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VI. *On the Genera and Species of the Lepidopterous Subfamily Ophiderinæ inhabiting the Indian Region.* By F. MOORE, F.Z.S. etc.

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[PLATES XII.—XIV.]

THE genus *Ophideres* was first characterized in 1832, in the 'Voyage de l'Astrolabe' ("Entom." p. 245), by Dr. Boisduval, who described a single species from Brazil under the name of *O. princeps*. In Guérin's 'Iconogr. Règn. Anim.' ("Ins." pl. lxxxix. f. 1), he further figured a Madagascar species as *O. imperator*, which he redescribed and figured (the male) in 1833, in the 'Faune Entom. Madagasc. Bourb. et Maur.' p. 99, pl. xiv. fig. 3.

In 1852 M. Guenée, in the 'Spec. Gén. des Léop. Noctuelites,' iii. p. 109, recharacterized the genus, including in it and describing all the then known species of the group. This arrangement was followed by Mr. Walker in 1857, in the British-Museum 'Catalogue of Lepidoptera Heterocera,' and has been continued by all subsequent writers.

Having made a recent examination of the several species of this interesting group of Moths, I submit the result in the following pages, treating therein, however, only of the species of the Indian Region. The species being much diversified in the form of the external outline of the fore wings, and also in the shape of the terminal joint of the palpi, as well as exhibiting a dissimilarity in the pattern of markings in the sexes, I have found it necessary to group them under various genera, and to restrict the genus *Ophideres* to its type, namely *O. princeps*. Of six of the species described, figures are here given of the larva and pupa, copied from original drawings made in India by Mr. A. Grote, Sir W. Elliot, and Mr. S. N. Ward, and from others made in Java by the late Dr. Horsfield.

This group of Moths has hitherto been placed by entomologists between the families Catocalidæ and Erebidæ; they have, however, closer affinity to the Ophiuidæ, their larvæ also agreeing better with those of the latter in form. The genus *Lagoptera* is very closely allied to them. I therefore place them, together with the subfamily Phyllodinæ, between the Bendidæ (of which family *Hulodes caranca* is a well-known insect) and the Ophiuidæ.

Genus OTHREIS, Hübner.

Othreis, Hübner, Verz. bek. Schmett. p. 264 (1816).

Corycia, Hübner, ib. p. 265.

Ophideres (part), Guenée, Walker.

Fore wing elongated; costa nearly straight, slightly arched near the end, apex acute; exterior margin oblique and slightly convex hindward, even in the male, scalloped in the female; posterior margin short, with a fringed lobe near base, and slight excavation beyond; costal vein extending to near apex; first and second branches of subcostal at equal distances before end of cell, third starting from the second at a short distance beyond the cell and forked near the apex, fifth anastomosed to third near its juncture with the second, sixth from angle below end of the cell; discocellular very slender, recurved; two upper median branches from angles above lower end of the cell, third from its end, and fourth at one third; submedian bent near the base. Hind wing broad, anterior margin extending beyond angle of fore wing; exterior margin convex, with a slight subanal angle, abdominal margin short; costal vein recurved, extending to apex; subcostal with two branches from end of the cell; discocellular very slender, deeply concave; upper median branches from pointed angles at end of the cell, lower contiguous; three submedians. Body robust, densely clothed above; fore femora and tibiæ thickly pilose beneath, the latter furnished beneath with an elongated, pouched, glandular spur; middle and hind legs less pilose, with spurred tibiæ and spined tarsi; palpi large, long, ascending, second joint clothed with short adpressed hairy scales, third joint slender, long, and with a slight hairy tuft above. Antennæ filiform, long, thickened towards the base.

Larva semilooped, cylindrical, sparsely covered with minute hairs; with sixteen feet, but the first pair of ventrals rudimentary; eleventh segment thickened at the dorsal extremity and surrounded by a tubercular spot. When at rest holds the head up and also the last segments; frequently curling the anterior segments up in front. Changes to pupa in a canopy of growing leaves fixed together and lined with a net-like web; pupa fastened by the tail.

OTHREIS FULLONICA. (Plate XII. figs. 1, 1*a*, larva and pupa; Plate XIII. figs. 1, 1*a*, imago, ♂ ♀.)

Phalena B. fullonica, Linn. Syst. Nat. ii. p. 812 (1767); Clerck, Icones, pl. xlvi. figs. 1-4 (Seba, Ins. t. 42. f. 13, 14?).

Ophideres fullonica, Guen. Noet. iii. p. 111; Walker, Catal. Lep. Het. Brit. Mus. xiii. p. 1222.

Noctua dioscorea, Fabr. Syst. Ent. p. 593, Spec. Ins. ii. p. 212, Mant. Ins. ii. p. 137, Ent. Syst. iii. 2, 16, 26, ♀.

Phal. N. pomona, Cramer, Pap. Exot. 1. pl. 77. f. C, ♀.

Othreis pomona, Hübner, Verz. bek. Schmett. p. 264.

Ophideres cajeta, Walk. Catal. Lep. Het. B. M. xiii. p. 1223 (nec Cramer).

Male. Fore wing dark ferruginous-brown or vinous-brown, numerously covered with either ochreous, dark green, or greyish strigæ, which on the exterior border form irregular fasciæ and terminate in a straight streak to the apex; an ante- and a postmedian oblique transverse darker brown line, the interspace glossy and suffused generally with purple-brown, the reniform mark being more or less unglossed. Hind wing orange-yellow, with a broad black apical marginal band and row of pale yellow cilia spots; a large broad curved black discal band. Thorax, head, palpi, and legs above dark brown; abdomen orange-yellow; legs and abdomen beneath paler; a yellow spot on tibiæ and tarsal joints; palpi black-tipped.

Female. Fore wing brighter-coloured, mottled grey and brown, strigæ paler grey; discal area and fasciæ on exterior border chalybeous-grey; postmedian line irregularly sinuous, with a prominent white dentate spot on its middle and narrow lunules below it; reniform mark triangular, and more or less black; a minute black orbicular spot. Hind wing and body as in male.

