distal end of the fingers in the three specimens in the Museum collection, which are males. The upper finger (or dactylus) is, in all three, more curved and a little shorter than the lower. Besides the specimen from Samangkabaai, the examples in the Museum are from Rodriguez and the Samoa Islands.

Palæmon lepidactylus, Hilgendorf.

A small male in the collection, without definite locality, I refer, with some hesitation, to this species. The rostral formula ($\frac{11}{2}$) and the form and proportional length of the joints of the larger leg of the second pair agree exactly with the description and figure of Hilgendorf (Monatsber. Akad. Berlin, p. 838, pl. iv. figs. 14–16, 1878). The hairs on the inner margins of the fingers of the smaller hand, however, are few and scanty, like those of the larger hand. The granules with which the surface of the joints of both limbs are covered are small, and only on the inner margin of each limb are developed into small spines.

The specimen is of small size, and probably does not present the fully adult characteristics.

Besides the above, there are in the collection three examples of *Palæmon* from Java, which may belong to a new and distinct species. In all, however, one or other of the large limbs of the second pair are wanting; and none, probably, of the specimens present the characters of the fully adult. I will therefore leave them undescribed for the present. They differ from *P. grandimanus*, Randall, in the form of the larger chela (which is not so greatly dilated and compressed, with the fingers meeting along their inner edges when closed), from *P. javanicus*, Heller, in the much shorter carpus of the second legs (which is much shorter than the palm), and from *P. latimanus*, Von Martens, in the more numerous teeth of the rostrum.

[To be continued.]

XXXVI.—*On a Collection of Lepidoptera from Madagascar, with Descriptions of new Genera and Species.* By ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

[Continued from p. 344.]

Liparidæ.

XANTHODURA, gen. nov.

Form of the eastern genus *Dura*, but more nearly allied to *Orgyia*. The antennæ very small; body very short. Prima-

ries with the costal vein extending to second third of costa; discoidal cell extremely short, not extending to the middle of wing; subcostal four-branched, all the branches emitted at some distance beyond the cell, the last, moreover, from below the main vein; both radials emitted close together from the upper extremity of the cell; discocellular inarched, second and third branches emitted near together. Secondaries much elongated and sublobate in the middle of outer margin between second and third median branches; cell very short, as in primaries; costal and subcostal veins emitted from a curved basal pedicle; subcostal emitting its two branches from a short footstalk just beyond the cell, radial emitted from the superior extremity of the cell; discocellular slightly inarched, second and third median branches emitted close together from the inferior extremity of the cell. Type *X. trucidata*.

39. *Xanthodura trucidata*, sp. n.

Orange; primaries with the apical third, including the external border, chocolate-brown, its inner margin, terminating in a patch at external angle, dark blood-red: secondaries with a blood-red apical patch; fringe at apex dark brown; head and collar ferruginous, with white borders; antennæ black. Wings below orange; primaries with the apical third chocolate-brown; secondaries with a chocolate-brown apical patch: body below cream-coloured. Expanse of wings 1 inch.

LECHRIOLEPIS, gen. nov.

♀. Aspect of *Chærotriche*, but the antennæ serrate instead of pectinate, the anal tuft enormously developed, considerably more so even than in *Anaphe*; neuration entirely different. Primaries with the subcostal area partially bare in the middle, the scales upon it being placed edgewise and transversely; these scales are very thick, corneous, and curved, some of them being considerably more elongated than the others, and all of them being fringed or finely serrate at the distal extremity; costal vein nearly extending to apex; subcostal six-branched, the first four branches being emitted before the end of the cell, the second and third from a long footstalk, the fifth and sixth branches from a short footstalk at the superior angle of the cell, the sixth branch representing the upper radial; discocellular extremely fine, very oblique, and distinctly angulated; median vein four-branched, the fourth branch being in reality the lower radial, but emitted with the third median from a short footstalk. Secondaries rather small for the family, and

with strongly convex costal margin (so that when at rest it appears in front of the primaries as in *Gastropacha*), densely fringed with hair; costal vein bifurcate from base, the superior furca terminating at the middle of the margin, and the inferior one a little before apex; subcostal simple, emitted close to the costal vein, which it almost touches just beyond the furcation; no discocellular; median vein four-branched. Type *L. anomala*.

