc., i. p. 218 (1883).

Male. Upperside as in the wet-season brood, the dusky marginal line, medial fascia, and the dusky black *glandular patch* on forewing clothed with the same kind and shaped scales and androconia. Underside cinereous-ochreous, somewhat more densely covered with strigæ than the wet-season form, the submarginal brown line and discal fascia on the forewing more defined, the ocellus as above. *Hindwing* with two similarly defined medial brown fasciæ, both of the latter being somewhat angulated, the three pairs of ocelli disposed as in the wet-season brood, being minutely defined. Female. Upperside as in male, except that the submarginal line is inwardly speckled by a few cinereous stripes. Underside as in male.

Expanse, ♂ ♀ $1\frac{2}{3}$ to $1\frac{4}{8}$ inches.

HABITAT.—N. W. Himalayas.

DISTRIBUTION.—This species is confined to the Western Himalayas. “It has been taken in Pangri, Kulu, and Kangra, in April and July” (Butt. of India, i. 218). Major H. B. Hellard obtained it at “Masuri at the end of September or

beginning of October, and in the lower Bagh River Valley, Kashmir, at the end of June" (MS. Notes). Specimens are in Mr. G. F. Hampson's collection from the Kulu Valley, 500 feet elevation, taken by Mr. E. Graham Young.

THYMIPA METHORA.

WET-SEASON BROOD (Plate 107, fig. 2, 2a, b, ♂, ♀).

Ypthima Methora, Hewitson, Trans. Ent. Soc. Lond. 1864, p. 291, pl. 18, fig. 20, 21, ♀.

Ypthima Methora, Butler., Catal. Satyr. Brit. Mus. p. 149 (1868). Elwes, Trans. Ent. Soc. Lond. 1888, p. 326.

IMAGO.—Male. Upperside dark olivescent-brown, with a faintly-indicated darker narrow transverse discal and a submarginal recurved fascia. *Forewing* with a large prominent apical black ocellus with pale ochreous outer ring and bipupilled with silvery-blue; a faintly-indicated broad dusky *glandular patch*, which is clothed with short dentate-tipt battledore-scales, some longer serrate-tipt scales, and a few moderately long blackish *androconia* with broad clavate base, short hair-like end and tassel-tip. *Hindwing* with six distinct ocelli, placed in echelon, the two upper being moderately small, the two median moderately large, and the two anal small, all narrowly ringed with pale ochreous, and the four latter silvery-blue pupilled. Underside pale ochreous-cinereous; densely covered with thickish dark brown strigæ. Both wings crossed by an ill-defined subbasal, a discal, and a submarginal brown fascia, the two latter on the hindwing being angulated. *Forewing* with the ocellus larger and very prominent. *Hindwing* with the ocelli also somewhat larger and all very prominent.

Female. Upperside paler; mottled with pale ochreous-cinereous strigæ, the discal and submarginal fascia more distinct and broader, the ocellus on forewing larger, the ocelli on the hindwing also somewhat larger, the upper one sometimes being obsolete. Underside brighter ochreous-cinereous, marked as in the male. Body above clothed with glossy olivescent-brown hairs, beneath pale ochreous-cinereous; legs brownish above, cinereous beneath; palpi clothed in front with blackish-tipt hairs.

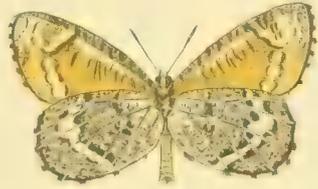
Expanse, ♂ 2 to $2\frac{2}{8}$, ♀ $2\frac{2}{8}$ inches.

DRY-SEASON BROOD (Plate 107, fig. 2c, ♂).

Male. Upperside as in wet-season brood, except that the ocelli on the hindwing are somewhat smaller, and sometimes one or both of the upper are absent; *glandular patch* and *androconia* the same. Underside paler and ochreous-cinereous in tint, the brown strigæ somewhat less prominent, the transverse brown fasciæ more defined, and the discal fascia distinctly angulated on the hindwing; the ocellus on



1.



1^a



2.



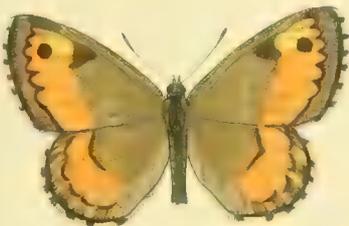
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3.



3^a



4.



4^a



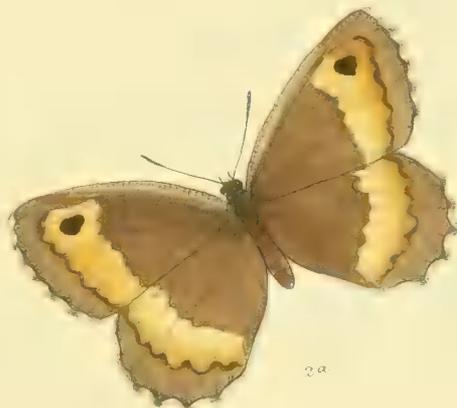
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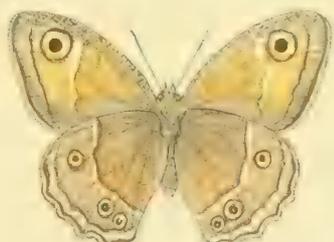
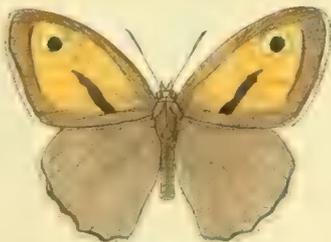
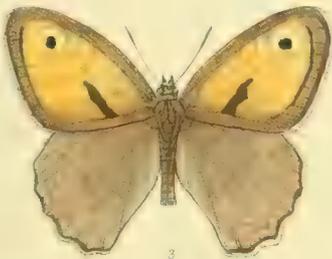
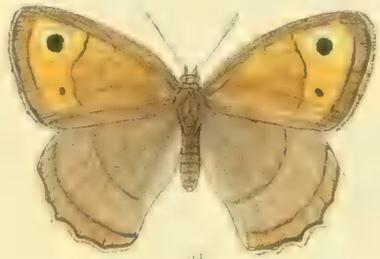
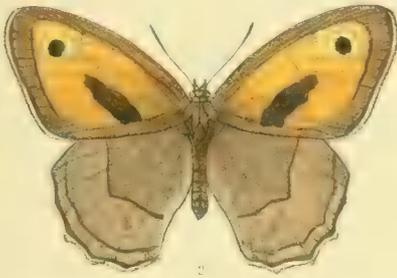
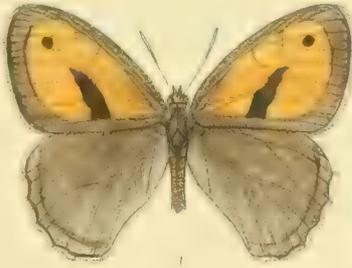
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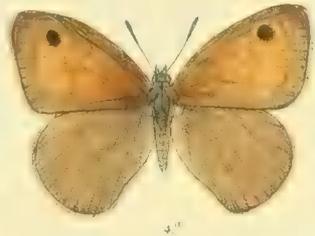
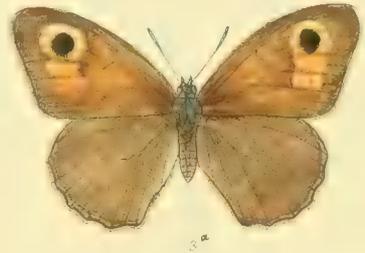
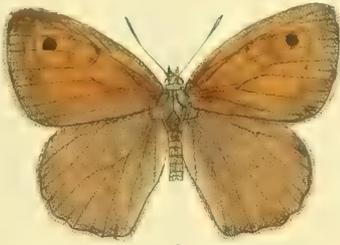
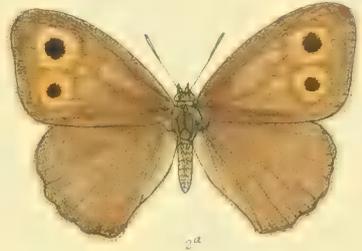
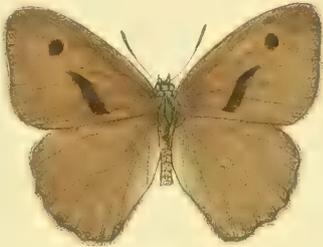
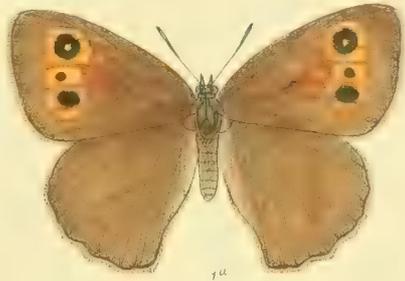
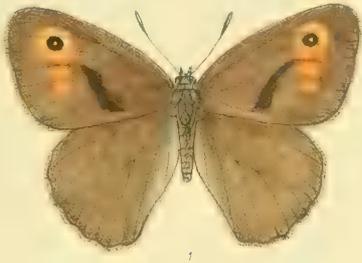


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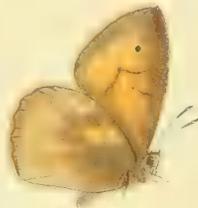
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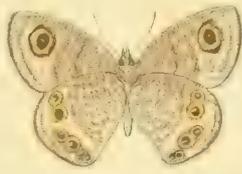
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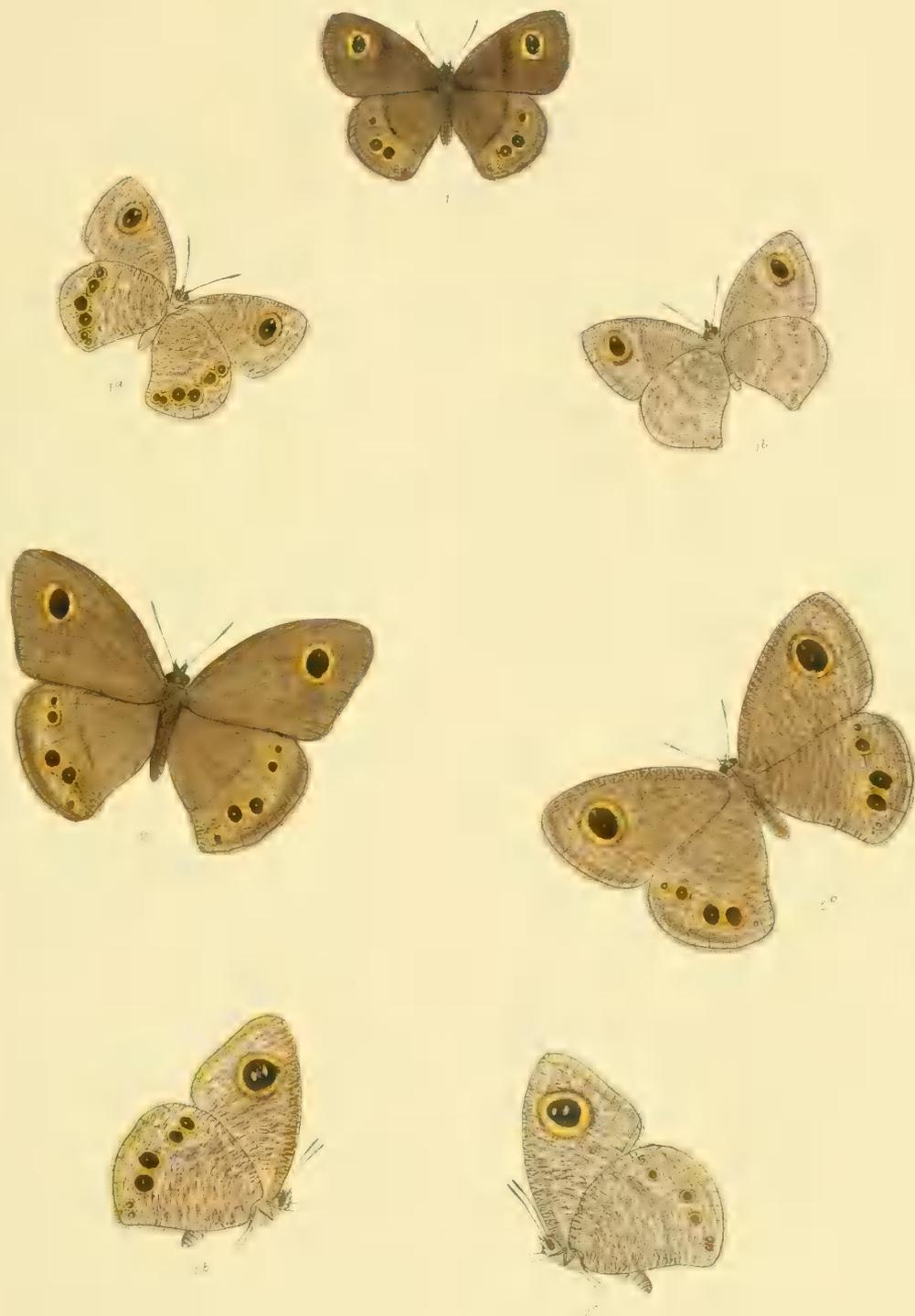
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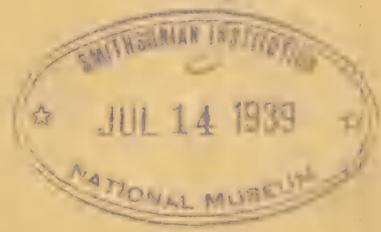
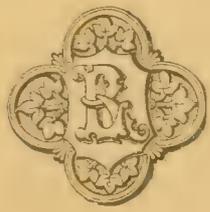
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the forewing larger and paler ringed, the ocelli on the hindwing all very small, though distinctly formed.

Female. Upperside similar to wet-season brood; the ocelli being smaller. Underside as in the male.

Expanse, 2 to $2\frac{2}{8}$ inches.

HABITAT.—Sikkim; Bhotan; Khasia Hills.

DISTRIBUTION.—Mr. H. J. Elwes (Trans. Ent. Soc. 1886, 326) records "obtaining three specimens (of the wet-season brood) at Pashok in Sikkim, and at Mamloo in the Khasia Hills, in August and September, and Sikkim and Bhotan specimens of the cold-weather brood in February and March." Mr. Otto Möller also obtained specimens of both broods in Sikkim, and in Bhotan, the wet-season brood in August. "Mr. A. V. Knyvett obtained both the ocellated and non-ocellated forms in Buxa, Bhotan, the former occurring in March and April, and the latter in August." (de Nicéville, J. A. S. Beng. 1886, 233.)

THYMIPA DOHERTYI.

WET-SEASON BROOD (Plate 108, figs. 1, 1a, ♂).

Ypthima Methora, Elwes, Proc. Zool. Soc. 1891, p. 267, pl. 27, fig. 1, ♂ (*nec* Hewitson).

IMAGO.—Male. Upperside pale olivescient ochreous-brown, with a narrow dusky-brown submarginal fascia, and also a less distinct discal fascia on the hindwing. Forewing with a distinctly-defined broad discal dusky glandular patch, which also extends to within the lower part of the cell, the patch clothed with short dentate-tipt battledore-scales, some longer anteriorly-broad acutely serrate-tipt scales, interspersed with numerous long blackish *androconia* with broadly-elongated clavate base, hair-like end and tassel-tip, and others of the same length but with extremely slender base and tassel-tip; ocellus large, pale ringed, bipupilled with silvery-blue. Hindwing with two prominent rather large apical ocelli, two large median, and a small anal geminated pair. Underside pale ochreous-white, the borders more ochreous in tint, numerously covered with slender olive-brown strigæ, these strigæ being more thickly disposed across the area of the ocelli; discal and submarginal fascia scarcely defined; no indication of a subbasal fascia on either wing. Forewing with a large prominent ocellus having a rather small black centre, broad ochreous ring and a slender brown outer ring. Hindwing with six very prominent ocelli, placed in echelon, the upper two large and of equal size, the two median somewhat larger and equal in size, the two anal geminate and also large, all with somewhat small black centre, broad ochreous ring and slender brown outer ring.

Female. Upperside as in the male; both wings with the discal area bordering the ocelli mottled with pale strigæ. Underside as in the male. Forewing with the

ocellus the same. Hindwing with the ocelli somewhat smaller. *Body* above brown; body beneath, palpi, and legs beneath pale ochreous-white; legs above ochreous; palpi clothed with slightly blackish-tipt hairs.

Expanse, $2\frac{2}{3}$ to $2\frac{3}{8}$ inches.

HABITAT.—Burma.

DISTRIBUTION.—The male of the wet-season brood above described was obtained by Signor Leonardo Fea at Moolayet, Upper Tenasserim, in March, during his recent Burmese excursion.

Mr. H. J. Elwes (P. Z. S. 1891, 267, pl. 27, f. 1) records and figures a male (under the name of *Y. methora*), from specimens collected by Mr. W. Doherty in Eastern Pegu, at 2000 feet elevation and upwards.

A female of this species is in the Hewitsonian Cabinet at the British Museum, and is there also erroneously placed with *Y. methora*; this specimen is labelled "Yunan," and was formerly in the late Mr. W. S. Atkinson's cabinet, having been collected by Dr. J. Anderson during the Expedition to Western Yunan in 1868. Specimens of the male, also from the Yunan Expedition, are erroneously recorded (Butt. of India, i. 215) under *Y. methora*, as being in the Indian Museum, Calcutta.

THYMIPA SAVARA.

WET-SEASON BROOD (Plate 108, figs. 2, 2a, ♂).

Ypthima Savara, Grose-Smith, Annals of Nat. Hist. 1887, p. 267. Adamson, Catal. of Burmese Lep. p. 8 (1889). Watson, Journ. Bombay Nat. Hist. Soc. 1891, p. 35.

IMAGO.—Male. Upperside pale olivescent-brown; cilia of forewing brownish-cinereous, of hindwing pale cinereous. *Forewing* with a very broad medial discal dusky *glandular patch*, which is clothed with a few short broad dentate-tipt pale battledore-scales, some long anteriorly-broad acutely serrate-tipt scales, and numerous long darker *androconia* with elongated clavate base, hair-like end and tassel-tip; apical ocellus large, bipupilled with silvery-blue, the upper pupil being minute, the ring pale ochreous, broad, and bordered by an outer indistinct brown ring; submarginal brown fascia diffused. *Hindwing* crossed by a slightly-defined discal recurved narrow brown fascia, which joins an outer marginal wavy fascia, the inner ocelli-area being slightly cinereous speckled inwardly and with paler strigæ outwardly, encompassing a minute (sometimes two) upper ocellus, two large prominent median ocelli and two minute anal ocelli, the four latter with a single silvery-white pupil. Underside whitish-cinereous, numerously covered with slender olivescent-brown strigæ; both wings crossed by a subbasal, a medial, and a submarginal brown fascia, which are less prominent on the hindwing, the discal fascia on the forewing being dilated posteriorly, and the two discal fasciæ on the hindwing being straight in

their course across the wing. *Forewing* with a large prominent apical ocellus, bipupilled with silvery-blue, broadly ringed with pale ochreous and by a narrow outer brown ring. *Hindwing* with two prominent moderately-sized apical ocelli, two large median ocelli and two smaller geminated anal ocelli, disposed in echelon, each with a silvery-blue pupil. *Body* beneath pale cinereous-ochreous; palpi and legs above brownish, beneath pale cinereous-ochreous.

Expanse, 2 inches.

DRY-SEASON BROOD (Plate 108, figs. 2b, c, d, ♂ ♀).

Male. Upperside cinereous olivescent-brown, the discal and marginal brown fascia more defined, the area enclosing the ocelli paler and more cinereous-white speckled; *glandular patch* as in wet-season brood. Underside somewhat paler, and of a more ochraceous-cinereous tint; the brown strigæ less distinct, the transverse brown fasciæ more defined but somewhat narrower. *Forewing* with a similar large ocellus. *Hindwing* with all the six ocelli minute and silver pupilled.

Female. Upperside browner than in the male; the basal area somewhat strigose. Both wings crossed by a recurved discal and a marginal dusky-brown fascia, their inner ocelli area traversed by cinereous-white strigæ. *Forewing* with the ocellus larger. *Hindwing* with two very small upper ocelli, two large median ocelli, and generally two minute anal ocelli, the four latter silvery pupilled. Underside as in the male.

Expanse, 2 to 2 $\frac{2}{8}$ inches.

HABITAT.—Burma.

DISTRIBUTION.—The type specimen was obtained by Major C. H. E. Adamson near "Myawaddee on the Thougyeen River, Upper Tenasserim, in February, 1881" (Adamson's List, p. 8). Major Adamson also obtained wet-season examples at Kyap-Saken, at 2000 feet elevation, in March, and sexes of the dry-season brood at Kathapa in February, and also at Yemmathoung, in February, 1892. Captain E. Y. Watson obtained several specimens of the dry-season brood during the expedition from the Burmese side to the Chin-Lushai Hills of 1889-90, at Tilin Yaw, in March and April, 1890, and also both sexes at Toungoo in March, 1891. Specimens of the wet-season brood were also obtained by Mr. W. Doherty, in East Pegu, at 2000 feet elevation, in March and April, 1890, and are now in the collection of Mr. H. J. Elwes.

The three last described species, viz.: *Methora*, *Savara*, and *Dohertyi*, though nearly allied, are undoubtedly quite distinct. In addition to their difference in coloration both on the upper and under side, their androconia, as seen under the microscope, are each different, one from the other. In *Methora* also, the subbasal

and discal brownish fascia, on the underside of both sexes, are both angulated in their course across the wings; whereas in *Savara*, they are straight, and in *Dohertyi*, the discal fascia is scarcely traceable, the subbasal fascia being quite obsolete.

SECTION 2.

Ocelli on underside of hindwing placed in linear series.

THYMIPA NIKÆA (Plate 109, figs. 1, 1a, ♂).

Ypthima Nikæa, Moore, Proc. Zool. Soc. Lond. 1874, p. 567. Marshall and de Nicéville, Butt. of India, etc. i. p. 232 (1883). Waterhouse, Aid to the Identif. of Ins. pl. 179, fig. 8, ♀.

Ypthima Sakra, Butler, Proc. Zool. Soc. Lond. 1866, p. 359; Annals of Nat. Hist. 1888, p. 136; *nec* Moore.

IMAGO.—Male. Smaller than *T. Sakra*. Upperside. Both wings with smaller and less prominent ocelli—these being about half the size; with two median ocelli on the hindwing, sometimes one only (the lower) being present; marginal band less defined and narrow; *glandular patch* very indistinctly defined, clothed with more or less short broad scales with serrate-tips, interspersed with a very few long black *androconia*, which have an elongated broad base, hair-like end and tassel-tip. Underside duller, pale cinerous-ochreous; more densely covered with brown strigæ, especially on the forewing. Both wings with a well-defined slender pale ochreous extreme marginal line, and the forewing with traces of a broad discal and a marginal brown fascia; ocelli smaller, the apical geminated pair on the hindwing has, generally, separated black centres and intervening portion of the yellow ring, sometimes the upper median ocellus is also absent.

Female. Upperside paler brown; extreme marginal slender pale line on the hindwing distinct; discal area studded with pale strigæ. Underside also paler than in male, more cinerous in tint, the apical geminated-ocellus on the hindwing somewhat larger.

Expanse, ♂ ♀ $1\frac{5}{10}$ to 2 inches.

HABITAT.—N. W. Himalayas.

DISTRIBUTION.—Major J. W. Yerbury (Ann. N. H. 1888, 136) records it as being “common on the lower slopes of Thundiani above Kala Pani; and a few were taken at Murree and at Dewal, in August and September.” Major H. B. Hellard took it at “Simla, Masuri, and in Kashmir, from June to October” (*MS. Notes*). Col. A. M. Lang, in his *MS. Notes* records it from the “Simla Hills and Lower Kunawar, in June and July.” Mr. W. Doherty (*Journ. As. Soc. Bengal*, 1886, 119) obtained it in “Kumaon generally, at 3000 to 11,000 feet, being common in the higher regions.”

THYMIPA SAKRA (Plate 109, figs. 2, 2a, b, ♂ ♀).

Ypthima Sakra, Moore, Catal. Lep. Mus. East India Comp. i. p. 236 (1857). Hewitson, Trans. Ent. Soc. Lond. 1864, p. 290, pl. 18, fig. 18.

Ypthima Sakra, Butler, Catal. Satyr. Brit. Mus. p. 149 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 232 (1883).

IMAGO.—Male. Upperside deep olivescient-brown; both wings with a broad darker marginal band, which is slightly bordered inwardly by a few pale ochreous strigæ, and the hindwing with a very slender pale cinerescent-ochreous extreme outer marginal line. Cilia brownish-cinereous. Forewing with a prominent subapical ocellus bipupilled with silvery-blue, and with a slender ochreous outer ring, and, in some few specimens, a very minute ocellus is present between the middle and lower medians, being more prominent on the underside; glandular patch indistinctly defined, clothed with rather short broad dentate-tipt scales and with a few intervening black *androconia*, which have a short broad dilated-bulbous base, hair-like end and tassel-tip. Hindwing with two prominent median ocelli, the lower one the largest, and, generally, there is also a small anal ocellus, and sometimes a minute apical ocellus, which latter is also occasionally as large as the upper median ocellus. Underside olivescient-ochreous, densely covered throughout with *uniformly-disposed* dark olivescient-brown strigæ. Forewing with the ocellus, as above, very prominent and ringed with bright ochreous and bipupilled with silvery-blue. Hindwing with a very prominent large subapical geminated pair, bipupilled, both being encompassed in one outer bright ochreous ring; two median ocelli, and a large geminated anal bi-pupilled ocellus.

Female. With somewhat broader wings than in the male. Upperside as in the male, except that the outer discal area of both wings is broadly more conspicuously studded with cinerescent-ochreous strigæ. Underside as in the male. Body beneath, palpi and legs beneath pale cinerescent-ochreous; legs above brown; hairs of palpi whitish tipt; antennæ dusky brown, annulated with white, tip reddish.

Expanse, ♂ 2 to $2\frac{1}{8}$, ♀ $2\frac{2}{8}$ inches.

HABITAT.—E. Himalayas.

DISTRIBUTION.—Typical *Sakra* is confined to the Eastern Himalayas. Mr. H. J. Elwes (Trans. Ent. Soc. 1888, 326) records it as “the commonest species of the genus in Sikkim, at from 4000 to 8000 feet elevation, and occurs as low as 2000 feet, from March to November. It is one of the commonest roadside insects in Sikkim among grass and bushes.”

THYMIPA AUSTENI (Plate 109, figs. 3, 3a, ♂ ♀).

Ypthima Sakra, Marshall and de Nicéville, Butt. of India, i. pl. 17, fig. 67, ♂.

IMAGO.—Male. Upperside similar to typical *Sakra*. Underside densely covered

with dark olivescent-brown strigæ; both wings with a submarginal and a discal brown fascia; ocelli similar, except that on the hindwing the lower series are larger and of uniform size.

Female. Upperside paler than in the same sex of *Sakra*, the outer discal area bordering the ocelli more or less paler and but very slightly studded with a few ochreous scales. *Forewing* with the ocellus larger. *Hindwing* with a large subapical ocellus, and two median ocelli of the same size; sometimes a smaller ocellus is present above the subapical one and another also below it. Underside paler than in male, the strigæ duller, the basal area and the broad marginal border densely clouded, the intermediate outer-discal area being whitish cinereous and slightly traversed by the strigæ, thus forming a more or less-defined submarginal pale fascia. Ocellus of forewing very large, rounded; sometimes a small lower ocellule is present between the medians; ocelli on hindwing somewhat smaller than in male, the three lower of uniform size.

Expanse, ♂ 2, ♀ $2\frac{1}{8}$ inches.

HABITAT.—Khasia Hills; Naga Hills; Looshai Hills, Upper Burma.

DISTRIBUTION.—Specimens were taken in the Khasia Hills by Lt.-Colonel H. H. Godwin-Austen. Examples from the Khasia Hills are also in the collection of Colonel C. Swinhoe. Mr. H. J. Elwes (P. Z. S. 1891, 268) records specimens, taken by Mr. W. Doherty, in the Naga Hills, and at Bernardmyo, Burma. In Mr. P. Crowley's collection are examples from the Looshai Hills.

THYMIPA AVANTA.

WET-SEASON BROOD (Plate 109, fig. 4, ♀).

Ypthima ordinata, Butler, Proc. Zool. Soc. Lond. 1880, p. 148, pl. 15, fig. 3; *id.* 1886, p. 358. Marshall and de Nicéville, Butt. of India, etc. i. p. 219 (1883). Butler, Ann. Nat. Hist. 1888, p. 136.

IMAGO.—Male. Upperside uniformly dark-brown. *Forewing* with an indistinctly defined broad dusky discal *glandular patch*, which is clothed with short round-tipt battledore-scales, some longer clavate rounded-tipt scales, and numerous long slender *dark tapering filiform androconia* with tassel-tips; a subapical bipupilled ocellus. *Hindwing* with two, and sometimes a lower third subanal small ocelli. Underside pale ochreous-grey, very densely covered with dark-brown strigæ. Both wings crossed by a more or less-defined angulated subbasal and medial, and a submarginal brown fascia. *Forewing* with a large prominent subapical ocellus. *Hindwing* with two upper and four lower well-formed large ovate ocelli, the two anal being geminated, each with a large black centre and a large oval silvery pupil.

Female. Upperside with the ocelli more prominent. Underside strigose, as in

the male, the ocelli somewhat larger and more prominent, the transverse fasciæ less apparent.

Expanse, ♂ $1\frac{3}{10}$, ♀ $1\frac{6}{10}$ inches.

DRY-SEASON BROOD (Plate 109, fig. 4a, ♂).

Ypthima Avanta, Moore, Proc. Zool. Soc. Lond. 1874, p. 567. Marshall and de Nicéville, Butt. of India, etc. i. p. 218, pl. xvii. fig. 66, ♂ (1883). Waterhouse, Aid to Ident. of Ins. pl. 179, fig. 6, ♂. Butler, Ann. Nat. Hist. 1888, p. 135.

IMAGO.—Male. Upperside uniformly dark-brown. *Forewing* with an indistinctly defined broad dusky discal *glandular patch*, and a very small indistinct bipupilled subapical ocellus. *Hindwing* with two very small single-pupilled subanal ocelli situated between the medians. Underside pale ochreous-grey, very densely covered with slender dark-brown strigæ, and both wings crossed by a narrow subbasal, a medial and a submarginal brown fascia, the subbasal and medial fascia on the hindwing being wavy. *Forewing* with a prominent large bright oval subapical ocellus bipupilled with silvery-bluish-white. *Hindwing* with two small upper oval ocelli disposed between the upper subcostal and radial, and four lower linearly-disposed similar ocelli, the two lowest being geminated, each with a large oval silvery bluish-white pupil.

Female. Upperside. *Forewing* with a larger well-formed pale ringed bipupilled ocellus. *Hindwing* with two smaller subanal ocelli. Underside densely covered with dark-brown strigæ, as in the male, the transverse fasciæ less defined. *Forewing* with large prominent ocellus, as on upperside. *Hindwing* with two small upper and four lower ocelli disposed as in the male.

Expanse, ♂ $1\frac{4}{10}$ to $1\frac{6}{10}$, ♀ $1\frac{8}{10}$ inch.

HABITAT.—N. W. Himalayas; Eastern India; Western Burma.

DISTRIBUTION.—“In the Western Himalayas, the *dry-season form* is found from April to August, being common in Kulu, and extending to Kashmir on the West.” (*Butt. India*, i. 218). Major H. B. Hellard obtained the *dry-season form* in the “Lower Bagh River Valley, Kashmir, at the end of June” (*MS. Notes*). Major J. W. Yerbury (P. Z. S. 1886, 359) took the *wet-season form* between Abbottabad and Kala Pani in September, at Murree and Tret in October, and the *dry-season form* at Kala Pani in April and May; being common about Kala Pani and on the road between Abbottabad and Bugnoter in September.” In Mr. G. F. Hampson’s collection are specimens of the *wet-season brood* from Col. A. M. Lang, taken in Kumaon at Bagheswar, 3800 feet, in September, at Katarwal, 4500 feet in October. Mr. W. Doherty (*Journ. Asiat. Soc. Bengal*, 1886, 120) records it from “Kumaon—being found in river valleys generally from 2500 to 5000 feet elevation.” Mr. Butler (P. Z. S. 1880, 148) gives “Bengal” as the locality of the type specimen of *ordinata*.

In Colonel Swinhoe's collection is a male of the *dry-season form*, taken at Paras Pani, Mirzapur, N. W. Provinces, and which was erroneously referred by him in P. Z. S. 1883, 145, under *Y. Inica*, as being the same as that species. In Capt. E. Y. Watson's collection are specimens taken at Berhampur, Ganjam District, in Orissa. Capt. Watson collected specimens [which we have examined] during the Chin-Lushai Expedition of 1889-90, and took the *wet-season form* at Pauk-Yaw, on the Burmese side, in November, and of the *dry-season form* also, at Tilin-Yaw, in March and April" (Journ. Bombay N. H. Soc. 1891, 35). Capt. Watson also obtained the *wet-season form* at Toungoo, in November, and at Sittang, in Tenasserim, in January.

THYMIPA SINGALA.

WET-SEASON BROOD (Plate 110, figs. 1, 1a, ♂ ♀).

Ypthima Singala, Felder, Verh. Zool. Bot. Gessell. 1868, p. 283. Moore, Lep. of Ceylon, i. p. 24, pl. 12, figs. 3, 3a, ♂ (1880). Marshall and de Nicéville, Butt. of India, etc. i. p. 230 (1883).

IMAGO.—Male. Upperside uniformly dark-brown. Both wings generally without any ocelli visible, but sometimes an indistinct black subapical spot is present on the forewing, and either one, or two, small subanal ocelli on the hindwing. Underside pale ochreous-grey, very thickly covered with uniformly-disposed brown strigæ; both wings showing slight traces of an incurved discal, and a submarginal narrow brown fascia. *Forewing* with a very prominent subapical bipupilled ocellus. *Hindwing* with two small apical, two median, and two smaller anal round linearly-disposed ocelli, each with a minute silvery-white pupil, the two anal ocelli being smallest and geminated, and the upper apical generally also smaller.

Female. Upperside. *Forewing* with a well-formed subapical bipupilled ocellus. *Hindwing* with the two small median ocelli also present. Underside as in the male.

Expanse, $1\frac{4}{10}$ to $1\frac{5}{10}$ inch.

DRY-SEASON BROOD (Plate 110. fig. 1b, ♂).

Ypthima Thora, Moore, Lep. of Ceylon, i. p. 24, pl. 12, figs. 4, 4a, ♂ (1880).

IMAGO.—Upperside. *Forewing* with the subapical ocellus present or absent. *Hindwing* with one only, or sometimes two, small median ocelli. Underside thickly covered with uniformly-disposed brown strigæ, and with indistinct traces of an incurved discal and marginal fascia. *Forewing* with a prominent bipupilled ocellus. *Hindwing* with two apical, two median, and two anal minute round ocelli.

Expanse, $1\frac{4}{10}$ to $1\frac{5}{10}$ inch.

HABITAT.—Ceylon.

DISTRIBUTION.—The type specimen described by Dr. Felder was obtained at

Badulla at an elevation of 3000 feet. Capt. Hutchison states (Lep. Ceylon, 24) that it is "rare, a few specimens only being taken in long grass on borders of coffee-plantations at Buselowe at 3000 feet elevation." Mr. F. M. Mackwood, in his 'Notes,' records it "from 2000 feet upwards, in patenas and small undergrowth adjoining. Most plentiful at Ambegamoa."

THYMIPA TABELLA.

WET-SEASON BROOD (Plate 110, figs. 2, 2a, ♂).

Ypthima Tabella, Marshall and de Nicéville, Butt. of India, etc. i. p. 234 (1883).

IMAGO.—Male. Upperside uniform brown, with a slightly-defined submarginal linear shade. *Forewing* with a small rounded subapical bipupilled ocellus, and hindwing with two small median round ocelli; no *glandular patch* nor *androconia*, the discal area being clothed with ordinary scales only. Underside pale ochreous-grey, thickly covered with uniformly-disposed dark-brown strigæ. *Forewing* with a prominent subapical ocellus. *Hindwing* with six ocelli, placed in echelon,—viz. : a geminated apical pair, the upper one being minute and sometimes absent, two median ocelli, and an anal geminated pair of smaller ocelli.

Expanse $1\frac{2}{10}$ to $1\frac{3}{10}$ inch.

DRY-SEASON BROOD.

Male. Upperside as in the wet-season brood. Underside uniformly covered with strigæ. *Forewing* with a prominent apical ocellus. *Hindwing* with two minute subapical ocelli, the upper one being sometimes obsolete, two minute median ocelli, and two still more minute anal ocelli.

Expanse $1\frac{2}{10}$ inch.

HABITAT.—South India.

DISTRIBUTION.—The type specimen described by Capt. Marshall is recorded from the Wynaad. Mr. G. F. Hampson (J. A. S. Beng. 1888, 350) says it is "Common at the North-West corner of the Nilgiris on the Wynaad boundary." Mr. Hampson obtained the wet-season brood on the Nilgiris in September and October. Capt. E. Y. Watson took specimens of the dry-season brood on the Nilgiris, at Devala, in January. Capt. E. Y. Watson also obtained examples of what appear to be the dry-season brood of this species, at Sittang and Toungoo, in Burma, in December and January.

THYMIPA STRIATA.

WET-SEASON BROOD (Plate 110, figs. 3, 3a, b, ♂ ♀).

Ypthima striata, Hampson, Journ. Asiatic Soc. Bengal, 1888, p. 349.

IMAGO.—Male. Upperside dark-brown; cilia pale cinereous. *Forewing* with a

distinct large subapical black ocellus, bipupilled, and ringed with ochreous-yellow; with a faintly defined darker-brown submarginal and a discal fascia; *glandular patch not apparent*, its area clothed with short, and a few longer, broad scales with dentate tips, interspersed with a very few dark *filiform androconia*. Hindwing with two small subanal ocelli. Underside cinereous-white, with numerous distinctly defined very slender brown strigæ. *Forewing* with the ocellus somewhat larger and brighter than on upperside; crossed by a well-defined darker brown slightly recurved submarginal and a discal fascia. *Hindwing* crossed by a similar brown recurved medial and a discal fascia and a broken submarginal fascia, the latter partly encompassing the ocelli; a geminated apical pair of prominent ocelli, and three linearly-disposed lower ocelli, the anal smallest and duplex.

Female. Upperside slightly paler. *Forewing* with the ocellus larger. *Hindwing* also with the ocellus somewhat larger, and with the two upper and the minute anal ocelli of the underside slightly visible. Underside as in the male.

Expanse ♂ $1\frac{4}{10}$ to $1\frac{5}{10}$, ♀ $1\frac{6}{10}$ inch.

DRY-SEASON BROOD (Plate 110, fig. 3c, ♂).

Male. Upperside dark brown. *Forewing* with a very small ill-defined black ocellus. *Hindwing* with a small subanal ocellus. Underside cinereous-white, the strigæ less-defined; both wings with the fasciæ less distinct. Ocellus on *forewing* smaller than in wet-season brood. Ocelli on *hindwing* minute, but distinctly formed, the two apical and the two anal being well separated from each other.

Female. Upperside. *Forewing* differs from the male in having a large and distinct ocellus, as in the wet-season brood. Underside: both wings with the fasciæ more prominent, but not as much as in the wet season-brood; ocelli as in the male.

Expanse ♂ $1\frac{4}{10}$, ♀ $1\frac{5}{10}$ inch.

HABITAT.—Nilgiris.

DISTRIBUTION.—“The *wet-season brood* occurs at 2000 to 4000 feet, and commonly at about 3000 feet, on the southern slopes of the Nilgiris, in August, and the *dry-season brood* in December and January.” (*Hampson, l.c. p. 349.*) Capt. E. Y. Watson also obtained it at Coonoor in the Nilgiris during August.

INDO-MALAYAN SPECIES OF THYMIPA.—*T. Horsfieldii* (Y. Horsfieldii) Moore, Journ. Asiatic Soc. Bengal, 1884, p. 18; Waterhouse, Aid to Identif. of Ins. pl. 179, fig. 3. *Habitat.* Java.—*T. Philomela* (Pap. Philomela, Johansson, Amæn. Acad. 1764, p. 404). We have illustrated this species on our Plate 110, fig. 4, ♂. Both sexes smaller than *T. Baldus*. *Forewing* shorter and less triangular, the exterior margin more erect. *Male.* Upperside brown, the discal patch less prominent; ocelli similar, but smaller and more narrowly ringed. Underside with uniformly disposed strigæ, the transverse fasciæ either obsolete or but very faintly defined; ocelli on

forewing smaller and more narrowly ringed; ocelli on hindwing similarly disposed in three pairs, but also smaller. Female. Upperside paler than in male, outer discal area slightly flecked with pale-ochreous strigæ. Underside as in male. Expanse ♂ $1\frac{2}{10}$, ♀ $1\frac{4}{10}$. *Habitat.* Java (Batavia). Sumatra.—In Coll. British Museum and F. Moore.—*T. Lisandra* (Pap. Lisandra, Cramer, Pap. Exot. IV. pl. 293, fig. G. H.) *Habitat.* China.—*T. Zodia* (Y. Zodia, Butler, Trans. Ent. Soc. 1871, p. 402. Elwes P. Z. S. 1881, p. 904). *Habitat.* N. China (Snowy Valley, hills of Ningpo).—*T. Argus* (Y. Argus, Butler, Journ. Linn. Soc. Zool. 1866, p. 56). *Habitat.* Japan.—*T. evanescens* (Y. evanescens, Butler, Ann. Nat. Hist. 1881, p. 134). *Habitat.* Japan.—*T. fasciata* (Y. fasciata, Hewits. Tr. Ent. Soc. 1865, p. 287). *Habitat.* Borneo.

Genus YPTHIMA.

Ypthima, Hübner, Verz. bek. Schmett, p. 63 (1816-18). Butler, Ent. Mo. Mag. 1868, p. 196; Catal. Satyr. Brit. Mus. p. 148 (1868); Catal. Fabr. Lep. B. M. p. 36 (1869). Kirby Syn. Catal. D. Lep. p. 94 (1871). Moore, Lep. of Ceylon, i. p. 24 (1880). Marshall and de Nicéville, Butt. of India, etc., i. p. 212 (1883).

Ypthima, Doubleday, List Lep. Brit. Mus. pt. 1. p. 138 (1844). Westwood, in Doubleday and Hewitson's D. Lep. p. 394 (1851). Moore, Catal. Lep. Mus. E. I. Compy. i. p. 235 (1857). Hewitson, Trans. Ent. Soc. 1865, p. 283. Scudder, Proc. Amer. Acad. A. and Sc. Boston, 1875, p. 289.

IMAGO.—Wings moderately small. *Forewing* elongated, triangular, costal margin arched, apex rounded, exterior margin even, slightly convex, posterior margin almost straight; costal vein strongly swollen at the base, median vein moderately swollen, sub-median scarcely swollen; cell extending to half the wing; subcostal vein with its first branch arising just before anterior end of the cell, the second, third, and fourth branches at equal distances apart, the second being emitted at about one-third beyond end of the cell; upper discocellular very short, middle discocellular inwardly curved, lower discocellular longer and outwardly oblique; median vein with its lower and middle branch wide apart; submedian vein nearly straight; *no glandular patch visible*, in the type species (Hübneri), but the lower discal area is clothed with a few ordinary short dentate-tipt battledore-scales, many elongated broad acutely jagged-tipt scales, interspersed with a few *dark androconia* of similar length, which have an elongated dilated bulbous base and hair-like tassel-tip. *Hindwing* broadly triangularly-ovate; costal margin arched from near the base, apex rounded, exterior margin convex, abdominal margin slightly convex; costal vein extending to near the apex; subcostal vein starting from opposite the short pre-costal veinlet, its branch arising at about one-third from its base; upper discocellular short, curved, starting at a short distance from base of second subcostal, lower discocellular longer, outwardly-oblique and slightly curved; cell extending to beyond half the wing; median vein three-branched; submedian straight; inner vein slightly

recurved. *Body* slender; head and thorax small, clothed in front with hairs. *Eyes* prominent, naked. *Palpi* long, slender, obliquely-parallel, compressed, clothed in front with long straight divergent bristly hairs; second joint reaching to vertex, third joint fully two-thirds the length of second, slender, naked. *Antennæ* very slender, ringed with white, terminating in a very slender gradually-formed club.

CATERPILLAR.—“When full grown is about an inch or a little less in length; entirely green; head round; body of nearly equal thickness throughout, slightly increasing in size to the fifth segment, thence gradually tapering to the anal segment, which is furnished with two very short diverging immovable processes or tails; the head and body are thickly shagreened, being covered with very small closely-set tubercles emitting fine colourless hairs.”

CHRYsalis.—“Either green or brown; head rounded, the edge of the wing-cases raised and angled anteriorly, the thorax humped” (*de Nicéville*).

TYPE.—Y. Hübneri.

YPTHIMA KASMIRA (Plate 112, fig. 1, 1a, ♂ ♀).

Ypthima Kasmira, Moore, Journ. Asiatic Soc. Bengal, 1884, p. 17. Waterhouse, Aid Identif. of Ins. pl. 179, fig. 5, ♀.

IMAGO.—Male and female. Upperside dark brown. *Forewing* with a moderate-sized subapical bipupilled ocellus; lower discal area clothed with short broad dentate-tipt scales, some longer scales with dentate tips, and a very few intervening longer black *androconia* with broad bulbous base and hair-like tassel-tip. *Hindwing* with two small subanal ocelli situated between the medians in the male, and a third minute anal ocellus in the female. Underside pale purpurescent brownish-cinereous, very densely covered with entirely uniformly-disposed broad brown strigæ. *Forewing* with a prominent subapical bipupilled ocellus. *Hindwing* with a prominent apical ocellus, and three lower linearly-disposed ocelli, the lowest being bipupilled.

Expanse ♂ $1\frac{2}{8}$, ♀ $1\frac{4}{8}$ inch.

HABITAT.—Kashmir.

DISTRIBUTION.—Specimens of both sexes of this species in our own collection were taken by Major H. B. Hellard in Kashmir, in September.

YPTHIMA APICALIS.

Ypthima apicalis, Moore, Journ. Asiatic Soc. Bengal, 1884, p. 17. Waterhouse, Aid to Identif. of Ins. pl. 179, fig. 2.

IMAGO.—Male. Upperside pale brown. *Forewing* palest obliquely across the lower discal area; with a small rounded bipupilled subapical ocellus, above which is a distinct whitish apical streak. *Hindwing* with two small subanal ocelli, the upper

one minute, the anal and the apical ocellus of the underside being slightly visible. Underside pale brownish-ochreous, with ill-defined darker brown uniformly disposed strigæ. *Forewing* with the subapical ocellus and white upper streak, as above. *Hindwing* with a small apical and three lower ocelli, the anal one bipupilled; an indistinct pale whitish fascia traceable across the disc above the lower ocelli.

Expanse, $1\frac{2}{3}$ inch.

HABITAT.—Deyra Dhoon.

The male above described is all that is known to us. It is probably only a curiously-marked variety of *Y. Hübneri*.

YPHIMA HUBNERI.

WET-SEASON BROOD (Plate 111, fig. 1, larva and pupa, 1, a, b, c, ♂ ♀).

Ypthima Philomela, Hübner, Zuträge Exot. Schmett, p. 17, figs. 83, 84 (1816-18); Verz. bek. Schmett, p. 63 (1816-18). Butler, Catal. Satyr. Brit. Mus. p. 152 (1868)—(*nec* Linnæus).*

Ypthima Philomela, Hewitson, Trans. Ent. Soc. 1865, p. 284. Butler, Catal. Satyr. Brit. Mus. p. 152 (1868).

Ypthima Hübneri, Kirby, Catal. D. Lep. p. 95 (1871). Distant, Rhop. Malayana, p. 57, pl. 7, fig. 5, ♀ (1882). Marshall and de Nicéville, Butt. of India, etc. i. p. 226, pl. 17, fig. 65, ♂ (1883); de Nicéville, Journ. Asiat. Soc. Bengal, 1886, p. 231, pl. 12, fig. 1, a, b, larva and pupa.

IMAGO.—Male. Upperside brown, with a slightly pale-bordered dusky submarginal line. Cilia pale brownish-cinereous. *Forewing* with a rather large rounded ocellus bipupilled with silvery-blue; *no glandular patch visible*, but the lower discal area is clothed with a few ordinary short dentate-tipt battledore-scales, many elongated broad acutely-jagged tipt scales, interspersed with a few dark *androconia* of similar length, which have an elongated dilated bulbous base and hair-like tassel-tip. *Hindwing* with three small subanal ocelli, the lowest generally minute and sometimes obsolete, sometimes the upper one is also minute or obsolete, and in some specimens the apical ocellus of the underside is visible. Underside various shades of cinerous ochreous-white, numerous, but not densely, covered with fine olivescence-brown strigæ. *Forewing* with a large prominent ocellus, bipupilled with silvery-blue, encircled by a broad pale ochreous ring and then by a narrow brown ring, the latter ring being dilated below the ocellus, and extending to or near the posterior margins; a more or less defined submarginal lunular brown slender fascia, and a medial discal transverse fascia. *Hindwing* with a moderately large apical ocellus and three subanal linearly-disposed ocelli, the lowest generally bipupilled; a more or less defined submarginal sinuous brown fascia, and, generally, a more or less ill-defined transverse discal angulated fascia.

* The Pap. *Philomela* Johansson, is quite distinct from this. It is a Javan species belonging to the genus *Thymipa*. See our Plate 110, fig. 4.

Female. Upperside slightly paler. *Forewing* with the ocellus larger and more prominent, the darker brown submarginal and discal fascia with indistinctly visible intervening pale brownish-white strigæ. *Hindwing* with the ocelli as in the male, sometimes the apical ocellus of the underside being also slightly apparent; outer border also slightly traversed with pale strigæ. Underside as in the male but somewhat darker in tint. *Forewing* with the ocellus somewhat larger. *Hindwing* also with the ocelli larger, the three lower sometimes having the yellow rings coalescent, and sometimes a variety occurs in which a small lower ocellus is attached beneath the apical one—when the outer yellow ring coalesces and is then continuous throughout the entire series; another variety sometimes show three continuous decreasing upper ocelli, each with a separate yellow ring.

Expanse, $1\frac{3}{10}$ to $1\frac{5}{10}$ inch.

DRY-SEASON BROOD (Plate 111, figs. 1, d, e, f, g, h, ♂ ♀).

Ypthima Howra, Moore, Journ. Asiatic Society, Bengal, 1884, p. 17. Waterhouse, Aid to the Identification of Insects, pl. 179, fig. 4, ♂.

Ypthima Catharina, Butler, Annals of Nat. Hist., 1886, p. 183.

Ypthima jocularia, Swinhoe, Proc. Zool. Soc. Lond., 1889, p. 396.

IMAGO.—Male and female. Upperside as in the wet-season brood. *Forewing* with the lower discal area clothed with similar scales and *androconia*. *Hindwing* with the ocelli minute or obsolescent, the submarginal area more or less speckled with pale cinerescent scales. Underside with somewhat paler shades of cinerescent ochreous-white; both wings generally with paler and less-defined strigæ, especially on the hindwing. *Forewing* with the ocellus, as in the wet-season brood, the submarginal and discal fascia less defined. *Hindwing* with the apical and three lower ocelli either very minute, but distinctly formed, or reduced to black dots, and sometimes entirely obsolete; the transverse discal angular fascia and submarginal sinuous line slightly apparent, or sometimes obsolete.

Expanse, $1\frac{3}{10}$ to $1\frac{6}{10}$ inches.

ADULT CATERPILLAR.—“The larva when full grown is about an inch, or a little less in length; the head round; body of nearly equal thickness throughout, slightly increasing in size to the fifth segment, thence gradually tapering to the anal segment, which is furnished with two very short diverging immovable processes or tails. The head and body are thickly shagreened, being covered with very small closely-set tubercles emitting fine colourless hairs. Colour entirely green, with a dorsal line somewhat darker green, which becomes white at the fourth segment, and extends right through the crown of the head; there is also a paler green lateral line below the spiracles.”

CHRYSLIS.—“The pupa is either green or brown; with the head rounded, the

edge of the wing-cases raised and angled anteriorly, the thorax humped, and marked, like the abdominal segments, with some dark brown waved lines and spots" (*de Nicéville*).

HABITAT.—India, Burma.

REARING OF WET AND DRY-SEASON BROOD FROM THE EGG.—Mr. L. de Nicéville (*Journ. Asiatic Society of Bengal*, 1886, 231) gives the first recorded instance of rearing both the wet and dry-season brood of this species from the egg, as follows:—"On September 5th, 1885, Captain C. A. R. Sage, of the 18th Bengal Infantry, sent me in a tin box with a gauze cover seven live females which had that day been caught. When I received them they had laid over 70 eggs of a beautiful light green colour on the gauze cover, and two on the side of the box. On September 9th, larvæ commenced to emerge, and I placed the gauze on which the eggs were laid amongst some grass growing in a pot, covering the whole with a large wooden box with glass sides. The larvæ rapidly fed up, and turned to pupæ, the imagines emerging between October 19th and 25th, as true *Y. Hübneri* like their mothers. The pupæ were sometimes green, sometimes brown. On my return on November 8th from my autumn holiday in the Sikkim Hills, Captain Sage gave me six about half-grown larvæ, which he had hatched on October 20th from eggs laid by *Y. Hübneri* on the 15th. Being few in number, these larvæ were fed up by me in a stoppered glass jar, fresh grass being supplied about every other day. The first of them changed to a pupa on November 20th, and the imago emerged on December 7th; on November 22nd, another larva changed to a pupa, the imago emerging December 9th; on November 25th, two more larvæ changed to pupæ, the imagines emerging December 12th; on December 3rd, another larva changed to a pupa, the imago emerging December 19th; on December 12th, the last larva changed to a pupa, the imago emerging on January 1st. All the pupæ were green, and all the imagines were true *Y. Howra*. The colour of the pupa does not, I believe, affect the imago in the least; it is purely protective, the green ones in nature being probably attached to the green blades of grass, while the brown ones occur on the dark-coloured stems near the roots. Captain Sage first took *Y. Howra* on November 18th, at a time when a few *Y. Hübneri* were still on the wing, this being the earliest date on which he captured the cold and dry-season non-ocellated form of this species."

DISTRIBUTION.—From North-Western India, specimens are recorded (*Butt. Ind. i.* 228) from Chumba. Mr. W. Doherty obtained it in "Kumaon, at Bagheswar, Rambagh, and at Kapkot, at from 1000 to 4000 feet elevation" (*J. A. S. Beng.* 1886, 120). Mr. G. F. Hampson has the wet-season form from Naini Tal, 1000 feet, taken by Col. A. M. Lang in October. In the North-East, Mr. H. J. Elwes (*Tr. Ent. Soc.* 1888, 326) says it "occurs in the Sikkim Terai during the

rainy season, but, as far as we know, not in the Hills." It was also "taken by Mr. Otto Müller in the Sikkim Terai, from July to September" (Butt. Ind. i. 227). From Western India we possess the wet-season form from Bombay, and Colonel C. Swinhoe (P. Z. S. 1885, 127) obtained the wet-season form at "Mahableswar in May," and the dry-season form "*(joculari)* in April and May" (P. Z. S. 1889, 396). Mr. C. R. Morris obtained it in the Upper Godavery District in September, and Mr. G. Vidal took numerous specimens in March on the Cœssi and Onomed Ghâts in the South Konkan" (Butt. Ind. 228). In the South it has been taken by Captain E. Y. Watson, in Mysore, at Kathlekan, Kadur District, in November, and the dry-season form in November and December. Mr. G. F. Hampson has it also from Mysore, taken at 3000 feet in September. From the Nilgiri Hills, Mr. Hampson (J. A. S. Bengal, 1888, 350) records it as being common on the Northern Slopes, at 3000 to 4000 feet elevation, the wet-season form being registered in his MS. Notes, as taken in May, and the dry-season form [agreeing with *Howra-jocularia*] in January. Mr. A. W. Morris obtained the dry-season form (*jocularia*) on the Shevaroy Hills. "Mr. H. Fergusson took it at Trevandrum and in the Ashambo Hills" (Butt. Ind. 228). We possess the wet-season form from Mynall, 2600 feet, in Travancore. From the Eastward, Captain E. Y. Watson has the dry-season form from Surada, Gangam District, Orissa, taken in January. "In the neighbourhood of Calcutta it is common throughout the year" (Butt. Ind. 227). Mr. L. de Nicéville reared the wet-season form in Calcutta, from the egg, in October, and the dry-season form in November, December and January, as above recorded. It occurs "in Assam, as far north as Sibsagar" (Butt. Ind. 227), and Mr. J. Wood-Mason records "numerous specimens from Cachar" (J. A. S. Beng. 1887, 351). From Burma we possess the wet-season form from Chittagong, taken in August and September. It has been taken in "Akyab in July" (Butt. Ind. 227). Captain E. Y. Watson obtained many specimens during the Chin Lushai Expedition of 1889-90 (J. Bombay N. H. Soc. 1891, 35), which we have examined, the wet-season form having been taken at Pauk Yaw in September, and also on the road from Pauk to Tilin in November, and the dry-season form at Tilin Yaw in January and April, Pauk to Tilin in November, and at Tilin in November and April. Captain Watson also took the wet-season form at Rangoon in May, July, August, September, November and December, the wet-season form at Pougadaw, Thyetmyo in October and November, at Beeling, in Tenasserim, in March, and the dry-season form also at Beeling in March and April, at Kyaikto in February, at Sittang, Tenasserim, in January, and at Toungu in March. Commander Carpenter, R.N., obtained the dry-season form, named *Y. Catharina*, by Mr. Butler, "at Katha on the Irrawaddy, in January, and at Myadoung in January." (Ann. N. H. 1886, 183.) Signor Leonardo Fea obtained the wet-season form at Bhamo, in November. It is also recorded

(Butt. Ind. 227) from "Pegu, in May and June, and taken by Captain C. H. E. Adamson at Gyne," in January. Dr. J. Anderson found it "very common in the Mergui Archipelago, from December to March." (J. Linn. Soc. Zool. 1886, 32.)

DISTRIBUTION OUTSIDE INDIAN AREA.—Mr. W. L. Distant (Rhop. Malayana, p. 5) describes and figures a female of the wet-season form from Malacca, Malay Peninsula. We also possess it from Malacca. Mr. Distant also records it from Sumatra and Java, on the authority of Herr Snellen. The latter locality is doubtless an error, for this species, as we possess several specimens received from Herr Snellen, labelled, "philomela," of *Hubner*, and all of them have six ocelli, disposed in three pairs, on the underside of the hindwing, and are undoubted *philomela* of *Linnæus*, which latter species is quite distinct, and belongs to another division of the *Ypthimæ* group.

Of the illustrations of *Y. Hubneri* on our Plate No. 111, *fig. 1* represents the larva and pupa reared in Calcutta by Mr. L. de Nicéville; *figs. 1a, b*, Calcutta males of the *wet-season brood*, and *fig. 1c*, a Nilgiri female of the same brood; *figs. 1d, e*, represent the male and female of the *dry-season brood*, these being the type specimens of "Howra," *fig. f* is from one of the dry-season males reared by Mr. de Nicéville in Calcutta; *fig. g* is a male, and *fig. h* the female Mahabeshwar type specimens of *jocularia*, kindly lent by Colonel Swinhoe.

YPHITHIMA CEYLONICA.

* WET-SEASON BROOD (Plate 112, *figs. 2, 2a, ♂ ♀*).

Ypthima Ceylonica, Hewitson, Trans. Ent. Soc. Lond. 1865, p. 288, pl. 18, *figs. 14, 15, ♂*.

Ypthima Ceylonica, Butler, Catal. Satyr. Brit. Mus. p. 152 (1868). Moore, Lep. of Ceylon, i, p. 25, pl. 12, *figs. 5, 5a, ♀* (1880). Marshall and de Nicéville, Butt. of India, i, p. 228 (1883).

IMAGO.—Male. Upperside brown; cilia of forewing cinerescence-brown, of hindwing white. *Forewing* with a prominent large apical bipupilled ocellus, and a few very slightly-defined submarginal pale cinerescence strigæ. *Hindwing* with the lower half pure white, the extreme outer edge-line and a contiguous submarginal sinuous line being dark brown; bordering the latter are two small black median ocelli, and, generally, a smaller anal ocellus, each with a slightly-defined minute white pupil, ochreous ring, and then a brown ring; sometimes a small apical black spot is also present. Underside cinerescence-white, purest white on the hindwing; sparsely covered with delicate transverse brown strigæ, which are much less numerous, more slender, and more widely separated on the discal area of the hindwing. *Forewing* with the ocellus larger than above, broadly pale ochreous ringed, and outwardly by a brown ring, the latter ring broadly extending below the ocellus, and descending as a brown streak to the posterior margin; a slightly-defined discal and submarginal

brown fascia. *Hindwing* with a prominent black apical ocellus, two median and a bipupilled anal ocellus, each distinctly formed with an ochreous ring and slender outer brown ring.

Female. Upperside as in the male, except that the ocelli are somewhat larger, and those on the hindwing slightly blurred by contiguous brown strigæ, some few strigæ also being visible across the white area. Underside more densely packed with brown strigæ than in the male, on both wings, the ocelli being the same, but very prominent. *Body* beneath white; palpi brown above, edged with white, the frontal hairs brown and white; legs brown above, white beneath; antennæ dark brown, annulated with white, tip reddish.

DRY-SEASON BROOD.

Male. Upperside slightly paler brown. *Hindwing* with the marginal and sinuous submarginal brown line less defined; two ill-defined median minute ocelli. Underside also slightly paler. *Hindwing* with the apical and lower ocelli all very minute.

Female. Upperside paler. Ocelli on the hindwing with the marginal and sinuous submarginal brown line very slenderly defined. Underside paler, somewhat ochreous-white, the strigæ paler, and the ocelli on hindwing very minute.

Expanse, ♂ $1\frac{2}{10}$ to $1\frac{3}{10}$, ♀ $1\frac{3}{10}$ to $1\frac{5}{10}$ inches.

HABITAT.—Ceylon; S. India; Orissa.

DISTRIBUTION.—In Ceylon, according to Captain F. J. Hutchison, it is “very common at Galle and Colombo, among grass and weeds by the road side. Flight short, constantly settling down on leaves, or in the grass” (Lep. Ceylon, i. 25). Mr. F. M. Mackwood notes that it is “very abundant from the level of the coast to the highest ranges, and at all times of the year.” Major J. W. Yerbury recently obtained the wet-season brood at Trincomali in July and September. “Till recently it was believed to be confined to the Island of Ceylon, but it has now been taken in Travancore by Mr. H. Fergusson, and was found extremely common in Orissa by Mr. W. C. Taylor. Mr. Kirby records it from Madras” (Butt. Ind. i. 228). Mr. F. C. Hampson (J. A. S. Beng., 1888, 350) obtained it in the “Nilgiris at 2000 to 4000 feet elevation on the Southern Slopes, where it takes the place of *Y. Hubneri* of the Northern Slopes; very common; March; August.” Lieut. E. Y. Watson has obtained it at Berhampore in Gangam, having taken the wet-season brood in September, 1887, and the dry-season brood in February of the same year.

Genus KOLASA.

IMAGO.—*Forewing* comparatively longer, less triangular, and the exterior margin less oblique than in typical *Ypthima* (*Hübneri*). *Hindwing* longer, narrower, exterior

margin very oblique, abdominal margin longer, and excavated before the anal angle. Venation similar, except that in the forewing the cell is longer posteriorly, and the discocellulars considerably more bent inward; cell of hindwing also longer posteriorly. *No androconia* on the forewing. Apical joint of palpi much shorter, stouter, and with long projecting hairs in front, whereas in *Hübneri* this joint is long, slender, cylindrical, and naked. Antennæ stouter, with a conspicuous lengthened grooved rather broad club, the club in *Hübneri* being slender, and not grooved.

Type.—K. Chenui.

KOLASA CHENUI.

WET-SEASON BROOD (Plate 112, figs. 3, 3a, ♂ ♀).

Satyrus Chenui, Guérin-Méneville, in Delessert's *Souv. Voy. Ind.* ii. p. 77, pl. 21, fig. 2 (1843).

Ypthima Chenui, Westwood, in Doubleday and Hewitson's *D. Lep.* p. 396 (1851). Hewitson, *Tr. Ent. Soc. Lond.* 1865, p. 285.

Ypthima Chenui, Butler, *Catal. Satyr. Brit. Mus.* p. 151 (1868). Kirby, *Catal. D. Lep.* p. 95 (1871). Marshall and de Nicéville, *Butt. of India, etc.* i. p. 228 (1883).

IMAGO.—Male. Upperside dark cinereous ochreous-brown; cilia cinereous. *Forewing* with a moderately large prominent rounded obliquely-disposed subapical black ocellus, bipupilled with silvery-blue, and encircled by an ochreous-yellow outer ring; a very indistinct dusky-brown discal and a submarginal fascia. *Hindwing* with two small prominent subanal ocelli, pupilled with silvery-blue and encircled by an ochreous-yellow ring. Underside whitish, very numerous covered with thick dark ochreous-brown strigæ, which are most numerous and somewhat confluent on the forewing. *Forewing* with a subapical ocellus as on upperside, but more prominent, and contiguously bordered by a more or less well-defined discal and a submarginal transverse ochreous-brown fascia. *Hindwing* with a single prominent apical oval ocellus, disposed between the subcostals, and four linearly-disposed lower decreasing ovate ocelli, the two anal being minute and sometimes geminated; crossed by a more or less well-defined broad subbasal, a discal, and an anteriorly-broader submarginal ochreous-brown fascia, the latter encompassing the lower ocelli and sometimes coalescent in the middle with the discal fascia.

Female. Upperside paler, the outer discal area slightly mottled with pale cinereous-ochreous strigæ; ocelli on both wings as in the male. Underside as in the male.

DRY-SEASON BROOD.—Male. Upperside as in wet-season brood. Underside less whitish, the brown strigæ more confluent, the transverse bands broader, the ocelli on hindwing reduced to smaller oval size. Female. Upperside with less perceptible pale strigæ. Underside as in male.

Expanse, $1\frac{5}{10}$ to $1\frac{7}{10}$ inch.

HABITAT.—Nilgiri Hills, S. India.

DISTRIBUTION.—According to Mr. G. F. Hampson (“MS. Notes”) this is “common on rocky hill sides. It has four broods in the year. Taken at Dunsandle, Nilgiris, 6700 feet elevation from February to May, and at the Sholur Ghát, 6500 feet, in March. Is not found below 5000 feet, and chiefly frequents places on the top of the plateau where sheet-rocks crop out on grass hill sides. It is also found on the Anaymalai Hills, 4300 feet, south of the Palghát Gap in February, flying with *K. Ypthimoides*.” Captain E. Y. Watson obtained specimens at Coonoor and Ootacamund in August.

KOLASA YPHTHIMOIDES (Plate 112, figs. 4, 4a, ♂ ♀).

Callerebia Ypthimoides, Moore, Trans. Ent. Soc. Lond. 1881, p. 307.

Ypthima Ypthimoides, Marshall and de Nicéville, Butt. of India, etc. i. p. 230 (1883). Distant, Trans. Ent. Soc. Lond. 1884, p. 49, pl. 3, fig. 4.

Ypthima Robinsoni, Distant, Annals of Nat. Hist. 1882, p. 406. Marshall and de Nicéville, Butt. of India, etc. i. p. 229.

IMAGO.—Male. Upperside uniformly dark olivescent-brown; cilia cinerescant-brown. *Forewing* with an obtusely-oval subapical ocellus, bipupilled with silvery-blue and encircled by a very slender dark ochreous outer ring. *Hindwing* with two small median ocelli pupilled with silvery-blue. Underside numerous covered with pale brownish-grey strigæ, which are duller and uniformly-disposed on the forewing, but on the hindwing the strigæ are paler grey and more prominently-disposed in transverse broad fasciæ, similar to those in *K. Chenui*. *Forewing* with an ocellus, as above, and slight traces of a submarginal and a discal darker fascia. *Hindwing* with one, sometimes two, small apical ocelli, two median, and two minute anal ocelli, the two latter being sometimes geminated, each with a single silvery-blue pupil and slender dark ochreous ring.

Female. Upperside as in the male, except that the outer borders are mottled with pale brownish-grey strigæ; sometimes there is a geminated pair of minute anal ocelli on the hindwing. Underside paler than in the male, the pale strigæ and the fasciæ being more defined. Body beneath, palpi and legs brown in the male, but brownish-grey in the female; antennæ with reddish tip.

Expanse, ♂ $1\frac{4}{8}$ to $1\frac{6}{8}$, ♀ $1\frac{7}{8}$ to 2 inches.

HABITAT.—Travancore Hills, S. India.

DISTRIBUTION.—“Obtained by Mr. Bourdillon at Colathoorpolay Patnas, 4000 feet elevation, Travancore, in April.” Mr. Fergusson writing from Trevandrum says, “it is to be found on the hills here only on grass land near the tops of the hills. My specimens were taken in two localities—one a small patch of grass about an acre in extent at an elevation of 3500 feet, and the other on a grass hill about 3000

feet; here they were fairly abundant" (Butt. India, i. 230). Mr. W. L. Distant (Ann. N. H. 1882, 406) records specimens obtained by Mr. F. E. Robinson, in the Pulni Hills. Mr. G. F. Hampson possesses specimens taken in the Anaymalai Hills, at 4500 feet elevation in February.

Genus NADIRIA.

IMAGO.—Wings broader than in typical *Ypthima*. *Forewing* with the costa more arched, subcostal and median vein much swollen; cell broader. No ANDROCONIA. *Hindwing* with the costa more arched; cell broader; three linearly-disposed apical ocelli, and two anal ocelli on the underside. Antennæ with a shorter and somewhat stouter club.

Type.—N. Bolanica.

NADIRIA BOLANICA (Plate 112, figs. 5, 5a, ♂ ♀).

Ypthima Bolanica, Marshall, Proc. Zool. Soc. Lond. 1882, p. 759, ♂. Marshall and de Nicéville, Butt. of India, etc. i. p. 231 (1883).

IMAGO.—Male. Upperside dark purpurescent-brown. Cilia brown with a distinct whitish-cinereous inner line. *Forewing* with the subcostal and median vein very tumid at the base; a prominent large subapical black ocellus with two silvery-blue pupils, a yellowish ring and an outer brown ring, the surrounding border mottled with lilacine-grey and then edged by the darker brown curved continuous submarginal and discal fascia. *Hindwing* with a slightly-apparent darker brown submarginal line, a single small prominent black subanal ocellus between the two lower medians, pupilled with silvery-blue and yellow ringed, sometimes the two minute silvery-blue dots of the geminated anal ocellus of the underside are also visible.

Underside whitish-cinereous, thickly covered with purpurescent ochreous-brown strigæ, which are broadest on the basal area. *Forewing* with the subapical ocellus as on upperside, but more prominent, and the broad brown curved-submarginal and the oblique-discal fascia broadly confluent above the posterior angle; two short ill-defined brown bands also across end of the cell. *Hindwing* crossed by a rather broad brown excurved discal band, which is slightly angulated posteriorly, and an ill-defined submarginal wavy fascia; three upper linearly-disposed slightly decreasing ocelli, disposed between the upper subcostal and upper median veinlet, and a somewhat larger subanal ocellus and a smaller geminated anal pair, all being prominently oval-pupilled with silvery-blue and with a dark narrow yellow ring.

Female. Upperside as in the male, except that the ocellus on both wings is larger. Underside also as in the male, the ocelli larger, more prominent, and with brighter yellow ring.

Expanse, ♂ $1\frac{5}{10}$ to $1\frac{7}{10}$, ♀ $1\frac{7}{10}$ to $1\frac{9}{10}$ inch.

HABITAT.—Mach, Bolan Pass, Beluchistan; N.-W. India.

DISTRIBUTION.—The type specimen, which we have examined, was taken by Colonel C. Swinhoe at Mach, Bolan Pass, Beluchistan, in September, 1879. We possess specimens taken by Major J. W. Yerbury at Attack Bridge in November, 1885, and April, 1886, at Kairabad in March and April, 1886, at Campbellpur in April, and on the Akhori Hills in September. Major Yerbury records it (Ann. N. H. 1888, 136) as being “common on the Hills round Campbellpur, Attack, and Kairabad in March and April.”

Genus PANDIMA.

IMAGO.—Wings comparatively shorter and broader than in typical *Ypthima*. *Forewing* less subtriangular, costa much arched, exterior margin less oblique and more convex; cell broad; discocellulars very concave. No ANDROCONIA. *Hindwing* beneath with *one apical ocellus*, disposed between the subcostals, and *two anal ocelli*. Palpi stouter; antennæ with a slenderly-formed club.

Type.—P. Nareda.

PANDIMA NAREDA (Plate 113, figs. 1, 1a ♂).

Satyris Nareda, Kollar, in Hügel's Kaschmir, iv. 2, p. 451 (1844).

Ypthima Nareda, Hewitson, Trans. Ent. Soc. Lond. 1864, p. 284, pl. 17, fig. 6, ♂ (*nec* fig. 7).

Ypthima Nareda, Butler, Catal. Satyr. Brit. Mus. p. 148 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 221, pl. xvii. fig. 63, ♂ (1883). Butler, Proc. Zool. Soc. 1886, p. 359.

IMAGO.—Male. Upperside dark olivescient umber-brown; both wings with the outer border slightly paler and crossed by an indistinct darker diffused submarginal and a slender marginal line; cilia brownish-cinereous. *Forewing* with an oval subapical black ocellus, bipupilled with bluish-white, and with a slender pale ochreous outer ring; the area bordering the ocellus somewhat paler than the ground colour, thus forming an ill-defined halo. *Hindwing* with a subanal round ocellus with a single bluish-white pupil and pale ochreous outer ring; occasionally a minute anal ocellus is also present. Underside pale olivescient-ochreous, or cinereous, very numerous covered with delicate dark-brown strigæ. *Forewing* with a diffused rufescent-brown submarginal fascia, which widens inward posteriorly and slightly ascends towards end of the cell; a prominent black subapical ocellus with silvery-blue pupils, bright ochreous ring and then a brown ring. *Hindwing* with an ill-defined diffused rufescent-brown submarginal fascia, a large prominent round apical black ocellus, the pupil of which is disposed between the upper and lower subcostals; two somewhat smaller anal ocelli, the upper with a single silvery-blue pupil, the lower generally bipupilled.

Female. Upperside slightly paler; the submarginal fascia more diffused; ocelli the same. Underside as in the male.

Expanse, $1\frac{4}{10}$ to $1\frac{6}{10}$ inch.

HABITAT.—N.-W. Himalayas.

DISTRIBUTION.—This is a common species in the Western Himalayas, being replaced in the East by the next species. Major H. B. Hellard took it at “Simla, Masuri, and in Kashmir from June to October” (MS. Notes). Colonel A. M. Lang obtained it at “Masuri, 7000 feet elevation, in May and June, and at Jaranda, Kunawur, in June” (MS. Notes). The late Mr. W. S. Atkinson obtained it in the Tavi Valley, Kashmir, and at Naini Tal. Mr. G. F. Hampson possesses specimens taken at Naini Tal 5000 to 6000 feet, in May, by Colonel Lang, and from Kulu Valley, 5000 feet, taken by Mr. A. Graham Young. Mr. W. Doherty (J. A. S. Beng. 1886, 119) says it is found “common in Kumaon generally, up to 9000 feet.” Major J. W. Yerbury (Ann. N. H. 1888, 137) records it as “fairly common between Abbottabad and Kala Pani; common also at Murree in August, also taken at Dewal in August.” “Throughout the Western Himalayas it occurs at from 6000 to 8000 feet elevation in suitable localities and is not uncommon. In Kashmir it has been taken in June at 8200 feet elevation; in Pangi and Kulu in May and July, and in the neighbourhood of Simla in July; it also occurs at Masuri and probably in Kumaon” (Butt. of Ind. 221).

PANDIMA NEWARA (Plate 113, figs. 2, 2a, ♂ ♂).

Ypthima Newara, Moore, Proc. Zool. Soc. Lond. 1874, p. 567, ♂; Waterhouse, Aid Identif. Ins. pl. 179, fig. 7, ♂. Marshall and de Nicéville, Butt. of India, etc. i. p. 222 (1883).

Ypthima Nareda, Hewitson, Trans. Ent. Soc. Lond. 1864, pl. 17, fig. 7, ♀ (*nec* fig. 6).

IMAGO.—Male. Upperside olivescens-brown; the submarginal diffused pale-bordered fascia and slender marginal line darker brown. *Forewing* with a sub-apical black oval ocellus (which is disposed less outwardly-oblique than in *Nareda*) bipupilled with blue. *Hindwing* with a round subanal blue-pupilled ocellus and a minute anal oval pupilled ocellus; sometimes the latter is obsolete and also occasionally geminated.

Underside pale ochreous-cinereous; numerously covered with delicate brown strigæ. *Forewing* with a prominent subapical bipupilled ocellus (disposed less outwardly-oblique than in *Nareda*); the submarginal brown fascia narrow, not dilated posteriorly, but with slight traces of a similar inner lower-discal shade. *Hindwing* with a slightly-defined submarginal fascia, the apical black ocellus prominently large and silvery-blue pupilled (sometimes being bipupilled), the two lower ocelli also prominent, the lowest bipupilled, the pupils in each being large and oval in shape.

Female. Upperside paler; the outer half of both wings indistinctly traversed with pale ochreous-cinereous strigæ; ocelli as in male. Underside as in the male.

Expanse, ♂ $1\frac{6}{10}$ to 2, ♀ $1\frac{8}{10}$ inch.

HABITAT.—Eastern Himalayas.

P. Newara is distinguishable from *P. Nareda* on the upperside by the less outwardly-oblique position of the ocellus on both the upper and underside of the forewing. On the underside also, the ocelli are larger, especially the apical ocellus on the hindwing, and in the female being numerously covered with pale strigæ on the upperside.

Our illustrations on Plate 113, figs. 2, 2a, represent the Nepal type male and female.

DISTRIBUTION.—Occurs in the Eastern Himalayas. We possess specimens from Nepal, taken by the late General G. Ramsay, and from Sikkim. “Mr. Otto Müller took it in Sikkim, in October, at about 3000 feet elevation. We have specimens from Nepal” (Butt. Ind. i. 222). Mr. H. J. Elwes (Tr. Ent. Soc. 1888, 325) says it “occurs in Sikkim from the Terai up to about 5000 feet, from May to September.”

PANDIMA LYCUS (Plate 113, fig. 3, ♂).

Ypthima Lycus, de Nicéville, Journ. Bombay, Nat. Hist. Soc. 1889, p. 165, pl. A, fig. 2, ♂.

Ypthima Motschulzkii, Marshall and de Nicéville, Butt. of India, etc. i. p. 214 (*nec* Bremer).

IMAGO.—Male. Upperside dark glossy brown; cilia brownish-cinereous. *Forewing* with a small black bipupilled subapical ocellus with a slender pale ochreous outer ring; discal area, including lower part of the cell, dusky, but clothed with ordinary broad rather large dentate-tipt scales and some longer narrower anteriorly widening scales with sharp dentate-tips. *Hindwing* with a small well-formed round ocellus situated between the lower medians. Underside pale ochreous-cinereous, thickly covered with dark-brown strigæ which are uniformly-disposed throughout. *Forewing* with the ocellus as above, but more prominent, and with broader outer yellow ring. *Hindwing* with a large apical ocellus and two smaller anal ocelli, the lowest bipupilled.

