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XXX.—An account of the Sphinges and Bombyces collected by Lord Walsingham in North America during the years 1871-72

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9. *iodinus*, Bates, antè, p. 296. Ecuador.
10. *thoracicus*, Oliv. Guiana.

Genus 34. THEMISTONOE, Thoms.

1. *cacica*, Thoms. Brazil.
2. *reticulata*, Waterh. Ann. & Mag. Nat. Hist. ser. 5, vol. v. (April 1880), p. 300. Ecuador.
3. *humeralis*, Waterh. ibid. p. 301. Ecuador.
4. *delectabilis*, Waterh. ibid. p. 302. New Granada.
5. *exilis*, Bates, antè, p. 298. Peru.

Genus 35. LYCANEPTIA, Thoms.

1. *amicta*, Klug (♀ *ampliata*, Klug). Brazil.
2. *antiqua*, Waterh. Ann. & Mag. Nat. Hist. ser. 5, vol. v. (April 1880), p. 300. Brazil.

Genus 36. LYCIDOLA, Thoms.

1. *palliat*a, Klug. Brazil.
2. *togata*, Klug. Brazil.
3. *simulatrix*, Bates. Amazons.
4. *Belti*i, Bates, Biol. Centr.-Amer., Col. v. t. 15. f. 1. Nicaragua.
5. *flavofasciata*, Waterh. Ann. & Mag. Nat. Hist. ser. 5, vol. v. (April 1880), p. 298. Ecuador.
6. *felix*, Waterh. ibid. p. 298. Ecuador.
7. *retifera*, Waterh. ibid. p. 298. Ecuador.
8. *expansa*, Bates, antè, p. 298. New Granada.
9. *mimica*, Bates. Amazons.
10. *capillacea*, Bates. Amazons.

Genus 37. ITES, Waterh.

1. *plagiatus*, Waterh. Ann. & Mag. Nat. Hist. ser. 5, vol. v. (April 1880), p. 298. Ecuador.

Genus 38. CLYTHRASCHEMA, Thoms.

1. *Chabrillacii*. Brazil.

XXX.—An Account of the *Sphinges* and *Bombyces* collected by Lord Walsingham in North America during the Years 1871-72. By ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

THE *Sphinges* and *Bombyces* collected by Lord Walsingham consist of thirty-six species referable to twenty-six genera.

The exact localities are in almost every case carefully recorded ; but a few species were placed in a separate box from the others, and to these I found no exact record attached.

His Lordship has kindly forwarded the following list of places visited by him in California and Oregon :—

California.

- “ San Francisco, May 16th, 1871.
- “ Sonoma County, May 18th to 23rd.
- “ Mendocino County, May 24th to June 14th.
- “ Lake County, June 15th to 23rd.
- “ Colusa County, June 24th to July 4th.
- “ Tehama County, July 5th to 9th.
- “ Shasta County, July 10th to 28th.
- “ Siskiyou County, July 29th to September 15th, part of which time (August 1st to September 1st) being spent upon Mount Shasta.”

Oregon.

- “ Lost River to Crooked Creek, September 16th to 23rd.
- “ Camp Watson, on John Day's River, North Oregon, up to April 14th, 1872 ; reached Fort the Dalles, near the mouth of the Columbia River, April 21st, and Portland April 27th ; thence by rail and road to Rouge River, May 7th ; remained at Rouge River up to June 1st ; thence proceeded, *viâ* Jacksonville, to Siskiyou Mountains, June 7th ; remained on the Siskiyou range to June 18th, crossing into

“ California,

- “ thence *viâ* Crescent City &c. to mouth of Klamath River, June 23rd, and then to Eureka on July 1st.”

In the identification of several of the forms here enumerated I have been assisted through the generosity of Mr. Henry Edwards (formerly of San Francisco, but now of New York), who recently presented a series of named Californian Lepidoptera to the collection of the British Museum.

Four, if not five, of the species appear to me to be new to science, for one of which I have found it necessary to erect a new genus. There are also several well-marked varieties of known species not hitherto recorded, for some of which I have considered it best (for purposes of reference) to propose distinctive names, although I cannot regard them as entitled to specific rank.

