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OBSERVATIONS UPON SPILOSOMA CONGRUA, WALKER.

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On the 29th of June, 1897, I found, in the Gomin Swamp, two *Spilosomas*, females, lying side by side. One of them was much spotted, and presented the exact appearance of the insect which is figured, with closed wings, in the original edition of Dru Drury's work, and named by him *Bombyx cunea*. The other was white, but on the median nerve, at the angle of the second fork, there was a small black dot, hardly perceptible. The thorax was clothed with light down; the abdomen was white and spotless. The eyes were black, as were also the under sides of the antennae and feet. The front of the thorax under the head was luteous.

This second moth laid eggs on the 10th of July, and the eggs produced larvae which, in due time, pupated. The moths appeared in the following spring.

I took the mother moth to the meeting of the Entomological Society of Ontario, at London, and readily identified it with specimens marked "*Spilosoma congrua*, Walker," in the Society's collections.

Of the imagoes raised from this insect some were allowed to escape, some I gave away, and a few were crippled; but I have twenty-eight of them before me at this moment, and they present a most interesting subject for study. I will group them:—

I. AS REGARDS THE WINGS:

- (a) Two males, all but immaculate, having the faintest indication of a dot at the second fork of the median nerve.
- (b) One male having a decided black spot at the point above mentioned.
- (c) Five males and seven females having the spot and indications of an irregular transverse row of dots near the hind margin.
- (d) Seven females with the spot and a well-defined row of black dots near the hind margin.
- (e) One male and two females with the spot, and a terminal row and sub-terminal row of dots.

- (f) Three males and one female with four rows of dots on the primaries, and a spot near the costa of the secondaries.

II. AS REGARDS THE ABDOMEN :

Eleven specimens are immaculate, and seventeen have longitudinal rows of spots.

- (a) and (b) have the abdomen immaculate.
- (c) Two specimens have two distinct rows of black spots *on the under side*, and no more; two have dorsal and side rows of spots, but none underneath. The rest have immaculate abdomens.
- (d) One has five rows of spots, and six have the two rows on the under side only; but of the latter one specimen has two black dots on the back.
- (e) One (male) is immaculate as regards the abdomen; one female has the five rows; and the other has rows on the under side only.
- (f) One (♀) has all five rows; one (♂) has only the rows on the under side; and one (♂) has an immaculate abdomen.

Of the males the usual expanse of the wings is 17 lines, but one reaches 20. Of the females the usual expanse is 20 lines.

I sent two of the moths to Washington, and Dr. Dyar kindly wrote me word that the insects belong to the species *Antigone* of Strecker. Mr. Lyman also submitted a pair of the same brood to Mr. Beutenmüller, who said that he had seen Strecker's types at Reading, Pa., a few days before, and that the species was certainly *Antigone*. Very well.

In Smith's list the *S. congrua* of Grote is given as a synonym of *S. antigone* of Strecker. What does Grote say on the subject? "On my first visit to the British Museum I examined Walker's types, and made the following descriptions of his specimens"

Here follows a description that exactly fits my group (c). And he adds, "I was doubtful about its being North American. But very likely it is a form that Mr. Stricker calls *Antigone*, which must join that author's long list of synonyms." (CAN. ENT., Vol. XV., p. 9.)

But Walker gives his own account of *S. congrua*; and, as the British Museum lists are not easily obtainable, and but few of our Canadian entomologists have copies of them, I ask room for the description in full.

"SPILOSOMA CONGRUA.

"Alba; palpi supra nigri; pedes antici nigro luteoque varii. Mas.—caput et thorax anticus subtestacea; alae anticae e guttis fuscis quadrisubfasciatae.

"White. Tarsi with black bands. Fore coxae and fore femora luteous, with black spots on the inner side; fore tibiae striped with black on the inner side. *Male* — Head and fore part of the thorax with a slight testaceous tinge. Fore wings with four oblique very imperfect and irregular bands, composed of pale brown dots. Length of the body 6–7 lines; of the wings 16–20 lines. a — c Georgia. From Mr. Milne's collection."