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

Hab. India, *N.W. Himalayas* (Masuri, Kussowlic), Lucknow, Umballa, *E. Himalayas* (Darjiling), Cachar, Allipore, *W. and E. Ghats* (Bombay, Malabar, Madras); Ceylon; Andamans; Malay peninsula; Penang; Sumatra; Java; Formosa; Shanghai.

From the above-cited localities (specimens from which have been examined) it will be seen that this species has a very extended range of habitat. Specimens have been also occasionally recorded as having been taken on board ship in the eastern seas, many miles from land. It also occurs at Moreton Bay, Australia; and an allied (or probably the same) species, was taken by Mr. Wallace on Ké Island. Other closely allied species from New Hebrides and Navigators' Islands, and another from Sierra Leone, are in the British-Museum Collection.

This insect is stated to be dreaded by the Australian colonists on account of the mischief the imago causes to the orange plantations—perforating the ripening fruit with its proboscis, and thus causing them to soon fall to the ground and rot.

This insect has been reared by Mr. A. Grote at Allipore, near Calcutta, from larvæ feeding on *Menispermum glabrum*. Sir W. Elliot reared it at Vizagapatam on *Cocculus acuminatus* and *C. cordifolius*; and in Java it was frequently reared by Dr. Horsfield from larvæ feeding on the Tayungan (*Epibatherium*, sp.) and on the Buntia Silit (*Leschenaultia*, sp.) from November to April, being most abundant in the latter month.

Major A. M. Lang, in his Entomological Note-book, gives the following account of the rearing of the larva of this species at Lucknow in 1866:—

“September 8th. Took from the middle of the underside of a leaf of (? *Menispermum*) a solitary, spherical, smooth, unsculptured, translucent, light-yellowish egg, about $\frac{1}{5}$ ” in diameter. Four or five more found on the 13th, all on the underside. On the 11th a

minute Geometriform larva was hatched; it was very active, dropping itself by a silken thread when disturbed; transparent, yellow and blackish in alternate belts, sparsely covered with hairs; fourteen legs (those on 6th segment wanting); head disproportionately large, holding the head up and also the two last segments.

“On the 13th it changed to a shining, translucent green, the anterior and posterior segments very much more pale and yellow, 4^{'''} long; head now the smallest segment, dull pale testaceous, the rest of the segments a pale translucent yellow, which, however, in segments 2 to 9 inclusive, look green—a light bright grass-green—the colour seeming to come from the inside; on the 4th, 5th, 6th, 7th, and 10th segments are pale brown lateral patches; every segment has apparently ten black tubercular spots, each carrying a hair; legs black.

“On the 14th it changed to a velvety black, of the same form and attitude as before; a vermilion spot on each side of the 5th and 6th segments, on the 5th each spot accompanied by an anterior white speck; white lateral markings on 10th and 11th segments.

“On the 17th it changed to a black, with rufous and white ocelli where the vermilion spots were in preceding stage, and several rufous and white specks.

“On the 20th it changed to a most handsome variegated rufous and black, with innumerable lilac, white, and rufous scattered specks.

“On the 25th it spun a leaf loosely across itself, on a bush above ground, and turned into pupa.

“On October 8th the perfect insect (*O. fullonica*) emerged.”

This insect has also been reared at Canara by Mr. S. N. Ward, from whose MS. is the following extract:—“Larva with sixteen feet, but the first pair of ventrals almost obsolete and retractile. Body cylindrical, smooth, and velvety to the touch, but with scattered minute hairs over all the body; 11th segment much thickened at the extremity, falling off abruptly behind, and surmounted by a red currant-like spot. The colour of the larva changes considerably, but is always either pinkish or brownish-purple, or a rich yellow-brown, with dark stripe down the back, a double one on top, and near the bottom of sides; another quite at bottom, and another down middle of belly. On 5th and 6th segments are eye-spots, white, with a tinge of rich yellow above, brown below, and surrounded by a black ring; on 9th and 10th segments is a saddle-like white mark. Head moderate-sized, rather oblong and reddish brown. Changes to pupa between growing leaves, which it knits together with a very tough net-like web, and lines it with one much finer and softer; pupa fastened by the tail, which is furnished with a treble forked bristle in middle with hooks turned outwards, and small bristle on each side hooked inward. Pupa conical, front part rather flattened, and upper part of thorax rather sharper than usual, but not carinated; it is engine-turned all over except articulations, which are soft; they are red; but all the rest is fine shining bronze-colour. Feeds on the Hordee suppo. September and October. Changes in twenty-two days.”

OTHREIS CAJETA. (Plate XIII. figs. 2, 2a, ♂ ♀.)

Phalena Noct. cajeta, Cramer, Pap. Exot. i. p. 48, pl. xxx. f. A B, ♂, C, ♀.

Corycia cajeta, Hübner, Verz. bek. Schmett. p. 265.

Ophideres cajeta, Guenée, Noct. iii. p. 112, ♂ ♀.

Ophideres multiscrita, Walker, Catal. Lep. Het. Brit. Mus. xiii. p. 1226, ♀.

Male. Fore wing dark umber-brown, suffused with greyish fawn-colour externally, greyest at the posterior angle; a few grey strigæ disposed on basal and costal areas, and a basal and subapical cluster of green or cream and dark brown scales; veins alternate pale and black-speckled; an equidistant curved antemedian and a postmedian transverse blackish double line, prominent and pale-centred in some, indistinct in others; a small pale-circled dark orbicular spot, and pale-bordered, dark, elongated, lunular, reniform mark. Hind wing orange-yellow; a black apical marginal band, with row of yellow ciliary spots, and a short, black, curved, discal band. Thorax, head, palpi, and legs above brown, legs with white spots.