Sphingidæ.**HEMARIS, Grote.**1. *Hemaris cynoglossum*.

Hemaris cynoglossum, H. Edwards, Proc. Cal. Acad. Sci. 1875, p. 88.

Rouge River, May 7th to June 1st.

DIENECEs, gen. nov.

Allied to *Cinogon*, but the margins of the wings not sinuated, the secondaries smaller, shorter; the anal tuft better developed, expanded in the male; coloration of *Pterogon*.

2. *Dieneces Clarkiæ*.

Pterogon Clarkiæ, Boisduval, Ann. Soc. Ent. France, 2^e sér. x. p. 319 (1852).

Between Camp Watson and Fort the Dalles, near the mouth of the Columbia River, April 14th to 21st.

DEILEPHILA, Ochs.3. *Deilephila lineata*.

Sphinx lineata, Fabricius, Ent. Syst. p. 541 (1775).

No exact locality noted.

SPHINX, Linn.4. *Sphinx oreodaphne*.

Sphinx oreodaphne, H. Edwards, Proc. Calif. Acad. Sci. v. p. 109 (1874).

California.

ARCTONOTUS, Boisd.5. *Arctonotus lucidus*.

Arctonotus lucidus, Boisduval, Ann. Soc. Ent. France, 2^e sér. x. p. 319 (1852).

California.

Agaristidæ.**ALYPPIA, Hübn.**6. *Alypia Ridingsii*.

♂. *Alypia Ridingsii*, Grote, Proc. Ent. Soc. Phil. vol. iii. p. 521, pl. v. fig. 1 (1864); ♀. Stretch, Zyg. & Bomb. p. 12, pl. i. fig. 3 (1872).

Between Camp Watson, on John Day's River, N. Oregon

and Fort the Dalles, near the mouth of the Columbia River, April 14th to 21st; also at Rouge River, between May 7th and June 1st.

7. *Alypia Maccullochii*.

Alypia Maccullochii, Kirby, Fauna Boreali-Americana, iv. p. 301. n. 1, pl. iv. fig. 5.

Rouge River, between May 7th and June 1st.

The female appears to be scarce; the spots on its secondaries are equally yellow with those of the primaries.

Arctiidae.

CTENUCHIINÆ, Butl.*

SCEPSIS, Walk.

8. *Scepsis fulvicollis*.

Glaucopis unicolor fulvicollis, Hübner, Samml. exot. Schmett. i. pl. clxiv. (1806).

One example at Rouge River, Oregon, end of May.

CTENUCHA, Kirby.

9. *Ctenucha ochroscapus*.

Ctenucha ochroscapus, Grote, Trans. Am. Ent. Soc. vol. i. p. 330 (1868).

Cape Mendocena.

Excepting in its superior size, slightly browner primaries, and the paler (more salmon-coloured) borders of the tegulæ, this species might be associated with *C. rubroscapus*, Ménétr. (nec Boisd., which is=*C. multifaria*, Walk.).

PERICOPIINÆ, Butl.

GNOPHÆLA, Walk.

10. *Gnophæla Hopfferi*.

Gnophæla Hopfferi, Grote, Trans. Am. Ent. Soc. vol. i. p. 332 (1868).

Rouge River, Oregon, May 7th to June 1st.

ARCTIINÆ, Stretch.

HYPHANTRIA, Harris.

11. *Hyphantria cunea*.

Bombyx cunea, Drury, Ill. Exot. Ent. i. p. 36, pl. xviii. fig. 4 (1770).

Lord Walsingham had a single example labelled "Wash-

* See Journ. Linn. Soc. vol. xii. p. 429.

ington;" it agrees with the form represented by Stretch (Zyg. and Bomb. pl. viii. fig. 20).

SPILOSOMA, Steph.

12. *Spilosoma virginica*.

Bombyx virginica, Fabricius, Ent. Syst. Suppl. p. 437 (1798).

No locality recorded.

13. *Spilosoma vestalis*.

Spilosoma vestalis, Packard, Proc. Ent. Soc. Phil. iii. p. 125 (1864).

