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## REMARKS ON PSOROPHORA CILIATA, WITH NOTES ON ITS EARLY STAGES.

BY L. O. HOWARD.

*Psorophora ciliata*, Fabr., is the only species of the genus *Psorophora* known to occur in the United States. It is a widespread species and is known to the writer to occur in Massachusetts, New Jersey, Pennsylvania, District of Columbia, Virginia, Kentucky, Illinois, Florida, Louisiana, Arkansas, Nebraska, Texas and California. It is, however, rare in its northern range and seems to be a lower austral form. It may have a tropical range, but among many mosquitoes received by the writer during the past year from Mexico, Nicaragua and Cuba, this species does not occur. In his "Notes on the Mosquitoes of the United States" (Bulletin 25, New Series, Division of Entomology, U. S. Department of Agriculture), published August 23rd, 1900, the writer calls attention to the fact that *Psorophora* and *Megarhinus* have not been studied by investigators engaged in working upon the transfer of *Haematamoebæ* by mosquitoes, and urges that physicians and bacteriologists in our Southern States pay some attention to the mosquitoes of these genera.

At the time when the bulletin was written nothing was known about the early stages of *Psorophora*. A large series of living specimens was captured in June of the present year at St. Elmo, Va., by Mr. Pratt, and we expected that we should be able to secure eggs without difficulty and to study the insect in its different stages. The females were placed alive in large battery jars, under conditions which had repeatedly been successful with *Culex* and *Anopheles*, but no eggs were deposited. This brought

the writer to the conclusion that either the confined specimens were not impregnated, or that they had already deposited all of their eggs, or that the breeding habits differ from those of the mosquitoes of the other genera mentioned.

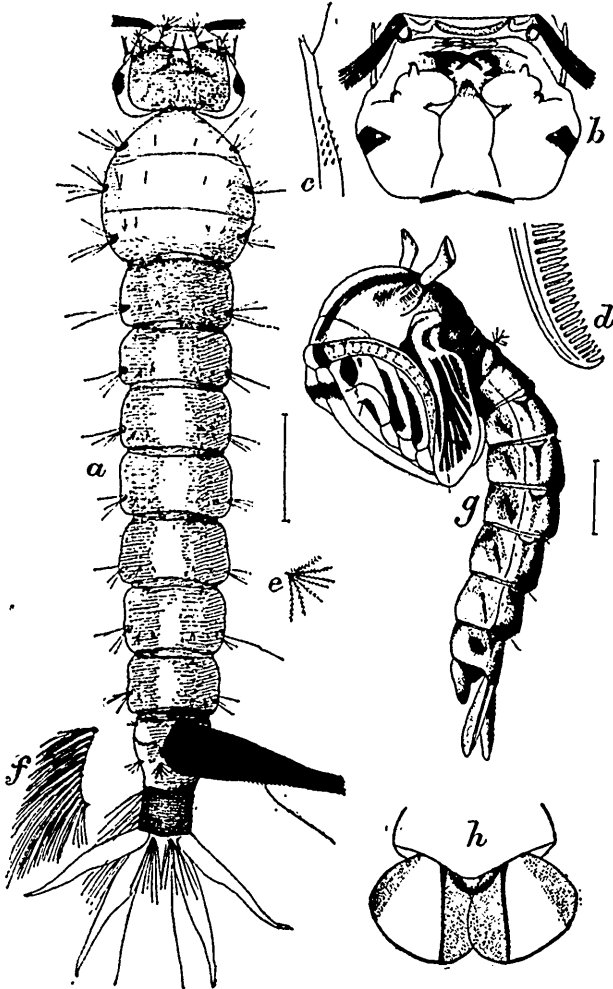


FIG. 31.—*Psorophora ciliata*: *a*, full-grown larva; *b*, head of same from below; *c*, antenna of same; *d*, a mandibular filament; *e*, tuft from penultimate segment of same; *f*, fringe from same; *g*, pupa; *h*, anal flaps of same. Enlarged (original).

On August 30th, 1900, some very large mosquito larvæ and pupæ were received from Mr. Wm. P. Seal, of the Aquarium Supply Company, at Delair, N. J. An examination of these specimens convinced me that they could be nothing else than the larvæ and pupæ of *P. ciliata*. The first specimens received were in alcohol, and Mr. Seal was informed of their probable identity and urged to send on living specimens in water and to endeavor to rear the adult himself. It was then, however, unfortunately, too late. Mr. Seal wrote that during the summer a small creek and some earth ponds on his place became entirely dry, in consequence of which

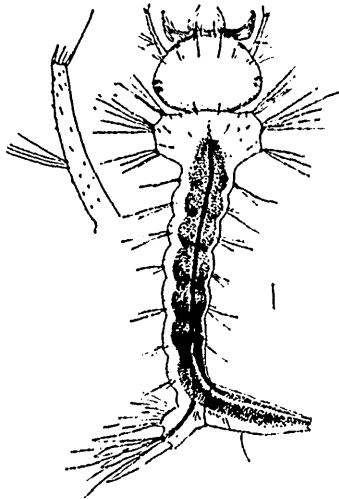


FIG. 32.—*Psorophora ciliata*: young larva with enlarged antenna at left. Enlarged (original).

all fish in them died. Some time in August there was a sufficient rainfall to fill a few of the deepest places, which became almost alive with mosquito larvæ. These were used for fish food until it was noticed that they were developing to the pupa stage, when coal oil was immediately poured on the water. It was when the coal oil was being applied that the big larvæ and pupæ were first noticed. Mr. Seal had been a collecting naturalist for 26 years, supplying material for the aquarium, for biological research, and having discovered some low forms of life new to science, described by Leidy and Ryder; but in all his experience he had never observed such large mosquito larvæ.