Female. Fore wing brownish fawn-colour, numerously covered with black, pale-grey-bordered, speckled strigæ, which are thickly disposed along the costa, and form irregular fasciæ across the disk; posterior angle broadly greyish, above which is a small dentate whitish spot; reniform mark prominent, angled hindward and black-lined; a minute black, pale-circled, orbicular spot. Hind wing and body as in male.

Expanse 3 to 3½ inches.

Hab. S. India (*Malabar and Madras*); Ceylon.

This species has a limited range, the specimens under examination having been either from South India or Ceylon. It is very rare. A single specimen is in the Banksian Cabinet in the British Museum; but there are none in the General Cabinet.

“Larva feeds on the Muttee (*Terminalia*, sp.). Found in September. Makes a slight web within a canopy of living leaves. Pupa plum-colour, with a thick bloom or powder which comes off when touched; front part smooth, top of thorax rounded; the three first segments of thorax very much humped, the succeeding ones decreasing in size like steps; extremity blunt and rounded, with several hooked bristles disposed like a bow-string.” (*S. N. Ward, MS. Notes.*)

OTHREIS ANCILLA. (Plate XII. figs. 2, 2a, larva and pupa; Plate XIII. figs. 3, 3a, imago ♂ ♀.)

Phalena Noct. ancilla, Cramer, Pap. Exot. ii. p. 84, pl. cxlix. f. F (1779), ♀.

Ophideres ancilla, Guenée, Noct. iii. p. 114, ♀; Walker, Catal. Lep. Het. Brit. Mus. xiii. p. 1224, ♀.

Phalena strigata, Donovan, Ins. Ind. pl. liv. (1800), ♀.

Othreis homaëna, Hübner, Verz. bek. Schmett. p. 264.

Ophideres bilineosa, Walker, Catal. Lep. Het. Brit. Mus. xiii. p. 1227 (1857), ♂.

Male. Fore wing deep ferruginous-brown, with numerous darker brown strigæ; crossed by indistinct greenish-brown fasciæ, which are bordered with glaucous-grey or purple; a subbasal, an antemedian, and a postmedian transverse oblique black line; a brown-bordered reniform mark. Hind wing orange-yellow; marginal black band attenuated hindward, ciliary spots yellow; a short black bilobed discal band. Thorax, head, palpi, fore and middle legs deep ferruginous-brown; abdomen and hind legs orange-yellow.

Female. Fore wing dark purple-brown, strigæ darker, transverse fasciæ glaucous-purple, postmedian transverse oblique black line sinuous hindward, a broad longitudinal irregular green band extending below the cell from near base to beyond postmedian line; reniform mark partly green. Other parts as in male.

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

Hab. India (*Allahabad, Bombay, Canara, Nilgiris, Darjiling*); Ceylon.

“Larva half-looper; sixteen legs, the first ventral pair being so slightly developed as to be useless for the purpose of progression; cylindrical, the 11th segment raised, and the apex surmounted by a single blunt red tubercle raised above the skin, behind which the body slopes abruptly down towards the anal legs; spiracles oval and black. General colour dusky purplish-brown, dotted with numerous minute cobalt-blue spots regularly arranged, and with large yellow oval patches on the 4th, 5th, and 6th segments, those on the sides of the 5th and 6th being in the shape of ocelli, the iris yellow, pupil azure blue, surrounded by black; the 9th and 10th segments also patched with yellow irregularly more or less. Changes to pupa beneath a canopy of living leaves fastened firmly together and thinly lined with a bed of silk; pupa fastened by the tail; of an orange-colour, beautifully burnished and rough like shagreen; the lower part of the thorax is much compressed, in fact quite sharp. Found during June, July, and August and sparingly in October and November below the Ghats, and in July and August above the Ghats.” (*S. N. Ward, MS. Notes.*)

Has been reared by Dr. Thwaites, in Ceylon, from larva feeding on *Menispermum*; Mr. S. N. Ward reared the larva, in Canara, upon *Cocculus villosus*.

OTHREIS SMARAGDIPICTA.

Ophideres smaragdipicta, Walker, Cat. Lep. Het. Brit. Mus. xiii. p. 1229 (1857), ♀.

Female. Fore wing deep ferruginous-brown, with a purplish tinge, varied with black strigæ, which are darkest and thickly confluent on the costa and disk; an irregular-shaped longitudinal bright green band extending from the base below the cell, its broad basal centre being brown; some green strigæ along the costa, and a thick cluster below the apex and along exterior border. Hind wing orange-yellow, marginal black band broad, extending paler along the costa and suffusing the base; a short black bilobed

discal band. Thorax, head, palpi, fore legs in front, and tarsi beneath dark ferruginous-brown, thorax grey-speckled; abdomen above orange-yellow, beneath blackish.

Expanse 3 inches.

Hab. Borneo. In coll. British Museum.

KHADIRA, n. gen.

Differs from *Othreis* in the fore wing having a decided falcate apex, the hind margin with shorter and more deeply excavated space between the angles; the hind wing also shorter; the palpi having the third joint slender and not tufted at the apex, the second joint also being more slender; fore tibiæ less tufted, and tarsi more spinous.

KHADIRA AURANTIA. (Plate XIII. fig. 4.)

Ophideres aurantia, Moore, Proc. Zool. Soc. 1877, p. 607.

Male. Fore wing dark ochrey-red, with numerous short transverse grey strigæ, veins alternate grey- and black-speckled; a narrow black oblique band from apex to middle of excavation on hind margin; the oblique band, two inner and two outer transverse dusky fasciæ bordered inwardly with purple-grey: hind wing pale orange-yellow, with a black, short, curved, narrow submarginal band, and broader, short, constricted discal band. Thorax, head, palpi, fore legs in front, and antennæ ochrey-red; abdomen pale orange-yellow. Underside orange-yellow; fore wing with a dusky patch at the apex, and two blackish short curved oblique discal streaks above posterior angle; hind wing with a short black discal spot and an indistinct dusky outer fasciæ.