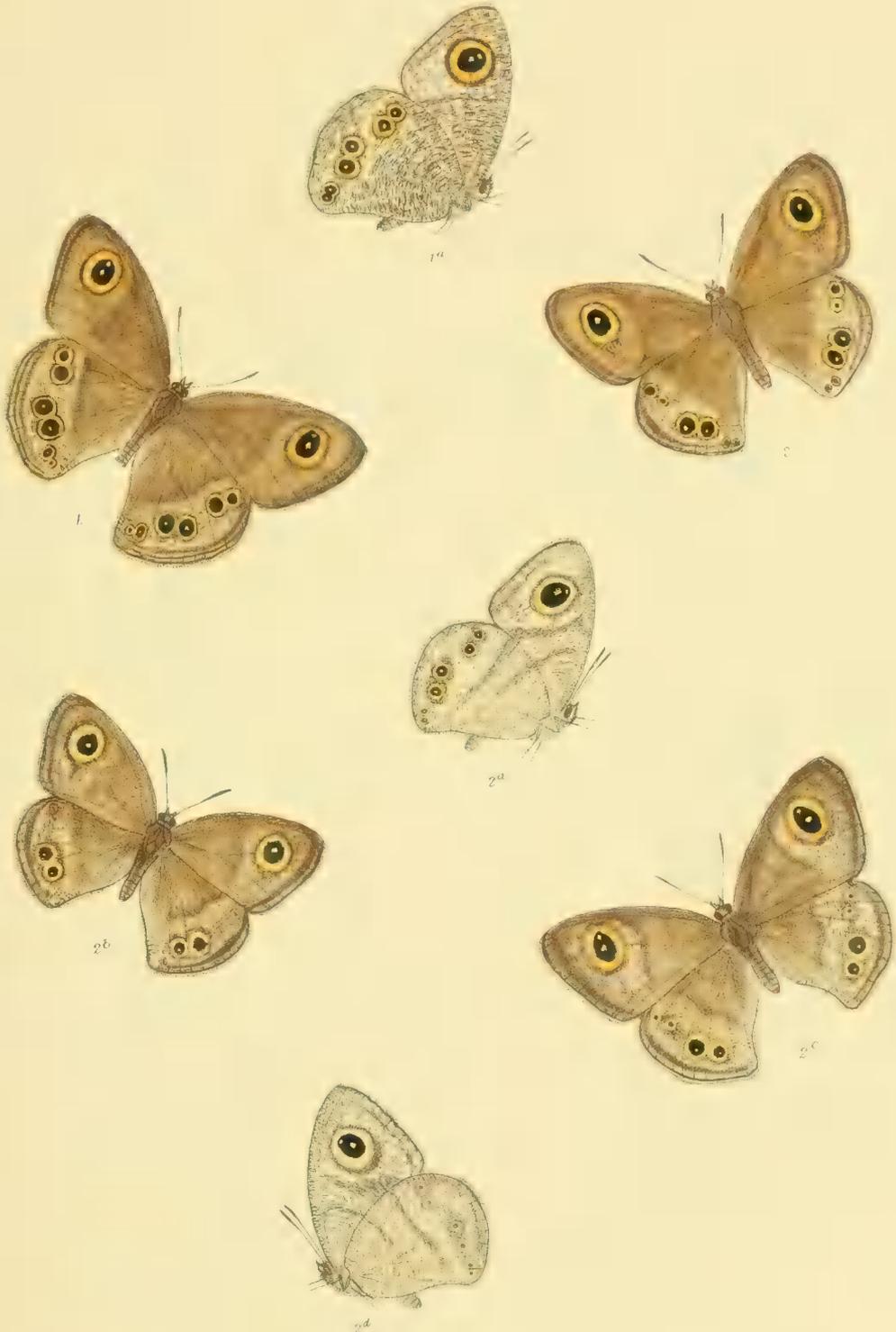
Female. Upperside paler throughout than in the male; ocelli on both wings the same, those on the underside being larger.

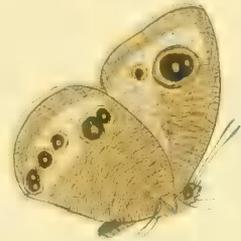
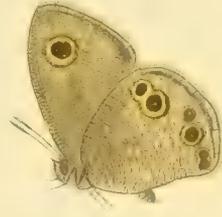
Expanse $1\frac{5}{10}$ to $1\frac{6}{10}$ inch.

HABITAT.—Khasia Hills.

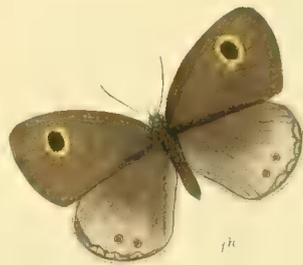
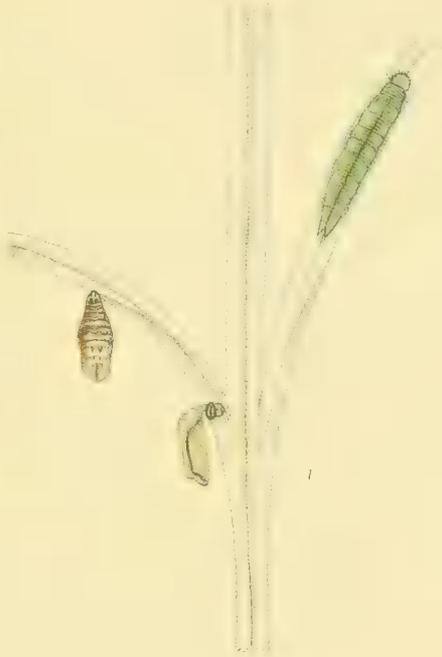
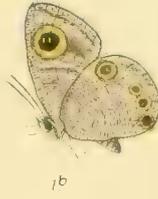
This is a smaller insect than *Y. Newara*. The underside is more uniformly covered with brown strigæ; discal shade not present.

DISTRIBUTION.—“Occurs near Shillong in the Khasia Hills, where it was taken by Dr. E. R. Johnson in March, April, May and July, who writes “that it flies faster than *Y. Newara*, frequents more open spaces, and is rather uncommon” (Butt. Ind. i. 215). We possess specimens taken by Dr. G. Watt, in November, on his journey to Manipur (Ann. N. H. 1885, 302), and also specimens from Balah 4000 feet















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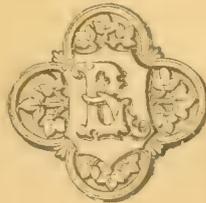
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elevation, taken by Dr. Watt. The specimens recorded as "Newara" by Mr Wood-Mason (J. A. S. Beng. 1886, 351) as occurring in the "forests near Silcuri, Cachar, in May and July," and those mentioned (Butt. Ind. 222) as from "Sibsagur, Upper Assam," doubtless refers to this.

PANDIMA WATSONI.

WET-SEASON BROOD (Plate 113, fig. 4, ♂).

IMAGO.—Male. Upperside dark olivescent-brown; both wings with a darker brown submarginal fascia and a single slender marginal line. *Forewing* with a moderately large subapical ocellus bipupilled with silvery-white, and a slightly-defined outwardly-oblique discal brown fascia. *Hindwing* with a single subanal moderately-large ocellus, and a slightly-defined angulated discal brown fascia. Underside dull whitish-cinereous, numerously covered with thick dark-brown strigæ. *Forewing* with a large subapical ocellus broadly ringed with pale ochreous; an ill-defined discal and a submarginal brown fascia. *Hindwing* with a large apical ocellus, a large subanal and a conjoined large anal ocellus, each with a broad pale-ochreous ring and silvery-blue pupil, the anal ocellus being bipupilled.

Female. Upperside paler; submarginal brown fascia and single slender marginal line, as in the male. Both wings with the ocellus larger, and the discal area mottled with pale cinereous strigæ; the hindwing showing also an incipient small anal ocellus. Underside as in the male.

Expanse, ♂ ♀ $1\frac{5}{10}$ to $1\frac{8}{10}$ inch.

DRY-SEASON BROOD (Plate 113, figs. 4, a, b, c, ♂ ♀).

IMAGO.—Male. Upperside cinerescent-brown. *Forewing* with a large rounded bipupilled ocellus, a well-defined outwardly-oblique discal and a submarginal darker brown fascia, both joining above the posterior angle. *Hindwing* with a moderately large subanal ocellus, an angulated discal brown fascia and a well-defined submarginal fascia, the inner area between the fasciæ on both wings being paler. Underside pale olivescent-cinereous, numerously covered with olive-brown speckled-strigæ at the base and outer border and with paler speckles only on the ocelli areas. *Forewing* with the ocellus large and prominent, the outwardly-oblique discal and the submarginal brown fascia distinct and joined together above the posterior angle. *Hindwing* also with two distinctly-defined medial brown fasciæ, both being angulated, the outer one especially; submarginal fascia also prominent; the apical ocellus, situated between the subcostals, and the two anal ocelli, very minute.

Female. Upperside paler; the discal area between the fasciæ mottled with pale cinereous strigæ. *Hindwing* with a minute geminated anal ocellus below the subanal. Underside as in the male.

Expanse, ♂ $1\frac{4}{10}$, ♀ $1\frac{7}{10}$ inch.

HABITAT.—Burma.

This species is nearest allied to the Malayan *P. corticaria*. The male of the wet-season brood of *P. Watsoni* differs from the same sex of *P. corticaria*, on the upperside of both wings, in having only *one* marginal slender brown line, whereas the latter species, in both sexes, possess *two* very distinctly-defined marginal lines, in addition to the submarginal fascia; the ocellus on both wings of *P. Watsoni* also have a broader and paler ochreous ring. On the underside of *P. Watsoni*, the strigæ are more uniformly-disposed, the hindwing not showing the transverse pale fasciæ as are present in *P. corticaria*; the ocelli in *P. Watsoni* have a much broader pale ochreous ring, and the ocelli on the hindwing are also larger.

DISTRIBUTION.—Specimens of the wet-season brood were taken by Signor Leonardo Fea at Palon, in Pegu, during August, and others at Bhamo in November. In Major C. H. E. Adamson's Collection are examples from Kindat in Chindwin, taken in November, 1891, and others from Pyoumyoung in the Shan States, taken in July. Dr. N. Manders records (Tr. Ent. Soc. 1890, 519), under *Y. Newara*, "five specimens of both sexes taken in the wet and dry seasons, in the Shan States, one of which was taken in April on the Yatsouk Expedition." Capt. E. Y. Watson took examples of the dry-season brood at Toungoo in January and March, 1891. Dr. J. Anderson took specimens in Burma during the Yunan Expedition.

PANDIMA MAHRATTA.

WET-SEASON BROOD (Plate 114, figs. 1, 1a, ♂ ♀).

Ypthima Mahratta, Moore, Journ. Asiatic Soc. Bengal, 1884, p. 16. Waterhouse, Aid Identif. of

Ins. pl. 179, fig. 1, ♂. Butler, Annals of Nat. Hist. 1888, p. 137.

Ypthima Asterope, Marshall and de Nicéville, Butt. of India, i. p. 224 (*nec*. Klug).

IMAGO.—Male and female. Upperside brown. *Forewing* with a subapical bipupilled ocellus, a slightly darker brown submarginal and a curved discal fascia, with paler intervening area bordering the ocellus. *Hindwing* with a very small subanal ocellus pupilled with blue. Underside cinereous, very numerously covered with short delicate pale-brown strigæ, which are uniformly disposed, but in most specimens show traces of an ill-defined irregular discal brown fascia. *Forewing* with a brownish submarginal fascia which curves below the ocellus and joins the discal fascia. *Hindwing* with a very small distinct and well-formed apical ocellus disposed between the subcostals, and two similar subanal ocelli of the same size, the lowest being bipupilled.

Expanse ♂ $1\frac{1}{10}$, ♀ $1\frac{5}{10}$ inch.

DRY-SEASON BROOD (Plate 114, figs. 1, b, c, ♂).

Ypthima Alemola, Swinhoe, Proc. Zool. Soc. Lond. 1885, p. 127. Butler, Annals of Nat. Hist. 1888, p. 137.

Male and female. Upperside of both sexes similar to the wet-season brood.

Underside. *Forewing* also similar. *Hindwing* finely irrorated with brown scales—imperfectly forming strigæ, which are more densely disposed on the basal half, paler and less numerous on the outer half; crossed by an ill-defined subbasal, a medial narrow sinuous angular fascia, and a less-defined submarginal fascia; a very minute apical and two anal black dots, the former disposed between the subcostals and generally blind, the two latter sometimes pupilled and ringed. The following is the original description of *Y. Alemola*. “Male and female. Upperside very similar to *Y. Asterope*, an African species. Underside much paler, and of a different hue, greyish-white, very plentifully covered with pale reddish-brown striæ, more dense in the fore than in the hindwing. Forewings with a brown fascia from the costa round the ocellus back to the costa, diffuse and deep below the ocellus. *Hindwing* with three sinuous fasciæ across the wing, the first before the middle, the second beyond the middle, the third submarginal; one or other of these fasciæ is very often obsolete; the striæ is denser towards the base of the wing, leaving the outer half whitish; two anal and one apical blind dots, in the place of the well-formed ocelli with yellow wings of *Y. Asterope*, one or other of these dots is often wanting, in some specimens all are wanting.”

Expanse, $1\frac{2}{10}$ to $1\frac{4}{10}$ inch.

HABITAT.—N.-W. Himalayas; Western and Central India; Orissa.

This species is allied to the N.-E. African (Aden) species *P. Asterope* of Klug, specimens of which from Lahej, in Aden, collected by Major J. W. Yerbury, are in our collection.

DISTRIBUTION.—In the N.-W. Himalayas, the *wet-season form* of this species has been taken by Colonel A. M. Lang in the “Simla Hills in June and July” (MS. Notes), and at Naini Tal. Col. C. H. T. Marshall took it in “Chumba, in March” (Butt. Ind. 225), and Col. Swinhoe possesses specimens from Col. Marshall taken at Chumba in April. Major J. W. Yerbury (Ann. Nat. Hist. 1888, 137) collected the *wet-season form* at Attock and Abbottabad in April, at Campbellpur and Hassan Abdal in June and July, at Kairabad in July, and at Abbottabad and Kala Pani in July and August. The *dry-season form* (*Alemola*) was also obtained at Attock in March and April, at Kairabad in April, at Campbellpur in April, at Akhori Hill in April, at Hassan Abdal in May, Kala Pani in May, and at Rawul Pindi and on the Murree Road in March and April. Both forms being common on the Hills round Campbellpur, and on the lower slopes of the Hills near Abbottabad.” Mr. W. Doherty doubtless refers to this species (Journ. Asiat. Soc. Bengal, 1886, 119), under *Y. Asterope*, as having been collected by him in Kumaon at “Bagheswar, Takula, Lower Sarfu and Lower Gori, at 2000 to 6000 feet elevation.” In Western India, it has been taken at “Hyderabad in Sind” (Butt. Ind. 225). Specimens from Mount Aboo are in Major Adamson’s collection. The late Mr. G. H. Wilkinson took it at

Akote. Colonel C. Swinhoe obtained both forms at Ahmednuggur, and records (P. Z. S. 1885, 127) the *wet-season form* (Mahratta) as taken in "Bombay in October and November, and the *dry-season form* (Alemola) at Poona from October to June." At Mhow the *wet-season form* was taken in "June, July and November, also at Neemuck, September to November," and the *dry-season form* in February, and "from April to July" (P. Z. S. 1886, 423). The late Dr. F. Day collected specimens in the Dekkan. It has also been taken in "Khandesh and Nagpur, and by Mr. J. A. Betham at Amri and Ghindwara, Central Provinces, in October" (Butt. Ind. 225). Capt. E. Y. Watson has specimens of the *wet-season form*, taken at Ahmednuggur in August, and also of the *dry-season form* (Almeola) taken in April. Capt. Watson also took the *wet-season form* in Ganjam, Orissa, in June.

This species (Mahratta) is erroneously entered by Mr. G. F. Hampson (Journ. As. Soc. Bengal, 1888, 350), as having been taken by him in the Nilgiris. The specimens in his collection (which we have examined), and are entered in his MS. Journal as this species, are labelled as having been taken in "Poona by Col. Swinhoe."

INDO-MALAYAN SPECIES OF PANDIMA.—*P. Pandocus* (Y. Pandocus, Moore, Catal. Lep. Mus. E. I. Compy., i. p. 235. Hewitson, Tr. Ent. Soc. 1865, p. 290, pl. 18, fig. 12). *Habitat.* Java, Sumatra, Borneo.—*P. corticaria* (Y. corticaria, Butler, Trans. Linn. Soc. Zool. 1879, p. 537); Distant Rhop. Malay, p. 55, pl. 7, fig. 8. *Habitat.* Malay Peninsula, Singapore.—*P. Motschulskyi* (Sat. Motsch. Bremer; Menétries, Catal. Mus. Acad. Petr. Lep. i. pl. 6, fig. 5, 1885). *Habitat.* N. China.—*P. multistriata* (Y. multistriata, Butler, Ann. Nat. Hist. 1883, p. 50). *Habitat.* N. Formosa.—*P. sempera* (Y. sempera, Felder, Wien. Ent. Monats. 1863, p. 125). Semper, Reis. Archipel. Phil. Lep. i. 49, pl. 10, figs. 1, 2. *Habitat.* Mindanaro.—*P. Stelleria* (Hipp. stelleria, Esch. Kotzeb. Reise iii., p. 216, pl. 10, fig. 24, 1881). Semper, l.c., p. 48. *Habitat.* Philippines.—*P. norma* (Y. norma, Westwood, in Doubleday, and Hewits, Gen. D. Lep. 395, pl. 67, fig 1, 1851). *Habitat.* China (? Java).

Genus LOHANA.

IMAGO.—Wings much shorter and broader than in typical *Ypthima*. *Forewing* with the cell very broad: discocellulars much more oblique; no *visible glandular patch*, but the lower discal area is clothed with short round-tipt or dentate-tipt scales, some longer dentate-tipt scales, and a few *long filiform dark androconia* with tassel-tips. *Hindwing* with *one subapical ocellus*, disposed between the lower subcostal and the radial veinlet. Palpi slender, apical joint long; antennal club very slender.

TYPE.—L. Inica.

LOHANA INICA.

WET-SEASON BROOD (Plate 114, figs. 2, 2a, ♂ ♀).

Ypthima Ariaspa, Moore, Proc. Zool. Soc. Lond. 1874, p. 568. Marshall and de Nicéville, Butt. of India, etc. i. p. 224 (1883).

Ypthima Rara, Butler, Proc. Zool. Soc. Lond. 1883, p. 145, pl. 24, fig. 1, ♀.

Ypthima Dædalea, Swinhoe, Proc. Zool. Soc. Lond. 1886, p. 423, ♂.

IMAGO.—Male and female. Upperside uniformly dark-brown. *Forewing* with a rounded subapical bipupilled ocellus; *no visible glandular patch*, but the lower discal area clothed with short round-tipt or dentate-tipt scales, some longer dentate-tipt scales, and many long filiform *dark androconia* with tassel-tips. *Hindwing* with a small subanal ocellus.

Underside pale ochreous-cinereous, uniformly covered with numerous narrow brown prominent strigæ; *no submarginal shade*. *Forewing* with ocellus, as above, prominent, bipupilled, and with pale ochreous outer ring. *Hindwing* with an apical ocellus (disposed between the lower subcostal and radial) and two small subanal ocelli, the lowest bipupilled.

Expanse, $1\frac{1}{10}$ to $1\frac{4}{10}$ inch.

DRY-SEASON BROOD (Plate 114, figs. 2, b, c, d, e, ♂ ♀).

Ypthima Inica, Hewitson, Trans. Ent. Soc. Lond. 1864, p. 284, pl. 17, fig. 5, ♀.

Ypthima Inica, Butler, Catal. Satyr. Brit. Mus. p. 151 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 225 (1883).

Ypthima Alkibie, Swinhoe, Proc. Zool. Soc. Lond. 1886, p. 422.

Ypthima complexiva, Swinhoe, Proc. Zool. Soc. Lond. 1886, p. 423, pl. 40, fig. 2, ♀ (*variety*).

Male and Female. Upperside as in the wet-season brood. Underside pale ochreous-grey, very numerous covered with brown strigæ, more or less uniformly disposed on both wings, and with an indistinctly defined incomplete submarginal sinuous fascia, which is more distinct on parts of the hindwing, or the hindwing is crossed by four more or less defined somewhat clouded brown sinuous fasciæ, the intervening strigose spaces being pale ochreous-grey. *Forewing* with a prominent ocellus, as in wet-season brood, sometimes there is a minute blind ocellule present (as in the variety *complexiva*) between the lower median veinlets. *Hindwing* with three minute, more or less perfectly-formed ocelli, or, black dots, sometimes the black dots are obsolescent, as in the typically described *Inica*.

Expanse, $1\frac{1}{10}$ to $1\frac{4}{10}$ inch.

HABITAT.—Western and Central India, Upper Bengal.

DISTRIBUTION.—The type specimens of the *wet-season brood* (*Ariaspa*) were obtained by the late General G. Hearsey in the Punjab District, and the late Mr.

E. T. Atkinson collected it in Western Central India. Colonel C. Swinhoe (P. Z. S. 1883, 145) also collected the *wet-season form* in "Mhow, Central India, in September and October 1881," also recording it (P. Z. S. 1886, 423) as being "very plentiful in Mhow from May to November; and at Neemuck in November."

In Mr. G. F. Hampson's collection are several of the *wet-season brood*, which were taken by Mr. W. H. Irvine at Bholakat, Malda District, Upper Bengal. The *dry-season brood* (*Inica* Hewitson), of which the type specimen was taken in Malwa, Central India, is in the British Museum collection. Colonel Swinhoe records it (P. Z. S. 1883, 145) from Mhow, December and February, and in P. Z. S. 1886, 422-3) his *alkibie*, also from "Mhow, being very plentiful from November to March, and at Depalpur in January and February;" the variety, *complexiva*, having been also taken at "Depalpur in November." The type specimens of both the *wet* and *dry-season form* of this species, referred to above, have all been examined and verified by the author.

Of the illustrations of this species on our Plate No. 114, *figs. 2, 2a* represent the male and female *wet-season brood* (*ariaspa*), *figs. 2b, c, d, e*, the *dry-season brood*; *fig. 2b* being a male similar to the figure of 'complexiva,' and *figs. 2c, d, e*, being typical 'Inica' and 'Alkibie.'

Genus DALLACHA.

IMAGO.—Wings short. *Forewing* very broad; costa much arched, apex obtusely rounded, exterior margin almost erect and slightly convex; cell broad, very long, extending to more than half the wing; first and second subcostal branches emitted before end of the cell, third and fourth at equal distances beyond; upper discocellular angled close to the subcostal, concave below, lower discocellular convex; subcostal much swollen at the base, median not swollen. *No androconia*. *Hindwing* short, very broad; cell extending to beyond half the wing; discocellulars long, very oblique; with two apical and two anal ocelli on the underside. Palpi stout, densely clothed; antennæ with a very lengthened slender club.

TYPE.—*D. Hyagriva*.

According to Mr. W. Doherty (Journ. Asiatic Soc. Bengal, 1886, 119) "the venation of the forewing shows this species to be a true Callerebia, both the first and second subcostals being emitted before end of the cell. The structure of the pre-hensores shows the same thing. All the *Satyridæ* known to me, except *Ypthima* and *Melanitis*, have the uncus branched, and in *Hyagriva* this part is branched precisely as in other Callerebia. The pre-hensores are scarcely to be distinguished from those of *C. Annada*."

DALLACHA HYAGRIVA (Plate 115, figs. 1, 1a, ♂ ♀).

Ypthima Hyagriva, Moore, Catal. Lep. Mus. East India Compy., i. p. 236 (1857). Hewitson, Trans. Ent. Soc. Lond. 1885, p. 291, pl. 18, fig. 11.

Ypthima Hyagriva, Butler, Catal. Satyr. Brit. Mus. p. 152 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 226, pl. 17, fig. 64, ♀ (1883).

IMAGO.—Male. Upperside dark olivescient brown; cilia cinereous-brown with a paler inner line; both wings with a dusky-brown submarginal fascia. *Forewing* with a prominent large broadly-oval or rounded subapical black ocellus, bipupilled with bluish-white and ringed with ochreous, sometimes a single white pupil only is present, and in some a minute ocellule is also present between the lower median veinlets. *Hindwing* with a large round subanal ocellus with a single pupil and ochreous ring. Underside deep olivescient brownish-ochreous; cilia brownish-ochreous with a brown line. *Forewing* with the costal edge and outer border slightly flecked with brown strigæ; a distinct broad dusky-brown submarginal fascia and a slender black marginal line; ocellus, as in upperside, bipupilled, and below it is one, or two, white spots between the medians, the lower one being sometimes a fully developed minute ocellus. *Hindwing* numerously covered with dusky-brown waved strigæ; a submarginal dusky-brown fascia; a large geminated pair of apical ocelli, each with a bluish-white pupil and both encompassed by an ochreous ring; a similar geminated pair of anal ocelli, and between the upper and lower medians two intervening white dots are generally present.

Female. Upper and underside as in the male; sometimes a minute anal ocellus being present on upperside of the hindwing. Body beneath, palpi, and legs olivescient brownish-ochreous; antennæ brown above and ochreous beneath in male, reddish in the female.

Expanse, ♂ $1\frac{5}{10}$ to $1\frac{8}{10}$, ♀ $1\frac{8}{10}$ to 2 inches.

HABITAT.—Western Himalayas.

DISTRIBUTION.—In the late Mr. W. S. Atkinson's collection we verified specimens labelled "Tavi Valley, Kashmir," and "Chumba," and in a MS. Note, he says, "I have a specimen from Kumaon, and I took two or three near Thana Mandi just before crossing the Ruttan Pir. It seemed common there. I also took a specimen on the outer hills of Chumba." Major H. B. Hellard obtained it at "Masuri at the end of September, or beginning of October" (MS. Notes). In Mr. G. F. Hampson's collection are specimens taken by "Colonel A. M. Lang in Gin Chini, Kumaon, at 5000 feet in September, and at Naini Tal, 6500 feet, in August." Mr. W. Doherty (J. A. S. Beng. 1886, 119) says, "I found Hyagriva not uncommon at various points in Kumaon, from 3000 to 7000 feet elevation, during the rains." "Mr. A. Graham Young took it in the Kulu Valley in August and September" (Butt. Ind. 226). We have a specimen from General G. Ramsay's Nepal collection.

Genus CALLEREBIA.

Callerebia, Butler, Annals Nat. Hist. 1867, p. 217; Catal. Satyr. Brit. Mus. p. 96 (1868); Ent. Mo. Mag. 1868, p. 194. Marshall and de Nicéville, Butt. of India, etc. i. p. 243 (1883).

IMAGO.—Male. Wings short. *Forewing* broad, subtriangular; costa much arched, apex rounded, exterior margin slightly convex, posterior angle rounded; cell broad, extending to more than half the wing; costal vein much swollen at the base, median vein slightly swollen; first and second subcostal branches emitted before end of the cell, the first at some distance before, and the second close to the end; upper discocellular short and inwardly-oblique, angled close to the subcostal, lower discocellular long, excurved; upper radial from angle close to the subcostal, lower radial from the middle below the end of upper discocellular; median branches at nearly equal distances apart; submedian slightly recurved from the base. *Hindwing* very broad, obtusely-conical; anterior margin convex, apex round, exterior margin convex, anal angle somewhat produced and slightly lobular, abdominal margin recurved and convex towards the base; cell long, broad across the middle; first subcostal branch emitted at some distance before end of the cell; discocellular very oblique, slightly concave anteriorly, radial from above the middle; the middle median emitted at some distance before end of the cell. Body slender; palpi densely hairy to the tip, above, and beneath; antennæ with a lengthened slender tip.

TYPE.—C. Scanda.

HABITS.—The species of *Callerebia* “are autumnal insects of weak flopping flight, with an irregular pitching action; frequenting bare grassy slopes [hybrida], or else hedges, copses, and fields near woods [Nirmala and Scanda].” (Col. A. M. Lang, MS. Notes). In the Western Himalayas they affect lower elevations than the species of *Paralasa*, and are common in the outer ranges at 6000 feet elevation.

CALLEREBIA ORIXA (Plate 115, fig. 2, 2a, ♂ ♀).

Callerebia Orixa, Moore, Proc. Zool. Soc. Lond. 1872, p. 555, ♂. Marshall and de Nicéville, Butt. of India, etc. i. p. 245 (1883). Butler, Annals of Nat. Hist. 1885, p. 301.

Callerebia ophthalmica, Staudinger, Exot. Schmett. p. 227, pl. 81 (1887).

IMAGO.—Male. Upperside dark olivescient umber-brown, vinescent in some lights; exterior borders slightly paler; both wings traversed by a slender dusky-brown submarginal line; cilia with a cinerescence-white inner line. *Forewing* with a large prominent subapical rounded black ocellus, which is bipupilled with bluish-white and has a broad bright reddish-ochreous outer ring. *Hindwing* with a small round subanal ocellus with a single pupil. Underside paler, but of a brighter and redder-brown on the hindwing. *Forewing* with the apical border slightly mottled with cinerescence strigæ; the ocellus as above, the submarginal dusky fascia joining

a similar discal fascia below the ocellus, both fasciæ being disposed, anteriorly, close to the ocellus. *Hindwing* with numerous greyish-white transversely-disposed strigæ, which are most numerous and are somewhat confluent from the abdominal margin and less frequent before and below the apex, where their partial absence form an upper-discal and upper-marginal fascia of the ground colour; two very small anal ill-formed ocelli.

Female. Upperside paler. *Forewing* with the ocellus larger, its ochreous ring paler, broader and dilated outwardly. *Hindwing* with the anal ocellus also somewhat larger. Underside as in the male, except that the ocellus on forewing is larger and has a broader and paler but less-defined ochreous ring.

Expanse, ♂ $2\frac{2}{10}$ to $2\frac{4}{10}$, ♀ $2\frac{6}{10}$ inches.

HABITAT.—Khasia and Naga Hills; Manipur.

Both sexes of *C. Orixa* are distinguishable from *C. Annada* by the larger size of the ocellus on the forewing, on both the upper and underside; and on the underside of the forewing having the submarginal and discal conjoined-line disposed close to the edge of the ocellus.

DISTRIBUTION.—“This species is isolated in its geographical range from the rest of the genus. We have specimens taken by Mr. A. O. Hume in the eastern hills of Manipur, in May, and others taken by Mr. E. R. Johnson at Shillong in May and June, and at Terria Ghat below Shillong in the autumn” (Butt. Ind. i. 245). Mr. W. S. Atkinson took it in Cherra Punji. Dr. G. Watt obtained specimens “near Assam” during his journey to Manipur (Ann. N. H. 1885, 301). Has also been obtained in the Khasia Hills by Mr. H. J. Elwes, and in the Naga Hills by Mr. W. Doherty.

CALLEREBIA ANNADA (Plate 115, figs. 3, 3a, b, ♂ ♀).

Erebia Annada, Moore, Catal. Lep. Mus. E. I. Company, i. p. 226 (1857).

Callerebia Annada, Marshall and de Nicéville, Butt. of India, etc. i. p. 245 (1883).

Callerebia Scanda (var. b.), Butler, Annals Nat. Hist. 1867, p. 217, pl. 4, fig. 8.

IMAGO.—Male. Upperside olivescens umber-brown, vinescent-brown in some lights, the exterior borders paler; cilia with a whitish-cinereous inner line; both wings with a slender dusky-brown submarginal line. *Forewing* with a moderate-sized obtusely-oval subapical ocellus, bipupilled with bluish-white and with a narrow reddish-ochreous outer ring. *Hindwing* with a small round subanal ocellus, with a single pupil. Underside much paler. *Forewing* cinerescent-brown, suffused with pale chestnut-brown; apical border mottled with cinereous strigæ; subapical ocellus more prominent, somewhat larger than on upperside, and ringed with pale ochreous; the dusky-brown submarginal line joined to the discal line at the lower median vein, the lower area between the lines being bright chestnut-brown, and the lines disposed at some distance from the ocellus. *Hindwing* chestnut-brown; very numerously

covered with more or less-confluent cinereous-white transverse strigæ; crossed by an ill-defined discal brown sinuous fascia, this fascia being dilated anteriorly before the apex, and by a less defined upper marginal brown fascia; two small anal blind ocelli.

Female. Upperside somewhat paler, the ocellus on both wings larger, the one on the forewing being round. Underside as in the male, but paler, the ocellus on forewing large and round, the ocelli on the hindwing also larger.

Expanse, ♂ $2\frac{2}{10}$ to $2\frac{6}{10}$, ♀ $2\frac{8}{10}$ inches.

HABITAT.—Himalayas (Kashmir to Bhotan).

DISTRIBUTION.—We have examined, and verified specimens, now in the British Museum Collection, taken by Colonel A. M. Lang, at Masuri, 7000 feet elevation, in June, 1868, and others taken at Naini Tal, 4000 to 7000 feet, taken in May, September and October, in Mr. G. F. Hampson's Collection. We possess specimens from Masuri and Kashmir, taken by the late Major H. B. Hellard in August and September, and others from Major-General G. Ramsay's Nepal Collection. Major J. W. Yerbury (P.Z.S. 1886, 358) records specimens (which are now in the British Museum Collection, and have been verified as true *C. Annada*) "between Abbottabad and Kala Pani, taken on 25th September, 1885, being not uncommon about Kala Pani; its habits here appeared different from those of *Callerebia* in general, as it was flying over stones and low bushes, not affecting the shade; near Tret on October 8th, however, *C. Annada* affected the shade much like *C. Nirmala*." Mr. W. Doherty (J. A. S. Beng. 1886, 119) records it from "Kumaon generally, from 5000 to 7000 feet elevation; first specimen taken on September 22nd." In Mr. J. H. Leech's Collection, are examples taken by Mr. MacArthur, at Kujiar, 6000 feet, in April, at Narkunda in April, and at Kala in August. "Mr. Hocking took it in the Kangra District; Major C. H. T. Marshall obtained it in the Chumba State in May, and Mr. L. de Nicéville took it at Simla. The type is recorded from Bhotan. The India Museum, Calcutta, has it from Nepal, and it is probably to be found in all the intermediate regions, occurring in the rainy season" (Butt. India, i. 246). Mr. H. J. Elwes (Tr. Ent. Soc. 1888, 327) says, "I have no specimens taken in recent years in Sikkim, but two which were contained in Mr. Wilson's Sikkim Collection are somewhat larger than those from Kulu and Nepal. Mr. Knyvett's collectors took it in 1887, in the interior of West Bhotan, near the Sikkim frontier."

CALLEREBIA HYBRIDA (Plate 116, figs. 1, 1a, ♂ ♀).

Callerebia hybrida, Butler, Proc. Zool. Soc. Lond. 1880, p. 147. Marshall and de Nicéville, Butt. of India, etc. i. p. 246, pl. xv. fig. 44, ♂ (1883).

Callerebia Nada, Moore, Trans. Ent. Soc. Lond. 1881, p. 306.

IMAGO.—Male. Upperside dark vinescent umber-brown, slightly paler at the apex; with a rather broad dusky-black submarginal line; cilia cinerescence-brown

with a slightly paler inner line. *Forewing* with a subapical obtusely-oval black ocellus, bipupilled with bluish-white and narrowly ringed with dark reddish-ochreous. *Hindwing* with a small subanal round ocellus with single pupil. Underside paler. *Forewing* with the discal area suffused with chestnut-brown; ocellus prominent, ringed with pale ochreous; apical border and upper area of ocellus thickly covered with cinerescens strigæ; submarginal and conjoined discal dusky-brown line prominent. *Hindwing* uniformly covered with dull cinerescens mostly-confluent strigæ; crossed by a discal undulated sinuous slender brown line, and a less-defined submarginal line; two perfectly formed prominent subanal ocelli of nearly equal size, each with a single pupil and pale ochreous ring, above which are four inner submarginal cinereous-white ocelloid-dots, which latter are sometimes replaced by well-developed minute ocelli.

Female. Upperside somewhat paler; ocellus on forewing larger. Underside as in the male, except that the ocellus on forewing is also larger.

Expanse, ♂ 2 to 2 $\frac{4}{10}$, ♀ 2 $\frac{4}{10}$ to 2 $\frac{5}{10}$ inches.

HABITAT.—Western Himalayas.

Distinguishable from *C. Annada* by the shorter and more convex apex of the forewing, and on the underside of the hindwing by the more uniformly disposed and duller strigæ, the sinuous discal line being slender and uniform in width throughout its course across the wing, and by the prominent well-formed subanal ocelli.

Our illustrations of this species on Plate 116, figs. 1, 1a, represent the male and female specimens of *C. Nada*.

DISTRIBUTION.—This species “is very common in the Western Himalayas, throughout the outer ranges, at moderate elevations from May to September” (Butt. of India, 247). Colonel A. M. Lang found it “very abundant in Middle and Upper Kunawur, in June and July, frequenting hot, dry hill-sides” (MS. Notes). We possess specimens from Col. Lang, and both sexes obtained by Major H. B. Hellard at Simla and Masuri, in June and October; from Kulu by Mr. J. H. Hocking, and from the Jumna Valley, 5000 to 6000 feet, in September, by Major J. W. Yerbury. Mr. W. Doherty obtained it in “Kumaon generally, at from 6000 to 9000 feet elevation” (J. A. S. Bengal, 1886, 119). Specimens from Naini Tal, 6500 feet, taken by Col. A. M. Lang in May, 1887, and from the Kulu Valley, 5000 feet, taken by Mr. de Nicéville, are in Mr. G. F. Hampson’s Collection. In Mr. J. H. Leech’s Collection are examples taken at Sultanpur in Kulu by Mr. A. Graham Young; others also from Sultanpur taken in September, by Mr. McArthur, from Ramband 2000 feet, taken in May, 1889, from Narkunda, taken in April, and from Chamba Valley, taken in September by Mr. McArthur.

CALLEREBIA NIRMALA (Plate 116, figs. 2, 2a, b, c, d, e, ♂ ♀).

Erebia Nirmala, Moore, Proc. Zool. Soc. Lond. 1865, p. 501.

Callerebia Nirmala, Marshall and de Nicéville, Butt. of India, etc. i. p. 247 (1883).

Callerebia Scanda (var. c.), Butler, Ann. Nat. Hist. 1867, p. 217, pl. 4, fig. 9.

Callerebia intermedia, et *C. Cashapa*, Moore, Proc. Zool. Soc. Lond. 1882, p. 236 (Varieties).

IMAGO.—Male. Upperside uniformly dark olivescent vinous-brown; cilia brownish-cinereous, with a paler inner line. *Forewing* with an obtusely-oval black ocellus, bipupilled with bluish-white and narrowly ringed with dark ochreous; sometimes a minute ocellule is also present between the middle and lower median veinlets. *Hindwing* with a round subanal single-pupilled ocellus. Underside paler. *Forewing* with the costal and apical border speckled with brownish-cinereous scales, the discal area broadly suffused with bright chestnut-brown; ocellus as above, but more prominent and paler ochreous ringed, the submarginal and discal upper dusky line slightly defined. *Hindwing* uniformly-covered with brownish-cinereous confluent strigæ; and crossed by a slightly-defined discal sinuous brown line and a less apparent submarginal line, beyond which is a series of four upper white dots, a prominent well-formed subanal ocellus, and an anal white dot.

Female. Upperside as in male, but somewhat paler. Underside also paler. *Forewing* less warmly suffused with chestnut-brown. *Hindwing* with the submarginal and discal line less defined; a subanal and an anal ocellus below the upper white dots.

Expanse, ♂ 2, ♀ $2\frac{2}{10}$ inches.

Variety *intermedia* (Plate 116, figs. 2, b, c, ♂ ♀). Male and female. Upperside similar. *Hindwing* sometimes with a small ocellus above the upper median. Underside. *Forewing* less warmly suffused with chestnut-brown. *Hindwing* uniformly speckled with brownish-grey scales; the discal and submarginal brown line being obsolete; with a subanal, or both a subanal and an anal ocellus, and with either one or two upper ocelli, situated above and below the radial, one or other of which are sometimes obsolete.

Expanse, ♂ $2\frac{1}{10}$ to $2\frac{2}{10}$, ♀ $2\frac{4}{10}$ inches.

Variety *Cashapa* (Plate 116, figs. 2, d, e, ♂ ♀). Upperside similar. *Hindwing* with one, or two, upper ocelli. Underside of similar tints to *intermedia*. *Hindwing* with a more or less well-formed discal brown sinuous line, and generally three upper and two lower ocelli, or sometimes a complete series of six well-formed ocelli, the upper ones decreasing in size, and the anal one also small; sometimes the upper one, the lower third, and the anal one are either absent or represented by a white dot. Probably this is the wet-season brood.

Expanse, ♂ 2 to $2\frac{2}{10}$, ♀ $2\frac{4}{10}$ inches.

HABITAT.—Western Himalayas.

DISTRIBUTION.—Typical *C. Nirmala* “is very abundant in Kunawur in June and July. It has a wide range, flies for many months, and is very common. It frequents the same ground as *C. Nada*, but extends also through the habitat of *C. Scanda* almost to the Plains. It appears among woods and glens and damp regions, as well as the dry slopes above, in middle and upper Kunawur” (Lang’s MS. Notes). “It is very common at moderate elevations throughout the Western Himalayas, from May till September. It affects the undergrowth in glades and forests, and may be seen on the wing even on damp and cloudy days” (Butt. Ind. 248). Capt. Beckett took it in Gurhwal. Major H. B. Hellard obtained it in “Simla, and Pangi, Busalir, in July and August” (MS. Notes). Mr. W. Doherty records it from “Loharkhet, Western Kumaon, at from 7000 to 8000 feet elevation” (J. A. S. Beng. 1886, 119). We possess the type specimens of *C. Nirmala*, and also the form *intermedia*, from Simla, and of *Cashapa*, from Masuri, 7000 feet, taken by Col. A. M. Lang, in June, from Kangra, taken by Mr. Hocking, and from Simla, taken by Major Hellard in June, and from Masuri in October. Specimens are in Mr. G. F. Hampson’s Collection, taken by Col. Lang, at Naini Tal, 3500 to 7700 feet elevation in May and June, 1887.

CALLEREBIA SCANDA (Plate 117, figs. 1, 1a, b, ♂ ♀).

Erebia Scanda, Kollar, Hügel’s Kaschmir, iv. 2, p. 452, pl. 17, figs. 3, 4, ♂ (1844).

Callerebia Scanda, Butler, Ann. Nat. Hist. 1867, p. 217; Ent. Mo. Mag. 1868, p. 194; Catal. Satyr. B. M. p. 96 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 244 (1883).

IMAGO.—Male. Upperside dark cinerescens olive-brown, darkest basally and with a vinescent tint in some lights; cilia cinerescens-brown, with a cinereous-white inner line which is most distinct on the hindwing. *Forewing* with the apical area perceptibly paler and traversed by a narrow submarginal dusky fascia; subapical ocellus obtusely-oval, black, bipupilled with bluish-white, and ringed with dull ochreous. *Hindwing* with a subanal round ocellus pupilled with bluish-white. Underside paler. *Forewing* with the ocellus more prominent, the apical area very slightly speckled with cinereous scales, traversed by an indistinct dusky-brown submarginal and an oblique discal fascia, which are convexly-joined at the lower median. *Hindwing* irrorated with cinerescens-white scales, which are very densely disposed towards the inner area and there form more or less-defined strigæ; prominent round subanal and a smaller anal ocellus both white pupilled, the latter being sometimes bipupilled; above these is a submarginal series of four white ocelloid dots. *Body* beneath and legs above brown; legs cinerescens beneath; palpi cinerescens at the side, with a lateral black streak and black-tipt frontal hairs; antennæ brown.

Female. Upperside as in the male, but somewhat paler. Underside as in the

male, except that on the hindwing the cinerous-white speckles are less prominent.

Expanse, ♂ 2 to $2\frac{2}{10}$, ♀ $2\frac{5}{10}$ inches.

HABITAT.—Western Himalayas.

DISTRIBUTION.—Obtained by Colonel A. M. Lang at “Narkunda, at 6000 to 7000 feet altitude, in Lower Kunawur, appearing only when the rainy season has set in thoroughly, flying only in July and August, where, in dripping forests about moist banks draped in dense ferns, this species flies weakly even during rain, and when flying looks parti-coloured—black and white. It is local, extending perhaps through seventy miles, and flies only in the autumn in damp regions where and when the rainfall is heavy, whereas *C. Nirmala* extends through at least 200 miles from the Plains into the mountains, through damp and wooded regions, and dry rocks, hot mountain sides, and through many months of the year” (Lang’s MS. Notes). Specimens taken by Colonel Lang in 1887, at Naini Tal 6500 to 7000 feet elevation in August, are in Mr. G. F. Hampson’s Collection. This species is “common throughout the outer ranges of the Western Himalayas, as far east as Masuri, and is probably found in Kumaon; our collection contains specimens from Pangi, taken by Mr. R. Ellis, and from Simla and Masuri” (Butt. Ind. i. 245). A specimen from Kulu, taken by Mr. Hocking, is in the British Museum, and our own collection contains various specimens, among them males from Narkunda taken by Col. Lang, and others from the Jumna Valley, 5000 feet, taken in September by Major J. W. Yerbury. Mr. W. Doherty obtained it “above Loharkhet, Khati, and at Dhankuri, in N.W. Kumaon, at 7000 to 11,000 feet elevation” (J. A. S. Beng. 1886, 119).

CALLEREBIA DAKSHA (Plate 117, figs. 2, 2a, ♂).

Callerebia Daksha, Moore, Proc. Zool. Soc. Lond. 1874, p. 266, pl. 43, fig. 1, ♂. Marshall and de Nicéville, Butt. of India, etc. i. p. 248 (1883).

Callerebia modesta, Moore, Proc. Zool. Soc. Lond. 1883, p. 521.

IMAGO.—Male. Upperside dark vinous-brown, of a uniform tint throughout; cilia cinereous-brown. *Forewing* with an obtusely-oval black subapical ocellus, bipupilled with pure white and with a very indistinctly defined brownish-ochreous narrow outer ring; sometimes a minute ocellule is present between the middle and lower median veinlets. *Hindwing* with a round similar subanal ocellus with white pupil, and sometimes there is present either one, two, or three upper discal minute white ocelloid dots. Underside slightly paler vinous-brown, of a uniform tint throughout. *Forewing* with the subapical ocellus more prominent, beneath which is a minute white dot between the upper medians. *Hindwing* with a prominent round subanal ocellus and a smaller anal ocellus, above which is a discal series of five pure

white dots, the lower of which—and sometimes the two or three lower—appear as small ocelli, and in some the anal ocellus is represented by a white dot. *Body* beneath blackish; legs above and entire palpi blackish; legs beneath brownish.

Expanse, $1\frac{6}{10}$ to 2 inches.

HABITAT.—Kashmir.

DISTRIBUTION.—The type specimens of *C. Daksha* were taken by the late Capt. Bayne Reed at Gulmurg, and Major H. B. Hellard took it in the Jheelum Valley, Kashmir, in July and August. “Mr. L. de Nicéville took it at Gond, also in Kashmir; and Mrs. Bazett obtained a large number at Katabal near Gulmurg, at 8000 to 9000 feet elevation, in June” (Butt. Ind. 248). Mr. J. H. Leech obtained specimens in the Scind Valley, 7000 feet, in June, 1887. Major J. W. Yerbury obtained it at Thundiani in August, 1886.

ALLIED TIBETAN and CHINESE species of CALLEREBIA.—*C. Sylvicola*, Oberthür, Etud. Ent. 1886, p. 24, pl. 4, f. 25. *Habitat.* Tibet.—*C. pratorum*, Oberthür, id. 1886, p. 25, pl. 4, f. 26. *Habitat.* Tibet.—*C. polyphemus*, Oberthür (Friv. Term. Fuz. Magyar Nem. Mus. x. p. 40, pl. 4, fig. 3. Allied to *C. Orixa*. *Habitat.* N. China.—*C. albipunctata*, Leech, Ent. 1890, p. 31; Lep. China, etc., p. 102, pl. 9, figs. 5, 6. *Habitat.* W. China.—*C. rurigena*, Leech, Lep. China, Japan, etc., p. 101, pl. 9, f. 3. *Habitat.* Moupin; W. China. *C. Delavoyi*, Oberthür, 1891, pl. 13, f. 18. *Habitat.* W. China.—*C. ruricola*, Leech, id. p. 100, pl. 9, fig. 4. *Habitat.* W. China.—*C. saxicola* (*Erebia saxicola*, Oberthür, Etud. Ent. 1876, p. 32, pl. 4). *Habitat.* Mongolia.

Genus PARALASA.

IMAGO.—Male. From *Callerebia*, this genus differs in the comparatively longer, narrower and more triangular forewing, longer and much narrower hindwing, and in the grooved spatulate-club of the antenna. Venation similar. From typical *Erebia* (*E. Ligea*) the forewing differs in being comparatively longer and narrower, the costa being more convex, the apex rounded, and the exterior margin more oblique. The hindwing shorter, much narrower posteriorly and more produced anally, the anterior margin being very short and the apex oblique, exterior margin posteriorly convex, the abdominal margin very long and excavated above the angle. Body slender, antennæ more slender, and with a shorter and broader grooved-club.

Type.—P. Kalinda.

In the general pattern of the markings the species of this genus are distinguishable from *Callerebia*, on the upperside of the forewing, by the ocellus having a single white pupil—whereas in all the species of *Callerebia* there are two white pupils; and on the hindwing in the absence of the subanal ocellus. From *Erebia*

it is also easily distinguishable by the absence of the series of submarginal ocelli, on a ferruginous band, which are generally present on both wings in most of the species of the latter genus.

PARALASA KALINDA (Plate 117, figs. 3, 3a, b, ♂ ♀).

Erebia Kalinda, Moore, Proc. Zool. Soc. Lond. 1865, p. 501, pl. 30, fig. 5, ♀. Marshall and de Nicéville, Butt. of India, etc. i. p. 241 (1888). Elwes, Proc. Zool. Soc. 1889, pp. 331, 341.

IMAGO.—Male. Upperside olivescient-brown; cilia alternately edged with white and brown. *Forewing* with a subapical round black ocellus, pupilled with white and narrowly ringed with ochreous, below which is an outer-discal chestnut-red patch. *Hindwing* with a lower outer-discal smaller chestnut-red patch, which is nearly or sometimes quite obsolete in some specimens. Underside cinerescent-brown. *Forewing* with the entire discal area, including the cell, chestnut-red, the subapical ocellus more prominent and paler ringed, and the brown apical border speckled with cinerescent scales. *Hindwing* sparsely speckled with distinctly-defined cinereous scales, these scales being more densely disposed across the disc and there form an ill-defined transverse fascia, beyond which is an outer discal recurved series of white dots.

Female. Upperside. *Forewing* with the ocellus somewhat larger, and the discal red patch much broader. *Hindwing* as in the male. Underside duller brown, in some darker cinerescent-brown. *Forewing* as in the male. *Hindwing* more densely speckled with cinereous scales, the discal white dots less prominent. *Thorax* beneath greyish-black; abdomen beneath and legs beneath greyish; legs above brown; palpi white at the side, frontal hairs black; antennæ blackish above, pale ringed beneath, club reddish and black tipped.

Expanse, ♂ $1\frac{8}{10}$ to 2, ♀ $1\frac{9}{10}$ to $2\frac{1}{10}$ inches.

HABITAT.—Western Himalayas.

DISTRIBUTION.—The type specimens were taken by Colonel A. M. Lang, who remarks that “this is a subalpine Kunawur insect, and is local. I saw very few, and at only two places, on the Hill-sides below the Werang and Runang Passes, at perhaps from 11,000 to 12,000 feet elevation, in July. It has a weak low flight amongst grass and flowers” (MS. Notes). “Mr. A. Graham Young took it in the Kulu Valley in May. Mr. L. de Nicéville obtained numerous males and one female at Ulwas in May, and Mr. R. Ellis and Dr. Hutchinson took numerous specimens of both sexes in Pangli, in June and July, at altitudes of 9000 feet and upwards” (Butt. Ind. 241). Dr. G. Watt obtained it in the Pine forests of the Ravi Basin, up to 12,000 feet. Specimens are in Mr. J. H. Leech’s Collection, taken by Mr. H. McArthur in the Kutie Pass, 7000 feet, N. of Dalhousie, in September, 1889, and from Kokser, in Lahul in July, 1888, and from the Kutkie Pass, 85,000 feet, in

July, taken by Capt. Thompson, and also from Dugi, 12,000 feet, August and September, from Baralacha, August, and from Spiti, August and September, taken by Mr. McArthur. Major H. B. Hellard took it on the "South side of Runang Pass, at about 12,000 feet, in August" (MS. Notes).

PARALASA SHALLADA (Plate 118, figs. 1, 1a, b, ♂ ♀).

Erebia Shallada, Lang, Journ. Asiatic Soc. Bengal, 1880, p. 247. Marshall and de Nicéville, Butt. of India, etc. i. p. 241, pl. xv. fig. 42, ♂ (1883). Elwes, Trans. Ent. Soc. Lond. 1889, pp. 331, 341.

IMAGO.—Male. Upperside uniform dark velvety olivescens-brown; cilia brown alternately edged with white between the veins. *Forewing* with a subapical black ocellus having one prominent white pupil and an indistinctly-defined brownish-ochreous outer ring; below which is a small dark red outer-discal patch, situated between the middle and lower median vein. *Hindwing* with a similar red patch extending from above the upper to the lower median vein. Underside. *Forewing* dark red, with the borders dark cinerescens-brown, and the apex speckled with cinerescens scales; ocellus larger than on upperside, bipupilled with white and ringed with pale ochreous. *Hindwing* dark-brown, sparsely irrorated with cinerescens speckles and short hairy scales, which are somewhat more numerously disposed across the disc and there form a very ill-defined curved fascia; beyond which is an outer-discal curved series of white dots.

Female. Upperside somewhat paler brown, the dark red patches brighter coloured and more diffused, the subapical ocellus larger, more distinct and bipupilled, the lower pupil being minute, outer ring pale ochreous; sometimes there is a minute ocellule between the upper and middle medians. Underside as in the male, but paler brown and more densely speckled, the subapical ocellus more prominent, larger, and brighter coloured.

Expanse, 2 to $2\frac{3}{10}$ inches.

HABITAT.—Western Himalayas.

DISTRIBUTION.—This species was first obtained by Col. A. M. Lang, who remarks that "it appears to be very local, as during three or four years collecting in Kunawur I only twice met with it, taking only five specimens, once at 6000 feet altitude, and again at 8000 feet, on grass ground and rocky slopes near Wangtoo, above the Sutlej, in June" (MS. Notes). Since then Mr. L. de Nicéville has taken a large number at Ulwas, in company with P. Kalinda, in May; he also found it during May exceedingly plentiful along all the roads in the Station of Dalhousie, and through the thick forest as far as Kujiar. Major C. H. T. Marshall also found it commonly at Kujiar, near Dalhousie, and at other places in the Churaba State, in May; and Mr. A. Graham Young took it in Kulu in May and July" (Butt. India,

i. 141). In Mr. J. H. Leech's Collection are specimens taken by Mr. H. McArthur at Dana, in June, 1888, and from Sultanpur, in Kulu, taken by Mr. A. G. Young in 1889.

PARALASA MANI (Plate 118, figs. 2, 2a, b, ♂ ♀).

Erebia Mani, de Nicéville, Journ. Asiatic Soc. Bengal, 1880, p. 247. Marshall and de Nicéville, Butt. of India, etc. i. p. 242, pl. xv. fig. 43, ♂ (1888). Elwes, Trans. Ent. Soc. Lond. 1889, pp. 331, 341.

IMAGO.—Male. Upperside. Dusky-brown; cilia alternated with cinerescence-white. *Forewing* with a large somewhat-quadrate bright-ochreous discal-patch, which encompasses a round black subapical ocellus having a white pupil and paler ochreous outer ring. *Hindwing* immaculate. Underside paler; cinerescence-brown. *Forewing* with the costal and exterior border darker brown irrorated with cinerescence scales, the quadrate ochreous discal patch paler, the ocellus as above, the basal area being chestnut-brown. *Hindwing* numerous but indistinctly irrorated with cinerescence-white speckles and hairy-scales, and crossed by a curved discal series of eight prominent white dots.

Female. Upperside as in male, but slightly paler brown, the discal ochreous patch on forewing somewhat larger and also paler; cilia more prominently alternated with cinerescence-white. Underside as in male.

Expanse, ♂ 2, ♀ $2\frac{2}{10}$ inches.

HABITAT.—Ladak.

DISTRIBUTION.—“Mr. L. de Nicéville obtained six males and two females on the Chung Pass on July 10th, and one female at Lingti, on July 16th, all at high elevations” (Butt. Ind. i. 242). Mr. J. H. Leech obtained specimens at Skardo, 13,000 feet, in July, 1887.

CHINESE and other Asiatic species of PARALASA.—*P. Megalomma* (*Erebia megalomma*, Butler, Cistula Ent. i. p. 236 (1874). Leech, Lep. China, etc. p. 86, pl. 9, fig. 2. *Habitat.* Shanghai, N. China.—*P. Cyclopius* (*Erebia Cyclopius*, Eversmann, Bull. Mosc. 1844, p. 590, pl. 14, fig. 4. H. Schæff. Schmett, Eur. i. figs. 606-8). *Habitat.* Siberia; Amurland; Ural.—*P. Maracandica* (*Erebia maracandica*, Erschoff, Lep. Turkestan, p. 17, pl. 1, fig. 13 (1874). *Habitat.* Central Asia.—*P. Jordana* (*Erebia Jordana*, Staudinger, Berlin Ent. Zeit. 1882, p. 171). *Habitat.* Khokand.—*P. Roxane* (*Erebia Roxane*, Grum.-Grsh. Romanoff's Mem. Lep. iii. p. 401, 1888). *Habitat.* Pamir.—*P. Herse* (Leech, Lep. China, Japan, etc., p. 99, pl. 9, fig. 7, 8). *Habitat.* W. China.

Genus HEMADARA.

IMAGO.—Male. *Forewing* elongated, subtriangular; costa much arched, apex obtusely rounded, exterior margin oblique, posterior angle rounded; costal vein

much swollen at the base. Venation similar to typical *Ypthima*, except that the second subcostal branch arises at end of the cell, and that the cell is, comparatively, much longer and broader. With a broad discal *glandular patch* clothed with a few short oval serrate-tipt scales, long, narrow, basally-attenuated, jagged-tipt scales, and numerous long *black androconia* with lengthened narrowly-dilated base and hair-like tassel-tip. *Hindwing* short, broad, triangular, the costa slightly arched near the base, exterior margin obtusely angular in the middle, anal angle somewhat produced and almost lobate, abdominal margin long, excavated near posterior angle. *Body* slender, short; palpi very long, obliquely porrect, second joint extending two-thirds beyond the front, third joint nearly half length of second, each clothed with long projecting hairs in front. Antennæ very slender, short, with a moderately slender flattened club.

TYPE.—H. Narasingha.

HEMADARA NARASINGHA (Plate 118, figs. 3, 3a, ♂).

Ypthima Narasingha, Moore, Catal. Lep. Mus. E. I. Company, i. p. 236 (1857). Hewitson, Trans. Ent. Soc. Lond. 1864, p. 291, pl. 18, fig. 19.

Ypthima Narasingha, Marshall and de Nicéville, Butt. of India, etc., i. p. 225. Elwes, Proc. Zool. Soc. 1891, p. 268, pl. 27, fig. 2, ♀.

IMAGO.—Male. Upperside olivescient-brown; cilia cinerescient-brown. *Forewing* with a broad inwardly-oblique discal dusky *glandular patch*, which is clothed with a few short oval serrate-tipt scales, long, narrow, basally-attenuated, jagged-tipt scales, and numerous long *black androconia* with lengthened narrowly-dilated base and hair-like tassel-tip; a large subapical black ocellus bipupilled with white and narrowly ringed with pale olivescient-ochreous, beyond which is a slender dusky submarginal line, which is joined on the lower median vein to a similar discal line. *Hindwing* with a dusky-brown marginal border, which is slightly speckled with a few cinerescient scales. Underside olivescient-grey. *Forewing* numerously speckled with brown scales, and crossed by an outer-discal and a submarginal dusky line; ocellus as above, but more prominent and brighter coloured. *Hindwing* numerously covered with uniformly-disposed short dark-brown transverse strigæ; an ill-defined outer discal series of white dots being more or less apparent, and the outer margin posteriorly grey speckled.

Female. Upperside paler. *Forewing* with the ocellus larger, the submarginal and discal slender line apparent. *Hindwing* as in male. Underside as in male. *Body* and legs beneath, and sides of palpi olivescient-grey; clothing of palpi blackish, tipt with grey; antennæ brown, tip reddish.

Expanse, ♂ 2 to $2\frac{1}{8}$, ♀ $2\frac{2}{8}$ inches.

HABITAT.—Burma.

DISTRIBUTION.—The only authentic record of the habitat of this rare butterfly is that by Mr. W. Doherty, who captured it “at Bernardmyo, 5400 feet elevation, north of Mandalay, where it was very scarce” (Elwes, P. Z. S. 1891, 268).

Genus ZIPÆTIS.

Zipætis, Hewitson, Exotic Butt. iii. p. 100 (1863). Herr Schæffer, Prod. Lep. i. p. 63 (1864).

Butler, Ent. Mo. Mag. 1868, p. 194; Catal. Satyr. Brit. Mus. p. 98 (1868). Kirby, Syn. Catal. D. Lep. p. 103 (1871).

Zipoetes, Marshall and de Nicéville, Butt. of India, etc. i. p. 248 (1883).

Ziboetes, Wood-Mason, Journ. Asiatic Soc. of Bengal, 1881, p. 86.

IMAGO. Male. *Forewing* somewhat elongated, subtriangular; costa arched, apex rounded, exterior margin oblique and slightly convex; costal vein swollen at the base; cell broad, long, extending beyond half-length of the wing; first and second subcostal veinlets emitted before end of the cell; discocellulars recurved, upper short and concave; upper radial emitted from close to subcostal, lower radial from above the middle; median veinlets equi-distant apart. *Hindwing* rather short, broad; exterior margin convex, obtusely scalloped; cell long, rather broad; first subcostal branch emitted at some distance before end of the cell; discocellular long, outwardly recurved, radial from above its middle; the middle median veinlet emitted at some distance before end of the cell. *Body* slender; palpi long, rather stout, compressed, thickly clothed in front with long hairs, third joint stout; antennæ with a slender gradually-thickened club; eyes smooth.

TYPE.—*Z. Saitis*.

ZIPÆTIS SAITIS (Plate 119, figs. 1, 1a, b, ♂ ♀).

Zipætis Saitis, Hewitson, Exotic Butt. iii. p. 100, *Zip.* pl. fig. 6, ♂ (1863). Marshall and de Nicéville, Butt. of India, etc. i. p. 249, pl. 17, fig. 78, ♀ (1883).

IMAGO. Male. Upperside dark vinescent-brown, darkest basally; both wings with an ill-defined pale-bordered dusky-black submarginal line; cilia alternated with brownish-cinereous. *Forewing* crossed by an outwardly-oblique broad subapical purpurescent-white band. *Hindwing* crossed by a similar white posterior submarginal band, which is sinuous on its outer edge and is attenuated upwards towards the apex. Underside uniformly paler, the dusky marginal lines distinctly pale bordered. *Forewing* with the oblique white band as above. *Hindwing* with the posterior submarginal white band as above, before which is a discal series of five prominent black ocelli, two upper and three lower, with white pupils, the upper one and the two lowest being minute, the second upper one very large and bipupilled, the third about half its size, each ringed with ochreous, the two upper also being

outwardly encompassed by a silvery line, and the three lower by a similar silvery line.

Female. Upperside paler. Both wings with the white bands as in the male. Underside much paler; both wings marked as in the male. *Body* beneath, legs, and front of palpi brown; side of palpi whitish; antennæ reddish-brown, black-tipt.

Expanse, ♂ $2\frac{2}{10}$ to $2\frac{5}{10}$, ♀ $2\frac{5}{10}$ to $2\frac{7}{10}$ inches.

HABITAT.—Hills of South India.

DISTRIBUTION.—“Not uncommon on the Western Slopes of the Nilgiris, at from 2000 to 3000 feet. A brood emerges at the end of September” (Hampson, J. A. S. Beng. 1888, 350). “Mr. Harold Fergusson took it in May and June, at Mynall in the Ashambo Hills in Travancore, at an altitude of 2600 feet. It is also found in the Wynaad” (Butt. Ind. 249). We possess specimens taken by Mr. Bourdillon in Travancore, at 2200 feet elevation in April, and at Mynall at 1800 feet, in August.

ZIPÆTIS SCYLAX (Plate 119, figs. 2, 2a, b).

Zipætis Scylax, Hewitson, Exotic Butt. iii. p. 100, *Zip.* pl. fig. 7 (1863). Marshall and de Nicéville, Butt. of India, etc. i. p. 249, pl. 17, fig. 62, ♀ (1883). Staudinger, Exot. Schmett. pl. 83 (1887).

IMAGO.—Male. Upperside dark brown, paler externally and of a cinereous ochreous tint. Both wings with two well-defined blackish marginal lines, both of which are bordered by a pale cinereous-ochreous line; cilia pale ochreous-cinereous. Underside uniformly slightly paler brown; both wings with three prominent marginal blackish pale-bordered lines. *Forewing* with an upper submarginal row of five small bluish-white pupilled ocelli, which are inwardly bordered by a slightly-defined sinuous silvery line. *Hindwing* with a submarginal series of five very prominent black bluish-white pupilled ocelli, two upper, and three lower, the upper one being minute, the second very large, oval, and bipupilled, the third very large and round, the two lowest small, all being encompassed within a broad silvery band.

Female. Upperside and underside as in the male. *Body* beneath brown; legs beneath paler; side of palpi pale ochreous; antennæ reddish-brown.

Expanse, $2\frac{1}{10}$ to $2\frac{2}{10}$ inches.

HABITAT.—Sikkim; Naga and Khasia Hills.

DISTRIBUTION.—“Rather a rare insect. Mr. Otto Möller has taken it at moderate elevations in Sikkim, and Mr. L. de Nicéville met with it in the Great Runjit Valley in October. It probably will be found to occur here and there in the lower ranges on the north-eastern frontier of Bengal and Assam” (Butt. Ind. 249). It is also recorded from the Naga Hills, and we possess specimens from the Khasia Hills. Mr. W. H. Irvine obtained it in Sikkim in April. Mr. H. J. Elwes (Trans. Ent. Soc. 1888, 328) records it as “not a common species in Sikkim, and

only found in low, hot valleys at 1000 to 3000 feet elevation, from May to November. I took it near the Tista Bridge in August, and noticed that its flight and appearance were similar to those of an *Ypthima*."

Genus RAGADIA.

Ragadia, Westwood, Genera of D. Lep. ii. p. 376 (1851). Butler, Catal. Satyr., B. M. p. 158 (1868).
Marshall and de Nicéville, Butt. of India, etc. i. p. 234 (1883). Distant, Rhop. Malay. p. 420 (1886).

IMAGO.—Male. *Forewing* subtriangular; costa much arched, apex rounded, exterior margin oblique; costal vein much swollen at the base; cell long, broad; first subcostal emitted before end of the cell; discocellulars very concave; upper radial from slight angle close to subcostal, lower radial from above the middle of discocellular; median veinlets very wide apart. *Hindwing* rather short; exterior margin very convex and slightly uneven; precostal very short; costal vein much curved at the base; subcostal almost straight, its lower branch emitted at half length of the wing; cell extremely short and acute, the radial emitted from below subcostal at about one-third between its base and its branch; upper discocellular short, emitted from close to base of subcostal and extending sharply inward, the lower discocellular being very acutely bent outward and joining the median vein before the origin of its lower branch, the lower discocellular being developed along the underside into a narrow elongated glandular pouch, and on the upperside is furnished with a small tuft of fine long hairs which lie along it. *Body* slender; palpi moderately long, clothed in front with rather short hairs, apex slender; eyes nearly naked; antennæ with a slender gradually formed club.

TYPE.—*R. Crisia*.

HABITS.—Capt. Godfrey, who captured *R. Crisia* in the Malay Peninsula, describes it as being "found in low undergrowth in the forest, where, especially in the early morning, it was several times met with. Its flight being weak and feeble, but it cleverly eludes pursuit by threading its way through the tangled brushwood" (Distant, Rhop. Malay. p. 421).

RAGADIA CRISILDA (Plate 120, figs. 1, 1a, b, ♂ ♀).

Ragadia Crisilda, Hewitson, Exotic, Butt. iii. *Rag.* pl. figs. 5, 6, ♀ (1862). Marshall and de Nicéville, Butt. of India, etc. i. p. 235, pl. 15, fig. 36, ♀ (1883).

IMAGO.—Male.—Upperside dull brownish-black; cilia cinereous-brown. *Forewing* crossed by an oblique discal white vein-intersected band, also by the two inner and the submarginal band of the underside showing through by semi-transparency. *Hindwing* crossed by an oblique discal and a curved submarginal white band, the basal bands and the marginal of the underside also visible. Underside brownish-

black; both wings crossed by six white bands, the basal and submarginal on the forewing being slender and less defined, but the latter on the hindwing well formed. *Forewing* with a row of eight small black ocelli, each pupilled with silvery bluish-white and with a slender ochreous outer ring, disposed along the outer-discal black band. *Hindwing* with a series of seven prominent black ocelli upon the broad outer-discal black band, with silvery bluish-white pupils and slender ochreous outer ring, the upper ocellus being small, the three next large and united, the fifth also large, the sixth and seventh being geminated.

Female. Upperside as in the male, except that the white bands are somewhat broader. Underside also as in the male, the white bands somewhat broader and the slender marginal band on the forewing well defined. *Body* beneath pale-ochreous; legs brownish-ochreous; side and front clothing of palpi ochreous white, the tip above brown; antennæ brown, with pale annulations, club with a reddish band.

Expanse, ♂ $1\frac{6}{10}$ to $1\frac{8}{10}$, ♀ $1\frac{9}{10}$ inch.

HABITAT.—Khasias; Silhet; Cachar; Lushais; Upper Tenasserim.

DISTRIBUTION.—“This is apparently a rare insect. It was originally described from Silhet, and Colonel A. M. Lang’s Collection contains two males from that locality. Mr. Kirby notes it from the Khasia Hills—which, if correct, it probably occurs only at the foot of them, and the Indian Museum, Calcutta, has specimens, believed to have been taken in Cachar” (Butt. Ind. p. 235). The late Mr. W. S. Atkinson possessed specimens from the Khasia Hills and Cherra Punji. In Mr. P. Crowley’s Collection are specimens from Shillong and the Lushai Hills. Major C. H. E. Adamson (Catal. Burmese Butt. p. 9) records taking specimens of this insect on one occasion only, in October, 1880, flying among long grass on the bank of the Aploon Choung, a small stream in the neighbourhood of Moulmein, in Upper Tenasserim.

RAGADIA CRITO (Plate 120, figs. 2, 2a, b, ♂ ♀).

Ragalia Crito, de Nicéville, Journ. Bombay Nat. Hist. Soc. 1890, p. 199, pl. D, figs. 1, 2, ♂ ♀.

IMAGO.—Male. Upperside dull cinerescence-black. Both wings crossed by four oblique obscure sullied cinerescence-whitish bands and a less apparent marginal band, these bands being those of the underside showing through by semi-transparency. Underside of a more brownish-black tint; both wings crossed by five oblique prominent white bands and a similar more slender band at the extreme base of the wing. *Forewing* with the outer-discal black band traversed by a row of eight small black ocelli, each having a silvery bluish-white pupil and slender ochreous outer ring. *Hindwing* with a series of seven prominent black ocelli, with a silvery bluish-white pupil and slender ochreous outer ring, disposed along the broad outer-discal

black band, the upper ocellus minute, the three next large and united together, the fifth large, and the two lower geminated.

Female. Upperside. Both wings with all the pale bands broader and clearer white. Underside. Both wings as in the male, but all the markings more clearly defined. *Body* and legs beneath, and side of palpi pale ochreous-white; antennæ black, distinctly annulated with white, club with a reddish band.

EXpanse, ♂ $1\frac{9}{10}$, ♀ 2 inches.

HABITAT.—Bhotan; Upper Assam.

DISTRIBUTION.—This species was first taken in Bhotan by Mr. Otto Möller, in September, 1888, and was also taken in October, by Mr. Fritz Möller's native collectors. Mr. H. J. Elwes (P. Z. S. 1891, 266) records it from "Margherita in Upper Assam," where several specimens were captured by Mr. W. Doherty.

RAGADIA CRITOLAUS.

Ragadia Critolaus, de Nicéville, Journ. Bombay Nat. Hist. Soc. 1892, p. 322, ♂, pl. H. fig. 1, ♂.

IMAGO.—Male. Upperside, both wings with the ground-colour about equally divided between black and white. *Forewing* with the white area commencing on the inner margin about half its length from the base of the wing and almost reaching the anal angle, extending towards the apex of the wing, which it does not reach, in a triangular or wedge-shaped figure, bearing a series of five round black spots between the veins, of which the three posterior ones are well-formed and separated, the two anterior ones have their outer edges more or less merged into the outer black border of the wing; the base of the wing is occupied very obliquely by two streaks a little darker than the blackish ground-colour; there is also a narrow whitish streak below the costa; the outer margin is broadly black, with its inner edge festooned. *Hindwing* with the dusky basal area crossed by two straight dark lines; a broad discal black band touching the costa but not quite reaching to the abdominal margin, broadest in the middle, narrowing towards both ends; the outer margin broadly black, bearing a slightly paler line. Underside of both wings precisely as in *R. crito*, from Bhotan, but all the black bands narrower, the white ground being consequently more extensive.

Female differs from the male only in its slightly broader and more rounded wings.

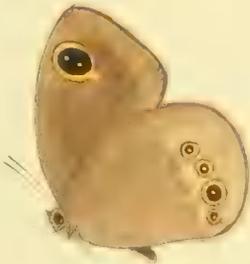
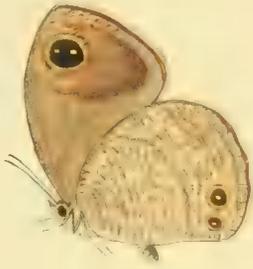
EXpanse, ♂ 1.5 to 1.7; ♀ 1.6 inches.

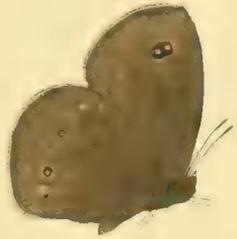
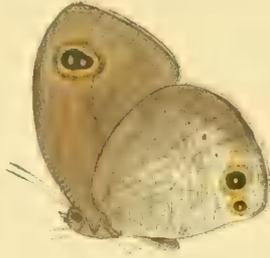
HABITAT.—Burma.

"Nearest to *R. crito*, from which it may be known at a glance by the greater extent of the white ground-colour on the upperside of both wings, which character will also separate it from *R. crisilda* equally well."

DISTRIBUTION.—"Major C. T. Bingham and Mr. L. de Nicéville captured this













1



1a



1b



1c



2



2a





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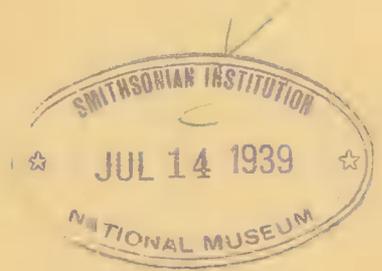
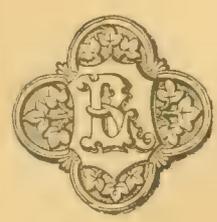
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species in considerable numbers in October, 1891, and 1892, in the virgin forests at the foot of the Donat Range, Middle Tenasserim, the butterfly always keeping in the shade of the great trees, and flying amongst the bushes and brushwood, on which it often settled. Its flight is only equalled in weakness and gentleness by *Leptosia xiphia*" (De Nicéville Journ. Bombay N. H. Soc. 1892, p. 323).

INDO-MALAYAN SPECIES OF RAGADIA.—*R. crisia* (Hübner, Zutr. figs. 675-6 (1832). Distant, Rhop. Malay. p. 420, pl. xix. fig. 7. *Habitat.* Malay Peninsula; Penang; Singapore; Borneo.—*R. makuta* (Horsfield, Catal. Lep. E. I. C. pl. 5, figs. 9, 9a, (1829). *Habitat.* Java; Sumatra.—*R. annulata*, Grose-Smith, Ann. Nat. Hist. 1887, p. 435. *Habitat.* N. Borneo.—*R. latifasciata*, Leech, The Entom. 1891, p. 25; Lep. China, etc., p. 92, pl. x. fig. 2. *Habitat.* W. China.—*R. Luzonia*, Felder, Wien. Ent. Mon. 1861, p. 305. Semper, Reisen Phil. Lep. pl. 8, fig. 1. *Habitat.* Luzon.—*R. melindena*, Felder, l. c. 1863, p. 125. Semper, Reisen Phil. Lep. pl. 8, figs. 3, 4. *Habitat.* Mindanao.—*R. crohonica*, Semper, Reisen Phil. Lep. p. 46, pl. 8, figs. 7, 8, 9, ♂ ♀. *Habitat.* Philippines.

Genus ERITES.

Erites, Westwood, Gen. D. Lep. ii. p. 392 (1851). Moore, Catal. Lep. Mus. E. I. C. i. p. 229 (1857). Butler, Catal. Satyr. Brit. Mus. p. 146 (1868). Distant, Rhop. Malay. p. 46 (1882). Marshall and de Nicéville, Butt. of India, etc. i. p. 235 (1883).

IMAGO.—Male. *Forewing* somewhat elongated and narrow, subtriangular; costa slightly arched, apex rounded, exterior margin oblique and nearly even; costal vein much swollen at the base; cell long; first and second subcostal branches emitted before end of the cell; discocellulars slightly concave; upper radial from slight angle close to subcostal, lower radial from above the middle; median veinlets equidistant; submedian vein recurved. *Hindwing* short, triangularly-ovate; outer margin convex, sinuous, slightly produced at end of upper median; cell long; first subcostal emitted close to end of cell; discocellular long, outwardly recurved, radial from above the middle; the middle median veinlet emitted before end of the cell. *Body* slender; eyes prominent, naked; palpi very slender, erect, clothed in front with fine long lax hairs, tip slender; antennæ with a gradually slender club.

TYPE.—E. Madura.

ERITES ARGENTINA (Plate 121, figs. 1, 1a, b, ♂ ♀).

Erites argentina, Butler, Catal. Satyr. Brit. Mus. p. 188, pl. 5, fig. 8, ♀ (1868).

IMAGO.—Male. Upperside semi-transparent; pale purpurescent fuliginous-brown; marginal pale ochreous lines slender and sharply defined on the hindwing. *Forewing* subtriangular; crossed by two discal broad dusky-brown bands, beyond which is a large posterior round blackish nearly-blind ocellus narrowly ringed with pale

ochreous, above which is a series of four subapical small similar ocelli. *Hindwing* crossed by two discal bands, the inner band even and dusky-brown, the outer band angulated and ochreous with a dusky-brown border, beyond which is a series of very prominent nearly-blind small ocelli, the four lower being ringed with ochreous. Underside pale purpurescent-cinereous, the basal area with numerous ill-defined brown strigæ; marginal lines very sharply defined. *Forewing* with the two discal bands distinct and brownish ochreous; the posterior ocellus very prominent, with a large silvery-blue pupil and bright ochreous outer ring, the four small subapical ocelli sharply defined and white pupilled. *Hindwing* with the two discal bands bright ochreous, the inner band even, the outer band angulated and broadest anteriorly, followed by five prominent small submarginal ocelli, each with a silvery-white pupil and ochreous ring, the three lower being outwardly-blurred with bright ochreous.

Female. Upperside as in the male. Underside also as in the male.

Expanse, ♂ $1\frac{8}{10}$, ♀ $2\frac{2}{10}$ inches.

HABITAT.—Upper Tenasserim; Borneo.

DISTRIBUTION.—The type specimens of *E. argentina* are recorded from Labuan, Borneo. Major C. H. E. Adamson caught specimens—which are identical with the Bornean type—near Kannee, on the Siamese border, Upper Tenasserim, in October, 1880.

Of our illustrations of this species on Plate 121, figs. 1 and 1a represent the male from Upper Tenasserim, kindly lent from Major Adamson's Collection, and fig. 1b the female from Borneo.

ERITES BEELINGA.

IMAGO.—Male. Upperside semi-transparent, pale cinerous brownish-ochreous. *Forewing* crossed by two discal pale brown narrow bands, beyond which is a very prominent posterior black ocellus with pale ochreous ring and pur-blind pupil; the three minute subapical ocelloid spots of the underside also sometimes being slightly visible. *Hindwing* crossed by an outer-discal narrow pale ochreous angulated band, and a submarginal series of four large black blind-ocelli, all with conjoined pale ochreous outer rings; extreme marginal sinuous lines pale ochreous. Underside paler and of a more ochreous tint; marginal lines slender, dusky-brown; forewing with the basal and apical area very sparsely and indistinctly flecked with pale brown strigæ; crossed by two discal slender ochreous bands; the subapical minute ocelli slightly apparent; the large posterior ocellus more prominent, brighter ringed and with a large bluish-white pupil. *Hindwing* very sparsely and indistinctly flecked with slender brown strigæ; the two discal angulated pale ochreous bands very obscurely defined; the five submarginal ocelli being all very minute.

Expanse, $1\frac{8}{10}$ to 2 inches.

HABITAT.—Upper Tenasserim.

This species is nearest allied to the Javan *E. madura*, but is distinguishable from it by being smaller, and on the upperside by the smaller size of the posterior ocellus on the forewing, and on the hindwing by the series of four black ocelloid-spots being conjoined by the unison of their pale ochreous rings. On the underside of the forewing, the two discal ochreous bands are somewhat more incurved, the subapical ocelli very minute, and on the hindwing the two discal ochreous bands are very imperceptibly defined, the submarginal ocelli being all minute and obscurely pale bordered.

DISTRIBUTION.—This species was captured by Capt. E. Y. Watson at Beeling, about sixty miles north of Moulmein in Upper Tenasserim, in March and April, 1886, the specimens being now in the British Museum Collection. According to Capt. Watson (Journ. Bombay, N. H. Soc. 1888, p. 3) this species is “not uncommon in Beeling, at moderate altitudes, but very difficult to capture, as it is only found in thick bamboo jungle. I found the best plan to have them driven towards me.”

ERITES ANGULARIS (Plate 121, figs. 2, 2a, b, ♂ ♀).