On being assured of the novelty and importance of his observation, Mr. Seal promised to watch for the subsequent appearance of similar larvæ, and on September 20th last was able to forward other specimens which appeared after a rain which occurred about the 15th of September or a little before. Mr. Seal was able to distinguish between them and the ordinary *Culex* larvæ, and wrote that they were very scarce, perhaps one of them to many thousands of the others. On the 25th of September additional larvæ and pupæ were sent by Mr. Seal, and from these specimens the accompanying drawings were made. The larva is structurally of very great interest. On comparison with the larva of *Culex*, which it resembles more nearly than that of *Anopheles*, it will be seen that the respiratory siphon is longer, that the anal flaps are longer and more pointed, that the hair fringe on the venter of the anal segment is much longer and denser, and that the mouth-parts differ in very important particulars. The labium is well differentiated into ligula and paraglossa and the labial palpi are represented by little simple processes. The lacinix of the maxillæ are beautifully modified into mandibular-like structures, each with a long terminal tooth and stout basal tooth and three intermediate teeth. These not only resemble mandibles, but have a mandibular function, since they are indubitably used in the mastication of food. Other mosquito larvæ studied fed upon spores of algæ and other small particles which appeared to require no mastication, but this larva descends to the bottom of the water and has been noticed to grasp a bit of vegetation a half-inch long and to actually chew it. The maxillary galea is membraneous and furnished with long terminal cilia. The mandibles are long, brush-like organs, each element of which is beautifully pectinate, as shown in Fig. 31 *d*. The clypeus is bent over the front of the head, forming a chitinous overlapping lip which reaches nearly to the maxilla.

The duration of the pupal stage in specimens received was 4 to 5 days, and adults issued on the 27th and 28th of September, and confirmed the determination of the species as *P. ciliata*. In the last sending young larvæ were found, shown at Fig. 32.

The adult of this species is at once distinguished from all other mosquitoes by the peculiar vertical scales on the legs, as shown in the illustration, Fig. 33. The colour of the insect is dark yellowish, with infuscated wings.

The breeding places in which these larvæ were found were small depressions in the bed of a small stream and similar hollows in certain small ponds, all of which were dry the greater part

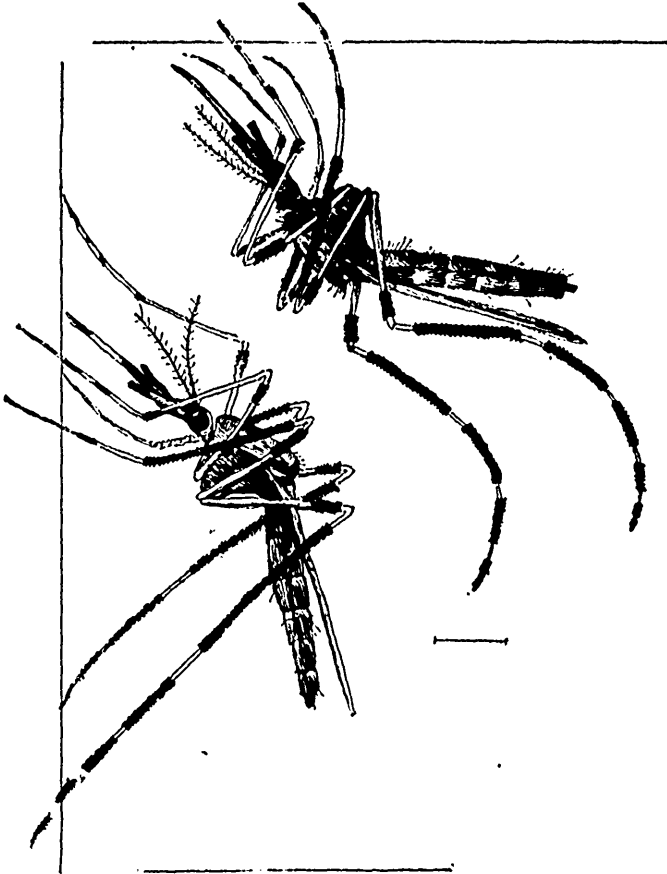


FIG. 33.—*Psorophora ciliata*: adult females, showing resting position on side wall and ceiling. Enlarged (original).

of the past summer. After they first dried in the spring they were barren of fish and vegetation. Mr. Seal is satisfied that the insect is very rare in the vicinity of Philadelphia. It is now important to discover the egg of this interesting species.

NOTES ON *NEOPHASIA TERLOOTII*, BHR., FROM ARIZONA, WITH DESCRIPTION OF A NEW VARIETY.

BY OTTO C. POLING, QUINCY, ILL.

*Neophasia Terlootii* was described a great many years ago\*, and the description being in Latin, it is not surprising that Dr. Strecker overlooked it in the hurry to publish his description of the female I sent him, which he supposed had not been previously described. It is a little surprising, however, that Dr. Skinner, who had the first opportunity to examine one of my examples of *Terlootii*, should have failed to recognize the generic characters of the insect until Dr. Strecker's description as *Neophasia epyaxa* was published.