Expanse 4 inches.

Hab. South Andamans. In coll. British Museum.

ADRIS, n. gen.

Fore wing: costa arched beyond the middle, convex at the end, the apex being produced into a lengthened point; exterior margin very oblique, convex, the angle very acute; posterior margin very short in the male, lobe much produced, excavation beyond short. Hind wing prolonged anteriorly, the exterior margin slightly concave below the apex; veins similar to those in *Othreis*. Palpi larger and stouter than in the other genus, more laxly clothed, the third joint with a large, flattened, dense tuft above. Fore tibiæ in male more densely clothed with longer lateral hairs.

Type *A. tyrannus*.

ADRIS TYRANNUS. (Plate XIII. fig. 5, ♂.)

Ophideres tyrannus, Guenée, Noct. iii. p. 110 (1852); Walker, Catal. Lep. Het. Brit. Mus. xiii. p. 1224.

Male. Fore wing dark ochreous-brown, with indistinct darker transverse sinuous fasciæ bordered with chalybeous purple; sparsely covered with dark red-brown delicate

transverse strigæ; veins black-speckled; a narrow blackish antemedian line and an oblique postmedian line from the apex, each with paler inner border, the latter also bordered externally at the apical end with green speckles; a small black orbicular spot, and distinct green-speckled reniform mark; a small black subbasal spot and cluster of green speckles. Hind wing ochreous-yellow, the base tinged with brown; a narrow curved black submarginal band (entirely separated from the outer margin), and a short broader bilobed discal band. Thorax, head, palpi, and legs above dark ochreous-brown, abdomen ochreous-yellow.

Female. Fore wing ochreous-green, numerous covered with red-brown delicate strigæ, transverse lines red-brown; some greyish-speckled spots towards the apex and on the disk, and a similarly coloured marginal patch from posterior angle. Hind wing and body as in male.

Expanse 4 inches.

Hab. India (*Simla, Darjiling, Bombay*); China (*Shanghai*); Japan.

“Taken in forests at Simla; disturbed from the thickets in broad daylight it dashes off very suddenly and swiftly with a blind headlong flight, like a frightened owl.” (*Major A. M. Lang, MS. Notes.*)

ADRIS RUTILUS, n. sp.

Male. Fore wing ferruginous, crossed by darker wavy greyish-bordered fasciæ; an indistinct antemedian transverse line and a prominent postmedian oblique black line; a cluster of green speckles near the base, another on reniform mark, and a few along outer border of the oblique line. Hind wing orange-yellow, an elongated narrow curved black submarginal band, and a small short black lobate discal spot. Thorax, head, palpi, and fore legs in front ferruginous; abdomen above and beneath, and legs yellow.

Expanse $3\frac{1}{4}$ inches.

Hab. Ceylon. In coll. Dr. Thwaites and F. Moore.

“Larva feeds on Menispermaceæ.” (*Dr. Thwaites, MS. Note.*)

PURBIA, n. gen.

Both sexes with shorter wings; fore wings broad, the exterior margin straight below the apex, oblique, even, lobe of hind margin very broad, more so than in any other of the group, the excavation being also very concave. Palpi similar to those in *A. tyrannus*, but the second joint broad at its apex; fore tibiæ very densely tufted.

PURBIA DISCREPANS. (Plate XIV. fig. 1, ♂.)

Ophideres discrepans, Walker, Catal. Lep. Het. Brit. Mus. xiii. p. 1227 (1857), ♂.

Ophideres archon, Fekler, Reise der Novara, Lep. pl. cxiii. f. 3 (1873-4), ♀.

Male. Fore wing pale purplish-brown or fawn-colour, with a few black speckles along the costa and on the veins; crossed by three very indistinct and incomplete narrow brown bands, the outer sinuously recurved and bordered externally by clusters of greenish scales; an indistinct greenish subbasal spot and a green-speckled reniform mark. Hind wing orange-yellow, with broad black apical marginal band, the row of cilia spots and apical angle being white; a short broad curved black discal band. Thorax, head, palpi, and legs purplish brown; abdomen orange-yellow.

Female. Differs in having a narrow white reniform mark, and two short linear white spots on middle of the disk.

Expanse 3 to $3\frac{3}{4}$ inches.

Hab. India (*Malabar*); Siam; Singapore; Java.

MENAS, Hübner.

Menas, Hübner, Verz. bek. Schmett. p. 264 (1816).

Ophideres (part), Guenée, Walker.

Fore wing elongated, trigonal; costa slightly arched towards the end, apex acute; exterior margin oblique, straight; posterior margin long, with a tufted angle near base; slightly curved to the end. Palpi short, compactly clothed with short scales; apical joint small, very short, and conical. Larva similar in form to that of *Othreis*.

MENAS SALAMINIA. (Plate XII. figs. 3, 3*a*, 3*b*, larva and pupa; Plate XIV. fig. 2, imago.)

Phalena Noct. salaminia, Cramer, Pap. Exot. ii. p. 117, pl. clxxiv. f. A (1779); Clerck, Icones, pl. xlviii. f. 5, 6.

Noctua salaminia, Fabr. Ent. Syst. iii. 2, p. 17 (1793).

Menas salaminia, Hübner, Verz. bek. Schmett. p. 264.

Ophideres salaminia, Guenée, Noct. iii. p. 115; Walker, Catal. Lep. Het. B. M. xiii. p. 1225.

Male and Female. Fore wing dark green with golden reflections; a broad purplish-grey costal band extending from near base of hind margin to the apex, and a narrow similar band on exterior border, the costal band with numerous short green and ochreous transverse strigæ, which are confluent along the costal border, the exterior band with paler purplish-green inner border; a distinct red line along the discal portion of the lower median vein. Hind wing orange-yellow, with a black apical marginal band and yellow cilia spots, and a short black bilobed discal band. Thorax, head, palpi, and front of fore legs ochreous-green; abdomen and legs orange-yellow.