Erites angularis, Moore, Proc. Zool. Soc. Lond. 1878, p. 825, ♂. Distant, Rhop. Malayana, p. 46, pl. 5, fig. 3, ♂ (1882). Marshall and de Nicéville, Butt. of India, etc. i. p. 236, pl. 16, fig. 50, ♀ (1883).

IMAGO.—Wings semi-transparent; all the markings of the underside showing through by transparency. Male. Upperside pale purpurescent fuliginous-brown; cilia cinereous. Both wings faintly showing the numerous slender dusky-brown transverse wavy-strigæ. *Forewing* subfalcate; showing two transverse discal dusky-brown fasciæ, the inner one being straight, the outer recurved; a large oval dusky-black ocellus above the posterior angle, and three, or four, upper subapical less apparent minute ocelli. *Hindwing* faintly showing two transverse discal angulate ochreous bands, and a submarginal series of five pale ochreous-ringed blind black ocelli, the three upper ones small, the two lower large and more defined; the outer marginal border narrowly dusky-black and traversed by two slender pale ochreous lines. Underside, pale purpurescent-cinereous, the basal area with a nacreous gloss, the transverse brown strigæ distinct but somewhat confluent towards the apex; prominent black and ochreous lines more distinct, especially on the hindwing. *Forewing* with the two discal dusky-brown fasciæ prominent; the posterior ocellus more distinctly defined, having a large blurred silvery bluish-white pupil and an ochreous outer ring, the three upper subapical small ocelli also more or less distinct. *Hindwing* crossed by two moderately broad angulate wavy ochreous bands, both bordered by the strigæ, the inner band narrowest and traversed by them; beyond

is a submarginal series of five small ocelli, each with a minute silvery-white pupil, ochreous outer ring and then a blurred circlet of brownish-ochreous speckles.

Female. Upperside as in the male, except that on the forewing the ocelli are more prominent, the posterior one larger, blacker, and blind; on the hindwing the outer-discal angulate band is externally edged by a narrow bright ochreous line, and all the ocelli are distinctly ringed with ochreous. Underside slightly paler than in male, the transverse strigæ confined to the basal area, the transverse discal bands on both wings ochreous, those on the hindwing brightest, and the ocelli on both wings more prominent. *Body* beneath, legs beneath and sides of palpi pale ochreous; legs above brownish-ochreous; clothing of palpi in front dusky-brown; antennæ brownish-ochreous.

Expanse, ♂ ♀ $2\frac{2}{10}$ to $2\frac{4}{10}$ inches.

HABITAT.—Pegu; Tenasserim; Malay Peninsula.

DISTRIBUTION.—The type specimens were taken by Mr. Ossian Limborg on the Taoo plateau, Upper Tenasserim, at from 3000 to 5000 feet elevation. "Capt. C. T. Bingham obtained it in the Mepley Valley in January, and in the Thoungyeen forests in March" (Butt. Ind. 237). Major C. H. E. Adamson "found it common at Jayling Choung, near the three Pagodas at the boundary between Burma and Siam, in December, 1877, and January, 1878, these specimens being much worn, and occasionally in other places in Upper Tenasserim, in April" (Adamson, Catal. Burma Butt. p. 9). "Mr. W. Doherty took numerous specimens in East Pegu, at about 1500 feet" (Elwes, P. Z. S. 1891, 268). Mr. W. L. Distant (Rhop. Malay. p. 47) records it from Perak, in the Malay Peninsula.

ERITES FALCIPENNIS (Plate 121, figs. 3, 3a, ♂).

Erites falcipennis, Wood-Mason and de Nicéville, Butt. of India, etc. i. p. 237 (1883), ♂. De Nicéville, Journ. Asiatic Soc. Bengal, 1887, p. 351, pl. 16, fig. 2, ♂.

IMAGO.—Male. Upperside dark purpurescent fuliginous-brown throughout; the outer marginal lines slightly defined. *Forewing* distinctly falcate; the transverse discal bands of the underside visible, the posterior ocellus prominent, rounded, black, with a distinct white pupil. *Hindwing* with the two discal angulate ochreous bands of the underside slightly visible; the submarginal blind-ocelli uniformly defined. Underside purpurescent-cinereous, the hindwing posteriorly being tinted with ochreous; both wings with numerous dark brown transversely-disposed speckled-strigæ; marginal lines ill-defined. *Forewing* crossed by two distinct brownish-ochreous discal bands; the posterior ocellus very prominent, the small upper subapical ocelli minute, but distinct. *Hindwing* crossed by two discal angulate ochreous bands, and a submarginal series of five small distinct ocelli, each with a white pupil and narrow ochreous outer ring.

Expanse, $2\frac{2}{10}$ to $2\frac{4}{10}$ inches.

HABITAT.—Cachar.

DISTRIBUTION.—“ Mr. J. Wood-Mason took a single male in the forests near Silcuri on 6th August, and another male on Nemotho Peak at 3300 feet elevation on 25th November ” (J. A. S. Beng. 1887, 351).

INDO-MALAYAN ALLIED ERITES.—*E. elegans*, Butler, Catal. Satyr. Brit. Mus. p. 147, pl. 2, fig. 4, ♂ (1868).—Staudinger, Exot. Schmett., pl. 82 (1887).—*Habitat.* Sarawak, Borneo.—*E. ochreana*, Staudinger, Ent. Zeit. Lep. 1889, p. 38. *Habitat.* ——— ?—*E. Madura*, Horsfield, Catal. Lep. E. I. C. pl. 5, figs. 8, 8a (1829). *Habitat.* Java.

Genus MELANITIS.

Melanitis, Fabricius, Syst. Gloss. (Illiger's Mag. vi. p. 282 (1807). Moore, Catal. Lep. Mus. E. I. Company i. p. 222 (1857); *id.* Lep. of Ceylon. i. p. 14 (1880). Butler, Ent. Mo. Mag. 1868, p. 194; *id.* Catal. Satyr. Brit. Mus. p. 1 (1868); *id.* Catal. Fabrician Lep. B. M. p. 9 (1869). Distant, Rhop. Malayana, p. 40 (1882). Marshall and de Nicéville, Butt. of India, etc. i. p. 250 (1883).

Hipio, Hübner, Verz. bek. Schmett. p. 56 (1816).

Cylo, Boisduval, Voy. Astrolabe, Lep. p. 140 (1832). Doubleday, List. Lep. Brit. Mus. p. 120 (1844). Westwood, Gen. D. Lep. p. 360 (1851). Scudder, Proc. Amer. Acad. A. Sci. Boston, 1875, p. 151.

IMAGO.—Wings moderately short, broad. *Forewing* subtriangular; costa convex, apex obtusely pointed, exterior margin oblique, more or less angled below the apex and slightly waved below the angle, posterior margin nearly straight; cell very long; first and second subcostal veinlets emitted before end of the cell; upper discocellular twice angled close to subcostal, lower discocellular long and obliquely concave, radials from the upper angles; median veinlets wide apart; submedian recurved and terminating above the posterior angle. *Hindwing* short, subovate, costa slightly arched, apex convex, exterior margin sinuous and produced into an obtuse angle at end of the upper median veinlet, abdominal margin long; costal vein curved and extending to the apex; precostal short; subcostal bent close to the costal vein near the base, the first branch ending below the apex; cell broad; discocellular oblique, convex, bent outward above the middle, radial from the angle; middle median emitted before end of the cell. *Body* short, slender; palpi porrect, compressed, compactly and densely clothed to tip with short scaly hairs, apex obtuse, legs slender, antennæ slender; eyes naked.

ADULT CATERPILLAR.—Elongated, somewhat fusiform, slightly pubescent, the terminal segment armed with two divergent pubescent fleshy processes; head large, prominent, armed with two vertically erect well-separated pubescent fleshy processes. Feeds on grasses.

CHRYsalis.—Thick, simple; abdomen dorsally convex; thorax broad and dorsally obtuse; head case terminated in an obtuse point in front.

TYPE.—*M. Leda*.

THE SPECIES OF *MELANITIS* ARE DIMORPHIC.—The species of this genus have two forms, the result of a *wet season*-brood and of a *dry-season* brood occurring within the year, and to Mr. L. de Nicéville belongs the credit of having discovered and proved the fact that the common Indian species, *M. Ismene*, is dimorphic, and that the forms hitherto known as *M. Leda* and *M. Ismene* were only the *wet* and *dry-season* broods of one species.

The two forms in this genus differ, not only in the ocellated or non-ocellated markings of the underside, as occurs in the species of the allied genera of *Mycalesis* and *Ypthima*, but the outline of the wings of the specimens in each brood, in *Melanitis*, also differ, especially in the males, the forewing in the males of the wet-season brood being shorter, its exterior margin nearly even or with but a very slight angle below the apex; whereas in the males of the dry-season brood, the forewing is subfalcate and has a more or less prolonged acute angle below the apex; and in the hindwing, also, of the wet-season brood the angle on middle of the exterior margin is short and obtuse, but in the hindwing of the dry-season brood this angle is also acute and prolonged.

Further, the undersides of the dry-season or unocellated-brood are very variable, and in their markings and tints of colour they harmonize so completely with the coloration of decaying vegetation, that when settled amongst dead leaves and dried-up grass, it is almost impossible to see them.

MELANITIS ISMENE.

WET-SEASON BROOD (Plate 122, figs. 1, 1a, larva and pupa, 1, b, c, d, e, ♂ ♀).

Papilio Leda, Drury, Exot. Ins. i. pl. 15, figs. 5, 6, ♀ (1773). Cramer, Pap. Exot. iii. pl. 196, figs. c, d (1780). (*nec Linnæus*)*

Melanitis Leda, Fabricius, Syst. Gloss. (Illiger's Mag. vi. p. 282, 1807). Moore, Catal. Lep. Mus. E. I. C. i. p. 222 (1857); *id.* Lep. Ceylon, i. p. 15, pl. 10, figs. 1, a, b, ♂ ♀ (1880). Butler (part) Catal. Satyr. Brit. Mus. p. 1 (1868); *id.* Catal. Fabr. Lep. B. M. p. 9 (1869). Distant, Rhop. Malay. p. 41, pl. 4, fig. 10, ♂ (1882). Marshall and de Nicéville, Butt. of India, etc. i. p. 252 (1883). De Nicéville, Journ. Asiat. Soc. Bengal, 1886, p. 237, pl. 12, fig. 4, larva and pupa.

Oreas M. Leda, Hübner, Samml. Exot. Schmett. i. pl. 91, figs. 1, 2, ♀ (1806-16).

Hipio Leda, Hübner, Verz. bek. Schmett. p. 56 (1816).

Satyrus Leda (part) Godart, Enc. Méth. ix. p. 478 (1819).

Hipparchia Leda, Horsfield, Catal. Lep. Mus. E. I. C. pl. 8, fig. 9, larva and pupa (1829).

* The *Pap. Leda*, Linn. S. N. 1758, p. 474, is an Amboina species, quite distinct from the Indian. See Butler, Proc. Ent. Soc. Lond. 1885, p. vi. Linnæus' reference to Edwards' Birds, pl. 297, is not given in the 1758 edition, but is erroneously added in the 1767 edit. of Syst. Nat. Edwards' figure, however, represents the dry-season form of our Indian species.

Cyllo Leda, Westwood, Gen. D. Lep. p. 361 (1851). Hewitson, Journ. Linn. Soc. Zool. 1864, p. 144.

Melanitis determinata, Butler, Proc. Ent. Soc. Lond. 1885, p. vi.

IMAGO.—Male. Upperside somewhat pale olivescens umber-brown; cilia alternated with whitish-cinereous. *Forewing* with two superposed more or less-defined subapical black confluent ocelloid spots, one on either side of the upper median veinlet, the lower spot large and rounded, the upper narrow, both more or less obscurely bordered by a pale ferruginous ring, which is generally apparent only on their inner side, and each with a pure white pupil; there is also a very diffused and indistinctly-defined blackish patch before the apex and a similar patch internal to it extending into the cell, these two indistinct patches being divided by a slightly perceptible pale ferruginous bar. *Hindwing* with a series of submarginal more or less defined ocelloid spots, varying in number and distinctness, as disposed on the underside, the three posterior generally being mostly defined and with a white pupil and obscure pale ferruginous outer ring, the upper spots usually being obsolescent. Underside pale ochreous or purpurescent-cinereous, uniformly covered with numerous dark brown strigæ, the forewing generally showing a more or less slightly defined transverse subbasal, medial, and a discal narrow brown fascia, which are formed by confluent strigæ, and the hindwing generally showing a slight subbasal and more or less distinct medial similar fascia. *Forewing* generally with a series of five submarginal black ocelli, the two upper small, the fourth larger and most prominent, but further removed from the outer margin, the fifth also small, each pupilled with bluish-white, ringed with pale ochreous and by an outer slender brown ring; sometimes the upper ocellus, the third and the lowest are minute or obsolete. *Hindwing* with a submarginal series of six prominent black ocelli, the upper one and the sixth being the largest, the others decreasing from the second, the sixth also small, each bluish-white pupilled (the anal one being sometimes bipupilled), ringed with pale ochreous and by an outer brown ring.

Female. Upperside as in the male; the ocelloid black spots larger, more defined, and with larger white pupils, a small ocelloid spot also sometimes being present on the forewing between the middle and lower medians. Underside also as in the male, with the ocelli larger and more prominent. *Body* beneath, legs, and palpi pale ochreous-cinereous; antennæ pale brown, club dusky with a reddish tip.

Expanse, $2\frac{6}{10}$ to $3\frac{2}{10}$ inches.

DRY-SEASON BROOD (Plate 123, figs. 1, a, b, c, d, e, ♂ ♀).

Papilio Ismene, Cramer, Pap. Exot. i. pl. 26, figs. a, b (1775). Edwards' Birds, pl. 297.

Melanitis Ismene, Moore, Lep. of Ceylon, i. p. 14, pl. 10, figs. 2, 2a, ♂ ♀ (1880). Distant, Rhop.

Malayana, p. 42, pl. 4, figs. 9, 11, 12, ♂ ♀ (1882). Marshall and de Nicéville, Butt. of India, etc. i. p. 256, pl. xii. fig. 28, ♂ (1883).

Papilio Mycena, Cramer, Pap. Exot. iv. pl. 291, fig. F (1782).

Papilio Arcensia, Cramer, Pap. Exot. iv. pl. 292, fig. c (1782).

IMAGO.—Male. Upperside somewhat pale olivescence-brown, the costa of forewing and the exterior margins slightly paler and speckled with vivescent-cinereous scales; cilia brown, slightly pale-edged. *Forewing* more acutely angled below the apex than in the wet-season brood, with the apical area dusky-brown, the subapical black spots larger, more prominent and confluent than in the wet-season brood (*Leda*), the white pupils also larger, and the ferruginous inwardly-defined ring and upper bar broader and brighter in colour; sometimes, though but rarely, there is a smaller narrow black spot attached to the lower one. *Hindwing* with only the posterior ocelloid spots present, which are very small, or sometimes almost obsolete or represented only by the white dot. Underside extremely variable; the ground-colour in some being pale buff-brown, cinerescence-brown, ochreous or ferruginous-brown, ochreous, dark-brown or almost black, with various intermediate shades between these colours. Usually both wings are crossed by darker fasciæ, as in wet-season brood, which, in some, are narrow, in others broad, the outer fascia being generally more sharply defined along its exterior edge. Both wings are numerously covered with strigæ of darker colour than that of the ground-colour, and some have the fasciæ broadly blotched of a darker colour, resembling fungi on dead leaves, or the entire surface of both wings may be darkly mottled throughout. On both wings the ocelloid spots are more or less obsolescent, or indicated by whitish dots, and in some few instances the ocelli are all indistinctly defined.

Female. Upperside similar to the male, but somewhat paler. Underside generally paler than in the male, and, generally, of shades of ferruginous ground-colour, with darker strigæ and transverse fasciæ; the ocelloid spots as in the male.

Expanse, $2\frac{7}{10}$ to $3\frac{2}{10}$ inches.

ADULT CATERPILLAR.—Long, slender, somewhat fusiform, rough; terminal segment armed with two divergent setose fleshy processes; head prominent and armed with two erect obtuse setose fleshy processes; "colour grass-green with a yellow lateral line and many rows of very small white spots; head normally green, with the horns and a continuing cheek-stripe red and three black spots on the face, but sometimes the head and horns are dark brown with three white spots on the face" (Aitken, Bombay, 1890). Feeds on grasses.

CHRYSA LIS.—Thick, smooth, abdomen dorsally convex, head case terminating in an obtuse point in front; colour, pale watery green without markings.

HABITAT.—Throughout India; Ceylon; Burma; Andaman and Nicobar Isles; Malay Peninsula.

DIMORPHIC SPECIMEN OF FEMALE with the markings peculiar to both seasonal forms occurring in the same specimen.—A specimen of the female, from Berhampur, Ganjam District, Madras, taken in October by Capt. E. Y. Watson, has the upper-side of both forewings as in the dry-season form (*Ismene*), with the left-hand hindwing of the upperside having the two median ocelli of the same large size as in the wet-season form, and the right-hand hindwing with these ocelli minute as in dry-season form *both on the upper and underside*, whereas, the underside of the left-hand hindwing have the ocelli large, as in the wet-season form.

REARING OF THE TWO FORMS OF THIS SPECIES IN CALCUTTA by Mr. L. de Nicéville. In the Journal Asiatic Society of Bengal, 1886, p. 237, Mr. de Nicéville says, “I did not keep a very exact record of dates in breeding this species, as the transformations had been previously recorded, but, from eggs laid by *M. Leda* in August, I bred, on September 6th, a female of *M. Leda*; on the 7th another female; on the 8th two female *M. Ismene*, one with distinct ocelli and therefore an intergrade between *M. Leda* and *M. Ismene*, though nearer the latter; on September 9th one male and two females of *M. Ismene*; on September 10th three males and four females of *M. Ismene*, several of which are intergrades, and one male of *M. Leda*; on September 11th two males and one female (the latter a highly ocellated specimen) of *M. Ismene*; and on September 12th one male of *M. Ismene*; the total result being that from nineteen pupæ bred from eggs laid by true *M. Leda* I obtained three specimens (1 ♂ 2 ♀) like the mother, and sixteen specimens (7 ♂ 9 ♀) of *M. Ismene*, several of which, though transitional forms, were yet all nearer to *M. Ismene* than to *M. Leda*. My efforts to breed a second generation failed, all the specimens dying without coupling or laying eggs.”

Description of the larvæ of the wet-season brood, reared from the egg, in Lucknow, 1860, by the late Capt. H. L. de la Chaumette: “LARVA; *After first moult*, two-fifths of an inch long; ground-colour grass-green; dorsal line well-defined, dark-green; lateral line broad and interrupted, yellow, placed close over the legs; anal segment terminating in two long pointed tails, giving it a forked appearance; abdomen and legs green; head large, blue-green, circled with deep carmine and having on the top two long appendages, like little horns, of the same colour; the carmine does not quite circle the head, the part where the circle is incomplete being the space between the two horns; on either side of the head is a milky streak bordering the carmine circle. Head and horns, hairy; body rugose, from being covered with yellow piliferous spots. *After last moult*: Length 1 inch; cylindrical, tapering much posteriorly and a little anteriorly; rugose; ground-colour and general characters as after first moult. Feeds on the leaves of *Saccharum Ravennæ*.

Habits slow. Went into chrysalis 31st August. Chrysalis (pendulæ) green, with a little brown fascia on either side. Imago emerged 7th September" (From original MS.)

NOTES ON HABITS OF IMAGO.—In the Western Himalayas "these insects inhabit dark, thickly shaded, gloomy hill-slopes clad with oak (*Quercus incana*) and creel (*Pinus longifolia*). On very hot days, they may be seen flying with a short jerky flight in the shade of the trees, just within the line of sunlight. On such days it is curious, as you tread the forest path, to see it rise suddenly at your feet, and disappear as quickly within a yard. On the wing it is of course plainly seen, except in very dark corners, but the moment it settles among the dry spikes of the pines, and the brown scanty vegetation which struggles for bare existence under these trees, it is lost, and it requires much experience of its ways and keen eyes to find it lying within a foot or two of your path. The genus *Melanitis* mimics on the underside of the wings many species of fungi, and this, with the sober colouring of the upperside, increases the difficulty of finding the insect amid the débris of the forest; the underside is very variable, scarcely two being exactly alike, and this may arise from the fact that they mimic the fungus most common at the time and place of flight" (Rev. J. H. Hocking, *Sci. Gossip*, 1882, 271). In Southern India "these are insects of the dusk, coming out after the sun is down, and dancing round the roots of trees in company, after the manner of fairies. A little later they come out of their haunts and fly straight up into the air as far as the eye can follow them. They are thirsty creatures, and will gather in numbers where water has been spilt on the ground, but they prefer whiskey. I found the larvæ feeding on grass; the larvæ is difficult to find, being a night feeder and very shy. As the species of grass on which it feeds grows during the monsoon only, except where there is water, this species is in season all the latter part of the rainy season, and in some places for a short time they almost jostle each other for room. About October, when vegetation is drying up, it gives place to the form *Ismene*. I have noticed it on alighting fall over on its side until it was almost horizontal, which very much enhanced its likeness to a dead leaf. In Guzerat and Bombay we have reared the larva on Grass. In Karwar we found it during August and September on Rice. It is very shy, resting by day on the underside of a blade and feeding by night" (E. H. Aitken, *Journ. Bombay Nat. Hist. Soc.* 1886, 129, *id.* 1890, p. 267). "Larva and perfect insect very common on the Western Coast amongst the long grass. The perfect insect affects dark places during the day time. It seems to me to migrate, and from the mountains to below sometimes in great numbers. I have traced them on the move from 2000 feet high to the sea coast" (S. N. Ward MS. Notes).

Of our illustrations of this species plate 122 represents the male and female, and larvæ and pupæ of the wet-season brood, fig. 1 being the larva and pupa reared in

Madras by the late Sir Walter Elliot, and reproduced from his original drawings; fig. 1a is the larva and pupa reproduced from Mr. L. de Nicéville's figure in Journ. Asiatic Society of Bengal, 1886, pl. 12, fig. 4; plate 123, figs. 1, a, b, c, d, e, represents the male and female of the dry-season form.

DISTRIBUTION WITHIN INDIAN AREA.—This species is extremely common in many parts of the country, and has a very wide range. It is found throughout India, and occurs in the Himalayas at low elevations; also Upper and Lower Burma, Tenasserim, the Mergui Archipelago, Andaman and Nicobar Isles, and Ceylon. "It is on the wing more or less throughout the year. The upperside is fairly constant in coloration throughout its range, some specimens, however, having the ground-colour darker than others; but the underside of the dry-season form varies strangely even in the same locality, and in their markings and tints they harmonize so completely with the autumnal coloration of decaying vegetation, that, when settled amongst dead leaves and dried-up grass, it is almost impossible to see them" (Butt. of India, i. 257).

We possess specimens from Cashmere, taken by the late Capt. Bayne Reed, and from the N.-W. Himalayas. "Mr. C. J. Rodgers took the dry-season form below Dalhousie. In the neighbourhood of Simla Mr. L. de Nicéville took two specimens only in four years' collecting. The Indian Museum, Calcutta, has a single specimen from Masuri" (Butt. of India, i. 257). Mr. W. Doherty took it in the "Tarai and low valleys of Kumaon up to 4000 feet, capturing the wet-season form in August and September, and the dry-season form in October and November" (Journ. Asiatic Soc. Bengal, 1886, 120). The Rev. J. H. Hocking obtained it in the Kangra District. We possess specimens from General G. Ramsay's Nepal Collection, "the wet-season form being rare in the Valley of Nepal, but the dry-season form is very common in the rice-fields" (Ramsay's MS. Notes). Mr. H. J. Elwes (Trans. Ent. Soc. 1888, 328) says, "it occurs in Sikkim all the year round at low elevations, and I have taken the wet-season form in July as high as 7000 feet, but it is not so common in Sikkim as in the plains." Capt. A. M. Lang (Ent. Mo. Mag. 1864, 182) records "both broods common in Oudh and Umballa, always flitting about under the shade of trees, or lurking in long grass. I reared the larvæ on *Saccharum Ravennæ*." At Saugor, Capt. H. L. de la Chaumette (Ann. N. H. 1865, 37) found the dry-season form "more common of the two. They fly at sunset under the Neem trees (*Azadirachta indica*), resting for a long time motionless on the ground, and will not move until you almost tread upon them, when they will fly away in great haste and return to the same spot, chiefly some favourite stone." Capt. H. B. Hellard took it at Allahabad. Major J. Le Mesurier, R.E., obtained it in Sind, Capt. Lloyd in Kattywar, and Col. C. Swinhoe (P. Z. S. 1884, 504) records "both forms are apparently common in places in the interior of Karachi; I have

seen it from Hyderabad, but they are apparently very rare on the coast. I obtained one wet-season form at Karachi, and there is one of the dry-season form labelled Karachi in the museum." "It is comparatively rare in the Punjab; in the North-Western Provinces it is much commoner, but throughout Central and Peninsular India and Bengal it is very common" (Butt. Ind. i. 257). Col. C. Swinhoe (P. Z. S. 1886, 422) records taking "the wet-season form at Mhow in June, July, September and October, and the dry-season form commonly during the cold weather from the latter end of October to beginning of March. I have, however, taken one of the latter in June." Dr. Forsayeth (Tr. Ent. Soc. 1884, 377) records rearing, and describes the larvæ, at Mhow. In Bombay "it is common in all moist places, the wet-season form from July to October, and the dry-season form all the year round, being very plentiful in the cold season" (P. Z. S. 1885, 126). Mr. G. F. Hampson (J. A. S. Bengal, 1888, 351) obtained it on the Nilgiri Hills at 3000 to 4000 feet elevation, the wet-season form, April-August, the dry-season form, August, November, December and February, being common in forests." Capt. E. Y. Watson (Journ. Bombay N. H. Soc. 1890, 2) records "the wet-season form taken in Mysore, October, November and December, and the dry-season form in November and December."

In Madras, the late Sir Walter Elliot reared the wet-season brood from "larvæ * found on Guinea Grass, changing to pupa on October 29th, the butterfly emerging on November 7th" (MS. Notes).

Mr. J. Rothney (Ent. Mo. Mag. 1882, 34) found it common "in the neighbourhood of Calcutta, but difficult to catch; always found in shade, either under Bamboo or Mangoe topes; fond of settling, when disturbed, in cactus hedges." "In Calcutta it is common, both in the rainy and dry seasons. Keeps in shade under trees and bushes and amongst dead leaves during the day, but flies about rapidly in the evening" (Mr. de Nicéville, J. A. S. Beng. 1885, 43). Mr. J. Wood-Mason records (J. A. S. Beng. 1887, 352) "the dry-season form from Silchar and Silcuri in Cachar, in April and end of May, and the wet-season form in May, July and August." It is also found in Silhet and Assam. Major C. H. E. Adamson (List, p. 9) says it is "common throughout Burma. I have bred the wet-season form from the egg; the larvæ feeds on the rice-plant, remaining in the pupa state fifteen to seventeen days; the dry-season form very common at all times of the year except May and June." Signor Leonardo Fea obtained the wet-season form at Bhamo in October. Capt. E. Y. Watson (Journ. Bombay N. H. Soc. 1891, 35) records "the wet-season form, taken during the Chin Lushai Expedition, at Pauk in September, and at Pokoko in October, and the dry-season form at Pauk in November, and at Tilin from November

* Figured on our Plate 122, fig. 1, from Sir W. Elliot's original drawings.

to May." Dr. Manders (Trans. Ent. Soc. 1890, 519) took it in the "Shan States, Eastern Burma, where it is abundant at low elevations." In Upper Tenasserim, Mr. Ossian Limborg (P. Z. S. 1878, 824) records the dry-season form taken in December at Ahsown, 2000 feet, Moulmain, Meetan, at 300 feet, Naththoung to Paboga, and at Moolai, 3000 to 5000 feet." Mr. H. J. Elwes (J. A. S. Beng. 1887, 417) records it from Tavoy. Dr. J. Anderson (Journ. Linn. Soc. Zool. 1886, 32) "obtained the wet-season form in Mergui, December and end of April, the dry-season form at Mergui in March and April, Owen Island in January, King's Island in January, and Elphinstone Island in March." Mr. F. de Roepstorff obtained it at Fort Blair, South Andamans (Moore, P. Z. S. 1877, 583), and Mr. J. Wood-Mason (J. A. S. Bengal, 1882, 16) from Kamorta Island, Nicobars. In Ceylon, according to Major Hutchison, it is "found at all times in the Western and Central Provinces, in grassy places, both in the plains and hills up to 2000 feet; flying at dawn and dusk of the evening, rarely by day. Settles down in grass" (Lep. of Ceylon, i. p. 15). According to Mr. F. M. Mackwood the wet-season form affects the low country in Ceylon, having a range up to 3000 feet, and is very abundant especially from November to January, but is found all the year round; the dry-season form (*Ismene*) being found in the up-country, from 2000 feet and upwards" (MS. Notes).

DISTRIBUTION WITHIN INDO-MALAYAN AREA.—Mr. W. Distant (Rhop. Malayana, p. 41) records it from the Malay Peninsula and Penang. We possess specimens from Malacca, Nias, Sumatra, and Java, the latter bred from larvæ by the late Dr. Horsfield. Mr. H. Druce (P. Z. S. 1874, 104) enumerates it from Chentaboon in Siam. We have it from N. China.

We also have it from S. Borneo, and Mr. W. B. Pryer (Distant, Ann. N. H. 1887, 48) obtained it at Sandakan, North Borneo. The late Robert Swinhoe (P. Z. S. 1878, 690) took it in the Island of Hainan, and also in the Island of Formosa (P. Z. S. 1866, 360). Herr G. Semper (Lep. Philippen, pp. 40, 41, pl. 9, figs. 1-4) records it from the Philippines. Mr. H. Pryer (Butt. of Japan, p. 30, pl. 8, figs. 7, 8) describes and figures both forms from Japan. Mr. H. J. Elwes (P. Z. S. 1881, 90) also states that it is "found in Nikko, Japan."

MELANITIS TAMBRA.

WET-SEASON BROOD (Plate 124, figs. 1, a, b, c, ♂ ♀).

IMAGO.—Male. Upperside dark dusky olivescens-brown. *Forewing* with the exterior margin almost straight below the apex; the ordinary subapical black spots not defined. *Hindwing* unmarked. Underside dark purpurescent-brown; the veins grey and black speckled; thickly covered with strigæ, which are cinereous-ochreous and most dense on the basal area and brighter ochreous but less defined

on the outer area; fasciæ indistinctly darker, submarginal ocelli small, fully developed.

Female. Upperside much paler olivescent-brown. *Forewing* angled below the apex; with the subapical dusky-black confluent spots and costal patch obscurely defined, the spots white pupilled, the upper pale bar very obscurely brownish-ochreous. *Hindwing* with three small posterior submarginal white dots. Underside pale bright ferruginous, with darker strigæ; the fasciæ prominently defined and covered with more uniformly-disposed darker strigæ, their outer edges waved, that of the discal fasciæ on forewing being distinctly sinuous, their interspaces and basal area of hindwing and outer border of discal fascia paler; the ordinary dusky black cell spot on hindwing; the submarginal ocelli small, well developed.

Expanse, ♂ $2\frac{4}{10}$, ♀ $2\frac{8}{10}$ inches.

DRY-SEASON BROOD (Plate 124, fig. 1, larva and pupa, 1 d, e, f, ♂ ♀).

Melanitis Tamba, Moore, Lep. of Ceylon, i. p. 15, pl. 9, figs. 2, a, b, c, ♂ ♀, larva and pupa (1880).

IMAGO.—Upperside dark olivescent-brown, apical area and outer borders slightly paler and obscurely speckled with ferruginous or cinereous-ferruginous scales. *Forewing* somewhat angled below the apex; with two very obscure small ordinary subapical blackish confluent-spots, with a single white pupil on its upper portion, but in some a lower white dot is slightly apparent. *Hindwing* without markings. Underside very dark ferruginous or purplish-ferruginous; veins alternately blackish and pale ochreous speckled; more or less numerously variegated with pale ochreous strigæ, which are more dense and confluent between the fasciæ on the forewing, and the basal area and end of cell on the hindwing; the transverse ordinary fasciæ darker, those on forewing diffused, the outer one broadly greyish washed externally, most apparent on the hindwing, but paler and more ochreous on the forewing, especially on the dilated upper end before the apex. Both wings with the submarginal ocelloid spots small, ochreous-brown ringed, those on the hindwing being most distinct.

Female. Upperside paler and of a ferruginous olivescent-brown tint, the costa and apex of forewing and outer borders suffusedly speckled with pale brighter ferruginous. *Forewing* more acutely angled below the apex than in the wet-season form; with the subapical black confluent-spots large, each with a prominent white pupil, the upper one large, the lower small, the pale ferruginous ring obscure, the upper ferruginous bar more defined, the contiguous dusky costal patch blackish. *Hindwing* with three, or four, posterior submarginal minute white spots. Underside much paler and brighter ferruginous than in the male; the fasciæ more defined and more uniformly strigose, their interspaces and basal area of hindwing not pale mottled,

the ordinary dusky blackish spot in cell of hindwing being distinct; submarginal ocelloid spots more or less developed.

Expanse, ♂ $2\frac{5}{10}$ to $2\frac{8}{10}$, ♀ $2\frac{8}{10}$ to 3 inches.

CATERPILLAR.—Elongated, thickened in the middle; head with two long pubescent red processes; anal segment also with two processes; colour green, with longitudinal and transverse darker lines; face striped with red.

CHRYsalis.—Green. Head and thorax flattened.

HABITAT.—Ceylon.

DISTRIBUTION.—“Found in the Western and Central provinces; in the plains, and up to 3000 feet elevation. June to September” (Hutchison, Lep. Ceylon, i. p. 16). Mr. E. E. Green obtained it at Pundaloya in January, March, April, May, July and October, and at Ramboda, Kandy, in January and April.

MELANITIS BETHAMI.

WET-SEASON BROOD (Plate 125, figs. 1, 1a, b, ♂ ♀).

Melanitis Bethami, de Nicéville, Proc. Zool. Soc. Lond. 1887, p. 451.

IMAGO.—Male. Upperside dusky fuliginous-brown, the outer borders palest; cilia brown. *Forewing* very slightly angled below the apex; with a well-defined subcostal nearly round ochreous patch before the apex, divided by the brown radial veinlets. *Hindwing* unmarked. Underside dark purpurescent-brown, densely and uniformly covered with ochreous-cinereous strigæ; the outer border ferruginous. *Forewing* with four ordinary small obscure white-pupilled ocelli. *Hindwing* with a series of six submarginal prominent ocelli, the upper second minute, the anal geminated, the other four nearly equal and much larger, each pupilled with white.

Female. Upperside. Both wings much paler than in the male. *Forewing* more broadly angled below the apex; with the entire apical area broadly pale ochreous, on which is placed a round black spot with white pupil, situated between the upper and middle median veinlets, also a minute obsolescent ocellus below it and three above it. *Hindwing* with a small posterior submarginal black spot between the middle and lower medians, pupilled with white. Underside. Both wings with the ground-colour pale purpurescent-ochreous, densely covered with darker brown strigæ, the basal area and outer borders of the discal fascia slightly washed with pale purpurescent-cinereous; the ocelli as in the male, but rather larger; the outer margins ochreous. *Forewing* with an obscure ochreous oblique medial and a waved discal narrow fascia, and the hindwing with a medial excurved similar fascia, the two latter somewhat most defined. *Body* beneath, and palpi cinereous-ochreous speckled; legs brown; antennæ brown, with a pale ochreous tip.

Expanse, ♂ $2\frac{2}{10}$, ♀ 3 inches.

DRY-SEASON BROOD (Plate 125, figs. 1, c, d, e, ♂ ♀).

IMAGO.—Male. Upperside much deeper dusky-brown than in the wet-season form, the colour having a purpurescent tint, and the outer borders are thickly speckled with purpurescent-cinereous scales. *Forewing* with a more acute and prolonged angle below the apex than in male of the wet-season form; the large apical patch being of a rich ochreous and darkest inwardly, the patch extending from within the end of the cell to the cinereous marginal border; the ocelloid spots being obscurely defined. *Hindwing* unmarked; the tail much prolonged. Underside very densely purpurescent-brown or purpurescent olive-brown, the cinerescent strigæ very irregular and more or less indistinctly disposed and mottled, the basal area darkest, the outer discal washed with cinereous; the ocelloid spots smaller, very ill-defined.

Female. Upperside much paler than in the male, with less distinct cinereous margins. *Forewing* even more acutely angled below the apex than in male; the rich ochreous apical patch occupying about half the wing, extending more or less well into the cell and to the posterior angle, the enclosed ocelloid spots being present as in the female of the wet-season form, or the two ordinary-disposed subapical black spots are developed, but both well-separated, more or less elongated, and with a distinct white pupil. *Hindwing* with one, or two, posterior submarginal white dots. Underside. Both wings dusky ochreous, with uniformly-disposed dark brown strigæ, which are sometimes more or less irregularly blotched; the submarginal ocelloid spots also blotched.

Expanse, ♂ 3 to $3\frac{2}{10}$, ♀ $3\frac{2}{10}$ to $3\frac{3}{10}$ inches.

HABITAT.—Satpura Hills, Central Provinces.

DISTRIBUTION.—The type specimens of this beautiful species were “taken by Mr. J. A. Betham at Pachmari, a Sanatorium in the Satpura Hills, Central Provinces, at an elevation of 3500 feet, the wet-season form having been captured in August, and the dry-season form in October.” Mr. Betham (*Journ. Bombay Nat. Hist. Soc.* 1890, p. 160) states that “it has the same habits as *M. Leda*, and has only been found about Pachmari, where it is fairly abundant.”

The illustrations of this species on our Plate 125 represent the male and female of both the wet and dry-season forms, from the type specimens kindly lent for this purpose by Mr. L. de Nicéville.

MELANITIS BELA.

WET-SEASON BROOD (Plate 126, figs. 1, 1a, b, ♂ ♀).

Cyllo Aswa, Moore, *Proc. Zool. Soc. Lond.* 1865, p. 769, ♂.

Melanitis Aswa, Butler, *Catal. Satyr. Brit. Mus.* p. 5 (1868). Marshall and de Nicéville, *Butt. of India*, etc. i. p. 253 (1883).

Cyllo tristis, Felder, *Reise Novara*, *Lep.* p. 463 (1867), ♂.

IMAGO.—Male. Forewing with but a very slight angle below the apex. Upperside uniformly dark olivescient umber-brown, the outer borders slightly paler; cilia entirely brown. Typically both wings are unspotted, but in most specimens the *forewing* has one, or two, obscurely-defined subapical white dots, the lowest sometimes black-bordered, and the *hindwing* has a submarginal white dot between the lower and middle medians. Underside dark purpurescent-brown, or dark ferruginous-brown, uniformly covered with short grey or ochreous-grey strigæ; the *forewing* crossed by three, more or less obscurely-defined, darker and brighter coloured narrow ordinary fasciæ, and the *hindwing* by a narrow discal similar fascia, the outer borders also with a more or less-defined fascia. *Forewing* with five more or less defined minute ocelli, composed of a black spot, white pupil, dull ochreous ring, and a darker brown outer circlet. *Hindwing* with a submarginal series of six well-defined black ocelli, each with a large bluish-white pupil, narrow ochreous ring and dark brown outer circlet, the lowest sometimes being geminated.

Female. Forewing somewhat more angled below the apex than in male. Upperside paler. *Forewing* with two obscurely-defined subapical black confluent spots with white pupils, and a minute white dot nearer the apex; the dusky-black subcostal pale-bordered patch more or less apparent. *Hindwing* with a submarginal series of five small white-pupilled black spots, the upper and lowest minute, the three middle spots very obscurely ochreous ringed. Underside paler, but brighter coloured than in male; with the uniformly-disposed grey strigæ throughout, the darker and brighter coloured fasciæ and submarginal ocelli also as in male. *Body* beneath dark brown; legs ferruginous brown; sides of palpi grey speckled; antennæ brown, with a dusky subterminal band and pale tip.

Expanse, ♂ 3 to $3\frac{2}{10}$, ♀ $3\frac{2}{10}$ inches.

DRY-SEASON BROOD (Plate 126, figs. 1, c, d, e, ♂ ♀).

Melanitis Bela, Moore, Catal. Lep., Mus. E. I. Company i. p. 223 (1857). Butler, Catal. Satyr. Brit. Mus. p. 4 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 254 (1883).

Melanitis Duryodana (part), Marshall and de Nicéville, Butt. of India, etc. i. p. 257 (nec Felder).

IMAGO.—Male. Upperside deep dusky olivescient-brown or cinereous olivescient-brown, the subapical area more intensely dusky brown, the costal edge of forewing and exterior margin of both wings more or less thickly covered with purpurescent-cinereous scales; cilia pale brownish-cinereous. *Forewing* with two moderately small subapical confluent black spots with prominent pure white pupils, the upper pupil large, the spots more or less obscurely inwardly-circled by ferruginous, the upper ferruginous bar, generally, being somewhat more sharply defined. *Hindwing* with either one, two, or three, white-pupilled minute black dots. Underside either

dark ferruginous, dark greyish ferruginous, dark olivescens-ferruginous, or olivescens-grey, the transverse ordinary fasciæ darker and generally broadly defined, their outer borders washed with grey, and the entire surface is variegated with more or less darker strigæ and pale ochreous mottlings, which latter tend to coalesce in irregular patches; veins alternately dark and grey speckled. *Forewing* with the greyish border to outer discal fascia broadly dilated to the costa before the apex; with five small submarginal pale ochreous ocelloid spots more or less well-defined. *Hindwing* with a submarginal series of similar, ill-defined, ocelloid spots.

Female. Upperside paler and more olivescens in tint, the outer borders more broadly-speckled with cinereous, the apex of forewing dark ferruginous speckled. *Forewing* with a larger and more prolonged acute angle below the apex; the subapical black confluent-spots large and broad, the inner-part of the upper spot projecting towards the cell and joins the dusky costal patch; a lower small black spot sometimes being also present between the middle and lower medians, the white pupils large, the bright ferruginous outer-bordering ring broad and diffused, the upper ferruginous bar also broad; there are also two white specks close to the apex situated above and below the upper radial. Underside brighter ferruginous than in the male, but identical in markings. *Body* beneath and sides of palpi dark ferruginous; legs paler; antennæ pale ferruginous, with a dusky club.

Expanse, 3 to $3\frac{3}{10}$ inches.

HABITAT.—N.-W. and E. Himalayas; Assam; Naga and Khasia Hills; Upper Burma; Tenasserim.

DISTRIBUTION.—We have examined and verified specimens of the wet-season form from the N.-W. Himalayas, possessing examples of both forms, as well as both sexes of the dry-season form from Kashmir, taken by the late Capt. Bayne Reed. Major H. B. Hellard obtained it at Simla and Masuri, June to October. Mr. W. Doherty (J. A. S. Beng. 1886, 120) records both the dry and wet-season forms from the "Kali Valley, 2500 feet, in Kumaon, both being rare." Mr. J. H. Hocking obtained the dry-season form in Kulu. Mr. G. F. Hampson possesses the dry-season form from Rhani Ket, Kumaon, taken at 5000 feet, in July, and from Naini Tal, 4200 feet, in October, both taken by Col. A. M. Lang. It also occurs at Bhimtal, at 4500 feet in Kumaon. From the Eastern Himalayas we also possess examples of both forms from Sikkim. Mr. H. J. Elwes records it from "Sikkim at from 2000 to 4000 feet elevation, from April to November" (Tr. Ent. Soc. 1888, 329). It has been taken at Sibsagar, Assam, at Shillong, in November, and in the Naga Hills, Khasia Hills, and Silhet. In Burma, Major C. H. E. Adamson took it in "Arakan, the wet-season form in September and October, and the dry-season form in Arakan, Bhamo, and in Tenasserim" (List. p. 9). Capt. E. Y. Watson, during the Chin-Lushai Expedition of 1889-90, obtained the wet-season form at Tilin Yaw in

December, and the dry-season form at Pauk and Tilin in November, December, and April. Capt. Watson also took the wet-season form in Rangoon in June, July, August, and September, and the dry-season form at Beeling in Upper Tenasserim, in February, March, and April. Signor Leonardo Fea obtained the wet-season form at Palone in Pegu, in August, and the dry-season form at Moolayet in March, and also at Bhamo in October. Capt. Bingham took the dry-season form at Thoungyeen in Tenasserim in January and February, and at Houndrau in November. Capt. Watson also obtained the dry-season form at Pougdau near Thyetmyo in November, and in the Karen Hills in December. Mr. O. Limborg (P. Z. S. 1878, 824) obtained the dry-season form in Upper Tenasserim at Ahsown, Meetan, 3000 feet in April, Naththoung to Paboga, Moolai, 3000 to 6000 feet, and Moolat, 4500." Mr. H. J. Elwes (J. A. S. Bengal, 1887, 417) records the dry-season form from Tavoy.

This species is also found in Western China; the wet-season form (*Aswa*) is described by Mr. J. H. Leech in "Lep. China, etc." p. 108, and the dry-season form (*Bela*) described and figured as *M. Ismene*, p. 106, pl. 13, figs. 2, 5.

MELANITIS VARAHA.

WET-SEASON BROOD (Plate 127, figs. 1, 1a, b, c, d, ♂ ♀).

Melanitis Ampa, Swinhoe, Annals of Nat. Hist. 1890, p. 353, ♀.

IMAGO.—Male. Upperside uniformly dark sepia-brown, the exterior borders paler. *Forewing* with the exterior margin nearly straight. Both wings generally unspotted, but sometimes the forewing shows two subapical white dots and the hindwing two posterior submarginal dots. Underside purpurescent-brown; densely covered with uniformly-disposed narrow purpurescent-grey strigæ. Both wings crossed by a very obscurely-defined darker narrow discal fascia, the ordinary inner fascia on the forewing not being defined; submarginal ocelli small, fully developed, white pupilled, the pupil on those of the hindwing large, and in some few examples the ocelli on both wings are of nearly uniform large size and the pupil occupying the whole of the centre.

Female. Upperside much paler and of a cinerescent olive-brown tint. *Forewing* angled below the apex; with two very obscure blackish-brown subapical superposed spots, both with an indistinct whitish pupil, the adjacent costal patch also obscurely defined. *Hindwing* sometimes with one, or two, posterior submarginal prominent whitish spots. Underside reddish-brown or brownish-ochreous; densely covered with uniformly-disposed pale ochreous-grey strigæ. Both wings with the discal fascia well defined, narrow, darker and brighter reddish-brown or brownish-ochreous, the marginal border being also of the same darker colour; the submarginal

ocelli as in the male, and sometimes the ocelli on both wings are of nearly uniform large size throughout, with large white centres.

Expanse, ♂ $2\frac{2}{10}$ to $2\frac{6}{10}$, ♀ $2\frac{1}{10}$ to $2\frac{6}{10}$ inches.

DRY-SEASON BROOD (Plate 127, figs. 1, e, f, g, h, i, ♂ ♀).

Melanitis Varaha, Moore, Catal. Lep. Mus. E. I. Company, i. p. 224 (1857), ♂. Marshall and de Nicéville, Butt. of India, etc. i. p. 256 (1883).

IMAGO.—Male. Upperside rich dark vinescent olive-brown; both wings with the exterior margin more or less densely speckled with purpurescent-cinereous scales. *Forewing* with the subapical dusky black spots and costal patch very indistinct, the confluent-spots small, each generally with a prominent white pupil, in some they are quite obsolete. *Hindwing* with two, or three, posterior submarginal white dots. Underside with the ground-colour either ashy-brown tinged with olive at the base, or pale purpurescent-cinereous-brown with the base olivescient, purpurescent-cinereous with the base brown, or various shades of dark purplish-brown, ferruginous or reddish-brown with the base or transverse fasciæ still more intense, or purplish-red with darker base, or, again, in some it is dusky-ochreous; all are more or less numerous covered with obscure cinereous strigæ and the basal area with darker strigæ of the ground colour; the veins also being speckled; the ordinary fasciæ either ill-defined and narrow, or the discal fascia only being indicated as the outer border of the dark basal area; in some the fasciæ are intervened by pale ochreous strigæ, and in some few the fasciæ are blotched with darker strigæ; the submarginal series of ocelloid spots are small, more or less ill-defined and imperfectly developed, being either pale ochreous and brown speckled, or pale ochreous, or iron-grey speckled, or, sometimes they are large and prominent and yellowish or brown speckled and with a darker brown speckled ring, those at the apex of the forewing also being sometimes inwardly-bordered by whitish speckles, and there is, generally, present in most specimens a pale ochreous-white speckled patch at end of the cell on the hindwing.

Female. Upperside pale olivescient-brown, the outer margins cinereous speckled. *Forewing* more acutely and broader angled below the apex than in male; with the apex ochreous tinged, the subapical dusky black spots more defined, white pupilled, and with a slightly-indicated obscure ochreous upper bar to the costa; a minute white speck also present close to the apex. *Hindwing* with the posterior submarginal white dots more or less distinct. Underside of various shades of dark ochreous or ferruginous, numerous covered with strigæ, with the fasciæ indicated, and the submarginal ocelloid spots as in the male. *Body* beneath, and palpi either cinereous or ochreous; legs brownish-ochreous; antennæ pale ochreous, with a dusky-brown subterminal band and pale tip.

Expanse, ♂ $2\frac{4}{10}$ to $2\frac{8}{10}$, ♀ $2\frac{6}{10}$ to $2\frac{8}{10}$ inches.

HABITAT.—South India.

DISTRIBUTION.—The type specimens of the female of the wet-season form, described erroneously as male and female, were taken in North Kanara by Mr. Wise, and the type of the dry-season form was also taken in N. Kanara by the late Mr. S. N. Ward. In the Nilgiris, Mr. G. F. Hampson obtained it at from 3000 to 4000 feet elevation, being common on the lower slopes, flying round trees at dusk, the wet-season brood appearing in June and the dry-season brood in December. In Mr. Hampson's MS. Notes the wet-season brood is recorded as having been taken in "July, August and October, and the dry-season brood also in April, July and November." We also possess specimens of the dry-season brood from Capt. E. Y. Watson, which were taken numerously at Kathlekan, Kadur District, Mysore, in November, December and January. The late Capt. Bayne Reed took it in the Wynaad, and we have it from Mynall, Travancore, 2500 to 3000 feet, taken in March.

Of our illustrations of this species, Plate 127, figs. 1, 1a, b, c, d, represent the male and females of the *wet-season brood*; 1 and 1a the male; 1b and c the female, and 1d the type female described as *Ampa* by Col. Swinhoe. The dry-season brood is represented on Plate 128, figs. 1 and 1a, the upper and underside of typical male (*Varaha*), figs. 1b and c, also males, and figs. d, e, f, the female of the dry-season brood.

MELANITIS GOKALA.

WET-SEASON BROOD (Plate 129, figs. 1, 1a, ♂).

Melanitis Gokala, Moore, Catal. Lep. Mus. E. I. Company, i. p. 224 ♂ (1857). Marshall and de Nicéville, Butt. of India, etc. i. p. 256 (1883).

Melanitis aculeata, Hampson, Journ. Asiatic Soc. Bengal, 1888, p. 351 (*wet-season form*).

IMAGO.—Male. Upperside dark olivescent-brown; cilia dark-brown. *Forewing* with the exterior margin nearly straight, with but a very slight angle below the apex; two subapical more or less indistinctly-defined large blackish spots and obliquely-continued patch to the costa, the subapical spots when less defined being without pupils, but in others, where these spots are more defined, the two white pupils are present, and in these latter specimens the ordinary upper pale bar is very obscurely brownish-ochreous. *Hindwing* with one, or two, posterior submarginal white dots. Underside with the ground-colour pale glossy olivescent-brown, very indistinctly speckled with grey strigæ, which are most numerous and distinct on the basal area, and borders of the fasciæ, or the ground-colour is pale ochreous with dark ferruginous-brown strigæ, and the fasciæ more defined and bordered with grey strigæ; the submarginal series of ocelli very small, white pupilled.

Female. Upperside similar to male. Underside pale ochreous, with brighter ochreous bordering to the narrow fasciæ and outer margins, and uniformly-covered with slightly-defined brownish-ochreous strigæ; submarginal ocelli very small, as in male. *Body* beneath and palpi grey-speckled; legs pale ochreous; antennæ pale ochreous with a dusky subterminal band.

Expanse, ♂ 3 to $3\frac{4}{10}$, ♀ $3\frac{4}{10}$ inches.

DRY-SEASON BROOD (Plate 129, figs. 1, b, c, d, e, ♂ ♀).

Melanitis aculeatus, Hampson, Journ. Asiatic Soc. Beng. 1888, p. 351, ♂ ♀.

IMAGO.—Male. Upperside somewhat paler olivescence-brown than in wet-season brood; outer borders very slightly speckled with purpurescent-cinereous scales and brown strigæ; cilia dark brown. *Forewing* with the apex subfalcate, the exterior margin broadly angled below the apex; the subapical blackish confluent-spots and costal patch obscurely-defined, the upper spot with an ochreous-white pupil, the oblique upper bar to costa pale dusky ochreous. *Hindwing* with two posterior submarginal white dots. Underside pale olivescence-brown, washed with grey basally and speckled with darker olive-brown strigæ, the transverse fasciæ on forewing less grey and broadly-defined, and speckled with dark brown confluent-strigæ; a strigose brown blotch also in the middle of cell of hindwing; submarginal ocelloid spots minute, indicated by blackish-edged whitish dots.

Female. Upperside. *Forewing* more sharply angled below the apex than in male; the apex and exterior margins tinged with reddish ferruginous; with the subapical blackish spots and costal patch more defined, the spots usually whitish pupilled, the upper bar paler ochreous and somewhat more distinctly defined. Underside. Both wings pale purpurescent-ochreous or ferruginous, with indistinctly darker strigæ, the fasciæ narrow, not prominent, their borders slightly washed with grey; the submarginal ocelloid spots as in the male.

Expanse, ♂ $3\frac{4}{10}$, ♀ $3\frac{4}{10}$ to $3\frac{6}{10}$ inches.

HABITAT.—South India (Mysore, Nilgiris).

DISTRIBUTION.—The type specimen of *M. Gokala* was taken by the late Mr. S. N. Ward in Kanara. Mr. G. F. Hampson (J. A. S. Beng. 1888, 351) obtained it on the "northern slopes of the Nilgiris and Mysore forests at 3000 to 3500 feet elevation," the wet-season form having been captured in July, and the dry-season form in September and April. Capt. E. Y. Watson's Collection contained examples of the dry-season form "taken at Kathlekan in the Kadur District, Mysore, in November and December," and are referred to, erroneously, under the name *M. Gnophodes*, in Journ. Bombay Nat. Hist. Soc. 1890, p. 3.

Of the illustrations of this species on our Plate 129, figs. 1, 1a, represent the

male of the wet-season form, and figs. 1b, c, d, e, the male and female of the dry-season form, from the type specimens described by Mr. Hampson.

MELANITIS ZITENIUS.

WET-SEASON BROOD (Plate 130, figs. 1, 1a, b, c, d, ♂ ♀).

IMAGO.—Male. Forewing with the apex not subfalcate, the exterior margin being but very slightly angled below the apex. Upperside paler olivescient ochreous-brown than in the dry-season brood. *Forewing* with the subapical black confluent spots smaller, more or less obscurely defined, the upper spot with a pale ochreous pupil, the ochreous upper bar being narrow and also more or less obscurely-defined, the dusky inner-patch to the costa obscure. *Hindwing* with three posterior submarginal minute blackish-edged white dots. Underside with the ground-colour either cinerescient-ochreous or ochreous, densely and uniformly-covered with dark brown strigæ; the transverse fasciæ on the forewing somewhat indicated by slightly more dense confluent-strigæ, the edge of the outer discal fascia on both wings being more brightly defined; the marginal border with a more or less brighter ochreous fascia; the submarginal series of ocelli more or less fully developed.

Female. Upperside pale olivescient ochreous-brown. *Forewing* angled below the apex as in dry-season brood; the subapical blackish spots, inner costal dusky patch and their ochreous outer border more or less paler, narrower, and obscurely defined. Underside more ochreous than in male; the strigæ more slender and paler; the transverse fasciæ narrow and well-defined; the submarginal ocelli as in the male.

Expanse, ♂ 3, ♀ $3\frac{5}{10}$ inches.

DRY-SEASON BROOD (Plate 131, figs. 1, 1a, b, c, ♂ ♀).

Papilio Zitenius, Herbst, *Natursyst*, Schmett. viii. p. 5, pl. 182, figs. 1, 2 (1796).

Melanitis Zitenius, Marshall and de Nicéville, *Butt. of India*, etc. i. p. 258, pl. xii. fig. 29, ♀ (1833).

Melanitis Vamana, Moore, *Catal. Lep. Mus. E. I. Company*, i. p. 223 (1857). Butler, *Catal. Satyr. Brit. Mus.* p. 3 (1868).

Cyllo Duryodana, Felder, *Reise Novara, Lep.* p. 464 (1867).

IMAGO.—Male. Upperside olivescient ochreous-brown, the exterior borders slightly-speckled with prominent grey scales and blackish strigæ; cilia brown, alternately edged with pale ochreous. *Forewing* with two large subapical confluent black spots, the upper spot narrow, pupilled with ochreous-white, the lower pupil being minute, and from the upper spot a continuous blackish patch extends inward across end of the cell to the costal vein, both being broadly more or less obscurely bordered by pale ochreous, which colour is obscure and diffused on their discal side

but broad and more defined exteriorly, and is brighter on the upper bar to the costa. edge. *Hindwing* with two, or sometimes three, posterior submarginal prominent minute black-edged ochreous white dots. Underside with the ground-colour either purpurescent-cinereous or purpurescent-ochreous, both colours sometimes being dark olivescient tinted; more or less thickly speckled with black or dark brown strigæ and scales, which are most densely packed and partly-confluent where they form the ill-defined broad dark-blotched fasciæ on the forewing and a blotched cell and discal patch on the hindwing; the normal dark transverse discal fascia on both wings being indicated by an ill-defined brighter pale-edged line; the posterior border and triangular patch before the apex of forewing, and the costal border and a submarginal fasciole on the hindwing, generally, being paler and unspeckled. Both wings with a submarginal series of ordinary positioned more or less small black blotchy-spots with ochreous-white pupil.

Female. Forewing sharply falcate below the apex. Upperside somewhat paler, the markings as in male, the outer margins more broadly-speckled with grey and blackish strigæ, the subapical black confluent-spots and continuous-patch less sharply defined and larger, the ochreous bordering paler and generally of a purpurescent-ochreous tint; the strigæ uniformly-disposed throughout, the transverse fasciæ narrow and slightly-defined; the submarginal ocelloid-spots as in the male.

Expanse, ♂ $3\frac{4}{10}$ to $3\frac{6}{10}$, ♀ $3\frac{6}{10}$ to $3\frac{8}{10}$ inches.

HABITAT.—N.-W. and E. Himalayas; Assam; Burma; Tenasserim; South Andamans, Malay Peninsula.

DISTRIBUTION.—Mr. W. Doherty (J. Asiat. Soc. Bengal, 1886, 120) records this species from the "Kali Valley, 2000 to 4000 feet, in Kumaon." "It is found in the Eastern Himalayas, and the Khasia Hills, and through Burma to Tenasserim. In Tenasserim it was taken by Capt. C. T. Bingham in the Thoungyeen forests in April, in the South Andamans by Mr. F. A. de Roepstorff in August, and there are specimens in the Indian Museum, Calcutta, from the Daffla Hills, and from Sikkim" (Butt. India, i. 258). Through the kindness of the Honble. W. Rothschild we have examined and verified Felder's types of male and female *duryodana* from Assam and Cachar. We possess specimens from Sikkim and from Gen. Ramsay's Nepal Collection. According to Mr. L. de Nicéville (J. A. Soc. Beng. 1882, 56) it is "common in Sikkim at low elevations in October." Mr. H. J. Elwes found it also "common in Sikkim from April to November" (Tr. Ent. Soc. 1888, 329). Capt. E. Y. Watson (J. Bombay Nat. Hist. Soc. 1891, p. 36) obtained the dry-season form during the Chin-Lushai Expedition of 1889-90 at Tilin, from November to May, "it being the commonest Melanitis met with." Mr. H. J. Elwes (J. A. Soc. Bengal, 1887, 417) records the dry-season form from "Sinbyoodine, Tavoy." Mr. Roepstorff obtained examples of the dry-season form at Fort Blair, South Andamans.





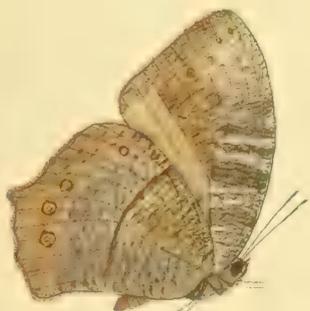
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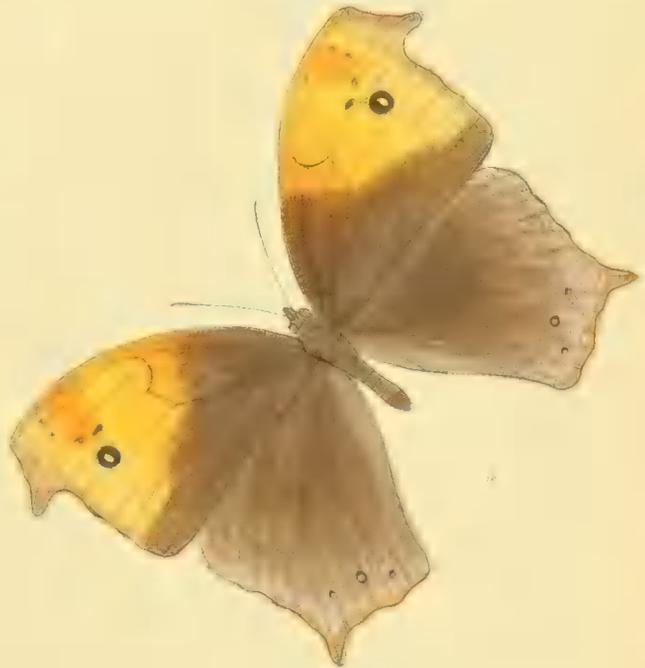
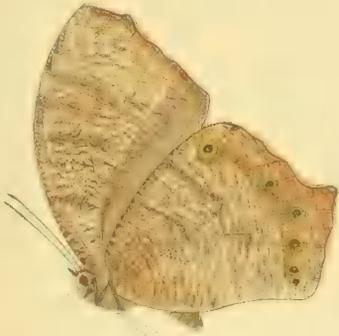
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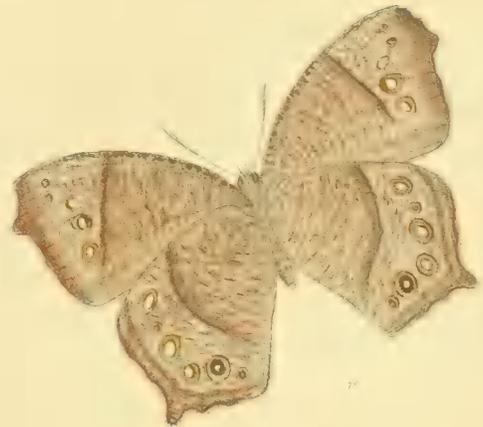
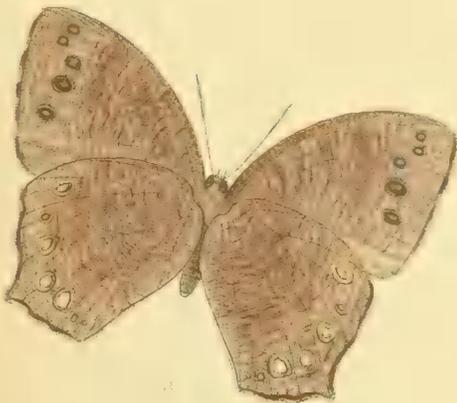
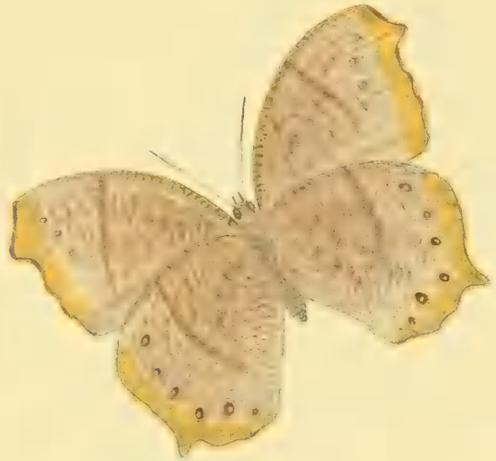
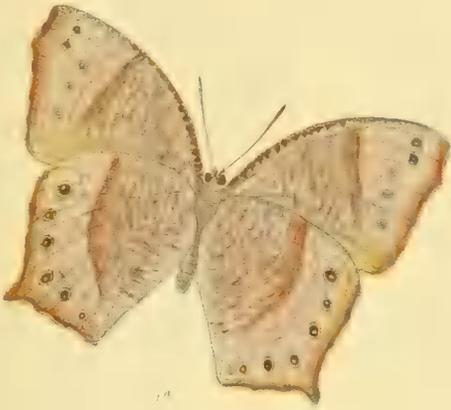
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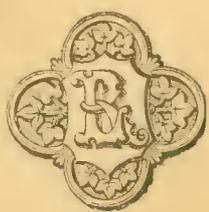
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Mr. W. D. Distant, Rhop. Malayana, p. 412, pl. 38, fig. 2, describes and figures the male of the wet-season form, taken in Perak, Malay Peninsula.

Of the illustrations of this species, those on our Plate 130, figs. 1, 1a, b, c, represent the male and female wet-season form, and fig. 1d an intergrade female; of the dry-season form, on Plate 131, figs. 1, 1a, b, c, represent the male and female.

MELANITIS KALINGA.

DRY-SEASON BROOD (Plate 131, figs. 2, 2a, ♂).

IMAGO.—Male. Upperside olivescient ochreous-brown. *Forewing* with a large quadrate ordinary subapical black spot and continuous costal patch, the spot with a very obscure upper pale-ochreous pupil, the circling border and upper bar bright ochreous sharply defined. *Hindwing* unmarked. Underside with the ground-colour either purplish olive-brown with obscurely-defined purplish-cinereous strigæ, the fascia indistinct, and the submarginal spots almost obsolete, or the ground-colour is dark dusky-ochreous, with dark brown strigæ; blotched fasciæ on the forewing and irregular blotches on the basal area of hindwing, the fascia on hindwing and the marginal border brighter ochreous; submarginal spots minute and almost obsolete.

Expanse, 3 inches.

HABITAT.—Upper Godaveri District, South India; (? Orissa).

This is a smaller insect than the dry-season form of *M. Zitenius*. Specimens have been taken by Mr. C. B. Morris, and are in Col. Swinhoe's and our own Collection.

INDO-MALAYAN SPECIES OF MELANITIS.—*M. Abdullæ*, Distant, Rhop. Malay. p. 241, pl. 19, fig. 3, ♂ (1883). Nearest allied to *M. Tambra*.—*Habitat*. Malay Peninsula.—*M. Suyudana*, Moore, Catal. Lep. Mus. E. I. Compy. i. p. 224 (1857). Distant, Rhop. Malay. p. 412, pl. 39, fig. 2. *Habitat*. Malay Peninsula; Nias; Sumatra; Java.—*M. Phedima*, Cramer, Pap. Exot. iv. pl. 292, fig. b (1782). *Habitat*. — ?.—*M. Ambasara*, Moore, Catal. Lep. Mus. E. I. Compy. i. p. 223 (1857). *Syn.* *M. Gnophodes*, Butler, Catal. Satyr. Brit. Mus. p. 5, pl. 2, fig. 1 (1868) ♂. *Habitat*. Java.—*M. Atrax*, Semper, Reisen Philippen, Lep. p. 41, pl. 9, figs. 5, 6 (1868). *Habitat*. Luzon.—*M. Cajetana*, Semper, *id.* p. 42, pl. 9, figs. 7, 8. *Habitat*. Mindanao.—*M. Erichsonia*, Semper, *id.* p. 42, pl. 9, figs. 9, 10. *Habitat*. Mindoro.—*M. Boisduvalia*, Semper, *id.* p. 43, pl. 9, fig. 11. *Habitat*. Luzon.

Genus CYLLOGENES.

Cyllogenes, Butler, Catal. Satyridæ Brit. Mus. p. 6 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 260 (1883).

IMAGO.—Male. *Forewing* somewhat elongated, subtriangular; costa very

convex, apex pointed, exterior margin oblique and almost even, posterior angle pointed; with a large oval inwardly-oblique medial *glossy-black patch*, clothed with glossy-black modified scales, which are either moderately short or rather long and have acute tridentate tips, some few however having a four-pointed tip; *no androconia*; cell very broad; first and second subcostal branches emitted before end of the cell; discocellulars deeply concave in the middle, the lower long; upper radial from slight angle close to subcostal, lower radial from above the middle; the middle and lower median veinlets very wide apart, the lower terminating at the posterior angle; submedian very short, recurved, and terminating on the middle of the posterior margin. *Hindwing* short and broad, the apex obtusely pointed, exterior margin sinuous and produced into an *obtuse short* caudate angle at end of upper median veinlet; costal vein terminating on the middle of the costa; first subcostal branch ending on the costa at some distance before the apex, the second branch ending at the apex; cell broad across the middle; discocellular very oblique, radial from near upper end; middle median emitted before end of the cell. *Body* short, somewhat woolly; palpi obliquely porrect, compressed, clothed to tip with fine short hairy-scales, apex pointed; antennæ slender, rather short; eyes naked.

TYPE.—C. Suradeva.

CYLLOGENES SURADEVA (Plate 132, figs. 1, 1a, b, ♂ ♀).

Melanitis Suradeva, Moore, Catal. Lep. Mus. E. I. Compy. i. p. 225 (1857). Staudinger, Exot. Schmett. p. 223, pl. 79, ♂ (1887).

Cyllogenes Suradeva, Butler, Catal. Satyr. Brit. Mus. p. 6 (1868). Marshall and de Nicéville, Butt. of India, etc. i. p. 260, pl. xiii. fig. 30, ♂ ♀ (1883).

IMAGO.—Male. Upperside purplish-brown, darkest at the apex; cilia brown edged with cinereous. *Forewing* with a prominent narrow excurved subapical pale ochreous streak, below which is a large medial obliquely-oval *glossy-black patch*, clothed with glossy-black modified scales, which are either moderately short or rather long, and have acute tridentate-tip, some few however having a four-pointed tip; *no androconia*. *Hindwing* without markings. Underside dull ochreous, numerously covered with short, narrow, undulating strigæ; both wings with a transverse darker brown ill-defined discal fascia, which is formed by confluent strigæ, the fascia outwardly bordered by a few pinkish-white strigæ; a submarginal series of normally-disposed ill-defined small lilacine white-centred longitudinally black-speckled bordered spots.

Female. Upperside with a bluish-purple tint. *Forewing* with a broader and darker ochreous excurved subapical streak. Underside as in the male, except that

the discal fascia is not outwardly bordered by pinkish-white strigæ. Body beneath, legs and palpi, dull ochreous; antennæ brown above, ochreous beneath.

Expanse, 3 to $3\frac{2}{10}$ inches.

HABITAT.—Sikkim.

DISTRIBUTION.—“This appears to be a very rare insect. Col. A. M. Lang has five males in his collection, from Sikkim, and Mr. Otto Möller has taken a female also in Sikkim” (Butt. of India, 260). According to Mr. Elwes (Tr. Ent. Soc. 1888, 330), it is “not so rare in Sikkim, as supposed, but local, as far as known, and confined to an elevation of about 2000 feet, where it is taken by Mr. Möller’s collectors at Singla, from April to June.”

CYLLOGENES JANETÆ (Plate 132, figs. 2, 2a, ♂).

Cyllogenes Janetæ, de Nicéville, Proc. Zool. Soc. Lond. 1887, p. 453.

IMAGO.—Male. Upperside dark olivescient ochreous-brown; cilia black, edged with cinereous-white. *Forewing* with the apical half blackish-brown; crossed by an oblique excurved rich ochreous subapical band, which broadly extends from the costa, and is attenuated towards the posterior angle. *Hindwing* with the outer margin somewhat broadly covered with ochreous strigæ. Underside. Both wings with the ground-colour ochreous, very thickly covered with dark olivescient-brown strigæ, the strigæ being less numerous along the costal border of both wings, where they thus leave short ochreous fasciæ, and the outer borders also more ochreous; crossing the disc is an obscurely defined narrow dusky-brown fascia, followed by a submarginal series of small lilacine-white spots, which are longitudinally bordered on each side by black speckles; the outer discal area is also washed with pale lilacine-purple.

Female. Upperside. *Forewing* with the subapical ochreous band broader, richer coloured, and extending along the costa; the black apical area traversed by ochreous veins, the median veinlets also lined with ochreous near the band. *Hindwing* with the outer border richer ochreous. Underside much paler; the dark strigæ far less dense, and with no trace of the diffused fasciæ.

Expanse, ♂ $3\frac{5}{10}$, ♀ $3\frac{7}{10}$ inches.

HABITAT.—Bhotan; Naga Hills.

DISTRIBUTION.—“Two males taken by Mr. A. W. Knyvett in Bhotan, and a female in Mr. O. Möller’s collection” (de Nicéville, *l. c.*). According to Mr. H. J. Elwes, “a single male was taken by Mr. W. Doherty in the Naga Hills, which agrees with Bhotan specimens” (P. Z. S. 1891, p. 269).

Genus PARANTIRRHCEA.

Parantirrhœa, Wood-Mason, Journ. Asiatic Soc. Bengal, 1880, p. 248; *id.* Annals of Nat. Hist. 1881, p. 333. Marshall and de Nicéville, Butt. of India, etc. i. p. 261 (1883).

IMAGO. Male. *Forewing* broad, triangular; costa moderately and regularly arched, the apex acute, exterior margin straight, posterior angle rounded, posterior margin somewhat sinuous, being lobed near the base, and the edge of the middle folded back flat upon the underside, the fold being thickly clothed on its surface and fringed at its free edge with firmly attached long and somewhat raised modified scales, rendered conspicuous by their rich dark-brown colour and satiny lustre; the outline of this turned-down fold is marked out on the upperside by a curvilinear groove; first subcostal branch emitted just before end of the cell, second branch beyond the end of the cell, the first and second, and the third coalescing near their middle respectively with each other, and the first with the costal, ending on the costa before the apex; discocellulars concave, upper radial from a slight angle close to subcostal, the lower radial from above the middle; median veinlets emitted at equal distances apart and from the base, the lower median terminating at the posterior angle; submedian vein sinuous, being much recurved downward from the base, and touching the posterior margin at one-fourth from the base from whence it is curved upward, and terminates on the posterior margin. About one-fourth from the posterior angle, the middle of the posterior margin being folded beneath the wing as above stated. *Hindwing* broad, quadrate, tailed; anterior margin very much arched, and almost angled in its middle, apex angled, exterior margin broadly produced in the middle, and with a prolonged tail at end of the upper median veinlet, anal angle rounded; costal vein short and terminating on the middle of the margin; first subcostal branch ending beyond the middle, and the second at the apex; cell narrow; discocellular starting from near the base of lower subcostal, and running in the same straight line, then curving obliquely downward and outward to lower end of the cell, radial from its middle; the middle median veinlet emitted at a short distance before end of the cell, lower median at about two-fifths; submedian and internal vein slightly recurved, *the submedian furnished with a prominent black sagittate glandular patch*, divided by the vein, near the anal angle; the patch clothed with black elongated scales of nearly equal width throughout, their apex being very obtusely bidentate, and their base also bidentate; some few of these scales are much narrower, but of the same form. *Body*, slender; palpi very compactly clothed with short hairy scales, tip pointed; legs slender; antennæ very slender, rather short, and with a well-formed club; eyes naked.

TYPE.—P. Marshalli.

PARANTIRRHEA MARSHALLI (Plate 132, figs. 3, 3a, ♂).

Parantirrhœa Marshalli, Wood-Mason, Journ. Asiatic Society, Bengal, 1880, p. 250; *id.* Ann. Nat. Hist. 1881, p. 335. Marshall and de Nicéville, Butt. of India, etc. i. p. 262, fig. ♂ (1883).

IMAGO.—Male. Upperside dark virescent-brown, with a violet-blue tint in

some lights; cilia brown. *Forewing* crossed by a broad subapical somewhat excurved pale violet band, which extends decreasingly to above the posterior angle, the area of the band being traversed by three small superposed discal whitish spots, situated respectively between the upper and lower radials and the middle median; posterior margin with a medial dusty-brown curved bar, outwardly edged with pale ochreous-brown, which is formed by the folding beneath of the middle of the lobular margin. *Hindwing* with the anterior margin broadly pale ochreous-brown, and with a prominent black sagittate glandular patch on the submedian vein near its anal end, the patch being clothed with black elongated scales of nearly equal width throughout, their apex being very obtusely bidentate, and their base also bidentate; some few of these scales are much narrower, but of the same form. Underside dull pale-ochreous, numerous covered with obscure ochreous-brown transverse strigæ, which are slender and more sparsely disposed on the basal half, but are more confluent on the exterior half, and there form two broad ill-defined fasciæ, between which is a very indistinctly more or less ill-defined series of ordinary-disposed submarginal small black-speckled spots, the veins are also slightly black speckled. Body beneath, palpi, and legs pale ochreous; antennæ brown with a pale ochreous tip.

Expanse, ♂ $2\frac{4}{10}$ inches.

HABITAT.—South India.

DISTRIBUTION.—The type specimens of this insect were taken at Trevandrum in Travancore, and are in the collections of the Indian Museum, Calcutta, and that of Capt. G. F. L. Marshall.

Sub-family ELYMNIINÆ.

Elymniina, Herrich-Schæffer, Prod. Syst. Lep. i. p. 15 (1864).

Elymniinae, Kirby, Syn. Catal. D. Lep. p. 112 (1871). Marshall and de Nicéville, Butt. of India, etc. i. p. 263 (1883).

Satyrinæ (group Elymniades), Butler, Catal. Fabrician Lep. Brit. Mus. p. 38 (1869).

Elymniade, Doherty, Journ. Asiatic Soc. Bengal, 1886, p. 109.

Eurytelidæ (part) Westwood, Gen. D. Lep. p. 403 (1851). Wallace, Trans. Ent. Soc. 1869, p. 321.

CHARACTERS OF THE ELYMNIINÆ.—IMAGO.—Wings moderately large, weak, outer margin generally dentate. *Fore-wing* with the costal vein always swollen at the base; cell short and broad; discocellulars inwardly-oblique, the lower considerably the longest and deeply concave; the two upper median veinlets emitted from end of the cell; submedian undulated and extending to the posterior angle. The male, in the group represented by *Elymnius undularis*

and its allies, has an inconspicuous *glandular patch* on the upperside between the base of the median and submedian vein, the patch being clothed with peculiar-shaped scales, but no androconia; a corresponding nacreous patch being also present on the underside of this wing; and, in another group, represented by *vasudeva*, the forewing has the *middle portion of the posterior margin folded over on to the upperside*, the fold covering a *glandular patch* of scales, and the patch overlaid by an *erectile tuft* of enclosed hairs. *Hindwing*, in the males of all species, with a *glandular patch* situated *within the upper half of the cell*, which is overlaid by a *lengthened tuft of erectile hairs*, arising from the lower edge of the patch, the patch being clothed with very densely packed laxly-raised scales, which are of equal width throughout and have obtuse rounded tip and base, and with numerous short fusiform slender blackish scales (*androconia*), which latter have an acute point at each end; costal vein short, looped at its base and forming a false pre-discoidal cell; the cell short, very broad; upper subcostal branch emitted at about half way before end of the cell, and terminating on middle of the anterior margin; lower discocellular concave; the two upper median veinlets emitted from end of the cell. *Head* moderate sized; body moderately robust; eyes naked, prominent; antennæ slender, with a gradually formed indistinct club; forelegs small, those of the male hairy, those of the female also small but more robust, naked, cylindrical, and blunt at the tip; palpi elongate, porrect, clothed with short adpressed hairy-scales and perceptibly tufted above.

ADULT CATERPILLAR.—Somewhat fusiform, minutely pubescent; head armed with two erect divergent branched-processes; anal segment also armed with two longer slender setose hindwardly-projected processes.

CHRYsalis.—Suspended by the tail only; head truncated, with two small pointed processes in front, and a similar thoracic process above.

EGG.—“Similar (to those of the Satyrinæ), large, globular, translucent, hard, obscurely faceted, nearly as high as wide” (Doherty, J. A. S. Bengal, 1886, 109).

GENERAL CHARACTERISTICS.—The males of all the known species possess, on the *upperside of the hindwing*, a basal *glandular patch* of scales overlaid by a *tuft of erectile hairs*. In certain species of the genus *Elymnias* (*undularis* and its immediate allies) there is also an inconspicuous *glandular patch* on the *upperside of the forewing*, below the base of the cell, and in the genus *Mimadelias*, the forewing has the *middle of the posterior margin folded over on to the upperside*, the fold covering a *glandular patch* of scales, and an *erectile tuft of hairs*.

