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IX.—Descriptions of new species of Asiatic Lepidoptera Heterocera

Arthur G. Butler F.L.S. F.Z.S.
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Samus complicatus, n. sp.
(Pl. V. fig. 27.)

I would propose this name for the spicule of a sponge of another species of *Samus*, of which there are several specimens in my mountings of the dust from the root-bunch of *Euplectella cucumer* found in the deep sea about the Seychelle Islands, on account of its extremely complicated form, presenting under the microscope one of the most beautiful objects of the kind that I have ever seen. It consists of four arms, three of which form a kind of tripod to the fourth, which is erect, and all thrice divided again to their extremities (there is no shaft); so that it defies all attempts at delineation, from the complicated state of the branches and the impossibility, from the dimensions of the object, of getting the whole into focus at the same time; hence the illustration (Pl. V. fig. 27) must be regarded as a diagram. There is no doubt of its belonging to a *Samus*, of which there are probably many more species yet to be discovered; indeed the representations given by Dr. Bowerbank, which appear to be similarly quadriradiate (B. S. vol. i. pl. x. figs. 235, 236), also seem to be those of spicules belonging to species of the same genus.

Here I would add that, however much *Samus* and *Pachastrella* may be allied to each other in spiculation, their habitats may be totally different; and when we come to add *Cliona* to the Eccelonida, we get a heterogeneous mixture of sponges in kind, whatever may be their alliances otherwise; for *Cliona celata* itself, which infests the oyster-shell, may become, when it has destroyed the latter, the free massive Suberite to which Dr. Bowerbank has given the name of *Rhaphyrus Griffithsii*.

[To be continued.]

IX.—*Descriptions of new Species of Asiatic Lepidoptera Heterocera.* By ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

Tribe BOMBYCITES.

Saturniida.

1. *Antheræa læpoides*, sp. n.

Primaries above with the basal third dull lake-red, traversed by two irregular saffron-yellow stripes, and with very irregular external edge; central area occupied by a very irregular gamboge-yellow band enclosing the ocellus, which is dull

lake-red with a vitreous central pupil and brownish margin ; an undulated lake-red band bordered on each side by saffron-yellow stripes immediately beyond the central band, and followed by the external third, which is dull lake-red traversed by an ill-defined and interrupted series of bright yellow and grey spots ; an apical, costal, whitish cinereous nebula ; fringe saffron-yellow towards the external angle : secondaries bright gamboge-yellow, paler towards the costal margin ; a lake-red patch at basal third of abdominal border, followed by an abbreviated purplish-red band from the same border to the ocellus, which it encircles ; the ocellus pale cinereous with vitreous pupil ; an undulated arched purplish-brown line just beyond the middle ; an abbreviated arched discal series of lake-red spots, partly connected in the centre and not reaching the costa ; an abbreviated submarginal series of blackish dots : body laky reddish ; head yellow ; collar, centre of thorax, and sides of abdomen pink. Wings below yellow, clouded with gravel-yellow ; the ocelli lilacine, with reddish-edged vitreous pupils ; a purplish-edged continuous undulated discal line ; a submarginal series of slaty grey and purple spots partly bordered with yellow ; apical areas sprinkled with white scales ; a subbasal sinuated purplish and lake-red line : pectus ochraceous, with bright ochreous legs ; abdomen pinky greyish. Expanse of wings 3 inches 11 lines.

Borneo. Type Brit. Mus.

This pretty little species has unusually acuminate primaries ; the coloration is much like that of the genus *Læpa*.

Lasiocampidæ.

2. *Brahmæa rufescens*, sp. n.