40. *Lechriolepis anomala*, sp. n.

Ochreous: primaries traversed by three tawny stripes, the first of which is slightly irregular and crosses the wing at basal fourth, the second zigzag and central, the third discal, macular, and zigzag; a large ferruginous spot in the cell: secondaries pale towards the base; a central costal brownish dash: abdomen pale, with testaceous anal tuft, having dull golden reflections in fresh females, in which it has not been disturbed for the purpose of oviposition. Under surface uniformly ochraceous, excepting the anal tuft; costal area of primaries on each side of the singularly modified subcostal streak clothed with long appressed hairs mixed with ordinary scales. Expanse of wings 2 inches 4 lines.

Evidently not a rare species.

This genus is aberrant in almost every character, its neururation being, in fact, unlike that of any characterized genus of moths; the arrangement of the scales upon the partially bare patch on the primaries is, moreover, so abnormal that, but for the large anal tuft which the female evidently cuts off, like the genera *Euproctis* and *Porthesia*, to cover its eggs with, I should feel obliged to found a new family for its reception. As it is, I am satisfied that this and two other genera which I must characterize here are sufficiently aberrant to be regarded as a distinct subfamily, for which I therefore propose the name of *Lechriolepidinae*.

The two following genera were received in previous collections; but, from their similarity to known genera, their structural differences were unfortunately overlooked.

RAPHIPEZA, gen. nov.

Allied to *Lechriolepis*, but with the aspect of *Gogane*; in neururation it differs from *Lechriolepis* as follows:—primaries with the lower radial emitted from the superior angle of the cell instead of as a fourth median branch; discocellular transverse and slightly angulated; costal vein of secondaries with its superior furca extremely short, so as to answer the purpose of a precostal veinlet, subcostal with two branches. In other

respects it is similar ; the inner margin of the primaries has a central projecting patch of scales, amongst which are several long needle-like steel-blue scales. Antennæ with short pectinations. Type *R. turbata* (*Gogane turbata*, Butl.) from Madagascar.

I have again examined the species originally described by me as *Gogane ochrea*, and can confirm my statement that it agrees in structure with *Chærotriche*, the neuration, antennæ, and other characters of the male being the same as in *C. vitellina*. The principal difference between *Chærotriche* and *Gogane* lies in the projecting patch of scales on the inner margin of the primaries possessed by the latter genus.

CHRYSOPSYCHE, gen. nov.

This genus differs from the preceding (just as *Chærotriche* does from *Gogane*) in the absence of any patch of projecting scales on the inner margin of the primaries ; in all other characters, including the remarkable patch of transverse horny scales, it is extremely similar ; the thorax, as in *Chærotriche*, is armed with long radiating clavate scales. Type *C. mirifica* (*Chærotriche mirifica*, Butl.) from Old Calabar.

Neither this genus nor *Raphipeza* possess the large anal tuft of *Lechriolepis*.

Lasiocampidæ.

41. *Lebeda tamatavæ* ?

Lasiocampa tamatavæ, Guénée in Vinson's Voyage à Madagascar, Appendix F, p. 44. n. 23 (1865).

The *Lebeda badia* of Saalmüller seems to be a nearly allied but paler species.

Saturniidæ.

42. *Copaxa subocellata*, sp. n.

Wings above primrose-yellow, crossed at basal fourth by an ill-defined ferruginous stripe, beyond which the ground-colour to the middle of the wing is washed with reddish ; a diffused dull ferruginous central stripe limiting internally a broad paler ferruginous discal belt, the outer margin of which is dusky, slightly multisinuate on the primaries and zigzag on the secondaries ; a submarginal series of large subocellate pale lilac spots, which on the primaries are confluent, their margins tinted with ferruginous ; outer border, particularly on the primaries, washed with ferruginous ; primaries with a small pale-zoned black-edged hyaline white semicircular spot at the end of the cell, base of costa dull rose-coloured : body dull

rose-coloured, thorax in front and collar ochraceous; palpi and head deep rose-coloured; antennæ ochreous; margins of abdominal segments ochreous. Under surface nearly as above, but the markings less distinct. Expanse of wings 4 inches 4 lines.