The genera of Elymniinæ, though structurally similar as regards their venation, the species, as here assigned to each genus, not only exhibit, to a certain degree, the particular form of the wings, but in their colours, and also their peculiar style of markings, they accord with the group of protected butterflies, of which, respectively,

they are mimics—the species of *Elymnias* and of *Melyniias*, agreeing with certain species of *Limnaina* and *Euplœina*—those of *Bruasa* also with certain *Elplœina*—those of *Mimadelias* with certain *Pierinæ*—those of *Agrusia* with certain *Nymphalinæ*, and the typical species of the Malayan genus, *Dyetis*, with certain *Morphinæ*.

FOOD PLANTS OF CATERPILLAR.—So far as yet known, the caterpillar of only two of the genera, here described, have been discovered, and these are recorded as feeding upon plants of different Orders, namely—the caterpillar of *Elymnias* (*undularis*, etc.), upon PALMACEÆ, and those of *Mimadelias* (*Godferyi*) upon ORCHIDACEÆ.

HABITS OF IMAGO.—“The Elymniinæ are forest-loving insects, with a weak flight, frequenting dense undergrowth or bush jungle, and usually avoiding the open sunshine; they are all tropical or subtropical insects” (Butt. of India, 264).

THE SPECIES OF ELYMNIINÆ ARE ALL MIMETIC.—The species of this sub-family possess a highly mimetic character, and are, I believe, without exception, mimics, both in general form of their wings, and in the colours and markings of the upperside, of certain ‘protected’ or ‘inedible’ species of butterflies common to the district they inhabit.

Of the commonly known species, the female of *Elymnias undularis*, and of its immediate allies, the species which they mimic is the Limnaine butterfly, *Salatura genutia*,¹ the Malayan *Elym. discrepans*, in both sexes, mimic the Euplœine butterfly, *Calliplœa Ledereri*, and the *Elym. panthera* (Dusara Horsf.), the Euplœine butterfly, *Vadebra sepulchralis*. In the genus *Melyniias* (*Timandra*, and its Malayan allies, *Lais*, *Ceryx*, etc., both sexes mimic the Limnaine genera *Parantica*,² and *Caduga*; the *Melyniias Malelas*, in both sexes, mimic the corresponding differently-marked sexes of the Euplœine butterfly, *Trepsichrois Linnæi*,³ and in the allied *Melyniias Saueri* the male mimics the same sex of *Trepsichrois*, but the female mimics quite a different butterfly, namely the Limnaine genus *Hestia* (probably *H. Agamarschana*,⁴ or *H. Donovanii*); the *Melyniias Patna*, both sexes mimic the Euplœine butterfly, *Stictoplœa binotata*⁵ or *Isamia splendens*; and the *Melyniias Singala* probably mimics the Euplœine butterfly, *Pademna Sinhala*.⁶ In the genus *Bruasa*, the male of *B. Penanga* and probably also that of *B. Chelensis* mimics the Euplœine butterfly, *Calliplœa Ledereri*.⁷ In the genus *Mimadelias*, the *M. Vasudera*, in both sexes, mimic the Pierine butterfly, *Delias pasithœæ*, and the allied Malayan *M. Godferyi* the *Delias Dione*. In the genus *Agrusia*, the *A. Andersonii*, *A. Esaca*, and its allies, the males are excellent mimics of the ‘protected’ section of the

¹ See vol. i. pl. 10, figs. 1, b, c.

² See vol. i. plates 13 and 14.

³ See vol. i. pl. 35.

⁴ See vol. i. pl. 4, fig. 1.

⁵ See vol. i. pl. 53, figs. 2, 2a.

⁶ See vol. i. pl. 47, figs. 3, 3a.

⁷ See vol. i. pl. 36, figs. 1, 1a.

Nymphalid butterflies of the genus *Euthalia*, of which *lepilea*, *Andersonii*, *Diardii*, *Ambalika*, etc., are representatives.

KEY TO THE INDIAN GENERA OF ELYMNIINÆ.

1. Forewing rather short, subtriangular.

SECTION A. *Forewing* of male possessing a *glandular patch* situated between the base of median and submedian vein. *Hindwing* with a very slight caudate angle to exterior margin.

SECTION B. *Forewing* of male not possessing the glandular patch. *Hindwing* caudate ELYMNIAS.

2. Forewing elongated, triangular. *Hindwing* somewhat more or less caudate MELYNIAS.

3. Forewing elongated, subtriangular, exterior margins very slightly sinuous. *Hindwing* not caudate BRUASA.

4. Wings short, very broad, exterior margins uniformly scalloped. *Forewing* of male with a *longitudinal fold on posterior margin covering a glandular patch and an erectile tuft of hairs*. *Hindwing* convex MIMADELIAS.

5. Wings very short and broad, exterior margins extremely slightly sinuous AGRUSIA.

Genus ELYMNIAS.

Elymnias, Hübner, verz. bek. Schmett. p. 37 (1816); *id.* Zütrage, Samml. Exot. Schmett. figs. 37, 38 (1818). Moore, Catal. Lep. Mus. E. I. Compy. i. p. 236 (1857); *id.* Lep. of Ceylon, i. p. 25 (1880). Butler, Catal. Fabr. Lep. B. M. p. 38 (1869); Proc. Zool. Soc. Lond. 1871, p. 519. Distant, Rhop. Malay. p. 58 (1882). Marshall and de Nicéville, Butt. of India, etc. i. p. 264 (1883).

Melanitis (part) Fabricius, Illigers' Mag. 1807, p. 282.

Melanitis, Horsfield (1829); Boisduval (1833); Doubleday and Westwood, Gen. D. Lep. p. 403 (1851).

Biblis (part) Godart, Enc. Méth. ix. p. 325 (1819).

IMAGO.—Male. Wings moderately broad. *Forewing* subtriangular; costa very convex, apex acute, exterior margin very slightly oblique and sinuous, posterior margin slightly convex towards the base; costal vein much swollen at the base and terminating near middle of the costa; subcostal arched near its base, the first and second branches emitted before end of the cell; the cell short and very broad; discocellulars inwardly oblique, upper angled close to the subcostal, lower radial from slight angle above the middle; the two upper median branches emitted from end of the cell, the upper median much arched; submedian bent close to the median at the base, thence slightly recurving to the posterior angle. On the upperside between the basal interspace of the lower median and the submedian is an inconspicuous rounded *black glandular patch*, which, as seen under the microscope, is clothed with laxly-raised short black scales,* with many-toothed tips, and by longer

* We possess three specimens, from different localities, in which these scales have been removed from the patch on *both wings* during the life of the insect, thus leaving the entire patch quite bare.

narrower bidentate-tipt scales, *but no androconia visible*; on the underside of the wing is a glossy nacrescent patch below the base of the cell, which is clothed with broad ordinary scales, and a restricted portion below the submedian is clothed with laxly-packed raised narrow oval scales. *Hindwing* short, obtusely triangularly-ovate; anterior margin extremely convex, apex pointed, exterior margin convex, sinuous, and with a broader caudate angle at end of upper median; anal angle obtusely pointed; costal vein short, looped at its base, forming a false pre-discoidal cell, emitting a short spur towards the base of the costa; cell short, very broad; upper subcostal emitted at one-half before end of the cell, and terminating on middle of the costa, second subcostal terminating at the angle; discocellulars erect, lower concave, radial from angle above the middle; the two upper median branches emitted from end of the cell, lower median at more than one-third before the end; submedian vein straight; internal vein recurved; on the upperside is a *glandular patch* situated *within the upper half of the cell*, and is *overlapped by a tuft of long erectile-hairs* arising from along its lower edge, the patch being clothed with very densely-packed laxly-raised scales, which are of equal width throughout, and have obtuse rounded tip and base, and with numerous short, slender, nearly fusiform blackish scales (androconia) with an acute point at each end. *Body* moderately robust; palpi elongate, porrect, slender, very compactly clothed beneath with adpressed scales, and pilose above; front legs hairy, middle and hindlegs naked; antennæ with a slender indistinctly formed club; eyes naked.

ADULT CATERPILLAR.—Somewhat fusiform, minutely pubescent; head armed with two erect divergent setose processes; anal segment also armed with two longer, slender, hindwardly-projected setose processes. Feeds on *Palmaceæ*.

CHRYSA LIS.—Suspended by the tail; head truncate, with two small pointed processes in front, and a similar thoracic process above.

TYPE.—*E. undularis*.

Of the species enumerated by Hübner (Verz. p. 37), under *Elymnius*, viz., *Protogenia*, *Jynx*, *undularis*, and *Lais*, *Jynx* is figured as an *Elymnius*, by Hübner (Zütrage, figs. 37, 38). This group, therefore, becomes the typical one, and not that represented by *Lais*.

ELYMNIAS UNDULARIS (Plate 133, figs. 1, larva, 1a, b, c, ♂ ♀).

Papilio undularis, Drury, *Illust. Exot. Ins.* ii. pl. 10, figs. 1, 2, ♂ (1773). Fabricius, *Spec. Ins.* App. p. 504 (1781); *Ent. Syst.* iii. i. p. 127 (1793).

Biblis undularis, Godart, *Enc. Méth.* ix. p. 326 (1819).

Melanitis undularis, Westwood, *Gen. of D. Lep.* p. 404 (1851).

Elymnius undularis, Hübner, *Verz. bek. Schmett.* p. 37 (1816). Moore, *Catal. Lep. Mus. E. I.*

Compy. i. p. 237 (1857). Butler, Catal. Fabrician Lep. Brit. Mus. p. 38 (1869); Proc. Zool. Soc. Lond. 1871, p. 520. Marshall and de Nicéville, Butt. of India, etc. i. p. 266, pl. xvii. fig. 59, ♂ ♀ (1883). Staudinger, Exot. Schmett. p. 237, pl. 86, ♂ ♀.

IMAGO.—Male. Upperside. *Forewing* dark, velvety; purpurescent blackish-brown, in fresh specimens somewhat tinged with blue, and the edge of the outer margin with purple; in older specimens the ground-colour is generally more or less dark chestnut-brown; some blue irrorated-strigæ along the costal margin, and an excurved subapical series of small violet-blue irrorated spots disposed between the veinlets, the spots elongated near the apex, those below rounded; between the basal interspace of the median and submedian vein is an inconspicuous rounded impressed *black glandular patch*, which is clothed with short broad many-pointed tipt black scales, and with some longer narrower tridentate-tipt scales. *Hindwing* somewhat paler, purpurescent blackish-brown, or chestnut-brown, the outer border being broadly suffused chestnut-red, fading to dull dark ferruginous, which is sometimes traversed by a submarginal series of very small more-or-less pale red or white spots; the veins across the red band also sometimes being black lined; within the upper base of the cell is an elongated *glandular patch*, which is clothed with very densely-packed laxly-raised scales, which are of equal width throughout and have obtuse rounded tip and base, and with numerous short fusiform slender blackish scales (*androconia*) with an acute point at each end, the patch being also overlapped from its posterior edge by a *tuft of long blackish hairs*. Cilia alternately edged with white. Underside deep chestnut-red, with numerous wavy transverse lilacine-cinereous strigæ of more-or-less intensity, these strigæ being sparsely-disposed on the basal two-thirds, and are generally densely-packed and confluent on the outer border, where their density forms a more-or-less defined paler nebulous border, the division generally being indicated by the angulated curved edge of the dark basal area. On the forewing is a prominent triangular costal patch before the apex, which is densely covered with lilacine cinereous strigæ, and on the middle of the discocellular veinlet is a minute whitish speckled-spot; on the *hindwing*, also, there is a more or less prominent subcostal white spot above end of the cell, and occasionally a submarginal series of white points are more or less apparent. *Body* beneath, legs, and palpi paler brown; legs beneath cinereous-brown; antennæ brown with a pale tip.

Female. Upperside coloured and marked somewhat after the style of *Salatura Genutia*. *Forewing* with the costal border from the base, the outer half, and below the submedian vein blackish-brown, the medial area from the lower base of the cell being ochreous; along the base of the costa are some violescent-white strigæ, and before the apex a broad violescent-white subapical band intersected by the dark veins, below which are three submarginal decreasing white rounded spots. *Hindwing* with the costal border and outer margin broadly dark brown, the latter

traversed by a submarginal series of four large white round spots, the inner basal area being ochreous, intersected by the brown radial and median veinlets. Underside paler and more suffused chestnut-red than in the male, the basal area of an ochreous tint, with numerous paler ochreous or cinerescent-ochreous transverse strigæ, which are very broad and are palest on the lower basal area of the forewing; the costal border, apical patch and outer border of the forewing, and outer border of the hindwing, more or less thickly covered with transverse lilacine-white, or ochreous-white, strigæ; the subcostal white spot on hindwing more or less prominent, or sometimes absent.

Expanse, ♂ $2\frac{8}{10}$ to $3\frac{2}{10}$, ♀ $3\frac{2}{10}$ to $3\frac{5}{10}$ inches.

ADULT CATERPILLAR.—Elongate, fusiform, setose; green, with longitudinal dorsal and lateral yellow lines, and a subdorsal row of yellow elongated yellow spots which are centred with red and posteriorly edged with blue; head brownish, armed with two erect brownish setose processes; anal segment also with two red slender hindward-projecting processes. (Described from a drawing reproduced on our plate, made in Allipur, Lower Bengal, by the late Mr. Arthur Grote's native artist.)

CHRYSLIS.—Similar to *E. fraterna* and *E. caudata*.

HABITAT.—Western and Eastern Himalayas; Assam; Eastern and Lower Bengal; Central India.

The female of *E. undularis* is an excellent mimic of the common Limnaine butterfly, *Salatura Genutia*.*

DISTRIBUTION.—“This is the common Elymniias of Northern India. It is common in the warm valleys of the outer Himalayas, as far west as Masuri. In Bengal, where the rainfall is heavy, it extends into the plains, and is found in Assam, Silhet, Eastern Bengal, and along the East Coast as far South as Rajamundry on the Godaveri, and it also occurs in the Deccan. It affects bush jungle and shady undergrowth” (Butt. Ind. 267). Mr. W. Doherty obtained it in Kumaon at “Ranibagh at the foot of the outer hills, at 1000 feet elevation” (J. A. S. Beng. 1886, 120). Mr. H. J. Elwes records it as being “found in Sikkim from the Terai up to 3000 feet more or less commonly at all seasons of the year” (Tr. Ent. Soc. 1888, 330). Mr. J. Wood-Mason “obtained twenty-seven males and two females in the forests around Silcurei, in Cachar, between April and August, being most common in June and July. The males emit a strong odour resembling vanilla, but the females are scentless” (J. A. S. Beng. 1887, 352). The late Capt. Mortimer Slater found it “not uncommon at Dacca, flying in a weak, hovering manner, generally over the damp pits formerly used by the muslin manufacturers” (MS. Notes). It is “very common at Calcutta, settling on the

* See vol. i. Plate 10, figs. 1b, c.

trunks of the *Corypha*" (Capt. Chaumette, Ent. Mo. Mag. 1865, 38). Mr. J. Rothney records the "male common and the female rare at Barrackpur, near Calcutta, settling in dense foliage close to the trunk" (Ent. Mo. Mag. 1882, 34). Mr. L. de Nicéville also found it "a common species in Calcutta, the larva feeding on Palmaceæ" (J. A. S. Beng. 1885, 43). The late Mr. A. Grote found the larva at Allipur in the district of Calcutta, feeding on the Rattan and on *Corypha*. (MS. Notes.) In Orissa, it is recorded by Mr. Taylor (List, p. 3) as "not common at Khurda."

Of the illustrations on our Plate 133, fig. 1 is a reproduction of the original drawing of the larva found at Allipur, by Mr. A. Grote, now in our possession; and figs. 1a, b, c, represent the male and female.

ELYMNIAS TINCTORIA (Plate 133, figs. 2, 2a, b, ♂ ♀).

Elymnias tinctoria, Moore, Proc. Zool. Soc. Lond. 1878, p. 826, ♂. Marshall and de Nicéville, Butt. of India, etc. i. p. 267 (1883). Moore, Journ. Linn. Soc. Lond. Zool. 1888, p. 32.

IMAGO.—Male. Upperside dark purpurescent bluish-black. *Forewing* with the excurved series of blue spots larger and broader throughout than in typical *E. undularis*, in some the upper spots are conjoined, and the lower touch the outer margin. *Hindwing* with the outer border dusky, suffused purplish chestnut-red, the submarginal spots indistinctly whitish, or the two upper pale blue.

Female. Upperside similar to *E. undularis*, except that on the forewing the bluish-black costal and outer border is comparatively broader, and consequently, the ochreous inner-area more restricted; the lower white spots are smaller, and the three submarginal spots on the hindwing are also smaller. Undersides of both sexes similar.

Expanse, ♂ $2\frac{2}{10}$ to 3, ♀ 3 to $3\frac{2}{10}$ inches.

HABITAT.—Burma; Tenasserim.

The female of *E. tinctoria* is more like that sex of the Javan form (*E. Protopenia*) than to *E. undularis*, in the broad breadth of the dark borders, but the Javan females have even a broader border to the forewing, than in *tinctoria*, and consequently the ochreous area is still more restricted, and, it may be noted, that the tint of the ochreous colour on both wings of the Javan female is more intense and dusky, agreeing in this intensity of colour, with that occurring in the Javan Euploëid, *Salatura intensa*, and of which the female of *E. Protopenia* is a mimic.

DISTRIBUTION.—"Very common throughout Burma, at all times" (Major Adamson, List, p. 10). Specimens in Capt. E. Y. Watson's collections were captured during the Chin-Lushai Expedition of 1889-90, at "Pauk Yaw, in October and November, and at Tilin from November to May" (Journ. Bombay N. H. S. 1891, 36). Mr.

F. E. Dempster obtained it at Loughut during the Chin-Lushai Expedition of 1889-90, only on low ground up to 1000 feet (J. Bombay N. H. Soc. 1890, p. 2). Capt. Watson also obtained specimens at Rangoon in August, Sittang, Tenasserim, in January, Beeling in April, Toungoo in March, Kyaikto, Tenasserim, in February, and in the Karen Hills, 500 to 1500 feet, in December. "It is very common in Eastern Karenee at 800 feet, in January" (Dr. Manders, Tr. Ent. Soc. 1890, 519). Mr. Ossian Limborg (P. Z. S. 1878, 826) obtained it in Upper Tenasserim, at "Meetan, 3000 feet, in April, at Moolai, 3000 to 6000 feet, and at Taoo, 3500 feet." Capt. Bingham took it in the Thoungyeen forests. Signor Leonardo Fea obtained it in Bhamo in September. Mr. H. J. Elwes (J. A. S. Beng. 1887, 419) records it from "Tavoy in March." Dr. J. Anderson (Journ. Linn. Soc. Lond. Zool. 1888, 32) obtained it in "Mergui in December, and on King's Island in January.

ELYMNIAS FRATERNA (Plate 134, figs. 1, larva and pupa, 1a, b, c, d, e, ♂ ♀).

Elymnias fraterna, Butler, Proc. Zool. Soc. Lond. 1871, p. 520, pl. 42, fig. 3, ♂. Moore, Lep. of Ceylon, i. p. 25, pl. 13, figs. 1a, b, ♂ ♀ (1880). Marshall and de Nicéville, Butt. of India, etc. i. p. 268 (1883).

IMAGO.—Male. Upperside dark purple-brown. *Forewing* with the exterior margin slightly tinged with purplish-ochreous; crossed by a very obscurely-defined excurved subapical series of very small purplish-blue spots. *Hindwing* with a broad pale fulvous marginal band, and a submarginal series of paler spots. Underside dark chestnut-red; a triangular apical patch on forewing and the outer borders of both wings densely covered with confluent brownish-grey strigæ; the basal areas also with less numerous but more regularly disposed strigæ; a distinct bluish-white spot on anterior border of hindwing.

Female. Upperside blackish purple-brown. *Forewing* with the basal and discal area rich ochreous; a subapical oblique purplish-white vein-divided fascia and three lower submarginal spots, having the strigæ on the underside visible by semi-transparency. *Hindwing* with the basal and discal area rich ochreous, the branches of the median vein and the abdominal area grey speckled, or the entire ochreous area is more or less covered with pale transverse strigæ; a submarginal series of four large bluish-white round spots. Underside as in the male, but paler, the basal area slightly ochreous, and the strigæ on the borders more dense, prominent, and ochreous-white with ill-defined submarginal round spots; costal bluish-white spot prominent.

Expanse, ♂ $2\frac{6}{10}$ to $2\frac{8}{10}$, ♀ 3 to $3\frac{2}{10}$ inches.

ADULT CATERPILLAR.—Elongated; thickened in the middle, pubescent; head small, yellow, surmounted by two erect pink pubescent processes, anal segment also with hindwardly-divergent processes; colour green, with longitudinal yellow lines,

the subdorsal ornamented with some chrome-yellow spots, and the fifth to eighth segments with a red and blue spot. Feeds on Palmaceæ.

CHRYsalis.—Green, with longitudinal yellow streaks bordered by red streaks or spots; head and thorax truncate in front, with three short tubercles.

HABITAT.—Ceylon.

The male of *E. fraterna* is a much paler and differently coloured insect, on the upperside, from the same sex of *E. undularis*; the female also having broader and darker borders on the upperside, and the hindwing of the latter sex has the ochreous area always more or less partially or entirely covered with pale strigæ. The female of this species is also a mimic of the Limnaine butterfly, *Salatura Genutia*.

DISTRIBUTION.—According to Capt. Wade “it occurs at Galle and also about Kandy.” Mr. F. M. Mackwood notes that it is a “low country species, and generally abundant.” Capt. Yerbury recently obtained it at Trincomali, in July and October.

ELYMNIA CAUDATA (Plate 135, figs. 1, 1a, larva and pupæ, 1b, c, d, ♂ ♀).

Elymnias caudata, Butler, Proc. Zool. Soc. Lond. 1871, p. 520, pl. 42, fig. 4, ♂. Marshall and de Nicéville, Butt. of India, etc. i. p. 270 (1883). Hampson, Journ. Asiatic Soc. Bengal, 1888, p. 351. Davidson and Aitken, Journ. Bombay Nat. Hist. Soc. 1890, p. 268, pl. A. figs. 2, 2a, larva and pupa.

IMAGO.—Male. Upperside. *Forewing* dark velvety purple-brown, bluish-black in some lights; with an oblique subapical bluish-white band and three lower submarginal oval spots, the upper spot being disposed inwardly-oblique, and the lower spot outwardly-oblique, the strigæ of the underside being visible by semi-transparency on the band; *no glandular patch*. *Hindwing* paler purple-brown, darkest at the base; *glandular tuft* within the cell cinereous-brown; crossed by a more or less broad discal fulvous band, which is intersected by the brown veins and generally traversed by small paler or sometimes nearly white submarginal spots, and occasionally the dark strigæ of the underside are visible on the band. Underside dark chestnut-brown, the basal area with several very obscurely-defined brownish-grey strigæ. *Forewing* with a prominent apical triangular patch, and an irregular submarginal fascia composed of confluent pinkish cinereous-white strigæ. *Hindwing* with a broad outer fascia or the entire border very densely covered with more or less confluent pinkish cinereous-white strigæ; the ordinary submarginal spots being indicated by small dark brown or white centred points. *Body* beneath, palpi, and legs pale brown; legs beneath cinereous; antennæ dark brown with a pale ochreous tip.

Female. Upperside with paler purplish-brown outer borders, the inner area dull ochreous. *Forewing* with the subapical bluish-white band and lower spots as in the male. *Hindwing* with the costal and outer border, and the veins, broadly paler brown; the inner area, and streaks between the veins obscurely merging into the

submarginal spots, being pale dull ochreous, the spots sometimes being almost white. Underside much paler than in the male, but marked the same.

Expanse, ♂ $2\frac{8}{10}$ to $3\frac{4}{10}$, ♀ $3\frac{2}{10}$ to $3\frac{6}{10}$ inches.

ADULT CATERPILLAR.—“Fusiform, slender, transversely rugose and clothed with short stout bristles just visible to the naked eye; head large, surmounted by two stout, straight processes, sloping backwards, which are slightly branched at their end; a pair of long straight caudal processes, setose like the body; colour of the body bright green, with two dorsal and two lateral longitudinal yellow lines, more or less distinct, and a subdorsal row—one on each side—of large yellow spots tinged with pink and sometimes tipped with black; head dark brown, with a yellow cheek stripe and frontal line. Feeds on *Palmaceæ* (Cocoanut and Betel-nut Palms).”

CHRYsalis.—“Suspended by the tail only, but in a rigidly horizontal position; regular, with the exception of two small pointed processes from the head and an acute thoracic process above them; colour bright green, ornamented with four irregular rows of large yellow spots bordered with red” (Davidson and Aitken, *l. c.* 268).

HABITAT.—South India.

DISTRIBUTION.—“This has only been found in the South of Peninsular India. Mr. H. S. Fergusson took both sexes on the Ashambo Hills, Travancore, where it is fairly common in April and May. The Indian Museum, Calcutta, has it from Calicut, the Wynaad, and the Kadur District in Mysore” (Butt. Ind. 271). We have several specimens, from Calicut and the Wynaad, Malabar, captured by the late Dr. Bayne Reed, and from the Nilgiris. Mr. G. F. Hampson (*J. A. S. Beng.* 1888, 351) records it as being “rare in the Bamboo jungles at the foot of the Northern and Western Slopes of the Nilgiris.” Messrs. Davidson and Aitken (*Journ. Bombay Nat. Hist. Soc.* 1890, 268) obtained the larvæ and several pupæ on the Cocoanut and Betel-nut palms, in October. The late Mr. S. N. Ward obtained the type specimens at Calicut, and “found the larvæ feeding on the Soopari, (Areca-nut Palm) in September, October and December, both above and below the Ghats” (MS. Notes).

Of our illustrations of this species on Plate 135, fig. 1 is a copy of Mr. S. N. Ward's drawing of the larva and pupa; fig. 1a, a reproduction of Mr. Aitken's figure in the *Journal Bombay Nat. Hist. Soc.* 1890, and figs. 1b, c, d, the male and female.

ELYMNIAS COTTONIS (Plate 136, figs. 1, 1a, b, ♂ ♀).

Melanitis Cottonis, Hewitson, *Annals of Nat. Hist.* 1874, p. 358.

Elymnia Cottonis, Moore, *Proc. Zool. Soc.* 1877, p. 583. Wood-Mason and de Nicéville, *Journ. Asiatic Soc. Bengal*, 1881, p. 245. Marshall and de Nicéville, *Butt. of India*, etc. i. p. 268 (1883).

IMAGO.—Male. Upperside rich dark velvety purple-brown, almost black in some lights; cilia alternately edged with cinereous-white. *Forewing* with the costa more or less obscurely flecked with bluish strigæ, the outer margin with a suffused deep purple-red band, the inner edge of which is anteriorly incurved to the costa; the *black glandular patch* below the median vein visible. *Hindwing* with a similar purple-red marginal band; the *glandular tuft* within the cell cinereous black. Underside dark chestnut-red, the basal area darkest and very sparsely covered with obscure brownish-grey strigæ, the outer margins and the apical patch on forewing more numerous covered with broader more or less confluent plumbeous strigæ, and forming an ill-defined fascia on the former; on the hindwing is a prominent white costal spot, and sometimes a submarginal series of white or bluish-white points. Female. Upperside paler, with the outer marginal band also paler. *Forewing* with the inner area of the marginal band traversed by an excurved series of obscure ochreous spots. *Hindwing* with the band also traversed by two or three small pale ochreous submarginal spots. Underside paler than in the male, the strigæ on basal area the same, those on the triangular costal patch and outer borders brighter and lilacine-grey. *Hindwing* with the costal white spot prominent, and the submarginal white points also distinct.

Expanse, ♂ $2\frac{7}{10}$ to 3, ♀ $3\frac{2}{10}$ inches.

HABITAT.—South Andamans.

This species in all probability is a mimic of the Euploëine butterfly, *Menama simulatrix*, a common butterfly in South Andamans.

DISTRIBUTION.—“This species is apparently common at Port Blair, S. Andamans, where it was taken by Mr. F. de Roepstorff in the months from April to August” (Butt. of India, 269).

ELYMNIAS MIMUS (Plate 136, figs. 2, 2a, b, ♂ ♀).

Elymnias mimus, Wood-Mason and de Nicéville, Journ. Asiatic Soc. Bengal, 1881, p. 230; *id.* 1882, p. 16, pl. 3, figs. 3, 4, ♂ ♀. Marshall and de Nicéville, Butt. of India, etc. i. p. 271 (1883).

Elymnias dolorosa, Butler, Ent. Monthly Mag. 1883, p. 53.

IMAGO.—Male. Upperside dark olivescient umber-brown. *Forewing* with an obscurely paler olivescient cinereous-brown excurved marginal band; *no glandular patch*. *Hindwing* with a similar paler marginal border, and sometimes one or two obscure small dusky-black submarginal spots are present; *glandular tuft* within base of cell blackish. Cilia alternately whitish. Underside pale chestnut-brown; the basal area of both wings densely covered with broad transverse dark chestnut-brown strigæ, and the outer margins with more slender and sparsely-disposed strigæ. *Forewing* with an obscure ordinary costal patch and the broad posterior margin dull cinerescient-brown. *Hindwing* with the submarginal area dull

cinereous-brown, traversed by six suboval black ocelli, the first upper and the fifth large, the others much smaller, and sometimes the third is obsolete, and the two last are geminated, the first and fifth with a violet-white speckled oval pupil, the others with a slender pupil, the fifth and the geminated anal pair also having a slightly-defined pale-ochreous outer ring; below the costal border is another but more prominent white pupilled black spot.

Female. Upperside much lighter brown, with the marginal paler cinereous-brown band broader. *Forewing* with some pale strigæ along base of the costa. *Hindwing* with three lower submarginal dusky-black ocelli, as on underside, apparent. Underside paler, with the dark chestnut-brown strigæ less confluent and permitting more of the ground colour to be seen; the subcostal white-pupilled ocellus on hindwing larger, and with a more diffused black border, the upper submarginal ocellus with a rudimentary white pupil.

Expanse, ♂ $2\frac{7}{10}$, ♀ $2\frac{9}{10}$ inches.

HABITAT.—Nicobar Islands; Nias Island.

This species, "in all probability, mimics the Euploëine butterfly, *Crastia Camorta*, a species which abounds in all the islands of the Nicobars" (Butt. Ind. 272).

DISTRIBUTION.—Specimens have been received in the Indian Museum, Calcutta, from Mr. F. de Roëpstorff, taken in Kar Nicobar, Pulo Koudul, Great Nicobar, Kamorta, Trinkutt, Teressa, and Katschall" (Butt. Ind. 272).

The type of *E. dolorosa* is described by Mr. A. G. Butler from Nias Island, Sumatra.

Of our illustrations of this species on Plate 136, figs. 2, a, b, are from the type specimens named *mimus* by Mr. Wood-Mason, which have been kindly lent for this purpose.

ELYMNIAS OBNUBILA (Plate 137, figs. 1, 1a, b, ♂ ♀).

Elymnias obnubila, Marshall and de Nicéville, Butt. of India, etc. i. p. 272 (1883). Moore, Journ.

Linn. Soc. Zool. 1886, p. 33, pl. 3, fig. 2, ♂.

IMAGO.—Male. Upperside dark velvety chestnut-brown, glossed with violet in certain lights; *Forewing* with a much paler chestnut-red excurved outer band; *no glandular patch*. *Hindwing* with a similar pale chestnut-red outer band, the *glandular tuft* brown. Underside numerously covered with dark chestnut-red strigæ, and intervening lilacine grey strigæ, which are most densely packed and broadest on the basal area, and are more slender on the outer half, the costal patch on forewing, and the submarginal areas being most densely covered with the lilacine grey strigæ. *Hindwing* with a submarginal series of six small black spots with silvery-white pupils, and a larger-pupilled subcostal spot.

Female larger; paler. Upperside with the pale marginal band much wider,

occupying on the hindwing the whole outer half; a submarginal series of four brown obsolescent dots. Underside also paler. *Hindwing* with the silvery subcostal spot larger, the rest of the ocelli smaller and imperfect, being reduced to blackish dots with white speckles on their inner edge.

Expanse, ♂ $2\frac{4}{10}$, ♀ 3 inches.

HABITAT.—Upper Tenasserim; Mergui Archipelago.

DISTRIBUTION.—“A female in Major Marshall’s collection was taken by Captain C. T. Bingham in the Thoungyeen forests, in Upper Tenasserim, in December” (Butt. Ind. 272). According to Mr. H. J. Elwes (P. Z. S. 1891, 269), Mr. W. Doherty found it rare in the “Karen Hills at about 2000 feet elevation, in April. Found also West of Bassein.”

Of this rare species a single male, now in the Indian Museum, Calcutta, was taken by Dr. J. Anderson (Journ. Linn. Soc. Zool. 1888, 33) at Thaing, King Island, Mergui Archipelago, in January. A male of this species, identical with the type, from the Island of Salanga, is in the British Museum collection.

Of our illustrations of this species on Plate 137, fig. 1, 1a is from the type male kindly lent from the Indian Museum, Calcutta, and fig. 1b the female taken by Mr. Doherty, obligingly lent for this purpose by Mr. Elwes.

ELYMNIAS DÆDALION (Plate 137, figs. 2, 2a, ♀).

Dyctis Dædalion, de Nicéville, Journ. Bombay Nat. Hist. Soc. 1890, p. 202, pl. D, fig. 4, ♀.

IMAGO.—“Female. Upperside. Both wings dull reddish-brown, almost fuscous; crossed by a broad pinkish-white band, beyond which the ground-colour is somewhat obscurely striated with paler. *Forewing* with the costa striated with white; the broad white band slightly outwardly-curved, commencing on the costa at the middle and decreasing in width to the anal angle, its lower portion sullied, especially at the edges. *Hindwing* with the broad discal white band extending from the anterior margin to the abdominal margin above the angle, widest in the middle, and traversed outwardly by a series of five round black spots. Underside. Both wings with the basal half dull castaneous-brown, coarsely striated with whitish, the discal fascia white, the outer margins coarsely striated with dark castaneous brown; the hindwing with the black spots as above, and a small bluish-centred costal spot between the base of the subcostal veins.

Expanse, $2\frac{6}{10}$ to $2\frac{8}{10}$ inches.

HABITAT.—Burma.

DISTRIBUTION.—“The type specimen was taken at Myitta, Burma, in January, and is in the Phayre Museum, Rangoon (de Nicéville, *l. c.* p. 203). Major C. H. E.

Adamson obtained a female at 'Tavoy, in August,' which was kindly lent for examination, and is referred to in his 'List of Burmese Butterflies, p. 10,' under the name of *Elym. Minus*.

This is nearest allied to the Bornean *Elym. Dara*, Distant (Ann. Nat. Hist. 1887, p. 50), the female of *Dædalion* differing, on the upperside, from the same sex of *Dara*, in the white band on the forewing being straighter and broader in its oblique-course from the costa to posterior angle; the band on the hindwing is also broader. On the underside, *Dædalion* has both bands as on upperside, and both are entirely free from strigæ.

INDO-MALAYAN allied species of ELYMNIAS.—*E. Protogenia* (Cramer, Pap. Exot. ii. pl. 189, figs. F, G, ♀; *id.* ii. pl. 25, figs. A, B, ♂ (1777). Horsfield, Catal. Lep. E. I. C. pl. 3, fig. 24; pl. 8, fig. 8 (1829). *Syn.* E. *Jynx*, Hübn. Zuträge Exot. Schmett. figs. 37, 38, ♂ (1818). Both sexes smaller than in the allied Indian species (*undularis*). In the male the curved series of blue spots on forewing above are generally smaller and longitudinally narrow, the underside more uniformly covered throughout with strigæ. Female with much broader dark-brown borders to the forewing, the dark marginal band on the hindwing being obsolescent posteriorly and with much smaller white spots. Expanse, ♂ $2\frac{6}{10}$ to $2\frac{8}{10}$, ♀ $2\frac{8}{10}$ to 3 inches. This is nearer to the Burmese species (*tinctoria*) than to the Indian (*undularis*), both in size and in the broader dark-brown borders of the upperside of the female. The Javan female has the ochreous colour on both wings more intense and dusky than in either *tinctoria* or *undularis*, coinciding, in this intensity of colour, with that occurring in the Javan Euploëine *Salatura intensa*, of which the female of *E. Protogenia* is a mimic. *Habitat.* Java.—*E. discrepans*, Distant, Rhop. Malayana, p. 60, pl. vi. figs. 2, 3, ♂ ♀ (1882). *Habitat.* Malay Peninsula; Penang.—*E. leucocyma* (Godart, Enc. Méth. ix. p. 326 (1819). Described by Godart as having "absolutely the appearance and shape of 'undularis,' the upperside blackish-brown, with a band of pale blue-violet spots on the border of forewing, and a row of ashy points on the border of hindwing. Underside deep brown, with a multitude of small greyish waves, more powdered on the hindwing than on the forewing." *Habitat.* Java.—*E. nigrescens*. Butler, P. Z. S. 1871, p. 520, pl. 42, fig. 1. Distant, Rhop. Malay. p. 61, pl. 6, fig. 1, ♀, pl. 9, fig. 1, ♀ (1882). *Habitat.* Malay Peninsula; Billiton; Borneo; Formosa.—*E. Hecate*. Butler, P. Z. S. 1871, p. 520, pl. 42, fig. 2. *Habitat.* Labuan, Borneo.—*E. congruens*, Semper, Reisen Philippen, Lep. i. p. 61, pl. xi. figs. 8, 9, 10, ♂ ♀ (1886). *Habitat.* Mindanao.—*E. Hainana*, Moore, P. Z. S. 1878, p. 696. *Habitat.* Hainan; Formosa.—*E. Panthera* (Fabricius, Mant. Ins. p. 39 (1787); Butler, Catal. Fabr. Lep. B. M. p. 38, pl. 2, fig. 7. *Syn.* M. *Dusara*, Horsfield, Catal. Lep. Mus. E. I. C. pl. 5, fig. 7 (1829). *Habitat.* Java.—*E. lutescens*, Butler, Ann. Nat. Hist. 1867, p. 404, pl. 9, fig. 10. Distant, Rhop. Malay. p. 62,

pl. 6, figs. 4, 5, ♂ ♀ (1882). *Habitat.* Malay Peninsula; Sumatra; Borneo.—*E. Dara*, Distant, Ann. Nat. Hist. 1887, p. 50. *Habitat.* N. Borneo.—*E. Albofasciata*, Staudinger, Iris, Deuts. Ent. Zeit. Lep. 1889, p. 39. *Habitat.* Palewan.—*E. Enganica*, Doherty, J. A. S. Beng. 1891, p. 24. *Habitat.* Engano Island, Sumatra.

Genus MELYNIAS.

Elymnias (part), Hubner Verz. p. 37 (1816). Moore, Catal. Lep. Mus. E. I. C. i, p. 236 (1857). Butler, P. Z. S. 1871, p. 519. Scudder Proc. Amer. Acad. A. Sci. Boston, 1875, 161. Distant, Rhop. Malay, p. 58 (1882). Marshall and de Nicéville, Butt. of India, etc. i. p. 264 (1883).

IMAGO.—Male. Forewing somewhat elongate, triangular; costa much arched, apex obtusely rounded, exterior margin oblique and scalloped, posterior margin slightly convex; costal vein swollen at the base; first and second subcostal emitted before end of the cell; the cell broad; discocellulars inwardly-oblique, lower concave; two upper medians originating from end of cell. *Hindwing* short, obtusely ovate, anterior margin regularly convex, exterior margin convex, scalloped and subcaudate at end of upper median; cell extending to nearly half the wing, rather narrow; discocellulars inwardly-oblique, much recurved, radial from above the middle; two upper medians from end of cell; *glandular patch* and *tuft within the cell*, as in *Elymnias*.

TYPE.—*M. Lais*.

The species of this genus are mimics of the Euplœine genera *Parantica*, *Caduga*, *Trepsichrois*, and *Hestia*.

MELYNIAS SINGALA (Plate 138, figs. 1, 1a, b, ♂ ♀).

Elymnias Singala, Moore, Proc. Zool. Soc. Lond. 1874, p. 568; *id.* Lep. of Ceylon, i. p. 26, pl. 13, figs. 2, 2a, ♂ ♀ (1880).

Dytis Singala, Marshall and de Nicéville, Butt. of India, etc. i. p. 277 (1883).

IMAGO.—Male. Upperside dark olivaceous purpurescent-brown; cilia alternated with pale olivescence-cinereous. *Forewing* with a marginal macular band formed of pale olive-grey speckled quadrate spots; a few olivescence-ochreous strigæ along the costa; *no glandular patch*. *Hindwing* with a broad submarginal band composed of transversely-disposed more or less confluent olive-grey strigæ; *glandular tuft* within cell cinerescence-brown. Underside paler purplish-brown; covered with blackish strigæ, which are most numerous on the basal half, and along the extreme outer margins; the submarginal area being broadly covered with densely packed pinkish-grey strigæ, forming a broad fascia which is more or less inwardly suffused

with olivescent-brown; on the hindwing is a submarginal series of small blackish points and a bluish-white apical spot situated between the subcostals.

Female brighter coloured, the marginal bands more prominent. Underside as in the male.

EXpanse, 3 to $3\frac{6}{10}$ inches.

HABITAT.—Ceylon.

This species is probably a mimic of the Euplœine butterfly *Pademna Sinhala*.

DISTRIBUTION.—“A scarce butterfly, except at the Peradeniya Gardens. The larva feeds on a species of palm-tree” (Mackwood MS. Notes).

MELYNIAS PEALII (Plate 138, figs. 2, 2a, b, ♂ ♀).

Elymnias Pealii, Wood-Mason, Annals of Nat. Hist. 1883, p. 62, pl. 2, figs. A, B, ♂.

Dyctis Peali, Marshall and de Nicéville, Butt. of India, etc. i. p. 276 (1883). Doherty, Journ. Asiatic Soc. Bengal, 1889, p. 124, pl. x. fig. 3, ♀.

IMAGO.—Male. Upperside purpurescent black, darkest basally, with the markings deep lavender-blue; cilia alternated with greyish-white. *Forewing* with an oblique subapical band and a continuous submarginal series of rather faint and diffused blotches, and the extreme apex lavender-blue; the costa also transversely striated with lavender-blue. *Hindwing* with a curved submarginal lavender-blue band, which is very prominent, and is composed of coarse strigæ extending from the apex to the lower median vein, and ends in a purple patch at the anal angle. Underside much as in *E. undularis* and its allies, but more richly coloured.

Female. “Upperside. Both wings tinted with blue instead of violet. *Forewing* with the subcostal band very obscure, the cell dark, the disc pale. *Hindwing* with a conspicuous rufous-orange anal spot occupying the entire breadth of the submedian interspace, the violet submarginal band of the male replaced by a broad bluish fascia extending over the disc to before the apex. Underside with the entire forewing, except the cell and outer margin clouded with large violet-blue strigæ, and so also is the apical and part of the discal area of the hindwing” (Doherty, *l. c.* p. 124).

EXpanse, ♂ $3\frac{2}{10}$, ♀ $3\frac{4}{10}$ inches.

HABITAT.—Assam.

DISTRIBUTION.—The male type specimen was “captured by Mr. S. E. Peal at Aideo, Sibsagar district, Assam” (W. Mason, *l. c.* p. 62). Mr. W. Doherty (J. A. S. Bengal, 1889, 124), records it from “Sadiya and Margherita, Upper Assam, between August and December.” According to Mr. H. J. Elwes (P. Z. S. 1891, 269), Mr. Doherty also took “a single specimen at Margherita in May.”

Of our illustrations of this species on Plate 138, figs. 2, 2a, b, male and female, are reproduced from the figures above quoted.

MELYNIAS TIMANDRA (Plate 139, figs. 1, 1a, b, c, ♂ ♀).

Elymnias Timandra, Wallace, Trans. Ent. Soc. Lond. 1869, p. 326. Butler, Proc. Zool. Soc. Lond. 1871, p. 522. Marshall and de Nicéville, Butt. of India, etc. i. p. 275 (1883).

IMAGO.—Male. Upperside dark purpurescent-brown. *Forewing* with some prominent bluish-grey strigæ at base of the costa, and some quadrate spots towards the apex; a virescent-blue or verditer-blue broad streak within the cell and a longitudinal streak disposed between the veins; the two upper streaks below the subcostal being slender, the next also slender but broadly lobate at end of the cell, the three next broadest at their inner end and somewhat lobate at their outer end, the posterior margin also with a narrow streak. *Hindwing* with a similarly-disposed but much paler and less sharply defined streak between the veins, the outer streaks broadest at their discal end, the ends being indented, and are each opposed to an opposite submarginal lunular-spot, these streaks and spots being mottled with brown speckles; *glandular tuft* cinereous-brown. Underside densely covered with dark purplish-brown transverse strigæ, and intervening purpurescent-cinereous strigæ, the dark strigæ most dense and more confluent on the basal half and the outer margin, the pale strigæ most dense and confluent on the discal area. *Thorax* and abdomen above speckled with verditer-blue scales; spots on the head above, collar, and sides of palpi whitish; antennæ brown above, ochreous beneath.

Female. Upperside paler brown, the markings as in male; those on the forewing paler and of a violaceous-blue, paling to ochreous-cinereous posteriorly, and those on the hindwing also ochreous-cinereous. Underside less densely but more uniformly covered with slender dark-brown strigæ and broader confluent purpurescent-white strigæ.

Expanse, ♂ 3 to $3\frac{2}{10}$, ♀ $3\frac{6}{10}$ inches.

HABITAT.—Sikkim; Silhet; Arakan; Tenasserim.

This species is a mimic of the Limnaine butterfly, *Parantica Aglea*.*

DISTRIBUTION.—Mr. H. J. Elwes (Tr. Ent. Soc. 1888, 321) records a "single specimen of the female, apparently agreeing with *Timandra*, taken in Sikkim by Mr. Otto Moller's collector at Singla, in April, 1887." The late W. S. Atkinson obtained it in Silhet. "The Indian Museum, Calcutta, has it from Silhet. Capt. Bingham took a male in the Donat range in Tenasserim in April, and one female was taken at Kanhlete in September, by Major Adamson" (Butt. Ind. 275). Obtained by

* See vol. i. pl. 13.

Major C. H. E. Adamson in "Arakan and Tenasserim in September, February, April and May, but it is very rare in Burma" (List of Burmese Butt., p. 10). Mr. A. R. Wallace records it from "Moulmein" (Tr. Ent. Soc. 1869, 326).

MELYNIAS MALELAS (Plate 140, figs. 1, 1a, b, ♂ ♀).

Melanitis Malelas, Hewitson, Exot. Butt. iii. *mel.* pl. 1, figs. 6, 7, ♂ (1863).

Elymnias Malelas, Wallace, Trans. Ent. Soc. Lond. 1869, p. 327.

Melanitis leucocyma, Boisduval; Doubleday, Catal. Lep. Brit. Mus. pt. i. p. 144 (1844), Westwood, Gen. D. Lep. p. 404 (1851) *nec Godart*.*

Elymnias leucocyma, Moore, Catal. Lep. Mus. E. I. Compy. i. p. 238 (1857). Wallace, Trans. Ent. Soc. 1869, p. 326. Butler, Proc. Zool. Soc. 1871, p. 522. Marshall and de Nicéville, Butt. of India, etc. i. p. 273, pl. xvii. fig. 60, ♂ ♀ (1883).

IMAGO.—Male. Upperside dark velvety blackish purple-brown. Cilia alternately edged with white. *Forewing* darkest, the outer two-thirds brilliantly glossed with steel-blue in some lights; costal edge with several short pale-blue strigæ; an excurved submarginal series of violet-blue spots, of which there are five, the lower being rounded, the two upper oval and longer; sometimes an incipient slender subcostal upper spot is also slightly indicated; three similar blue smaller spots also on the disc, another just beyond end of the cell, and a more or less defined slender speckled streak extending to near each of the upper outer spots, the lowest and sometimes the middle spot being slender and extending towards the outer lower spots. *Hindwing* paler externally, with a purpurescent tinge; with, or without, an obscure submarginal series of small violet-grey speckled lunules; the *basal tuft of hairs* cinereous-brown. Underside uniformly paler brown, undulated with short transverse cinereous-ochreous strigæ, which are most densely disposed externally and more or less obsolescent, or absent basally; the costa of both wings being also more prominently edged with whiter strigæ, and the base of the hindwing with three superposed white spots. *Head* above, and thorax beneath spotted with white; collar beneath also white; clothing of palpi above and beneath tipt with white; legs white speckled; antennæ brown.

Female. Upperside paler. *Forewing* as in the male, except that the glossy blue

* Godart's *leucocyma* (Enc. Méth. ix. p. 325) is described by him as having "absolutely the appearance and shape of '*undularis*,' the upperside of the wings of a blackish-brown, with a band of pale blue-violet spots on border of the forewing, and a row of ashy points on the border of the hindwing. Underside deep brown, with a multitude of small greyish-waves, more powdered on the hindwing than on the forewing. *Habitat*, Java." I am indebted to Mr. P. C. T. Snellen, of Rotterdam, for directing my attention to Godart's species (in a letter dated Feb. 2. 1890), wherein he says that "*Leucocyma* of Godart is not found in Java, where only the typical *undularis* form with its very different female occurs. I have *leucocyma* from Sumatra, Banca, Billiton, and Flores, the female resembling the male."

area is confined to the outer half, the spots much paler and the lower whiter, or mostly white, with a pale ochreous-cinereous speckled-streak extending from the lower outer spot to the base, and a much less defined narrow similar streak from the lower discal spot. *Hindwing* with all the interspaces marked with transverse ochreous-cinereous strigæ, these strigæ forming a more or less confluent longitudinal streak between the veins. Underside also paler than in the male; markings the same, except that the strigæ are much paler and wider.

Expanse, ♂ $3\frac{6}{10}$ to $3\frac{8}{10}$, ♀ $3\frac{8}{10}$ to $4\frac{2}{10}$ inches.

HABITAT.—Western and Eastern Himalayas; Assam; Cachar; Silhet; Burma.

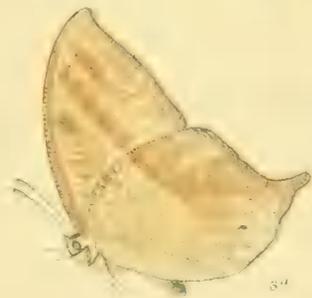
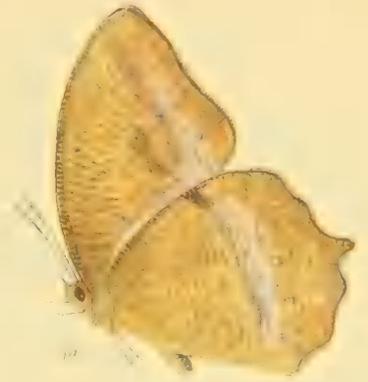
This insect is an excellent mimic of the Euploëine butterfly, *Trepsichrois Linnæi*, both the male and female resembling the corresponding sexes of the latter butterfly.*

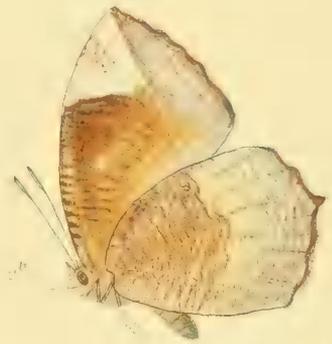
DISTRIBUTION.—It is common in the submontane districts of Northern and Eastern India, extending through Burma as far South as Tavoy (Butt. Ind. 273). Mr. E. J. Atkinson records it "from Kali, Kumaon, on the western border of Nepal" (Butt. Ind. 273). Mr. W. Doherty obtained it in the "Kali Valley, E. Kumaon, at Balwakot and Toli, 2500 to 3000 feet elevation, which, compared with Sikkim specimens, are more striated and speckled with white below, and have an irregular line of whitish spots round the outer disc of the hindwing above" (J. A. S. Beng. 1886, 120). We have specimens from the late General G. Ramsay's Nepal collection. "Mr. L. de Nicéville has taken it around villages in Sikkim at about 2000 feet elevation, in October" (Butt. Ind. 273). Mr. H. J. Elwes (Tr. Ent. Soc. 1888, 330) records it as "not rare in the low valleys of Sikkim, from the Terai up to 3000 feet, during almost every month in the year." "The India Museum, Calcutta, possess specimens from Upper Assam, and from Silhet, and Mr. Wood-Mason took it in Cachar in June and July" (Butt. Ind. 273). The late Mr. W. S. Atkinson took it in Cherra Punji, and the late Mr. A. Grote obtained it in Silhet. Captain E. Y. Watson's collection contained it from the Khasia Hills. "Capt. C. H. B. Adamson obtained it in Akyab, and found it commonly in plautain gardens in Moulmein in August and September" (Butt. Ind. 273). Signor Leonardo Fe. obtained it at Bhamo in November. "Mr. T. C. Hill took it in Tavoy in March." Capt. C. T. Bingham found it commonly in the Thoungyeen forests in the autumn and again in April" (Butt. Ind. 273). Capt. E. Y. Watson took it at "Poungadow, Upper Burma, in October, and at Beeling, Upper Tenasserim, in January" (J. Bombay N. H. Soc. 1888, 4). Mr. O. Limborg obtained it at "Ahsown, in Upper Tenasserim" (P. Z. S. 1878, 826).

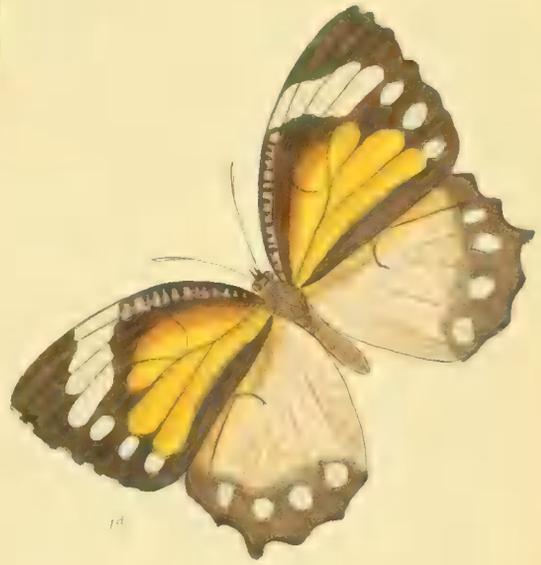
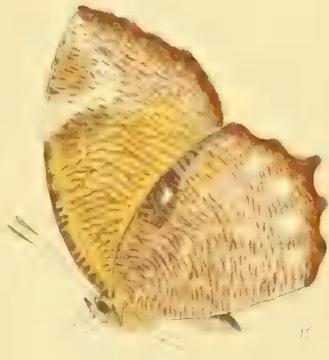
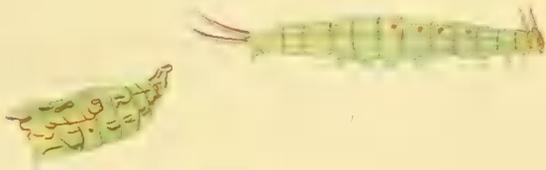
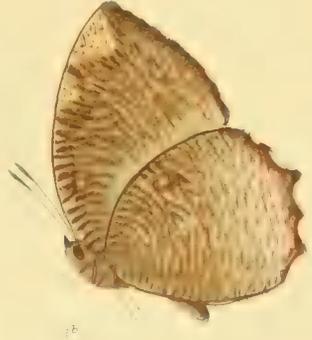
* See vol. i. pl. 35.



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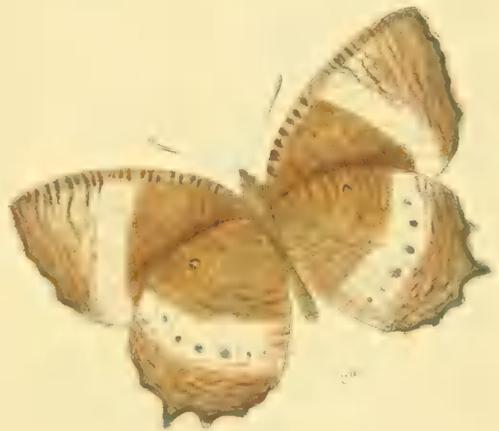


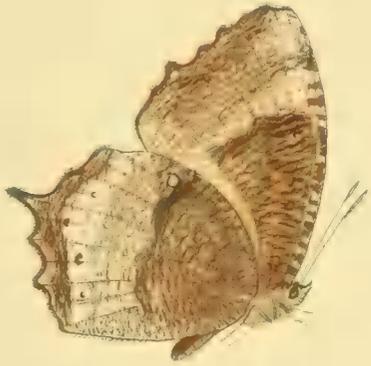












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MELYNIAS SAUERI (Plate 140, figs. 2, 2a, ♂ ♀).

Elymnias Saueri, Distant, Rhop. Malayana, p. 65, pl. 9. fig. 3, ♂ (1882). Marshall and de Nicéville, Butt. of India, etc. i. p. 274 (1883), ♂.

Elymnias Künstleri, Honrath, Berlin Ent. Zeitschr. 1885, p. 276, pl. 8, fig. 3, ♀. Distant, Rhop. Malayana, p. 422, pl. 41, fig. 9 (1886), ♀.

IMAGO.—Male. “Upperside. *Forewing* dark violaceous-brown, with paler blue suffusions on apical area; with a submarginal series of five pale violaceous-blue spots, and three discal smaller indistinct spots; costal margin basally speckled with greyish strigæ and apical bluish spots. *Hindwing* castaneous brown, the basal area fuscous. Underside pale ferruginous, thickly mottled with dark chocolate-brown strigæ, which are irregular in shape and size. *Forewing* with the costal margin speckled with grey; the upper part of the cell and apical area somewhat paler in hue, and with indications of a dark-waved fascia near the cell. *Hindwing* somewhat darker, the strigæ being more numerous and contiguous, with indications of a much-waved and irregular dark fascia crossing the wing about end of the cell, and a more or less distinct broad submarginal fascia, followed by several waved, broken, and indistinct lines” (Distant, *l. c.* 65).

Female. “Upperside greyish-white. *Forewing* with greyish-blue reflections in the cell and pale ochraceous shadings on inner marginal area; costa more or less spotted and marked with blackish, thickly so to end of the cell, and some similar markings in the cell along the median vein; veinlets ornamented with fuscous and blackish blotches, the three median veinlets and the lower discoidal veinlet most prominently so. *Hindwing* with the basal and abdominal areas more or less shaded with pale ochraceous; veins with black and fuscous blotches as on forewing, but less prominent; a blackish spot uniting the discoidal and upper median veinlets; a submarginal series of irregular-shaped blackish spots, between which and the posterior margin are many wavy fuscous and black irregularly-shaped and placed linear spots. *Forewing* as above, but more uniformly greyish, the shadings along the veins much more broken and unrelieved by fuscous-brown; several curved black lines crossing the cell. *Hindwing* generally as above” (Distant, *l. c.* 422).

Expanse, ♂ $3\frac{6}{10}$, ♀ $4\frac{8}{10}$ inches.

HABITAT.—Tenasserim; Malay Peninsula.

The male is a mimic of the same sex of the Euplœine *Trepsichrois* Linnæi,* and the female, apparently, is a mimic of the Limnaine butterfly *Hestia Agamarschana*, or *H. Donovanii*.

DISTRIBUTION.—A male of this species, taken by Capt. Bingham in the Thoungeen Valley, Tenasserim, is in the British Museum collection. The male type

* See vol. i. plate 35, and plate 4, fig. 1.

described by Mr. Distant, was captured in Province Wellesly, Malay Peninsula, by Mr. Sailer, and the above assigned female, in Perak, by Mr. Künstler.

Of our illustrations of this species on Plate 140, fig. 2, 2a, male and female, both are copied from Mr. Distant's figures above quoted.

MELYNIAS PATNA (Plate 141, figs. 1, 1a, ♂).

Melanitis Patna, Westwood, Gen. of D. Lep. p. 405, pl. 68, fig. 2 (1851).

Elymnias Patna, Moore, Catal. Lep. Mus. E. I. Compy. i. p. 238 (1857). Wallace, Trans. Ent. Soc. Lond. 1869, p. 327.

Dyctis Patna, Butler, Proc. Zool. Soc. Lond. 1871, p. 525. Marshall and de Nicéville, Butt. of India, etc. i. p. 277 (1883).

IMAGO.—Male. Upperside dark velvety blackish purple-brown; cilia alternately edged with white. *Forewing* with the outer area glossed with dark violaceous-blue, and crossed by a curved discal series of elongated purplish-blue streaks, which commence from middle of the costal edge, and decrease posteriorly; the streak disposed between the lower radial and upper median being more or less very obsolescent, slender, lobate, and obscurely extending in a lobe to end of the cell. *Hindwing* paler externally, with the apical area glossed with violaceous-blue; crossed by a submarginal series of four distinct white dots; the *glandular tuft of hairs* at the base pale ochreous-brown. Underside uniformly paler brown. *Forewing* with the costal edge flecked with bluish-white strigæ; the discal area with numerous transverse very obscurely-defined brownish-cinereous strigæ, and a submarginal row of three bluish-white dots. *Hindwing* with a submarginal curved series of seven bluish-white spots, the upper one disposed between the subcostals; the outer border being flecked with cinereous strigæ. *Head* above and thorax beneath spotted with white; collar and streak on sides of palpi also white.

Female. Upperside paler. *Forewing* as in the male, except that the elongated purple-blue streaks are larger, longer, and more diffused, the submarginal streaks each with a slightly-defined outer central white dot. *Hindwing* as in male. Underside also paler; markings as in the male.

Expanse, ♂ 3 to $3\frac{8}{10}$, ♀ $3\frac{8}{10}$ inches.

HABITAT.—Western and Eastern Himalayas; Cachar; Silhet; Burma.

This species is a mimic, both in form, colour, and general markings, of the Euploëine butterflies *Stictoplaea binotata*,* and *Isamia splendens*.

DISTRIBUTION.—Mr. W. Doherty (J. A. S. Beng. 1886, 120) records "two males, taken at Garjiaghat, near the junction of the Kali and the Gori, Eastern Kumaon, at 2500 feet. They do not differ from Sikkim specimens." The late W. S. Atkinson

* See vol. i. plate 53, figs. 2, 2a.

took it in Cherra Punji. "It is not a common species, and we have only seen it from Sikkim, Cachar, and Silhet. Mr. L. de Nicéville took it in the Valley of the Great Runjit, in Sikkim, in October; and Mr. Wood-Mason took a single specimen on Nemotha Peak, Cachar, in September" (Butt. Ind. 278). Mr. H. J. Elwes (Tr. Ent. Soc. 1888, 330) records it as "not a common species in the low Valleys of Sikkim up to 3000 feet, between April and December."

MELYNIAS PATNOIDES (Plate 141, figs. 2, 2a, ♂).

IMAGO.—Male. Upperside. *Forewing* comparatively narrower and more triangular in shape than typical *Patna*, the pale blue streaks somewhat shorter and narrower. *Hindwing* conspicuously more triangular in shape; the anterior margin less arched, the exterior margin being almost straight from the apex to anal angle, and less broadly sinuous; the submarginal bluish-white spots disposed more linearly in their course. Underside uniformly coloured throughout. *Forewing* with no trace of the obscure pale transverse strigæ (which are always present broadly across the disc in *Patna*); there are also five submarginal prominent small bluish-white spots, two apical and three lower, the lowest being slender and disposed between the median and submedian veinlets. *Hindwing* with very prominent bluish-white submarginal spots, which, as on upperside, are disposed in a more linear course.

Expanse, ♂ $3\frac{2}{10}$ inches.

HABITAT.—Burma.

DISTRIBUTION.—A single male was taken at Kathapa, in February, by Major C. H. E. Adamson. "Two specimens of the male were also taken by Mr. W. Doherty in the Karen Hills, East Pegu, at 4000 feet elevation in March and April, 1890" (H. J. Elwes, P. Z. S. 1891, 270).

Of our illustrations of this species on Plate 141, figs. 2, 2a, represent the male from Kathapa, kindly lent for this purpose from Major Adamson's collection.

INDO-MALAYAN SPECIES OF MELYNIAS.—*M. Lais* (Cramer, Pap. Exot. ii. pl. 114, figs. A, B (1779). Distant, Rhop. Malay. p. 62, pl. ix. fig. 2 (1882). Staudinger, Exot. Schmett. p. 237, pl. 86, ♂ (1887). *Habitat.* Malay Peninsula; Sumatra; Billiton; Java; Borneo; Siam.—*M. Ceryx* (Boisduval. Spéc. Gén. Lep. i. pl. 9, fig. 8 (1836). *Habitat.* Java.—*M. Casiphone* (Hübner, Samml. Exot. Schmett. iii. (1820-26). Distant, Rhop. Malay. p. 64, pl. vi. fig. 10, ♂ (1882). Semper, Reise Philippen, Lep. pl. xi. figs. 11, 12, ♂ ♀. *Habitat.* Singapore; Java; Mindano.—*M. Kumara* (Moore, Catal. Lep. Mus. E. I. Compy. i. p. 239 (1857). *Habitat.* Java.—*M. Harterti* (Elym. Harterti, Honrath, Berl. Ent. Zeit. 1889, p. 165, pl. 2, fig. 3). Allied to *M. Peali*. *Habitat.* Malacca.

Genus BRUASA.

IMAGO.—Male. *Forewing* elongate, triangular; costa much arched; apex pointed, very acute; exterior margin oblique and very slightly sinuous, posterior angle convex; cell very broad and short; discocellulars inwardly-oblique, lower deeply concave. *Hindwing* triangularly-ovate; anterior margin long, apex obtusely pointed; exterior margin oblique, slightly sinuous; cell short, broad; *glandular patch and tuft of hairs* within the cell; palpi long, slender, porrect.

TYPE.—B. Penanga.

BRUASA CHELENSIS (Plate 141, figs. 3, 3a, ♂).

Elymnias Chelensis, de Nicéville, Journal Bombay Nat. Hist. Soc. 1890, p. 200, pl. D, fig. 3, ♂.

IMAGO.—Male. Upperside. Both wings fuscous-brown. *Forewing* with the basal half of the costal and the outer margin narrowly ferruginous brown, the rest of the wing strongly glossed with rich deep blue, becoming obsolete basally; two large conjoined equal-sized oblong upper discal pale blue spots, and three similar but smaller lower spots in the median interspaces, the lowest being sometimes obsolete. *Hindwing* entirely un glossed with blue, the fuscous ground-colour becoming lighter towards the outer margin, the extreme outer margin ferruginous-brown. Underside; both wings rich castaneous-brown, sprinkled with purplish and white strigæ. *Forewing* with the white mottlings concentrated into an oblique band, which commences on the costa and ends at the first median veinlet, where the speckles are more scattered and larger, and with the mottling extended one-fourth along the costa from the apex; inner margin dull fuscous, extending on to the disc beyond the oblique discal mottled-band and ending in a point on the third median veinlet. *Hindwing* divided into two equal well-defined areas, the basal area rich castaneous, sparsely sprinkled with dull purplish strigæ, the outer area so thickly sprinkled with purplish confluent-strigæ that the castaneous ground-colour is almost obliterated; a large oval pale ochreous spot in the middle of the upper subcostal interspace; an outer discal or submarginal series of five minute black dots inwardly marked with a minute white dot, one in each interspace.

Expanse, ♂ $2\frac{7}{10}$ to $2\frac{8}{10}$ inches.

HABITAT.—Khasia Hills; Upper Tenasserim.

According to Mr. L. de Nicéville this is "closely allied to *Elym. penanga* [mehida, Hewitson] from the Malay Peninsula, from which it differs in the apex of the forewing being more produced, the outer margin much less sinuous, the apex of the hindwing also more produced, the outer margin considerably truncated and entire; in the costa of the forewing and of the outer margin of both wings on the upperside being tinged with ferruginous, instead

of being concolorous with the rest of the wing, as in *E. penanga* [mehida]; in the forewing [in the type] having four instead of five spots, owing to the posterior one being absent; in the two anterior spots being shorter, wider, and conjoined instead of well separated; in the hindwing being entirely unglorified with blue, whereas in *E. penanga* [mehida] it is strongly blue-glossed; in the markings of the underside of both wings being more variegated, and in the presence [in the type] of the large ochreous subcostal spot of the hindwing" (de Nicéville, *l. c.*).

DISTRIBUTION.—"The type specimens were captured by the Rev. W. A. Hamilton's native collectors at Chelapunji, at the foot of the Khasia hills, on the Silhet side, at nearly sea-level" (de N. *l. c.*) A single male, taken by Major C. H. E. Adamson, on April 23rd, 1880, in Upper Tenasserim on the road to the Siam frontier, which is evidently of the same species, has five blue elongated spots on the forewing above, and on the underside the ochreous subcostal spot is absent, this spot being also either absent or present in the male of the allied Malay species, *B. penanga*. Mr. H. J. Elwes (P. Z. S. 1891, 269) records a single specimen from the low country of East Pegu, taken by Mr. W. Doherty.

Both this species, and *penanga*, are mimics of the Euploëine butterfly *Calliplœa Ledereri*.*

Of the illustrations of this species on our Plate 141, fig. 3 is a reproduction of M. de Nicéville's figure of the type, and fig. 3a is from the Burmese specimen taken by Major Adamson.

INDO-MALAYAN SPECIES OF BRUASA.—*B. Penanga* (Melanitis Penanga, Westwood, Gen. D. Lep. p. 405, ♀ (1851). *Habitat.* Penang.—*B. Mehida* (Elymnias Mehida, Hewitson, Exot. Butt. iii. Mel. pl. figs. 2, 3, ♂ (1863). Distant, Rhop. Malayana, p. 63, pl. 7, fig. 6, ♂; pl. 6, fig. 11, ♀ (1882). *Habitat.* Malacca. Singapore.—*B. Sumatrana* (Elymnias Sumatrana Wallace, Trans. Ent. Soc. 1869, p. 325, ♀. Hewitson, Exot. Butt. iii. Mel. pl. figs. 1, 4, ♀ (1863). *Habitat.* Sumatra.—*B. Abrisa* (Elymnias Abrisa, Distant, Ann. Nat. Hist. 1886, p. 531; Rhop. Malayana, p. 421, pl. 43, fig. 5, ♂ (1886). *Habitat.* Malay Peninsula.—*B. Borneensis* (Elymnias Borneensis; Grose-Smith, Ann. Nat. Hist. 1892, p. 428). *Habitat.* N.-E. Borneo.—*B. Konga* (Elymnias Konga, Grose-Smith, Ann. Nat. Hist. 1889, p. 317). *Habitat.* Kina Balu, N. Borneo.

Genus MIMADELIAS.

Wings shorter, broader, and more regularly triangular than in Elymnias. *Forewing* with the costa arched, apex rounded, exterior margin oblique and slightly scalloped; *posterior margin* slightly convex, *the middle portion* being folded over on to

* See vol. i. plate 36, figs. 1, 1a.

the upperside and there covering a scabrous glandular patch of scales situated below the submedian vein, a tuft of fine erectile hairs arising from the inner end of the patch, and enclosed within the fold. Veins as in *Elymnias*. Hindwing obtusely-ovate, the costa much arched at the base, exterior margin convex and scalloped, but not caudate, the anal angle rounded. Cell shorter and broader, the discocellular outwardly-oblique, nearly straight; other veins and also the glandular patch and tuft of hairs within the cell, as in *Elymnias*.

TYPE.—*M. Vasudeva*.

The species of this genus are mimics of the Pierine butterflies of the genus *Delias*.

HABITS; AND FOOD PLANT OF CATERPILLAR.—According to the observations of Capt. Godfery (Distant Rhop. Malay. 423) the species of this genus (*M. Godferyi*) found in the Malay Peninsula, was captured “hovering with somewhat feeble flight over the high banks separating the road from the adjacent forest.” Mr. Distant also records (Ann. Nat. Hist. 1887, p. 50) on the authority of Mr. W. B. Pryer, that in North Borneo the larva of this same species (*Godferyi*) “feeds on an Orchid—a specimen of this orchid hanging in my verandah attracted two or three females, and a caterpillar feeding on the orchid was bred up and produced the male butterfly. This butterfly may be described as rare, but is probably common enough 150 feet above ground amongst the tree tops, where only the orchid grows.”

MIMADELIAS VASUDEVA (Plate 142, figs. 1, 1a, b, c, ♂ ♀).

Elymnias Vasudeva, Moore, Catal. Lep. Mus. E. I. Compy. i. p. 238 (1857). Wallace, Trans. Ent. Soc. Lond. 1869, p. 327.

Dyctis Vasuleva, Butler, Proc. Zool. Soc. Lond. 1871, p. 525. Marshall and de Nicéville, Butt. of India, etc. i. p. 278, pl. xvii. fig. 61, ♂ (1883).

Elymnias Thycana, Wallace, Trans. Ent. Soc. Lond. 1869, p. 323, ♂ ♀.

IMAGO.—Male. Upperside. Forewing dull black, glossed with indigo-blue; some bluish-grey strigæ along the costal edge, a bluish-grey broad fusiform cell-streak cut by the discocellulars, below which are three longitudinal median discal streaks, and beyond is an excurved outer decreasing series of six small streaks, the cell and discal streaks being, generally, narrowed at their outer end, and joined to the opposite outer streak, and the extreme outer margin also lunularly speckled with bluish scales; posterior margin with the middle portion folded over upon the upperside and there covering a scabrous glandular patch of scales situated below the submedian vein, a tuft of fine erectile hairs arising from the inner end of the patch, and enclosed within the fold, the inner surface of the fold being white, and the tuft brownish-ochreous. Hindwing with the costal border and exterior margin

broadly dull blue-black, the extreme edge of the exterior margin lunularly speckled with bluish-grey scales; the lower half of the cell, a streak beyond the cell, and the inner interspaces of the median veins to the abdominal margin white, thus forming a large white lower basal area; glandular tuft of hairs within the cell pale brownish-ochreous. Underside dull white; veins black lined. *Forewing* numerous covered with black strigæ, which are broadest and partly confluent on the basal area, partially absent across the disc and more slender but less densely packed on the outer area. *Hindwing* with the basal third and the outer border decreasing to anal angle more densely covered with confluent black strigæ, the upper discal interspaces being ochreous-white, bare of strigæ, and the lower interspaces broadly also bare, but of a chrome-yellow colour; between the base of the internal and lower median vein is a red patch. Clothing of body above and palpi tipt with bluish-grey; head above and thorax beneath with white spots; collar white; legs above bluish-grey, beneath brown; antennæ brown above, ochreous beneath.

Female. Wings somewhat longer than in male. Upperside paler. *Forewing* with the longitudinal streaks duller, less prominent, and more diffused. *Hindwing* with the outer band traversed by broad transverse grey strigæ. Underside as in the male, but with all the strigæ more slender and uniformly disposed.

Expanse, ♂ $3\frac{2}{10}$, ♀ $3\frac{6}{10}$ inches.

HABITAT.—Sikkim.

This very peculiarly marked species is a mimic of the common Pierine butterfly *Delias pasithoe*.

DISTRIBUTION.—Specimens in Mr. O. Möller's collection, now in the possession of the Hon. W. Rothschild, were taken in Sikkim from June to October. The late W. S. Atkinson obtained it in Sikkim. Mr. L. de Nicéville obtained it in "Sikkim at low elevations, in October" (J. A. S. Beng. 1882, 56). Mr. H. J. Elwes (Tr. Ent. Soc. 1888, 331) records it as "not uncommon in the low valleys of Sikkim, at 1000 to 2000 feet, from May to October."

MIMADELIAS DEVA. (Plate 142, figs. 2, 2a, ♂ ♀).

IMAGO.—Male. Upperside. *Forewing* with much broader and paler grey streaks between the veins, these being entire from the base of wing to the outer border. *Hindwing* with a narrower outer marginal band, the upper portion being composed of the broad black ends of the veins. Underside. *Forewing* whiter, with similarly, but less dense black strigæ. *Hindwing* with similar basal marks, narrow strigose outer border, and bright ochreous medial and lower area; red spot distinct.

Female. Upperside. *Forewing* with similar broad but duller bluish-grey streak

between the veins, as in male. *Hindwing* with broader outer band traversed by slender bluish-grey strigæ. Underside as in male.

Expanse, ♂ 3, ♀ $3\frac{6}{10}$ inches.

HABITAT.—Assam ; Khasia Hills.

DISTRIBUTION.—Specimens were taken by the late Mr. W. S. Atkinson in Silhet. Mr. J. J. Weir possesses a male from Assam. Col. Godwin Austen obtained it in the Khasia Hills. Specimens from the Khasia Hills, taken by Mr. Hamilton's native collectors, are in Col. C. Swinhoe's collection.

MIMADELIAS BURMENSIS (Plate 143, figs. 1, 1a, b, c, ♂ ♀).

IMAGO.—Male. Upperside. *Forewing* with dark bluish-grey streaks between the veins, which are broad and continuous. *Hindwing* with broad black outer border ending narrowly at the anal angle, the lower white discal area being broadly ochreous-tinted. Underside. Ground-colour white. *Forewing* with more densely disposed and finer strigæ than in *Vasudeva* or *Deva*. *Hindwing* also with the basal area and exterior margin more densely covered with black confluent-strigæ than in the above; the upper medial interspaces being quite white; red spot prominent and large.

Female. *Forewing* with the dark bluish-grey streaks confined to the base, and to an outer excurved series. *Hindwing* with a broad black marginal lunulose band. Underside. *Forewing* with densely-disposed strigæ. *Hindwing* with the anterior border and outer margin to near anal angle uniformly strigose, the lower discal area bright-ochreous.

Expanse, ♂ $3\frac{4}{10}$, ♀ $3\frac{6}{10}$ inches.

HABITAT.—Burma ; Tenasserim.

DISTRIBUTION.—Major C. H. E. Adamson obtained it at "Kathapa, Upper Burma, in February." A female, in Mr. F. Godman's collection, from "Taoo, 3000 to 5000 feet, Upper Tenasserim," was taken by Mr. Ossian Limborg (P. Z. S. 1878, 826). Capt. E. Y. Watson records "a single male taken at Beeling, Upper Tenasserim, in January" (J. Bombay N. H. Soc. 1888, p. 4). Mr. H. J. Elwes (J. A. S. Beng. 1887, 419), also records it from "Tavoy, in March."

INDO-MALAYAN ALLIED MIMADELIAS.—*M. Godferyi* (Elymnias Godferyi, Distant, Rhop. Malayana, p. 423, pl. 39, fig. 5, ♀ (1886). *Habitat.* Malay Peninsula; N. Borneo.—*M. Borneensis* (Elymnias Borneensis, Wallace, Tr. Ent. Soc. Lond. 1869, p. 324, ♀. Staudinger, Exot. Schmett, p. 237, pl. 86, ♂ (1887). *Habitat.* Sarawak, Borneo.—*M. Egialina* (Melanitis Egialina, Felder, Nov. Reise, Lep. iii. pl. 61, figs. 7, 8 (1867). *Habitat.* Luzon.

Genus AGRUSIA.

IMAGO.—Male. *Forewing* very short and broad, triangular; costa much arched, apex obtuse; exterior margin almost erect and very slightly scalloped, posterior angle rounded; posterior margin long, with the *middle longitudinally folded upon the upperside and covering a scabrous patch of scales below the submedian vein*, the patch with an *erectile tuft of hairs* arising from the inner end; cell short, very broad. *Hindwing* short, and very broad, triangular; anterior margin arched at the base, apex obtuse, exterior margin obliquely-convex and almost even, anal angle obtuse; the normal *glandular tuft within the cell*; the cell short and broad.

TYPE.—A. Esaca.

The species of this genus are mimics of the Nymphalid butterflies of the "protected" section of the genus *Euthalia*—of which *lepidea*, *ambalika*, *Diardi*, *Andersonii*, etc., are representatives.

According to Mr. W. B. Pryer (Ann. Nat. Hist. 1887, p. 50) the *A. Esaca* is found in N. Borneo, "in fairly open ground, in sunshine."

AGRUSIA ANDERSONII (Plate 143, figs. 2, 2a, ♂).

Dyctis Andersonii, Moore, Journ. Linn. Soc. Zool. 1886, p. 33, pl. 3, fig. 5, ♂.

Dyctis Esaca (part), Marshall and de Nicéville, Butt. of India, etc. i. p. 278.

IMAGO.—Male. Upperside dark olivaceous violet-brown. *Forewing* with a marginal excurved series of lilacine-grey spots, the three upper of which are of a lengthened oval form, and the three lower pyriform with the point acute. *Hindwing* with a broad marginal scalloped-edge lilacine-grey band. Underside pale vinous-brown, the apical area of forewings and the exterior marginal area of hindwings whitish; covered with numerous darker brown more or less confluent strigæ, which are broadest from the disc to the base. Female unknown.

Expanse, ♂ $2\frac{1}{8}$ inch.

HABITAT.—Mergui Archipelago.

This species is, apparently, a mimic of the Nymphalid *Euthalia Andersonii*.

DISTRIBUTION.—A single specimen was taken by Dr. J. Anderson at Minthan-toung, Mergui, in December.

