

5. *Goodia* (*Orth.*) *monochromum*, Karsch.*Goodia* (*Orth.*) *monochromum*, Karsch, l. c. p. 502, pl. xx. fig. 3.6. *Goodia* (*Orth.*) *prox*, Karsch.*Goodia* (*Orth.*) *prox*, Karsch, l. c. p. 502, footnote.

My reference of the genus to the Drepanulidæ is, I discover upon a more minute examination of the neuration, erroneous. Dr. Karsch is right in referring it to the Saturniidæ.

Western University of Pennsylvania,
August 16, 1893.

XLII.—*Description of the Anatomy &c. of a new Species and Variety of Arion.* By WALTER E. COLLINGE, Demonstrator of Biology, Mason College, Birmingham.

[Plate IX.]

Arion flagellus, sp. n. (Pl. IX.)

For some months past I have been receiving large series of Irish slugs, mostly belonging to the genus *Arion*, from Mr. R. A. Phillips, of Ashburton, Co. Cork.

In June last I received two boxes of Arions, three examples of which I noticed in particular owing to the small size of the caudal gland. Through the kindness of Dr. Scharff, Mr. Phillips, and Miss Delap I have had opportunities for examining many hundreds of Irish Arioninæ; but nothing approaching this form has previously come under my notice. On July 26th I received a further series of slugs from Mr. Phillips, collected at Schull, Co. Cork, two of which I recognized as agreeing with the form previously noted.

A careful examination satisfies me that it is a new form, which I now describe and figure.

The slug alive measured 50 millim. in length, in alcohol 42 millim., with a mantle 13 millim. long. The head is of a bluish-white colour, which gradually darkens or becomes a greyish blue on the tentacles. In the median line of the body a broad, dark, vandyke-brown coloured band extends from the caudal gland to the mantle and becomes less distinct after passing over about half the length of the mantle. On

either side of the body a narrower light brown band borders the median one, and this in turn is bounded by another dark vandyke-brown band about half the breadth of the median one. The sides of the body and the foot-fringe are of a light brownish white, the latter being striped with faint sepia lines. The sole is pale yellow. The rugæ are somewhat oval and flat, separated by deep sulci. The caudal gland is small and inconspicuous.

The alimentary and nervous systems agree very closely with the condition found in *A. empiricorum*, Fér.; there are some slight modifications, however, in the form, position, and branching of the buccal nerve and a number of minor modifications in the muscular system, in both of which features it differs from any known species. Individually, however, I am not inclined to attach much importance to these. The differences in the generative system are the best marked and such as to at once indicate its specific identity. There is a large single vestibule; the upper portion of the receptacular duct is greatly enlarged, but it cannot at all be regarded as a second vestibule. The sperm-duct is a moderate-sized tapering organ continued as the vas deferens, which is noticeable on account of its length. The receptacular duct commences as a much dilated tube, tapering to a small and short duct which opens into a large oval-shaped sac—the receptaculum seminis. There is a large muscle attached to the distal end of this organ (Pl. IX. fig. 2, *r.s.* and *r.m.*). The oviduct is exceedingly large and usually exhibits a series of more or less well-developed constrictions; where this large proximal portion joins the distal portion of the free oviduct there is a small flagellum, to which a muscle is attached. This muscle originates from the right body-wall, posterior to the pericardial cavity, and, as well as being attached to the oviduct, is continued forwards and attached to the upper portion of the receptacular duct. The oviduct and prostate are much convoluted, and in all the specimens dissected were found to have a position quite different to that found in any other members of the genus as far as I am aware. On turning back the body-wall from the left side, the large albumen-gland is noticed lying over the oviduct and prostate, these in turn lying over the free oviduct, sperm-duct, vas deferens, &c. The albumen-gland is exceptionally large, as is also the hermaphrodite gland, which is of a deep slaty-purple colour; it opens into the hermaphrodite duct, a long convoluted tube.

It will readily be seen that *A. flagellus* differs in a number of well-marked anatomical characteristics from any other known species. It may, I think, be regarded as a form inter-

mediate between *A. lusitanicus*, Mabille, and *A. subfuscus*, Drap., both of which species occur in Ireland. It also forms a link between the *empiricorum* and *subfuscus* group of Pollonera.

Arion flagellus, Collinge, var. nov. *Phillipsi*.

This form differs from the type in having the whole of the back and mantle of a deep mahogany-brown colour and the sides of the body white with black dashes. It was found in company with the specimens collected at Schull, Co. Cork. I have much pleasure in associating with it the name of the finder, Mr. R. A. Phillips.

EXPLANATION OF PLATE IX.

Fig. 1. *Arion flagellus*, Collinge, $\times 1\frac{1}{2}$.

Fig. 2. Generative system of the same, $\times 3$.

Fig. 3. Distal portion of the free oviduct, showing flagellum, $\times 9$.

Fig. 4. Proximal portion of the generative system, showing enlarged portion of the receptacular duct.

alb.gl. Albumen-gland.

fl. Flagellum.

h.d. Hermaphrodite duct.

h.g. Hermaphrodite gland.

ov. Oviduct.

ov'. Free oviduct.

pr. Prostate.

r.m. Retractor muscles.

r.d. Receptacular duct.

r.s. Receptaculum seminis.

s.d. Sperm-duct.

v. Vestibule.

v.d. Vas deferens.

XLIII.—*New Species of Oriental Lepidoptera.*

By Col. C. SWINHOE, M.A., F.L.S., &c.

RHOPALOCERA.

Family *Nymphalidæ*.

Subfamily *LIMNIINÆ*.

Genus *DANISEPA*, Moore.

Danisepa niasana, sp. n.

♂. Black. Fore wings with a large square white patch filling up the end of the cell, but not touching the discocellulars; a long white spot immediately above it with a small white spot in front, both divided from the cell-patch by the subcostal vein; a long pale blue spot just below centre of first median veinlet and five round blue spots submarginal. Hind wings with a white basal patch as in *D. rhadamanthus*;



Collinge, Walter E. 1893. "XLII.—Description of the anatomy &c. of a new species and variety of Arion." *The Annals and magazine of natural history; zoology, botany, and geology* 12, 252–254.

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