Limacodidæ.

CROTHÆMA, gen. nov.

♀. Aspect of *Edibessa*, but apparently nearer to *Alpis*. Primaries trigonate, the costal margin nearly straight, outer margin very slightly convex, inner margin distinctly convex; under surface of primaries deeply hollowed out behind the costal border, which consequently stands up like a wall in front of the cell; costal vein extending to second third of costa, discoidal cell very wide; subcostal vein five-branched, the first three branches emitted before the end of the cell, the fourth and fifth from the same point at the anterior extremity of the cell; upper discocellular transverse, emitting the upper radial from its centre; lower discocellular oblique, so that the lower radial looks like a fourth median branch; two convergent recurrent veins from the discocellulars to beyond the middle of the cell, median veins emitted at equal distances towards the end of the cell. Secondaries ovoid; costal vein extending to apex; subcostal two-branched, both emitted from the end of the cell, but not from the same point; discocellulars zigzag, emitting the radial from the middle and sending back two convergent recurrent veins into the cell as in the primaries; median vein three-branched. Body rather slender for the family; antennæ thick and compressed, but not pectinate; legs rather long, tibiæ with long spurs. Type *C. sericea*.

43. *Crothæma sericea*, sp. n. (no. 56).

Primaries above silky pink; a patch at base of costa, a broad, irregular, interrupted, oblique central patch and an oblique apical patch bronzy greenish, with whitish borders: secondaries salmon-coloured, sericeous: thorax bronzy greenish, abdomen bright rose-red. Under surface rose-coloured, costal margins and apices of wings and legs yellowish. Expanse of wings 1 inch 7 lines.

Cossidæ.

44. *Hypopta breviculus*.

Cossus breviculus, Mabilie, Ann. Soc. Ent. France, 1880, p. 344.

♂. Primaries snow-white, clouded with grey and transversely reticulated with grey and black; a quadrate reddish-

brown spot on the lower radial interspace between two divergent black lines, and a second just beyond the middle of the interno-median area: secondaries sordid white, with pure white fringe: body pale silky brownish, with the head and collar slightly darker. Primaries below with the markings very indistinct: secondaries rather whiter than above, with the base of the fringe and two or three subapical striæ grey: body below whitish; legs banded with blackish. Expanse of wings 1 inch.

Some examples are rather smaller than the type.

Notodontidæ.

45. *Rigema ornata*.

Rigema ornata, Walker, Cat. Lep. Het. Suppl. 2, p. 437 (1865).

Previously known only from Natal.

Erebidæ.

46. *Sypna complicata*, sp. n.

Greyish fuliginous: primaries very dark, blackish upon basal half excepting upon the costa; two slender twisted white lines across the basal area; an oblique zigzag white line from costa to inner margin across the middle of the cell; a white-edged pentagonal black patch over the end of the cell, two or three very irregular twisted white lines crossing the wing transversely just beyond the cell; a deeply sinuated white line limiting the external border, which is pale; a marginal series of white-edged black spots; fringe white, tipped with blackish: secondaries with a diffused blackish discal belt, which becomes quite black, and is bordered externally by an angulated white line at anal angle; fringe as in primaries; an indistinct oblique apical white line: head and collar testaceous, remainder of body above densely clothed with pale brown and whitish scales. Wings below greyish, speckled with white: primaries with a spot in the cell, an arched belt just beyond the middle, the external border from near apex almost to the first median branch, and an oblique dash at external angle whitish; the marginal spots and fringe nearly as above: secondaries with a dusky-bordered, whitish-speckled, arched postmedian belt; outer border whitish; a blackish spot at the end of the cell: body below greyish fuliginous. Expanse of wings 2 inches 1 line.

Hitherto the described species of this genus have all come from the Indian region.

Ophiussidæ.47. *Ophiodes tirrhæa* ♂.