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

VOL. XI.—PART III. No. 2.—*March*, 1881.

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Hab. India (*Kussowlie, Darjiling, Khasias, Calcutta, Nilgiris, Madras*); Ceylon; Singapore; Java; Formosa; Shanghai; Japan.

A widely distributed species, which has also been taken at sea in north of Bay of Bengal in October. A specimen from Australia is in the British-Museum collection.

Larva reared on *Menispermum glabrum* at Allipore, by Mr. A. Grote. In Ceylon the larva is also found on the same plant. Dr. Horsfield reared it in Java during February and March from larva feeding on a species of *Cissus*.

VANDANA, n. gen.

Fore wing less angular in form than in *Monas salamina*, the costal border more arched, and the hind wing with a greater width of lobe at the base; second joint of the palpi longer, and the third joint very long and slender.

VANDANA DIVIDENS.

Ophideres dividens, Walker, Catal. Lep. Het. Brit. Mus. xiii. p. 1228 (1857), ♀.

Female. Fore wing pale fawn-colour, greenish and darkest along the costa, and with a slight rosy tinge, base tinged with pale olive-green; crossed by a dark sap-green oblique band, which is attenuated at the apex and dilating in width to posterior margin, the inner border of the band even, and the outer border irregular hindward; reniform mark black, elongated longitudinally, angled at the lower end of the cell, and divided by a pale line along the discocellular vein; a pale sap-green narrow fascia outside the oblique band. Hind wing orange-yellow, marginal black band broad, with small yellow cilia spots; short black bilobed discal band also broad. Thorax, head, palpi, legs, and body beneath brownish fawn-colour; abdomen above orange-yellow. Underside: fore wing brown, with an oblique medial band, and base of hind margin only yellow; hind wing with the marginal brown band extending broadly along the costa to the base.

Expanse $3\frac{3}{4}$ inches.

Hab. Java. In Coll. British Museum.

RHYTIA, Hübner.

Rhytia, Hübner, Verz. bek. Schmett. p. 264 (1816).

Ophideres (part), Guenée, Walker.

Fore wing in male and female with the exterior margin even, and angled outward in the middle; palpi very long, the third joint with broad clavate tufted tip. Larva similar in form to that of *Othreis*, but with slight dorsal protuberance on the 5th, 6th, 7th and 11th segments.

RHYTIA COCALE. (Plate XII. figs. 5, 5*a*, larva and pupa; Plate XIV. figs. 5, 5*a*, imago ♂ ♀.)

Phal. Noct. cocalus, Cramer, Pap. Exot. ii. p. 59, pl. cxxxiv. f. B (1779), ♂.

Rhytia cocale, Hübner, Verz. bek. Schmett. p. 264.

Ophideres cocalus, Guenée, Noct. iii. p. 115, ♂.

Noctua maculata, Weber, Observat. Entom. p. 111 (1801), ♀.

Ophideres plana, Walker, Catal. Lep. Het. Brit. Mus. xiii. p. 1226, ♂.

Male. Fore wing ochreous green, numerous covered with slender black transverse strigæ, those across the disk and on exterior margin grey-bordered; crossed by a curved antemedial and an oblique postmedial black line, both with chalybeous-grey inner border; reniform mark indistinct; hind wing orange-yellow, with broad black marginal band and small white ciliary spots and narrow streak at apex. Thorax, head, palpi, and legs in front ochreous-green, palpi with a lateral linear grey streak; abdomen and legs above orange-yellow, beneath greyish.

Female. Darker ochreous green, with a cluster of creamy-white spots on the discocellular area, another series below the cell, a large patch at the posterior angle, and a slender linear broken spot below the apex; hind wing and body as in male.

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

Hab. India (*Coromandel, Sillhet*); Java.

This species has a similar pattern of markings to *R. hypermnestra*, but may easily be distinguished from it by the absence in the hind wing, in both sexes, of the two black discal spots, and in the black marginal band extending to the anal angle, the inner border of which is much less irregularly sinuous, and the row of ciliary spots also are much smaller; the fore wing in the male has the two transverse lines more curved, and the clusters of spots in the female are more confluent. It has been reared in Java by Dr. Horsfield from larva feeding on a species of *Epibathrium*.

† RHYTIA HYPERMNESTRA. (Plate XII. fig. 6, larva; Plate XIV. figs. 4, 4*a*, imago ♂ ♀.)

Phalena Noct. hypermnestra, Cramer, Pap. Exot. iv. pl. cccxiii. f. A, B (1782).

Rhytia hypermnestra, Hübner, Verz. bek. Schmett. p. 264.

Ophideres hypermnestra, Guenée, Noct. iii. p. 116; Walker, Catal. Het. Brit. Mus. xiii. p. 1225.

Male. Fore wing ochreous-green, numerous covered with slender blackish transverse strigæ; crossed by a distinct antemedial and an oblique postmedian brown line; an indistinct dusky brown suffused reniform mark; a curved grey streak below the apex, and grey strigæ above posterior angle; transverse lines with chalybeous-grey inner border. Hind wing orange-yellow, with broad marginal black band, white ciliary row of spots and apical angle; and two small black discal spots, the upper one oval, the lower recurved. Thorax, head, palpi, and fore legs in front ochreous-green, palpi

with a lateral linear grey streak; abdomen and legs above orange-yellow, beneath grey.

Female. Fore wing darker green, with a series of creamy-white spots on the discocellular area, another series below the cell, a large patch at the posterior angle, and two small slender spots below the apex, all partially crossed by slender brown strigæ.

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

Hab. India (*Bombay, Canara, Nilgiris, Darjiling, Khasia*); Burmah (*Moulmein*); Andamans; Ceylon.