The first female example of *Terlootii* taken, which is the type of "*Archonias lyceas*, Skinner" †, and is now in my collection, agrees with the type of *Neophasia epyaxa*, Strk., which I sent him after a careful comparison. These two specimens were taken in Cochise County, Arizona, to which locality I sent one of my regular collectors to spend the past season in studying the habits and collecting a series of examples of this interesting butterfly.

Of the series before me, most of the examples agree with the description of *Terlootii* male, and subsequent illustrations and descriptions of specimens sent out. There are, however, three females and one male which differ so much from the others as to well deserve a varietal name, and with the kind permission of my friend, Dr. William Barnes, I am allowed to use a most appropriate name, which he had intended to bestow on the species had it not been previously described, *Neophasia Terlootii*, var. *Princetonia*, n. var. Male differs from type in having the margin of hind wings washed with pale red on both surfaces, of a shade somewhat lighter than that of the female. The under surface is more heavily washed with red than the upper. There is a submarginal entire black band on both surfaces of hind wings, which is not quite so broad as in the female *menapia*, but the veins between this band and the outer margin are more heavily washed with black scales than in the latter species.

Female—From the types of *Neophasia epyaxa*, Strk., and "*Archonias lyceas*," Skinner, this form differs in having a much greater suffusion

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\*Trans. Am. Ent. Soc., Phil., II., 304 (1869).

† Ent. News, XI., 533, plate XIV. (Sept., 1900).

of black on both surfaces of the wings, and in the absence of the orange spots in outer marginal band of hind wing. There is also a large patch of orange in the centre of the cell.

[The Curator, on behalf of the Entomological Society of Ontario, desires to acknowledge with grateful thanks Mr. Poling's very acceptable gift of specimens of both sexes of this remarkably interesting butterfly—*Neophasia Terlootii*.]

### CLASSIFICATION OF THE BUTTERFLIES.

BY A. R. GROTE, HILDESHEIM, GERMANY.

In the course of my already-published studies, the probabilities as to the homology of the last anal vein of the Papilionides primary have varied. From preparations of the pupal wing of the Hesperiaes, it has become clear that the fork to second anal at base is the remains of the third anal vein, which is irregular and more extended in the fore wing of the chrysalis and does not attain the outer margin. It is furcate and connected with the second anal in the pupal stage. On the other hand, the downwardly curved, short, last and free anal vein of the Papilionid primary cannot be homologous with this, as, indeed, I originally contended. This vein reaches the internal margin, and is probably a survival of the fourth anal. This fact points to a different origin for the two groups, which I have finally defined as follows:

- A.* Butterflies having a short fourth anal vein on primaries, running downwardly free from base of wing to internal margin; on secondaries only one anal vein.....PAPILIONIDES.
- B.* Butterflies having a short third anal vein on primaries, joining outwardly the second near base of wing (this fork sometimes wanting by reduction and always thinner than second anal or degenerate), fourth anal wanting, and having more than one anal vein on secondaries.....HESPERIAES.

In order to bring out the probable phylogeny in the classification, I accord superfamily value to the two divisions. The Papilionides include the three families: Parnassiidae, Teinopalpidæ and Papilionidæ, separable on neurational features, the first two appearing as specializations of the last in the order given. The Hesperiaes include not only the Lycænidæ, as indicated by Fabricius, but all the rest of the butterflies, of which I regard the Pieridæ and Blueæ as the more recent developments, while the Nymphalidæ and Skipperæ represent older types.



## A NEW PULVINARIA FROM NEW MEXICO.

BY GEO. B. KING, LAWRENCE, MASS.

*Pulvinaria Tinsleyi*, n. sp.

Shriveled adult female scales on the twigs, light brown, elliptical, convex. Ovisac, clear white, texture as in *P. innumerabilis*. After boiling in K. O. H., derm colourless, not pitted or tessellate. Legs and anal plates tinged with yellow. Spines of lateral cleft in threes, one long and curved; 76  $\mu$  long, two quite short, 28  $\mu$  long. Margin with one row of stout blunt spines 40  $\mu$  long, 6 broad. Anal plates heart shaped, each 100  $\mu$  broad and 136  $\mu$  long. Antennæ 7-jointed, width quite constant, but the length of the joints seems to be quite variable. I have examined ten, with the following results in  $\mu$ : Joint (1) 24 to 40, (2) 40-60, (3) 68-80, (4) 52-64, (5) 28-36, (6) 28-40, (7) 44-52. Formula 3472651. Joint 3 is always longest, while 4 is nearly as long, but never equal; 1 is always the shortest, 5 and 6 are next and sometimes nearly equal. Joints 2 and 3 have two long hairs each; 5 and 6 have 3 each; 7 seems to have 9, the terminal one very long.

Legs normal, with the coxa 80  $\mu$  long, 100 broad. Femur with trochanter, 208 long, 68 broad. Tibia, 180 long, 24 broad. Tarsus, 92 long, 20 broad. Claw, 24 long. The trochanter has one short terminal hair. Tibia and tarsus each with four short subterminal hairs. Digitules of tarsus and claw normal, with knobbed ends. No satisfactory measurements can be given of the dead and shriveled adult scales; but those boiled and pressed under a cover glass seem to be nearly circular, about 5 mm. in diameter. Larva, just hatched,—yellow, elliptical, marginal spines absent. Antennæ 6-jointed, measuring in  $\mu$ : (1) 20, (2) 16, (3) 32, (4) 16, (5) 16, (6) 36. Leg, coxa 48. Femur with trochanter, 60. Tibia, 48. Tarsus, 44. Larvæ, perhaps about three or four weeks old, on the leaves of the food plant, have well-developed 7-jointed antennæ, and large blunt marginal spines.