One female. Jacksonville, Oregon.

EUCHÆTES, Harris.

14. *Euchætes oregonensis*.

♂. *Euchætes oregonensis*, Stretch, Zyg. & Bomb. p. 187. n. 2, pl. viii. fig. 7 (1871-73).

Rouge River and Jacksonville, Oregon, May 7th to June 7th.

HYPERCOMPA, Steph.

15. *Hypercompa virginalis*.

Chelonia virginalis, Boisduval, Léop. Calif. p. 49 (1852).

Var. *Epicalia virginalis*, var. *ochracea*, Stretch, Zyg. & Bomb. p. 71, pl. iii. fig. 2 (1871-73).

Cape Mendocena.

Why Dr. Packard and others have placed this species in *Epicalia*, of which *E. villica* is type, it would indeed be hard to say; setting aside other differences, the utter dissimilarity of the male antennæ should have been sufficient to keep them widely separated. The pattern and colour of the wings, the less woolly and smaller thorax, and the barred abdomen are all characteristic of *Hypercompa*; in fact, with the exception of the rather shorter costal margin of the primaries, which may perhaps be regarded as a generic character, I can see nothing to distinguish it from that genus.

ARCTIA, Schrank*.

16. *Arctia achaia*.

Arctia achaia, Grote, Trans. Am. Ent. Soc. vol. i. p. 334, pl. vi. figs. 45, 46 (1868).

* It may be well to note here that the *A. antholea*, Boisd., of California is evidently conspecific with *A. docta*, Walk., from Mexico.

Sonoma County and Mendocino County, California, May 18th to June 14th, also Rouge River, Oregon.

Var. *ochracea*, Stretch, Zyg. & Bomb. p. 125; pl. v. fig. 21 (1871-73), but without pale veins.

Rouge River, May 7th to June 1st.

17. *Arctia simplicior*, sp. n.

Possibly a well-marked variety of *A. achaea*, but apparently intermediate between that species and *A. Saundersii*: primaries as in var. *ochracea*, excepting that the veins are not cream-coloured (this, however, is a variable character in *A. ochracea*): secondaries scarlet, paler along the abdominal border and at base; a small subbasal black spot in the cell, no other basal markings; but the lunate discocellular spot, three semicircular submarginal spots, and an irregular external border (completely divided, however, at the extremity of the first median branch) almost exactly as in Stretch's fig. 19 of *A. achaea*. Expanse of wings 48 millim.

Jacksonville.

Only one female of this form was obtained. The almost entire absence of the large black discoidal patch and of the broad basiabdominal streak seems to bring this insect near to *A. Saundersii* and *intermedia*; the body, however, is coloured as in *A. ochracea*.

18. *Arctia phalerata*, var. *incompleta*.

Differs from typical examples in the absence of the subapical oblique cream-coloured stripe to complete the Σ -shaped marking on the disk of primaries.

Washington.

ANTARCTIA, Hübn.

19. *Antarctia rubra*.

Antarctia rubra, Neumoegen, "Papilio," p. 79 (1881).

♀. Mendocino Co., California, May 24th to June 14th.

This, if rightly identified, must be the insect figured by Mr. Stretch, Zyg. & Bomb. pl. viii. fig. 11; but the examples obtained by Lord Walsingham are rather larger, of a deeper reddish colour and with blacker secondaries than in the illustration, which seems to me a little undercoloured.

20. *Antarctia Walsinghamii*, sp. n.

Allied to the preceding, but slightly smaller, the primaries

bright crimson with a small black spot at the end of the cell; fringes slightly paler than the ground-colour: secondaries deep rose-red with scarlet veins, the discoidal cell and two interno-median streaks irrorated with grey; three almost confluent apical submarginal blackish spots and a squamose blackish submarginal streak in continuation of these spots: thorax bright red; antennæ scarlet; palpi scarlet; abdomen paler red; legs scarlet above, but yellowish in the central line below; pectus yellow, with tufts of orange-red hairs; venter bright orange-yellow, red at the sides. Wings below bright rose-red, with the costal borders and veins brilliant scarlet; a small black spot at the end of each discoidal cell. Expanse of wings 41 millim.