Nearest to *B. Wallichii*, but larger, rather paler in colour, with all the wavy black lines on the primaries above more slender and consequently wider apart, the central belt considerably narrower, especially in the centre, with more slender black border ; the black spots on the veins fewer in number ; the circular nut-like patch which terminates the band on the internal area broadly suffused with white, and with only two or three black spots upon it ; the broad subapical area half as wide again, more uniform in tint, the white crescents upon it very indistinct ; subapical black patch trifid ; other submarginal spots wider, more uniform in tint, united along their external (*i. e.* their basal) margins ; external border greyer, more like that of *B. conchifera* : secondaries with narrower basal blackish area, the pale reddish streaks almost as numerous as in *B. Whitei*, the pale central band widening towards

the costa, the wavy discal lines broader than in any other Indian species known to me, the grey nervular streaks slightly more prominent than in *B. Wallichii*; submarginal spots forming a confluent wavy belt, the black line which bounds it externally very slightly interrupted; external border wider. Primaries below with the entire basal area up to the stripe which represents the outer margin of the central belt pale sandy brown, the inner margin of the central belt feebly indicated by a dusky curved streak; the outer stripe bordered externally by a white stripe of the same form, the black discal lines very slender; a regularly sinuated black submarginal line, reminding one of *B. Whitei*: secondaries with the basal area washed with pale sandy brownish; a white belt just beyond the basal area as in the primaries, the other characters also as in the primaries: pectus and base of venter black, remainder of venter testaceous, with a blackish streak along each side. Expanse of wings 6 inches 11 lines.

N.E. Bengal. Type coll. F. Moore.

This handsome moth seems to be in some respects intermediate between the three known Indian species; but the pale basal area of the under surface of the wings is by itself a sufficient character at once to distinguish it from any of them.

Limacodidæ.

3. *Scopelodes sericea*, sp. n.

Allied to *S. unicolor*; wings and body of the same general colour, but the primaries brilliantly sericeous and crossed by three or four irregular indented lines, which (when viewed obliquely) appear to be the margins of irregular reddish bands; the general colour above is sandy yellow, the wings with a rust-red marginal line extending for a short distance into the fringe; fringe of secondaries brilliantly sericeous; the palpi, instead of being black and white as in *S. unicolor*, are reddish orange; the abdomen is sericeous ochreous, with black caudal tuft: the wings below have the costal and apical areas washed with blackish, upon which the veins are ochreous; body as above. Expanse of wings 2 inches 11 lines.

Darjiling (*Lidderdale* and *Sadler*). Type B. M.

4. *Parasa pastoralis*, sp. n.

♀. Primaries above with a large basal sandy-yellowish patch, crossed close to the base by a zigzag red-brown line; a subbasal arched purplish-brown belt, spotted with green and not quite reaching the costal or inner margins; the whole

area between the latter and the external area bright emerald-green, forming an irregular belt constricted below the middle; external area limited internally by a sinuous ferruginous line, sandy-yellowish or testaceous, traversed by a dentate-sinuate submarginal ferruginous line; fringe brownish: secondaries pale stramineous, with pinky brownish fringe: thorax bright green, the shoulders and a dorsal streak brown, abdomen testaceous. Under surface of wings sordid sulphur-yellow, the borders slightly tinted with stramineous, fringe brown: primaries with a ferruginous subcostal diffused streak: body testaceous; anterior coxæ and femora ferruginous, tibiæ banded with purplish brown. Expanse of wings 2 inches 1 line.

Bhotan (*Lidderdale*). Type B. M.

5. *Miresa bracteata*, sp. n.

Primaries with the costal area olive-brown washed with lilacine, interno-basal area fulvous internally, gradually shading into ferruginous, and lastly into olivaceous towards the median vein; the veins across it indicated by lilacine grey scales; a zigzag metallic silver stripe from the subcostal vein near the apex to just beyond the middle of inner margin, the inner angle of the zigzag confluent with a large cuneiform patch of silver just below the end of the cell; disk beyond the silver stripe olive-green, crossed by pale sericeous veins; external border dark red-brown, densely sprinkled with metallic plumbaginous scales; fringe red-brown: secondaries of the male stramineous, slightly washed with dull rose-colour in front; of the female rosy-brownish, with whitish veins and external border, stramineous abdominal border, and ochraceous fringe: thorax bright chrome-yellow; antennæ and abdomen orange-yellow or bright ochreous. Under surface red-brown, with the internal areas of the wings and tail (particularly the caudal tuft of the male) ochraceous; legs chrome-yellow. Expanse of wings, ♂ 1 inch 5 lines, ♀ 1 inch 7 lines.