INDO-MALAYAN allied species of AGRUSIA.—*A. Esacoides*, de Nicéville, Journ. Bombay Nat. Hist. Soc. 1892, p. 323, ♂. *Habitat.* Malay Peninsula; Sumatra (Coll. Godman).—*A. Esaca* (*Melanitis Esaca*), Westwood, Gen. D. Lep. p. 405, ♂ (1851). Hewitson, Exot. Butt. iii. Mel. pl. fig. 5, ♂ (1863). Elym. Egialina, Semper [nec Felder], Reisen Philippen, Lep. i. pl. xii. figs. 7, 8, ♂ (1886). *Habitat.* Borneo.* Philippines.

* Not Assam, as has erroneously been stated.

Sub-family **AMATHUSIINÆ.**

Morphidæ (part) Westwood, Gen. D. Lep. p. 332 (1851).

Morphinæ (part) Butler, Cistula Ent. i. p. 3 (1869). Kirby, Syn. Catal. D. Lep. p. 115 (1871).

Marshall and de Nicéville, Butt. of India, etc. i. p. 281 (1883).

Nymphalinx (part) Bates, Journ. Ent. 1864, p. 176. Moore, Lep. Ceylon, i. p. 26 (1881).

Nymphalinx (group *Morphina*), Distant, Rhop. Malayana, p. 67 (1882).

Morphide (sect. B.), Staudinger and Schätz, Exot. Schmett. ii. p. 182 (1889).

IMAGO.—Wings broad, ample, varying in outline; generally ocellated on the underside. *Forewing* with the costal vein generally slightly and gradually dilated at the base; first subcostal veinlet long, emitted before end of the cell; second subcostal four-branched; cell short and very broad, completely closed; median and submedian both with a basal more or less slightly-projected approximating tumid angle, that of the submedian in typical *Zeuxidia* (*Luxerii*) being developed into a short spur. *Hindwing* with the cell area rather narrow, partly closed, or entirely open, the discocellular veinlet appearing as a third subcostal branch; no prediscoidal cell; the inner margin of the wing broadly channelled, and enclosing the entire abdomen; the *male* furnished with a glandular patch or patches of scales, and tufts of overlapping hairs on various positions of the upperside of this wing, or with a glandular tufted pouch along the submedian or internal vein. *Body* robust, seldom elongate; thorax woolly; the abdomen sometimes furnished with subanal lateral glandular tufts of hairs, or with basal glandular patches of scales; head usually small, tufted; eyes large, prominent, naked; palpi slender, somewhat elongate, erect, or sometimes porrect, the front edge not dilated, clothed in front with dense appressed hairs, above with longer hairs; antennæ long, slender, with a lengthened, very gradually slender club; forelegs of male small, brush-like; those of the female larger, longer, and less hairy; anal claspers elongate, narrow.

CATERPILLAR.—Cylindrical, of nearly equal thickness throughout; hairy; head (in *Amathusia*) furnished with two palmated processes, and anal segment (in *Amathusia* and *Discophora*) with two fleshy setose points. In *Xanthotænia* (according to Mr. W. Doherty, P. Boston N. H. S. 1890, 60) the larva is not hairy.

CHRYSLIS.—Elongate, boat-shaped, head-piece prolonged into an acuminate bifid point.

EGG.—“Globular, translucent, hard, not so high as wide, smooth (*Discophora*, *Thaumantis*), or obscurely faceted (*Clerome*)” (Doherty, J. A. S. Bengal, 1886, 109).

HABITS OF IMAGO.—According to the observations made by Mr. W. Doherty, “they are all crepuscular. Except *Clerome* and *Xanthotænia*, they have the curious habit of flying up and down a given space for an hour about sunset and sunrise, as if taking a ‘constitutional,’ never varying a hair’s breadth from their given ‘beat,’

except when disturbed by another of the same species. In that case they fly with lightning rapidity, and in a most erratic way, and once I saw a *Discophora* dash himself to pieces upon an obstructive bough, through which he was apparently trying to fly. This is quite true, though it sounds improbable. They fly so fast that they generally get broken in the net by the force of impact; you may strike at them a dozen times as they pass you without inducing them to change their route" (Journ. Boston Soc. Nat. Hist. 1890, 60). Mr. L. de Nicéville states that: "All of them affect shade, flying but little unless disturbed, and resting near the ground with closed wings, usually amongst dead leaves" (J. A. S. Beng. 1885, 43). As observed in N. Borneo, by Mr. W. B. Pryer, "One or two species of not common *Morphinæ* are almost the only butterflies found in the deep gloomy forest which covers by far the great bulk of the country. *Thaumantis* comes next, perhaps, in its preference for heavy forest" (Ann. Nat. Hist. 1887, 45).

FOOD PLANTS OF CATERPILLAR.—The caterpillar of *Discophora Celinde* feeds upon the leaves of the Cocconut Palm tree, and that of *Disc. indica* upon the Bamboo. The larva of *Amathusia phidippus* also feeds upon the Cocconut Palm tree.

CHARACTERISTICS OF THE AMATHUSIINÆ.

The differential characteristics, between the *Amathusiinæ* and the American *Morphinæ*, are as follows:—

AMATHUSIINÆ.

FOREWING.—First subcostal veinlet only emitted before end of the cell.

Second subcostal veinlet four-branched.

Cell short, very broad, not extending to half length of the wing.

No median vein spur, but the median and submedian with a slightly projected, approximating tumid angle, that of the submedian in *Zeuxidia* developed into a slight spur.

HINDWING.—Cell either partially closed or entirely open. Cell area rather narrow.

Male furnished with glandular patches of scales and tufts of hairs on various parts of this wing.

BODY.—Robust, thorax woolly.

Antennæ long.

Abdomen sometimes with a glandular patch of scales on the base beneath, or with lateral tufts.

Anal claspers of male elongate, narrow.

MORPHINÆ.

FOREWING.—First and second subcostal veinlets free and both emitted before end of the cell.

Third subcostal veinlet three-branched.

Cell very long, narrow, extending to nearly two-thirds the length of the wing.

Median vein with a basal spur. Submedian slender, no basal tumid angle.

HINDWING.—Cell entirely open.

Cell area rather broad.

Male. Glandular patches or tufts not present.

BODY.—Somewhat slender, smoothly scaled.

Antennæ short.

Abdomen. Glandular patch or tuft not present.

Anal claspers of male broad, thick.

AMATHUSIINÆ—(continued).

HABITS OF IMAGO.—Crepuscular; affecting shady undergrowth in forests.

LARVA.—Hairy; head with or without two prominent processes on vertex; anal segment with two elongate processes.

PUPA.—Elongate, boat-shaped; head-piece prolonged into an acuminate bifid-point.

MORPHINÆ—(continued).

HABITS OF IMAGO.—Diurnal, flying in the hottest sunshine.

LARVA.—Hairy; head and anal segment with or without very short, obtuse, inconspicuous processes.

PUPA.—Stout; head-piece broad, and with widely separated short points.

The characteristics of the AMATHUSIINÆ, as above defined, we consider amply distinctive for justifying their entire separation from the true MORPHINÆ, with which they have hitherto been mostly included, and have therefore adopted the oldest generic name for their designation.

In the BRASSOLINÆ, the American allied sub-family, the forewing, in all the known genera, has both the first and second subcostals free, and the third subcostal three-branched; the hindwing also having a predorsoidal cell; the antennæ being long, and in *Opsiphanes* with a stout club. In the genus *Caligo*, the males are furnished with secondary sexual characters, the hindwing of the male of *C. Amphimedon* possessing a glandular-tufted pouch along the base of the submedian vein, and it also has a large prominent glandular patch of scales near the end of this vein, besides also having a glandular patch of scales on the side of the abdomen. In the genus *Opsiphanes*, the hindwing of the male of *O. Xanthus* and *O. Cassix* possesses a subcostal glandular tuft, and a tufted pouch along the submedian vein, in addition to a glandular patch of scales on the side of the abdomen. The larvæ of the Brassolinæ are elongate, thickest about the middle, minutely hairy, or nearly nude, the head being furnished with two lengthened spiny processes on the vertex, and two or three shorter lateral processes, and the anal segment with two elongated fleshy processes. The pupæ are somewhat stout, the thorax broad and truncate in front, the head-piece with two short widely separated points.

KEY TO THE INDIAN GENERA OF AMATHUSIINÆ.

- A.—Hindwing with the discoidal cell partially closed by a short lower discocellular veinlet. Forewing with the second subcostal veinlet four-branched.
- a.—Forewing with the upper median veinlet emitting a short spur beyond the cell.
- a.—Hindwing of male with a two subcostal glandular tufted patches, and a glandular tufted pouch along the submedian vein ZEUXIDIA.
- b.—Forewing without the upper submedian spur.
- a.—Hindwing of male with a glandular tufted pouch along the submedian vein AMATHUXIDIA.
- B.—Hindwing with the discoidal cell open, but apparently partially closed by a short

transverse discocellular fold in the wing membrane. *Forewing* with the *second subcostal veinlet four-branched*.

a.—*Hindwing of male* with a *glandular-tufted pouch along the submedian vein* AMATHUSIA.

C.—*Hindwing with the discoidal cell completely open*.

A. 1.—*Forewing with the second subcostal veinlet four-branched*.

a.—*Hindwing of male* with a *small subcostal glandular tufted pouch* NANDOGEA.

b.—*Hindwing of male* with a *large subcostal glandular hairy patch, and a glandular tufted pouch along the internal vein*. Abdomen beneath with a *basal glandular patch of scales* THAURIA.

c.—*Hindwing of male* with a *glandular tufted pouch on internal vein, and a large discal glandular patch*. Abdomen beneath with a *basal glandular patch of scales* DISCOPHORA.

A. 2.—*Forewing with the second subcostal veinlet three-branched*.

a.—*Hindwing of male* with a *glandular tufted pouch along the internal vein*. Abdomen beneath with a *basal glandular patch of scales* ENISPE.

b.—*Hindwing of male* with a *small subcostal glandular tufted patch* STICHOPTHALMA.

A. 3.—*Forewing with the second subcostal veinlet four-branched*.

a.—*Hindwing of male* with a *small subcostal glandular tufted pouch* CLEROME.

b.—*Hindwing of male* with a *glandular tuft along submedian vein* ÆMONA
XANTHOTÆNIA.

Genus ZEUXIDIA.

Zeuxidia, Hübner, Samml. Exot. Schmett. ii. Index p. 2 (1820-26). Doubleday, List. Lep. Brit. Mus. pt. i. p. 114 (1844). Westwood, Gen. D. Lep. p. 327 (1851). Distant, Rhop. Malayana, p. 72 (1882). Marshall and de Nicéville, Butt. of India, etc. p. 285 (1883). Staudinger and Schätz, Exot. Schmett. ii. p. 186 (1889). Semper, Reisen Archipel. Philippen, Lep. p. 72 (1887).

IMAGO.—Male. Wings large, short, broad. *Forewing* triangular; costa convex, apex acute, exterior margin oblique, even, very slightly concave, posterior angle rounded, posterior margin extremely convex; costal and subcostal vein much arched at the base; cell very broad; first subcostal veinlet emitted at one-fourth before end of the cell and touching the costal near its end, second subcostal emitted at about half its length beyond the cell; upper discocellular short, almost erect, bent close to subcostal; lower discocellular very long, outwardly oblique and concave at upper end; upper radial from angle close to subcostal, lower radial from above middle of discocellulars; median veinlets equidistant apart, straight, the middle median emitted at some distance before end of the cell; *upper median bent beyond the cell and emitting a short outwardly curved spur from the angle*; submedian vein bent downward close at its base and emitting a very short spur from the angle, thence closely following the curve of the posterior margin. *Hindwing* short, produced hindward; anterior margin convex, apex rounded, exterior margin convex and produced at the anal angle into a broad pointed tail; abdominal margin convex and broadly channelled to

receive the abdomen; costal vein with a short curved inner spur; first subcostal veinlet arched, starting at two-thirds before end of the cell, the radial (the base of which is homologous to an upper discocellular) starting from below the second subcostal at more than one-third before end of the cell; median veinlets straight, the upper median giving off a short incomplete tubular discocellular veinlet, which latter does not reach the radial but completely terminates at a short distance from it, and thus leaves the cell partially open; *submedian vein* long, much recurved, and on the upperside of the wing *has a lengthened fold* along its inner edge, *and a narrow lateral glandular pouch* at the middle of its length, the pouch being open on the upperside of the wing and *enclosing an erectile tuft of long bristly hairs*, the edge of the fold above being fringed with fine woolly hairs; *within the cell* there are *two* small oval superposed *glandular patches*, and above the cell, *between the subcostal and costal veins*, is a *third* similar *glandular patch*, each patch being *overlaid by a tuft of erectile hairs* arising from their inner end. *Body* woolly; head woolly in front; eyes large, prominent, naked; palpi elongate, narrow, compressed, erect, extending above level of the vertex, densely clothed with appressed scales beneath, laxly hairy above, terminal joint slender, pointed; antennæ long, slender, distinctly articulated, the club very slender and elongated. Forelegs of male slender, hairy, of female rather longer, more robust, tarsus spiny beneath.

TYPE.—Z. Luxerii.

ZEUXIDIA MASONI (Plate 144, figs. 1, 1a, b, ♂ ♀).

Zeuxidia Masoni, Moore, Proc. Zool. Soc. Lond. 1878, p. 826, ♀. Marshall, Journ. Asiatic Soc. Bengal, 1882, p. 39. Marshall and de Nicéville, Butt. of India, etc. i. p. 286 (1883).

IMAGO.—Male. Upperside dark virescent-brown, palest at the margins. Cilia cinerous-white. *Forewing* crossed by a subapical excurved broad decreasing violet-blue band, extending from the costa to below the lower median veinlet. *Hindwing* with a broad violet-blue posterior patch extending broadly from the submedian vein and decreasing upward along the outer border to near the apex; *within the cell* is a small oval *glandular patch* overlaid by a tuft of erectile blackish hairs arising from its inner end; *above the cell* is a smaller similar *glandular patch*, which is overlaid by a tuft of ochreous hairs, and along the inner edge of the *base of the submedian vein* is a lengthened *glandular pouch*, which is fringed by long dark-brown hairs and a terminal tuft of erectile ochreous hairs. Underside purpurescent-brown; crossed by a narrow brown discal fascia with sharply-defined outer edge, four short basal fasciæ, and a very indistinctly defined submarginal sinuous line, the basal interspaces, the apical area beyond the cell, and the posterior area of the hindwing, being washed with glossy pale purplish-grey. On the hindwing are two small brownish-ochreous ocelli, the upper one situated between the subcostals, the lower between the middle and

lower median veinlets. Body beneath, legs and palpi pale brown; forelegs beneath whitish; side of palpi white streaked.

Female. Upperside ochreous-brown basally, dusky-brown anteriorly. *Forewing* crossed by an oblique subapical broad pale yellow band, which is entire from the costa to the middle median veinlet, below which is a small triangular spot followed by two pale ochreous lower submarginal spots and lower marginal line; a small pale yellow spot also before the apex. *Hindwing* broadly lunularly-bordered with pale ochreous or cinnamon-brown. Underside similarly coloured to male.

Expanse, ♂ $3\frac{8}{10}$ to 4, ♀ $4\frac{5}{10}$ inches.

HABITAT.—Upper Tenasserim.

The male of *Z. Masoni* is distinguishable, from the same sex of the allied Malayan *Z. Amethystus*, on the upperside of the forewing, in the oblique blue band being comparatively narrower and more excurved in its course; and on the hindwing in the posterior blue band extending fully up to the upper median veinlet and more narrowly along the margin to the apex. On the underside the ground-colour is darker, the discal transverse fascia and the short basal fasciæ also darker; the two ocelli on the hindwing being about half the size. The female of *Z. Masoni* differs from the same sex of *Z. Amethystus* in its paler ochreous-brown colour, and on the forewing in the greater width of the subapical pale yellow band, this band being entire and terminates at the middle median veinlet, below which are two small yellow spots, but no inner discal third spot. The hindwing is broadly bordered with pale ochreous or cinnamon-brown.

DISTRIBUTION.—The type specimen—a female—was taken by Mr. Ossian Limborg at Meetan, 3000 feet altitude, Upper Tenasserim, in April. A male was also taken by Capt. C. T. Bingham in the Lower Thoungyeen forests, Upper Tenasserim, at the same season. Mr. W. Doherty obtained it in East Pegu, at 4000 to 5000 feet, in March, April and May.

Of the illustrations of this species on our Plate 144, fig. 1, 1a is that of a male in Mr. Philip Crowley's collection, and fig. 1b is that of a female, from East Pegu, taken by Mr. W. Doherty, and now in the possession of Mr. F. Godman.

INDO-MALAYAN ALLIED SPECIES OF ZEUXIDIA.—*Z. Luæerii*, Hübner, Samml. Exot. Schmett ii. (1820-26). Westwood, Cab. Oriental Ent. pl. 19, fig. 5 (1848). *Syn. Z. Boisduvalii*, Westw. Gen. D. Lep. p. 329 (1851). *Habitat.* Java.—*Z. Doubledayi*, Westwood, Gen. D. Lep. p. 329, pl. 52, fig. 1, ♀ (1851). Marshall and de Nicéville, Butt. of India, i. p. 287, fig. ♀ (1883). Distant, Rhop. Malayana, p. 424, fig. ♂; *id.* pl. 38, fig. 6, ♀ (1886). *Habitat.* Malay Peninsula; Penang.—*Z. Amethystus*. Butler, Proc. Zool. Soc. 1865, p. 485. Distant, Rhopal, Malayana, p. 72, pl. 7, figs. 1, 2, ♂ ♀ (1882); *id.* p. 424, pl. 38, fig. 5, ♂. Staudinger, Exot. Schmett. i. p. 188, pl. 63, ♂. *Habitat.* Malay Peninsula; Sumatra.—*Z. Wallacei*, Felder, Reise

Novara, Lep. p. 461, pl. 62, fig. 3. *Habitat.* Borneo.—*Z. Horsfieldii*, Felder, Reise Novara, Lep. iii. p. 460, pl. 62, fig. 4 (1867). *Habitat.* Java.—*Z. Victrix*, Staudinger, Deuts. Ent. Zeit. 1889, p. 41. *Habitat.* Palawan.—*Z. Semperi*, Felder, Wien. Ent. Monats. 1861, p. 304; Reise Novara, Lep. iii. pl. 62, figs. 1, 2 (1867). Semper, Reisen Arch. Philippinen, Lep. p. 72 (1887). *Habitat.* Luzon.—*Z. Sibulana*, Honrath, Berl. Ent. Zeit. 1884, p. 205, pl. 2, fig. 2, ♂; pl. 3, fig. 2a ♂; pl. 4, fig. 2, b ♀. Semper, Reisen Arch. Phil. Lep. p. 73. *Habitat.* Mindanao.

Genus AMATHUXIDIA.

Amathuxidia, Staudinger, Exot. Schmett. i. p. 188 (1887).

IMAGO.—Wings large, short, broad. *Forewing* subtriangular; costa much arched, apex obtuse, exterior margin almost erect, even, posterior angle rounded; posterior margin almost straight; cell short, very broad; first subcostal emitted at one-fifth before end of the cell and touching the costal vein near its end; discocellulars concave, lower very oblique; median veins slightly curved, upper median bent beyond the cell, but not spurred. *Hindwing* produced posteriorly into a short spatulate tail; cell partially closed by a short spur, which extends from the upper median veinlet to near the lower subcostal; on the upper side is a large velvety *glandular patch extending across the middle of the cell to below the middle and lower medians, but which is not accompanied with the usual overlapping tuft of hairs*; along the inner edge of the middle of the *submedian vein* is a lengthened fold and narrow *glandular pouch with an accompanying radiating-tuft of erectile hairs*.

TYPE.—A. Amythaon.

AMATHUXIDIA AMYTHAON (Plate 145, figs. 1, 1a, ♂ ♀).

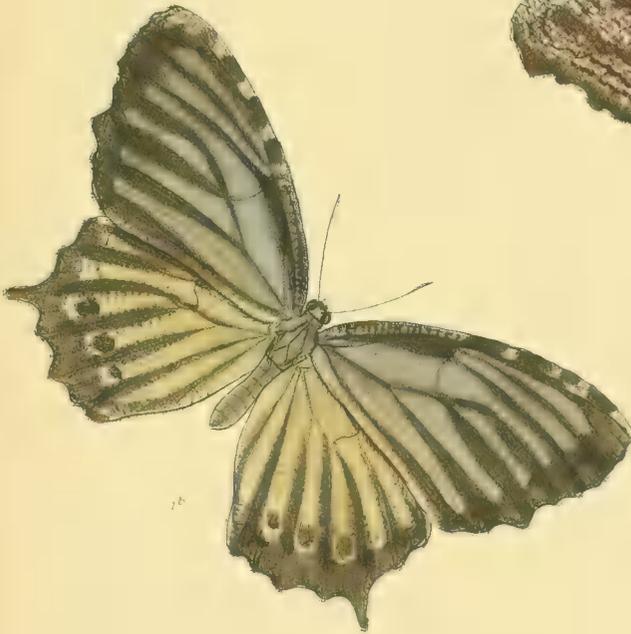
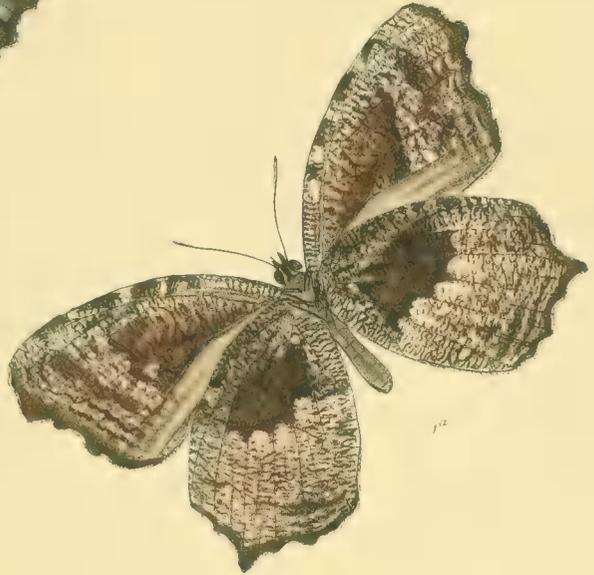
Amathusia Amythaon, Doubleday, Annals of Nat. Hist. 1847, p. 175; List Lep. Brit. Mus. App. p. 29 (1848). Westwood, Cabinet of Oriental Entomology, p. 39, pl. 19, figs. 1, 2, 3, ♂ ♀ (1848). Marshall and de Nicéville, Butt. of India, etc. i. p. 291 (1883).

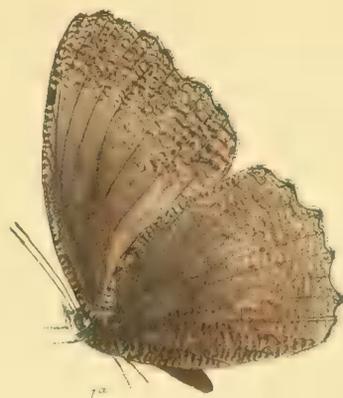
Amathuxidia Amythaon, Staudinger, Exot. Schmett. i. p. 188 (1887).

Amathusia Portheus, Felder, Reise Novara, Lep. iii. p. 461, ♂ ♀ (1867). Butler, Ent. Mo. Mag. 1869, p. 55. Marshall and de Nicéville, Butt. of India, etc. i. p. 293, fig. ♂ (1883).

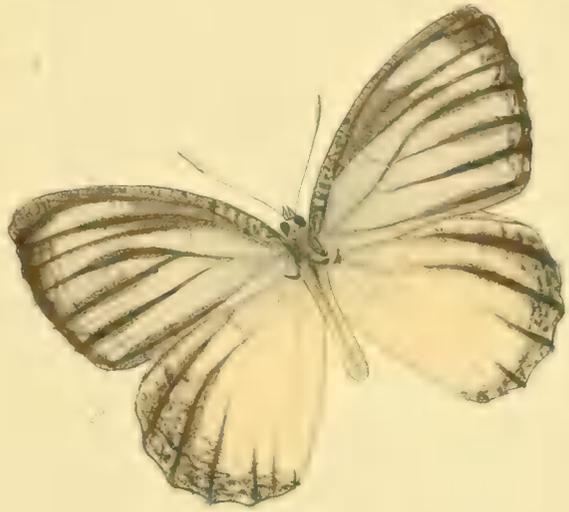
Amathusia Westwoodii, Butler, Ent. Mo. Mag. 1869, p. 55.

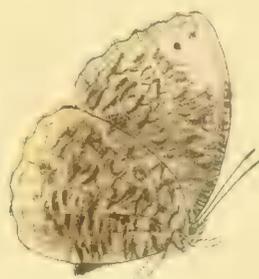
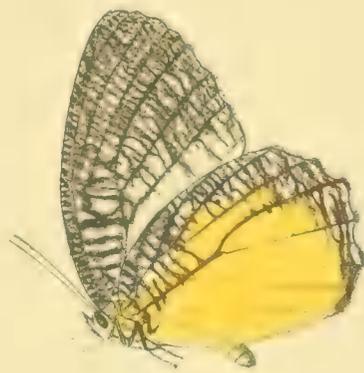
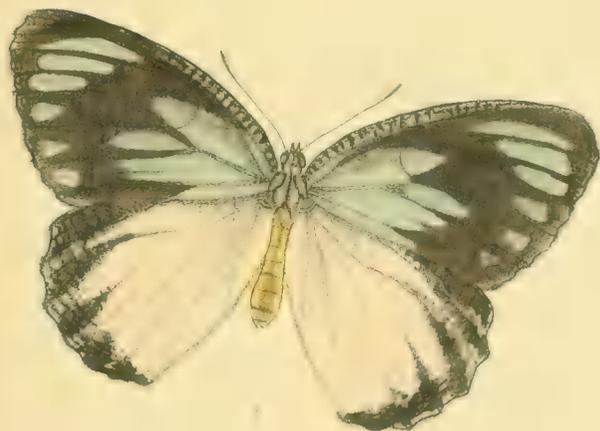
IMAGO.—Male. Upperside dark purpurescent-brown, the basal area almost black; cilia white. *Forewing* crossed by an oblique medial broad excurved purpurescent violet-blue band extending from the costa to the submedian vein, the band being of uniform width to the lower median veinlet, below which it is somewhat narrower. *Hindwing* with a large reddish-brown *glandular patch* extending across the middle of the cell to below the medians, the patch being clothed with laxly packed lengthened broad blackish scales of mostly equal width and obtuse tips; *no*

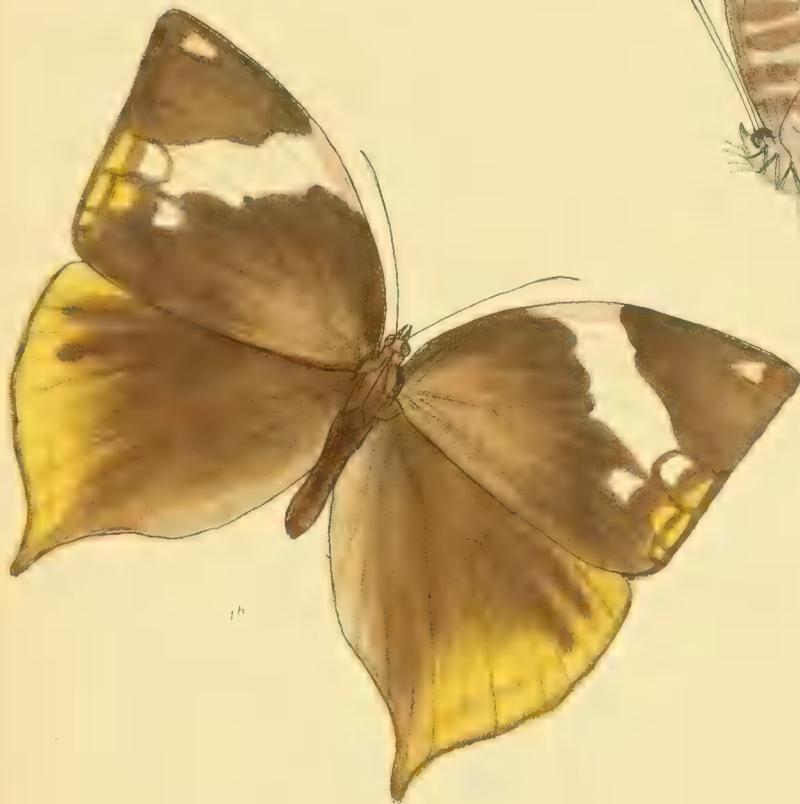
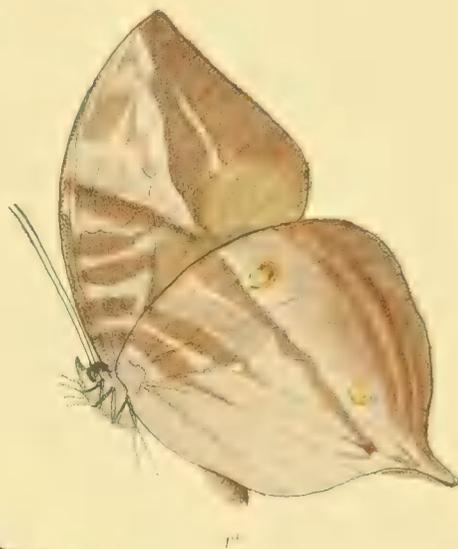
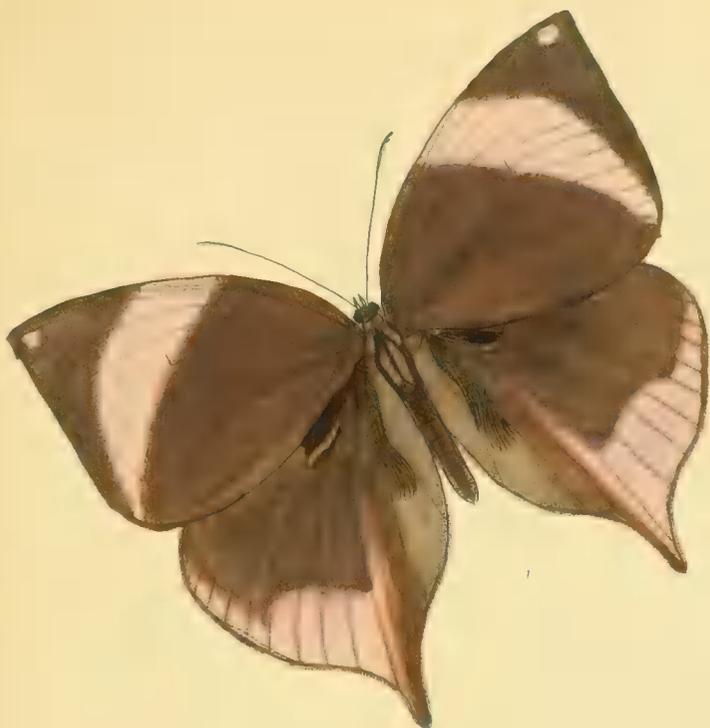


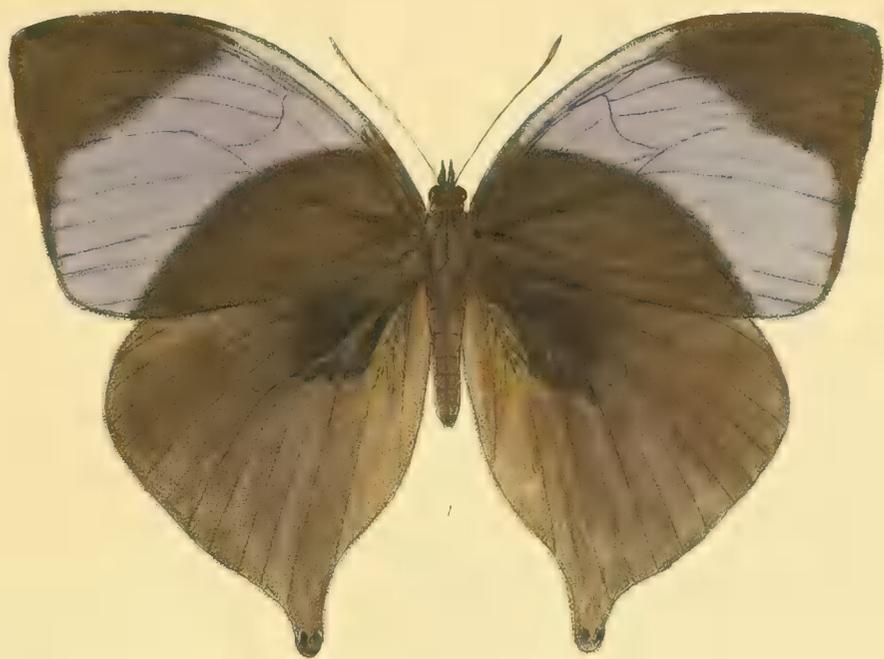














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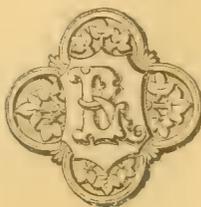
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androconia; and along the inner edge of the middle of the submedian vein is a lengthened fold and a narrow glandular pouch, with accompanying radiating tuft of erectile ochreous hairs. Underside pale purpurescent-cinereous. Forewing crossed by three chocolate-brown slender cell-streaks, an erect medial streak, and two discal more slender streaks, also by a less distinct submarginal line. Hindwing crossed by outwardly-oblique slender chocolate-brown cell-streaks, a long basal streak, which latter joins a medial streak by the subanal ocellus, beyond which is a discal streak which is bent below the ocellus and ascends up the abdominal margin, also a submarginal similar streak; a large ocellus situated between the subcostals, and another ocellus between the lower medians, each with grey and brown-speckled centre, white pupil, and a slender black outer ring. Body beneath, legs beneath, collar, and palpi pale lilacine-cinereous; palpi tipt with brown; legs above brown.

Female. Upperside pale ochreous-brown. Forewing crossed by a broad oblique medial yellow band, which is narrower than in the male, and does not extend across end of the cell, as occurs in the male; the inner edge of the band irregularly sinuous, there is also a faint brown wavy discal line across its middle, and a similar line near the outer margin; below the band is a small yellow lunate spot between the middle and lower medians. Hindwing with the spatulate-tail marked with two black-and-white lunate spots. Underside pale purpurescent-ochreous, crossed by similar but paler brown streaks, as in the male, the ocelli being larger.

Expanse ♂ $4\frac{4}{10}$ to 5, ♀ 5 to $5\frac{4}{10}$ inches.

HABITAT (? Sikkim). Assam; Sylhet; Cachar; Naga Hills; East Pegu; Tenasserim.

We have examined the type specimens in the collection of the British Museum, described by Mr. Doubleday as *Amythaon*, the specimens figured by Prof. Westwood, now in the Oxford University Museum (the male of which is badly engraved on the plate in his "Cabinet of Oriental Entomology," and was subsequently named "*Westwoodii*" by Mr. Butler); and, by the kindness of Mr. Walter Rothschild, we have also compared Dr. Felder's types of the male and female *Portheus*, these comparisons proving that they all represent but one species.

DISTRIBUTION.—"The Indian Museum, Calcutta, has specimens from Sibsagar, in Assam, from Sikkim, and from Cachar. The latter taken by Mr. Wood-Mason in August" (Butt. Ind. i. 293). According to Mr. Elwes (Trans. Ent. Soc. 1888, 334) "it occurs very rarely, if at all, in Sikkim." The type specimens described by Mr. E. Doubleday are labelled "Sylhet." We possess both sexes from Sylhet. Specimens from the Naga Hills are in the collection of Mr. P. Crowley. Mr. Elwes (P. Z. S. 1891, 270) records "three males and one female, taken by Mr. Doherty at the foot of the Karen Hills." Capt. C. T. Bingham "took a few specimens of both sexes in the autumn and winter months in the Thoungyeen forests in Upper

Tenasserim" (Butt. Ind. i. 293). Major C. H. E. Adamson (List of Burmese Butterflies, p. 10) "obtained two males, which flew into his tent about 6 p.m. on Christmas Day, 1879, when encamped in evergreen forest near the sources of the Thoungyeen River in Upper Tenasserim." We also possess a male from Tavoy. Mr. A. R. H. Tucker recently took specimens in Tavoy, in heavy forest, flying both at sundown and in the early morning.

INDO-MALAYAN ALLIED SPECIES OF AMATHUSIDIA.—*A. dilucida* (*Amathusia dilucida*, Honrath, Berl. Ent. Zeit. 1884, p. 206, pl. 3, fig. 3; pl. 4, fig. 3, b, ♀ (1884). Distant, Rhop. Malayana, p. 423, pl. 38, fig. 7, ♂ (1886). *Habitat.* Malay Peninsula.—*A. insularis* (*Amathusia insularis*, Doherty, Journ. Asiatic Soc. Bengal, 1891, p. 25. *Habitat.* Engano, Nias Islands.—*A. Porthaon* (*Amathusia Porthaon* Felder, Reise Novara, Lep. iii. p. 779 (1867). *Habitat.* Java.—*A. Ottomana*, Butler, Entom. Monthly Mag. 1869, p. 55. *Habitat.* Borneo.—*A. Pylaon* (*A. Pylaon*, Felder Reise Novara, Lep. iii. p. 461. *Habitat.* Java.—*A. Philippina* (*Amathusia Porthaus*, Semper, Reisen Archipel. Philippen, Lep. p. 71, pl. 13, fig. 7, ♀). *Habitat.* Philippines.

The following is an allied genus :—

AMAXIDIA, Staudinger, Exot. Schmett. i. p. 188 (1887).—Type. *A. Aurelius*, (Pap. Aurelius, Cramer, Pap. Exot. ii. pl. 168, figs. A, B (1779). Hewitson, Exot. Butt. *Zenx*, pl. figs. 1, 2 (1868). Distant, Rhop. Malayana, p. 425, pl. 37, fig. 1, ♂ (1886). *Habitat.* Sumatra; Malay Peninsula.—*A. aureliana* (*A. Aureliana*, Honrath, Berl. Ent. Zeit. 1889, p. 162). *Habitat.* Borneo.

Genus AMATHUSIA.

Amathusia, Fabricius, Syst. Gloss. (Illiger's Mag. vi. p. 279 (1807). Westwood, Gen. D. Lep. p. 326 (1851). Distant, Rhop. Malayana, p. 70 (1882). Marshall and de Nicéville, Butt. of India, etc. i. p. 288 (1883). Staudinger and Schätz, Exot. Schmett. ii. p. 185 (1889). *Mara* (part), Hübner, Verz. bek. Schmett. p. 51 (1816). *Mitocerus*, Billberg, Enum. Ins. p. 79 (1820).

IMAGO.—Male. Wings large, very broad. *Forewing* short, subtriangular; costa much arched, apex obtusely rounded, exterior margin almost even, slightly oblique, posterior angle round; posterior margin nearly straight; cell broad; first subcostal branch emitted at about one-fifth before end of the cell and free from the costal vein, second with the branches emitted close together near the apex; discocellulars erect from the middle, outwardly-oblique below the middle; upper radial from slight angle close to the subcostal, lower radial from above the middle of discocellulars; median veinlets wide apart, upper median slightly bent at one-third beyond end of the cell, but not spurred; submedian vein slightly recurved. *Hindwing* subtriangular, short, and very broad, produced posteriorly into a broad spatulate tail at

end of lower median and submedian; anterior margin arched; exterior margin slightly rounded and widely scalloped; abdominal margin long, convex in the middle; cell very long, narrow, completely open, but apparently partially closed by a transverse fold in the membrane of the wing, which extends from the upper median veinlet to near the lower subcostal (radial) at half the length of the latter; *submedian with a longitudinal groove extending along its inner edge, enclosing a glandular pouch and tuft of long erectile hairs* about the middle, a similar fold also along its outer edge, ending in a broad lateral fringe of fine hairs opposite the pouch. Thorax woolly; abdomen with the terminal segments furnished with lateral upward-curved tufts of hairs; eyes naked; palpi erect, rising above the vertex, slender, compressed, clothed with fine hairs above to the tip; antennæ long, slender, with a lengthened thin club and pointed tip.

ADULT CATERPILLAR.*—Cylindrical, slightly covered with rather short fine hairs arranged in tufts placed in rows along the body from the fifth to last segment, the anterior segments with transversely-disposed long forward-projecting hairs, the head with similar hairs. Head large, armed with two laterally-disposed palmated processes; anal segment also armed with two hindwardly-projected lengthened setose processes.

FOOD PLANT OF CATERPILLAR.—According to Dr. Horsfield, the larvæ, in Java, feed on the young leaves of the Coconut Palm, *Cocos nucifera*.

CHRYsalis.—Elongated, boat-shaped; thorax prolonged into an acuminate bifid head-piece.

TYPE.—*A. Phidippus*.

AMATHUSIA PHIDIPPUS (Plate 146, figs. 1, 1a, b, c, ♂, ♀; larva and pupa).

Papilio Phidippus, Johanssen, Amæn. Acad. vi. p. 402 (1764). Linnaeus, Syst. Nat. i. ii. p. 752 (1767). Cramer, Pap. Exot. i. pl. 69, figs. A, B, ♀ (1775). Fabricius, Ent. Syst. iii. i. p. 71 (1793).

Mara Phidippe, Hübner, Verz. Schmett. p. 51 (1816.)

Morpho Phidippus, Godart, Enc. Méth. ix. p. 439 (1823).

Amathusia Phidippus, Fabricius, Syst. Gloss. Illiger's Mag. vi. p. 279 (1807). Horsfield, Catal. Lep. E. I. C. pl. 7, figs. 10, a, b, larva, pupa, etc. (1829). Doubleday and Westwood, Gen. D. Lep. p. 327, pl. 54, fig 2, ♂ (1850). Moore, Catal. Lep. Mus. E. I. Company, i. p. 209, pl. 6, figs. 4, 4a (1857). Butler, Catal. Fabrician Lep. Brit. Mus. p. 45 (1869). Snellen, Tijd. Ent. 1876, p. 147. Distant, Rhop. Malayana, p. 70, pl. 6, figs. 6, 7, ♂, ♀ (1882). Marshall and de Nicéville, Butt. of India, etc. i. p. 289 (1883). Staudinger, Exot. Schmett. i. p. 187, pl. 63, ♂ (1887); *id.* ii. p. 185, pl. 31 (1889).

Amathusia Perakana, Honrath, Berl. Ent. Zeit. 1887, p. 348, pl. 6, fig. 2.

* Mr. de Nicéville's description of the larva of *A. Phidippus* (Butt. of India, p. 290) is quite erroneous, having been made from Horsfield's figure of the larva of *Discophora Celinde*.

IMAGO.—Male. Upperside dark olivescient ochreous-brown; cilia pale brownish-ochreous. *Forewing* with a paler indistinctly-defined oblique subapical fascia and a submarginal lunular fascia. *Hindwing* with the extreme outer margin slightly paler, and with a paler submarginal indistinctly-defined fascia; the lobate tail bearing two laterally-disposed small sublunate black spots outwardly edged with white; the long *hairy fringe of the glandular pouch* ochreous. Underside ochreous-brown; both wings crossed by several pale nacrescent-greyish narrow fasciæ, consisting of a basal, two subbasal, a narrower medial, two discal, and two slender submarginal and marginal fasciæ; an indistinct pale lunular nacrescent-grey fascia also extending between the outer discal and submarginal fascia, the interspaces between the basal and between the discal being darker ochreous-brown, and all conjointly ending above the anal angle of the hindwing. On the *hindwing* there is a large round apical ocellus and a similar posterior ocellus, both with yellow and black speckled centre, a small white pupil and slender black outer ring; the lobate tail with two similar or more rounded spots as on upperside. *Body* beneath, legs above and palpi ochreous-brown; collar, legs beneath and sides of palpi streaked with grey.

Female. Upperside. Both wings paler; crossed by the indistinctly visible paler basal and medial fasciæ of the underside. *Forewing* with a pale ochreous-yellow slender lunular discal fascia, a well-defined short broad subapical oblique band, followed by a broadly-lunular submarginal fascia and a narrower lunular marginal fascia. *Hindwing* also with a pale ochreous-yellow discal fascia, a more prominent broad submarginal and a narrow marginal fascia. Underside paler than in male; markings similar.

Expanse, ♂ $4\frac{1}{10}$, ♀ $4\frac{8}{10}$ inches.

ADULT CATERPILLAR.—Cylindrical, slightly covered with rather short fine hairs, arranged in tufts placed in rows along the body from the fifth to last segment, the anterior segments with transversely-disposed long forward-projecting hairs, the head with similar hairs. Head large, armed with two laterally-disposed palmated processes; anal segment also armed with two hindwardly-projected lengthened setose processes. Colour, light purpurescent-brown above, with a darker brown dorsal and lateral line; pale ochreous beneath, including the anterior segments and head; a transverse dorsal bar of black on fourth and third segments.

FOOD PLANT.—According to the late Dr. Horsfield, “the larvæ, in Java, feed on the young leaves of the Cocoa Nut Palm (*Cocos nucifera*) from December to April.”

CHRYSA LIS.—Elongated, boat-shaped; thorax prolonged into an acuminate bifid head-piece; colour green. (Described from Horsfield’s figure.)

HABITAT.—Burma; Tenasserim; Malay Peninsula; Andaman Isles.

DISTRIBUTION.—Major C. H. E. Adamson (List of Burmese Butterflies, p. 10) records it from “Akyab, in November,” remarking that it frequents old barns and

other dimly-lighted places." Mr. Ossian Limborg (P. Z. S. 1878, 826) obtained it at "Meetan, 3000 feet elevation, in Upper Tenasserim."

A VARIETY OF THE MALE (see our Plate 147, fig. 1) in Mr. F. D. Godman's collection, labelled "East Pegu, March and April, 1890," taken by Mr. W. Doherty, has the upperside much darker brown, the forewing having a conspicuous well-defined short broad pale ochreous oblique subapical fascia, followed by broad submarginal lunules, similar to those in the female, and the hindwing has both the submarginal and marginal fascia also paler. The underside of this male has the fasciæ disposed similarly to those in Honrath's figure of Perakana. Dr. J. Anderson (Journ. Linn. Soc. Zool. 1886, 33) took "both sexes at Thaing, King Island, in the Mergui Archipelago, in January. Mr. F. de Roepstorff obtained many examples at Port Blair, S. Andamans, these differing from the normal specimens as follows :—

ANDAMAN FORM. (See our Plate 147, fig. 2, ♀.)

Male. Upperside similar to Burmese examples. Underside paler than both Burmese and Malayan, the *hindwing* possessing a more or less complete series of ocelli, instead of the normal single apical and anal ocellus. Female. Upperside paler, with the pale fasciæ of underside visible. *Forewing* with a more sharply-defined pale ochreous-yellow subapical oblique fascia, slender lower discal lunules, and broad submarginal spots. *Hindwing* with the exterior margin more convex and sharply scalloped, and more sharply-defined pale ochreous-yellow discal lunular line, submarginal and marginal fascia, the two former being more irregular in their course. Underside with the ground-colour conspicuously paler; the transverse fasciæ similar. *Hindwing* with a more or less complete series of five ocelli, the lower second being of the same size as the upper, the third smaller, the fourth incipiently indicated by black scales. Expanse, ♂ $4\frac{2}{10}$, ♀ $4\frac{6}{10}$, inches. Specimens from the Andaman Islands, agreeing with the above, are also in the Indian Museum, Calcutta, and several of both sexes are in Mr. L. de Nicéville's collection.

DISTRIBUTION OUTSIDE OUR AREA.—Mr. Distant (Rhop. Malay. p. 71) records it from the "Malay Peninsula, Penang, Sumatra, and Billiton." Mr. Druce (P. Z. S. 1874, 104) gives "Chentaboon, Siam, and Borneo." Dr. Horsfield obtained it frequently, and reared their larvæ, in Java.

HABITS OF IMAGO.—"Several writers have noted the crepuscular habits of *A. Phidippus*, and it is often found in Coccoanut Palm groves" (Butt. Ind. i. 290). Major Adamson (List, p. 10) found it in Akyab, "frequenting old barns and other dimly-lighted places, in November." "In the Malay Peninsula, this butterfly possesses the local name of 'Coccoanut Moth,'" and, as Mr. Bigg writes: "it delights in shady places, and is especially found about Attap-sheds and on dead

cocoanut leaves" (Distant, Rhop. Malay. 71). "In Java," according to Mr. Piepers (Tijd. xix. pp. 18, 24) "the sun has scarcely set before we see everywhere this and a few other species of like habits;" but the same author remarks, "I never saw these species wandering about at night in the moonlight, or entering lighted rooms, like the true night-moths, although, like the latter, they sit still and repose all day, and, if disturbed, only fly a little way and settle again directly" (Distant, l. c. p. 71). Mr. Collingwood (Rambles of a Naturalist, 183) speaks of these butterflies in the Bornean Island, Labuan, as making "their appearance near sunset, when, from their large size, they might be almost mistaken for small bats."

Of our illustrations of this species on Plate 146, figs. 1, 1a, b represent the male and female from Burma, and fig. 1c the larva and pupa, from Horsfield's drawings. On Plate 147, fig. 1 represents the Pegu male variety, and fig. 2 the Andaman female.

INDO-MALAYAN ALLIED SPECIES OF AMATHUSIA.—*Amath. Pollicaris*, Butler, Trans. Ent. Soc. 1870, p. 485. Semper, Reisen Archipel. Philippen, Lep. p. 71. *Habitat.* Luzon, Philippines.—*Amath. Schonbergii*, Honrath, Berl. Ent. Zeit. 1887, p. 347, pl. 6, fig. 1. *Habitat.* Malay Peninsula (? Borneo).—*Amath. Ochraceofusca*, Honrath, *id.* p. 348. *Habitat.* Malay Peninsula.

The following is an allied genus:—PSEUDAMATHUSIA, Honrath, Corr.-Blatt. Iris, 1886, p. 91. *P. virgata* (*Amathusia virgata* Butler, Trans. Ent. Soc. 1870, p. 486). *Syn. P. Ribbei*, Honrath, *id.* p. 91, pl. 3, fig. 1 (1886). *Habitat.* Celebes.

Genus NANDOGEA.

IMAGO.—Male. *Forewing* with the apex and exterior margin more rounded than in *Thaumantis* (*Odana*); cell broader. *Hindwing* more rounded, the exterior margin more uneven, anal angle convex and not produced posteriorly; furnished with only a small *slender tuft* of erectile hairs arising from below base of the subcostal, *but not accompanied with any perceptible glandular patch*, either above or within the cell (as occurs in *Odana*). On the underside of the forewing there is a short nacreous basal area below the median vein, and an *elongated dull silvery-patch* below the base of the submedian vein.

TYPE.—*N. Diores*.

NANDOGEA DIORES (Plate 148, figs. 1, 1a, b, ♂, ♀).

Thaumantis Diores, Doubleday, Annals of Nat. Hist. 1845, p. 234. Westwood, Gen. D. Lep. p. 337 (1851), *id.* Trans. Ent. Soc. 1856, p. 171. Moore, Catal. Lep. Mus. E. I. Company, i. p. 215 (1857). Marshall and de Nicéville, Butt. of India, etc. i. p. 304 (1883).

Thaumantis Ramdeo, Moore (Westwood, Trans. Ent. Soc. 1856, p. 172) ; Catal. Lep. Mus. E. I. Company, i. p. 215 (1857).

IMAGO.—Male. Upperside dusky purpurescent-brown, somewhat palest externally ; cilia cinerescence-brown. *Forewing* with a broad excurved discal brilliant metallic-blue band, which extends from the costal vein outside the cell to just beneath the lower median veinlet, the blue being of a bright violaceous ultramarine tint, with pale cobalt-blue scales disposed lunularly upon its outer half ; a slightly-defined lilacine-speckled lunular streak descending from the costa before the apex. *Hindwing* with a large medial-discal rounded similar brilliant blue patch, with pale cobalt-blue centre. Underside paler ; the outer border broadly palest and somewhat cinerescence-brown. *Forewing* crossed within the cell by two prominent darker purpurescent-brown waved fasciæ, one upon the discocellulars, an outwardly-oblique inner-discal sinuous line, an erect outer-discal sinuous line, and a much less-defined zigzag submarginal line ; the three latter lines outwardly-edged with lilacine-white scales, which are sharply defined on the erect outer-discal line, the interspace between the latter and the submarginal line being also sprinkled with lilacine scales. *Hindwing* crossed by a similar prominent darker brown angulated subbasal line, a wavy inner-discal line, a sinuous outer-discal line, and a less-defined zigzag submarginal line, the two latter lines and their interspace speckled with lilacine scales ; between the subcostals is a prominent small round yellow ocellus, with a black outwardly-disposed central dot and outer black ring, and between the lower medians is a larger well-formed rounded ocellus, with black centre speckled with a few lilacine scales, a slender yellow ring and a black outer ring ; there is also a small black anal spot situated outside the end of the submarginal line. Body, legs, and palpi dark-brown ; antennæ reddish.

Female. Upperside as in the male. Underside also as in the male, but with the markings more prominently defined.

In the form named *Ramdeo*, the upperside of both sexes differs only in having the brilliant blue patch extending over the whole of the middle of the wings, the patch also being even more intensely brilliant in its lustre. The underside also differs only in being somewhat paler, and in having the two ocelloid spots on the hindwing smaller and less prominently developed.

Expanse, ♂ 4, ♀ $4\frac{6}{10}$ to $4\frac{8}{10}$ inches.

HABITAT.—Sikkim ; Assam ; Naga and Khasia Hills ; Silket ; Burma.

DISTRIBUTION.—“ It is not uncommon in Sikkim.” Mr. Wood-Mason took it on Nemotha, in Cachar, in September and October, noting that the “ scent fans of the male are vanilla-scented ” (Butt. Ind. 305). “ *Ramdeo* is also found over the same ground as *Diores* ; the Indian Museum, Calcutta, has it from Sibsagar, in Assam, and from the Daffla Hills ” (*id.* p. 306). According to Mr. Elwes (Tr. Ent. Soc. 1888, 333) “ this species is not uncommon in shady ravines in Sikkim at from 2000 to 4000

feet elevation. It flies slowly among dense herbage near the ground in the shade. The form described as *Ramdeo* is considered by Mr. Otto Möller only as a second brood of *Diores*, which he gets from April to June, whilst *Ramdeo* occurs later in the year, from about August to October." Dr. G. Watt obtained specimens during his journey to Manipur (Butler, Ann. N. H. 1885, 302). Numerous specimens in Colonel C. Swinhoe's collection were taken in the Khasia Hills by the Rev. W. Hamilton's native collectors. Major C. H. E. Adamson (List Burmese Lep. 10) obtained it "not uncommon about Bhamo in the cold season. One specimen also taken in Arakan." Mr. Elwes (P. Z. S. 1891, 271) records its capture by Mr. W. Doherty, but not abundantly in the Karen Hills, East Pegu. Mons. G. A. Poujade (Nouvelles Arch. du Mus. Paris, 1892, p. 264) records it from Luang Prabang, Laos.

INDO-MALAYAN allied genera:—

Genus THAUMANTIS.—*Thaumantis*, Hübner, Samml. Exot. Schmett. ii. Index Syst. p. 2, pl. 61 (1822-26). Blanchard, Hist. Nat. Ins. iii. p. 455 (1840). Westwood, Gen. D. Lep. p. 335 (1851), *id.* Trans. Ent. Soc. London, 1856, p. 170. Distant, Rhop. Malayana, p. 77 (1882). Marshall and de Nicéville, Butt. of India, etc. i. p. 304 (1883). Staudinger and Schätz. Exot. Schmett. ii. p. 185 (1889).

IMAGO.—Male. Wings large, broad, short. *Forewing* subtriangular; costa much arched, apex obtusely rounded, exterior margin almost erect, even; posterior angle rounded; cell very broad; first subcostal branch emitted at one-fifth before end of the cell, anastomosed to the costal for some distance before its end and touching the base of the second subcostal just beyond its base; second subcostal emitted at two-thirds beyond the cell; discocellulars long, outwardly-oblique and slightly concave in the middle; radials from slight angles near upper end of discocellulars; middle median veinlet emitted at a short distance before end of the cell, upper median obtusely arched beyond the cell. *Hindwing* with the apex rounded, exterior margin oblique, anal angle slightly produced; first subcostal branch emitted at from half length of the cell area, second at an equal distance; upper median veinlet much bent beyond its base, the angle approximating closely to the radial (third subcostal); cell open; submedian vein straight; internal vein long; on the upper side there is a *nacreous-bordered narrow glandular patch* of scales situated above the base of the subcostal, the patch being overlapped by a *lengthened tuft of long erectile hairs* extending from below the base of the subcostal; and *within the cell* there is a *large black glandular patch* of raised scales, which occupy the upper middle of the cell, this latter patch is not nacreous-bordered. On the underside of the forewing, the basal area below the median vein is broadly nacreous and has a *very small patch of dull silvery-scales* below the submedian near its base. Body robust; thorax woolly; head large, with a small pointed frontal tuft; eyes prominent, large, naked; palpi nearly erect

slender, compactly clothed in front, laxly clothed above; apical joint short, pointed; antennæ long, distinctly annulated, slender. *Type*.—T. Odana (*Morpho Odana*, Godart, Enc. Meth. ix. p. 445 (1823). Horsfield, Catal. Lep. Mus. E. I. C. pl. 6, figs. 5, 5a, ♂ (1829). Boisduval, Spec. Gen. Lep. pl. 12, fig. 1 (1836). Distant, Rhop. Malay. p. 427, pl. 36, fig. 3, ♂ (1886). Staudinger, Exot. Sch. i. pl. 65; *id.* ii. p. 185, pl. 30. M. Klugius, Zinken-Som. Nov. Acta (1831), pl. 15, figs. 12, 13, ♀ only. *Habitat*.—Malay Peninsula; Singapore; Sumatra; Nias; Java; Borneo.

Genus KRINGANA.—IMAGO.—Male. *Forewing* obtusely truncated at the apex. *Hindwing* narrowed posteriorly and anal angle more prolonged than in *Thaumantis*; furnished with two conspicuous superposed conjoined glandular patches, each with a nacreous border and tuft of hairs; the upper patch being situated above the base of the subcostal, and the lower patch within the cell; the cell is much broader across the middle; and the first subcostal branch emitted at fully two-thirds from the base of the cell. *Type*.—K. Nouredin (*Thaumantis Nouredin*, Westwood, Gen. D. Lep. p. 337 (1851). Trans. Ent. Soc. 1856, p. 175, pl. 20, figs. 1, 2, ♂ ♀. Distant, Rhop. Malay. p. 78, pl. 6, fig. 3, ♂, pl. 9, fig. 7,) ♀ 1882). *Habitat*. Malay Peninsula; Borneo.—K. Klugius (*Morpho Klugius*, Zinken-Som. Nova Acta (1831), p. 165, pl. 15, fig. 11, ♂ only. *Habitat*. Java.—K. Lucipor (T. Lucipor, Westwood, Gen. D. Lep. p. 337, Tr. Ent. Soc. 1856, p. 173, pl. 19, figs. 1, 2, ♂ ♀. Distant, Rhop. Malay. p. 77, pl. 9, figs. 8, 9, ♂ ♀ (1882). *Habitat*. Malay Peninsula; Sarawak; Borneo.

Genus THAURIA.

IMAGO.—Male. Wings short, broad, robust. *Forewing* with the posterior margin convex towards the base; cell very broad, short; first subcostal branch slightly touching the costal near its end; lower and middle median veinlets nearer together and at equal distances from end of the cell. *Hindwing* ovate; anterior margin convex, exterior margin broadly scalloped; first subcostal branch emitted at two-thirds from the base, the second at three-thirds; the radial starting from below the second subcostal at a short distance from its base; the cell open; the upper median much arched from its base; a large irregular-shaped glandular patch of black scales extending from near the costal vein to beyond the base of subcostal and upper area of the cell, this patch being overlapped by an out-spreading tuft of long hairs arising from base of the cell; the lower cell-area and the base of the wing to the submedian vein also being clothed with long hairs; a pale yellow glandular pouch between the submedian and the internal vein near the middle, the pouch enclosing a tuft of short brown radiating hairs. On the underside of the forewing is a lengthened dull silvery-patch of scales below the base of the submedian vein. *Body* very robust; thorax very woolly; abdomen above clothed with long woolly tufts and laterally

with upward-curved subanal tufts of long hairs; abdomen beneath with a *glandular patch* of ochreous scales; palpi compactly clothed in front, hairy above; antennæ long, slender.

TYPE.—T. Aliris.

THAURIA PSEUDALIRIS (Plate 149, figs. 1, 1a, b, ♂ ♀).

Thaumantis pseudaliris, Butler, Journ. Linn. Soc. Zool. 1867, p. 115; *id.* Trans. Linn. Soc. Zool. 1876, p. 538, pl. 68, fig. 1, ♂; *id.* Annals of Nat. Hist. 1882, p. 372. Distant, Rhop. Malayana, p. 79, pl. 8, fig. 3, ♂ (1882). Marshall and de Nicéville, Butt. of India, etc. i. p. 307 (1883).

Thaumantis Aliris, Westwood, Trans. Ent. Soc. 1856, p. 176 (male only).

IMAGO.—Male. Upperside. *Forewing* dark purplish-brown, the base ferruginous-brown; crossed by a very prominent oblique medial pale yellow band, which is intersected by the dark veins, the band extending from the costa beyond the cell to the lower median veinlet, and is continued below it by a small coalescent speckled spot of the same colour; a lilacine-white spot before the apex, and a less-defined speckled spot obliquely below it. *Hindwing* with the basal area dark ferruginous-brown, the discal area broadly to the middle of the outer margin being purplish-black; the base of the costa pale ochreous-yellow; the apical border narrowly and the posterior border very broadly to above the anal angle deep orange-yellow; a large *black subcostal glandular patch* and *overlapping out-spreading fine long hairs*, these hairs also extending over the cell to near the abdominal margin above the anal angle, pale brown; a narrow pale yellow *glandular pouch* bordering the middle of the internal vein and enclosing a small tuft of short brown hairs. Underside. *Forewing* with the oblique discal band pale ochreous-yellow and extending entire from the costa to above the posterior angle; the basal area densely woolly and ochreous-grey; the inner border of the oblique band and the apical area dark chestnut-red, the latter crossed by a darker line extending from before the apex and with a small white inner costal spot, the area between this line and the yellow band being marked with blackish strigæ, and the posterior angle also marked with similar strigæ; the grey basal cell area crossed by a blackish recurved streak, a chestnut-red cordate spot, another above it on the costa and a smaller spot at base of the cell. *Hindwing* with the basal area from the costa to near the anal angle ochreous-grey, densely woolly and traversed by an irregular chestnut-red streak extending from the costa across the cell, and with an inner and an outer red spot also within the cell; the disc crossed by a broad, strongly-defined chestnut-red band which decreases in width from the costa to anal angle, the outer edge of the band being blackish and irregularly angulated inward between the upper subcostal and the middle of the cell, and incurved between the lower median veinlets, in both these angulated parts it is white-bordered externally; the outer area from the irregular-edged band dark orange-yellow, traversed by an upper

submarginal chestnut-red lunular fascia and a dusky-brown marginal line, the anal portion of the latter line being white and ending in a small narrow black anal spot; a large olivescient-ochreous ocellus between the subcostals and another ocellus between the lower medians, the upper one with a minute white-speckled centre and slender black outer ring and then a pale outer lunule, the lower ocellus having a white-speckled centre, an inner transverse white streak and broad black lunule, an outer slender black ring and then a slightly-defined pale lunule on its outer half. *Body* above brown; a streak on sides of thorax and front of head chestnut-red; body beneath and legs beneath ochreous-grey; abdomen beneath with a *glandular patch of ochreous scales*; legs above brown; fore tarsi reddish; palpi brownish above, whitish below; antennæ red.

Female. Upperside coloured and marked as in the male, except that on the forewing the oblique pale yellow band is much broader, and the lilacine-white sub-apical spot larger. Underside also as in the male, except that the base is paler grey, and on the forewing the yellow band is broader and paler.

Expanse, ♂ $4\frac{2}{10}$ to $4\frac{4}{10}$, ♀ $4\frac{5}{10}$ to $5\frac{2}{10}$ inches.

HABITAT.—Lower Burma, Tenasserim; Malay Peninsula.

DISTRIBUTION.—“ Captain C. T. Bingham obtained specimens of this rare butterfly in the Thoungyeen forests and in the Donat Range, Upper Tenasserim, in October and April. It was also taken by Mr. Ossian Limborg, who collected near the same ground, from December to April” (Butt. Ind. i. 308). “ Mr. W. Doherty took several specimens in March and April, at the foot of the Karen Hills, E. Pegu” (Elwes, P. Z. S. 1891, 271). It also occurs at Malacca, in the Malay Peninsula, and in the Island of Salanga.

ALLIED BORNEAN SPECIES.—*Thauria Aliris* (Thaumantis Aliris, Westwood, Trans. Ent. Soc. 1856, p. 176, pl. 17, ♀). *Habitat.* Borneo.

Genus DISCOPHORA.

Discophora, Boisduval, Spéc. Gen. Lep. i. pl. 12, fig. 3 (1836). Westwood, Gen. D. Lep. p. 329 (1851). Moore, Lep. Ceylon, i. p. 35 (1881). Distant, Rhop. Malayana, p. 74 (1882). Marshall and de Nicéville, Butt. of India, etc. i. p. 294 (1883). Staudinger and Schätz, Exot. Schmett. ii. p. 186 (1889).

Mæra (part), Hübner, Verz. bek. Schmett. p. 51 (1816).

IMAGO.—Male. Wings large, short. *Forewing* broad, triangular; costa much arched, apex acute, exterior margin straight, slightly oblique, posterior angle obtusely rounded, posterior margin straight; cell extending to nearly half the wing; costal vein extending to one-fourth from the apex; first subcostal branch arising at one-fourth before end of the cell and anastomosed to the costal vein for some distance before its end; second subcostal anastomosed to the first at its end, four branched;

discocellulars outwardly-oblique, upper discocellular short, extending outward in a nearly straight line with base of the subcostal, twice contiguously bent at its outer end, the lower discocellular long and deeply concave; the radials from angles of upper discocellular; median veinlets equidistant apart, the upper angled at end of the cell; submedian vein recurved from its base. *Hindwing* broad, triangular; costa slightly arched, apex and exterior margin convex, the exterior margin broadly, somewhat subangulate in the middle; abdominal margin long; anal angle obtuse; cell narrow, entirely open; lower half of the cell and the longitudinal fold below the median from the base clothed with fine hairs; with a conspicuous large obconical *velvety-black glandular patch* on the upperside, situated across the base of the upper median veinlets, the patch being clothed with densely-packed raised lengthened broad scales of equal width and with obtuse or slightly obtusely-dentate tip; *no androconia*; also a small *glandular pouch* close to the base of the short internal vein, between it and the edge of abdominal margin, the pouch being covered with glossy smooth scales and enclosing an appressed tuft of short stout rigid hairs. Body robust, woolly; *abdomen beneath* with a small *glandular patch* of laxly raised ochreous scales on each side of the keel near the base; head rather small, front woolly; palpi compressed, almost erect, extending above the vertex, compactly clothed beneath and hairy above, terminal joint short; antennæ long, with a lengthened slender club; eyes large, prominent, naked; forelegs of male small, very hairy.

ADULT CATERPILLAR.—Long, cylindrical, anal segment furnished with two short divergent processes; head small; clothed with dorsal and lateral rows of fine short radiating hairs arising from tubercles.

FOOD PLANT.—Feeds on the young leaves of the Coconut Palm (*Cocos nucifera*).

CHRYsalis.—Boat-shaped, broad across the middle; head-piece prolonged and acuminate into a bifid point.

TYPE.—D. *Celinde*.

DISCOPHORA CONTINENTALIS (Plate 150, figs. 1, 1a, b, c, ♂ ♀, larva and pupa).

Discophora Celinde, Distant, Rhop. Malay. p. 75, pl. 5, figs. 10, 11, ♂ ♀ (1882). Marshall and de Nicéville, Butt. of India, etc. i. p. 295, fig. ♂ ♀ (1883).—*nec* Stoll.

Discophora continentalis et *andamanensis*, Staudinger, Exot. Schmett. i. p. 190 (1887).

IMAGO.—Male. Upperside dark olivaceous purplish-brown, with deep indigo-blue reflections in certain lights. Cilia ochreous. *Forewing* with a small pale ochreous longitudinally-oval spot beneath the lower subcostal, and a series of three more or less defined smaller lower decreasing lunate spots, followed by a submarginal series of four (sometimes five) smaller spots, which latter vary in size and are more or less lunate or pointed. *Hindwing* with a prominent obconical pale-bordered

velvety-black glandular patch situated across the base of the upper median veinlets, the patch clothed with densely-packed raised lengthened broad scales of equal width and with obtuse or slightly-obtusely-dentate tips; *no androconia*.

Underside. Both wings with the ground-colour more or less brownish-ochreous, with numerous short transverse dark brown strigæ, most numerous externally; crossed by a dark brown narrow subbasal zigzag fascia, a broad medial discal fascia, a much less-defined outer discal fascia, and two submarginal slender lunulate fasciæ; some small blackish spots at base of the cells and one or two spots at the end; the outer borders between the submarginal fasciæ slightly irrorated with lilacine-white scales. *Hindwing* with two round ocelli outside the medial discal fascia, the upper one being between the subcostals, the other, somewhat smaller, between the lower medians, each with a reddish centre, white pupil, narrow yellow and black ring and then a yellow lunule on its inner edge. Abdomen beneath with a small glandular patch of laxly raised ochreous scales, placed on each side of the keel near the base.

Female. Upperside paler purpurescent-brown, darkest externally, without any blue reflections. *Forewing* crossed by a broad excurved discal ochreous band, which commences from middle of the costa and extends in an equal width to the middle median veinlet, below which it is narrowed to near the submedian, followed by a contiguous submarginal series of three large lunate patches, a fourth upper smaller patch being slightly indicated by ochreous speckles; beyond is a marginal row of slender lunules; a small inner discal ochreous spot between the lower median veinlets. In Burmese specimens the excurved discal band is very broad, and in Malacca specimens this band and the submarginal lunate spots are united. *Hindwing* with an ill-defined submarginal and marginal series of narrow ochreous lunules and a much less apparent upper discal spot. Underside paler than in male, the strigæ less prominent and more uniformly disposed, and the transverse fasciæ less apparent; ocelli on hindwing duller coloured.

Expanse, ♂ $3\frac{6}{10}$, ♀ $4\frac{4}{10}$ inches.

ADULT CATERPILLAR.—Long, cylindrical, anal segment armed with two short divergent processes; clothed with dorsal and lateral rows of fine short radiating hairs arising from tubercles; colour pale purpurescent-brown, with a much paler dorsal and lateral bands extending the whole length; the dorsal band edged on each segment with two short black longitudinal anterior streaks; head of moderate size, darker brown; legs with darker brown bands. Feeds on the young leaves of the Coconut Palm (*Cocos nucifera*).

CHRYsalis.—Boat-shaped, broad across the middle; head-piece prolonged and acuminate into a bifid point; colour pale purpurescent-brown. (Described from Horsfield's figure of Java *D. Celinde*.)

HABITAT.—N.-E. India; Burma; Andaman Isles; Malay Peninsula.

DISTRIBUTION AND HABITS.—“In Sikkim, Mr. L. de Nicéville took it at low elevations, where he found the males commonly sucking up moisture from damp spots, with their wings folded; when disturbed they fly off into the jungle. The rich indigo-blue of the upperside of the male, when fresh, makes it a very handsome insect on the wing. In Sikkim it is not uncommon. The Indian Museum, Calcutta, has specimens from Sibsagar, Upper Assam” (Butt. Ind. i. 295, 6). According to Mr. Elwes (Tr. Ent. Soc. 1888, 331), it is “not rare in the lower valleys of Sikkim up to about 2000 feet, from March to November.” Col. C. Swinhoe has received numerous specimens taken in the Khasia Hills by Mr. Hamilton’s native collectors. Major C. H. E. Adamson obtained it at Bhamo in Upper Burma, where the males were very common on moist places on roads throughout the rainy season; the females never leave the thick undergrowth of the adjoining forest, where, however, they can easily be found” (List, p. 11). Mr. Ossian Limborg (P. Z. S. 1878, 827) obtained it at the “Houngduran Source, in Upper Tenasserim.” Capt. C. T. Bingham “took it at Houndran in Upper Tenasserim” (Butt. Ind. i. 295). Specimens from the Karen Hills are in Mr. P. Crowley’s collection. Dr. J. Anderson (J. Linn. Soc. Zool. 1886, 33) took it on Elphinstone Island, Mergui Archipelago, in February and March.” The late Mr. F. de Roepstorff obtained specimens at Port Blair, South Andamans, the males having the ochreous spots on the forewing all small, inconspicuous, and narrow, the submarginal row being indicated by slender longitudinal pale points—as in some Sikkim specimens; the female having the ochreous band on the forewing, as described by Mr. de Nicéville, including the upper submarginal lunate patch, the dark dividing line between them being obsolete. In specimens from the Malay Peninsula the male has the ochreous spots on the forewing conspicuous, and in the female the ochreous band is broader, including within it the entire submarginal patches.

Of our illustrations of this species on Plate 150, fig. 1, 1a, b represents the male and female, and fig. 1c the larva and pupa, reproduced from Horsfield’s figures of the Javanese *D. Celinde*.

DISCOPHORA LEPIDA (Plate 151, figs. 1, 1a, b, c, ♂ ♀).

Enispe lepida, Moore, Catal. Lep. Mus. East India Company, i. p. 213, ♀ (1857).

Discophora lepida, Moore, Lep. Ceylon, i. p. 36, pl. 18, figs. 1, 1a, b, ♂ ♀ (1880). Marshall and de Nicéville, Butt. of India, etc. i. p. 297 (1883).

IMAGO.—Male. Upperside dark purplish-brown, the discal area darkest. *Forewing* crossed by an oblique subapical series of three decreasing bluish-white spots, a fourth lower smaller spot also sometimes being present, followed by a submarginal series of small bluish dots. *Hindwing* with a distinct discal *black glandular patch* of raised scales. Underside dark brownish-ochreous, darkest externally; with numerous

transverse darker brown strigæ, cell spots, a subbasal sinuous line, discocellular spot, a broader discal fascia, and outer submarginal sinuous pale speckled-bordered fascia. *Hindwing* with a prominent upper and lower ocellus, each with reddish-ochreous centre, white pupil, black ring, and then an outer yellow ring. Body, palpi, and legs beneath brownish-ochreous; abdomen beneath with a small glandular patch of raised lax scales, placed on each side of the keel near the base.

Female. Upperside paler, fading to an ochreous-brown. *Forewing* with a broad oblique subapical transverse bluish-white coalescent macular band, cut by the brown veins and the lower portions very sinuous edged; an inner discal row of three small bluish-white diamond-shaped spots, and an outer submarginal row of pale bluish-ochreous broadly-lunate spots. *Hindwing* with three rows of pale ochreous irregular lunate-dentate spots, and marginal lunular line. Underside pale ochreous or olivescens-ochreous, crossed by ill-defined markings and fasciæ, as in the male, the two ocelli on hindwing less prominent and with pale ochreous centre.

Expanse, ♂ $3\frac{1}{10}$, ♀ 4 inches.

HABITAT.—S. India. Ceylon.

This species, in the character of the markings on the forewing of the male, connects the group represented by the Malayan species *Dis*, *Necho*, etc., with that of the *Tullia* group.

DISTRIBUTION.—The *type* specimen of the female was taken in Canara by Mr. S. N. Ward. A male and female from the same locality subsequently came into our own possession from the remains of Mr. Ward's collections, and from which our descriptions and figures are now taken. We also possess a female from Travancore. Both sexes have also been "taken by Mr. H. S. Fergusson in the Ashambo Hills, Travancore" (Butt. of India, 297). Capt. E. Y. Watson also obtained a single female at Kathlekan, Kadur District, Mysore, in November, which is now in the British Museum Collection. In Ceylon, it was taken by the late Dr. Thwaites, and from whose original drawings the female in "Lepidoptera of Ceylon," pl. 18, figs. 1a, b, were copied. Capt. F. J. Hutchinson also took it "in forest land near Galle in July, where it is very rare" (Lep. Ceylon, i. 36). Mr. F. M. Mackwood, in his MS. Notes, says "one specimen only taken; caught in Ambegamo."

DISCOPHORA ZAL (Plate 152, figs. 1, 1a, b, c, ♂ ♀).

Discophora Zal, Westwood, Gen. D. Lep. p. 331 (1851); *id.* Trans. Ent. Soc. 1856, p. 188, pl. 21, figs. 5, 6, ♀. Marshall and de Nicéville, Butt. of India, etc. i. p. 299 (1883).

IMAGO.—Male. Upperside dusky ochreous-brown. *Forewing* crossed by a discal row of six (the first and third upper being minute) and two submarginal rows of five well-defined spots, the discal and outer submarginal row being parallel with

the outer margin, the middle row being slightly incurved; the discal and inner submarginal row are lilacine-white, the former somewhat diamond-shaped, the latter broadly triangulate, the outer row being pale ochreous and narrowly lunate; a dusky-brown spot upon the middle of the discocellulars, and a dot obliquely below it within the cell, these two spots being indistinctly ochreous-bordered. *Hindwing* crossed by a short upper discal and two complete submarginal rows of pale ochreous triangulate spots, followed by a broad lunular marginal border; the discal *black glandular patch* very prominent. Underside ochreous; crossed by a broad inner-discal purple-brown somewhat sinuous-edged fascia, composed of speckled strigæ, a less-defined similar outer discal fascia, and a narrower submarginal fascia; there is also a narrow sinuous but less-defined subbasal fascia, and two basal cell-dots, and a discocellular speckled-dot. On the *hindwing* also there is a small ocellate spot between the subcostals and a less-defined ocellule between the lower medians. Body, palpi, and legs beneath pale ochreous. Abdomen beneath with a small glandular patch of laxly raised ochreous scales, placed on each side of the keel near the base.

Female. Upperside somewhat paler ochreous-brown, darkest externally; the basal half being somewhat ochreous. *Forewing* crossed by three similar rows of larger spots, the discal row being lilacine-white and with a larger upper spot, the two upper also being bent inward to near the costa, the lower of the middle row ochreous-tinged, the outer row ochreous, and the two inner spots above and those below the radial confluent; the discocellular and cell spots distinct, their borders and the basal interspaces of the medians pale ochreous. *Hindwing* crossed by a complete discal and two submarginal rows of ochreous triangulate spots; the cell spot distinct. Underside paler than in the male, markings the same, the two small ocellules on the hindwing white-centred.

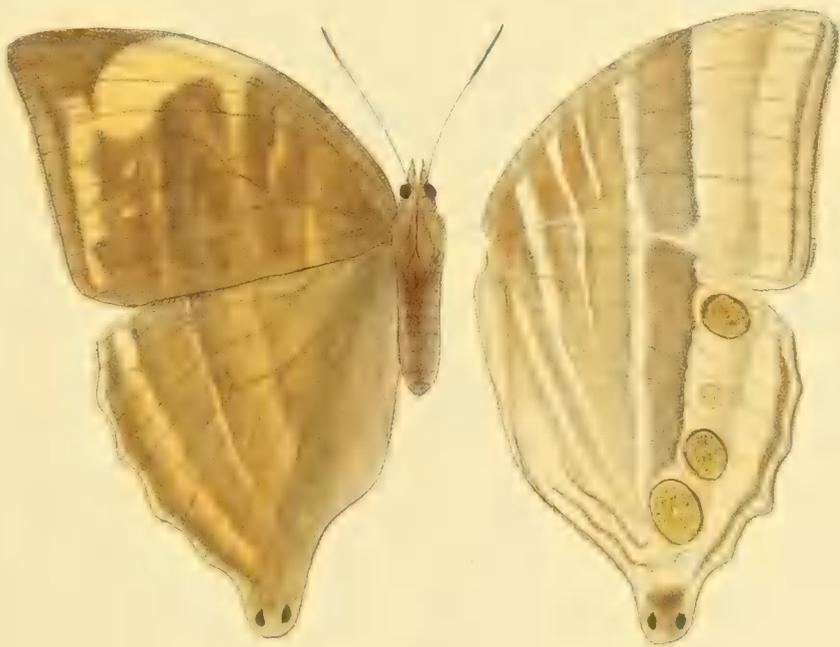
Expanse, ♂ $3\frac{2}{10}$ to $3\frac{5}{10}$, ♀ $3\frac{8}{10}$ inches.

HABITAT.—Khasia Hills. Upper Burma.

DISTRIBUTION.—We possess specimens of this species from the Khasia Hills, taken by Major Godwin-Austen. Specimens are also in the collection of Mr. Philip Crowley. Major C. H. E. Adamson has a male, taken at Singoo, 4000 feet elevation, in March, and a female taken at Kindat, Upper Burma, in April, 1892, both of which are typical D. Zal.

DISCOPHORA INDICA (Plate 153, figs. 1, 1a, b, c, d, ♂ ♀, larva and pupa).

Discophora Tullia, Moore, Catal. Lep. Mus. East India Company, i. p. 211, pl. 12, figs. 15, 15a, *larva and pupa* (1857). Distant, Rhop. Malayana, p. 74, pl. 7, figs. 8, 9, ♂ ♀ (1883); Ann. Nat. Hist.