"Larva semilooper, cylindrical, elongated, slightly humped on the 4th, 5th, 6th, and 11th segments. Legs fourteen, with a rudimentary pair on 6th segment. Colour dusky purplish-brown, blotched with very dark brown, and spotted with minute dots of cobalt-blue; on each side of 5th and 6th segments is a large ocellus, the iris bright yellow in front and vermilion behind, pupil purplish-brown, with a crescent of cobalt-blue, and with a centre which is considerably darker than the rest; besides these the body is extensively marked with black and yellow patches of different shapes. Changes occupy twenty-six days." (*S. N. Ward, M.S. Notes, Canara.*)

ARGADESA. n. gen.

Ophideres (part), Guenée, Walker.

Fore wing in male and female with the exterior margin oblique and scalloped throughout its length; palpi shorter, and the third joint slender. Larva similar in form to that of *Othreis*.

ARGADESA MATERNA. (Plate XII. figs. 4, 4 *a, b, c, d*, larva and pupa; Plate XIV. fig. 3, 3 *a*, imago, ♂ ♀.)

Phalæna Noct. materna, Linnæus, Syst. Nat. ii. p. 810; Drury, Ins. ii. p. 21, pl. xiii. f. 4; Cramer, Pap. Exot. ii. pl. 174. f. B; iii. pl. 267. f. E.

Noctua materna, Fabr. Spec. Ins. ii. p. 212; Mant. Ins. ii. p. 137; Ent. Syst. iii. 2, p. 16.

Rhytia materna, Hübner, Verz. bck. Schmett. p. 264.

Triphaena materna, Westwood, Nat. Libr. xxxvii. Exotic Moths, p. 201, pl. xxv. fig. 2.

Ophideres materna, Boisduval, Faun. Ent. Madag. Bourb. et Manr. Léop. p. 100; Guenée, Noct. iii. p. 113; Walker, Catal. Lep. Het. Brit. Mus. xiii. p. 1221.

Noctua hybrida, Fabricius, Syst. Ent. p. 593.

Male. Fore wing greenish-grey, covered with greenish-brown or purple-brown transverse confluent strigæ; a short curved dark brown antemedian costal line and a distinct oblique postmedian line; between the lines are three purple-glossed, plumbeous, longitudinal streaks, the upper short and near the costa, the next from lower angle of the cell, the third below the cell; reniform mark trilobed, purple-black; a narrow grey streak curving below the apex and spreading irregularly to the posterior angle. Hind

wing orange-yellow, with a narrow black marginal band and prominent white cilia spots; a single small black discal spot. Thorax greenish grey, head and palpi above brown, palpi black-tipped; fore legs brownish above; abdomen and legs orange-yellow.

Female with darker and more prominent strigæ, the three longitudinal discal streaks much larger, broader, contiguous, purple-glossed, and narrowly divided and bordered with white; hind wing and body as in male.

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

Hab. India (*Kussowlie, Lucknow, Allahabad, Kutch, Kattywar, Bombay, Canara, Madras, Calcutta, Balasore*); Ceylon; Java.

This insect has also been taken in the island of Madagascar. A specimen from Abyssinia, collected by Mr. Jesse, and another from Gambia are in the collection of the British Museum. It has also been taken at sea in the north of the Bay of Bengal.

“Larva, after last change, $2\frac{1}{2}$ inches long; half Geometrous, long, cylindrical, stout, with the penultimate segment much elevated, and the anterior ones strong; ground-colour red-brown, darker at the hinder and foremost segments, more of an olive-brown in the middle; dorsal line well defined and bistre-colour, on either side of which a similar line, bearing on 5th and 6th segments a splendid ‘ocellus,’ the upper part of which is primrose, with the lower half purplish brown, with a lilac pupil; sides and middle of back variegated irregularly with lilac and yellow spots and yellow fascia; on penultimate segment a coral-coloured protuberance, spotted with lilac here and there, with on either side a broad yellow fascia; abdomen lighter than back, with a dark ventral line; legs all red-brown, tipped with black; anal legs very long; head dark coral-colour; stigmata violet.

“In state of repose it curls the head and 4th and 5th segments right under the body, forming a circle.

“Turned into pupa 28th Sept., between the leaves. Imago came out 7th October. Period on the wing Sept., Oct.; Lucknow.” (*Capt. H. L. De la Chaumette, MS. note, 1860.*)

Mr. S. N. Ward, in his MS. notes on the Lepidoptera of Canara, says the “larva feeds on the Amoordah Beeloo, changing to pupa among the leaves, which are fastened together with coarse yellow threads, the changes occupying fifteen days. Found from September to December.”

Larva reared on *Menispermum glabrum* at Allipore, by Mr. A. Grote. Sir W. Elliot reared it on *Cocculus cordifolius*; and in Java Dr. Horsfield reared the larva on both *Leschenaultia* and *Epibatherium*.

DESCRIPTION OF THE PLATES.

PLATE XII.

- Fig. 1. *Othreis fullonica*, larva (Allipore, *A. Grote*), p. 64.
 Fig. 1a. „ „ pupa (Java, *Horsfield*), p. 64.
 Fig. 2, 2a. *Othreis ancilla*, larva and pupa (Canara, *Ward*), p. 67.
 Fig. 3. *Marnas salamina*, larva (Allipore, *A. Grote*), p. 71.
 Fig. 3a, b. „ „ larva and pupa (Java, *Horsfield*), p. 71.
 Fig. 4, 4a. *Argadesa materna*, larva (Vizagapatam, *Elliot*), p. 74.
 Fig. 4, b, c, d. „ „ larva and pupa (Allipore, *A. Grote*), p. 74.
 Fig. 5, 5a. *Rhytia cocale*, larva and pupa (Java, *Horsfield*), p. 73.
 Fig. 6. „ *hypermnestra*, larva (Canara, *Ward*), p. 73.

PLATE XIII.