Phalæna Noctua Tirrhæa, Cramer, Pap. Exot. ii. p. 116, pl. 172, fig. E (1779).

The secondaries of the male are spotless. Unless all the species of this type are to be regarded as varieties of one type, the European form will have to be kept separate under the name *O. vesta* of Esper.

Ennomidæ.48. *Marcala*? *modesta*, sp. n.

Dull clay-coloured, sericeous; wings crossed from apex of primaries to abdominal margin of secondaries by a straight oblique brown line; a black discocellular spot on all the wings, as well as three more or less defined abbreviated series of pearly-bordered black spots across the inner half of the disk; fringe reddish clay-coloured: body pale, the head, collar, and front of thorax yellowish. Under surface pale buff, reddish towards costæ and outer margin of primaries, the internal border of the same wings white; oblique line less distinct than above; discocellular spots smaller. Expanse of wings 1 inch 2 lines.

The known species of *Marcala* are Indian; the genus is allied to *Drepanodes* and *Crociniis*.

Geometridæ.49. *Comibæna stibolepida*.

Comibæna stibolepida, Butler, Cist. Ent. ii. p. 394 (1879).

The example now received measures 2 lines more than the type in expanse of wings.

50. *Thalera Cowani*, sp. n.

Wings above sap-green, with chocolate-brown discocellular dots and outer margin; a dentate-sinuate dark sap-green discal line, oblique in primaries, angulated irregularly in secondaries; fringe snow-white; primaries with the costal margin brown: thorax greenish; head and base of antennæ snow-white, pectinations of antennæ yellowish, the greater part of the main stem ferruginous. Under surface pale creamy yellow; wings with laky-brown outer margin and white fringe; primaries with the costal area washed with reddish, costal margin brown; femora and tibiæ reddish in front. Expanse of wings 1 inch 3 lines.

51. *Thalassodes glacialis*, sp. n.

Wings above glistening white, semihyaline; primaries crossed by two zigzag series of white-edged sap-green spots; the outer one upon the disk continued across the secondaries; costal margin of primaries yellowish: body white, palpi ferruginous, antennæ testaceous. Wings below tinted with pale buff, especially the primaries, in which the costal margin is also bright golden yellow: body below pale buff. Expanse of wings 10 lines.

The secondaries of this species are very slightly angulated; so that possibly it may eventually have to be placed with other described species in a distinct genus.

Acidaliidæ.52. *Zanclopteryx puella*, sp. n.

Snow-white; wings semitransparent, with opaline reflections: primaries very acuminate at apex, costal margin golden buff; all the wings with a black dot at the end of the cell, a series of black dots on the veins across the disk, a greyish submarginal stripe, and a marginal series of black dots: antennæ, tips of palpi, and an elongated triangular spot at the base of each of the first three segments of the abdomen golden buff; proboscis yellow: upper surface of tibiæ of front legs golden buff. Wings below with a small dot at the end of the cell; primaries with golden costal border, otherwise immaculate: body below white. Expanse of wings 1 inch 3 lines.

In form and general appearance this species comes nearest to *Z. aculeataria*.

I have very little doubt that the genera *Argyris* and *Auzata* will prove by breeding to be closely allied to *Cilix* and referable to the Drepanulidæ; they are, however, always placed close to *Zanclopteryx*.

Fidoniidæ.53. *Panagra rachicera*, sp. n.

Pale shining whity brown, with the centre of primaries and the basal third of secondaries semihyaline white, limited externally by a dusky line from apex of primaries to abdominal margin of secondaries; the whole surface indistinctly striated with pale brown and sparsely speckled with black: secondaries with an irregular discal series of six black spots in pairs, the two central ones largest. Below, secondaries washed with sandy yellowish, the veins, costa of primaries, and the oblique line (which is diffused) distinctly golden yellow: body below creamy whitish. Expanse of wings 1 inch 6 lines.

In this species the pectinations of the antennæ exhibit the branching peculiar to this genus more prominently than in any species which I have seen.

Zerenidæ.