Rouge River, Oregon.

Only one example of this exceedingly beautiful species was obtained. I cannot believe it to be a variety of the preceding; it certainly has a greater claim to specific rank.

LEPTARCTIA, Stretch.

Mr. Stretch recognizes three species, *L. decia*, *lena*, and *dimidiata*, which he distinguishes by the coloration of the secondaries; the fine series obtained by Lord Walsingham shows that *L. dimidiata* belongs to the two divisions of *L. decia* and *L. lena*, since the females always show a trace and sometimes a well-marked band of ochreous or red. As the broad-banded form is exceptional, however, it may perhaps represent another variety.

Judging from the series before me I cannot hesitate to regard the whole as referable to one extremely variable species, consisting of eight fairly marked varieties; and as four of these have already received distinctive names, and, moreover, as the differences in pattern and coloration appear in both sexes, I shall not hesitate to give varietal names to the remaining four, so as to enable lepidopterists to speak of them without the necessity of describing in each case the form to which they refer.

21. *Leptarctia californica*.

Var. 1. *Leptarctia Stretchii*, var. n.

♂. *Leptarctia dimidiata*, var., Stretch, Zyg. & Bomb. pl. v. fig. 9 (1871-73).

♀. Band of primaries buff-coloured, a spot of the same colour at base, and a second towards the base of internal border: secondaries with an ill-defined streak of orange scales across the radial and median interspaces, a spot of the same

at anal angle, and a scarlet marginal spot at extremity of submedian vein: abdomen with a scarlet lateral stripe. Expanse of wings 36 millim.

♂ ♀. Rouge River, Oregon.

Var. 2. *Leptarctia Boisduvalii*, var. n.

? *Leptarctia decia*, var., Stretch, Zyg. & Bomb. pl. v. fig. 15.

The three specimens obtained by Lord Walsingham differ from Mr. Stretch's figure in having the white band of primaries zigzag and the band of secondaries orange (this band is variable in width).

♀. Rouge River, Oregon.

Although only females of this form have yet come to hand, I do not doubt that similar males exist.

Var. 3. *Leptarctia dimidiata*, Stretch.

♂. *Leptarctia dimidiata*, Stretch, Zyg. & Bomb. p. 123. n. 2, pl. v. figs. 7, 8 (1871-73).

♀. Differs from the male in having no abbreviated white band on the primaries, sometimes one or two white dots towards the apex; a slightly curved series of small ochreous or crimson spots just beyond the middle of the secondaries, one or two marginal spots near the anal angle, and the fringe slightly flecked with the same colour. Expanse 37 millim.

♂ ♀. Rouge River, Oregon (six examples).

Var. 4. *Leptarctia latifasciata*, var. n.

♀ differs from the preceding in its broad red belt, and from figure 15 of Stretch's plate in the absence of any band across the primaries. Expanse of wings 35 millim.

Rouge River (one example).

The male of this variety remains to be discovered.

Var. 5. *Leptarctia fulvofasciata*, var. n.

♂. *Leptarctia lena*, var., Stretch, Zyg. & Bomb. pl. v. figs. 13, 14.

♀ only differs from the male in having no white spots on the primaries. The width of the band of secondaries is somewhat variable.

♂ ♀, Rouge River; ♀ between John Day's River and Fort the Dalles.

Var. 6. *Leptarctia californice* (typical).

Nemeophila californice, Walker, Cat. Lep. Het. iii. p. 625. n. 3 (1855).

Lithosia adnata, Boisduval, Ann. Soc. Ent. Belg. xii. p. 73. n. 84 (1868).

♂ ♀, Rouge River; ♂ between John Day's River and Fort the Dalles.

This form is represented by Stretch, pl. v. figs. 11 and 16, as *L. lena*; but the black band on disk of secondaries (barely shown on the secondaries of his female) is often broad and well marked in both sexes.

Var. 7. *Leptarctia decia*.

Lithosia decia, Boisduval, Ann. Soc. Ent. Belg. xii. p. 72. n. 83 (1868).

♀. Rouge River, Oregon and Mendocino County, California.