Darjiling (*Lidderdale*). Type B. M.

Nycteolidæ.

6. *Tyana speculatrix*, sp. n.

Primaries above bright green; costal margin very slenderly lilacine grey; a bright saffron-yellow basal spot on which are two red dots; base of inner margin snow-white, subbasal portion of the same margin yellowish, crossed by a dark red angular marking; centre of the wing occupied by an oblique patch composed of three circular spots, the first and last stra-

mineous with lake-red margins, the central one red sprinkled with ochraceous; fringe yellow at its base, excepting at apex (where it is dark red) yellowish externally: secondaries snow-white, sericeous: abdominal fringe of the male cream-coloured; front of head and base of antennæ rose-pink, vertex of head bright yellow; collar and tegulæ bright yellow, margined in front with plum-colour; thorax bright green; abdomen white (cream-coloured in the male) with a basal red tuft just behind the thorax and between two snow-white tufts; antennæ brown, annulated with white. Under surface sericeous white: primaries pale greenish, yellowish towards the costal and external borders; the central patch pinky white: legs rosy in front; venter of the male cream-coloured. Expanse of wings, ♂ 1 inch 6 lines, ♀ 1 inch 4½ lines.

Darjiling (*Lidderdale*). Type B. M.

Nearest to *T. chloroleuca*, but much more beautiful.

7. *Tyana lancina*, sp. n.

♀. Wings as in the preceding species, excepting that there is no trace of the central patch on the primaries; head chrome-yellow, slightly pink in front, with a white band behind; collar and tegulæ chrome-yellow, with orange anterior margin; thorax yellowish green; abdomen snow-white, with a bright orange tuft in the centre at base; anal segment sordid white; antennæ pink. Primaries below sericeous greenish white with the costal border tinted with pink; fringe cream-coloured, with an orange dot at apex: secondaries sericeous snow-white: body below cream-coloured; the anterior legs rosy cupreous in front. Expanse of wings 1 inch 6 lines.

Bhotan (*Lidderdale*). Type B. M.

Notodontidæ.

HYPERÆSCHRA, gen. nov.

Oleni affine genus; alis autem anticis multo longioribus, margine postico haud excavato, ramis subcostalibus multo magis approximatis; alis posticis subtriangularibus, vena subcostali ramis longe pone cellulam emissis; corpore longiore, capite majore. Gen. typus *H. pallida*.

8. *Hyperæschra pallida*, sp. n.

Whity brown; primaries chalky white, sprinkled with brown towards the inner margin and across the centre of the median interspaces; two irregularly zigzag widely divergent black-brown lines representing the central belt and enclosing a large white reniform spot; two longitudinal black streaks

on the interno-median area from the base to the inner margin of the central belt; a black longitudinal streak interrupted by the reniform spot from the inner line of the central belt to the middle of the disk, where it joins a brown streak on the outer margin; the costa near apex, a short dash beyond the top of the reniform spot, two subapical streaks, and an apical dash blackish brown: thorax reddish brown, greyish in the centre. Primaries and pectus below pale pinky brown: secondaries and venter stramineous, the venter darker than the wings. Expanse of wings 2 inches 3 lines.

Darjiling (*Lidderdale*). Type B. M.

Mr. Moore has an example of this species from Singapore. The genus is allied to both *Peridea* and *Olene*, but in coloration it most nearly resembles *Heterocampa*.

9. *Phalera stigmigera*, sp. n.