Hab.—On *Celtis* sp., in a draw near the road from Pecacho to Roswell, in the Pecos Valley, New Mexico, about 20-25 miles west of Roswell. Some of the limbs were almost covered with the scales, and many of the leaves were about killed. Collected by Prof. Tinsley, August, 1900, and sent to Prof. Cockerell, who turned it over to me for study. *Pulvinaria innumerabilis* has been recorded from *Celtis occidentalis*, but *innumerabilis* has nothing to do with the species above described, although the two are superficially similar, and might be confused at first sight.

## NOTES ON NEW MEXICO BEES.

BY T. D. A. COCKERELL, N. M. AGR. EXP. STATION.

*Bombomelecta larrea*, n. sp.

♀.—Length  $12\frac{1}{2}$  mm.; general build and structure of *B. thoracica*, but the scutellum is convex with a central depression, and wholly without spines; while the claws have the inner division short and broadly truncate. The maxillary palpi are 6-jointed, and the mandibles have a strong tooth on the inner side. Black; pubescence of the face and vertex pale brown; of the occiput, labrum and clypeus, black; of the pleura, metathorax and scutellum, black; of the post-scutellum, yellowish, especially noticeable at the sides; of the mesothorax, orange-fulvous, short, dense and conspicuous in front, thin behind. Abdomen with broad but inconspicuous ochreous bands on segments 2 to 4, more or less interrupted in the middle on 2 and 4, represented on the first segment by lateral patches, and a few ochreous hairs even in the middle; fifth segment with black hairs. Antennæ entirely black, apex truncate, the corners of the truncation rounded. Legs black, with black pubescence; spurs black, hind spur of hind tibia larger than the other, and somewhat bent. Wings dark fuliginous, with hyaline patches on the third transverso-cubital and second recurrent nervures; venation resembling that of *B. thoracica*, var. *fulvida*, except that the first recurrent nervure joins the second submarginal cell almost at its apex.

*Hab.*—Mesilla Park, New Mexico, at flowers of *Larrea tridentata*, May 9, 1900.

*Epeolus occidentalis*, Cresson, var. *segregatus*, n. var.

♂.—Differs from typical *occidentalis* from Colorado, received from Mr. Fox, as follows: Spurs of four hind tibiae pale brownish, only the minutely ciliate margins black; tegulae deep orange-ferruginous, shining and distinctly punctured; the two longitudinal pale ochreous stripes on mesothorax narrow, very well defined, not reaching the front margin; marginal cell shorter and broader; wings grayish, not yellowish; light band at apex of first abdominal segment narrowly interrupted in the middle; apical plate of abdomen subtruncate; second and third ventral segments with appressed white hair-bands. The first joint of flagellum is ferruginous beneath.

♀.—Similar to the ♂. Scape and first two joints of flagellum ferruginous beneath; longitudinal stripes on mesothorax subclavate, and attaining the anterior margin; scutellum ferruginous; all the abdominal

bands interrupted in the middle; fifth segment with a pyriform light patch on each side. The last ventral segment is dark, a little hoary in some lights, contrastive strongly with the broadly snow-white hind margins of the three previous segments; apex of abdomen very obtuse, the apical ventral segment not produced.

Distinguished from *E. lunatus* by the transverse black band, instead of semilunar mark, on the first abdominal segment. The lower part of the pleura is free from hair, and sparsely punctured on a shining ground. This insect seems intermediate between *lunatus* and *occidentalis*, and it may be that all three are races of one species.

*Hab.*—♂. Las Vegas Hot Springs, N. M., July 11. ♀. Las Vegas, at flowers of *Petalostemon candidus*, Aug. 11. (W. Porter.)

*Epeolus remigatus*, Fabr., var. *Martini*, n. var.

♀.—Length about 14 mm. Head dull from the excessively close punctures; clypeus with some larger punctures interspersed, and a more or less distinct longitudinal raised line; dark mark on mesothorax anchor-shaped, the lateral lobes long; pleura with very little light colour; first segment of abdomen with a broad triangle of black on its disc, the band below the triangle narrowly interrupted; band on second segment very thick, and produced obliquely upwards at the sides, forming an acute angle where it bends; sides of fifth abdominal segment black; antennæ and legs black, tarsi becoming ferruginous, middle tibiæ with a stripe of orange-fulvous pubescence.

Differs from *E. robustus* by the dull, densely-punctured clypeus and face, different ornamentation of thorax, band on second abdominal segment bent back at sides, etc.

Differs from *E. concavus* by not having the last ventral segment produced or curved.

Differs from *E. Texanus*, v. *nigripes*, by the ornamentation of the thorax and abdomen, and considerably shorter lateral teeth of scutellum. In life the eyes of *Martini* have the upper third green, the rest black.

*Hab.*—Romersville, N. M., Aug. 6, 1899. (Martin D. Cockerell.) This is very possibly a distinct species.

*Epeolus Cressoni*, Rob., 1867. New to New Mexico.

Las Vegas, July 24, at flowers of *Sphæralcea Fendleri lobata*, 1 ♂ (Wilmatte Porter); San Ignacio, Sept. 1, Aug. 31, ♀ (W. Porter and Ckll.). A female from near San Ignacio, Aug. 15 (W. Porter), is unusually large, 13 mm. long.