(*List of the specimens of Lepidopterous Insects in the collections of the British Museum. Part III. Lepidoptera Heterocera*, p. 669. Published 1855.)

With this description the insects in my group (f) agree. One has even the slightly testaceous thorax, which is not common; and another has the black spots on the inner side of the luteous femora. All have the four bands.

With my specimens before me I can entertain no doubt that Walker and Grote were describing forms of one and the same species. I state this after much consideration, for Smith says, in his "Preliminary Catalogue of the Arctiidae (CAN. ENT., Vol. XXII., 16), "Walker's description does not apply to *Antigone* at all, while it does apply to *cunea*, a specimen of which, according to Butler, was of the *types*."

What is meant by *cunea*?

There is a moth well known all over North America. It was described and named by Harris (*Insects Injurious to Vegetation*, pp. 357–9), and much valuable information respecting it has been given by Dr. Bethune (CAN. ENT., Vol. V., p. 141), Professor Saunders (*Insects Injurious to Fruits*, p. 171), and others. It is the Fall Web-worm Moth, the *Hyphantria textor* of Harris.

Of this *H. textor* we have in Canada but one brood in a season. Its eggs hatch "from July 10th to the middle of August" (John G. Jack, CAN. ENT., XVIII., 23). The larvae are full grown by the end of September. The moths have generally, in Canada, spotless wings and spotless abdomens, according to the description given by Harris, Bethune, Saunders, and others, and their usual expanse of wings is 14 lines.

But southward there is a second brood of *textor* which is noted for its variations. The most spotted of these, the extreme variety, is supposed to have been the *Bombyx cunea*, figured by Drury in 1770. And therefore it is said the name of the variety must take the place of the specific name given by Harris, and till very lately generally accepted.

Both Professor Riley and Professor Smith have well and clearly expressed the contention as it now stands. The former says:

"The moths vary greatly, both in size and coloration. They have, in consequence of such variation, received many names, such as *cunea*, Drury; *textor*, Harris; *punctata*, Fitch; *punctatissima*, Smith. But there is no doubt, as proven from frequent breeding of specimens, that all of these names apply to the very same insect, or at most to slight varieties, and that Drury's name, *cunea*, having priority, must be used for the species." (Riley quoted in Packard's *Forest Insects*, pp. 246-7.)

The latter says:

"In Mr. Grote's list of 1882, *textor* and *punctata* stand without number, but in Roman letters, and therefore not as synonyms. There is no doubt at all of the identity of all these forms. Prof. Riley has proved that to demonstration, if proof were required to the statements of earlier writers." (CAN. ENT., XXII., p. 165-6.) And in his *List of Lepidoptera of Boreal America* he gives :

HYPHANTRIA, HARR.

1096. *Cunea*, Drury.

punctatissima, S. and A.

punctata, Fitch.

congrua, Walker.

textor, Harris.

candida, Walker.

ab. pallida, Pac.

But is there really no room for doubt? Is the proof so entirely satisfactory? It might have been were there but one variable insect in the field to meet the requirements, but with two or more the matter is fairly open to question.

Let us consider the illustrations that accompany Prof. Riley's statement. I have them by me in that valuable work, Packard's *Forest Insects*, p. 245-6. First compare with the illustration of the Fall Webworm Moth on page 245, the illustrations accompanying Dr. Bethune's and Prof. Saunder's articles above referred to — the disproportion in

contour and size at once strikes the eye. Riley's cut represents an insect 20 lines in expanse of wings. I venture to say that no Fall Webworm Moth ever attained such a size. But latitude was necessary to take in such moths as *congrua* and *cunea*. Then as regards the series of wings given on page 246. These we may conclude, from the whole tenor of the article, include representations of *cunea*, *punctata*, *punctatissima*, etc. They are on the scale of 18 lines for expanse of wings. *There is not one of them but can be exactly matched from insects I raised or that were taken with the mother insect in the Gomin.*

Let us now consider the larvae :

A comparison of the Rev. Dr. Hulst's account of the larvae of *S. congrua* (Ent. Amer. 11., 162), and of Professor Saunders description of the larva of *S. cunea*, in its last stage, with the following life-history, written with care by myself, will, I think, show that the three descriptions relate to one and the same species.