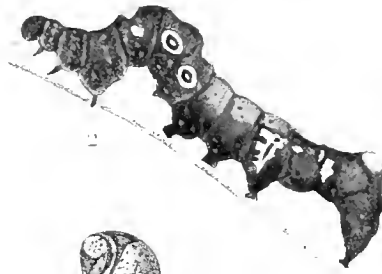
- Fig. 1. *Othreis fullonica* ♂; fig. 1a, ♀: p. 64. Fig. 4. *Khadira aurantia*, p. 69.
 Fig. 2. „ *cajeta* ♂; fig. 2a, ♀: p. 67. Fig. 5. *Adris tyrannus* ♂, p. 69.
 Fig. 3. „ *ancilla* ♂ fig. 3a, ♀: p. 67.

PLATE XIV.

- Fig. 1. *Purbia discrepans* ♂, p. 71. Fig. 4. *Rhytia hypermnestra* ♂; fig. 4a, ♀: p. 73.
 Fig. 2. *Marnas salamina*, p. 71. Fig. 5. „ *cocale* ♂; fig. 5a, ♀: p. 73.
 Fig. 3. *Argadesa materna* ♂; fig. 3a, ♀: p. 74.



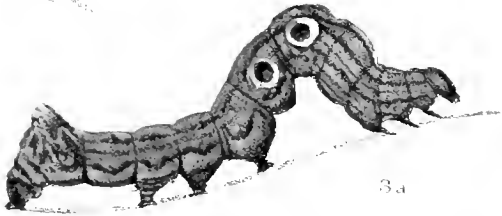
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2



1



3a



2a



4b



1a



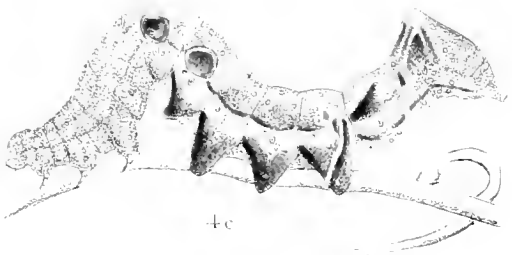
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4c