*Diadasia diminuta*, Cresson.

Santa Fé and Las Vegas, abundant at flowers of Malvaceæ; caught at Las Vegas on *Sphæralcea Fendleri lobata*, *S. cuspidata*, *Malvastrum coccineum*, *M. dissectum* and *Sidalcea neomexicana*, on the last by Mr. A. Garlick.

*Diadasia apacha*, Cresson.

Mesilla Valley, abundant at flowers of *Sphæralcea Fendleri lobata*. Heretofore recorded as *D. diminuta* (Trans. Am. Ent. Soc., XXV., 193). Its nesting habits are recorded in *Nature*, Sept. 17, 1896, p. 461.

*D. diminuta* was described from the ♂, *apacha* from the ♀; they are perhaps only subspecifically distinct. The ♀ *diminuta* is distinguished from *apacha* by the dark tegulæ and the thorax broader between the wings; the stigma also averages darker. The *D. diminuta* recorded from Juarez, Mexico (Cat. Abejas de Mexico, p. 14), is *apacha*.

*Centris Cockerelli*, Fox, Pr. Acad. Nat. Sci. Phila., 1899, p. 68. ♀.

I have little doubt this is the true ♀ of *C. lanosa*; i. e., of the Mesilla Valley insect regarded as *lanosa*.

*Centris rhodopus*, var. *pulchrior*, n. var.

Mesilla Park, N. M., June 24, one ♂. This is the ♂ variety described by Mr. Fox in Proc. Acad. Nat. Sci. Phila., 1899, p. 68, but not named. I think it is probably a distinct species. The legs are ferruginous (the hind femora blackish beneath at base), and the basal joint of the hind tarsi has long white hair like that on the tibia. The hind margins of the abdominal segments have distinct pale hair-bands.

*Centris Hoffmansseggia*, Ckll., Am. Mag. Nat. Hist., April, 1897, p. 395. ♂ (not ♀).

Mr. Fox regarded the insect which I had described as ♀ *C. lanosa* as the true ♀ of *C. Hoffmansseggia*; but it differed from the ♂ in its larger size, and entirely different pubescence of the legs, so I thought to treat it as a distinct species. It appears to be fond of the flowers of the mesquite (*Prosopis glandulosa*), on which it was again taken on May 15 of the present year, by Miss Nora Newberry. On May 16, at Mesilla Park, individuals of *Centris* were seen hovering in the air, but not visiting flowers. They were so agile that it was only with considerable difficulty that three were caught. These proved to be males of *C. Hoffmansseggia*, but larger (13½-14 mm.) than the single male hitherto known. At the same place, the females, their hind legs covered with orange pollen, were found entering their nests, which were tunnels in the ground, about two

inches vertically, and then laterally about four inches. The female is the insect which I described as ♀ *lanosa*, and thus Mr. Fox's reference of it to *Hoffmanseggia* is confirmed.

*Panurginus Portera*, n. sp.

♂.—Length about  $7\frac{1}{2}$  mm., black; head and thorax with fairly long, thin whitish pubescence; head transversely suboval; clypeus, except the two black dots, and lateral face marks, lemon yellow; face below antennæ without any conspicuous hair; labrum, mandibles, anterior edge and receding lateral pieces of clypeus (which are hairy) all dark; lateral face-marks triangular, their upper limit barely above the level of the upper edge of the clypeus; antennæ entirely black; front above antennæ cancellate with large punctures; vertex with large punctures, a smooth impunctate area on each side; thorax entirely black; mesothorax and scutellum shining, with well-separated large punctures; legs black, tarsi very dark brown; tegulæ dark brown; wings slightly smoky; nervures and stigma piceous; abdomen rather long and narrow, punctured except the broad hind margins of the segments; apex with two sharp points.

♀.—Stouter; face entirely black; abdomen with very small punctures, extremely sparse on first segment.

*Hab.*—Beulah, N. M. (Wilmatte Porter). The ♂ was taken Aug. 25, 1899.

From the description, I thought this might very well be a variety of *P. picipes* (Cress.), but Mr. W. J. Fox has kindly sent me a drawing of the face-marks of Cresson's type ♂ of *picipes*, and it is evidently a different species. In *picipes* the lateral face-mark is a small band along the orbital margin, running considerably above the level of the top of the clypeus, and not at all triangular. In my table in *Trans. Am. Ent. Soc.*, XXV., p. 196, the ♂ of *Portera* runs to *picipes*. From *P. innuptus* the ♂ is easily known by the triangular lateral face-marks (those of *innuptus* resemble those of *picipes*) and the dark stigma; the ♀ differs from that of *innuptus* by the dark stigma and nervures, the much darker tegulæ, the larger punctures of the mesothorax, the first abdominal segment much more sparsely punctured at the sides, and the black tarsi.

*Panurginus Cressoniellus*, Ckll. New to New Mexico.

Beulah, N. M., 3 ♀; near Beulah, Aug. 23, 1899, 1 ♂, 3 ♀. All collected by Miss Wilmatte Porter.

ADDITIONS TO THE LIST OF MANITOBA BUTTERFLIES,  
WITH NOTES ON OTHER SPECIES.

BY A. W. HANHAM, WINNIPEG, MAN.