This form chiefly differs from Stretch's fig. 11 in the reddish-orange colour of the secondaries and the less prominent white spots on the primaries.

Var. 8. *Leptarctia lena*.

Lithosia lena, Boisduval, Ann. Soc. Ent. Belg. xii. p. 73. n. 85.

♂ ♀. Between John Day's River and Fort the Dalles (five examples).

No examples of this variety (Stretch, Zyg. & Bomb. pl. v. figs. 3 and 5) were obtained at Rouge River; but *L. fulvofasciata*, regarded by Stretch as a variety of the same species, though distinct from *L. dimidiata* and *L. decia*, occurs there with them.

Lithosiidæ.

HYALOSCOTES, gen. nov.

Aspect of *Psyche* and *Comacla*; venation of *Byssophaga*, Behr. (= *Trichromia*, Hübn.)*, but the primaries with longer costal margin, more arched towards apex; wings semitransparent, opalescent; the head and body very hairy, particularly the sides of the abdomen; genitalia prominent; antennæ setose, hairy at the base; legs long and rather slender; palpi very small. Type *H. fumosa*.

22. *Hyaloscotes fumosa*, sp. n.

Wings semitransparent, smoky grey, with darker marginal line, veins, and fringes: primaries slightly darker than secondaries: antennæ brown; body blackish, clothed with long whitish hair; genitalia mahogany-brown; legs pale greyish brown. Expanse of wings 27 to 31 millim.

* See Stretch in Zyg. & Bomb. p. 48, as "*Cisthene*."

Five male examples, Shasta and Siskiyou Counties ; Mount Shasta.

This is a most singular-looking species, which, but for the fact that its neuration locates it among the Lithosiidæ, I should have been almost inclined to place among the Psychidæ.

NOLA, Leach.

23. *Nola minna*, sp. n.

Primaries above silvery grey ; a black-brown dash at the base of the costal margin, a black spot at basal third, a larger rhomboidal jet-black spot (immediately below the second costal spot) within the cell, and an oblique series of four blackish dots between the latter and the inner margin ; a black dot at the end of the cell, a slightly sinuous series crossing the wing obliquely just beyond the cell, and a slightly zigzag disco-submarginal series of blackish spots ; costal margin from before the middle to the apex spotted with blackish ; fringe sordid white, traversed by two series of oblong grey spots : secondaries sericeous white, the costal border and fringe slightly sordid : body white, the abdomen sordid and greyish towards the centre ; palpi long, porrect, white above, with the sides grey ; antennæ greyish. Primaries below grey, with grey-speckled white borders ; fringe as above : secondaries white, the costal area slightly irrorated with grey scales ; a small grey discocellular spot : body below greyish brown ; tarsi and venter banded with white. Expanse of wings 24 millim.

Three specimens. Mendocino County, California.

Of the European species this most nearly resembles *N. centonalis* ; its antennæ, however, are longer and more slender. By the description I should judge it to be allied to *N. sexmaculata* of Grote.

Liparidæ.

ORGYIA, Ochs.

24. *Orgyia nora*.

Orgyia nora, Fitch, Eighth Report on Noxious Insects of New York, p. 675 (1864).

One male. Siskiyou County, California.

I am rather sceptical about the distinctness of this species from *O. antiqua* ; it is certainly darker (or rather duller) than the majority of specimens of the European species ; but the latter is frequently much darker than the example now before

me; whilst three specimens, undoubtedly referable to *O. antiqua*, in the Museum collection from Nova Scotia, are paler than the majority of European examples. I believe that *O. nora* is a bad species.

25. *Orgyia gulosa*.

Orgyia gulosa, H. Edwards, "Papilio," p. 61 (1881).

Two males. Lake County, California.

I had already separated these from a series of *O. vetusta* before I was aware that Mr. Edwards had described it. The specimens are smaller than *O. vetusta*, with rather less-pointed primaries; these wings are slightly browner, giving the insect a more uniform coloration; the stripes across the primaries are more regular, the inner one straighter, and the white spot near external angle is a good deal smaller.

26. *Orgyia vetusta*.