4



4e



4d



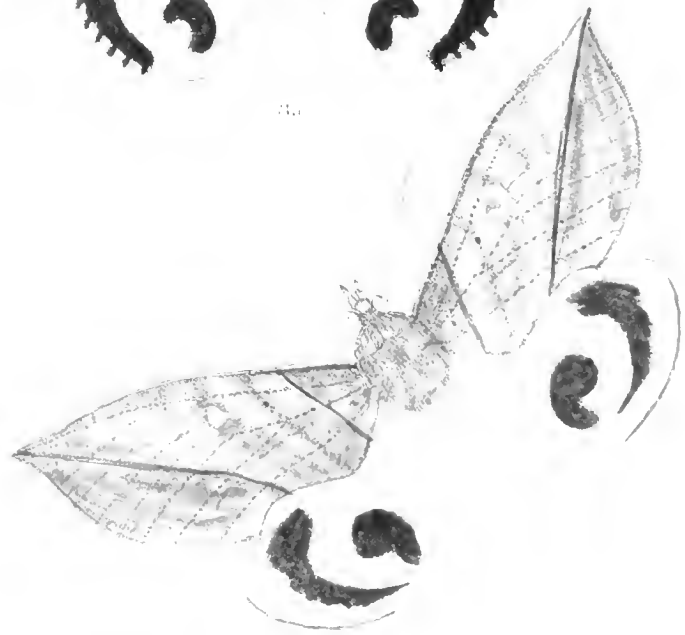
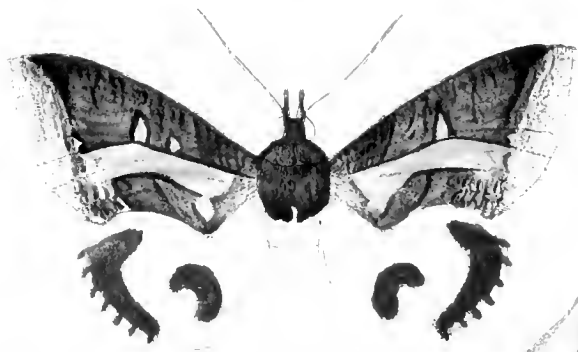
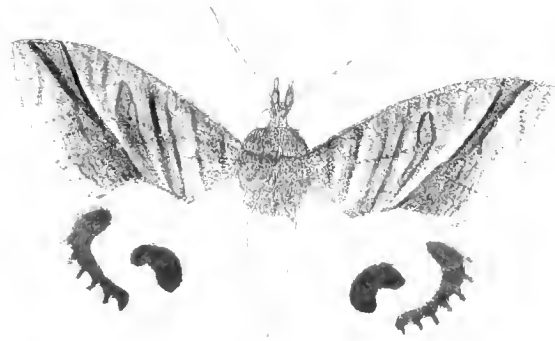
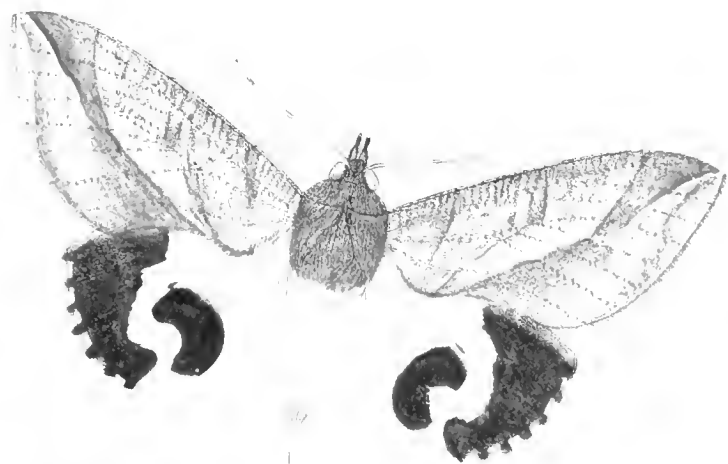
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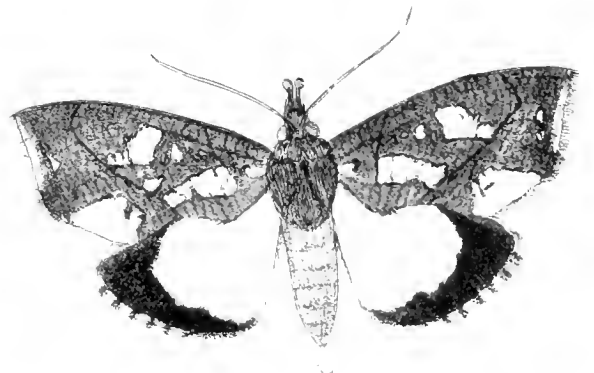
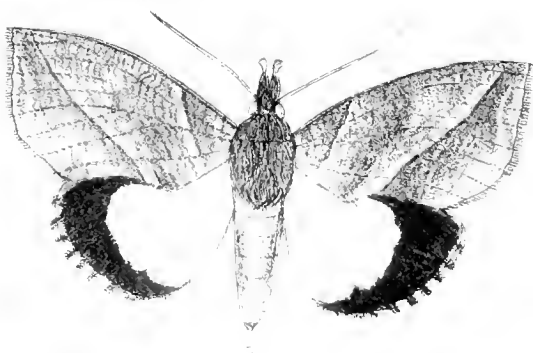
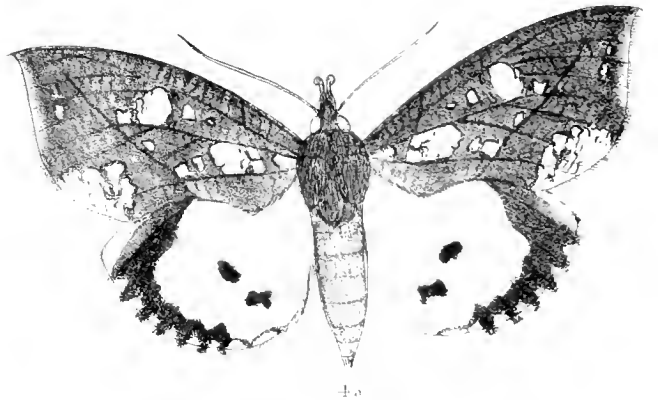
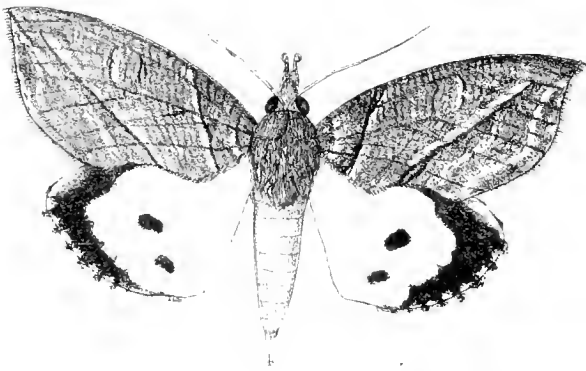
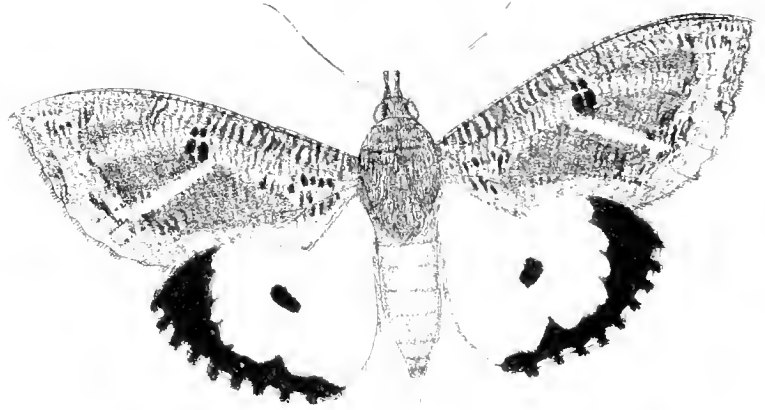
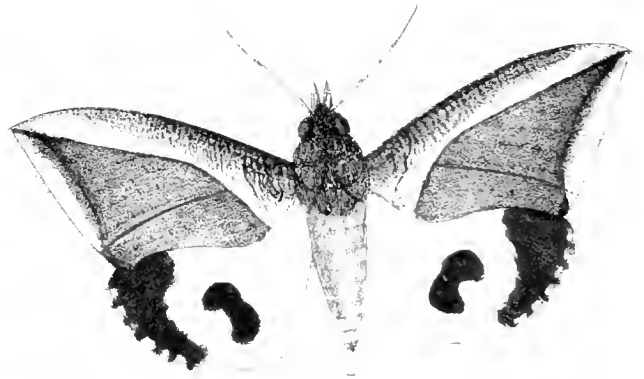
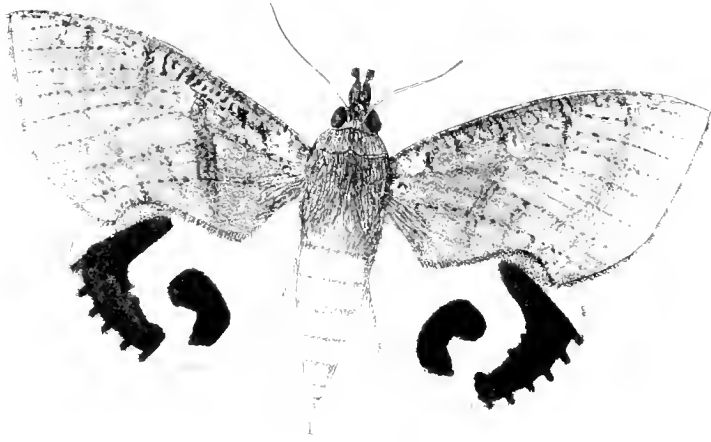


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