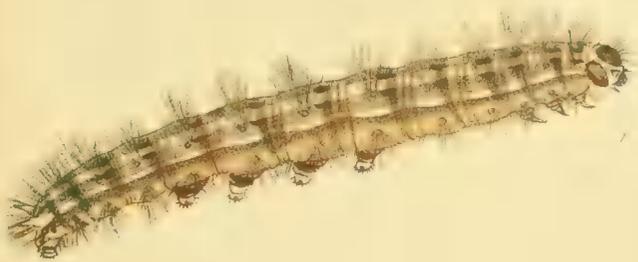




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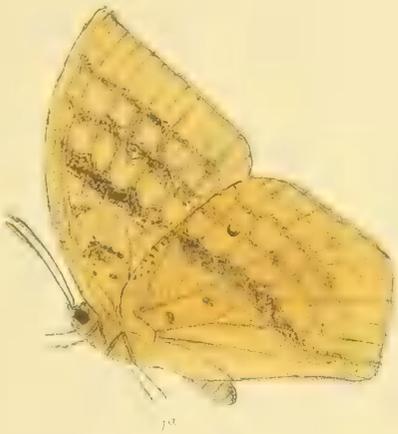


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1883, p. 352. Marshall and de Nicéville, Butt. of India, etc. i. p. 298, fig. ♂ ♀ (1883) *nec* Cramer.

Discophora Indica, Staudinger, Exot. Butt. i. p. 190, pl. 63, ♀ (1887).

IMAGO.—Male. Upperside dusky purpurescent-brown in fresh examples, fading to dusky ochreous-brown; cilia ochreous. *Forewing* crossed by a discal and two submarginal rows of bluish spots; the discal row very small, the upper spot largest, either rounded or linear in shape, and in some they are more or less obsolete, or occasionally, all, except the upper spot are absent; the middle row larger, dentate, the upper being sometimes coalesced with its opposite discal; the outer row smaller and either rounded or lunate. *Hindwing* with a large discal velvety black glandular patch of raised scales; these scales being slightly longer and of more irregular width than those in *D. Celinde*; with or without faint traces of a submarginal row of pale ochreous lunules or points, and sometimes also of an inner discal series of points; this wing also has the exterior margin either quite even, and angulate in its middle, or is somewhat scalloped and less distinctly angulate. Underside brownish-ochreous, with numerous short transverse, more or less intense dark brown strigæ, and which are generally less apparent basally; crossed by a dark brown slender zigzag subbasal line, a broad discal fascia, an ill-defined slender sinuous submarginal line, and a lunular marginal fascia, the interspace between the latter being more or less washed with lilacine-white, which is most intense posteriorly. *Forewing* also with three dark brown dots across base of the cell, a ringlet-spot on the discocellulars and a dot below it. *Hindwing* also with two basal cell dots and a discocellular dot; and a large upper and lower ocellus, both with ochreous centre, white lunate-pupil, and a slender black outer ring; a third smaller lower ocellus sometimes being present between the upper medians; and, in some specimens, generally in those which have the exterior margin of hindwing most angulate (probably the dry-season brood), the upper and lower ocellus are both smaller and less-defined. Body beneath, palpi, and legs ochreous; abdomen beneath with a small glandular patch of laxly raised ochreous scales placed on each side of the keel near the base; antennæ brown above, ochreous beneath.

Female. Upperside somewhat paler, darkest upon the discal area. *Forewing* with the three transverse rows of spots bluish-white, larger, the lower discal diamond-shape, the upper largest and disposed inward; the middle row broadly-dentate, the upper incurved and coalescent with the opposite discal; the outer row rounded or broadly lunate; the discocellular spot of the underside sometimes slightly apparent. *Hindwing* with a complete discal row and two submarginal rows of pale ochreous decreasing spots, the discal spots being obtusely dentate, the middle row acutely dentate, and the outer row more or less lunate or rounded; followed by marginal lunules. Underside pale olivescient-ochreous, numerous covered with

olivescens-brown strigæ, and crossed with less-defined fasciæ and markings, and ocelli, as in male.

Expanse, ♂ 3 to 3 $\frac{1}{10}$, ♀ 3 $\frac{1}{10}$ to 4 inches.

ADULT CATERPILLAR.—Length 2 $\frac{1}{4}$ inches; cylindrical; with two short anal processes; thickly covered with fine pale ochreous hairs; the third and fourth segment with a transverse dorsal dense row of longer purple-brown hairs, a subdorsal slight tuft of longer purple-brown hairs arising from anterior edge of the segments; body dark purple-brown, speckled with grey; a broad dorsal paler yellowish-edged band from fifth to anal segment, the anterior junction of the segments marked by a subdorsal prominent short black and yellow streak; head large, dark purplish-brown, with grey marks.

CHRYSA LIS.—Suspended by the tail; boat-shaped; smooth; ventral line nearly straight, dorsal line arched; thorax also arched; head-piece prolonged into an acute apex; colour pale yellowish-ochreous, with a white bloom.

HABITAT.—N.-E. India; Burma; Tenasserim; Malay Peninsula.

FOOD PLANT and HABITS of LARVA.—The late Mr. Arthur Grote found the larva on Bamboo, in the Calcutta district. Mr. W. S. Atkinson also found the larva in the Calcutta district, "on Bamboo, living between rolled up leaves, on April 23rd, 1856, the larva changing to pupa on the 26th" (MS. Notes). Dr. Maunders (Trans. Ent. Soc. Lond. 1890, 519) found the larva in the Shan States, "on Bamboo, living during the day among three or four leaves spun together," and describes the larva and pupa as follows: "Full fed larva two inches long; colour black, mottled with grey; a rather broad yellowish dorsal line; the junction of the segments marked by a thin irregular yellow line and red spot; body covered with white hairs; head and anus black, the former marked with perpendicular yellow lines. Pupa white, suspended by the tail; the labial palpi prominently projected; changing to dark brown a few hours before emergence. The perfect insect remains three weeks in pupa."

DISTRIBUTION.—"Commoner than *D. Continentalis*, and has been taken in more localities, but the geographical range is the same within Indian limits, except that *D. indica* is known to occur in the Plains of Bengal as far South as Calcutta. It is common in Sikkim, and in Tenasserim, from September to April. In the neighbourhood of Calcutta, Mr. de Nicéville has taken it throughout the year. They rest under the shade of large trees among the dead leaves on the ground, taking short flights when disturbed, and are easily captured. They not unfrequently enter houses. There are specimens in the Indian Museum, Calcutta, from Sibsagar, Upper Assam, and Silhet" (Butt. Ind. i. 298). Mr. H. J. Elwes (Trans. Ent. Soc. 1888, 331) records it as "common in Sikkim up to about 2000 feet, perhaps extending a little higher, and occurring throughout the year." Mr. W. S. Atkinson obtained it at "Darjeling, Cherra Punji, and Plains of Bengal" (MS. Notes). Colonel C. Swinhoe

has specimens from the Khasia Hills, taken by Mr. Hamilton's native collectors. Mr. J. Wood-Mason (J. A. S. Beng. 1886, 353) records it as "common in the forests around Silcuri, in Cachar, from May to August." The late Mr. Arthur Grote found the larva feeding on Bamboo in the Calcutta district. Mr. W. S. Atkinson also obtained the larva in the Calcutta district, on Bamboo, living between rolled up leaves, on April 23rd, 1856. Mr. L. de Nicéville has taken the species "in dry ditches in the neighbourhood of Calcutta, during the cold weather" (J. A. S. Beng. 1885, 43). Mr. J. Rothney obtained it in "Barrackpore Park, near Calcutta" (Ent. Mo. Mag. 1882). Mr. Charlton Swinhoe also recently obtained it in the Calcutta district. In Burma, according to Major C. H. E. Adamson (List, p. 11) it is recorded as being common throughout the country; both this species and *D. Continentalis* having been caught by me early in the morning before the sun was much above the horizon." Captain E. Y. Watson (J. Bombay Nat. Hist. Soc. 1891, 36) obtained both sexes during the Chin-Lushai Expedition of 1889-90, at Tilin Yaw, in March, April, and September." Signor Leonardo Fea obtained it at Bhamo, and Dr. Manders (Tr. Ent. Soc. 1890, 519) records it as being "common in the Shan States." It has been taken in Rangoon, in July and August. Mr. Ossian Limborg (P. Z. S. 1878, 826) obtained it in Upper Tenasserim, at "Tao, 3000 to 5000 feet; Moolai, 3000 to 6000 feet; and above Ahsown." Mr. H. J. Elwes (J. A. S. Beng. 1887, 419) records it from Tavoy. We possess a specimen recently received from Mr. A. R. H. Tucker, taken in Tavoy in December. Mr. Distant describes and figures both sexes from the Malay Peninsula, the male being entirely unspotted on the upperside of the forewing (Rhop. Malayana, p. 75, pl. 7). *D. indica* is probably only the wet-season form of *D. Zal*.

Of our illustrations of this species on Plate 153, fig. 1 represents the larva and pupa reproduced from Mr. A. Grote's original drawings of Calcutta specimens, and figs. 1, a, b, c, d, the male and female.

DISCOPHORA SPILOPTERA (Plate 154, figs. 1, 1a, ♂ ♀).

Discophora spilopectera, de Nicéville, trans. Ent. Soc. 1888, p. 331.

IMAGO.—Male. Upperside dusky ochreous-brown; cilia ochreous. *Forewing* crossed by an erect discal, and two erect submarginal rows of rich ochreous spots, the discal row being small and longitudinally slender, the ordinary spot between the upper median and radial being obsolescent, and the upper one ochreous-white; the middle row composed of large wedge-shaped spots, the outer row of small posteriorly decreasing rounded spots; the extreme outer margin also lunularly bordered. *Hindwing* crossed by a short upper discal row of two small rounded ochreous spots, an inner submarginal row of large triangular spots, and an outer row of lunate spots, the extreme outer margin also broadly lunularly bordered; the discal *black glandular*

patch very prominent. Underside ochreous, with the fasciæ and other markings similar to those in male *D. Zal*. Female. Upperside paler ochreous-brown, externally and between the markings dusky-brown. *Forewing* with the three transverse rows of ochreous spots larger than in male, the discal row being much larger, very prominent, and slightly paler, the dusky-brown cell dots and discocellular spot present. *Hindwing* with a complete discal row, and two submarginal rows of much larger paler ochreous spots, and outer lunular border. Underside paler than in male; crossed with fasciæ as in *D. Zal*, the basal area also being speckled with transverse brown strigæ, the two small ocelloid spots on hindwing as in *D. Zal*.

Expanse, ♂ $3\frac{8}{10}$, ♀ $4\frac{2}{10}$ inches.

HABITAT.—Sikkim.

The male of *D. spiloptera* is distinguishable from the same sex of *D. Zal*, by the difference in size, shape, and colour of the spots on the forewing; the female also differing from that sex of *D. Zal*, in these spots being larger, both the inner and middle series being erect, and wide apart at their upper end. The type specimens, from which our descriptions and figures are taken, are now in the possession of the Honble. Walter Rothschild, who has kindly lent them for this purpose, and were taken in Sikkim by Mr. Otto Möller's native collectors, in the middle of March, 1887, at about 2000 feet elevation.

Our illustrations of this species, on Plate 154, fig. 1, 1a are taken from the type specimens of the male and female, which have been kindly lent for this purpose by the Honble. Walter Rothschild.

INDO-MALAYAN ALLIED DISCOPHORAS.—*Discophora Celine* (Pap. *Celine*, Stoll, Suppl. Cramer, Pap. Exot. v. pl. 37, figs. 1, 1a, ♂ (1790). Herr.-Shæffer, Exot. Schmett. ii. figs. 5, 6, ♂ (1853). Horsfield, Catal. Lep. Mus. E. I. Company, pl. 6, fig. 6, ♀; pl. 7, fig. 11, a-h, *larva*, etc. (1829). Moore, Catal. Lep. Mus. E. I. C. i. p. 211, pl. 6, figs. 5, 5a, *larva* and *pupa* (1857). Staudinger, Exot. Schmett. i. p. 190, pl. 63, ♂. *Synonyms*—Pap. *Menetho*. Fabricius, Ent. Syst. iii. i. p. 83, ♀ (1793). Jones, Icones, v. pl. 61, ♀. Donovan, Ins. Ind. pl. 30, fig. 1, ♀ (1800). Disc. *Menetho*. Butler, Catal. Fabr. Lep. B. M. p. 45 (1869). Pap. *Aristides*, Fabr. Ent. Syst. iii. i. p. 86, ♀ (1793). Both sexes of this species (*Celine*) were taken, and the larvæ bred, in Java, by the late Dr. Horsfield, the males agreeing with the figure by Stoll, and the females with the type specimen of *Menetho*, in the "Linnæan Cabinet," in the possession of the Linnæan Society of London, a label upon which latter specimen states that, Jones' figure (from which Fabricius' description was taken) was made from this identical specimen. The Javan female has the ochreous band on the forewing broad only at its upper end (from the costa to the upper median), below which are two inner-discal small spots and two outer lunules, followed by the submarginal row of five lunular patches and the marginal lunules,

and on the hindwing also, the submarginal and marginal series are both composed of larger and broader lunate spots. *Habitat.* Java.—*Discophora Timora*, Doubleday and Hewitson, Gen. D. Lep. pl. 54, fig. 2, ♀ (1851). *Habitat.* Timor.—*Discophora Necho*, Felder, Reise Novara, Lep. iii. p. 462, ♂ ♀ (1867). The male *type specimen* of this species, which we have examined, through the kindness of the Honble. Walter Rothschild, has a broad oblique discal band, similar to that in *D. Dis*; this band having *faded to a whitish colour* in the type, and described as *whitish* by Felder, but which, in freshly-caught specimens, would certainly be *blue*, as in *D. Dis*; the female having a broad pale ochreous confluent band on the forewing, of the Celinde pattern. *Habitat.* Java.—*Discophora Dis*, de Nicéville, Journ. Bombay, Nat. Hist. Soc. 1892, p. 325, pl. H. fig. 3, ♂. *Habitat.* Sumatra.—*Discophora Cheops*, Felder, Reise Novara, Lep. iii. p. 463 (1867). *Habitat.* Sarawak, Borneo.—*Discophora Ogina* (*Morpho Ogina*, Godart, Enc. Méth. p. 445 (1823). Hübner, Samml. Exot. Schmett. (1820-26). Semper, Reisen Arch. Philippen, Lep. i. p. 74, *nec fig.*). *Syn.* D. Melinda, Feld. Wien. Ent. Monats. 1863, p. 122. *Habitat.* Manilla, Philippines.—*Discophora Celebensis*, Holland, Proc. Boston, Nat. Hist. Soc. 1890, p. 59, pl. 5, figs. 5, 6, ♂ ♀. *Habitat.* Celebes.—*Discophora Tullia* (*Pap. Tullia*, Cramer, Pap. Exot. i. pl. 81, figs. A, B, ♀ (1775). *D. Tullia*, Staudinger, Exot. Schmett. i. p. 189 (1887). Male. Upperside dusky purplish-brown; *forewing* less acute at the apex and the posterior angle, and the extreme margin less even than in Burmese or Indian *D. indica*; the hindwing is convex, somewhat scalloped, and less angular at end of upper median veinlet. *Forewing* with two submarginal transverse rows of small blue spots, the inner row dentate, the outer row rounded. *Hindwing* with a very prominent *jet-black discal glandular patch*, and a slightly-defined submarginal series of ochreous points. Underside pale purpurescent-ochreous-brown, with numerous short transverse darker brown strigæ, which are most distinct externally; the normal subbasal markings indistinct; crossed by a darker brown discal fascia, an ill-defined submarginal slender fascia and a sinuous marginal fascia, the area between the discal and submarginal fascia slightly washed and the anal angle of the hindwing distinctly speckled with lilacine-white; ocelli of hindwing large, distinct and perfectly formed. Female. Upperside much paler brown. *Forewing* with three transverse rows of pale lilacine-blue spots, the discal lower three being small, the upper large, inwardly-disposed and coalescent with those of the middle row, the other spots large, the middle row being much incurved in their course. *Hindwing* with two upper discal small pale ochreous spots, and two submarginal rows of *pale lilacine-blue* spots. Underside pale olivescent-ochreous, with olivescent-brown markings as in the male; ocelli large and perfect. Another female has the outer row of spots on upperside of the forewing pale ochreous, and all those of the hindwing also pale ochreous; the ocelli on the hindwing beneath being small and ill-defined. Expanse, ♂ 3, ♀ 3 $\frac{5}{10}$ inches.

Habitat.—S. China. Specimens of both sexes of *D. Tullia*, taken in Hong Kong, are in Mr. J. Jenner Weir's collection. We also possess both sexes from China. Capt. J. R. Walker, R.N., also obtained it in Hong Kong.—*Discophora Soudaica*, Boisduval, Spec. Gen. Lep. i. pl. f2, fig. 3 (1836), ♂. ? Distant, Rhop. Malay. p. 426, pl. 43, fig. 7, ♂. *Habitat*. Java; Sumatra; ? Malay Peninsula.—*Discophora simplex*, Staudinger, Deutsch. Ent. Zeit. Lep. 1889, p. 42. *Habitat*. Palawan.—*Discophora Semperi* (Disc. Zool. Semper, Reisen Archipel Philippen, Lep. p. 73, pl. 13, figs. 10, 11, ♂; figs. 8, 9, ♀ (*nec* Westwood)). *Habitat*. Mindanao.—*Discophora Philippina* (Disc. Menetho, Semper, Reisen Archip. Philippen, Lep. p. 74, pl. 14, figs. 1, 2, ♂ (1887), *nec* Fabricius). *Habitat*. Philippines.—*Disc. Bambuse*, Felder, Reise Novara, Lep. iii. p. 462 (1867). *Habitat*. Gilolo.

Genus ENISPE.

Enispe, Doubleday, Gen. D. Lep. pl. 40 (1848). Westwood, Gen. D. Lep. p. 292 (1851). Marshall and de Nicéville, Butt. of India, etc. i. p. 299 (1883). Staudinger and Schütz, Exot. Schmett. ii. p. 187 (1889).

IMAGO.—Male. Both wings similar in shape to typical *Discophora*. *Forewing* with the posterior margin somewhat convex; first subcostal branch anastomosed with the costal for a short distance near its end; *second subcostal with only three branches*; upper discocellular angled close to the subcostal, the radials from the angles; upper median veinlet curved from its base. *Hindwing* with the veins as in *Discophora*; *no discal glandular patch*; the entire cell and the longitudinal fold between the median and submedian being covered with long fine hairs; a small *glandular pouch* close to base of *inner vein* enclosing a *tuft of short rigid hairs*. Thorax very robust and woolly; base of *abdomen* above also woolly, and *beneath* with a very *prominent glandular patch of jet-black raised scales near the base*. Forelegs longer than in *Discophora*.

TYPE.—E. Euthymius.

ENISPE EUTHYMIUS (Plate 155, figs. 1, 1a, b, c, ♂ ♀).

Adolias Euthymius, Doubleday, Annals of Nat. Hist. 1845, p. 179.

Enispe Euthymius, Doubleday, Gen. D. Lep. pl. 40, fig. 2, ♂ (1848). Westwood, Gen. D. Lep. p. 292 (1851). Marshall and de Nicéville, Butt. of India, etc. i. p. 300, fig. ♂ (1883). Staudinger, Exot. Schmett. i. p. 190, pl. 63, ♂; *id.* ii. p. 187, pl. 31 (1887); Leech, Lep. China, etc. p. 111 (1892).

IMAGO.—Male. Upperside bright orange-red; cilia reddish-black. *Forewing* with a reddish-black short curved streak on upper part of the discocellulars, a sinuous

streak beyond the cell, a discal series of four somewhat sagittate speckled spots, one each being upon the lower radial and median veinlets, followed by a submarginal narrow sinuous band and then by a broader marginal band, the latter being faintly traversed by reddish lunules, the three series being broadly confluent at their apical end. *Hindwing* with the base clothed with long fine dusky hairs, and marked with two blackish lower discal sagittate spots, a transverse inner discal slender line, two submarginal narrow lunulate bands and paler outer marginal lunules; a small pale yellowish *glandular pouch* situated close to the abdominal base of the inner vein, the pouch enclosing a tuft of short rigid hairs. Underside pale ochreous, or ochreous-yellow, of more or less intensity. Both wings crossed by a brown subbasal sinuous line and a straighter discal line, their inner borders being clouded with brownish-ochreous, beyond which are three outer transverse indistinct lunulated brownish-ochreous fasciæ. *Forewing* also with three brown basal dots within the cell. *Hindwing* also with a single similar dot and a short discocellular streak, and a discal series of four small darker brown spots, the lowest of which is white-pupilled, and the two inner smallest. *Body* beneath pale ochreous; base of abdomen beneath with a very *prominent glandular patch* of jet-black raised scales; palpi, and legs pale ochreous; antennæ reddish.

Female. Upperside paler and of a more ochreous tint; markings on both wings the same, but somewhat narrower than in male, the inner line on the hindwing more distinct and extending straight across from the costa to the anal angle. Underside paler than in the male; markings the same; the basal spots and transverse discal bordered-line being more distinct.

Expanse, ♂ $3\frac{5}{10}$, ♀ 4 inches.

HABITAT.—Sikkim; Assam; Cachar; Khasia and Naga Hills; Burma.

DISTRIBUTION.—“This is found in the mountains to the North-East of Bengal, extending southward as far as Tenasserim. It is not uncommon in Sikkim; the Indian Museum, Calcutta, has specimens from the Naga Hills. It was taken by Capt. C. T. Bingham in the Lower Thoungyeen forests, Upper Tenasserim, in March and April” (Butt. India, i. 301). “Mr. Otto Möller took it in the Runjit Valley, Sikkim. It has the habit of a *Discophora*, flying off into the jungle when disturbed, and resting on a leaf with closed wings” (Mr. de Nicéville, J. A. S. Beng. 1883, 93). According to Mr. H. J. Elwes (Trans. Ent. Soc. 1880, 332), it is “not uncommon in Sikkim, at low elevations, from April to October.” In the late W. S. Atkinson’s collection were specimens from Darjeling and Cherra Punji. Of typical *Euthymius* numerous males and females from the Khasia Hills, taken by Rev. W. Hamilton’s collectors, are in Colonel C. Swinhoe’s collection. It is recorded in Lieut. D. Thompson’s List of Chin-Lushai butterflies (Journ. Bombay, N. H. Soc. 1890, 295). Signor Leonardo Fea obtained it in the Karen Hills, in November. Mr. W. Doherty took

it in East Pegu, where it "seems to be very common in the Karen Hills, at from 1500 to 4000 feet" (Elwes, P. Z. S. 1891, 270). The Pegu males are richly-coloured orange-red, and have the markings above more like those in *tessellate* than in typical *Euthymius*.

According to Mr. de Nicéville (J. A. S. Bengal, 1886, 353), "*E. Euthymius* is, judging from the specimens in the Indian Museum, Calcutta, an eminently variable species, whose variations are in no way related either to locality or to geographical range, so that the term 'local race' cannot be applied to the extreme dark form named *E. tessellata*."

ENISPE TESSELLATA (Plate 156, figs. 1, 1a, b, c, ♂ ♀).

Enispe tessellata, Moore, Proc. Zool. Soc. Lond. 1883, p. 521, ♂ ♀.

Enispe Euthymius, Wood-Mason and de Nicéville, Journ. Asiatic Soc. Bengal, 1886, p. 353, pl. 15, fig. 1, ♂.

Enispe Sylhetensis, Staudinger, Exot. Schmett. i. p. 191 (1887).

IMAGO.—Male. Upperside. *Forewing* differs from typical *E. Euthymius*, in the basal area being much darker coloured; the markings being similar, but conspicuously more broader and more sharply defined, and on the forewing there is a prominent inner-discal erect band which coalesces with the upper streak beyond the cell. *Hindwing* with the basal area ochreous-brown, and the markings conspicuously much broader, the discal series extending across from the subcostal vein.

Female. Both wings also with much darker basal area, and with markings similar to the male.

Expanse, ♂ $3\frac{1}{4}$, ♀ $3\frac{1}{2}$ inches.

HABITAT.—Nepal; Sikkim; Cachar.

We have here retained *E. tessellata* as differing from *E. Euthymius*. The male type of *tessellata* was obtained from the "Darjeling" collection formed by the late Arthur Grote, and the female type from the "Nepal" collection of the late General G. Ramsay, and from these type specimens our figures on Plate 156 are taken. Messrs. Wood-Mason and de Nicéville (J. A. S. Bengal, 1886, p. 353, pl. xv. fig. 1) describe and figure a male—identical with our type of *tessellata*—which is therein stated to be taken from a Cachar specimen captured by Mr. Wood-Mason on Nemotha Peak in September.*

* This same Cachar specimen was previously referred to, under the name of *E. Euthymius*, by the authors of the "Butterflies of India," p. 301, as being only "of a far deeper and richer orange-red" than any other specimens we have ever seen; but they do not there mention the differences in the markings between that specimen and the others under their examination. Specimens from Sylhet, from the

ENISPE CYCNUS (Plate 157, figs. 1, 1a, b, c, ♂ ♀).

Enispe Cycinus, Westwood, Gen. D. Lep. p. 330 (1851). Moore, Catal. Lep. Mus. E. I. Compy. i. p. 212 (1857). Marshall and de Nicéville, Butt. of India, etc. i. p. 301 (1883).

IMAGO.—Male. Upperside dark purpurescent-brown, darkest and with blue reflections on the outer half of the forewing; cilia ochreous. *Forewing* with a broad oblique lilacine-white band extending from middle of the costa to the upper median veinlet, below which are three decreasing broad lunate spots, followed by a submarginal series of four triangular similar-coloured spots, which increase in size from the upper one; a slightly-defined pale ochreous spot-streak below the submedian near the angle, and an inner discal series of small ochreous spots sometimes being visible. *Hindwing* with a more or less indistinct submarginal row of small pale ochreous spots and marginal lunules, and sometimes a discal row of slender lunules; from the cell to below the median, and the abdominal fold, clothed with long fine hairs. Underside ochreous-yellow, merging to olivescient ochreous-brown on the outer borders. Both wings crossed by a slender subbasal zigzag dark ochreous-brown line with a pale outer border, and a broader brown sinuous discal band, followed by a contiguous less-defined paler outer-discal lunular fascia, and two submarginal sinuous fasciæ. *Forewing* also with three brown basal cell-spots and some discocellular spots. *Hindwing* also with one basal cell-spot, a discocellular spot, and a very small white-pupilled ocellule between the subcostals, and a similar ocellule with large white pupil between the lower medians. Body and legs beneath, palpi, and collar ochreous-yellow; legs above and tip of palpi ochreous-brown; abdomen beneath with a basal *glandular patch* of dark grey scales. Female. Both wings with the basal area ochreous-brown, the outer area of the forewing dark purpurescent-brown, of the hindwing dark brown. *Forewing* with the lilacine-white oblique band and the two series of spots as in the male, but larger, the lower discal spot and a narrow streak below the submedian being partly ochreous; there is also two inner-discal rows of smaller ochreous spots, and a spot is sometimes present beyond end of the cell, and a streak bordering the inner-edge of the discocellulars. *Hindwing* with an inner-discal short row of small ochreous spots, a discal row of larger decreasing spots, the lower being lunate, followed by a submarginal row of broad pointed-spots, and then by a marginal continuous lunular-band. Underside pale ochreous-yellow with a slightly olivescient tint; the transverse discal band and markings as in the male.

Expanse, ♂ $3\frac{3}{10}$, ♀ $3\frac{6}{10}$ inches.

“Atkinson” collection, are in the “Hewitson” Cabinet at the British Museum. From specimens in the late W. S. Atkinson’s collection, Dr. Staudinger has recently separated this species under the name of *E. Sylhetensis*.

HABITAT.—Sikkim (?); Bhotan; Assam; Khasia and Naga Hills; Upper Burma.

DISTRIBUTION.—“The type specimen is recorded from Sylhet; the Indian Museum, Calcutta, has specimens from Sibsagar, Upper Assam, and from Sikkim” (Butt. of India, 301). It has been taken at Shillong and the Khasia Hills. “It occurs not uncommonly at Buxa, in Bhotan, in July, but I know of no specimens having been recently taken in Sikkim” (Elwes, Trans. Ent. Soc. 1888, 333). Dr. N. Manders, in his List of the Lepidoptera of the Shan States (Trans. Ent. Soc. 1890, 520) records “one male taken at Bernardmyo, a Hill Station at about 7000 feet elevation north of the Ruby Mines.” Mr. Elwes (P. Z. S. 1891, 271) also records “specimens taken by Mr. W. Doherty in the Naga Hills at low elevations, and others at Bernardmyo in Burma.”

ALLIED CHINESE ENISPE.—*E. lunatus*, Leech, Entomologist, 1891, suppl. p. 26; Lep. China, etc. p. 111, pl. 1, figs. 1, 2, ♂ ♀ (1892). *Habitat.* W. China.

Genus STICHOPHTHALMA.

Stichophthalma, Felder, Wien. Ent. Monats. vi. p. 27 (1862). Marshall and de Nicéville, Butt. of India, etc. i. p. 308 (1883). Staudinger and Schätz, Exot. Schmett. ii. p. 184 (1889). Leech, Lep. China, etc. p. 113 (1892).

IMAGO.—Male. Wings large, very broad. *Forewing* subtriangular; with the costa much arched, apex rounded, exterior margin slightly oblique, posterior margin long and nearly straight; cell very broad; first subcostal branch emitted at one-fourth before end of the cell and entirely free from the costal; second subcostal three-branched; discocellulars outwardly-oblique, upper short, twice angled at lower end, lower discocellular deeply concave; radials from the upper angles; upper median veinlet arched from the end of the cell. *Hindwing* obovate; costal vein ending beyond the middle; first subcostal branch emitted at half distance before second and third; cell narrow, open; upper median veinlet arched from its base; internal vein much recurved; a small ovate *glandular patch** situated above the base of the subcostal veinlet, which is *overlapped by an erectile tuft of fine hairs* arising from below the base of the subcostal vein. *Body* robust; thorax woolly; eyes prominent, naked; palpi long, slender, extending more than half beyond the front; antennæ slender, evenly articulated.

TYPE.—S. Howqua.

* Mr. Wood-Mason (Journ. Asiat. Soc. Bengal, 1886, 353) remarks that “this gland, in *S. Camadeva*, secretes a fluid that gives out a pleasant odour, distinct from, but so faint as barely to be perceptible in the presence of, a much stronger odour (resembling that of sable fresh from the furrier’s shop) which is common to the two sexes.”

STICHOPHTHALMA CAMADEVA (Plate 158, figs. 1, 1a, ♂ ♀).

Morpho (*Thaumantis*) *Camadeva*, Westwood, Cabinet of Oriental Entomology, p. 9, pl. 4, figs. 1, 2 (1848).

Thaumantis Camadeva, Westwood, Trans. Ent. Soc. Lond. 1856, p. 177; *id.* Doubleday and Hewitson. Gen. D. Lep. p. 377, pl. 55, fig. 2 (1851).

Stichophthalma Camadeva, Marshall and de Nicéville, Butt. of India, etc. i. p. 309, fig. ♀ (1883). Staudinger, Exot. Schmett. i. p. 204, pl. 65, ♂ (1887); *id.* ii. p. 184, pl. 30 (1889).

IMAGO.—Male. Upperside. *Forewing* with the basal area rich ochreous-brown, the outer area purpurescent lilacine-grey, and traversed by a discal series of small round blackish spots, followed by a row of quadrate sagittate-spots, which latter have their outer angle dilated and extending along the vein to the margin, and then by a submarginal row of continuous lunules, the upper end of each series being broadly dilated at the apex. *Hindwing* with the basal area rich dark ochreous-brown, the outer area purpurescent-black, traversed by a submarginal row of large broad purpurescent lilacine-grey biconical spots, and a marginal narrow lunular band; basal *glandular tuft* pale ochreous. Cilia pale ochreous. Underside rich brownish-ochreous; crossed by a subbasal and a medial slender black sinuous line, the former generally being inwardly-bordered by pale olivescient-ochreous, and the latter outwardly-bordered by a whitish fascia, followed by a dark brown speckled-edged lunular fascia; the disc crossed by a row of red ocelli, five on each wing, each being centred with a white lunule, and having a black outer ring; beyond are two submarginal ill-defined brown lines, the outer line sometimes being more or less broad, and both ending at the anal angle in a black speckled streak, the outer streak much dilated. Body beneath, legs, and palpi brownish-ochreous; antennæ dark brown.

Female. Upperside as in the male, with the marginal markings broader. Underside as in the male.

Expanse, 5 to 6 inches.

HABITAT.—Sikkim; Assam; Khasia Hills; Cachar; Manipur.

DISTRIBUTION.—“Common in Sikkim, in June and July” (Mr. de Nicéville, J. A. S. Bengal, 1885, 2). Mr. Elwes (Tr. Ent. Soc. 1888, 333) records it as not uncommon, in Sikkim, in suitable localities, from May or June to October. I found it not uncommon by the river at Choongtong, at 2500 feet, in July, but difficult to take in good condition, as it flies so close to the ground among thick vegetation that it is not easy to get a clear stroke of the net.” Major H. H. Godwin-Austen—who captured several specimens in the Jatinga Valley, N. Cachar Hills, during his Survey operations—noted that “it affects the openings in forests; having a lopping lazy sort of flight, flying about quite low down among the brushwood, during April, just after the rains set in.” Mr. Wood-Mason (J. A. S. Beng. 1886, 353), found it “very common in the forests near Silcuri in Cachar, during May; others also being taken

in July. The gland covered by a patch of modified scales and by an erectile wisp of hairs on each hindwing of the male, secretes a fluid that gives out a pleasant odour distinct from, but so faint as barely to be perceptible in the presence of, a much stronger odour, resembling that of sable fresh from the furrier's shop, which is common to both sexes." Dr. G. Watt (Ann. N. H. 1885, p. 303) obtained specimens during his journey to Manipur.

STICHOPHTHALMA LOUISA (Plate 159, figs. 1, 1a, ♂ ♀).

Thaumantis Louisa, Wood-Mason, Proc. Asiatic Soc. Bengal, 1877, p. 163; *id.* Journ. Asiatic Soc. Bengal, 1878, p. 175, pl. 12. Moore, Proc. Zool. Soc. Lond. 1878, p. 827. Marshall, Journ. Asiatic Soc. Bengal, 1882, p. 40, ♀.
Stichophthalma Louisa, Marshall and de Nicéville, Butt. of India, etc. i. p. 311 (1883).

IMAGO.—Male. Upperside with the basal area of both wings rich pale yellowish-ochreous, and the outer area lilacine-white. Both wings with a submarginal row of black hastate-spots, their outer angles coalescing with a marginal row of lunules, each series palest and increasing in size from the apex of the forewing, where the border is clouded with dusky speckles; the transverse lines and ocelli of the underside being visible by semi-transparency; basal tuft on the hindwing ochreous. Underside very pale dull olivescient-ochreous; both wings crossed by a subbasal and a medial slender blackish sinuous line, the former with a whitish inner border, the latter with a more distinctly-defined whitish outer-bordering fascia, followed by a broad pale olivescient-brownish lunular fascia; a discal series of small pale ochreous-brown ill-defined ocelli, of which the upper and lower on the hindwing are prominent, much larger, reddish-ochreous, and with a slender black ring; beyond is a pale defined olivescient-brownish submarginal series of hastate-spots and marginal lunules, the latter forming an indistinctly-defined broader marginal fascia, the submarginal series traversed by a slender sinuous line, and the marginal ending in a dilated black anal spot speckled with grey.

Female. Upperside as in the male, except that the marginal hastate marks and lunules are larger and entirely coalescent. Underside as in the male.

Expanse, 5 to 5 $\frac{1}{10}$ inches.

HABITAT.—Upper Tenasserim.

DISTRIBUTION.—The type specimen was "taken at Taoo, 3000 to 6000 feet altitude, in Upper Tenasserim, by Mr. Ossian Limborg in the cold season. Capt. C. T. Bingham took specimens between March and May in the lower Thoungyeen forests" (Butt. Ind. i. 311). Mr. W. Doherty "took many males, but only two or three females at the foot of the Karen Hills, in March and April" (Elwes, P. Z. S. 1891, 271). Signor Leorardo Fea obtained specimens at Moolayet, in April.

STICHOPHTHALMA NOURMAHAL (Plate 160, figs. 1, 1a, b, ♂ ♀).

Thaumantis Nourmahal, Westwood, Gen. of D. Lep. p. 337 (1851); *id.* Trans. Ent. Soc. 1856, p. 178, pl. 18, figs. 1, 1a, ♀. Moore, Catal. Lep. Mus. East Ind. Company, i. p. 215 (1857). Marshall and de Nicéville, Butt. of India, etc. i. p. 312 (1883).

IMAGO.—Male. Upperside with both wings chestnut-red, cilia brownish cinereous. *Forewing* crossed by a broad excurved oblique subapical ochreous fascia, which extends from the costa to the outer margin below the apex and to the posterior angle, the apex of the wing being darker brown, and the fascia traversed by a submarginal row of dark brown hastate points and a marginal row of lunules. *Hindwing* with the outer border narrowly margined with ochreous and traversed by a submarginal and a marginal row of similar brown marks. Underside paler. Both wings crossed by a subbasal and a medial discal slender black irregular line, the subbasal edged on its innerside and the discal on its outerside with olivescient silvery-grey scales; on the forewing the base of second subcostal, and the discocellulars to the middle black; the outer border with a submarginal and a marginal black zigzag line. *Forewing* also with an outer discal series of five round ocelli, of which the lower first and the fourth are the most defined, being red with a white pupil, black ring and then an outer pale ochreous ring; the others being ill-defined by ochreous scales. *Hindwing* also with similar but somewhat larger ocelli, the first, third, and fifth being more brightly developed and are of a deep red, the second and fourth being ill-defined by ochreous scales. *Body*, legs, and palpi beneath pale ochreous; legs and palpi above reddish-brown; antennæ black.

Female. Upperside similar to the male, but somewhat darker coloured, the oblique subapical fascia on the forewing slightly broader, and with a prominent white spot before the apex between the subcostals; the submarginal and marginal markings also somewhat broader. Underside darker than in the male, being of an olivescient brownish-ochreous colour and darkest across the disc; the subbasal and discal black lines also broadly edged with silvery-grey; the ocelli and submarginal lines similar.

Expanse, ♂ $3\frac{7}{10}$ to 4, ♀ $4\frac{2}{10}$ to $4\frac{8}{10}$ inches.

HABITAT.—Native Sikkim.

DISTRIBUTION.—The type was described from a female in the collection of the late Mr. W. W. Saunders; specimens of both sexes were also in the East India Company's Museum, and others in the Hewitsonian collection. According to "Mr. A. V. Knyvett, specimens have recently been obtained by his collectors in Native Sikkim" (de Nicéville, Journ. Bombay, N. H. Soc. 1890, p. 131).

STICHOPHTHALMA NURINISSA (Plate 161, figs. 1, 1a, b, ♂ ♀).

Stichophthalma Nurinissa, de Nicéville, Journ. Bombay Nat. Hist. Soc. 1890, p. 131, pl. C. fig. ♂ ♀.

IMAGO.—Male. Upperside. Both wings differ from those of *S. Nourmahal* in the ground-colour being paler and of a much brighter tint of chestnut-red. On the *forewing* the ochreous outer fascia is narrower and the dark brown margin broader. On the *hindwing* the ochreous outer fascia is much broader, with submarginal blackish points and broad marginal lunules. Underside. Both wings of a lighter colour; the transverse subbasal and discal black line less intensely edged with olivescient silvery-grey scales; the submarginal and marginal line more sinuous and nearer together; the ocelli are similar.

Female. Upperside also much paler, the ochreous fascia, the submarginal points and marginal lunules, as in the male; the apical white spot is larger, and there is a minute spot above it and also one below it. Underside as in the male, but darker coloured, the markings all more intensely defined.

Expanse, ♂ $3\frac{4}{10}$ to 4, ♀ $4\frac{4}{10}$ to 5 inches.

HABITAT.—Bhotan.

DISTRIBUTION.—“Numerous specimens were taken near Buxa, in Bhotan, by the native collectors of the late Mr. Otto Möller, and Mr. A. V. Knyvett” (de Nicéville, l. c.).

ALLIED CHINESE SPECIES OF STICHOPHTHALMA.—*St. Cambodia* (Thaumantis Cambodia, Hewitson, Exot. Butt. iii. *Thaum.* pl. fig. 2 (1862). *Habitat.* Cambodia.—*St. Howqua* (Th. Howqua, Westwood, Trans. Ent. Soc. 1851, p. 174; *id.* 1856, p. 178, pl. 18, figs. 2, 2a. *Habitat.* N. China; Formosa.—*St. fusca*, Leech, Lep. China, etc. p. 113, pl. 1, fig. 3, ♀ (1892). *Habitat.* W. China.—*St. Neumogeni*, Leech, Lep. China, etc. p. 114, pl. 1, fig. 5, ♂ (1892). *Habitat.* W. China.

Genus CLEROME.

Clerome, Westwood, Doubleday, and Hewitson's Gen. D. Lep. p. 333 (1851); *id.* Trans. Ent. Soc. 1856, p. 182. Distant, Rhop. Malay. p. 80 (1882). Marshall and de Nicéville, Butt. of India, etc. i. p. 312 (1883). Staudinger and Schätz, Exot. Schmett. ii. p. 188 (1889). Leech, Lep. China, etc. p. 112 (1892).

Faunis, Hübner, Verz. Schmett. p. 55 (1816), *preoccupied*.

IMAGO.—Male. Wings short, very broad. *Forewing* subtriangular; costa much arched at the base, apex rounded, posterior angle rounded, posterior margin lobularly dilated near the base; cell broad; first subcostal branch emitted at about one-fourth before end of the cell, free from the costal, second subcostal four-branched; discocellulars very outwardly-oblique, upper short, twice angled near subcostal, lower

very long and much recurved, being concave at its upper end and convex at its lower end; radials from upper angles of discocellulars; upper median veinlet not arched. *Hindwing* broadly ovate, apex somewhat obtusely pointed, exterior margin very convex posteriorly, anal angle rounded; subcostal branches arising near base of the wing; cell very narrow; upper median veinlet arched from the base; a short very slender *glandular pouch* situated immediately above the base of the first subcostal branch, the pouch being surrounded by a patch of fine raised hair-like scales, which are directed towards the pouch, and the pouch itself being also overlapped by a very slender tuft of long erectile hairs arising from below the base of the median vein. *Body* moderately robust; thorax woolly; eyes naked, large; palpi compactly clothed, hairy above, slender, projected in front of the head; antennæ long, slender.

TYPE.—C. Arcesilaus.

CLEROME ARCESILAUS (Plate 162, figs. 1, 1a, b, c, ♂ ♀).

Papilio Arcesilaus, Fabricius, Mant. Ins. ii. p. 28 (1787). Donovan, Ins. Ind. pl. 30, fig. 2 (1800).

Clerome Arcesilaus, Westwood, Doubleday, and Hewitson, Gen. D. Lep., p. 334, pl. 54*, fig. 5, ♀ (1851). Westwood, Trans. Ent. Soc. 1856, p. 183. Butler, Catal. Fabrician Lep. Brit. Mus. p. 44 (1869). Marshall and de Nicéville, Butt. of India, etc. i. p. 133 (1883). Distant, Rhop. Malayana, p. 428, pl. 40, fig. 5 (1886). Staudinger, Exot. Schmett. i. p. 202, pl. 65, ♂ (1887) ii. p. 188, pl. 31 (1889).

Faunis Cancus, Hübner, Samm. Exot. Schmett. ii. pl. 82, ♀ (1820-26).

Morpho Leonteus, Zinken-Sommer, Nova Acta Acad. N. C. 1831, p. 170, pl. 17, figs. 14, 15 (1831).

IMAGO.—Male. Upperside deep brownish-ochreous or fulvous, uniformly tinted throughout both wings. Cilia brownish cinereous. *Hindwing* with a short very slender *glandular pouch* situated immediately above the base of the first subcostal branch, the pouch itself surrounded by a patch of raised fine hair-like scales which are directed towards the pouch, and the pouch itself being also overlapped by a very slender tuft of long erectile hairs arising from below the base of the median vein. Underside dark olivaceous ochreous-brown. Both wings crossed by a wavy indistinctly-defined blackish curved narrow subbasal fascia, and a more defined sinuous narrow curved medial discal fascia; an outer discal series of minute ochreous-white spots, six on the forewing and seven on the hindwing, followed by a slender blackish submarginal sinuous line. Body beneath and legs brown; palpi brownish-ochreous; antennæ reddish.

Female. Upperside paler and brighter coloured, but with the apex and outer borders darker tinted. Underside as in the male.

Expanse, ♂ $2\frac{6}{10}$ to $2\frac{8}{10}$, ♀ $2\frac{8}{10}$ to 3 inches.

HABITAT.—Sikkim?; Khasia and Naga Hills; Silhet; Looshai Hills; Burma; Tenasserim; Siam; Malay Peninsula.

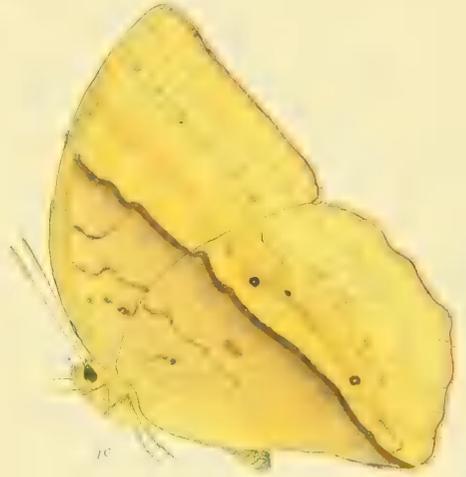
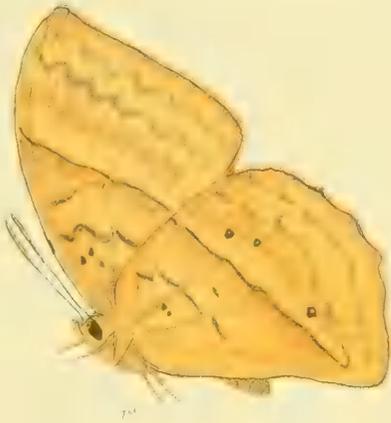
DISTRIBUTION.—Within our area Messrs. Marshall and de Nicéville (Butt. Ind. 314) record “specimens from Sikkim, from the collection of the late Mr. Mandelli.” According to Mr. Elwes (Tr. Ent. Soc. 1888, 334) “it has never been seen recently by Mr. Möller or myself from Sikkim.” Colonel C. Swinhoe has received numerous specimens taken in the Khasia Hills by the Rev. W. Hamilton’s native collectors. The late W. S. Atkinson obtained it at Cherra Punji. It is also recorded from Silhet. Specimens are in Mr. P. Crowley’s collection from the Lushai and Naga Hills. Major C. H. E. Adamson (List, p. 10) obtained it at “Bhamo, Burma, and in Upper Tenasserim, in woody places, during the cold weather.” Capt. C. Bingham obtained in the Donat Range in Upper Tenasserim in January, and others in the Thongyeen forests in March and December” (Butt. Ind. 314). Mr. Ossian Limborg (P. Z. S. 1878, p. 827) met with it above Ahsown in Upper Tenasserim in the cold weather.” Mr. Elwes (J. A. S. Beng. 1887, 419) records it from “Tavoy and Ponsekai.” The type specimen described by Fabricius is recorded from Siam, now in the Bankhan Cabinet at the British Museum, which we have examined, and is identical with our Indian examples.

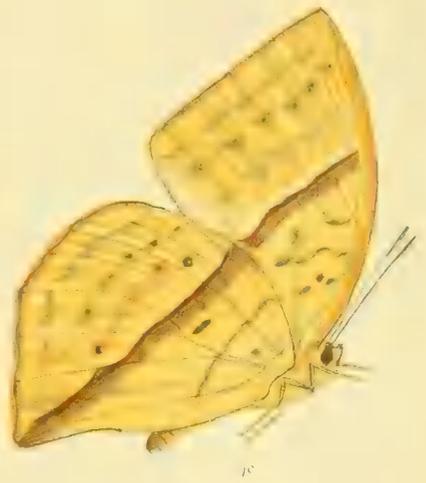
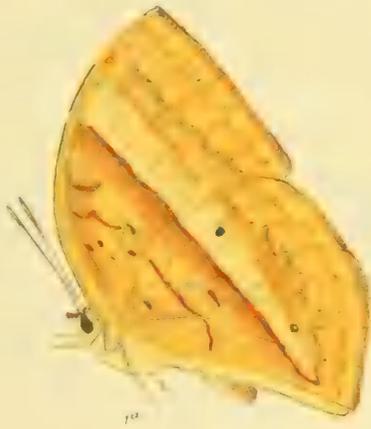
DISTRIBUTION OUTSIDE OUR AREA.—Mr. Distant (Rhop. Malay. 429) records it from the Malay Peninsula, where Capt. Godfery “took it in a shady nook near a well. Its flight was very low; issuing from the surrounding jungle it would flit along the path, or rest upon it for a while, and then return to the thickest shades.” Mr. W. Doherty obtained it at Perak (P. Z. S. 1891, 273). It also occurs at Penang and Singapore; Nias (Kheil); Sumatra (Snellen); and Java (Horsfield). The Java specimens (of which many were obtained by the late Dr. Horsfield) differ on the underside in having both the dark transverse subbasal and medial fascia conspicuously broader, the latter fascia being also less sinuous on its outer edge; the submarginal line is also comparatively broader. If this Java form proves distinct, it will take Hübner’s name of *Caneus*. It is also recorded from Borneo.

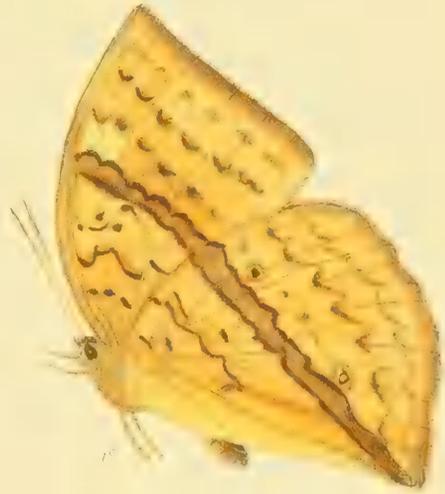
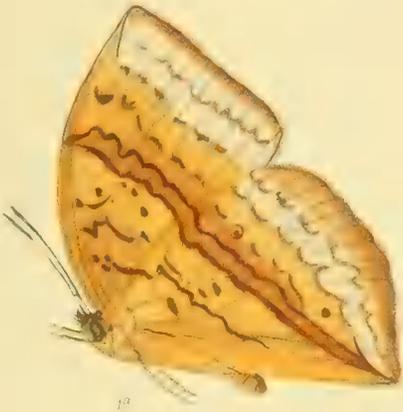
CLEROME ASSAMA (Plate 163, figs. 1, 1a, b, c, ♂ ♀).

Clerome Assama, Westwood, Trans. Ent. Soc. 1856, p. 184. Marshall and de Nicéville, Butt. India, etc. i. p. 314, fig. ♀ (1883).

IMAGO.—Male. Upperside deep brownish-ochreous or fulvous, uniformly tinted throughout both wings. Sometimes the median pale spots of the underside are slightly apparent. Underside much darker, and more or less ochreous-brown in tint. Both wings crossed by a prominent black slightly-wavy subbasal and a medial discal line; an outer discal series of small pale yellow rounded spots, the penultimate lower









Vanessa flavescens Linnaeus









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DISTRIBUTION.—Colonel H. H. Godwin-Austen obtained specimens in the Khasia Hills. Specimens from the Lushai Hills are in Mr. P. Crowley's collection. It is recorded by Mons. Oberthür (*Etudes Ent.* 1893, p. 13) as occurring also in Tonkin, but it is probable that this is erroneous, and that the specimens are referable to the Chinese species, *C. Eumeus*.

INDO-MALAYAN species of CLEROME.—*C. Eumeus* (Pap. *Eumeus*, Drury, Ill. Exot. Ent. i. pl. 2, fig. 3 (1773). Cramer, Pap. Exot. ii. pl. 183, figs. C, D (1777). Westwood, Trans. Ent. Soc. 1856, p. 183. Butler, Catal. Fabrician Lep. Brit. Mus. p. 44 (1869). Pap. *Gripus* Fabr. Syst. Ent. App. p. 809 (1775). Pap. *decempunctatus*, Goeze, Ent. Beytr. iii. i. p. 212 (1779). *Habitat.* China; Hong-kong; Hainan; Borneo.—*C. Ærope*, Leech, Entomologist, 1890, p. 31; Lep. China, etc. p. 112, pl. 1, fig. 4, ♂ (1892). *Habitat.* W. China.—*C. Stomphaæ*, Westwood, Trans. Ent. Soc. 1856, p. 186, pl. 21, figs. 3, 4. *Habitat.* Sarawak, Borneo.—*C. Kirata*, de Nicéville, Journ. Bombay Nat. Hist. Soc. 1891, p. 344, pl. F. fig. 3. *Habitat.* Malay Peninsula; Borneo.—*C. gracilis*, Butler, Annals Nat. Hist. 1867, p. 401, pl. 8, fig. 7. Distant, Rhop. Malayana, p. 81, pl. 8, fig. 1. *Habitat.* Malay Peninsula; Borneo.—*C. Besa*, Hewitson, Exot. Butt. iii. Cl. pl. 1, fig. 1 (1863). *Habitat.* Borneo.—*C. Plateni*, Staudinger, Deutsch. Ent. Zeit. 1889, p. 44. *Habitat.* Palawan.—*C. Phaon* (Pap. *Phaon*, Erichson; N. A. Acad. N. C. p. 401, pl. 50, figs. 1, 1a (1834). Westwood, Trans. Ent. Soc. 1856, p. 185. Semper, Reisen Philip. Lep. p. 68 (1887). *Habitat.* Philippines.—*C. Leucis*, Felder, Wien. Ent. Monats. 1861, p. 304; Reise Novara, Lep. pl. 62, figs. 5, 6 (1867). Semper, Reisen Philippen Lep. p. 69 (1887). *Habitat.* Mindanao, Philippines.—*C. lurida*, Felder, Reise Novara, Lep. p. 460 (1867). Semper, Reisen Philip. Lep. p. 69, pl. 8, figs. 19, 20 (1887). *Habitat.* Mindoro, Philippines.—*C. Kleis*, Semper, Reisen Philip. Lep. p. 70, pl. 8, figs. 17, 18 (1887). *Habitat.* Philippines.—*C. Sappho* Semper, Reisen Philip. Lep. p. 69, pl. 8, figs. 15, 16 (1887). *Habitat.* Mindanao, Philippines.

Genus MELANOCYMA.

Melanocyma, Westwood, Trans. Ent. Soc. Lond. 1858, p. 186.

IMAGO.—Male. Wings short, broad; exterior margin oblique. *Forewing* triangular; costa arched, apex rounded, exterior margin oblique, posterior angle rounded, posterior margin lobate near the base; cell broad, upper end extending to nearly half the wing, lower end to three-fifths; first subcostal branch emitted at some distance before end of the cell, second at two-thirds beyond end of the cell, third, fourth, and fifth nearer the apex; upper discocellular short, angled close to the subcostal, lower discocellular long, much recurved; radials from angles near subcostal; median veinlets wide apart, equidistant; submedian recurved near the base. *Hindwing* obconical, anterior margin long, nearly straight, apex obtusely rounded, exterior margin oblique and rounded posteriorly; furnished with a recumbent androconial tuft of hairs at base of the subcostal, and a row of fine longish hairs extending between the submedian and internal vein, which terminate more thickly above the anal angle; subcostal branches and radial emitted together near the base of costal; cell open; medians wide apart; middle median emitted at about half the wing. Body slender; palpi slender, porrect, finely hairy above; antennæ slender, and with an elongated club.

TYPE.—M. Faunula.

MELANOCYMA FAUNULOIDES (Plate 167, fig. 1, 1a, ♀).

Melanocyma faunuloides, de Nicéville, Journal Bombay Nat. Hist. Society, 1895, p. , pl. N. fig 2, ♀.

IMAGO.—“Female. Upperside, *both wings* very pale fuscous or French-grey, all the black markings of the underside showing through faintly by transparency. *Forewing* with the veins slightly infuscated. *Hindwing* with the outer two-thirds of the abdominal margin, and the anal region widely as far as the inter-nervular fold in the first median interspace ochreous-yellow, this colour being carried narrowly along the outer margin as far as the second median nervule. Underside, *both wings* slightly paler than above, especially the *hindwing*. *Forewing* with a large round black spot near the middle of the discoidal cell; a broad black line across the cell beyond its middle, joined to two similar lines running along the subcostal and median nervures from the base of the wing, the latter broadening out towards the base of the submedian interspace; the anterior half of the discocellular nervules black, fining away to nothing posteriorly; two broad slightly irregular nearly parallel black lines commencing at the subcostal and ending at the submedian nervure, the inner line somewhat lunulated between the median nervules; a very fine obscure submarginal blackish line, with an extremely fine black line on the margin. *Hindwing* with the abdominal margin ochreous-yellow of a paler shade than on the upperside, this colour becoming

entirely lost towards the middle of the submedian interspace, extending narrowly along the outer margin as far as the first median inter-nervular fold; the wing is crossed by four broad parallel highly irregular black bands, all commencing close to the costa; the first band is straight and is quite close to the base of the wing, and ends on the submedian nervure; the second band is also nearly straight and ends on the internal inter-nervular fold; the third band is highly irregular and lunulated, the concavity of each lunulated portion directed towards the outer margin, it ends in a somewhat faint detached spot on the internal inter-nervular fold, anteriorly it is joined to the second band by a thin black line running along the costa; the fourth band is also highly irregular and lunulated, the concavity of each lunulated portion directed towards the base of the wing; a somewhat broad submarginal fuscous line posteriorly becoming lost in the ochreous anal area; a very fine black line on the margin ending posteriorly on the first median inter-nervular fold. Cilia throughout very short and cinereous; antennæ black; thorax in front ochreous, posteriorly, and abdomen pale fuscous."

Expanse, ♀ $4\frac{5}{10}$ inches.

HABITAT.—North Chin Hills, Upper Burma.

"A reference to Hewitson's, Westwood's, and Distant's figures (Rhop. Malay. pl. 8, f. 2), of *Melanocyma faunula*, Westwood, all taken from female specimens, will at once reveal the many important characters in which that species differs from the present one, which characters are also borne out by the numerous specimens of *M. faunula* I possess from several localities in the Malay Peninsula and from Chantaboon in Siam. The ground-colour in *M. faunula* is almost white on the upperside of the hindwing instead of being concolorous with the forewing; the yellow colour is more extensive also, reaching to the second median nervule; in *M. faunuloides* it ends midway between the first and second median nervules; on the underside of the forewing the black discal bands are highly lunulated, and the points of the lunules almost meet in *M. faunula*, while in *M. faunuloides* the bands are nearly straight and the inner one is only slightly lunulated; this character is even more strongly pronounced on the hindwing, as in *M. faunula* anterior to the third median nervule these bands entirely join, enclosing large oval spots of the ground-colour; lastly the yellow colour is much duller, and does not extend half as far on to the disc in *M. faunuloides*."

"Described from two specimens kindly given to me by Lieut. E. Y. Watson, which were captured in June, 1893, at Number Three Stockade, in the North Chin Hills, at 3500 feet elevation above the sea" (de Nicéville, l.c.).

INDO-MALAYAN SPECIES OF MELANOCYMA, *M. faunula* (Thaum. faunula, Westwood, Gen. D. Lep. pl. 54, fig. 1) (1851); Trans. Ent. Soc. 1856, p. 186, pl. 21, fig. 2, ♀.

Distant, Rhop. Malayana, p. 81, pl. 8, fig. 2 (1883). *Habitat.* Malay Peninsula; Siam; Cambodia.

Genus TENARIS, Hübner (*Syn.* Drusilla, Swains.)—*T. Birchii*, Distant, Ann. Nat. Hist. 1883, p. 241; Rhop. Malayana, p. 428, pl. 39, fig. 7 (1886). *Habitat.* Malay Peninsula. Singapore.—*T. Horsfieldii* (Drusilla Horsfieldii Swainson, Zool. Illust. i. pl. 11 (1820). Doubleday, Gen. D. Lep. pl. 54, fig. 4 (1851). Thon, Ent. Archiv. p. 90, pl. 4, fig. 3. *Habitat.* Java.—*T. occulta*, Grose-Smith, Ann. Nat. Hist. 1889, p. 316. *Habitat.* Borneo.—*T. Plateni*, Staudinger, Deutsch. Ent. Zeit. 1889, p. 43. *Habitat.* Palawan.

Genus ÆMONA.

Æmona, Hewitson, Exotic Butt. iv. *Æm.* pl. figs. 3, 4 (1868). Wood-Mason, Journ. Asiatic Soc. Bengal, 1880, p. 175. Marshall and de Nicéville, Butt. of India, etc. i. p. 302 (1883). Staudinger and Schätz, Exot. Schmett. ii. p. 187 (1889).

IMAGO.—Male. *Forewing* rather broad, subtriangular; costa arched, apex acutely pointed and produced; exterior margin slightly oblique and convex hindward; posterior margin straight; costal vein extending to five-sevenths of the length of the costal margin; first subcostal veinlet emitted at one-fifth before end of the cell and anastomosed with the costal vein for some distance before its end; upper discocellular twice angled close to the subcostal, lower discocellular long and outwardly recurved, radials from the upper angles; middle and lower median veinlets wide apart, upper median slightly curved beyond the cell. *Hindwing* short, broad, somewhat quadrangular; apex rounded, exterior margin obtusely angular in the middle; subcostal branches straight at their base; first subcostal branch emitted at about one-fifth from the base; cell area rather broad; upper median veinlet nearly in a line with the base; submedian vein recurved, and with a row of fine hairs extending along its outer edge, ending in a curled *glandular fascicle* of longer and stouter hairs, which latter overlap a slight groove or fold of the wing before the anal angle. Head small; eyes naked; palpi slender, apex pointed; antennæ rather short and with a well-formed lengthened club.

TYPE.—*Æ.* Amathusia.

ÆMONA AMATHUSIA (Plate 164, figs. 1, 1a, b, c, d, e, ♂ ♀).

Clerome Amathusia, Hewitson, Trans. Ent. Soc. Lond. 1867, p. 566, ♀.

Æmone Amathusia, Hewitson, Exotic Butt. iv. *Æm.* pl. figs. 3, 4, ♀ (1868). Wood-Mason, Journ. Asiatic Soc. Bengal, 1880, p. 176, pl. 6, figs. 2, 2a, ♂. Marshall and de Nicéville, Butt. of India, etc. i. p. 303, front plate, figs. 2, 2a, ♂ (1883).

IMAGO.—Male. Upperside pale ochreous-yellow or fulvous, the basal area tinged with brownish-ochreous; cilia brown. *Forewing* with the apex and the

exterior margin pale ochreous-brown; crossed by the slightly-apparent excurved subbasal and the oblique discal brownish line of the underside. *Hindwing* crossed by the slightly-apparent subbasal and discal brown line of the underside, followed by a more distinct outer discal sinuous brown line, and then by a slightly-defined less sinuous upper submarginal line. Underside uniformly paler ochreous-yellow, the veins brownish; crossed by an ochreous-brown subbasal line, which is incurved on the forewing and excurved on the hindwing, a narrow oblique discal fascia and a slender sinuous submarginal line; between the two latter is a series of small ocelli, which decrease in size upwards, those on the forewing varying from one to five, and those on the hindwing from five to six, the one situated between the lower medians the largest, and the upper ones, generally, more or less imperfect; these ocelli, where perfect, have a pure white centre, ringed with black, a bright ochreous ring, and then an outer black ring. Body, palpi, and legs beneath ochreous-yellow; antennæ brown.

Female (*type*). Upperside pale ochreous-brown. *Forewing* crossed by a faintly-defined broad excurved band of ochreous-yellow, which commences from the costa, where it is broadest and brightest yellow, and ends indistinctly towards the posterior angle, where it merges into the ground-colour; also crossed by the very faintly-defined subbasal and discal line of the underside. *Hindwing* crossed by the very faintly-defined subbasal and discal line of the underside, followed by an ochreous-brown outer discal sinuous line, and then by a submarginal line, the apical area being also slightly paler ochreous. Underside dull pale cinerous ochreous-brown; crossed by slightly broader lines, as in the male, and more sharply-defined submarginal ocelli. Another female (from the Khasia Hills) is smaller than the *type* above described, and on the upperside is duller coloured, with the subapical pale band less-defined, but the transverse oblique discal line broad and distinctly defined; on the underside the basal area is uniformly darker, the ocelli being of the same size, and with an additional small ocellus at the anal angle.

Expanse, ♂ $2\frac{6}{10}$ to 3, ♀ 3 to $3\frac{4}{10}$ inches.

HABITAT.—Sikkim; Bhotan; Naga, Khasia, and Garrow Hills.

DISTRIBUTION.—The *type* specimen (female) has a printed label "Darjeling" attached to it, and was obtained by the late Mr. W. S. Atkinson, as is indicated in his MS. Notes in our possession. A male, taken in Bhotan, August, 1888, by Mr. Otto Möller's native collectors, is now in Mr. Walter Rothschild's collection, as is also a male, labelled "Garo Hills, December, 1888," taken by the Rev. W. Hamilton. Colonel C. Swinhoe has specimens of both sexes from the Khasia Hills, also taken by Mr. Hamilton's native collectors. Specimens from the Khasias are also in the collection of Mr. Philip Crowley. Mr. S. E. Peal obtained a single male in the Naga Hills.

Of our illustrations of this species on Plate 164, figs. 1, 1a, b, c represent a male and the female from the Khasia Hills, in the collection of Colonel C. Swinhoe; figs. d and e are reproductions of the Hewitsonian figure of the type female.

ÆMONA PEALII (Plate 165, figs. 1, 1a, ♂).

Æmona Pealii, Wood-Mason, Journ. Asiatic Soc. Bengal, 1880, p. 177, pl. 6, figs. 3, 3a, ♂. Marshall and de Nicéville, Butt. of India, etc. i. p. 303, front plate, figs. 3, 3a, ♂ (1883). Doherty, Journ. Asiatic Soc. Bengal, 1889, p. 124.

IMAGO.—Male. “Closely allied to *Æ. amathusia*. Upperside coloured and marked in the same manner, but with the ocelli as well as the strigæ of the underside showing through. Forewing with the apex angulated but not produced, the outer margin arched instead of being concave, sinuous, and the inner angle not so broadly rounded. Hindwing darker coloured, and also paling towards the outer margin, but with the submarginal series of arcuate marks smaller and less distinct. Underside coloured and marked in much the same manner, but with more perfectly formed and more numerous ocelli, the forewing having three—(the first between the submedian vein and the first median veinlet, the second the largest and best defined)—perfect ocelli and two or three rudimentary ones following them, and the hindwing having one rudimentary (close to the submedian vein) and six (the first in the same interspace with the rudimentary one, and the second the largest of all) perfect ocelli; each ocellus dark brown encircled by a very fine line of the colour of the strigæ and pupilled with iridescent silvery-white; the thin submarginal brown line more deeply engrailed.” Female unknown.

Expanse, ♂ $2\frac{5}{10}$ inches.

HABITAT.—Assam.

DISTRIBUTION.—The type specimens were taken by Mr. S. E. Peal at Sibsagar, Upper Assam, and are in the Indian Museum, Calcutta. According to Mr. W. Doherty (J. A. S. Beng. 1889, 124), “*Æ. Pealii* appears to be the wet-season form of *Æ. amathusia*, differing only in the less acute and falcate forewing, the more distinct ocelli, and brighter colouring below. I took two specimens of *Pealii* near Sadiya in September; the outer margin of the forewing was convex throughout, but the apex was slightly more acute than in the type. On the 1st of December, I caught a single ragged specimen of *Amathusia* near Margherita, apparently quite typical.” Mr. Ernst Hartert, who accompanied Mr. Doherty in his Assam journey, also records (Proc. A. S. Beng. 1890, 205) the capture of this species.

Of our illustrations of this species on Plate 165, figs. 1, 1a are reproductions of Mr. Wood-Mason’s figure in the Journ. Asiatic Society of Bengal for 1880.

ÆMONA LENA (Plate 165, figs. 2, 2a, ♂).

Æmona Lena, Atkinson, Proc. Zool. Soc. 1871, p. 215, pl. 12, fig. 1, ♂. Moore, Anderson's Zool. Exped. W. Yunan, i. p. 924, pl. 81, fig. 1 (1878). Wood-Mason, Journ. Asiat. Soc. Bengal, 1880, p. 177. Marshall and de Nicéville, Butt. of India, etc. i. p. 302 (1883). Staudinger, Exot. Schmett. i. p. 203, pl. 65, ♂ (1887); *id.* ii. p. 187, pl. 31 (1889).

IMAGO.—Male. Upperside pale brownish-ochreous; cilia ochreous-brown. *Forewing* with the veins bordered with dusky-brown which broadens outwardly and pervades the entire margin, the disc being crossed by a slightly darker brown narrow sinuous band, thus breaking the pale interspaces between the veins and showing a more prominently-defined outer series of pale pointed streaks, beyond which is a faintly-defined submarginal line. *Hindwing* paler anteriorly, the posterior area being broadly ochreous yellow; the dusky-brown subbasal and discal line of the underside visible by semi-transparency; a series of four upper submarginal whitish quadrate-spots, the three upper with brown-speckled edges. Underside dull pale brownish-ochreous; an ochreous-brown narrow band extending from apex of the forewing to above the anal angle of the hindwing; the hindwing also having a short subbasal similar line; both wings also with a much less defined slender submarginal line and a series of small pale ochreous-white ocelloid spots.

Female unknown.

Expanse, $3\frac{2}{10}$ inches.

HABITAT.—Burma.

DISTRIBUTION.—The type specimen—now in the Hewitson collection at the British Museum, and from which our description is taken, was obtained by Dr. J. Anderson, during the Yunan Expedition of 1868, and is labelled “Yunan” in Mr. Atkinson's handwriting. “There are two specimens of the male, in the Indian Museum, Calcutta, taken by Dr. Anderson at the same time. In a specimen of the male received from the Upper Thoungyeen forests, Burma, by Major G. F. L. Marshall, taken in April, the three white spots on the anterior half of the hindwing are larger, forming a band divided by the veins” (Butt. of India, i. 303). This species was also taken by Mr. Ossian Limborg at “Moolai, 3000 to 6000 feet elevation, in Upper Tenasserim” (P. Z. S. 1878, p. 827). “A single male was taken by Mr. W. Doherty, in the Karen Hills, at 2000 feet. It also occurs near Bernardmyo, in Upper Burma” (Elwes, P. Z. S. 1891, 271). Dr. N. Manders also records the capture of a male at Bernardmyo (Tr. Ent. Soc. 1890, p. 520).

Our illustrations of this species on Plate 165, fig. 2, 2a, are reproductions of Mr. Atkinson's figure of the male from the Proc. Zoological Society for 1871.

Genus XANTHOTÆNIA.

Xanthotænia, Westwood, Trans. Ent. Soc. Lond. 1856, p. 187. Distant, Rhop. Malayana, p. 82 (1882).
Marshall and de Nicéville, Butt. of India, etc. i. p. 283 (1883). Staudinger and Schätz, Exot. Schmett. ii. p. 188 (1889).

IMAGO.—Male. Wings short. *Forewing* rather narrow, subtriangular; costa arched, apex obtusely convex; exterior margin short, almost erect, very slightly convex, even, posterior angle obtusely convex; posterior margin long; costal vein thick; first subcostal veinlet emitted before end of the cell, second at nearly one-third beyond the cell; the cell broad; discocellulars outwardly-oblique, upper angled close to the subcostal and concave below; lower discocellular long and slightly outwardly-recurved; upper radial from angle close to subcostal, lower radial from above the middle; median veinlets at equal distances apart; submedian vein recurved from the base. *Hindwing* short, very broad, triangularly-ovate; anterior margin broadly lobate at the base and nearly straight outwardly; apex obtuse; exterior margin very convexly-produced hindward from the middle; abdominal margin long; costal vein with a long inner spur near the base, terminating near the apex; first subcostal veinlet emitted at about one-third before end of the cell area, the radial (the base of which is homologous to an upper discocellular) starting from below the second subcostal at one-third from its base; *lower discocellular completely atrophied* (as seen in the desquamated wing under the microscope), thus leaving the cell quite open; the cell area moderately broad; the two upper median veinlets emitted from the lower end of the cell area; *submedian vein with a raised fold* along its outer edge and scantily fringed with fine long hairs, the fold *terminating* beyond the middle *in a small longitudinal scabrous glandular patch* of scales overlaid by a *tuft of long erect hairs*. Body rather long, abdomen slender, not tufted; eyes naked; palpi much compressed, curved and extending to level of the vertex, thickly clothed with appressed hairy-scales beneath and with longer hairs above, the tip distinct, slender, acute at the tip; legs long; antennæ long, distinctly articulated, with a lengthened gradually slender club and acute tip.

TYPE.—X. Busiris.

XANTHOTÆNIA BUSIRIS (Plate 166, figs. 1, 1a, b, c, ♂ ♀).

Xanthotænia Busiris, Westwood, Trans. Ent. Soc. Lond. 1856, p. 187. Moore, Proc. Zool. Soc. Lond. 1878, p. 827. Distant, Rhop. Malay. p. 82, pl. 5, fig. 7 (1882). Marshall and de Nicéville, Butt. of India, i. p. 284, fig. ♂ (1883). Staudinger, Exot. Schmett. i. p. 145, pl. 50, ♂ (1886); *id.* ii. p. 188, pl. 30 (1889).

Xanthotænia obscura, Butler, Ent. Mo. Mag. 1883, p. 54 (variety).

IMAGO.—Male. Upperside dusky chestnut-red. Cilia brown, edged with cinereous. *Forewing* with the outer half dusky chestnut-brown; crossed by an outwardly-

oblique medial-discal pale ochreous-yellow sinuous-edged band, which extends from the costa to the lower median and terminates near the outer margin; a subapical yellow triangular dot before the apex. *Hindwing* unmarked; the abdominal margin with the *longitudinal raised fold* bordering the submedian, its scabrous *glandular patch*, and *erect tuft of hairs* paler red. Underside paler and of a brownish-ochreous tint of colour. *Forewing* with the oblique yellow band as above; a dark brown slender zigzag line crossing the cell, and two sinuous lines before the outer margins; before the apex are two small superposed yellow dots, the upper one minute, followed below by an ocellated spot and then by two lower yellow dots. *Hindwing* crossed by two zigzag subbasal and two sinuous submarginal slender brown lines which terminate at the submedian vein; the discal area also being traversed by a series of eight ocellated spots, the two upper being conjoined, and the sixth large, the others more or less small, the former with a large brown-and-grey-speckled centre, minute black-speckled yellow pupil, and narrow yellow outer ring, the others more or less imperfectly developed. Body beneath, legs and palpi, pale brownish-ochreous; antennæ red.

Female. Larger than the male. Upperside of the same colour; the oblique yellow band on the forewing somewhat broader, the white apical spot more distinct. Underside as in the male, except that all the markings are more distinctly defined.

Expanse, ♂ $2\frac{6}{10}$ to $2\frac{8}{10}$, ♀ $2\frac{8}{10}$ to $3\frac{3}{10}$ inches.

HABITAT.—Tenasserim; Malay Peninsula.

DISTRIBUTION.—Within our limits, this species is found in Upper Tenasserim, where Mr. Ossian Limborg took it “near Moolai, at 3000 to 6000 feet altitude” (Proc. Zool. Soc. 1878, 827), and “Capt. C. T. Bingham also obtained it on the Donat Range and in the lower Thoungyeen forests in April” (Butt. Ind. 285). Major C. H. E. Adamson (List, p. 10) records it from “Tavoy and Tenasserim, frequenting thick evergreen forests, September.” Also “taken at Tavoy and at Ponekai” (Elwes, J. A. S. Bengal, 1887, 419).

DISTRIBUTION OUTSIDE OUR AREA.—This species occurs in the Malay Peninsula, Sumatra, Nias Island (these being very dark coloured), Java (Coll. Distant), and Borneo, where, according to Mr. W. B. Pryer—(Ann. N. H. 1887, 51)—who obtained it in Sandakan, N. Borneo, “it frequents only the shade of the high forest.”

The following additional species of the genus *Stichophthalma* has recently been discovered in Manipur, namely:—

STICHOPHTHALMA SPARTA (Plate 167, figs. 2, 2a, ♂).

Stichophthalma Sparta, de Nicéville, Journal Asiatic Society of Bengal, 1894, p. 3, pl. 1, fig. 4, ♂.

IMAGO.—“Male. Upperside. Both wings deep rich reddish fulvous or

ferruginous. *Forewing* with the irregular discal black line of the underside showing through by transparency; the apical area widely pale fulvous, this pale area extends from the submarginal hastate black markings to just within the discal line, it is very wide on the costa, but dies away to nothing before reaching the first median nervule; a series of five submarginal hastate black markings, one in each interspace from the upper discoidal nervule to the submedian nervule, increasing progressively in size from the anterior to the posterior marking; a large black patch at the apex; a submarginal fulvous line, beyond which is a narrower anteciliary black line, both reaching from the inner angle to the lower discoidal nervule; the area enclosed by the coalescing of the hastate markings forms a series of six rounded spots, regularly increasing in size, the anterior spot the smallest, the posterior one the largest; these spots are of a slightly darker shade than the pale fulvous apical area, but not so dark as the dark rich reddish-fulvous of the rest of the wing. *Hindwing* with the abdominal and outer margins rather paler than the rest of the wing; a submarginal series of seven black markings, of which the anterior one is a small lunule with its concave edge directed towards the base of the wing, the next five markings are hastate-shaped, increasing in size from the anterior one to the posterior one in the first median interspace, the seventh posterior marking somewhat quadrate in form, and occupying the whole width of the submedian interspace; a fine black anteciliary thread.

“Underside. Both wings of a reddish-fulvous of not quite so rich a shade as on the upperside. *Forewing* with a small irregular black marking towards the base of the cell; a highly irregular and zigzag black line crosses the middle of the cell and extends both to the costa and to the submedian nervule, the posterior portion of the line is broken and shifted outwardly below the median nervule; the upper, middle, and anterior half of the lower discocellular nervule defined by a black line; an irregular discal black line from the costa to the submedian nervule, just touching the lower end of the cell; beyond the line is a series of five somewhat cordate reddish ocelli, each ocellus centred with a whitish lunule, and bounded by a fine whitish, and then a fine black line, the four anterior ocelli equal-sized, the fifth posterior one in the first median interspace a little larger; beyond these ocelli is another irregular black line from the costa to the inner margin, this line is narrower and paler than the discal one; the space between these two lines is anteriorly somewhat paler than the rest of the wing; a submarginal nebulous straight blackish band; a very fine anteciliary black line. *Hindwing* with an irregular subbasal and a discal black line, the latter posteriorly curving round and almost meeting the posterior end of the former, both terminating above the anal angle on the submedian nervule; a series of five ocelli on the disc similar to those in the forewing, the posterior one the largest and rather mis-shapen, the anterior one the next largest, the three in the middle

nearly equal sized ; the outer discal fulvous line and blackish submarginal band as in the forewing ; a small oval deep black spot at the anal angle, with a black cloud above it reaching to the posterior ocellus ; an anteciliary black thread. *Body* throughout ferruginous. Antennæ black.

“ Expanse, 5 inches.”

HABITAT.—Manipur.

This beautiful species is “ nearest to *S. Howqua*, var. *suffusa*, Leech (Butt. China, etc. p. 114, pl. 1, fig. 3, ♀), from Western China, differing in the forewing, on the upperside, in the pale apical area being very much smaller, not extending into the cell as it does in *S. suffusa* ; on the hindwing the hastate markings in *S. Sparta* are well formed, in *suffusa* they have lost all shape, having coalesced into an almost solid black band. On the underside the ground-colour in *S. suffusa* is pale greenish, in *S. Sparta* it is ferruginous, but this may be only a sexual difference ; but in true *S. Howqua*, and its named variety, the outer discal line and the submarginal band on both wings are half the distance apart that they are in *S. Sparta* ; and they have six and sometimes seven ocelli on the forewing, while *S. Sparta* has only five ” (de Nicéville, l.c.).

Sub-family NYMPHALINÆ.

Nymphalidi (part), Boisduval, Ind. Méth. p. 14 (1829).

Nymphalides, *Peridromides*, *Biblidés* (part), Boisduval, Spec. Gen. Lep. p. 164-5 (1836).

Nymphalides, *Apaturides*, Boisduval, Ind. Méth. pp. 16, 24 (1840).

Nymphalidæ, *Argynnidæ*, *Vanessidæ*, Duponchel, Catal. Méth. Lep. Eur. pp. 2, 8 (1844).

Nymphalites, *Argynnites*, *Peridromites*, *Biblites* (part), Blanchard, Hist. Nat. Ins. ii. pp. 330, 332 (1845).