Orgyia (sic) *vetusta*, Boisduval, Ann. Soc. Ent. Belg. xii. p. 28. n. 94 (1868).

Lake and Colusa Counties, California.

Lasiocampidæ.

GASTROPACHA, Ochs.

27. *Gastropacha Mildei*.

Gastropacha Mildei, Stretch, Zyg. & Bomb. p. 113. n. 1, pl. iv. fig. 12 (1871-73).

Rouge River, Oregon.

One example. Rather smaller and of a more uniformly lilacine-grey colour than Stretch's figure.

Saturniidæ.

PSEUDOHAZIS, Grote.

28. *Pseudohazis eglanterina*, var.

Saturnia eglanterina, Boisduval, Ann. Soc. Ent. France, 2^e sér. x. p. 323. n. 95 (1852).

California.

A single extremely melanistic example, in which the orange-yellow areas are reduced to short dashes, those towards the costa of primaries washed with pink.

Drepanulidæ.

DREPANA, Schrank.

29. *Drepana arcuata*.*Drepana arcuata*, Walker, Cat. Lep. Het. v. p. 1164. n. 8 (1855).

Washington.

Ceruridæ, fam. nov.

Cerura and allies, with their Drepanulidiform larvæ, must be separated from the typical Notodontidæ: their larvæ are broad in front, with a distinct angle or hump at the fourth segment, fourteen legs and a forked pair of projecting tails, from which, when annoyed, bright-coloured filaments are exerted. The cocoon is hard, and the imago very woolly.

CERURA, Schrank.

30. *Cerura bicuspis*?*Bombyx bicuspis*, Borkhausen, Eur. Schmett. iii. p. 380. n. 141.

Mendocino County, California.

Notodontidæ.

NADATA, Walk.

31. *Nadata Doubledayi*, var. *oregonensis*.

Differs from typical *N. Doubledayi*, Packard, in the distinctly greyer tint and greater prominence of the markings on the primaries; the lines across these wings are also much more divergent, the inner line being considerably more oblique. Expanse of wings, ♂ 48 millim., ♀ 60 millim.

Rouge River, Oregon.

It is possible that this may be specifically distinct; and therefore I give it a distinctive name; but it does not seem to differ so evidently as *D. Doubledayi* and *D. gibbosa*, though these two were placed together by Walker.

Hepialidæ.

STHENOPIS, Packard.

32. *Sthenopsis anceps*.*Hepialus anceps*, H. Edwards, "Papilio," p. 36 (1881).

California.

Surely this cannot be the species intended by Behrens in his description of *H. Baroni*? That description has puzzled me, since it states that the third and fourth bands are fused, and that the submarginal forms a fifth band, whereas it appears that the insect only possesses three bands in all.

The example in Lord Walsingham's series is rather of a subochreous clay-colour than reddish-brown tint; but different men hold different views respecting colours (possibly they may not even see them alike), as an instance of which I may note that what Hewitson invariably called "rufous brown" I should describe as "fuliginous brown," or, in some cases, as "olivaceous brown," the colour having to my eyes a green rather than a red shade; in the second place, it is possible, though hardly probable, that the specimen before me is referable to another new species of *Sthenopsis*.

HEPIALUS, Fabr.

33. *Hepialus sequoiolus*.

Hepialus sequoiolus, Behrens, Can. Ent. viii. p. 174 (1876).

Mendocino County, California.

34. *Hepialus mendocinulus*.

Hepialus mendocinulus, Behrens, Can. Ent. viii. p. 174 (1876).

Mount Shasta, California.

35. *Hepialus Lenzi*.

Hepialus Lenzi, Behrens, Can. Ent. viii. p. 175 (1876).

Mendocino County, California; Rouge River, Oregon.

The *H. sangaris* of Streckker (pl. xv. fig. 5, 1877) seems to come between this species and the following.

36. *Hepialus inutilis*.

Hepialus inutilis, H. Edwards, "Papilio," i. p. 36 (1881).

Mendocino County, California.

The oblique bands on primaries are much whiter in some examples than in others, sometimes also showing traces of a scarlet margin similar to that of the ochreous bands in *H. Lenzi*.