*Euptoieta claudia*, Cram.—This species had never even been observed in previous year., but this season appeared plentifully at Bird's Hill in June, and again in August (16th) and September (4th); it was also met with at St. James, just outside the city limits. The species is usually common in prairie districts farther west.

*Melitæa Harrisii*, Scud.—Taken at Bird's Hill on July 1st, 1899. This season I came across a larva in the act of pupating, but missed the butterflies.

*Chionobas alberta*.—I captured one specimen at Bird's Hill on May 24th, 1899. This was my first experience with a *Chionobas* "on the wing" up here, and I nearly missed it (being a case of mistaken identity).

*Thecla irus*, Gdt., and *Thecla augustus*, Kirby.—Bird's Hill, May 24th (and later), 1899, not uncommon. None seen on same date this season.

*Thecla titus*, Fabr.—One specimen at Bird's Hill this season (August 16); not uncommon at Brandon.

*Chrysophanus dione*, Scud.—One specimen at Silver Height on July 22nd, 1898. Mr. Boger took a nice lot this season at Brandon.

*Lycæna rustica*, Edw.—Bird's Hill, June 8th and 10th, 1899, and May 24th this year, fairly plentiful locally. Also taken at Aweme in 1899.

*Pieris protodice*, Bd.-Lec.—Bird's Hill, this year, in June and September. Though generally common in the West, I have not yet taken this species nearer the city than Bird's Hill.

*Pamphila Manitoba*, Scud.—Earlier captures were all the var. *Assiniboia*, Lyman; this season on August 16th, at Bird's Hill, I took the typical form in some abundance.

*Pamphila hianna*, Scud.—Bird's Hill, taken June 8th and 10th, 1899, and one specimen this year on May 24th. It was a plentiful species last June (1899) in the Rounthwaite district.

The season of 1900 opened earlier than usual in Manitoba; on May 24th the early "skippers" and "hair-streaks" appeared to be over; on that date *Lycæna rustica* was out, some being quite worn, and on my next visit in June none were visible. I also took *Lycæna sapiolus*. Ordinary seasons neither of these "blues" would be on the wing much

before the middle of June, the latter flying into July. *Vanessa Milbertii* and *Pyrameis atalanta* and *cardui* were unusually abundant during the spring and early summer.

*Argynnis nevadensis*, Edw.—I captured my first specimen of this handsome "fritillary" on June 25th at Carberry. Mr. Boger reports it to have been plentiful in June at the Experimental Farm, Brandon. It has not turned up yet at Winnipeg.

*Neonympha canthus*, Bd.-Lec.—Some I took at Carberry on June 26th appeared to be unusually pale for fresh specimens.

*Erebia discoidalis*, Kirby, and *Erebia epipsodea*, Butl.—Specimens of both these species have been received from Mr. Dennis, of Beulah, taken there in 1899.

*Hipparchia Ridingsii*, Edw.—Mr. Norman Criddle, of Aweme, takes this species in his district.

*Chionobas varuna*, Edw.—In June, 1899, Mr. Marmont, of Roundthwaite, and I took a good series on the slopes and summit of the Brandon Hills, and in the sandy district near Treesbank and that of Aweme it occurred quite plentifully. Some examples of *Alberta* were captured during my visit to his place.

*Chionobas jutta*, Hbn.—Through the kindness of the Messrs. Criddle and their guidance from Aweme into the Douglas swamp (some 10 or 12 miles), we were able to see this fine butterfly on the wing. The date, June 18th (1899), however, was a little too late, and few of those netted were worth keeping. I think the specimens were somewhat larger and more brightly coloured than those from the Gomin swamp, Quebec.

*Pieris napi*, Esp.—Early in May "whites" were plentiful in the vicinity of my house, and I supposed that they were *rapæ*, which is our common *Pieris* now. Examining my small boy's captures later on, I was surprised to find that he had been taking the above species, usually a rarity here, and that there was not a single *rapæ* in the lot.

*Anthocharis olympia*, Edw.—Examples of this species have been taken by Mr. N. Criddle, and by Mr. Robinson, of the Experimental Farm, Brandon.

*Colias eurytheme*, Bdv.—This season has been noted for the abundance of "oranges"; they have been common from May into October. In 1899, I did not see one the whole season. "Albinos" were plentiful in June; on the 27th at Carberry this form predominated; unfortunately, few were any good.

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*Pamphila ottoc*, Edw.—I have not met with this species at Winnipeg since my captures in 1895, but it turned up at Brandon this year, having been taken by Mr. Robinson.

*Pamphila uncas*, Edw.—On June 27th I got three beautifully fresh specimens at Carberry. They were all taken off milkweed. Also captured this year at Brandon by Messrs. Boger and Robinson.

*Pyrgus tessellata*, Scud.—The previous record was not my capture, and I had never seen the species in the district until this year, when I bagged several at Bird's Hill on June 13th, and at Carberry on the 27th I got two more.

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### CORRECTIONS.

BY A. RADCLIFFE GROTE, A. M.

To prevent misconception of my paper in the October number of the CANADIAN ENTOMOLOGIST, on the Neuration of Lépidoptera, there should be added to the statement on p. 291, line 2 from bottom of the page, the words: "On the hind wings." The Hesperiaes have two anal veins on the secondaries, the Papilionides only one remaining.