Nymphalidæ, *Peridromidæ*, Doubleday, List of Lep. Brit. Mus. Part I. pp. 46, 64 (1844).

Nymphalidæ, *Ageronidæ*, *Eurytelidæ*, Doubleday, Hewitson, and Westwood's Gen. D. Lep. pp. 81, 143, 403 (1847-52).

Nymphalidi, *Vanessidi*, *Argynnidi*, Stephens, Catal. Brit. Lep. B. M. pp. 10, 13 (1850). Stainton, Manual Brit. Lep. pp. 33, 41 (1857).

Nymphalides, Lederer, Class. Eur. Lep. p. 21 (1852). Wallengren, Lep. Scand. pp. 4, 59 (1853).

Nymphalina, Herrich-Schäffer, Lep. Exot. p. 54 (1858) ; Syst. Verz. Eur. Schmett. p. 3 (1861). Plötz, Mitth. Nat. Ver. Vorp. 1886, p. 5.

Nymphalinæ, Bates, Journ. Ent. 1861, p. 220 ; *id.* 1864, p. 176. Butler, Catal. Fabrician Lep. B. M. p. 46 (1869). Kirby, Catal. D. Lep. p. 147 (1871). Moore, Lep. Ceylon, i. p. 26 (1880). De Nicéville, Butt. of India, etc. ii. p. 1 (1886). Scudder, Butt. E. United States i. p. 222 (1889). Leech, Butt. China, etc. i. p. 116 (1892).

Nymphalides, *Vanessides*, *Apaturides*, *Argynnides*, Kirby, Catal. Eur. Butt. p. 21 (1862).

Nymphalina (part), *Eurytelina*, Herr. Schäffer, Prod. Syst. Lep. pp. 16, 17 (1864).

Nymphalidæ, *Apaturidæ*, Staudinger, Catal. Lep. Eur. p. 15 (1871). Lang, Rhop. Eur. i. pp. 153, 159 (1884).

Nymphalina, Distant, Rhop. Malayana, p. 83 (1882).

- Nymphalidæ*, *Apaturidæ*, *Eurytelidæ*, *Charaxidæ*, Doherty, Journ. Asiatic Soc. Bengal, 1886, p. 109.
Nymphalidæ, Staudinger, Exotic Schmett. p. 86 (1885); Staudinger and Schätts, *id.* p. 108 (1887).
Najades, *Dryades*, *Hamadryades*, Borkhausen, Nat. Eur. Schmett. pp. 37-48 (1788).
Consules (part), *Nobiles*, Herbst.
Lemoniades, *Dryades*, *Hamadryades*, *Najades*, *Potamides*, Hübner, Tentamen p. 1 (1806); *id.* Samml.
 Exot. Schmett. i. pp. 1, 2 (1806-19). Verz. bek. Schmett. pp. 26-46 (1816).
Spinosæ, *Carunculatæ*, Guénee, Lep. Eure et Loir, pp. 17, 23 (1867).
Spinigeri, *Limaciformes*, Newman, Brit. Butt. p. 19 (1871).
Najades, Scudder, Syst. Rev. Amer. Butt. p. 8 (1872).

CHARACTERS OF THE NYMPHALINÆ.

IMAGO.—Wings of either small, medium, or large size. *Forewing* generally more or less triangular, usually produced at the apex, seldom pointed at the tip; exterior margin more or less emarginate, sometimes angulated; costal vein (except in the group *Eurytelina*), not dilated at the base; first and second subcostal branches generally emitted before the end of the cell; in some genera, however, the first subcostal branch only is emitted before the end of the cell, in which latter case the second subcostal is four-branched. *Hindwing* generally broadly oval or triangularly oval, the exterior margin sometimes more or less deeply scalloped or tailed; in some the anal angle is prolonged; abdominal margin always affording a deep groove for the reception of the abdomen. *Discoidal cell* either closed in both wings, or in some genera closed in the forewing only, in which latter cases the cell of the hindwing is open, and in several genera, the cell in both wings is entirely open.

Body usually robust. *Head* variable in size. *Eyes* large, generally naked; in some hairy. *Palpi* rather large, generally porrected, extending considerably in front of the head, usually protruded widely apart, well clothed with scales and hairs. *Abdomen* short. *Antennæ* generally rather long, the club either broad or elongated. *Forelegs* greatly atrophied in the male, less so in the female; the fore tibia and tarsus of the male clothed with fine hairs; the fore tarsus of the male consisting of a single elongate joint and unarmed; the fore tarsus of the female composed of five joints, which are generally rather dilated at their extremity, each joint being furnished beneath with a pair of short, fine spines.*

Abdominal appendages (Prehensores of male), “with the upper organ [*tegumen*, B. White; *uncus*, Gosse], of variable size, never provided with lateral appendages;

* In *Calinaga*—a genus hitherto placed in the Nymphalinæ—the female (of both the Indian and Chinese species) has the fore tarsus perfect, the terminal joint being furnished with a pair of rather long, stout, curved, forward-projecting claws, paronychialia and pulvilli. This genus we have therefore assigned to a subsequent sub-family, the CALINAGINÆ. Another genus—*Pseudergolis*—hitherto placed in the Nymphalinæ, the females of which also possess perfect tarsi, has consequently been assigned to another sub-family.

clasps large and broad and tumid, seldom tapering much apically, furnished with an upper apical or basal process, emitted from the edge of the outer surface, and often with an upward directed, free or attached finger on the inner side of the clasp" (Scudder, Butt. E. U. S. I. 223).

EGG.—"Either subglobular and then reticulate and filamentous; or barrel-shaped, distinctly higher than broad, and then vertically ribbed, the ribs usually higher near the summit than on the sides, and sometimes confined to the upper half" (Scudder, l.c.).

CATERPILLAR.—Either limaciform or nearly cylindrical, rarely not distinctly moniliform, equal or tapering behind, sometimes in front, or if swollen unusually in any part, such prominence is restricted to a single segment, and is not massed in two or more adjoining segments; either smooth and minutely shagreened, or armed above with longitudinal rows of mostly branched-spines, or conspicuous spinous-tubercles, the anal segment occasionally bifid or with a posterior median tuberosity. Head more or less slightly cleft above, hairy, or set with either two or more very short simple spines, or too elongated spiniform-tubercles, on the vertex; or with four—two vertical and two lateral—moderately long spinous-processes.

CHRYsalis.—Suspended by the tail. Either smooth, thick, almost oval or boat-shaped with obtuse or bifid head, or generally more or less elongate, with either a conical, angulated, or dilated medio-dorsal and thoracic prominence, and abdominal segmental small conical points.

SECONDARY SEXUAL CHARACTERS.—In the butterflies of this sub-family there are but few genera in which Androconia, or scent-producing scales, have been found, and these mostly occurring in certain genera of the groups Euthaliina, Limenitina, Argynnina, and Eurytelina.

SEASONAL DIMORPHISM.—The perfect insects in this sub-family mostly have settled characters in their markings, and are but little subject to variation, but in the group CHARAXINA, it will probably ultimately be found that certain species, as here described, of the genus *Haridra* and of *Eulepis*, are but seasonal forms only. In certain genera of the group NYMPHALINA, i.e. *Grapta*, *Araschnia*, *Junonia*, and *Hypolimnas* [Apatura], seasonal dimorphism occurs to a more or less extent, and probably also in some species of the group LIMENITINA, i.e. *Athyma* and *Neptis*, and also in the group ARGYNNINA. In the genus *Symbrenthia*, the species [*S. Hippoclus*?], as occurring in Java, is stated by Mr. W. Doherty to be dimorphic in the female.

POLYMORPHISM and MIMICRY.—In some species of *Hypolimnas* [Apatura], notably *H. Misippus*, of the genus *Euripus*, i.e. *E. Halitherses*, and of *Sephisa*, i.e. *S. Chandra*, the females are polymorphic, as well as being mimics of certain species of Limnaine and of Euploëine butterflies. The males of the same species of *Euripus* and both sexes

of *Hestina*, also mimic certain species of Limnaine butterflies. *Apatura* [Potamis] *Chevana*, which is alike in both sexes, is on the upperside a remarkable mimic of a white-banded species of *Athyma*, namely of *A. Opalina*. The species of *Symbrenthia*, in the shape and red colour of the markings on the upperside, closely resemble, in both sexes, the red-banded females of certain species of *Athyma*. In the genus *Symbrenthia*, the species (*S. Hippoclus* ?), as occurring in Java, is stated by Mr. Doherty to be also dimorphic in the female—one form having red bands, the other white—but it is also very remarkable that these white-banded females of *Symbrenthia* are mimics of the white-banded *males* of the common *Athyma Nepte*, and the red-banded forms of the red-banded *female* of the same species of *Athyma*. In the group ARGYNNINA, the female of the widely-distributed Eastern species *Argynnis Niphe* is a fair mimic of the equally widely-distributed and common Limnaine butterfly, *Limnas chrysippus*; and the female of the rare N.W. Himalayan *Argynnis Clara* is also a good mimic of the female *Parnassius Charino*.

CHARACTERISTICS OF CATERPILLAR AND CHRYSALIS.—The external appearance of both the caterpillar and of the chrysalis of the Nymphaliniæ exhibits a variety of forms. The caterpillar is either slug-shaped, smooth and shagreened, with processes on the head and anal segment, or cylindrical, with rows of either short or long branched-spines, and occasionally similar spines on the head, or, with some of the anterior segments tumid and surmounted with short or elongated spiny processes. The chrysalis is always fully suspended by the tail, and is either thick, oval, or boat-shaped, or with a dorsal and thoracic prominence, tumid or angular wing-cases, and bifid or hammer-shaped head piece, and some with abdominal conical or slender points, or with dilated processes.

HABITS OF IMAGO.—The butterflies of this sub-family “are pre-eminently bold sunshine-loving insects, never skulking in the shade amongst trees and bushes, as do the butterflies of the Amathusiinæ and Satyrinæ. Their flight is usually strong, and as a rule they are seen most abundantly at mid-day. Generally they rest with the wings widely spread open, and delight in displaying their beauty. In the genus *Charaxes* the power of rapid flight is very great. In the genus *Neptis*, and the ‘White-Admiral’ group of *Limenitis*, the flight is easy, graceful, and sailing, while in *Vanessa*, *Argynnis*, *Apatura* [Potamis], &c., though the flight is rapid and irregular, they are often easily caught, owing to their habit of returning again and again to the same resting place on a particular leaf. The flight of *Cyrestis* is weak, and very often, when pursued, suddenly alights on the underside of a leaf; so also does *Stibochiona Nicea*. Many of the species are very foul feeders, the depraved tastes of the ‘Purple Emperor’ [Potamis Iris] are well known. Species of *Charaxes* have also been taken on carrion, and *C. Fabius* is very fond of the juice of the Toddy Palm, and *Euthalia* of rotten fruit, &c.” (de Nicéville Butt. Ind. ii. 3). Dr.

Thwaites, writing of the butterflies of this sub-family as observed in Ceylon, says, "The strength and firm texture of the wings enable them to keep up an unceasing activity during the bright hours of the day. They seem to delight in displaying their exquisite beauty to the sun. Their flight, though so powerful, is not observed to sustain these charming insects in one uniform direction, like the *Euplocæas*, but serves rather to enable them, when rambling in their frolic, to make wide sweeps within no very extensive area. Some species, such as the *Junonias*, prefer to display their bright expanded wings upon the sunny ground, whilst others, as *Neptis*, fly gaily about the low flowering shrubs. Many kinds, like *Diadema* [*Hypolimnas*], &c., when at play, return again and again at certain intervals of time to the same, or to nearly contiguous spots, and thus give the collector renewed opportunities of capture" (Lep. Ceylon, 1, 26).

"All the *Charaxes* in the Malayan region are hard to catch, but there is nothing more helpless than most *Charaxes* in the Indo-Malayan region. They fly so straight that you can take them on the wing nine times out of ten; they persistently return to the same spot, and love to alight on projecting twigs, where you can easily get them by a stroke of the net from below. But this is not the case in the Malayan regions; I do not know how many hours I spent in the interior of Sumba, trying to catch a huge undescribed *Charaxes* of the *pyrrhus* group; and the *polyzena* group never seem common down there as in India" (Doherty, P.Z.S. 1891, p. 256).

DISTRIBUTION.—The Nymphalinæ are found throughout the world. One species, *Vanessa cardui*, may well be called cosmopolitan, "whose range," writes Mr. Scudder (l.c. 469), "with the exception of the Arctic regions and South America, extends over the entire extent of every continent, Australia and New Zealand producing a race peculiar to themselves, while the other large islands south of Asia possess the normal type, which is also found upon the small islands lying off the western borders of the Old World, the Azores, Canaries, Madeira, and St. Helena, occurring also in Bermuda, Cuba, and has been taken at various points in the Hawaiian Archipelago." The greatest development of the sub-family is "in tropical and sub-tropical regions" (de Niceville l.c. 3). Some Himalayan species occur at very high altitudes; *Vanessa indica* was observed by the late Major J. L. Sherwill in the Eastern Himalayas, "as being common at great elevations, and also on the snow and on the glaciers at 13,000 to 16,000 feet elevation." *Vanessa Ladakensis* was taken by Dr. Stoliczka at 15,000 feet in the Western Himalayas. Captain Lang took *Grapta C-album* on the Hungrung Pass, at about 15,000 feet altitude, and *Limenitis Ligyes* at 10,000 feet. Dr. Stoliczka observed an *Argynnis* on the top of the Lanak Pass, at an elevation of 18,672 feet. Dr. Duthie obtained *Argynnis clara* at 12,000 to 14,000 feet in the North-Western Himalayas, and Major H. B. Hellard took specimens of the same *Argynnis* on the north side of the Rupin Pass from about

12,000 feet to near top of the pass. Captain Lang obtained specimens of *Melitea Sindura* at 16,000 feet elevation in North-Western Himalayas.

GROUPS OF THE NYMPHALINÆ AND THEIR CHARACTERISTICS.

The Nymphalinæ is the most extensive sub-family of butterflies, and embraces a great variety of forms, not only in the caterpillar and chrysalis state, but also in that of the imago. The assemblage of these various forms, as here embraced in this sub-family, has, by most modern Lepidopterists who have studied their structure, been divided into three or four, or more, limited natural groups,* and which, by some authors, are mainly based upon the differences of form in their larval and pupal stages.

In the arrangement of the Nymphalinæ, in this work, we have assigned the various genera of the Indian fauna to named groups, into which they naturally range themselves, in accordance with their special characteristics, and which are here briefly indicated as follows:—

Group I. CHARAXINA.

Imago.—Very robust, thorax very stout. Forewings triangular, short, broad; apex produced to an obtuse or somewhat acuminate point. Hindwings short; exterior margin scalloped, with a long narrow, or short, pointed tail at end of upper and lower median veinlets.

Caterpillar.—Slug-shaped (limaciform), with four lengthened processes on the head, and two short processes on the anal segment.

Chrysalis.—Short, thick, almost oval; smooth; dorsum much arched, head more or less obtusely pointed.

Egg.—"Large; few; globular; hard; not so high as broad; with obscure ribs and cross lines at the base only, forming tetragons, with minute projecting points at their intersection" (Doherty).

Group II. POTAMINA [Apturidæ, *auctorum*].

Imago.—Robust. Forewings more or less elongate and triangular; apex obtuse; exterior margin sometimes slightly angulated below the apex. Hindwings short, either triangular and somewhat prolonged at anal angle in male, or subquadrate; exterior margin slightly scalloped, or obtusely produced at end of the upper median veinlet.

* But have been ignored by Mr. Distant (Rhop. Malayana), Mr. de Nicéville (Butt. of India, etc.), Mr. Elwes (P.Z.S., 1888, etc.), and Mr. Leech (Butt of China, etc.), although the life history of many species of the various groups were then known, consequently their arrangement of the genera in this sub-family is erroneous and entirely unnatural.

Caterpillar.—Slug-shaped, with two processes on the head, and two on the anal segment.

Chrysalis.—Somewhat boat-shaped; dorsum arched; head with two short projecting points.

Egg.—"Large; few; hardly as high as wide; ribs low, serrate, rather numerous, not produced at apex" (Doherty).

Group III. EUTHALIINA.

Imago.—Robust. Forewings broad, triangular; apex either obtusely pointed or rounded, or somewhat falcate; exterior margin either slightly, but obtusely, scalloped, or nearly even. Hindwings short, broad, triangular or obovate, or sometimes subquadrate.

Caterpillar.—Head slightly cleft and spiny or minutely hairy. Body armed with a subdorsal and lateral row of erect branched-spines, or with very long lateral horizontally-projecting branched-spines.

Chrysalis.—Elongate and boat-shaped, with arched dorsum and bifid head; or, short and stout, with triangulate medio-dorsal prominence, and bifid head.

Egg.—?

Group IV. LIMENITINA.

Imago.—Moderately robust, generally. Forewings either short and more or less triangular, or elongate and narrow; apex obtuse or rounded; exterior margin in some more or less slightly scalloped. Hindwings short, generally broad and triangularly-ovate, in some obovate; exterior margin more or less slightly scalloped, and in some the anal angle is prolonged, or lobate, the apex slightly excised, and with a short acute point or narrow tail at end of upper median veinlet.

Caterpillar.—Head cleft, or serrate, on vertex. Body either unequally humped dorsally, or more or less cylindrical; armed with two subdorsal series of mostly short irregular-shaped fleshy branched-spines.

Chrysalis.—Somewhat elongate, or short; with projecting wing-cases, broad rounded elevated antero-dorsal prominence, arched thorax, and projected bifid (or rarely single) head piece.

Egg.—"Very large; few; soft; not so high as wide, strongly reticulate with elevated translucent lines crossing the surface asymmetrically, enclosing pentagonal and hexagonal spaces, and bearing long, acute, often bifid spines at their intersection" (Doherty).

Group V. NYMPHALINA.

Imago.—Forewings elongately-triangular; apex obtusely angled or rounded, in some produced to a more or less distinct point; exterior margin either more or less

slightly scalloped and with a more or less prominent outward angle below the apex and a lesser angle at the lower median veinlet, or the entire margin slightly but obtusely scalloped, or more or less even. Hindwings short, obovate, or somewhat quadrate; the exterior margin either more or less slightly scalloped, or nearly even, or, in some the apex is slightly excised and with a short broad caudate angle at the upper median veinlet; or, in some the wing is triangular, with the exterior margin nearly or quite even, and the anal angle prolonged into a lobate tail.

Caterpillar.—Head mostly very slightly cleft, in some surmounted with two minute tuberculous-spines or very short stellate-spines, or armed with two long erect branched-spines. Body armed with mostly nine (sometimes eleven) longitudinal series of branched-spines.

Chrysalis.—With dorsal and lateral abdominal segmental conical points; thorax obtusely or angularly conical; head piece more or less bifid.

Egg.—"Not so high as wide; ribs few, sharp and prominent, usually projecting at apex, and often serrate" (Doherty).

NOTE ON THE GROUP NYMPHALINA.—We refer the origin of this name to Linnæus, who, in 1758, Syst. Nat. p. 472, uses the plural form [*Nymphales*] at the head of the group, but in the singular form [*Nymphalis*] at the top of the pages; dividing the group into two sections, the species in the first section (Nym. Gemmati) being *Io*, *Almana*, *Asterie*, *Ænone*, *Aonis*, *Lemonius*, *Orithyia*, *Cardui*, *Lampetia*, *Iris*, and some *Satyrids*. In the second section (Nym. Phalerati) *Populi*, *Antiopa*, *Polychloros*, *Urticæ*, *C. Album*, *C. Aureum*, *Dirce*, *Amathea*, *Venilia*, *Alimene*, *Leucothœ*, *Phætusa*, *Bolina*, and others. In the 12th Edit. Syst. Nat. p. 769 (1767) Linnæus repeats the above. In 1777, Esper, Die Schmett. p. 87 [*Nymphalis*], under section I. gives *Io*, *Cardui*, *Iris*, and some *Satyrids*. II. *Populi*, *Antiopa*, *Polychloros*, *Urticæ*, *C. Album*, *Atalanta*, *Sibilla*, *Camilla*, *Rumina*, *Levana*, *Lucina*, *Maturna*, *Cinxia*, *Dia*, *Paphia*, *Aglaiia*, *Adippe*, *Lathonia*, *Euphrosyne*, *Niobe*. In 1781, Barbut, Gen. Ins. Linné, pp. 162, 172 [*Nymphales*] at head of group, and *Nymphalis* for sections, describes and figures *Io*, and *Urticæ*, only, as typical. Any further restriction of the name in its generic use must therefore be confined to these two species. In 1784, Esper, Natur. des Linn. Syst. p. 209 [*Nymphales*], gives sect. I. *Io*, *Galathea*; sect. II. *Urticæ*, *Atalanta*, *Lathonia*. In 1793, Fabricius, Ent. Syst. III. i. p. 61 [*Nymphales*] places at the head of the list, *Jasius* and *Pyrrhus*; two species not occurring in Linnæus's group *Nymphales*, and which, by some modern authors, have been erroneously taken as the typical species of the genus *Nymphalis*. In 1798, Cuvier, Tabl. Elem. Hist. Nat. p. 589 [*Nymphales*], gives *Antiopa*, *Io*, *Cardui*, *Atalanta*. This action of Cuvier's thus fixes *Io* as the type of *Nymphalis*.

Group VI. ARGYNNINA.

Imago.—Forewings elongately-triangular, or triangular; apex obtuse or rounded; exterior margin more or less slightly scalloped, or even. Hindwings short, broad, obovate, in some subquadrate; exterior margin more or less slightly, or prominently scalloped; in some with a more or less prominent broad caudate angle at end of the upper median veinlet.

Caterpillar.—Head hairy, either armed with two vertical branched-spines, or, not armed. Body armed with from six to nine longitudinal rows of branched-spines.

Chrysalis.—More or less constricted at the waist; thorax arched; wing-cases ample and protuberant; either with dorsal conical tubercles, which in some are slender, in others the anterior and the posterior dorsal pair are abnormally long, enlarged, and expanded at the base; head obtusely or acutely bifid.

Egg.—"Sugar-loaf shaped" (Scudder). "As high as wide or higher; ribs rather numerous, heavy, blunt, anastomosing, projecting at apex, with numerous distinct cross lines" (Doherty).

Group VII. MELITEINA.

Imago.—Small. Forewings elongately-triangular; apex obtuse; exterior margin almost even. Hindwings short, obovate; exterior margin barely slightly scalloped.

Caterpillar.—Head small, unarmed. Body attenuated a little anteriorly, armed with four longitudinal series of short, coarse branched-spines.

Chrysalis.—"Rather stout. Head obtuse; thorax rounded; abdominal segments with dorsal and lateral small blunt tubercles" (Scudder).

Egg.—"Somewhat acorn-shaped, higher than broad, well rounded at base and at sides, and broadly docked at the summit; with very slight longitudinal ribs occupying only the upper half, the surface below being smooth, or indented with polygonal or rounded depressions" (Scudder).

Group VIII. EURYTELINA.

Imago.—Of moderate size. Forewings mostly short and broad, elongately-triangular, or triangular; costal vein dilated at the base; apex abruptly pointed or obtuse; exterior margin either erect, slightly scalloped, and angled outward below the apex and less so at the upper median veinlet, or the margin oblique and nearly even. Hindwings short, broadly obovate; exterior margin more or less scalloped.

Caterpillar.—Slender. Head armed with two long branched-spines. Body armed with two dorsal and two lateral rows of short branched-spines.

Chrysalis.—Slender. Wing-cases somewhat dilated and angular; anterior dorsum and thorax angular; head with two small points.

Egg.—"Radiate, small, hard, nearly as high as wide, with radiating lines of erectile bristles" (Doherty).

Group I. CHARAXINA.

Apaturides (part), Boisduval, Ind. Méth. ii. p. 24 (1840). Kirby, Eur. Butt. p. 44 (1862).

Nymphalidæ (part), Duponchel, Catal. Méth. Lep. Eur. p. 8 (1844).

Nymphalina (part), Herrich-Schäffer, Prod. Syst. Lep. p. 17 (1864). Distant, Rhop. Malayana, p. 83, (1882).

Apature (part), Butler, Catal. Fabr. Lep. Brit. Mus. p. 49 (1869).

Apaturide (part), Lang, Rhop. Eur. p. 153 (1884).

Charaxidæ, Doherty, Journ. Asiatic Soc. Bengal, 1886, p. 109.

CHARACTERS OF THE GROUP CHARAXINA.

IMAGO.—Very robust. Thorax very stout. *Forewings* triangular, short, broad; apex produced to an obtuse or somewhat acuminate point; first and second subcostal branches emitted before end of the cell, except in *Helecyra*, in which the second branch is emitted beyond the cell; the cell closed in all except *Helecyra*. *Hindwings* short, exterior margin scalloped, with a long narrow, or short, pointed tail at end of the upper and lower median veinlets; cell imperfectly closed by a very fine slender thread, except in *Eulepis* and *Helecyra*, in which it is entirely open. Forelegs of male short, slender, clothed with appressed short hairy scales; fore tarsus almost smooth, femur and tibia finely hairy beneath. Fore tarsus of female smooth, thickened beneath apically, each joint with two short spines beneath. Antennæ thick, with a lengthened club, except in *Helecyra*, in which it is slender and with a short spatular club. Eyes naked.

CATERPILLAR.—Slug-shaped, with four lengthened fleshy processes on the head, and two short processes on the anal segment.

CHRYSALIS.—Short, thick, almost oval, smooth, dorsum much arched; head more or less obtusely pointed.

EGG.—"Large, globular, hard; not so high as broad; with obscure ribs and cross lines at the base only, forming tetragons, with minute projecting points at their intersections" (Doherty).

HABITS OF THE IMAGO.—Mr. E. H. Aitken remarks, "Last December Mr. J. Davidson and I spent part of two days at Matheran in trying to capture two specimens, or rather, I should say, one specimen, of *C. Imna*, for when we got them we found that only half of each remained. I have since found that it is by no means uncommon on the Ghâts from December to March, at least; but it does not put itself in the way of being converted into cabinet specimens.

It comes out about ten o'clock, and, selecting a tree with bright shiny leaves, perches bolt upright in the middle of a particular leaf, just a foot above the highest point you can reach with your net. Whether by accident or design, the position is fenced on all sides with a creeper, whose sharp-curved thorns lay hold of everything that passes them, and let go nothing. There the proud creature sits, chasing away any other butterfly that approaches, and returning to the same leaf. If you pelt it with stones, it darts off, takes a short circuit, and returns to the same leaf. You may pelt it for an hour with the same result" (J. Bombay N.H.S. 1886, p. 132). "All the Charaxes in the Malayan region are hard to catch, but there is nothing more helpless than most Charaxes in the Indo-Malayan region. They fly so straight that you can take them on the wing nine times out of ten; they persistently return to the same spot, and love to alight on projecting twigs, where you can easily get them by a stroke of the net from below. But this is not the case in the Malayan regions; I do not know how many hours I spent in the interior of Sumba trying to catch a huge undescribed *Charaxes* of the *pyrrhus* group; and the *polyzena* group never seem common down there as in India" (Doherty, P.Z.S. 1891, p. 256).

DIMORPHISM.—In the group Charaxina, it will probably ultimately be found, that certain species of the genus *Haridra*, and of *Eulepis*, as here described, are but dimorphic or seasonal forms. In *Haridra*, it probably occurs both in the section of which the males have no white band on the forewing, and also in the section in which the white band is present in both male and female. But, as there is little available data respecting the times of appearance on the wing of the various species, and further, where such is known, the names of the species, as cited by certain authors, are erroneously determined (as we have personally proved by actual comparison of specimens); consequently we cannot utilize them with certainty.

KEY TO THE GENERA OF THE CHARAXINA.

- A. *First and second subcostal branches of forewing emitted before end of the cell.*
 - a. Cell of *hindwing* imperfectly closed HARIDRA. CHARAXES.
 - b. Cell of *hindwing* entirely open EULEPIS. MURWAREDA.
- B. *First subcostal branch only of the forewing emitted before end of the cell;*
cell of hindwing open HELCY A.

Genus HARIDRA.

Haridra, Moore, Lepidoptera of Ceylon, i. p. 30 (1880).
Charaxes (part), Felder; Butler; Distant; de Nicéville.

IMAGO.—Male. Wings similar in form to Charaxes. *Forewing* somewhat broader, with the costa more arched. *Hindwing* somewhat more convex externally.

costal margin shorter; cell imperfectly closed by a very slender thread; precostal curved towards the end; with a short tail from the upper median veinlet only. Body extremely robust; antennæ more slender; palpi porrect, projected in front of the head; forelegs of the male longer than in typical *Charaxes*, femur slender, sparsely clothed with long fine hairs beneath, tibia thickened and hairy at the base, tarsus compact; forelegs of the female longer than in typical *Charaxes*, scaly, tarsus stouter. Sexes dimorphic. *Type* H. Psaphon.

CATERPILLAR.—Slug-shaped; with four vertical elongated spinous fleshy processes on the head, and two short naked depressed pointed processes on anal segment.

CHRYSA LIS.—Thick, oval, abbreviated, dorsum well arched; head obtuse.

Egg.—Unknown.

HARIDRA PSAPHON (Plate 168, fig. 1, 1a, b, c, ♂ ♀).

Charaxes Psaphon, Westwood, Cabinet of Oriental Ent. p. 43, pl. 21, fig. 1, 2, ♂ (1848). Butler, Proc. Zool. Soc. 1865, p. 636. de Nicéville, Butt. of India, etc. ii. p. 284 (1886).

Nymphalis Psaphon, Westwood, Gen. D. Lep. p. 309 (1850).

Haridra Psaphon, Moore, Lep. of Ceylon, i. p. 30, pl. 15, fig. 2, ♂ (1880).

Haridra Serendiba, Moore, *id.* p. 30, pl. 15, fig. 3, ♀ (1880).

IMAGO.—Male. Upperside dark fulvous-red. *Forewing* with the exterior half purpurescent-black, forming a broad marginal band, its inner edge being erect and sinuous; a discocellular duplex black mark, and some very indistinct slender blackish discoidal streaks. *Hindwing* with a very broad apical and marginal band, which sinuously attenuates hindward, and terminates in two small white-marked anal spots; a short sinuous black streak from the costa contiguous to the band. Underside fulvous-brown, washed with purplish-grey. Both wings crossed by three basal, and two discal zigzag black lines with pale borders. *Forewing* also with a submarginal fascia composed of more or less defined small blackish dentate inner spots and outer diffused pearly-white dentate lunules. *Hindwing* also with a submarginal darker blackish-grey lunular fascia, and outer series of small black-tipt pearly-white dentate spots.

Female. Upperside deep fulvous-yellow. *Forewing* with a transverse medial discal purplish-white band, which shows, by semi-transparency, the discal sinuous line of the underside, and is edged inwardly by a broken black line which is more or less inwardly diffused anteriorly; outer border of the wing broadly black, with its inner edge sinuous, and bearing a slight fulvous lunular posterior inner streak. *Hindwing* with a short medial discal purplish-white band edged inwardly by a slender black sinuous line; submarginal black band broad, as in the male, but broken and macular posteriorly, and with a distinct white lunule on each portion between all the

veins, the anal spot being also blue-speckled. Underside. Olivescient fulvous-brown, darkest basally and externally, and washed with purplish-grey; transverse markings throughout, as in the male; the subbasal interspace being slightly, and the medial discal interspace distinctly fulvous-white or pale fulvous-yellow. *Body* entirely dark fulvous-red; palpi blackish above, white beneath; pectus fulvous-white; legs above dark fulvous-red, whitish beneath; fore-tarsi fulvous-white; antennæ black; eyes dark red.

Expanse, ♂ $3\frac{1}{2}$, ♀ 4 to $4\frac{1}{2}$ inches.

HABITAT.—Ceylon.

DISTRIBUTION.—Major Hutchison obtained males near Trincomali in August, fluttering over the ground on the edge of forest jungle. Capt. Wade took males and a female at Kandy, and a female in the forest at Kottawa. A female was taken by Mr. Skinner in March, 1875, at Arisvawalle. Major Yerbury took a female at sugar in October, at Kanthalla.

HARIDRA IMNA (Plate 169, fig. 1, 1a, b, c, ♂ ♀, et larva and pupa).

Charaxes Imna, Butler, Trans. Ent. Soc. Lond. 1870, p. 122, pl. 4, fig. 2, ♂; de Nicéville, Butt. of India, etc. ii. p. 285 (1886). Hampson, Journ. Asiatic Soc. Bengal, 1888, p. 355. Davidson and Aitken, Journ. Bombay Nat. Hist. Soc., 1889, p. 278, pl. A, fig. 4, 4a, larva.

Charaxes Hindia (female only), Butler, Lep. Exotica, p. 99, pl. 37, fig. 5, ♀ (1872).

IMAGO.—Male. Upperside of a somewhat paler fulvous-red than in the closely allied *Psaphon*. *Forewing* with the black marginal band slightly narrower, the discocellular streak slightly defined. *Hindwing* with the black band comparatively narrower apically, and posteriorly broken up into two or three spots, in addition to the white-centred anal spots; the slender costal streak also further from the apical portion of the band. Underside paler fulvous-brown than in *Psaphon*; markings similar, but of a more generally uniform tint throughout; the sinuous transverse lines and fasciæ being much less defined.

Female. Upperside similar to that of *Psaphon*, the fulvous colour somewhat paler. *Forewing* with the white band comparatively narrower, and its inner black edgings less sharply defined. *Hindwing* also similar, but the black macular band somewhat narrower. Underside similar, but paler, and the transverse sinuous markings less defined.

Expanse, ♂ $3\frac{3}{4}$, ♀ 4 to $4\frac{1}{4}$ inches.

CATERPILLAR.—“Slug-shaped, elongated; head very broad, surmounted by two pairs of incurved rugose fleshy processes, the outer pair longest; anal segment flat, square, ending in two points; last pair of legs almost aborted; colour rich dark green, with a large dorsal semicircle of pinkish-white on the seventh segment, and a

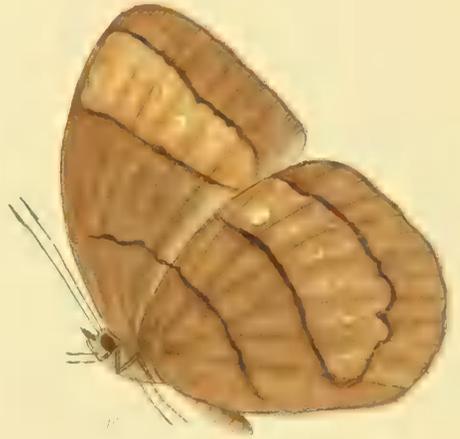
yellow lateral line; horns and sides of face rusty-brown" (Davidson and Aitken, J. Bomb. N.H.S. 1890, p. 278).

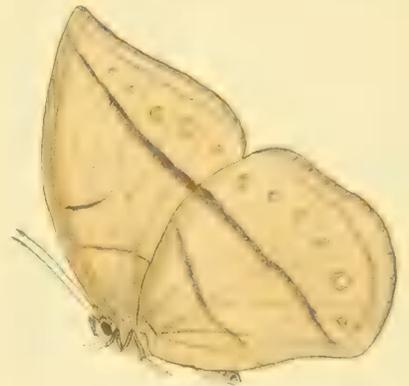
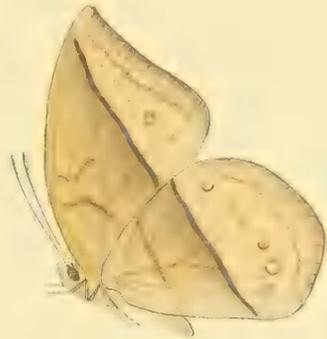
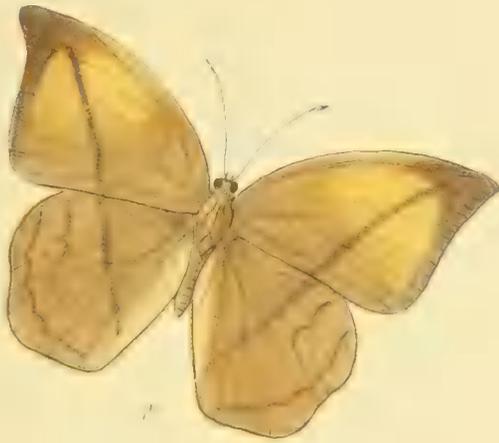
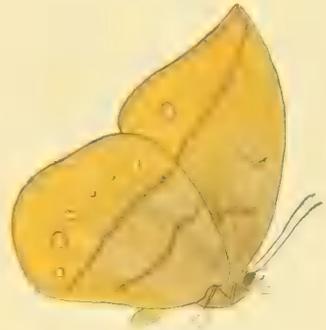
CHRYsalis.—Thick, cylindrically oval; dorsum much arched; head obtuse; colour green.

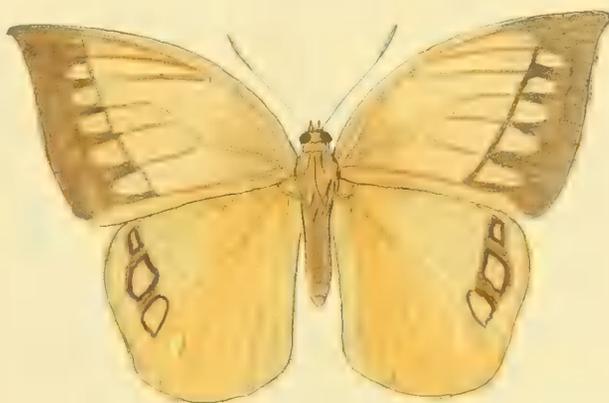
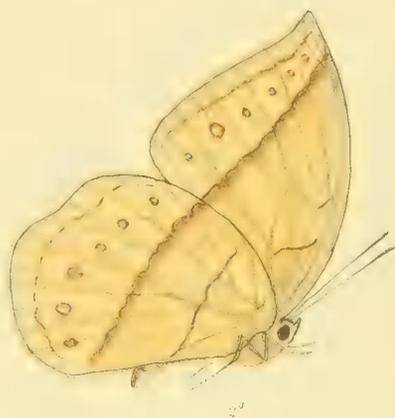
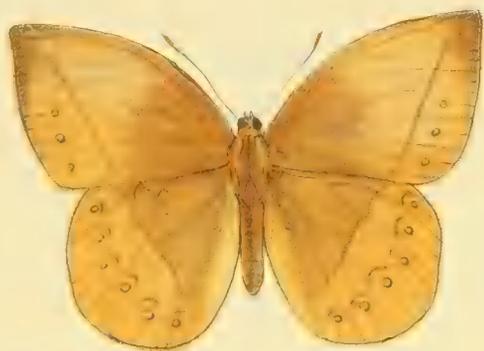
HABITAT.—Lower Bengal; Orissa; Bombay; S. India.

DISTRIBUTION.—We have examined the type specimen of the male, now in the possession of Mr. H. Grose Smith. Specimens of the female in my own collection (described erroneously as the female of *C. Hindia* by Mr. Butler) were taken by the late Mr. Arthur Grote at Parasnath Hill, Behar, in Lower Bengal; a female from Ranchi, Chota Nagpore, is in Mr. Grose Smith's collection; a female is recorded (Butt. Ind. ii. 291) from Nagpur, taken in March by Mr. E. A. Minchin, and a female was taken by Mr. L. de Nicéville in a garden at Alipur, near Calcutta, in the cold weather (J.A.S. Beng. 1885, 45). Males are also recorded from Khorda in Orissa by Mr. W. C. Taylor. Colonel Swinhoe has males from Khandalla taken in October, and a female was taken at Lanaoli in February by Mr. A. B. Watson. Mr. Lindsay took it in Coonoor, and Mr. G. F. Hampson obtained both sexes on the Nilgiris, where it was rare, at from 3000 to 4000 feet. The late Dr. Shortt took both sexes on the Shevaroy Hills. Lieut. E. Y. Watson obtained two males in November at Kathlekan in Mysore. Mr. H. S. Ferguson (J. Bombay, N.H.S. 1891, 10) says it is "not uncommon in the low country of Travancore, and at the foot of the hills." According to Mr. de Nicéville (Butt. Ind. ii. 285), "The Indian Museum, Calcutta, has specimens of male from the Wynaad taken by Mr. R. Morgan; Mr. W. Doherty took males in Travancore and Beypur; Mr. G. W. Vidal obtained males at Khandalla in April, and Mr. E. H. Aitken took it on Matherhan in January."

HABITS OF IMAGO.—Mr. J. Betham (J. Bombay N. H. Soc. 1890, 286) states that "it has the most powerful flight of any butterfly I know (while *Athamas* is the fastest), and looks like a bird while on the wing. It is a very foul feeder, and greedily fond of Mhowa, so much so, that it can be approached and taken by the fingers while engaged in its meal. One year I took several of these and *C. Fabius* and a few *C. Athamas*, at a Sirris tree (*Acacia speciosa*) which had a bough injured in some way, and from which a juice was exuded. The wings of several of the *Charaxes* that I took had bits chipped out of them by the beaks of birds." Mr. E. H. Aitken (J. Bombay N.H.S. 1886, 132) says: "Last December Mr. J. Davidson and I spent part of two days at Matherhan in trying to capture two specimens, or rather, I should say, one specimen, for when we got them we found that only half of each remained. I have since found that it is by no means uncommon on the Ghâts from December to March at least, but it does not put itself in the way of being captured. It comes out about









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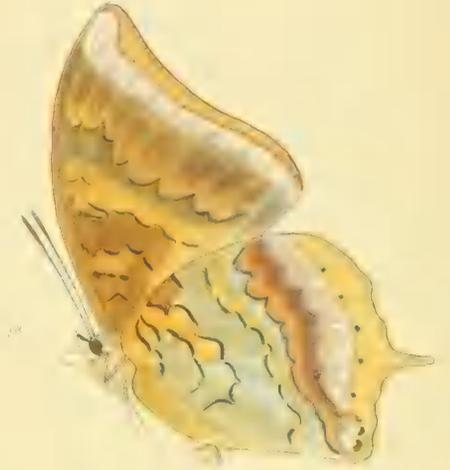
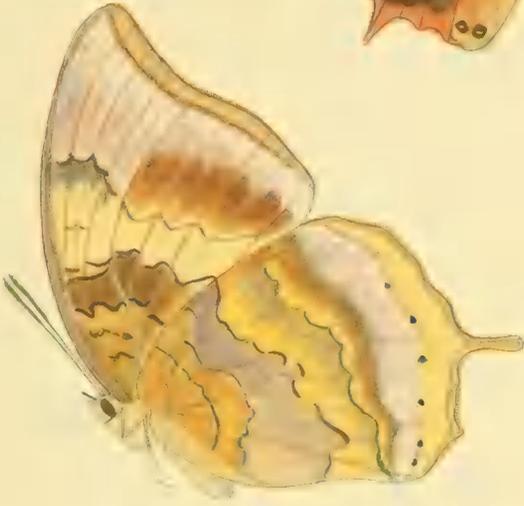


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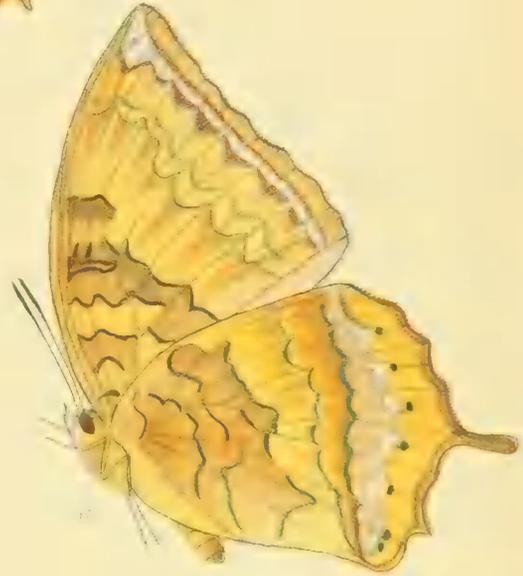
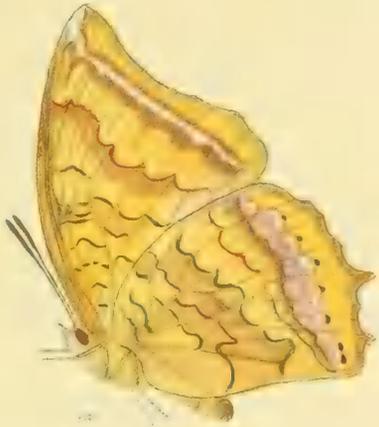
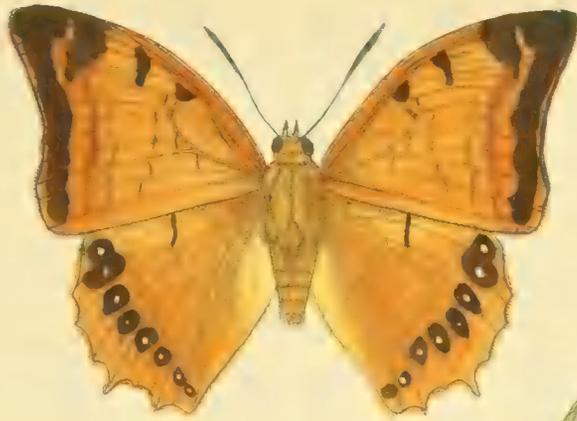


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ten o'clock, and, selecting a tree with bright shiny leaves, perches itself bolt upright in the middle of a particular leaf, just a foot above the highest point you can reach with your net. Whether by accident or design, the position is fenced on all sides with a creeper whose sharp curved thorns lay hold of everything that passes them, and let go nothing. There the proud creature sits, chasing away any other butterfly that approaches, and returning to the same leaf. If you pelt it with stones, it darts off, takes a short circuit and returns to the same leaf. You may pelt it for an hour with the same result."

HABITS AND FOOD PLANT OF LARVA.—Messrs. J. Davidson and E. H. Aitken (J. Bombay N. H. Soc. 1890, 278) gives the following:—

"We reared three specimens of the larvæ of this butterfly on *Aglaiia Roxburghiana*, a very common tree in Kanara, belonging to the Order Meliaceæ. Among butterflies the length of the larval life seems to be generally proportioned to the robustness of the insect in its perfect state, and, as might be expected, *C. Imna* is a Methuselah among butterflies. One found on the 6th October, then evidently a few days old, became a pupa on the 25th of November. The butterfly emerged on the 9th of December. Like most smooth caterpillars, this species eats its skin when cast, but not the head-case. When touched it appears to use its horns defensively, as does also *C. Athamas*."

The larva figured in Mr. Arthur Grote's drawing was taken "feeding on *Amoora Rohituka*."

Of our illustrations of this species on plate 169, fig. 1 is copied from Messrs. Davidson and Aitken's drawing of the larva and pupa; fig. 1a is from Mr. Grote's drawing; fig. 1b is from a Khandalla male, and fig. 1c is from the type specimen described by Mr. Butler, erroneously, as the female of *C. Hindia*.

HARIDRA MARMAX (Plate 170, figs. 1, 1a, b, c, ♂ ♀).

Charaxes Marmax, Westwood, Cabinet of Oriental Entomology, p. 43, pl. 21, ♂ ♀ (1848).

Butler, Proc. Zool. Soc. (1865), p. 636. Moore, Proc. Zool. Soc. (1878), p. 831. De Nicéville, Butt. of India, etc. ii. p. 281 (1886).

Charaxes Lunawara (male only), Butler, Lep. Exotica, p. 99, pl. 37, fig. ♂ (1872).*

IMAGO.—Male. Upperside bright fulvous; the costal area of hindwing palest. Forewing with faint traces of three transverse slender sinuous dusky-fulvous lines within the cell, two similar discal lines below the cell, beyond which is a discal line and a less defined inner submarginal line, followed by a more distinct but diffused submarginal line, which latter is somewhat blackish, and widens out at the costal end, and is there apically joined to a marginal sinuous black band, the fulvous inter-

* The type female, described erroneously as that sex of *Lunawara*, is from the Philippines, and is identical with *C. Amycus*, Felder.

spaces forming between the veins a series of seven lunules; the outer edge of the band having the tips of the veins indicated by fulvous points, and the lower end of the band terminating in a narrower lunular end at the submedian vein; at the end of the cell is a slender, dusky lunule, with a continuous outer upper black streak, beyond which is a subcostal short narrow black broken curved mark. *Hindwing* with two medial costal short slender black sinuous lines below the costal vein, the outer line being continued below the subcostal; beyond is a submarginal decreasing row of black spots centred by a white dentate point, the upper spots being ovate, the lower dentate. Underside ochreous-yellow. Both wings crossed by four or five slender black sinuous lines on the basal half, the interspace between the two outer lines being dull fulvous; a discal less-defined fulvous line with diffused border, followed, on the forewing, by a submarginal series of slightly-defined pearly-white lunules, the upper two being broadest and dentate, and their outline diffused with fulvous; and on the hindwing the discal line is followed by a slight dusky grey-speckled dark fulvous sinuous fascia, and then by a submarginal series of pearly-white dentate marks, of which the posterior marks are tipped with blue scales and a black point.

Female. Upperside with the discal area, and middle of costa on hindwing paler fulvous than in the male. *Forewing* with the outer discal sinuous line distinctly defined and blackish, the cell mark and the subcostal streak beyond broader black, the submarginal sinuous line blackish and slender to its costal end, but with the marginal black border as in the male. *Hindwing* with the costal sinuous marks and the submarginal row of spots as in the male, the latter only being somewhat larger and more distinctly white centred. Underside exactly as in the male. *Body* bright fulvous; palpi above brown, white beneath; pectus white; legs above pale ochreous, whitish beneath; fore tarsi white; antennæ blackish, club tipped with ochreous; eyes dark purple-brown.

Expanse, ♂ $3\frac{3}{4}$, ♀ $4\frac{1}{2}$ inches.

HABITAT.—Sikkim; Bhotan; Assam; Naga Hills; Burma; Tenasserim.

DISTRIBUTION.—In Sikkim, according to Mr. L. de Nicéville (Butt. Ind. ii. 282), this species is the commonest of the group. "It occurs from April to October at low elevations, the female being much rarer than the male" (Sikkim Gazetteer, 1894, 148). Specimens taken in Sikkim in July and November by Mr. Otto Möller are in Mr. W. Rothschild's collection. It has been taken at Buxa in Bhotan by Mr. G. C. Dudgeon. It also occurs in Assam and Sylhet. We have it from the Naga Hills, and specimens from the Garo Hills are in Mr. W. Rothschild's collection. Major C. H. E. Adamson obtained it at Bhamo, Burma, and Mr. W. Doherty obtained it in East Pegu. Both sexes from Taipang, Malay Peninsula, are in Mr. W. Rothschild's collection.

HARIDRA KAHRUBA (Plate 171, figs. 1, 1a, b, c, ♂ ♀).

IMAGO.—Male. Upperside bright fulvous, as in *H. Marmax*, with similarly disposed markings. *Forewing* differing in the comparatively broader black marginal band, and in the much more sharply-defined submarginal sinuous line, which latter line is also narrower at its costal end, thus giving the intervening broad lunular marks a more prominent shape throughout their extent. *Hindwing* with the medial costal sinuous streak distinct, and the submarginal black spots somewhat larger and more irregularly-oval in shape, the central dot ochreous-white. Underside with the ground-colour pale Indian yellow, the transverse sinuous lines more sinuously disposed than in *Marmax*, but very sharply defined, their bordering shades, and the submarginal dentate fascia, and also the interspace between the two medial discal sinuous lines, being dark ochreous-brown.

Female. Upperside uniformly paler than in male. *Forewing* with the markings less defined. *Hindwing* with the submarginal row of black spots also less defined, but each with a central dentate mark. Underside as in the male.

Expanse, ♂ $3\frac{3}{4}$ to 4, ♀ $4\frac{1}{4}$ to $4\frac{1}{2}$ inches.

HABITAT.—Sikkim; Sylhet; Cachar; Khasia Hills; Burma.

DISTRIBUTION.—Presuming this to be the species referred to by Mr. de Nicéville as *Lunawara*, “it is much rarer than *Marmax* in Sikkim, but occurs at the same seasons and elevations” (Sikkim Gazetteer, 1894, 148). Specimens from Sikkim taken in July, August, and November, by Mr. Otto Möller, are in Mr. W. Rothschild’s collection. We have it from Sylhet, Cachar, and Colonel Swinhoe has it from the Khasia Hills. We have also identified specimens from the Arakan Hills, taken in November by Major C. H. E. Adamson, in the Thoungyeen forests, Upper Tenasserim, and in September, by Captain Bingham; and also specimens from East Pegu.

HARIDRA DESA (Plate 172, figs. 1, 1a, b, c, ♂ ♀).†

Charaxes Desa, Moore, Proc. Zool. Soc. Lond. 1878, p. 832, ♂. de Nicéville, Butt. of India, etc. ii. p. 283 (1886).

IMAGO.—Male. Nearest allied to *H. Aristogiton*. *Forewing* differs in the inner edge of the black marginal band being bent inward from the costa to the upper radial, whereas, in *Aristogiton*, the edge is more even, and comparatively nearer the subcostal streak; and the submarginal lunules are comparatively broader. *Hindwing* with similar black macular band. Underside similar.

Female. Upperside paler than in male; similarly marked as the same sex of *Marmax*. *Forewing* with the discocellular duplex streak and the subcostal streak

somewhat narrower, the inner discal sinuous line less defined, the marginal macular band broader, the submarginal sinuous line sharply defined, and dilated at its costal end, with the intervening lunular spaces more prominent. *Hindwing* similar to *Marmar*. Underside paler purpurescent brownish-ochreous than in male; markings the same.

Expanse, ♂ 4, ♀ $4\frac{1}{2}$ inches.

HABITAT.—Upper Tenasserim.

DISTRIBUTION.—The type specimen, a male, was taken by Mr. J. Wood-Mason at Moolai, 3–6000 feet, Upper Tenasserim. A specimen from Toungoo is in Mr. P. Crowley's collection. Major C. H. E. Adamson obtained two males in the Thoungyeen Valley in February, and indicated it under *Aristogiton* in his List, p. 20.

HARIDRA ARISTOGITON (Plate 173, figs. 1, 1a, ♂).

Charaxes Aristogiton, Felder, Reise Novara, Lep. iii. p. 445 (1867), ♂. Butler, Tr. Ent. Soc. 1870, 121. de Nicéville, Butt. of India, etc. ii. p. 282 (1886).

IMAGO.—Male. Upperside bright fulvous. *Forewing* with a broad black outer border, which is traversed by a series of six narrow fulvous lunules, the three upper being small; a slender blackish duplex streak from upper end of cell, a very indistinctly defined inner discal sinuous line, and a black subcostal streak disposed apically before the outer band. *Hindwing* with a medial costal short sinuous black slender line, and a submarginal black macular band, the apical portion being large, the lower portions formed of decreasing broadly-dentate spots, each with a white central speck. Underside purpurescent brownish-ferruginous, with a darker brownish submarginal fascia bordering the lilacine-grey washed dentate marks; transverse sinuous lines black.

Female unknown.

Expanse, ♂ $3\frac{1}{2}$ to 4 inches.

HABITAT.—Sikkim; Bhotan; Naga Hills; Sylhet.

DISTRIBUTION.—Males, taken in Sikkim in April by Mr. Otto Möller, are in Mr. W. Rothschild's collection. Mr. L. de Nicéville (Sikkim Gazetteer, 1894, 148) says "it occurs in Sikkim with the two preceding species (*Marmar* and *Kharuba*)."
A specimen from Buxa, Bhotan, is in Mr. H. Grose Smith's collection. Others from the Naga Hills are in the collection of Mr. W. Rothschild.

Our illustration of this species, on Plate 173, is from a male, identical in every respect with Felder's type.

HARIDRA ADAMSONI (Plate 173, figs. 2, 2a, ♂).

IMAGO.—Male. Upperside bright fulvous. *Forewing* with a very indistinctly defined upper discocellular streak, a less broad marginal black band than in *Corax*

or *Harpax*, leaving a much wider interspace between it and the end of the cell, the band with a regular but indistinct inner sinuous line which forms an inward row of lunules to the interspaces between the upper median and lower radial, above which point are two upper fulvous spots diverging abruptly outward; the extreme outer margin of the wing edged with fulvous at end of the veins. *Hindwing* with a submarginal row of smaller black spots, of which the two apical are divided, and with slight whitish-speckled centres, the lower spots being minute, dentate points. Underside pale duller fulvous than upperside, with transverse sinuous blackish lines, the medial discal lines approximated; a submarginal slightly-defined lilacine dentate fascia on forewing, and a row of minute black-tipt marks on the hindwing.

Expanse, ♂ $3\frac{2}{10}$ inches.

HABITAT.—Upper Tenasserim.

A single male of this species was taken by Major C. H. E. Adamson in the Mepley Valley, Upper Tenasserim, in February.

HARIDRA HARPAX (Plate 174, figs. 1, 1a, b, c, ♂ ♀).

Charaxes Harpax, Felder, Reise Novara, Lep. iii. p. 444 (1867), ♂. Butler, Trans. Ent. Soc. Lond. 1870, p. 121. Moore, Proc. Zool. Soc. 1878, p. 832. Distant, Rhop. Malay. p. 109, pl. 13, fig. 1, ♂ (1883). de Nicéville, Butt. of India, etc. ii. p. 288 (1886).

Charaxes Agna, Moore, Proc. Zool. Soc. 1878, p. 832, ♂.

Charaxes Borneensis (female only) Butler, Lep. Exot. p. 16, ♀.

Charaxes Baya, Distant, Rhop. Malay. p. 433, pl. 36, fig. 1, ♂ (*nec* Moore).

IMAGO.—Male. Upperside bright fulvous. *Forewing* differs from typical *Corax* in the outer black band being comparatively broader anteriorly, the upper portion thus being nearer the discoidal streak, and its inner edge is also less sinuous. *Hindwing* with well-separated and smaller submarginal white-centred spots. Underside precisely the same as in *Corax*, the submarginal spots on the hindwing appearing farther from the margin simply because they are smaller. (Described from Felder's type in coll. Honble. W. Rothschild.)

Female. Upperside dull fulvous. *Forewing* with the outer border broadly black, traversed by a series of four or five pale fulvous lunules; crossed by a broad oblique discal diffused pale fulvescent-white band, the discal sinuous lines of the underside being also apparent. *Hindwing* with the middle of the costa broadly pale fulvescent-white; submarginal row of black spots of moderate size, the two apical conjoined, the others separate, each with a distinct white lunule. Underside pale olivescent-ochreous; the normal transverse sinuous lines brown and slender, the inner discal and subbasal interspaces pale purpurescent-brown, the outer discal interspaces somewhat pale, glossy olivescent yellowish-white, the outer border with lilacine-grey dentate

markings, those on the hindwing with blue-speckled black-tips. (Described from Mr. Butler's type specimens erroneously described by him as the female of *Borneensis*.)

Expanse, ♂ $3\frac{6}{10}$ to $3\frac{8}{10}$, ♀ 4 inches.

HABITAT.—Lower Burma, Malay Peninsula, &c.

DISTRIBUTION.—A Burmese male identical with the type is in Major C. H. E. Adamson's collection. A male from Thoungyeen is also in Mr. H. Grose Smith's collection. The specimens named *Agna* were taken by Mr. J. Wood-Mason at Moolai, 3000 to 6000 feet elevation, Upper Tenasserim. We also have a male from Megaree, Pegu. A female (erroneously referred by me to *Borneensis*) was taken by Dr. J. Anderson on Elphinstone Island, Mergui, in March (J. Linn. Soc. Zool. 1886, 38).

It also occurs in the Malay Peninsula (Distant l.c. pp. 109, 433). We possess both sexes from Sumatra, the type female (*Borneensis*, Butler) from Borneo, and both sexes also from Borneo, are in Mr. P. Crowley's, Colonel Swinhoe's, and Mr. Godman's collection.

Of our illustration of this species on Plate 174, fig. 1, 1a, is from Felder's type of the male, and fig. 1, b, c, from a female example from Borneo.

HARIDRA CORAX (Plate 175, figs. 1, 1a, b, ♂, et larva and pupa).

Charaxes Corax, Felder, Reise Novara, Lep. iii. p. 444 (1867), ♂. Butler, Trans. Ent. Soc. 1870, p. 121. de Nicéville, Butt. of India, etc. ii. p. 287 (1886).

IMAGO.—Male. Upperside bright fulvous, of a uniform tint throughout. *Forewing* with the outer border broadly purpurescent-black, commencing anteriorly at nearly half the costa and well decreasing posteriorly to a little beyond the angle, its inner edge being sinuous anteriorly and undulated posteriorly, and with a slender slightly-defined fulvous lunular streak descending from before the angle; a slightly blackish duplex streak at upper end of the cell. *Hindwing* with a submarginal black macular band, the apical portion being broad and marked with two white dots and a small inner irrorated fulvous spot, the descending lower black spots small, and dentate, the two anal marked with bluish-white scales; a short medial costal sinuous black slender line. Underside rufescent with somewhat darker rufescent-brown borders to the transverse sinuous lines, and outer margin, the basal area and the submarginal dentate fascia more or less glossed with pale purplish-white; the submarginal spots on the hindwing somewhat anchor-shaped, with black-tip, blue centre and white base. Body above bright fulvous; palpi blackish above, ochreous-white beneath; pectus, fore tarsi, middle and hind tibiæ and tarsi ochreous-white, fore tibiæ and femur, and middle and hind femora rufescent-brown; antennæ black, club rufous tipped.

Described from Dr. Felder's type in coll. Mr. W. Rothschild.

In some specimens the band on both wings is less heavily defined, and the band on the hindwing is composed of the upper two conjoined-spots and lower more or less smaller separated spots. In these specimens the underside of the wings is also of a much less paler rufescent colour, and the sinuous transverse lines and other markings less defined—these characters indicating that the latter specimens probably belong to a seasonal brood. Female unknown.

Expanse, ♂ $3\frac{2}{10}$ to $3\frac{4}{10}$ inches.

CATERPILLAR.—Slug-shaped; widest in the middle, tapering rapidly towards the end and more gradually towards the head, the anal segment terminating in two short pointed processes; head encircled by a mottled pink and white line and surmounted with four pink rugose curved processes, each being tipped with blue. General colour rich green, but somewhat mottled above, yellowish beneath, with the lateral edge defined by a pink speckled line; a large white-ringed dorsal spot with pink centre on middle of the back, and three small similar subdorsal spots on each side.

CHRYsalis.—Pale green, unmarked; head ending up in a blunt point.

HABITAT.—Sikkim; Bhotan; Assam, Khasia Hills; Burmah.

DISTRIBUTION.—Specimens taken in Sikkim in September, 1886, by Mr. Otto Möller, are in Mr. W. Rothschild's collection. Colonel C. Swinhoe also has specimens from Sikkim taken by Mr. Paul Mowis. A specimen taken in Bhotan, July, 1887, by Mr. O. Möller, is in Mr. W. Rothschild's collection. Col. Swinhoe and Mr. P. Crowley have specimens from the Khasia Hills. Two males in the British Museum are from Thoungyeen Valley, Upper Tenasserim, taken in September, and from Tounyah, Donat Range, October. We have it from Toungoo, Upper Tenasserim, and from the Karen Hills. Specimens taken by Mr. Doherty in East Pegu, in March and April, are in Mr. Godman's collection. A male from King's Island, Mergui, taken in February, is in the British Museum.

Of our illustration of this species on Plate 175, fig. 1 is from the drawing of the larva and pupa and imago, made by the late Mrs. Hamilton from specimens reared at Amherst, Moulmain, in November, 1852. This larva being erroneously figured in Catal. Lep. Mus. E. I. C. i. pl. xii. fig. 14, as that of *H. Baya*. Fig. 1, a, b, is from Felder's type specimen of the male.

HARIDRA HIERAX (Plate 176, figs. 1, 1a, b, ♂ ♀).

Charaxes Hierax (male only), Felder, Reise Novara, Lep. iii. p. 442 (1867). Butler, Trans. Ent. Soc. 1870, p. 120. de Nicéville, Butt. of India, etc. ii. p. 290 (1886).

Charaxes Watti, Butler, Proc. Zool. Soc. 1880, p. 148, pl. 15, fig. 2, ♂.

Charaxes Hipponax (female only), Felder, l.c. p. 443.

IMAGO.—Male. Upperside rich fulvous. Forewing with the marginal broad band rusty-black, the inner edge of the band oblique but not curved, sinuous, its

upper edge extending in slender points along the subcostal veins to the black discocellular duplex streak, below which is an indistinctly-defined blackish slender sinuous line; the interspace between the latter line and the black outer band being of the same fulvous colour as the basal area; posterior border of the blackish band with slightly-defined fulvescent lunules. *Hindwing* with a broad black submarginal decreasing continuous macular band, and a short upper discal black sinuous line slightly-diffused outwardly with pale fulvous. Underside fulvous-red, the normal transverse black sinuous lines pale edged, the interspace between the discal lines darkest; outer border with lilacine-grey washed dentate markings. *Body* above rich fulvous; palpi above greyish-black, white beneath; pectus and fore tarsi whitish; body beneath and legs pale ochreous; antennæ black. Described from Felder's type of male.

Female. Upperside paler than in male. *Forewing* with a broad white discal band, the discocellular blackish duplex streak and lower sinuous line ill-defined; the outer series of fulvous whitish spots distinct. *Hindwing* with short upper discal whitish band, and broad submarginal macular band with prominent white central lunules. Described from specimen presumed to be the type female of Felder's *Hipponax*, now in possession of Mr. W. Rothschild.

Expanse, ♂ $3\frac{7}{10}$, ♀ 4 inches.

HABITAT.—Assam.

DISTRIBUTION.—Felder's type is from Assam. The type specimen of *Watti* was taken at Bishnath in Assam.

Of our illustrations of this species on Plate 176, fig. 1, 1a, is from Felder's type specimen of the male. Fig. 1b is from the female specimen presumably assigned by Felder to *H. Hipponax*.

HARIDRA HEMANA (Plate 177, figs. 1, 1a, b, ♂ ♀).

Charaxes Hemana, Butler, Trans. Ent. Soc. Lond. 1870, p. 122, pl. 4, fig. 1, ♂. de Nicéville, Butt. of India, etc. ii. p. 283 (1886). Doherty, Journ. Asiatic Soc. Bengal (1886), p. 124.

Charaxes Bernardus, Kollar, Hügels Kaschmi, iv. 2, p. 434, pl. xi. figs. 1, 2, ♂ (1844) (*nec Fabricius*).

IMAGO.—Male. Upperside pale fulvous. *Forewing* with the outer border rusty-black; the inner edge of the border excurved and with two subcostal slightly defined black-edged slightly pale fulvous spots before its upper end, the lower end of the border traversed inwardly to or above the upper median by three or four slender pale fulvous lunules; a slightly-defined slender blackish discocellular duplex streak, and a transverse discal interrupted sinuous line, the discal interspace between the sinuous line and the black band being slightly paler fulvous or exactly of the same tint as the basal area. *Hindwing* with a broad

black submarginal decreasing macular band, which sometimes has central white dots; a short upper discal slender black sinuous line slightly diffused outwardly with paler fulvous. Underside pale olivescent-ochreous, crossed by the normal slender blackish sinuous lines, the interspace of the discal lines being darker ochreous, and the marginal border with the normal lilacine-grey washed dentate markings. Body above pale fulvous; palpi above dusky-brown, beneath white; body beneath and legs pale greyish-ochreous; fore tarsi whitish; antennæ black.

Female. Upperside yellowish-fulvous; much paler than in male. *Forewing* with the outer border broadly black, the extreme marginal edge being fulvous tinged; discocellular duplex streak and inner discal transverse lunules black and sharply defined, the lunules between the median basal interspaces decreasing in width from the upper, which is broad; the series of six submarginal lunular spots on the black border are broad, well-defined, and pale fulvous-yellow; the medial discal area is pale yellowish-white, the upper portion being whitest, and with a distinct black costal streak extending from the costal vein to the lower radial. *Hindwing* with a submarginal series of broad black rounded spots, the two upper largest and united, the six next decreasing in size, the fourth, fifth, and sixth with a slightly defined central white speck, the two anal with a distinct white lunule speckled with grey scales; a slender obsolescently decreasing black sinuous discal line extending from the costal vein to the lower median, the medial costal area slightly paler yellow. Underside similar to that of the male.

Expanse, ♂ $3\frac{4}{10}$ to $3\frac{5}{10}$, ♀ $3\frac{8}{10}$ to 4 inches.

HABITAT.—N.W. Himalayas; Nepal.

This species—compared with the type of *Hierax*—is a comparatively shorter insect, the forewing being less produced apically, and differs in having the inner edge of the black outer marginal band excurved (whereas in *Hierax* this band is broader and its inner edge is obliquely erect); the transverse discal sinuous line of *Hemana* is also further from the outer band, being three-tenths of an inch in width between the upper and middle medians (whereas in *Hierax* it is not two-tenths); the whole underside is also of a much paler colour.

DISTRIBUTION.—Kollar's specimens are recorded from Masuri. Specimens of both sexes, from Masuri, are in Messrs. Godman and Salvin's collection. A female from the Uglar Valley, north of Landour, is in the British Museum. Mr. W. Doherty (J. A. S. Bengal, 1886, 124) records it from "Kapot, on the Sarju, also from the Gori and Kali Valleys, Kumaon." The type male is recorded from Nepal, and specimens of it, taken by the late General G. Ramsay, during his residency at the Court of Nepal, are in my own collection.

Of our illustrations of this species on Plate 177, fig. 1, 1a, is from a Nepal male, identical with the type, and fig. 1b is from a Masuri female.

HARIDRA HIPPONAX (Plate 178, figs. 1, 1a, ♂ ♀).

Charaxes Hipponax, Felder, Reise Novara, Lep. iii. p. 443, *male only* (1867). Butler, Tr. Ent. Soc. 1870, p. 120. de Nicéville, Butt. of India, etc. ii. p. 290 (1886).

Charaxes Hierax (female only), Felder, *l.c.* p. 442.

Charaxes Khimalara (female only), Butler, Lep. Exot. p. 97, ♀.

IMAGO.—Male. Upperside dark fulvous. *Forewing* with the outer border broadly black; a transverse discal white band extending to near or to the lower median veinlet, this band being comparatively narrower and more irregular in its course than in *H. Jalinder*, its upper end generally composed of the two outer or lower spots above the radial, the crossing veins also being black; the black discocellular duplex streak more diffused and the inner-bordering sinuous line of the white band more thickly defined; the submarginal row of fulvous spots obsolescent or obsolete. *Hindwing* with a short upper discal thickly-defined black sinuous line, which is outwardly diffused with white and crossed by black veins; the submarginal black macular band broad and continuous to the anal spots, each portion generally with a white central speck. Underside pale rufescent olive-brown, the bordering interspaces between the discal sinuous lines, and less so of the subbasal lines, pale yellowish-ochreous; the outer borders with the normal lilacine-grey washed markings.

Female. Upperside most like female of *H. Hierax*, the basal area of forewing and the hindwing darker, being dusky brownish-fulvous. *Forewing* with the discal bluish-white band somewhat narrower, the outer series of whitish spots smaller. *Hindwing* with short upper discal white band, and broad black submarginal macular band with white lunate central marks. (Described from Felder's type of female *Hierax*, in the collection of Mr. W. Rothschild.)

Expanse, ♂ $3\frac{1}{2}$, ♀ 4 inches.

HABITAT.—Assam; Sylhet; Khasia Hills; Naga Hills.

VARIETY (Plate 178, fig. 1, b, c).—In the Naga Hill specimens, which are somewhat smaller, being only $3\frac{1}{4}$ inches in expanse, the discal band on the forewing is comparatively narrower, and is either white, as in typical specimens, or it is of a more or less pale fulvous-white, and, in some, is nearly of the same depth of tint as the basal area, which latter is also somewhat darker in tint.

DISTRIBUTION.—Felder's type is from Assam. Specimens from Shillong are in Mr. P. Crowley's collection. Mr. W. B. Farr took it in Sylhet. Specimens from the Khasia Hills, taken in October by Rev. W. A. Hamilton, are in Mr. W. Rothschild's collection. Several specimens of the male of the variety from Naga Hills are in Mr. P. Crowley's collection.

Of our illustrations of this species on Plate 178, fig. 1 is from a male specimen identical with Felder's type. Fig. 1a is from the type female erroneously assigned by Felder to *H. Hierax*. Figs. 1, b, c, are from the Naga Hills variety.

HARIDRA JALINDER (Plate 179, figs. 1, 1a, b, c, ♂ ♀).

Charaxes Jalinder, Butler, Lep. Exot. p. 98, pl. 37, fig. 4, ♂ ♀ (1872). de Nicéville, Butt. of India, etc. ii. p. 291 (1886).

IMAGO.—Male. Upperside bright rich dark fulvous. *Forewing* with a broad black outer border, a transverse discal white band ending at or before the submedian vein, normally broken anteriorly below the subcostal, and inwardly bordered by a black discocellular duplex streak at end of cell, and, generally, by a lower discal sinuous line; the outer black border traversed by a row of more or less defined small fulvous lunate spots. *Hindwing* with a very short upper discal white or whitish band, not extending beyond the lower subcostal, and which is inwardly edged by a black sinuous line; submarginal macular black decreasing band with or without white lunate dots. Underside purpurescent brownish-red, washed with lilacine-grey, the transverse black sinuous lines pale edged, the discal interspaces pale yellowish.

Female. Upperside darker fulvous than in male. *Forewing* with the discal white band broader, its inner sinuous edge broader black and its subcostal streak more or less slender or obsolescent; the outer row of spots more or less large and fulvous-white. *Hindwing* with a short upper discal white band, and a broad submarginal black macular band with slender white lunular marks. Underside much paler than in male, with prominent yellowish discal and darker subbasal interspaces.

Expanse, ♂ $3\frac{1}{4}$ to $3\frac{1}{2}$, ♀ 4 to $4\frac{1}{2}$ inches.

HABITAT.—E. Himalayas; Khasia and Naga Hills; Upper Burma.

DISTRIBUTION.—We have typical *Jalinder* from Sikkim, and Buxa in Bhotan, taken by Mr. G. C. Dudgeon. Specimens from Sikkim, taken in July, September and November, by the late Mr. Otto Möller, are in Mr. W. Rothschild's collection. Both sexes from the Khasia Hills are in Colonel Swinhoe's and Mr. W. Rothschild's collection. Males obtained by Lieut. E. Y. Watson in the Chin Hills, 1000 to 2000 feet, in May, are in the British Museum; Major C. H. E. Adamson took it commonly at Bhamo; specimens from the Upper Mekong, Shan States, were taken by Mr. R. Roberts, C.E., and are in the collection of Mr. H. C. Dent, Mr. W. Rothschild and my own.

Of our illustrations of *H. Jalinder* on Plate 179, fig. 1, 1a, b, c, are from the male and female type specimens described by Mr. Butler. On Plate 180, fig. 1, 1a, we figure a male of the (? seasonal) form of this species named *Hindia*.

SEASONAL FORM ? (Plate 180, figs. 1, 1^a, ♂).

Charaxes Hindia (male only), Butler,* Lep. Exotica, p. 99, pl. 37, fig. 5 (1872), ♂.

Male. Upperside paler bright fulvous than in typical Jalinder; the discal white band on forewing unbroken from the subcostal to submedian. Underside pale purpurescent-ferruginous, washed with lilacine-grey; sinuous lines ill-defined; discal interspaces dull pale yellow. Darjiling (Major Roberts); Darjiling (coll. W. Rothschild); Shillong (coll. P. Crowley).

In some specimens (Plate 180, fig. 1, b, c), labelled "Sikkim," in Mr. Crowley's collection, the discal band is less defined and of a diffused fulvous white, with bright fulvous submarginal lunular spots.

HARIDRA PLEISTOANAX (Plate 181, figs. 1, 1a, b, c, ♂ ♀).

Charaxes Pleistoanax, Felder, Reise Novara, Lep. iii. p. 443, male only (1867). Butler, Trans. Ent. Soc. Lond. 1870, p. 121; Lep. Exotica, p. 97, pl. 37, fig. 3, ♂ ♀ (1872). de Nicéville, Butt. of India, etc. ii. p. 292 (1886).

Charaxes Khimalara (male only), Butler, Lep. Exotica, p. 97, pl. 37, fig. 1 (1872). de Nicéville, Butt. of India, etc. ii. p. 292.

IMAGO.—Male. Upperside with the basal area dark olivaceous brownish-ochreous, the outer border of hindwing brighter ochreous. *Forewing* with the apex and outer border broadly black and traversed by an inner incurved series of more or less obsolescent or well-defined pale ochreous or ochreous-white spots; a rather broad bluish-white transverse discal band continued to the posterior margin, the upper end of which is broken into spots between the lower subcostal and lower radial; the discocellulars marked by a more or less defined duplex black streak, and the inner border of the white discal band generally defined by a more or less black-speckled sinuous line to near the submedian vein. *Hindwing* with a bluish-white prominent upper discal band obsolescently decreasing to the middle median veinlet, inwardly edged anteriorly by a black sinuous line, and traversed by black veins, which latter sometimes dilatingly merge into the black submarginal band; the black band broad anteriorly and decreasing to anal angle, composed of conjoined spots, which generally have a central white lunate dot. Underside olivescient purplish-brown; crossed by pale-edged normal sinuous black lines, outer discal pale olivescient-yellow dentate markings and submarginal glossy lilacine-grey dentate markings, the latter on the hindwing bordering a row of black-tipt whitish anchor-shaped spots; the subbasal and discal transverse interspaces pale yellow.

* The female described and figured by Mr. Butler (l.c.) as erroneously assigned to that sex of *Hindia*, belongs to the species named *Imna*.

Female. Upperside similar to male. *Forewing* with the white transverse band broader, anteriorly broken by a broad subcostal black streak, and with a broad black-speckled inner discal border extending to near the submedian vein; the outer series of white spots large and lunular. *Hindwing* with the white upper discal band broader and extending to near the middle median veinlet; the submarginal black macular band broader and with slender white lunular marks. Underside as in the male, but somewhat more olivescens in tint. *Body* dark brownish-ochreous; palpi above black; palpi beneath and pectus white; legs brownish-ochreous; fore tarsi white; antennæ black; eyes red.

Expanse, ♂ $3\frac{6}{10}$, ♀ $4\frac{2}{10}$ to $4\frac{5}{10}$ inches.

HABITAT.—Sikkim; Bhotan; Naga Hills.

DISTRIBUTION.—“Common in Sikkim throughout the summer months at low elevations” (de Nicéville, Sikkim Gazetteer, 1894, 149). Specimens taken by the late Mr. Otto Möller in Sikkim in June and July are in Mr. W. Rothschild’s collection. It was also taken at Buxa in Bhotan by Mr. G. C. Dudgeon. Specimens from the Naga Hills are also in Mr. W. Rothschild’s collection.

Of our illustrations of this species on Plate 181, fig. 1 is from Mr. Butler’s type male of *Khimalara*, and figs. 1a, b, c, are from male and female identical with Felder’s types.

HARIDRA KHASIANA (Plate 182, figs. 1, 1a, ♂ ♀).

Charaxes khasianus, Butler, Lep. Exotica, p. 98, pl. 37, fig. 6, ♂ ♀ (1872). de Nicéville, Butt. of India, etc. ii. p. 293 (1886).

Charaxes Pleistoanax (female only), Felder, Reise Novara iii. p. 443.

IMAGO.—Male. Similar to *H. Pleistoanax*. Upperside differs in the olivaceous-ochreous basal area and hindwing being paler. *Forewing* with the bluish-white discal band broader and extending diffusely within the basal area beyond the sinuous black line, which latter is generally broadly defined; submarginal series of spots small or lunulate. *Hindwing* with the white discal band also broader and extending diffusely inwards more or less beyond the black sinuous line; submarginal black macular decreasing band with white lunate marks. Underside similar to *H. Pleistoanax*, but generally more ochreous.

Female. Upperside similar to *H. Pleistoanax*, but with the basal areas much paler, the abdominal margin of hindwing and its outer border also much paler. *Forewing* with the discal bluish-white band much broader, and also extending diffusely inward more or less beyond the blackish-speckled virgula; the outer marginal series of spots white, large, and conspicuous. *Hindwing* with the white

discal band also broader and extending posteriorly to near the submedian vein and more or less diffusely inward beyond the discal black virgula; submarginal black macular band broader. Underside similar to *H. Pleistoanax*, but with the discal interspaces much broader.

Expanse, ♂ $3\frac{6}{10}$ to $3\frac{8}{10}$, ♀ 4 to $4\frac{1}{2}$ inches.

HABITAT.—Khasia Hills; Burma.

DISTRIBUTION.—We possess specimens from the Khasia Hills. Specimens of both sexes from the Khasias are in the collection of Colonel C. Swinhoe, and also in that of Mr. W. Rothschild, taken by the Rev. W. A. Hamilton in October. A male from Toungoo is in Mr. H. Grose Smith's collection. We have it also from the Shan States, taken by Mr. R. Roberts, C.E.

HARIDRA NICHOLII (Plate 182, fig. 2, ♂).

Charaxes Nicholii, Grose Smith, Annals of Nat. Hist. 1886, p. 150, ♂; *id.* Rhop. Exotica, ch. pl. 2, figs. 1, 2 (1887), ♂.