RHODOPHTHITUS, gen. nov.

Nearly allied to *Icterodes* and *Vindasura*, but with the primaries more elongated, the secondaries considerably shorter, and the palpi longer. Type *R. formosus*.

54. *Rhodophthitus formosus*, sp. n.

Primaries above flesh-coloured, with yellow costal border speckled with dull black, an oblique costal dash at basal third, a spot at the end of the cell, a very irregular subapical costal spot, and an oblique patch on inner margin near the external angle dull black; a grey streak at external angle; a faint indication of a brownish stripe connecting the subapical costal spot with the internal patch: secondaries rosy pink, with the outer half of abdominal area whitish, crossed by a black patch; several black spots in the cell; a transverse discocellular black spot: head black, antennæ dark brown; collar saffron-yellow; thorax flesh-coloured; abdomen yellow, irregularly spotted with black. Under surface rosy pink, costa of primaries bright yellow; spots as above; pectus deep rose-red; knees of legs blackish, tibiæ and tarsi greyish; venter yellow at the sides, with lateral black spots. Expanse of wings 2 inches.

In general coloration this insect is extremely unlike other Zerenidæ; but in neurulation it scarcely differs from *Icterodes*.

Larentiidæ.

55. *Emmelesia sublutea*, sp. n.

Wings above shining sordid white, the basal area crossed by three irregular arched slaty-grey stripes, prominent black discocellular spots: primaries with the external third dark grey, spotted with black; a marginal series of black spots; fringe brown, whitish in the centre, spotted with black: secondaries with a lunulated ferruginous stripe just beyond the middle; external area snow-white, with the apex and an interrupted submarginal series of spots black; an almost marginal series of ferruginous spots and a marginal series of black spots connected by a slender undulating line; fringe whitish brown, becoming dark brown at apex: body brownish, with lateral black spots. Under surface straw-yellow: primaries

with the costa black-spotted, basal area specked with blackish, the cell terminating in a large black spot; a dark grey spot on each of the median branches; external third black-brown, with a costal spot, an apical spot, a spot on outer margin, and a dot at external angle yellow: secondaries with a small lunule at the end of the cell and a large apical spot black, several scattered greyish dots and lines. Expanse of wings 11 lines.

The general appearance of this species is very similar to that of *Sandava scitisignata* (*Cidaria scitisignata* = *Sandava melaleucata* = *Istarba varialis* of Walker) from Australia.

Hypenidæ.

56. *Agamana insignis*, sp. n.

♂. Primaries above dull pink, changing to flesh-colour internally, the costal margin reddish ferruginous; a sinuous white-edged blackish-olive band, widest towards the base of inner margin, where it commences, compressed in the middle, then angulated externally, and tapering to the apex; a black dot at the end of the cell: secondaries pale fuliginous brown, with darker outer border; costal area whitish brown; fringe rosy greyish: thorax reddish olivaceous, barred with pink; abdomen pale fuliginous brown; palpi red internally. Under surface pale brown; primaries with the central area greyish, the inner margin whitish; secondaries with whitish basal area: body below whitish brown, legs reddish. Expanse of wings 1 inch 6 lines.

The palpi of this species differ from those of the typical species in being porrect instead of depressed: the specimen of that species, however, is a female; and in the sexes of the Deltoids there is frequently a considerable difference in the palpi. The neurulation appears to be identical.

Cledeobiidæ.

57. *Actenia? signata*, sp. n.

Most like *A. brunnealis*: primaries flesh-tinted, black-speckled, with diffused olive-brown borders; a broad, externally diffused, dark brown oblique stripe across the basal fourth, and an internally diffused similar but angulated stripe across the disk; a large, whitish-bordered, black spot at the end of the cell: secondaries stramineous: head and thorax flesh-tinted; abdomen stramineous. Under surface stramineous: wings crossed by a greyish discal stripe and with sordid external border, blackish discocellular spots; primaries with the base of the cell greyish. Expanse of wings 1 inch.

Gelechiidæ.

58. *Gelechia insularis*, sp. n.