Nearly allied to *P. sangana*, but the primaries shorter, broader, with large whitish reniform stigma; the orbicular placed nearer to it and very indistinct; the inner line of the central belt single and more irregular, rather nearer to the base, base of costa sprinkled with white scales; the external angle blackish, so that the spots which terminate the discal stripe are somewhat obscured; the submarginal lunules whitish: body darker, with whiter anal segment and tuft. Under surface greyer, the blackish central fascia of the secondaries angulated at the costal vein. Expanse of wings 3 inches 5 lines.

Bhotan (*Lidderdale*). Type B. M.

10. *Phalera arenosa*, sp. n.

Also allied to *P. sangana*, but the whole ground-colour of the internal half of primaries pale sandy yellow, traversed by the ordinary undulated lines and spots, the costal half much darker, varied with slaty grey in the centre and at apex, the discoidal spots well defined; the secondaries greyer, with blacker external third; the head yellowish instead of snow-white; the body black, with greyish lateral borders to the thorax, and greyish-white bands across the abdominal segments; anal segment pale cinereous. Primaries below blackish, with the usual pale markings: secondaries sordid white, with an abbreviated oblique crinkled black stripe from the costa to the first median branch; a dusky discal nebula: pectus black; the legs with greyish fringes; venter sordid white, with lateral black bands continued from above. Expanse of wings 3 inches 5 lines.

Darjiling (*Lidderdale*). Type B. M.

This species is frequently confounded with *P. sangana* in collections.

11. *Somera lichenina*, sp. n.

Primaries pale emerald-green, sprinkled (particularly towards the base of costal border) with white scales; discoidal spots placed near together, both orbicular and reniform pale grey, 8-shaped, with blackish centres; a very faint indication of an undulated greyish line at basal two sevenths, and a second which crosses the wing just beyond the cell; a more distinct submarginal line, which becomes black above the third median branch; costal border crossed by numerous red-brown oblique dashes; fringe brown, dotted with white; secondaries pale chocolate-colour, with whitish costal area irrorated with grey and pale green, and crossed at apex by two parallel angular grey lines; fringe tipped with whitish: thorax cinereous; antennæ bright ferruginous; abdomen pale chocolate-colour, diffusely banded on the anal segment with emerald-green. Wings below pale chocolate: primaries with the costa, basal and internal areas pale clay-coloured; secondaries with the costal fringe white, the basi-costal area testaceous: body below pale sandy yellowish, anterior legs sprinkled with white scales. Expanse of wings 2 inches.

Borneo. Type B. M.

12. *Callœnia elongata*, sp. n.

Nearest to *C. chamomillæ*, the primaries considerably longer, of a dark cinereous colour washed in front with brown and with black markings as in *C. chamomillæ*: secondaries sordid semitransparent white, with blackish veins, the costal area broadly washed with pale shining fuliginous brown; a rather broad darker brown external border; fringe white, intersected by an interrupted blackish line: thorax grey; the head blackish, a black crescent on each side of the hood and only separated by the central terminal point of the same; centre of thorax dusky; abdomen whitish brown with dusky dorsal ridge, anus greyish. Primaries below shining fuliginous brown; secondaries white, with the costal and external borders fuliginous: body below greyish brown. Expanse of wings 2 inches 3 lines.

Darjiling (*Lidderdale*). Type B. M.

PRISMOSTICTA, gen. nov.

Trilochæ et *Norasumæ* affine; alis autem anticis costa recta apicem projecto, margine externo apud apicem paululum excavato, exinde late convexo, margine interno recto, vena subcostali

quinceramosa, ramo solum primo ante cellulæ finem emisso, aliis longe pone cellulam emissis: alis posticis subtriangularibus, marginibus costali et externo arcuatis, margine abdominali recto, cellula brevi, nervulis disco-cellularibus bisinuatis perobliquis: corpore robusto; capite parvo, perbrevis; antennis modice brevibus, pectinatis; pedibus tenuibus, femoribus lanatis. Gen. typ. *P. fenestrata*.