IMAGO.—Male. Upperside. *Forewing* with the apical two-thirds obliquely blue-black, the base ferruginous-brown; crossed by a discal recurved series of five (or six) lilacine-white letter V-shaped marks, the upper being slender, the two lower conjoined, followed by a submarginal row of larger-sized broad white lunate marks; the extreme margin also showing a small white dot between the lower veins, and a broader white space at the posterior angle. *Hindwing* with the basal half ferruginous-brown, discally edged with a sinuous black line, the broad outer border being olivescence-white, and traversed by a submarginal row of six small decreasing blackish rings, and two very small blue-black anal points. Underside lilacine-grey, crossed by the normally disposed black slender sinuous lines, and sub-marginal dentated fascia, the interspace between the discal sinuous lines darkest. *Body* and palpi above ferruginous-brown; body beneath and legs dull lilacine-grey; antennæ black; eyes dark brown.

Expanse, ♂ $3\frac{8}{10}$ inches.

HABITAT.—East Pegu.

DISTRIBUTION.—Mr. W. Doherty took this species in the Karen Hills, East Pegu, in March and April, 1890. It is quite distinct from *H. Durnfodii*, Distant.

CHINESE AND INDO-MALAYAN SPECIES OF HARIDRA.—*Haridra Bernardus* (Pap. Bernardus, Fabricius, Ent. Syst. iii. i. p. 71, ♀ (1793); Donovan, Ins. China, pl. 35, ♀ (1798); Jones, Icones, iv. pl. 65, fig. 2, ♀). *Charaxes Bernardus*, Butler, Catal. Fabr. Lep. B.M., p. 50 (1869). MALE. Upperside very dark fulvous. *Forewing* with the black outer border extending anteriorly to the cell; crossed by a medial discal prominent bluish-white band with distinctly-defined sinuous edges ending at

the lower median veinlet, this band composed of the three median portions, a smaller spot outside end of the cell, and sometimes two superposed smaller outer spots below the subcostal; two, or some times three, pale fulvous lunules bordering the marginal band. *Hindwing* with a submarginal black continuous macular band centred with white points; upper discal black sinuous line distinct, its outer area pale fulvous. FEMALE. Upperside deep fulvous. *Forewing* with black marginal band traversed by pale fulvescent-white lunules; crossed by a broad fulvescent-white discal band; a blackish discocellular duplex streak and inner discal sinuous line. *Hindwing* with a submarginal black decreasing macular band centred with white points; an upper discal black sinuous line, its outer area diffused fulvescent-white. Expanse, ♂ $3\frac{2}{10}$, ♀ 4 inches. *Habitat*.—Hongkong. Described from a male and female taken in Hongkong by Bishop Smith, from the late J. J. Weir's collection, and now in the possession of Mr. Stanley Edwards. Both sexes were also taken in Hongkong in May, 1892, by Mr. J. J. Walker, R.N. This species is distinct from *H. Polyxena*, and is allied to the Indian *H. Jalinder* and *Hipponax*.

Haridra Polyxena (Pap. *Polyxena*, Cramer, Pap. Exot. i. pl. 54, figs. A, B, ♀ (1779). *Doxocopa Epilais*, Hübner, Verz. p. 50 (1816). MALE. Upperside fulvous. *Forewing* with a broad black outer border, its inner edge commencing from middle of the costa at a short distance beyond end of cell, whence it descends very obliquely to the upper median, and from thence posteriorly to the submedian, and enclosing three broad fulvous lunules; a blackish discocellular duplex streak and inner discal sinuous line, slightly defined. *Hindwing* with a moderately broad black submarginal decreasing macular band with white centred points; an upper discal black sinuous line, slender, its outer costal area paler fulvous. FEMALE. Upperside pale fulvous. *Forewing* with a broad fulvescent-whitish discal band; outer black border traversed by fulvescent-whitish lunules; a blackish costal streak, discocellular duplex streak and inner discal sinuous line, each diffused. *Hindwing* with a prominent black submarginal decreasing macular band with distinct white central lunules; upper discal blackish line slender, its outer costal area fulvescent-whitish. Expanse, ♂ $3\frac{2}{10}$, ♀ $3\frac{8}{10}$ to 4 inches. *Habitat*.—S. China. Described from specimens in our own collection. This species belongs to the *Corax* section of the genus.

Haridra Borneensis (Char. *Borneensis*, Butler, Lep. Exot. i. p. 16, pl. 6, fig. 2, male only (1869). Distant, Rhop. Malay. p. 433, pl. 37, fig. 6, ♂ (1886). *Habitat*. Malay Peninsula; Borneo.—*H. Bupalus* (Char. *Bupalus*, Staudinger, Deuts. Ent. Zeit. 1889, p. 82). *Habitat*. Palawan.—*H. Distanti* (Char. *Distanti*, Honrath, Berl. Ent. Zeit. 1885, p. 277. Distant, Rhop. Malay. p. 434, pl. 36, fig. 2, ♂ (1886). *Habitat*. Malay Peninsula.—*H. Harpagon* (Char. *Harpagon*, Staudinger, Deuts. Ent. Zeit. 1889, p. 85). *Habitat*. Palawan.—*H. Scylax* (Char. *Scylax*, Felder, Reise Nov. Lep. iii. p. 442 (1867). *Habitat*. Java.—*H. Harmodius* (Char. *Harmodius*,

Felder, Reise Nov. Lep. iii. p. 445 (1867). *Habitat.* Java.—*H. Baya* (Nymph Baya, Moore, Catal. Lep. Mus. E.I.C. i. p. 207 (1857). *Habitat.* Java.—*H. Bajula* (Char. Bajula, Staudinger, Deuts. Ent. Zeit. 1889, p. 86). *Habitat.* Palawan.—*H. Georgius* (Char. Georgius, Staudinger, Deuts. Ent. Zeit. 1892, p. 262). *Habitat.* Mindoro.—*H. Plateni* (Char. Plateni, Staudinger, Deuts. Ent. Zeit. 1889, p. 82). *Habitat.* Palawan.—*H. Amycus* (Char. Amycus, Felder, Wien. Ent. Monats. 1861, p. 303). Semper, Reisen Philip. Lep. p. 80, pl. 14, fig. 3, 5, ♂ ♀.—*Syn.* Char. Lunawara (♀ only), Butler, Lep. Exot. p. 99, pl. 37, fig. 2, ♀. *Habitat.* Philippines.—*H. Antonius* (Char. Antonius, Semper, Reisen Philip. Lep. p. 80, pl. 14, fig. 6, 7, 8, ♂ ♀ (1860). *Habitat.* Philippines.—*H. Durnfordii* (Char. Durnfordii, Distant, Rhop. Malay. p. 432, pl. 40, fig. 8, ♂ (1886). Allied to but distinct from *H. Nicolii*. *Habitat.* Malay Peninsula.—*H. Everetti* (Char. Everetti, Rothschild, Deuts. Ent. Zeit. 1893, p. 438). *Habitat.* N. Borneo.—*H. Staudingeri* (Char. Staudingeri, Rothschild, Deuts. Ent. Zeit. 1893, p. 439). *Habitat.* N. Borneo.

Genus CHARAXES.

Charaxes, Ochseneimer, Schmett. Eur. IV. p. 18 (1816). Felder, Neues Lep. p. 39 (1861). Butler, Proc. Zool. Soc. 1865, p. 623. Kirby, Catal. D. Lep. p. 650 (1871). Moore, Lep. of Ceylon, i. p. 28 (1880). Distant, Rhop. Malayana, p. 101 (1883). de Nicéville, Butt. of India, etc. ii. p. 269 (1886).

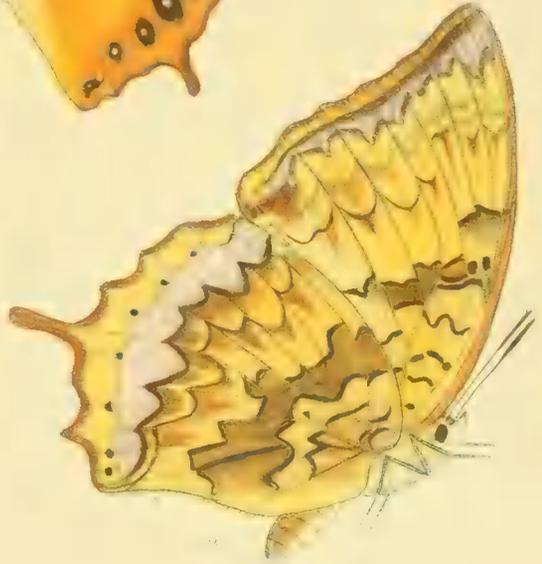
Nymphalis, Latreille, Sonn. Buff. xiv. p. 82 (1805). Doubleday and Westwood, Gen. D. Lep. ii. p. 306 (1850). Moore, Catal. Lep. Mus. E.I.C. i. p. 204 (1857). Kirby, Catal. D. Lep. p. 267 (1871), *nec* Linnæus.

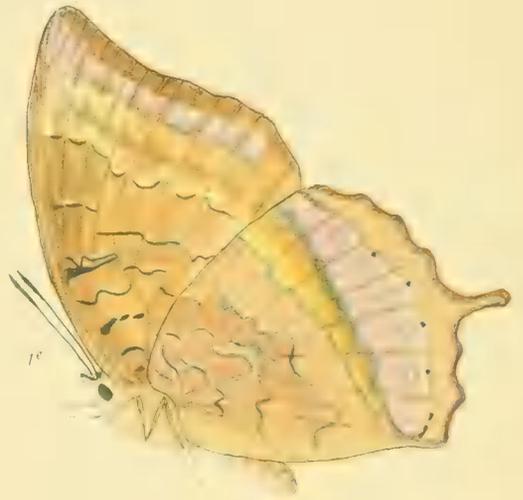
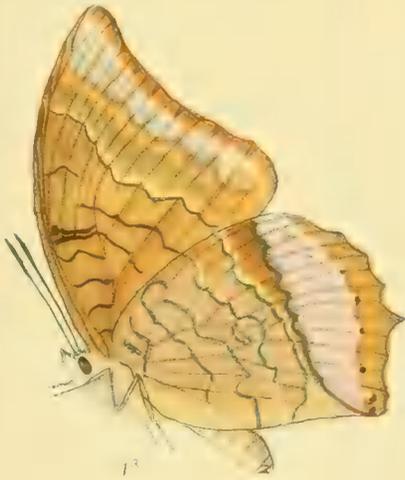
Paphia (part), Fabricius, Illiger's Mag. VI. p. 282 (1807), *preoccupied*.

Eribæa (part), Hübner, Verz. bek. p. 46 (1816).

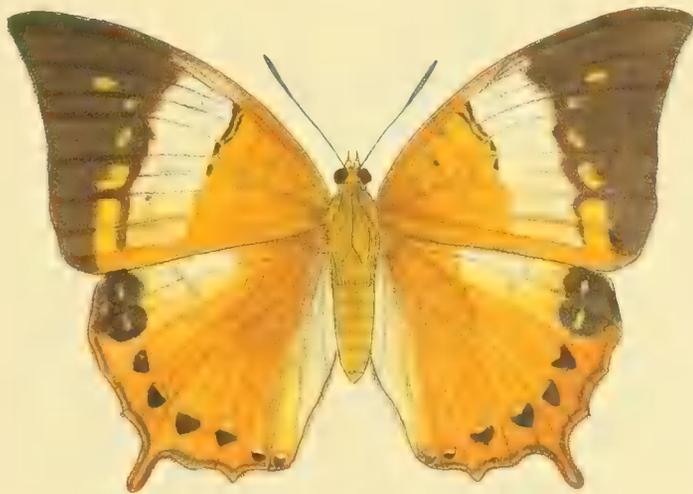
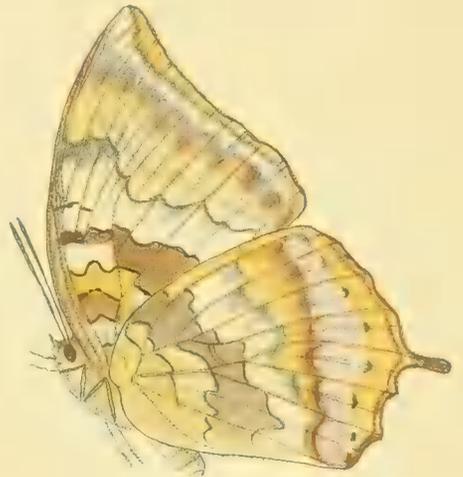
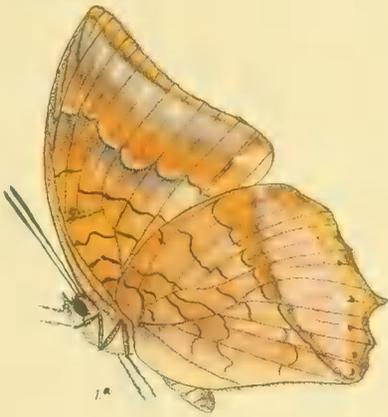
Jasia, Swainson, Zool. Illust. ii. p. 90 (1832).

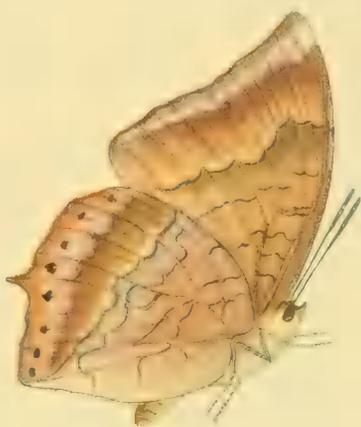
IMAGO.—Male. *Forewing* triangular; costa arched, apex narrow, obtuse; exterior margin oblique, uneven, concave in the middle; posterior margin straight, thickly fringed at the base; first and second subcostal branches emitted before end of the cell, the first at about one-third before the end, third branch immediately beyond the cell and extending to the extreme apex, fourth and fifth branches at one-third beyond; upper discocellular very short, lower slender and concave, closing the cell, radials from upper angles; median veinlets wide apart, upper curved; submedian vein curved at the base. *Hindwing* triangular, short; costa very convex at the base, apex rounded, exterior margin nearly straight, sinuous, with a slender tail at end of upper and lower median veinlets; abdominal margin long; the cell and along the submedian vein thickly clothed with long hairs; costal vein much curved, extending to the extreme apex and with a short abruptly bent precostal spur; subcostals and radial equidistant from the costal vein; cell imperfectly closed by a very

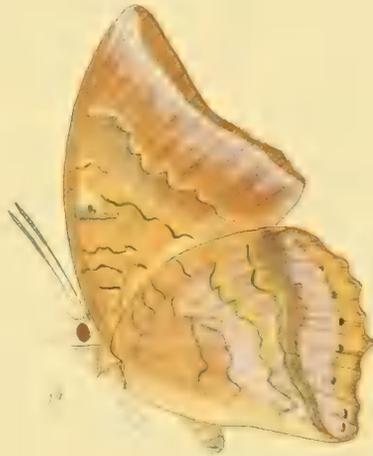












1b

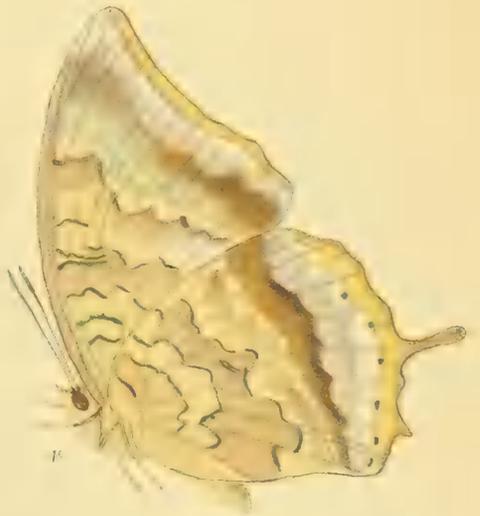
7. *Mestra deliciae*

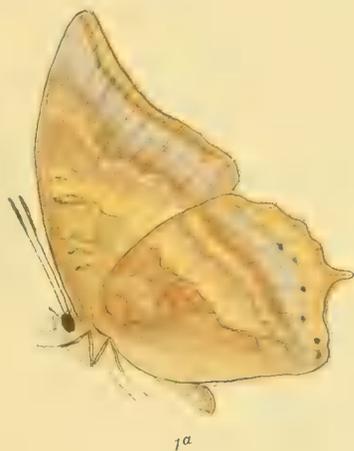
8. *Psephenus* *Chloronotus*

9. *Mestra deliciae* *Fig. 8. 10. 11. 12.*









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slender discocellular thread, which joins the median just before the middle branch; submedian and internal vein wide apart, internal vein short. *Body* short; thorax elongated, broad, very robust, woolly at the base; head large, woolly, not tufted; eyes prominent, naked; palpi large, obliquely porrected, broad and flat in front, the tip elevated much above the vertex, and extending forward, apart at the base, but approximating at the tip, thickly scaled, second joint above clothed with short erect hairs, apical joint almost smooth, conical; forelegs of male minute, scaly, and slightly hairy; forelegs of female scaly, femur very slightly hairy on the inner side, tarsus dilated towards the tip, which is rounded off in front, each joint with two short blunt spines beneath; middle and hind legs rather short, robust, finely scaled, tibiæ flat beneath, each side armed with a row of short fine spines, tarsi armed with four series of short spines, the terminal lateral spine on each side being the longest, claws moderate, inner lobe short, outer lobe acute, curved; antennæ rather short, stout, straight, the club elongated, thick and truncate at the tip, with a slight treble carina on its inner edge. *Type*, *C. Jasius*.

CATERPILLAR.—Slug-shaped; head with four vertical short spiny processes; anal segment with two short depressed points.

CHRYSALIS.—Abbreviated, thick, almost oval, smooth, dorsum arched; head very obtuse.

EGG.—Large, globular; apex flattened, broad.

CHARAXES FABIUS (Plate 183, figs. 1, 1a, b, c, d, ♂, ♀; larva and pupa).

Papilio Fabius, Fabricius, Spec. Ins. ii. p. 12 (1781). Mant. Ins. ii. p. 7 (1787). Ent. Syst. iii., i., p. 64 (1793).

Nymphalis Fabius, Godart, Encycl. Méth. ix. p. 353 (1823). Westwood, Gen. D. Lep. p. 309 (1851).

Charaxes Fabius, Butler, Catal. Fabr. Lep. Brit. Mus. p. 52 (1869). Kirby, Catal. Butt. p. 268 (1871). Moore, Lep. of Ceylon, i. p. 29, pl. 15, fig. 1 (1880). de Nicéville, Butt. of India, etc., ii. p. 280 (1886).

Paphia Fabia, Gray, Lep. Ins. of Nepal, pl. 12, fig. 3, larva (1846).

Papilio Solon, Fabricius, Ent. Syst. iii., i., p. 69 (1793). Jones, Icones, pl. 63, fig. 2, ♀.

Papilio Euphanes, Esper, Ausl. Schmett. pl. 59, fig. 1, ♂ (1785-90).

IMAGO.—Male. Upperside blackish olive-brown, palest basally. *Forewing* with a transverse discal recurved series of eight yellow spots increasing in size from near the costa, the upper spots mostly rounded, the lower spots being broad and irregularly-quadrate with uneven exterior; also a yellow subcostal spot between the lower subcostal veinlets and upper radial, and a smaller spot outside end of the cell above the upper median veinlet; a marginal lower row of minute yellow spots which are more or less obsolescent anteriorly. *Hindwing* with a transverse discal

yellow irregular band, decreasing posteriorly; a submarginal row of small, yellow lunules, and a marginal row of small geminate spots, those at the anal angle being greenish-grey. Underside lilac-grey, of a more or less pale or darker tint, but dullest at the base, and purplish-tinted externally. Both wings with white transverse discal markings as on upperside, but each inwardly-edged by a black line; the basal area crossed by irregular black slender lines. *Forewing* also with three basal black spots in the cell, a submarginal row of ochreous-yellow spots with posteriorly-increasing black borders, and a marginal lower row of indistinct purplish-white lunules. *Hindwing* also with a discal more or less defined irregular row of black-edged purplish-white lunules, and a submarginal row of ochreous-yellow spots with blackish outer borders, followed by a marginal row of small, more or less ochreous-yellow or greenish-ochreous lunules surmounted by an indented black line and white speckles above, and broken lunate white spots below; the extreme margin and tails being blackish-edged.

Female. Upperside as in the male, with the markings somewhat larger. Underside as in the male.

Body above dark olive-brown; collar, front, and palpi above black, spotted with white; palpi, body beneath, and legs whitish; fore tibiæ brown above; antennæ black; eyes reddish.

Expanse, ♂ $2\frac{8}{10}$ to $3\frac{2}{10}$, ♀ $3\frac{1}{10}$ to $3\frac{6}{10}$ inches.

CATERPILLAR.—Slug-shaped; bluish-green; head armed with four reddish-tipt spinous fleshy vertical processes; anal segment with two short depressed points; a small dorsal semicircle of white on seventh segment; lateral line dotted with pale yellow. Feeds on *Tamarindus indica*.

CHRYSLIS.—Cylindrically-ovate, smooth; dorsum arched; head obtusely pointed.

HABITAT.—Himalayas; Oudh; E. and S. India; Ceylon; Burma.

In specimens from the N.W. Himalayas, the undersides are the palest coloured, and also have the markings less prominently defined. In Eastern Indian and Burmese specimens the underside is darker, and the South Indian and Ceylonese examples are darkest of all, being of a purpurescent-brownish tint, with all the markings intensified. The S. Indian specimens are identical with the Fabrician type.

DISTRIBUTION AND HABITS.—This butterfly has a wide range. In the Western Himalayas it "has been taken in Chumba in March by Lieut.-Col. C. H. T. Marshall, and in Mundi in July and September by Mr. A. Graham Young" (Butt. Ind. ii. 280). The Rev. J. H. Hocking took it in "Dharmasala in July, at sugar" (P. Z. S. 1882, 238). Mr. W. Doherty found it in "Rambagh, at the foot of the hills, Kumaon" (J. A. S. Beng. 1886, 124). In Oudh "it occurs in Lucknow" (Lang. Ann. N. H. 1864, 181), and "at Fyzabad" (Butt. Ind. ii. 280). In the Eastern Himalayas "stragglers have been taken in Sikkim at low elevations from May to

July" (de Nicéville, Sikkim Gaz. 1894, 147). The larva is figured in General Hardwicke's Drawings (Libr. Brit. Mus.), found in August feeding on leaves of *Gardenia*. It occurs in Assam. Mr. J. W. Mason (J. A. S. Beng. 1886, 363), records its capture at "Silchar, Cachar, in September." According to Mr. de Nicéville (Butt. Ind. ii. 280), "it is common in Calcutta, and have taken nearly all my specimens in the cold weather, frequently having been taken drinking the juice of the date palms when cut for the extraction of toddy. It occurs also during the rains." Mr. J. Rothney also obtained it in the Barrackpore Gardens, near Calcutta. Capt. Mortimer Slater in his MS. Notes, p. 41, states: "At Dinapur, I generally found it near or on pomegranate trees; flies rapidly. Uncommon." The late General Hearsey (Westw. Orient. Ent.), says, "he usually captured this species upon wounded apple trees, the butterflies frequenting the wounds to suck up the fluids which were discharged therefrom." Mr. W. C. Taylor obtained it in Orissa, and it has been taken in Belgaum (Butt. Ind. ii. 281). Colonel C. Swinhoe took it in "Mhow, June and October (P. Z. S. 1886, 425); in Poona, February, April, and November; and at Belgaum in November" (P. Z. S. 1885, 130). In Madras, Lieut. E. Y. Watson took it in April (J. A. S. Beng. 1890, 266). Messrs. J. Davidson and E. H. Aitken (J. Bombay N. H. S. 1890, 278) record "the capture of larvæ in Karwar in July and August, and have also reared it in Khandeish and the Dekkan, always on the tamarind tree." The butterfly occurs in Bombay sparingly, specimens being captured in Khandeish and the Tanna District (Aitken, id. 1886, 133). Mr. J. Betham (J. Bombay N. H. S. 1890, 286) says, "It is a bold creature, with a strong flight, but sometimes falls a prey to curiosity. One settled on my boot once, and at another time one wanted to see what my *tonga* was, and flitted round it as I went along, until it was caught." The late S. N. Ward obtained it in Kanara. Mr. G. F. Hampson found it rare on the Nilgiris at 3000 to 4000 feet (J. A. S. Beng. 1888, 355). "It occurs throughout South India to Travancore" (Butt. Ind. ii. 281). Mr. H. S. Ferguson (J. Bombay N. H. S. 1891, 10) says, "It is fairly common in the low country of Travancore, but is not found in the hills." In Ceylon, it has been taken at Dambool and Kandy, but not very commonly (Capt. Wade). Mr. F. M. Mackwood also caught it in the low country to the north of Matale, and always on human excrement (MS. Notes). Major Yerbury took it at Trincomali in October. Godart cites Nicobars, but this has not since been verified, and therefore is doubtful. In Burma, Dr. N. Manders obtained a single specimen in December, at 5000 feet elevation, at the bottom of the Hopaung Valley, S.E. of Fort Stedman in the Shan States (Tr. Ent. Soc. 1890, 526). Lieut. E. Y. Watson obtained it during the Chin-Lushai Expedition "on the road from Pauk to Tilin in October, and also at Tilin in March" (J. Bombay N. H. S. 1891, 42). Major C. H. E. Adamson took it in Arakan, but not common, from March to May (List, p. 20). Specimens from the Karen Hills

are in Mr. P. Crowley's collection. It has also been taken in the Lower Thoungyeen forests in May, and in the Mepley Valley, Upper Tenasserim (Butt. Ind. ii. 280).

Of our illustrations of this species on Plate 183, fig. 1 is from Mr. Ward's drawing, fig. 1a is copied from Messrs. Davidson and Aitken's figures published in the Journal Bombay Nat. Hist. Society, fig. 1b is from a Kangra male, and 1c from a Ceylon female.

INDO-MALAYAN SPECIES OF CHARAXES.—*C. Lampedo*, Hübner, Samml. Exot. Schmett. ii. pl. 52, figs. 3, 4, ♀ (1820-26). *Syn.* Char. Zephyrus, Butler, Cistula Ent. i. p. 5 (1869) ♂; *id.* Lep. Exotica, i. pl. 10, fig. 1, ♂ (1870). *Habitat.* Mindanao.—*C. Echo*, Butler, Annals Nat. Hist. 1867, p. 401, pl. 8, figs. 5, 6, ♂. Distant, Rhop. Malay. p. 103, fig. 38, ♂ (1883). *Habitat.* Malay Peninsula; Singapore; Labuan, Borneo.

Genus EULEPIS.

Eulepis, Dalman, in Billberg's Enum. Ins. p. 80 (1820). Moore, Lep. of Ceylon, i. p. 29 (1880).
Eribæa (part), Hübner, Verz. bek. Schmett. p. 46 (1816).
Charaxes (part), Felder; Butler; Distant; de Nicéville.

IMAGO.—Male. Outline of wings as in Charaxes. *Forewing* with the veins also similar. *Hindwing* with the second subcostal veinlet and the radial emitted nearer to the base of the first branch; cell completely open; precostal veinlet gently curved; upper and middle median veinlets emitted further from base of the lower. Thorax and head more woolly; antennæ less thick; palpi stouter; forelegs of male short, clothed with fine long hairs; forelegs of female shorter than in typical Charaxes, scaly, tarsus slightly dilated at the tip, joints with short lateral spines. Sexes alike. *Type*, *E. Athamas*.

CATERPILLAR.—Slug-shaped; with four vertical elongated fleshy spinous processes on the head, and two short naked depressed conical processes on anal segment.

CHRYsalis.—Thick, oval, smooth, abbreviated; dorsum arched; head obtuse.

EGG.—Unknown.

EULEPIS ATHAMAS (Plate 184, figs. 1, 1a, b, c, d, ♂ ♀; larva and pupa).

Papilio Athamas, Drury, Illust. Exot. Ent. i. p. 5, pl. 2, fig. 4 (1770) ♂. Cramer, Pap. Exot. i. pl. 89, figs. C, D (1776).

Nymphalis Athamas, Godart, Enc. Méth. ix. p. 353 (1823).

Paphia Athamas, Horsfield, Catal. Lep. Mus. E. I. Compy. pl. 8, fig. 7, a—g; *larva and pupa*, (1829).

Charaxes Athamas, Moore, Catal. Lep. Mus. E. I. C. i. p. 205, pl. 6, figs. 3, 3a (1857). Butler, Proc.

Zool. Soc. 1865, p. 634. Distant, Rhop. Malay. p. 106, pl. 13, fig. 8, ♂ (1883). de Nicéville, Butt. of India, etc., ii. p. 275 (1886).

Eribara Athamis, Hübner, Verz. bek. Schmett. p. 47 (1816).

Papilio Pyrrhus, Donovan, Ins. Ind. pl. 29, fig. 3 (1800), *nec Linn.*

Charaxes Bharata, Felder, Reise Novara, Lep. iii. p. 438 (1867) ♂.

Charaxes Samatha, Moore, Proc. Zool. Soc. 1878, p. 831.

Eulepis Samatha, Moore, Lep. of Ceylon, i. p. 29, pl. 14, figs. 2, 2a, b, ♂; *larva and pupa* (1880).

IMAGO.—Male. Upperside purpurescent-black, the basal border somewhat greyish-black. *Forewing* with a transverse medial-discal more or less moderately broad olivescient-yellow band, commencing at the upper median veinlet, above which is an outwardly-disposed rather large obliquely-quadrate yellow spot, and a much smaller subapical spot. *Hindwing* with a similar broad olivescient-yellow band extending from the costa, and decreasing to a point at the lower median veinlet above the anal angle; a submarginal series of very small narrowly-ovate white spots, followed by a marginal row of more or less indistinct ochreous-red lunules, with intervening blue streaks along the two tails. Underside. Both wings purpurescent olive-brown, of more or less pale or darker tint, the discal olivescient-yellow band as above, but paler and glossy, the whole inner margin of the band bordered by a rich dark olivescient-red narrow band, which is defined on both the sides of its middle portion by a black line inwardly-edged by pearly-white scales. *Forewing* also with only the lower subapical spot well defined, the other either obsolescent or absent; within the base of the cell are two superposed small white-centred black dots; a row of posteriorly increasing lunate marks outwardly bordering the discal band. *Hindwing* also with the outer edge of the discal band bordered by a row of sharply-defined carmine-red sinuous marks, each mark being transversed by a pearly-white lunate line, and the upper and lower marks outwardly-edged by a black sinus; beyond is a submarginal row of small black lunate spots with diffused pearly-white borders, followed by a marginal row of dull ochreous-red lunules.

Female. Upperside similar to the male. *Forewing* with the discal pale yellow band broader, the lower subapical spot larger. *Hindwing* also with broader discal band, the submarginal white spots larger and very prominent, the marginal ochreous lunules also distinct.

Body above purpurescent greyish-brown; collar and front black, with ochreous-white spots; palpi black above, ochreous-white beneath; pectus ochreous-white; fore femur and tibia purplish-brown, fore tarsus white; middle and hind femora blackish, tibiæ and tarsi ochreous-white, antennæ black; eyes reddish-brown.

Expanse, ♂ $2\frac{4}{10}$ to $3\frac{2}{10}$, ♀ $3\frac{2}{10}$ to $3\frac{4}{10}$ inches.

CATERPILLAR.—Elongated, slug-shaped, dark-green; head large, wide and surmounted by four divergent curved fleshy spinous processes; anal segment with two short naked terminal points; the segments with an oblique yellowish-white lateral

stripe, most prominent on the seventh, ninth, and eleventh segments, and beneath these a lower series of small white spots.

CHRYsalis.—Thick, cylindrically oval; green, streaked with white; dorsum and thorax convex; head broad, truncated, obtusely pointed in front.

HABITAT.—Hills N.E. and S. India; Ceylon; S. Andamans; Burma; Malay Peninsula, etc.

DISTRIBUTION WITHIN OUR AREA.—This insect has a wide range. We possess it from Sikkim; specimens are also in Mr. W. Rothschild's collection from Sikkim, taken by the late Otto Möller in July and October. Mr. G. C. Dudgeon obtained it at Buxa in Bhotan. Mr. L. de Nicéville (Sikkim Gazetteer, 1894, 147) says "this is the commonest species of *Charaxes* in Sikkim, and found from April to December, from 6000 feet to the level of the Terai." It is also found in Assam, Silhet, Cachar. Mr. Wood-Mason (J. As. Soc. Beng. 1886, 363) obtained males in the forests around Silcurei, in Cachar, in June and August. Specimens from the Khasia Hills are in Colonel Swinhoe's and Mr. P. Crowley's collections. Mr. J. L. Sherwill took it in the Naga Hills. Specimens from the Lushai Hills are also in Mr. Crowley's collection. Lieut. E. Y. Watson took it during the recent Chin-Lushai Expedition, in the Chin Hills at from 1000 to 2000 feet elevation in May, and at Tilin Yaw in November and February (Journ. Bombay N. H. S. 1891, 41). It also occurs at Toungoo, in Upper Tenasserim; Mr. Wood-Mason took it at Moolai, 3000 to 6000 feet, in Tenasserim. According to Dr. N. Manders (Tr. Ent. Soc. 1890, 526), "It occurs commonly all the year round throughout the Shan Hills and Karenni." Specimens from the Karen Hills are in Mr. P. Crowley's collection. From Southern India, we possess it from the Nilgiris, taken by Mr. G. F. Hampson, "commonly at 3000 to 4000 feet elevation" (J. As. Soc. Beng. 1888, 355), and from Kanara, taken by the late S. N. Ward; Mr. E. H. Aitken says it "is common enough on the [Western] Ghâts, chiefly, I think, from December to March" (J. Bombay N. H. S. 1886, 133). The late Dr. Leith obtained it on Matheran, and Col. Swinhoe also took it on Matheran in December (P. Z. S. 1885, 130); also from Kathlekan, in Mysore, taken by Lieut. E. Y. Watson, in November. In Ceylon it is "taken at Colombo and Kandy; common" (Wade), and according to Mr. F. M. Mackwood's "Notes," it is plentiful about Kandy and similar elevations in the island.

DISTRIBUTION OUTSIDE OUR AREA.—Mr. Distant (Rhop. Malay. p. 106) records it from the Malay Peninsula. It has been taken at Chentaboon, in Siam (P. Z. S. 1874, 106). Mr. Snellen (Lep. Mid. Sumatra, 16) records it from Sumatra.

From Borneo we possess a male taken at Sarawak, a female taken at Hong Kong, and another female was in the late Mr. J. J. Weir's collection, both of which were taken by the late Bishop of Hong Kong. Mr. J. J. Walker, R.N., writes me that he has also observed it in Hong Kong.

It also occurs in the Philippines; a specimen from Mindoro being in Mr. P. Crowley's collection.

HABITS OF IMAGO.—“The fastest butterfly I have come across. It is, in common with *C. Fabius* and *C. Imna*, a very foul feeder” (J. Betham, J. Bombay N. H. S. 1890, 286). Mr. E. H. Aitken (J. Bomb. N. H. S. 1886, 133) says, “it is very similar in its habits to *C. Imna*, and almost as difficult to capture. They have a *penchant* for certain places.” Capt. Wade, in his Ceylon “Notes,” remarks, “Males most frequently found perched high up on Acacia trees; flight, quick and strong; common,” and Mr. F. M. Mackwood states that they are “not easily caught, as they rest generally on trees out of reach.”

HABITS OF LARVA.—“Mr. Moore's description (Lep. Ceylon, i. 29) is good, but we have found different specimens to vary very much in the distinctness and colour of the lateral stripes; they are always present, but sometimes very faint indeed. Another more important point, which seems hitherto to have escaped notice, is that the last pair of legs are almost obsolete, and are not used in walking. We found this larva, from June to October, on the ‘*Goolmohr*’ (*Poinciana regia*), the ‘*Khairree*’ (*Cæsalpinia mimosioides*), and several other trees. The larva, like those of most wary and strong-winged butterflies, is very shy and cautious in its habits, feeding by night, and remaining motionless all day; but it is much preyed on from the time it leaves the egg, and only a small proportion seem to reach maturity. The pupa is almost oval, smooth, and without irregularities; in colour, green, with faint white lines, more or less distinct” (J. Davidson and E. H. Aitken, Journ. Bombay N. H. S. 1890, 277). In Ceylon, according to the late Dr. Thwaites, the larva feeds upon *Cæsalpinia*. Mr. E. A. Minchin (Butt. India, ii. 277) says the “larva feeds in South India on *Adenantha pavonica*.”

E. Athamas (VARIETY)—Plate 184, fig. 1e. Male.—Upperside deep rich indigo-blue black. *Forewing* with a small single subapical spot only; the olivescent-white band on both wings narrower than in typical specimens of *Athamas*—being from two-tenths to three-tenths of an inch only in width; the outer edge of the band on the hindwing is bordered by purplish-blue speckles lunularly disposed between the median veinlets; the marginal series of white spots are also much smaller. Underside darker, and the markings also richer and darker in colour, and more prominently defined. Expanse, $2\frac{6}{10}$ inches. *Habitat*, Khasia Hills.

This variety (or seasonal form) appears to be scarce in collections. I have only seen a few specimens, all males, two being from the Khasia Hills, in Mr. Walter Rothschild's collection, others, also from the Khasias, in Colonel Swinhoe's collection, and one I possess, from Colonel Taylor's cabinet, doubtfully taken at Buxa. Mr. de Nicéville probably refers to this form, under *C. Arja* (Butt. Ind. ii. 278), from Cachar, four males having been taken by Mr. Wood-Mason, in June and

August, at Silcurei, also two males from Shillong, taken by Dr. Johnson, a male from Jorehat, taken by Mr. J. L. Sherwill, and a male from Sibsagar, taken by Mr. S. E. Peal.

Of our illustrations of *E. Athamas*, on Plate 184, fig. 1 is from Mr. S. N. Ward's drawing of larva reared in Kanara; fig. 1a is from the Ceylon larva; fig. 1b, c, is from a Sikkim male, and fig. 1d, a female from Shillong, Assam. Fig. 1e is the variety from the Khasia Hills.

EULEPIS HAMASTA (Plate 185, figs. 1, 1a, ♂ ♀).

Eulepis Hamasta, Moore, Proc. Zool. Soc. Lond. 1882, p. 238.

Charaxes Athamas (part), de Nicéville, Butt. of India, etc. ii. p. 275 (1886).

IMAGO.—Male. Both wings with broad olivescens-yellow discal band, broader than in *E. Athamas*, the black outer border, consequently, being narrower. *Forewing* with a quadrate larger lower subapical spot, and a small apical spot. *Hindwing* with prominent submarginal white lunate spots and ochreous marginal lunules. Underside paler; with the band inwardly-bordering the broad discal band paler olivescens-ochreous, and the outer marginal lunular marks narrower.

Female. Upperside with broad discal band. *Forewing* with large quadrate subapical spot and two small superposed apical spots. *Hindwing* with very prominent yellowish-white submarginal spots, the four upper small and ovate, the lower large and broadly lunate; the marginal ochreous lunules indistinct, the lowest edged with bluish-grey. Underside as in the male.

Expanse, ♂ $2\frac{3}{10}$ to 3, ♀ $3\frac{2}{10}$ to $3\frac{4}{10}$ inches.

HABITAT.—Western and Eastern Himalayas; C. India.

DISTRIBUTION.—The type specimens were taken by the Rev. J. H. Hocking at "Dharmasala, 6200 feet, in March and June" (P. Z. S. 1882, 238). The late Captain R. Bayne Reed records "Athamas" in his list of butterflies taken in Kashmir in 1872. Colonel A. M. Lang also obtained it in the Tonse Valley, Gurhwal, at 6000 feet, and Mr. W. Doherty captured it in the "Sarju, Kali, and Gori Valleys, 2000 to 4000 feet, in Kumaon, in September" (Journ. As. Soc. Beng. 1886, 124). Males, taken in Sikkim, March, 1887 and 1888, by Mr. O. Möller, are in the collection of Mr. Walter Rothschild, and I possess specimens which were also taken in Sikkim by Mr. G. C. Dudgeon. Specimens, labelled Buxa, are in Mr. H. Druce's collection, and a male and female from Deesa, Central India, are in Colonel Swinhoe's collection.

HABITS.—This is "an insect of extremely rapid flight, flashing like lightning

up and down rocky-bedded streams in Himalayan glens, 3000 to 5000 feet. It pitches on rocks in mid-streams, and flashes off again if approached. It is not common, and is very difficult to capture; yet one very hot day in June I saw seven individuals sitting with closed wings motionless on a foul spot (by the damp sandy margin of a stream), so close together that I might have put my hat on all of them. Except on that occasion, I have never seen more than one at a time" (Lang, P. Z. S. 1865, 498). Mr. Hocking says, "it is the wildest butterfly that I know. It takes very long flights at a time and returns to the same point. It is very shy" (P. Z. S. 1882, 238). Mr. L. de Nicéville remarks, "I took one specimen in October, 1878, at Kotgurh, imbibing moisture on a damp spot near the Komársen stream. Of all the butterflies I am acquainted with this insect is the swiftest on the wing. I have taken a few small and apparently hibernated specimens on hill tops near Simla in April, and have *seen* the ordinary sized ones in various places near Simla in the autumn. My Darjeeling specimens are decidedly darker than those taken at this end of the Himalayas. Expanse from 2·2 inches to 2·9 inches" (Indian Agriculturist, January, 1880).

Of our illustrations of *E. Hamasta* on Plate 185, fig. 1 is from a Sikkim male identical with the type, and fig. 1a is from the type specimen of the female.

EULEPIS AGRARIUS (Plate 185, figs. 2, 2a, ♂ ♀).

Charaxes Agrarius, Swinhoe, Proc. Zool. Soc. Lond. 1886, p. 425, pl. 40, fig. 3, ♂.

Charaxes Athamas (part), de Nicéville, Butt. of India, etc., ii. p. 275 (1886).

IMAGO.—Male and female. Both wings with the yellow discal band uniformly narrower, the outer edge of the band more irregular, undulated, the portions between the medians being each somewhat incurved. *Forewing* with a large quadrate lower submarginal spot and two small superposed apical spots. *Hindwing* with yellowish-white rounded submarginal spots, the upper minute, the lower three large and dento-lunate; marginal ochreous lunules not present in the male, very indistinct in female, the lower bluish-grey streaks only present in male. Underside similar to *E. Hamasta*, but paler.

Expanse, ♂ $2\frac{3}{10}$ to $2\frac{6}{10}$, ♀ $2\frac{8}{10}$ inches.

Habitat.—Hills of Central India; Eastern Ghats; ? Chin Hills.

DISTRIBUTION.—The type specimens were taken by Colonel Swinhoe at Mhow in October, at Assighur in October, and at Poona in September. A female from Ganjam, taken by Mr. Minchin, is in Mr. Druce's collection. Similar specimens (presumably of this species) are in the British Museum collection, and others in my own possession, taken by Lieutenant E. Y. Watson during the Chin-Lushai Expedition, are labelled "Tilin Yaw, February and March, Chin Hills, May," except that the yellow band is narrower, and the marginal white spots on hindwing are

of uniform size, there being also a spot present between the costal and subcostal; the underside of these latter specimens have the discal band and lower subapical spot clouded with ochreous-yellow.

Of our illustrations of *E. Agrarius*, on Plate 185, figs. 2 and 2a are from the type specimens of the male and female in Colonel Swinhoe's Collection.

EULEPIS ARJA (Plate 186, figs. 1, 1a, ♂, ♀).

Charaxes Arja, Felder, Reise Novara, Lep. iii. p. 438 (1867). Butler, Trans. Ent. Soc. Lond. 1870, p. 119. de Nicéville, Butt. of India, etc. ii. p. 278 (1886).

IMAGO.—Male. Upperside purpurescent bluish-black. Both wings with the discal band olivescient-white. *Forewing* more obtuse at the apex, with the band broader at its anterior end and of more equal width than in *E. Athamas*; the lower subapical spot more ovate, the other minute or absent. *Hindwing* with the discal band also broader and less sharply defined than in *E. Athamas*, its outer edge posteriorly blue speckled, and the submarginal white spots somewhat larger, lunular, and very prominent. Underside similarly marked to *E. Athamas*.

Female. Upperside with the discal band olivescient-white, more uniformly broader than in *E. Athamas*, the lower subapical spot larger, the upper very small. *Hindwing* with the discal band also broader, and the submarginal white lunulate spots very prominent. Underside as in the male.

Expanse, ♂ $2\frac{6}{10}$ to $3\frac{2}{10}$, ♀ $3\frac{2}{10}$ to $3\frac{4}{10}$ inches.

HABITAT.—Eastern Himalayas; Assam; Burma.

DISTRIBUTION.—Confined to the north-eastern portion of India and Burma. Mr. de Nicéville (Butt. Ind. II. 278) records it from "Sikkim (where it is less common than *E. Athamas*), Sylhet, Jorehat, Sibsagar, Chittagong, and Upper Tenasserim." We have verified specimens with Felder's type, from the following localities, namely, Sikkim, taken in March and October by Mr. Otto Möller, now in Mr. W. Rothschild's collection; Buxa, Bhotan, taken by Mr. G. C. Dudgeon; Khasia Hills, in Colonel C. Swinhoe's and my own collection; Shillong, Assam, Lushai Hills, and Karen Hills, in Mr. P. Crowley's collection; Tilin Yaw, Burma, taken by Lieutenant E. Y. Watson in November and December (J. Bombay, N. H. S. 1891, 42); Toungoo, Rangoon, in May, and Malawoon, Tenasserim, taken by Signor Leonardo Fea in August, in our own collection. Dr. N. Manders (Tr. Ent. Soc. 1890, 526) says it is "quite as common as *E. Athamas* in the Shan States, and is found in the same localities."

E. Arja (VARIETY) Plate 186, fig. 1, b, c.

Male and female. Upperside differs from typical *Arja* in the forewing being comparatively more triangular; both wings, for their size, have a somewhat broader

olivescent-white discal band, and narrower outer black border. *Forewing* with an elongated quadrate lower subapical spot and two small apical spots. *Hindwing* with a prominent series of white lunular spots. Underside with the marginal ground colour paler than in typical *Arja*; the subbasal and marginal markings less defined. Described from a male and female, from Toungoo, in our own collection.

Expanse, ♂ $2\frac{6}{10}$, ♀ $2\frac{8}{10}$ inches.

HABITAT.—Burma.

Of our illustrations of *E. Arja* on Plate 186, Fig. 1 is from a Khasia Hill male identical with Felder's type specimen, fig. 1a that of a female. Figs. 1, b, c, represent the Burmese variety, male and female, in our own collection.

EULEPIS JALYSUS (Plate 187, figs. 1, 1a, ♂).

Charaxes Jalysus, Felder, Reise Novara, Lep. iii. p. 438, pl. 59, fig. 5, ♂ (1866). Butler, Trans. Ent. Soc. 1877, p. 539. Distant, Rhop. Malayana, p. 108, pl. 13, fig. 4, ♂ (1883). de Nicéville, Butt. of India, etc., p. 278 (1886). Elwes, Proc. Zool. Soc. 1891, p. 284.

Charaxes Moori, apud Adamson, Catal. Burmese Butt. p. 20 (1889).

IMAGO.—Male. Upperside pale olivescent-yellow. *Forewing* with a purpurescent-blackish band extending from base of the costa, including the apex above and beyond the middle of the median veinlet, from which it descends narrowly to the posterior angle; base of the wing and the cell area speckled with darker olivescent scales; before the apex is a rather large pale spot of the ground colour. *Hindwing* with a submarginal row of broad purplish-black, continuous, lunular spots, each of which bears a slender white lunule, the whole series being inwardly bordered with olivescent-grey, and outwardly by a marginal row of ochreous lunules, the extreme marginal edge and cilia being black. Underside with the costal border, the base and outer border of both wings, pale purplish-brown, palest on the hindwing; a dark purplish-red narrow band inwardly bordering the broad pale olivescent discal area, from the pale subapical spot on forewing to above the anal angle, this band being edged by a broken black line on its basal portion of each wing and above the anal angle; along the exterior border of the discal area, on both wings, is a submarginal series of black-edged lunules, those on the forewing being narrow on a pearly-white ground, and those on the hindwing broader, deep red, traversed by a slender pearly-white sinuous line, and bordered inwardly by red and outwardly by diffused pearly-white and a row of small black dots; the margin being bordered by ochreous lunules.

Female. Upperside similar to the male, except that the olivescent-yellow discal area is somewhat broader, and the marginal band on the hindwing is entire throughout, not composed of conjoined spots, and on the underside the submarginal deep red lunules are less angular. *Thorax* greyish-brown; abdomen olivescent; palpi

above brown; collar and vertex with white spots; palpi below and pectus white; forelegs blackish, fore tarsi white; middle and hind femora blackish, tibiæ whitish; antennæ black.

Expanse, ♂ 3 to $3\frac{2}{3}$, ♀ $3\frac{2}{3}$ inches.

HABITAT.—Burma; Malay Peninsula.

DISTRIBUTION.—Major C. H. E. Adamson (List, p. 20) records (under *C. Moori*), “one specimen taken at Poonkan, Tenasserim, in August.” This specimen we have verified as being true *Jalysus*. Two specimens are recorded as having been taken by Mr. W. Doherty in the Karen Hills (P. Z. S. 1891, 284). Mr. Distant (Rhop. Malay. 109) says “this species appears to be moderately rare in Province Wellesley, one specimen only being captured by myself. It is, however, not uncommon in Malacca.”

EULEPIS MOORI (Plate 187, figs. 2, 2a, ♂, ♀).

Charaxes Moori, Distant, Rhop. Malayana, p. 108, pl. 13, fig. 3, ♂ (1883).

IMAGO.—Nearest allied to *E. Kaba*. Male. Upperside. *Forewing* differs from *E. Kaba* in the pale olivescient-yellow discal area being narrower, the basal area and the outer black border, consequently, being broader; the entire cell and basal area is also much darker. *Hindwing* with the marginal black spots disposed in a conjoined series, the three large anterior portions forming one continuous piece. Underside similar to *E. Kaba*; the olivescient discal area being narrower.

Female. Similar to the same sex of *E. Hebe*. Upperside. *Forewing* with the pale olivescient discal area broader than in either Malacca or Sumatran female *Hebe*, being more like that in *Jalysus*, the curve from the base being more regular, and the lower portion of the black outer border more undulated. *Hindwing* with the marginal spots smaller throughout the series than in *Hebe*. Underside similar to *Hebe*, but having the pale olivescient discal area of both wings very much broader, this area being quite as broad as in *Jalysus*.

Expanse, ♂ $2\frac{3}{4}$, ♀ $3\frac{1}{4}$ inches.

HABITAT.—Naga Hills; Burma; Malay Peninsula.

DISTRIBUTION.—A specimen of the male, from the Naga Hills, taken by Mr. J. L. Sherwill, is in the collection of Mr. Philip Crowley; and one also in that of Mr. W. Rothschild; a male from Moulmein is in the British Museum; a female, also from Burma, is in the Hewitsonian collection. Mr. Distant's type specimen was taken in the Malay Peninsula.

Of our illustrations of *E. Moori*, on Plate 187, fig. 2, 2a is from a Naga Hill male in Mr. Crowley's collection, and fig. 2b is from a Burmese female in the Hewitsonian collection.

EULEPIS SCHREIBERI (Plate 188, figs. 1, 1a, ♂ ♀).

Nymphalis Schreiberi, Godart, Encyclop. Meth. ix., Suppl. p. 825 (1823).

Paphia Schreiberi, Horsfield, Catal. Lep. Mus. E. I. Compy. pl. vi., figs. 3, 3a, ♀ (1829)

Charaxes Schreiberi, Butler, Proc. Zool. Soc. 1865, p. 633. Distant, Rhop. Malayana, p. 104, pl. xiii. fig. 2, ♂ (1883). de Nicéville, Butt. of India, etc. ii. p. 274.

IMAGO.—Male. Upperside. Both wings bluish-black, the basal third palest and most tinged with blue. *Forewing* crossed by an erect medial bluish-white band, which commences anteriorly in the interspace between the lower radial and upper median veinlet, and sinuously widens out externally to the posterior margin; between the upper and lower radials is a moderate-sized somewhat quadrate white spot, situated exteriorly beyond the medial band, and a smaller similar spot near the apex between the upper radial and lower subcostal; both of these spots being sometimes obsolescent, or the subapical spot absent; the medial band is more or less thickly bordered posteriorly along both sides with smalt-blue scales. *Hindwing* with a similar medial white band decreasing evenly from the costa to the lower median veinlet, its posterior borders being also externally bordered with smalt-blue scales, the outer portion broader and sinuously; a submarginal row of small white lunules, and a marginal series of indistinct ochreous lunules with intervening blue-speckled shorter streaks, except on the two tails, where the blue streaks are longer; abdominal border broadly dusky greyish-brown. Underside dull nacreous pinkish-white, the outer borders suffused with olive-brown; the medial white band and apical spots bluish-tinted on the forewing, but the band pure white on the hindwing. *Forewing* with the medial band inwardly-bordered by a transverse dark olive-brown band with sharply-defined black borders inwardly-edged with smalt-blue, this latter band extending from the costal vein to beneath the lower median veinlet; bordering the black-edged outside of the medial band is a curved series of slender brown-edged lunulate marks, the lowest mark more or less merged in a large blue-black patch; between the upper end of the medial white band and the outer lunules is a carmine patch, and above this patch is a slender black streak; two small black superposed spots near base of the cell. *Hindwing* with the medial band similarly inwardly bordered by a black-edged olive-brown band, the inner line of which ends above the anal angle, and outwardly bordered by a series of deep carmine lunules; the extreme outer margin of the wing bearing blue-edged ochreous-red lunules and blue intervening streaks.

Female. Upperside resembling the male, but with the medial white band broader, and on the forewing there are two superposed quadrate white spots (the upper one sometimes small) beyond the medial band, as well as the smaller sub-apical spot. On the hindwing the submarginal slender white lunules are larger and longer, and the marginal ochreous-red lunules very prominent. Underside

marked as in the male. *Body* bluish-black above, ochreous beneath; collar and vertex white spotted; palpi black above; palpi beneath and pectus white; fore femora and tibiæ black, fore tarsus white; middle and hind femora black, with the tibiæ and tarsi dull ochreous-white, the tarsi with black bands. Antennæ black; eyes reddish-brown.

EXpanse, ♂ $2\frac{3}{4}$ to $3\frac{1}{4}$, ♀ $3\frac{1}{2}$ to 4 inches.

HABITAT.—Assam; Naga Hills; Arakan, Burma; Malay Peninsula, etc.

DISTRIBUTION.—This is a very rare butterfly. Colonel Swinhoe has a male from Cherra Punji. A male and female from Shillong, Assam, and a male from the Naga Hills is in Mr. P. Crowley's collection; Mr. L. de Nicéville records it from Jorehat, in Assam; Major C. H. E. Adamson took two females in Arakan in November. Mr. W. Doherty obtained a tattered male in Toungoo (P. Z. S. 1891, 283). It also occurs in the Malay Peninsula (Distant Rhop. Malay. p. 104), Batavia (Snellen), Java (Horsfield), Billiton (Godman and Salvin), Labuan (British Museum), and Borneo (Distant).

Of our illustrations of *E. Schreiberi* on Plate 188, fig. 1 is from the Naga Hill male, and fig. 1a from a Shillong female.

EULEPIS WARDII (Plate 188, figs. 2, 2a, b, ♂; et larva and pupa).

IMAGO.—Male. Upperside similar to *E. Schreiberi*. *Forewing* differing in the medial white band extending up to the lower subcostal veinlet, the upper end having two additional portions, placed in a linear series with the others, the band itself being also comparatively narrower and of a more uniform width, and the subapical spots being absent. *Hindwing* similar to *Schreiberi*. Underside differs in the medial white band of the forewing being of uniform width and having the two additional portions at the upper end, the carmine patch absent, and the lunular marks disposed in a less curved series, otherwise similarly marked as in *Schreiberi*.

EXpanse, ♂ $3\frac{3}{8}$ to $3\frac{1}{2}$ inches.

ADULT CATERPILLAR.—Slug-shaped; dark green and pale dotted above, pale beneath, and with a yellowish saddle-like dorsal band on anterior part of seventh segment; head with four incurved, red, tuberculated processes; anal segment with two, short, conical pointed processes.

CHRYsalis.—Short, thick, cylindrically-ovate; green; smooth; dorsum much arched; head truncated, pointed in front.

HABITAT.—S. India.

DISTRIBUTION.—The late Mr. S. N. Ward reared a male from larva found at Calicut, in August, 1853. Dr. Jerdon obtained a specimen at Anjirucady, near Tellicherry. Mr. de Nicéville (Butt. India, 275) records a single male taken in the Wynaad by Mr. Rhodes Morgan; and that Mr. Harold Ferguson obtained a broken

specimen in Travancore—probably a female—having the discal band twice as broad as in the Wynaad example, and with the two upper spots joined to it and very large. “Mr. Imray also has taken it on the plateau of Pirmerd, at an elevation of 3700 feet, in Travancore” (Journ. Bombay N. H. S. 1891, 10). Colonel C. Swinhoe has two males taken at Karwar, in Bombay, in September and October, by Mr. E. H. Aitken.

Of our illustrations of *E. Wardii* on Plate 188, fig. 2, 2a is from a Karwar male in Colonel Swinhoe's collection. Fig. 2b is from the drawing of the larva and pupa made by Mr. Ward at Calicut.

INDO-MALAYAN SPECIES OF EULEPIS.—*E. Attalus* (Charaxes Attalus, Felder, Reise Nov. Lep. iii. p. 438 (1867). *Syn.* C. Fruhstorferi et C. Phrixus, Röber, Ent. Nachr., 1895, pp. 63, 64. *Habitat.* Java.—*E. Hebe* (Char. Hebe, Butler, Proc. Zool. Soc. 1865, p. 634, pl. 37, fig. 3). Distant, Rhop. Malay. p. 107, pl. 15, fig. 2, ♂ (1883). *Syn.* C. Albanus, Röber, l.c. p. 66. *Habitat.* Malay Peninsula, Sumatra.—*E. Ganymedes*, Staudinger, Exot. Schmett, p. 173 (1888). *Habitat.* Borneo.—*E. Smerdis* (Char. Smerdis, Felder MS.) *Syn.* Jasia Athama, Swainson, Zool. Illust. 2nd ser., pl. 90 (1833). C. Fallax et Javanus, Röber, l.c. pp. 66, 293. *Habitat.* Sumatra, Java.—*E. Kaba* (Char. Kaba, Kheil, Rhop. Nias, p. 27, pl. 3, fig. 19 (1884). *Habitat.* Nias Island.—*E. Heracles* (C. Heracles, Röber, l.c. p. 292). *Habitat.* Borneo.—*E. Niasica* (Char. Niasica, Butler, Entom. Mo. Mag. 1883, p. 56). Allied to *E. Schreiberi*. *Habitat.* Nias Island.—*E. Kadenii* (Char. Kadenii, Felder, Wien. Entom. Monats. IV. p. 232, pl. 3, fig. 2 (1860). *Habitat.* Java.

Genus MURWAREDA.

Charaxes (part) anctorum.

Wings comparatively broader than in *Eulepis*. *Forewing* more regularly triangular, costa less arched, apex more pointed, exterior margin more even; third subcostal branch emitted nearer end of the cell, fourth and fifth emitted nearer to base of third, and consequently much nearer to end of the cell; the cell shorter and wider. *Hindwing* more convex externally; cell broader; middle median veinlet emitted near to base of lower branch; tails more elongated. Antennal club longer; palpi stouter and more laxly clothed above; fore femur and tibia of male longer; fore tarsus of female much stouter.

TYPE.—M. Dolon.

MURWARDA DOLON (Plate 189, figs. 1, 1a, ♂).

Charaxes Dolon, Westwood, Cabinet of Oriental Entom. p. 55, pl. 27, figs. 2, 3 (1848). Butler, Proc. Zool. Soc. 1865, p. 635. de Nicéville, Butt. of India, etc. ii. p. 272, pl. 22, fig. 100, ♂ (1886). *Haridra Dolon*, Butler, Annals of Nat. Hist. 1885, p. 306.

IMAGO.—Male and female. Upperside pale olivescens-yellow. *Forewing* with

the costa, a streak at end of the cell, and the apical border broadly decreasing to the posterior angle, purpurescent-black; the outer border traversed by a submarginal row of pale olivescient-yellow decreasing spots. *Hindwing* with a submarginal narrow band composed of bluish-white lunular spots, each surrounded by black and inwardly-traversed by a slender bluish-white line; the extreme marginal edge, including the two slender tails and the ends of the veins, black, diffused inwardly with bluish-grey. *Body* dark purpurescent-brown; palpi brown above, white beneath; vertex and collar white-spotted; forelegs brown, fore tarsus white; middle and hind femora brown above, white beneath, tibiæ and tarsi white; antennæ black; eyes reddish. *Underside*. Both wings pearly-white; the costa of forewing to near the tip, a narrow recurved subbasal band, an excurved submarginal band, and an extreme marginal band olivescient brownish-ochreous, brightest on the hindwing; the subbasal band anteriorly-edged with a slender black broken line, the submarginal band outwardly edged on the forewing by a broken black lunular line, and on the hindwing traversed by a row of narrow black-edged lunules, followed by an outer row of small black spots.

Expanse, $3\frac{1}{2}$ to $3\frac{3}{4}$ inches.

HABITAT.—Western and Eastern Himalayas; Assam.

DISTRIBUTION.—In Butt. Ind. ii. 273 Mr. de Nicéville records “two specimens taken in Kulu by Mr. A. Graham Young.” The late General G. Ramsay took it in Nepal. According to Mr. de Nicéville this species is “apparently single-brooded, and in Sikkim occurs at low elevations only in April and May. I have only seen one female of this species, taken by Mr. G. C. Dudgeon in Bhotan on 2nd May, 1892” (Sikkim Gazetteer, 1894, 147). It also occurs in Assam, Cachar, Sylhet, and Upper Tenasserim. Mr. Tucker, of the Rangoon Police, took it at Tavoy in December, and Capt. Bingham in Thoungyeen Vailey in February. It is also found in the Malay Peninsula, Sumatra, and Borneo.

MURWAREDA EUDAMIPPUS (Plate 189, figs. 2, 2a ♂).

Charaxes Eudamippus, Doubleday, Ann. Soc. Ent. France, 1843, p. 218, pl. 8. Butler, Proc. Zool. Soc., 1865, p. 635. de Nicéville, Butt. of India, etc., ii. p. 273 1886.

IMAGO.—Male and female. *Upperside*. Both wings pale olivescient-yellow. *Forewing* with the costa including more or less the upper-half of the cell, and a broad bar at its end, the apex widely and the outer margin broadly, deep purpurescent-black; also a short continuous black streak below the base of the upper median veinlet enclosing a quadrate pale yellow spot beyond the cell; following which are two superposed pale yellow subquadrate spots, a transverse submarginal series of spots, the three upper of which are obconical and the four lower decreasingly

lunular, the last being bluish-tinted and extending to the posterior angle, and then a marginal series of dentate smaller-sized spots. *Hindwing* with a submarginal series of seven decreasing white spots, of which the upper are more or less angularly-conical, and the lower lunular; each of these spots is surrounded by a blue-black border, and each with a pale grey inner-bordering lunule, which is again inwardly-edged more or less by a black line; the extreme outer margin of the wing, including the long, narrow tail at the end of the lower and upper median veinlet, is inwardly-suffused with blue. Underside. Both wings pearly-white. *Forewing* with two superposed black spots within the cell; a short transverse subbasal narrow olivescence-ochreous black-edged band; a transverse submarginal straight narrow olivescence-ochreous band, which is outwardly-edged with a short black incurved line between the veins, the lowest being lunular; followed by a plain marginal olivescence-ochreous band. *Hindwing* with a transverse narrow slightly-incurved subbasal bright olivescence-ochreous band, which is anteriorly-edged on both sides by an interrupted black line; beyond is a submarginal row of black-edged narrow bluish-grey lunules, inwardly-bordered by a narrow olivescence-ochreous band, and outwardly by a row of black dots, followed by a marginal olivescence-ochreous band, which latter, with the tails, is outwardly edged with bluish-grey; a short black streak on the abdominal margin above the lower submarginal lunule. Thorax and abdomen olivescence-yellow, the middle of the thorax tinged with grey; collar, head, palpi, and sides of thorax beneath brown; vertex and sides white spotted; palpi beneath white; pectus, hind part of thorax beneath and abdomen beneath white; fore femora and tibiæ brown, tarsi white; middle and hind femora brown above, tibiæ and tarsi white; middle and hind tarsi with brown bands; eyes reddish; antennæ black.

Expanse, ♂ $3\frac{3}{4}$ to 4, ♀ $4\frac{1}{4}$ to $4\frac{3}{4}$ inches.

HABITAT.—E. Himalayas; Assam; Naga Hills; Burma; Tenasserim.

DISTRIBUTION.—The female of this butterfly is extremely rare. I have seen but two specimens, one being in the Hewitson collection, and the other in Mr. W. Rothschild's, the latter from Sikkim, taken in July by the late Otto Möller. Males are common in all collections. Mr. W. Doherty (J. As. Soc. Beng., 1886, 124) records observing it at Jhulaghat, on the Kali, in Kumaon. We possess specimens from Nepal, Sikkim, Bhotan, and Assam. Mr. de Nicéville records it from Sibsagar, in Upper Assam. "A much commoner species in Sikkim in the spring than *E. Dolon*. Found at low elevations only. It occurs from April to August, according to Mr. O. Möller" (de Nicéville, Sikkim Gazetteer, 1894, 147). It also occurs in the Naga Hills, Upper Burma. It was taken by Mr. R. Roberts, C.E., on the Upper Makong, Shan States. It occurs also in Upper Tenasserim and Tavoy. Major C. H. E. Adamson (List Burm. Butt., p. 20) "took it in Tenasserim and Bhamo in April and August, about decaying

refuse on the banks of streams." Lieut. E. Y. Watson obtained two specimens at Tilin in February (J. Bombay N. H. S. 1891, 41).

MURWAREDA DELPHIS (Plate 190, Figs. 1, 1a ♂).

Charaxes Delphis, Doubleday, Ann. Soc. Ent. France, 1843, p. 217, pl. 7. Butler, Proc. Zool. Soc., 1865, p. 635. Distant, Rhop. Malayana, p. 105, pl. 15, fig. 1., ♂ (1883). de Nicéville, Butt. of India, etc., ii. p. 272 (1886).

Charaxes Concha, Vollenhoven, Tijl. voor Ent. iv. p. 162, pl. 10, figs. 1-3 (1861).

IMAGO.—Male and female. Upperside pale olivescient-yellow. *Forewing* with the base of the costa slightly infuscated; an indistinct slender black streak on upper end of the discocellulars; the whole apical border broadly purpurescent-black; the inner edge of the black border irregularly sinuous, commencing on the costa beyond the cell, curving outward and rapidly decreasing to a narrow lunule above end of the submedian vein; below the apex is an oblique more-or-less lunate white spot. *Hindwing* with a submarginal row of narrow greenish lunules, the three upper of which are disconnected, and with thickly black-spotted edges, the lower lunules being paler, connected, their ends extending to the point of the veins are but slightly black speckled, and show a slender white inner streak. *Body* pale olivescient-yellow; thorax above tinged with grey; collar, head and palpi above dark brown; vertex and sides of collar white spotted; palpi beneath white; legs above blackish; white beneath; fore tarsi white; antennæ black; eyes reddish. Underside olivescient pearly white. *Forewing* with two (occasionally only one) small, superposed, and a larger broken upper black spot within the cell; a lunate black-edged bluish-centred lunule and a slender contiguous streak in front at end of the cell, below which is a larger bluish-centred black-edged round spot between the middle and lower medians, beyond which are two short slender excurved subapical black streaks below the subcostal, followed by a submarginal row of slender bluish-grey speckled lunules, and a parallel row of small rich ochreous dentate spots. *Hindwing* with a large blue-centred black-edged round spot on middle of the costa, a similar small spot below it, but which latter is sometimes absent; a slender black-edged lunate mark at end of the cell, and lower slender black streaks extending to above the anal angle; followed by a submarginal row of bluish-grey lunules, a parallel row of dark rich ochreous spots, and an outer reversed-lunulate pale ochreous fascia, beyond which another row of bluish-grey narrow lunules, and then a marginal row of broader pale ochreous lunate spots.

Expanse, $3\frac{1}{2}$ to 4 inches.

HABITAT.—Assam; Cachar; Sylhet; Upper Tenasserim; Malay Peninsula, etc.

DISTRIBUTION.—Mr. J. Wood-Mason (J. A. S. Bengal, 1887, 426) records a single male in August from Tavoy. Major C. H. E. Adamson (List, p. 20) took it at "Tavoy and Hpapoon in October and November; but was rare." Mr. A. R. H.

Tucker also recently took it in Tavoy. "Capt. C. T. Bingham obtained a male on the Donat range in January, and another in the Thoungyeen forests towards the end of the year, and there are specimens in the Indian Museum, Calcutta, from Sylhet and Moulmain" (Butt. Ind. II., 272).

It also occurs in the Malay Peninsula, Sumatra, and Labuan, Borneo.

CHINESE SPECIES OF MURWAREDA.—*M. Nepenthes* (Char. *Nepenthes*, Grose Smith, Entom. Mo. Mag. 1883, p. 58; *id.* Rhop. Exot. Char. pl. 2, figs. 3, 4. *Habitat.* Siam.—*M. Rothschildi* (Char. *Rothschildi*, Leech, Lep. China, etc., p. 128, pl. 14, fig. 3, ♂ (1891). *Syn.* Char. *Ganymedes*, Leech, Entom. Suppl. p. 30 (1891). *Habitat.* W. China.—*M. Narcæus* (Nymph. *Narcæus*, Hewitson, Exot. Butt. I., *Nymph.* pl. 1, fig. 1, 4 (1854). *Habitat.* N. China.—Chusan Island (Capt. Walker, R.N.). Japan.—*M. Mandarinus* (Char. *Mandarinus* Felder, Reise, Nov. Lep. III. p. 437 (1867). *Habitat.* Shanghai. N. China.—Chusan Island (Capt. Walker, R.N.).—*M. Tibetanus* (Char. *Tibetanus*, Oberthur, Etud. Entom. XV., p. 11, pl. 2, fig. 10 (1891). *Habitat.* E. Tibet.—*M. Menedemus* (Char. *Menedemus*, Oberthur, Etud. Entom. XV., p. 13, pl. 2, fig. 9 (1891). *Habitat.* W. China.—*M. Posidonius* (Char. *Posidonius*, Leech, Entom. Suppl., p. 30 (1891); *id.* Lep. China, etc., p. 127, pl. 14, fig. 4 ♂. *Syn.* Char. *Clitiphon*, Oberthur, Etud. Entom. XV., p. 12, pl. 2, fig. 11. *Habitat.* W. China.

Genus HELCYRA.

Helcyra, Felder, Sitzb. Akad. Wiss. Wien. xl. p. 450 (1860). Neues Lep. pp. 37, 44 (1861). de Nicéville, Butt. of India, etc., ii. p. 45 (1886).

IMAGO.—Male. Wings short, broad. *Forewing* subtriangular; costa arched, apex obtuse, exterior margin slightly oblique, almost even, posterior angle rounded; subcostal vein five branched, first subcostal veinlet emitted at one-fifth before upper end of the cell, second at a short distance beyond the end, third at fully half beyond the end, fourth and fifth at fully half between the third and the apex; upper discocellular very short, slightly bent close to subcostal; the two radials from the angle; cell open; median veinlets wide apart; submedian vein straight. *Hindwing* triangularly-ovate; base of anterior margin much arched; apex rather pointed, exterior margin convex posteriorly, sinuous; precostal vein curved outward; subcostals and radial emitted together from upper end of the cell; the cell open. *Body* robust, thorax hairy; palpi obliquely porrect, compactly scaled, second joint hairy above, apex pointed; fore legs of the male hairy; middle and hind legs scaley; fore legs of the female smooth, fore-tarsus slightly thickened beneath at the apex, the apical joints each with a terminal short spine on each side; eyes naked; antennæ rather long, slender, with a short thick ovate club, which is finely tricarinated on its inner side.

TYPE.—H. Chionippe.

HELICYRA HEMINA (Plate 190, figs. 2, 2a ♂).

Helicyra Hemina, Hewitson, Trans. Ent. Soc., Lond., 1864, p. 245, pl. 15, fig. 1, ♂. de Nicéville, Butt. of India, ii. p. 45, pl. xix. fig. 85, ♂ (1886).

IMAGO.—Male and female. Upperside pale olivescient pearly-white. *Forewing* with a broad purpurescent-black decreasing apical band, the inner edge of which is very irregular and its lower end from the middle median narrow, marked by a slight white lunular streak above the posterior angle; obliquely across the band before the apex are two white spots; two obliquely-superposed black spots at end of the cell, the upper spot small; and between the lower median veinlet and submedian vein is another black spot near the angle. *Hindwing* with a submarginal series of eight smaller black spots, placed in eschelon, three being inwardly disposed anteriorly, two in the middle, and the subanal, followed by a narrow black marginal lunular line and a slender anteciliar line. Underside glossy pearly-white. Both wings with the markings of the upperside indistinctly visible and bluish-tinted. *Forewing* also with a very slightly-defined slender black sinuous line extending from middle of the lower radial to the middle median veinlet. *Hindwing* also with a very slender black sinuous discal line placed before the transverse spots of the upperside, these spots being bluish-tinted, and the third subanal spot being bright yellow with blue and black scaled tip. *Body* white; front of thorax and head grey; palpi above dark brown; antennæ black above, ochreous beneath; legs white; eyes red.

Expanse, $2\frac{1}{2}$ to 3 inches.

HABITAT.—Sikkim; Khasia and Naga Hills; Upper Burma.

DISTRIBUTION.—This beautiful species is rare. Mr. Otto Möller took males in Sikkim in April, May, and September, and a single female at Singla, near Darjiling, 1300 feet, in October, 1884. A male from the Naga Hills is in the British Museum, Calcutta (de Nicéville, Butt. Ind. ii. 45). "A very rare butterfly, which occurs singly in Sikkim during the summer. It is less rare in the Daling division of Darjiling, where it occurs at 4000 feet. Mr. G. C. Dudgeon once took a specimen himself at 3000 feet in Darjiling, and found that it flies very swiftly, which may help to account for its scarcity in collections" (de Nicéville, Sikkim Gazetteer, 1894, 134). Specimens from the Khasia Hills are in Mr. P. Crowley's collection. "Mr. W. Doherty obtained a male in the Naga Hills, and four at the Ruby Mine district, north of Mandalay, Burma, in June" (P. Z. S., 1891, 273).

CHINESE AND MALAYAN HELICYRAS.

Helicyra superba, Leech, Entomologist, 1890, p. 189; Lep. China, etc. p. 152, pl. xx. fig. 2 (1891).

Habitat. W. China.

Helicyra sp.? (Cf. Snellen, Tijds. v. Entom. 1894, p. 78). *Habitat.* Java (Coll. Mus. Leyden).

Helicyra chionippe, Felder, Sitzb. Akad. Wiss. Wien. 1860, p. 450; Neues, Lep. p. 46, pl. 1 (1861).

Habitat. Amboina.

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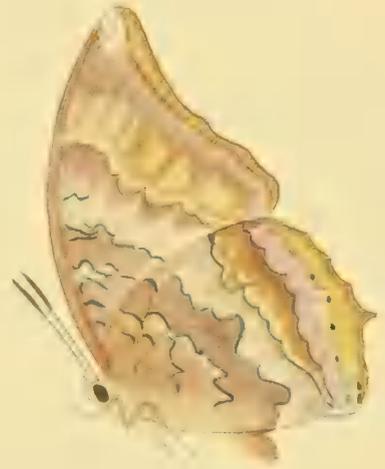
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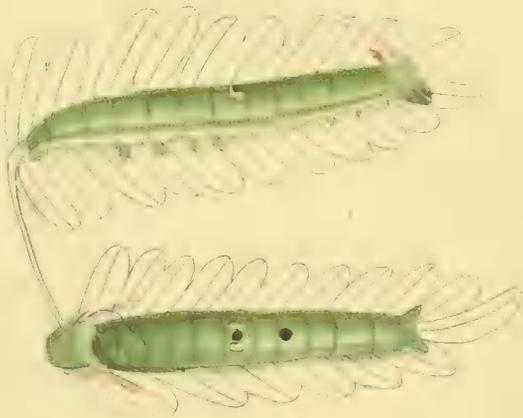
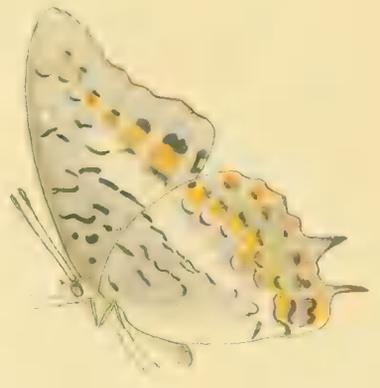
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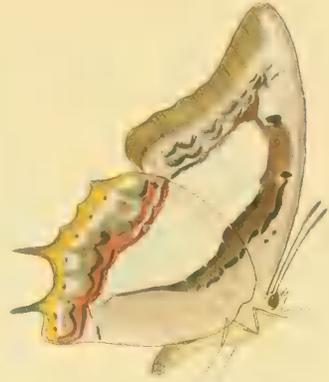
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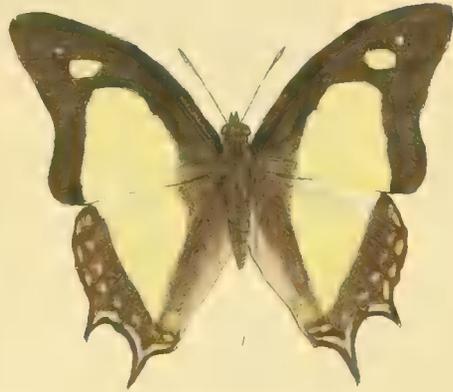
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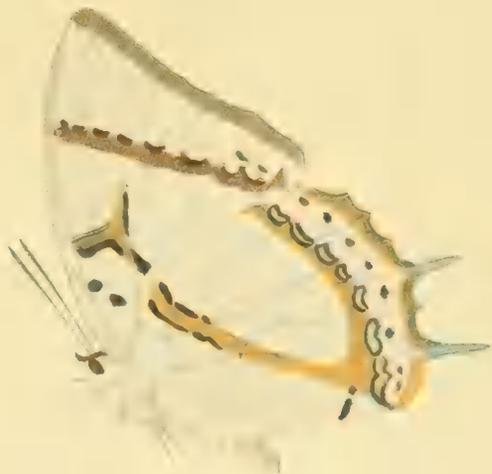
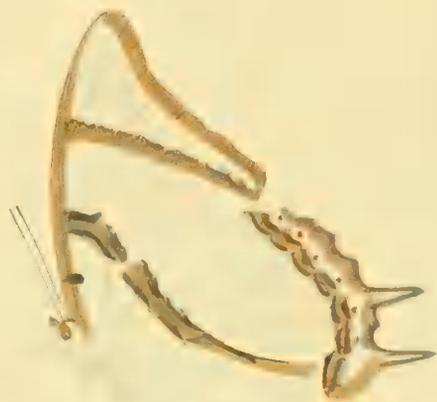
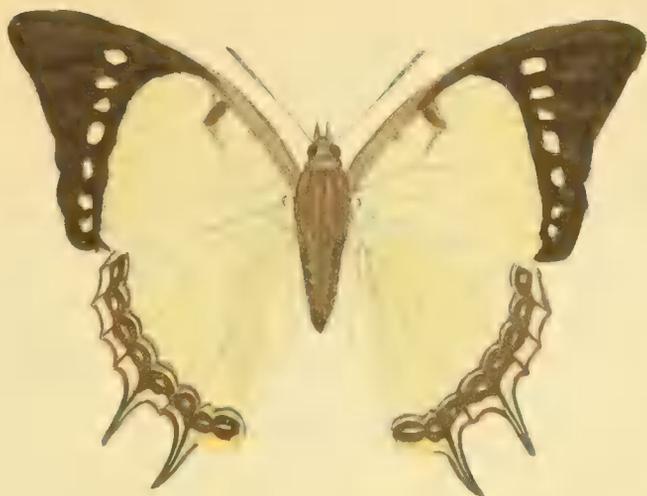


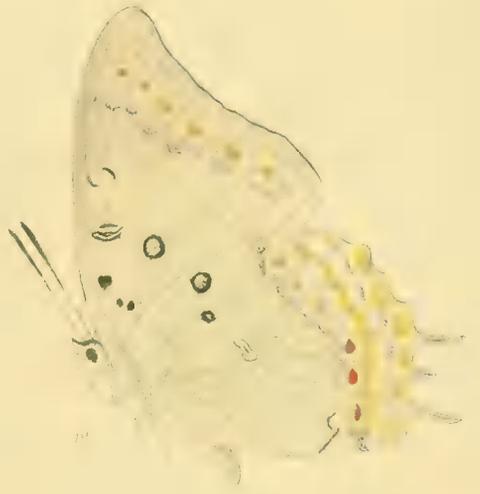












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