Life-history of *Spilosoma congrua*, Walker :

Eggs — Waxen, globular, laid dispersedly and unattached on the 10th of July, very small for the size of the insect — one-thirtieth of an inch in diameter. Hatched July 16th.

Newly-hatched larva. — One-tenth of an inch long, of a pale greenish tint, with a row of reddish-brown tubercles along the middle of each segment above. Every tubercle has two or three rather long, black hairs. Head dark brown. The larva feeds with avidity upon *Chenopodium album*, also upon *Taraxacum* and *Plantago*. It shows no disposition to spin. Moulded July 23rd.

Larva after first moult. — Length, three-tenths of an inch. Body reddish-brown, with black warts, from which proceed spreading tufts of long, black hairs with short spinous branches. Head bilobed, black. Feet black. Moulded July 29th.

Larva after second moult. — Length, half an inch. Body dark brown, with dark brown warts thickly set with tufts of black hair. A side line of red warts with a black tuft above and another below each wart. Larva exceedingly active — scuffles about in true Arctian fashion. Moulded August 8th.

Larva after third moult. — Length, one inch and one-tenth. Head shining black, bilobed. Body black, warty, densely clothed with jet black hairs. A side line of red warts as before, but hardly seen under the pile that overlaps it.

Mature larva. — One inch and three-quarters long. Body colour dark madder-brown, dotted with gray, and almost hidden by jet black bristly tufts which spring from jet black warts — these warts are arranged transversely in the middle of each segment. Along the sides is a row, closely two-fold, of chestnut-coloured patches. Head and fore legs glossy black.

Note. — *Every larva of the batch was true to this description.*

On August 19th, the larva formed a slight web, with hairs from its body intermingled with the meshes. The web was placed between leaves at the bottom of the breeding-cage.

Chrysalis. — First waxen in colour, then chestnut, and then very dark brown; plump, seven tenths of an inch long, three-tenths in diameter, and terminating in two clusters of spines — 5 in each cluster. These spines taper regularly and are terminated with small disks.

To allow the moth to escape the breast portion of the chrysalis-case shells off in the form of an apple-pip.

The indications are that the much-spotted *Spilosomas* (one of which I mentioned at the beginning of my paper, and five of which were taken, in the neighbourhood of Quebec, in the season of 1897) hold the same relationship to *S. congrua* as the much-spotted *textors* do to their type. They answer exactly to the description of *S. cunea* given by Walker in the B. M. list above mentioned. We cannot, however, be absolutely sure on this point till we have bred moths from one of them.

OBITUARY.

By the demise of DOMINIQUE NAPOLEON ST. CYR, Esq., which occurred in Quebec on the 3rd March instant, from congestion of the lungs, at the age of 74 years, natural science has lost a worthy student and education a hearty promoter. He was born at Nicolet, P. Que., and educated at the college there. In 1867 he was admitted a notary public. Previous thereto he had been a model school and academy teacher. He was returned, in the Conservative interest, to the Legislative Assembly, Que., as member for the county of Champlain, at the general elections in 1875 and again in 1878. Going out of politics, he took up his residence in Quebec, and was appointed Curator to the Provincial Government's museum in the Parliament Buildings. Under his practical care and thorough knowledge of science, what appeared to be a heterogeneous conglomeration of specimens of all sorts, assumed shape as a very nicely classified museum. In it is preserved the valuable entomological collection of Abbé Provencher, which is, of itself, well worth a visit to students. As an entomologist and botanist Mr. St. Cyr will be much missed. His successor as Curator of the Provincial Government museum is Leonidas Larue, Esq., and M.D. of Laval University. J. EVERLEIGH TREFFRY.