13. *Prismosticta fenestrata*, sp. n.

Clay-coloured, washed with olivaceous, the secondaries towards apex and anal angle washed with red; two continuous nearly approximated dark brown lines, the inner one of the primaries incurved towards the costal margin, the outer one nearly straight and running to apex, near which it bounds on the inner side a triangular hyaline spot; a dark brown litura on the discocellulars; primaries with the apical border chocolate-brown: body testaceous tinted with olive, antennæ whitish. Under surface fulvous; primaries with the external half and secondaries with the external border washed with orange; markings as above; a greyish submarginal diffused stripe. Expanse of wings 1 inch 11 lines.

Darjiling (*Lidderdale*). Type B. M.

In the form of the primaries *Prismosticta* resembles the Geometrid genus *Auzea*.

Cossidæ.

DUOMITUS, gen. nov.

Alæ elongatæ angustæ: anticæ cellula valde elongata, venis falsis quadripartita; vena subcostalis crassa, quinceramosa, ramo secundo statim ante cellulæ finem emisso, tribus autem ultimis pone cellulam emissis; vena discocellularis perobliqua paululum excavata; vena inferior discoidalis ramum quartum medianum fere formans; vena submediana curvata: posticæ cellula medioeri, vena costali crassa, vena subcostali tenui, ramo inferiore venam alteram discoidalem formante, vena ordinaria discoidali ramum quartum medianum fere formante. Antennæ simplices. Corpus formæ consuetæ. Gen. typ. *D. ligneus*.

14. *Duomitus ligneus*, sp. n.

Pale sandy brown; wings sparsely mottled with black, most densely on the external area of primaries, where they form a series of ill-defined hastate streaks between the veins, increasing in length towards the inner margin, and interrupted by white circular spots more or less obscured by grey reticulations; several indistinct black internervular streaks between the subcostal branches; costal margin spotted with black:

secondaries suffused with greyish fuliginous, with reddish-brown veins, fringe between the veins cream-coloured; a few indistinct, confused, submarginal whitish spots, similar to those on the external area of the primaries: thorax whitish at the sides, in front, and along the centre, with black tufts behind the tegulæ; abdomen with blackish sides (except upon the last two segments) and a dorsal longitudinal blackish stripe; pectus black; tarsi sandy whitish; venter sandy yellowish. Wings below pale sandy brown; the markings less distinct than above. Expanse of wings, ♂ 4 inches 2 lines, ♀ 4 inches 6 lines.

Darjiling (*Lidderdale*). Type B. M.

Hepialidæ.

15. *Hepialus marcidus*, sp. n.

Primaries above either pale buff or testaceous, mottled all over with greyish brown; a broad interrupted central belt, spotted with little transverse dashes of the ground-colour, and with blackish spots across its centre, grey or greyish brown, sometimes becoming gravel-yellow upon the inner margin (where it is broken up into three or four unequal spots); a discal band, either grey or gravel-yellow, spotted in the centre with black; margin grey, sinuated internally: secondaries semitransparent greyish brown: body dark greyish brown, with testaceous anus; thorax sometimes reddish. Under surface greyish, the markings obsolete. Expanse of wings, ♂ 1 inch 9 lines, ♀ 2 inches.

Darjiling (*Lidderdale*). Type B. M.

In the examples before me the more brightly coloured form is the male, the greyer form the female; it is possible, however, that much variation of tint may occur in individuals of both sexes.

[To be continued.]

X.—*Contributions towards a General History of the Marine Polyzoa.* By the Rev. THOMAS HINCKS, B.A., F.R.S.

[Plates IX., X., XI.]

IN the present and following papers I propose to describe and figure a large number of marine Polyzoa from various parts of the world which have hitherto, I believe, escaped notice, and thus to offer a contribution towards that general history of the class which still remains to be written. It is by no