Also, at the close of the article, p. 292, the words "of the fore wings" should be intercalated, in the concluding sentence, after "internal vein." I am writing of the last short downwardly curved veins of the Papilionides' primary wing, and which Dr. Chapman regards as homologous with the fourth anal, not the "third," as I have given in the paper. Upon this difference in the appearance and retention of the anal veins of the primaries, I have founded the theory of the diphyletism of the diurnals. The Papilionides will thus have lost the third anal of primaries and retained the fourth, which is free and joins the internal margin. The Hesperiaes have generally retained a remnant of the third anal pupal vein, in the shape of a fork to second anal, which is absorbed in many brush-footed butterflies, but is determinate in the Limnadiæ, Libytheidæ and Nemeobiidæ, while the fourth anal of the fore wings has become lost.

I finally would mention that the authorities give Borkhausen as author to *Hydroecia nictitans*, not Linné, as I had written without having consulted the earlier references to the species. The work of Duponchel should be cited: "Lep. Eur.," not "Lep. Ent.," as printed in my last paper on "Types of Noctuid Genera."



## SOME CHANGES IN GENERIC NAMES IN THE HYMENOPTERA.

BY WILLIAM H. ASHMEAD.

The following generic names in the Hymenoptera, alphabetically arranged, being preoccupied in other groups of zoology, must be changed, and I propose for them the following names :

*Brachycephalus*, Förster, 1868, *nec* Holland, 1857, to *Brachycranium*.

*Cacus*, Riley, 1893, *nec* Selys, 1854, to *Oethecoctonus*.

*Canidia*, Holmgren, 1858, *nec* Thompson, 1857, to *Canidiella*.

*Ceratosoma*, Cresson, 1865, *nec* Reeves, 1850, to *Ceratogastra*.

*Clepticus*, Haliday, 1839, *nec* Cuvier, 1829, to *Mischoxorides*.

*Colonotus*, Förster, 1862, *nec* Peters, 1855, to *Protaphidius*.

*Ecphora*, Förster, 1868, *nec* Conrad, 1843, to *Ecphoropsis*.

*Eucorystes*, Marshall, 1888, *nec* Sclater, 1883, to *Eucorystoides*.

*Holconotus*, Förster, 1862, *nec* Agassiz, 1864, to *Aulonotus*.

*Lioaster*, Kriechbaumer, 1890, *nec* Perty, 1834, to *Liotryphon*.

*Limneria*, Holmgren, 1888, *nec* Adams, 1857, to *Limnerium*.

*Obba*, Tosquinet, 1896, *nec* Beck, 1837, to *Tosquinetia*.

*Ophiodes*, Hartig, 1840, *nec* Wagner, 1828, to *Ophiogastra*.

*Thalassa*, Holmgren, 1859, *nec* Adams, 1858, to *Megarhyssa*.

*Zarhynchus*, Ashmead, 1900, *nec* Oberholzer, 1899, to *Rhynchothyreus*.

*Zetetes*, Förster, 1862, *nec* Cabanis, 1859, to *Opiellus*.

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## OBITUARY.

DR. OTTO STAUDINGER.

The death of this prominent Lepidopterist is announced as having taken place on October 13, at Lucerne, Switzerland, during a journey undertaken for his health, and at the age of 71 years. Dr. Staudinger's work is well known. It has been given to few to acquire his influence over theoretical and practical workers alike. The new edition of his standard catalogue of palearctic Lepidoptera, upon which the work has been long in hand, has not yet appeared, but may very shortly be expected. In this place we can only express our profound regret at the closing of a long and prosperous career which has greatly benefited the general cause of Entomology.—A. R. G.

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REV. G. D. HULST.

We deeply regret to announce the death of the Rev. George Duryea Hulst, Ph. D., which took place suddenly on Monday, Nov. 5th, at his residence, 15 Himrod street, Brooklyn, N. Y. Mr. Hulst was in his fifty-fourth year, and had been pastor of the South Bushwick Reformed Church for over thirty years. In the entomological world he was widely known from his researches in the Lepidoptera, and especially for his work in the Geometridæ, in which family he was recognized as an authority. He was a frequent contributor to the pages of this magazine, and also published elsewhere many elaborate papers on his special department of study. His removal from among us, when in the prime of life, and with apparently many years of useful work before him, will be keenly regretted by systematic entomologists everywhere.

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#### THE LIFE-HISTORY OF *ARCTIA PHALERATA*, HARR.

BY ARTHUR GIBSON, ASSISTANT, DIVISION OF ENTOMOLOGY, CENTRAL EXPERIMENTAL FARM, OTTAWA.

On the 18th June, 1900, Mr. C. T. Hills, of Chicago, was kind enough to send me a batch of about 79 eggs of *Arctia phalerata*, Harr. The parent moth was captured on the 12th June, and enclosed in a box over night; on the next day, the 13th, the eggs were laid.

*Egg*.—.75 mm. in width, semi-ovoid, about as high as wide, shiny, smooth, creamy-white, concave at base.

The eggs hatched on the 20th and 21st of June. Duration of egg stage 7 or 8 days.

*Stage I*.—Length 2 mm. General colour dirty cream. Head .3 mm. wide, bilobed, shiny, brownish-black, and bearing sparse slender hairs. On each segment is a transverse row of black tubercles, which appear to occur almost in a line in the middle of the segments. These tubercles bear long black and silvery hairs, and are situated in a light brownish field, which encircles each tubercle. On segments 5 to 12, inclusive, slightly nearer to centre of dorsum, and anterior to larger dorsal tubercles, are two smaller tubercles, which also bear one or two hairs. Thoracic feet and prolegs concolorous.