Dark fuliginous brown: primaries crossed before the middle by a broad, pale-edged, golden-ochreous belt, which does not quite reach the costal margin; a small, ocelloid, black-brown spot, margined with stramineous, beyond the cell, followed immediately by an externally blackish-bordered, curved, golden-ochreous discal band; apex and outer margin whitish brown; marginal line black; fringe ochreous at apex and for a short distance along the costa: secondaries paler than primaries, without markings: head golden opaline; antennæ banded with whitish; palpi with a central band and the apical joint whitish. Under surface paler than above and more sericeous: primaries with the apical costal fringe ochreous, inner border whitish, markings of the upper surface obsolete; secondaries with the apical area apparently speckled with dark grey and whitish. Expanse of wings 6 lines.

59. *Cryptolechia argillacea*, sp. n.

Primaries above reddish ochraceous, with darker punctiform orbicular and reniform spots, base of inner margin ferruginous; secondaries very pale stramineous; thorax reddish ochraceous; head whitish; palpi brown, with white apical joint; abdomen pale stramineous. Under surface pale stramineous; wings washed with ochreous along the costal borders, primaries also along the external border, and secondaries from apex to about the second median branch. Expanse of wings 1 inch $2\frac{1}{2}$ lines.

The following undescribed butterflies are in the collection of the late W. C. Hewitson.

Charaxes relatus, sp. n.

♂. Nearly allied to *C. zoolina*, but the primaries above much less obscured with brown at the base, and with the abbreviated band arrested at the second instead of at the first median branch; the spots on the apical area smaller, the one just above the third median branch reduced to a mere point: secondaries much more elongated, the border with sharply cut straight inner edge, the transverse black line across the subcostal branches wanting, the submarginal spots reduced to points, the deep orange border replaced by a much shorter greenish-yellow border. Wings below with all the bands considerably darker and margined with black, the silvery spot

on the posterior extremity of the third band of primaries transferred to the costa of secondaries; submarginal spots of primaries considerably enlarged: secondaries with the inner series of silvery spots on the outer border reduced to one or two squamose lines, the submarginal spots five in number, and the ocelloid anal spots consequently reduced to three in number; the anal area and border dull greenish instead of orange. Expanse of wings 2 inches 6 lines.

This species is referred to as an unknown form at p. 100 of the Catalogue of the Collection.

Iolais argentarius ♂, Butler.

The male of this species is of a beautiful steel-blue colour with azure reflections: primaries above with the costa brown, the apical half brown with zigzag inner edge; secondaries with the costal border brown, the abdominal area rather broadly pale greyish brown, two large, internally whitish-edged and externally blue-edged black spots above the tails, and two or three small linear spots connecting these with the costal border. Wings below greyish brown, with white-bordered black lines and spots arranged as in the female, and with the same orange-bordered black spot and black-centred emerald-green anal spot. Expanse of wings 1 inch 6 lines.

The female which accompanies this male is not of the same pure colour as the type on the under surface, the ground-colour being distinctly grey, and the white borders of the black lines almost as distinctly visible as in the male.

Catopsilia rufosparsa, sp. n.

♀. Above like the Indian *C. gnoma*, but below of a dull dark ochraceous colour, with the cross reticulations much more numerous and orange instead of greenish grey, and mixed with blood-red speckling; the discal spots indistinct and confused, only represented by subconfluent groups of reddish scales as in *C. florella*; silver spots smaller. Expanse of wings 2 inches 6 lines.

The type also differs from *C. gnoma* on the upper surface in the confluence of the apical marginal red spots and the absence of any trace of a discal series, in the absence of a white vein across the discoidal black stigma, in the pink tint of the secondaries, and the presence of a marginal series of red spots upon the yellow border; but all these characters may vary, whereas the denser reticulation and confused speckling of the under surface is characteristic of African and not of Indian species. (See p. 33 of Catalogue of Hewitson's Collection.)

Butler, Arthur G. 1880. "XXXVI.—On a collection of Lepidoptera from Madagascar, with descriptions of new genera and species." *The Annals and magazine of natural history; zoology, botany, and geology* 5, 384–395.
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