On the 23rd June the larvæ were swollen, and on the 24th they passed the first moult.

*Stage II.*—Length 3.5 mm. General colour, some blackish-brown with a light stripe on dorsum, others light brownish with a creamy stripe on dorsum. Head .5 to .6 mm. wide, sparsely covered with short light hairs and long slender dark hairs, bilobed, black at apex and on cheeks; frontal triangle whitish, with a slight tinge of brown. In the darker specimens almost the whole of the head is black. Dorsal tubercles large, with exception of the two anterior tubercles on segments 5 to 12, inclusive, which appear smaller, and are like minute dots. The large dorsal tubercles are now situated in a distinct light brown band. Lateral, stigmatal and ventral tubercles smaller than dorsal series, varying in size from lateral down. Between lateral and stigmatal series of tubercles are brownish blotches, which give the appearance of stripes, or bands. These markings are not so plain on the darker specimens. The bristles from dorsal tubercles are black, with the exception of the small tubercles on segments 5 to 12, inclusive, which bear one or two whitish hairs. Remaining tubercles bear blackish and whitish bristles. Stigmata brown. Thoracic feet and prolegs concolorous, darkened at tips.

On the 27th June most of the larvæ passed the second moult.

*Stage III.*—Length 5 mm. General appearance blackish hairy larvæ, with a pale yellowish stripe on dorsum, which is almost imperceptible in some specimens. In the majority of the specimens, however, this stripe was plainly distinguishable. Head .8 to 1.0 mm. wide, bilobed, shiny, bluish black, sparsely covered with long blackish hairs; frontal triangle lighter in colour, with dark centre, in some specimens all black. Dorsal tubercles large and shiny black, and bearing black bristles, varying in length, some long and some short. Medio-dorsal tubercles on segments 5 to 12, inclusive, are very small, and bear two or more short white hairs. This series of tubercles almost touches the pale yellowish dorsal stripe. Lateral, stigmatal and remaining tubercles smaller than dorsal tubercles, and bearing black and white bristles. In some specimens the skin of the body is a deep black, with the exception of the dorsal stripe; others are lighter in colour of skin, and have the appearance of two stripes on the sides, but this is due to the black shiny tubercles being more plainly noticeable than the skin. Stigmata dark brown. Thoracic feet concolorous, splashed with shiny black; prolegs concolorous.

On the 1st July a number of larvæ passed the third moult, and by the 3rd all had moulted.

*Stage IV.*—Length 7.5 mm. General appearance, black hairy larvæ, tubercles very prominent, some specimens having a yellowish dorsal stripe. Of the whole hatch of 71 larvæ, the dorsal stripe was only present in seven specimens. In the majority of the other specimens just the faintest sign of this stripe was to be seen, while the remainder were perfectly black. Head 1.2 to 1.4 mm. wide, bilobed, shiny, brownish-black, sparsely covered with long blackish hairs. Bristles from dorsal tubercles black, with a few white hairs intermingled. The bristles from the stigmatal and ventral tubercles in this moult are of a light rusty hue, in some specimens much brighter than in others; there are also a few black bristles from these tubercles. The medio-dorsal tubercles on segments 5 to 12, inclusive, are very small and black in colour, bearing two or three bristles each. The dorsal tubercles are very large, and bear numerous black bristles. Stigmata black. Thoracic feet shiny, jet black, covered with short reddish and blackish hairs. Prolegs concolorous, rather translucent, light at tips.

On the 7th July three larvæ passed the fourth moult, and on the 8th the majority of the remainder moulted.

*Stage V.*—Length 11.5 mm. General appearance, black larvæ with black tubercles, bearing short and long black bristles, with rust-red bristles from tubercles on lower half of sides. Head 1.5 to 1.8 mm. wide, depressed at apex, shiny, black, sparsely covered with short whitish and long blackish hairs. The reddish bristles on dorsum of second segment turn down abruptly over the face, and give it a brownish appearance. The dorsal stripe has disappeared, and is not present in any of the specimens. Bristles from dorsal tubercles black, with a few grayish ones intermingled. On the 12th and 13th segments the dorsal tubercles bear one or two long hairs, black in colour, tipped with gray. The bristles from upper half of stigmatal tubercles are black, those from lower half, as well as all bristles below stigmata, rust-red. Spiracles black, with a light orange centre, with exception of those on 2nd and 12th segments, which are wholly bright orange. Thoracic feet shiny, jet black, covered sparsely with short rust-red bristles; prolegs concolorous, lighter at tips, also bearing short rust-red bristles.

On the 14th July three larvæ passed the fifth moult, and by the 17th nearly all had moulted.

*Stage VI.*—Length 15 mm. General appearance the same as after the fourth moult; the rust-red bristles on sides and dorsum of second segment appear brighter. Head 2.0 to 2.4 mm. wide, of about the same

size as the body, shiny, jet black, slightly depressed at apex, sparsely covered with slender blackish and silvery hairs, with a number of short light rust-red hairs around the mouth-parts. Bristles from the black tubercles on the dorsum, black. Dorsal tubercles on 12th and 13th segments bear three or four long hairs. Upper half of stigmatal tubercles bear black bristles, lower half rust-red bristles. Bristles from all tubercles beneath spiracles bright rust-red. On dorsum of segment 2 the bristles from front half of tubercles are bright rust-red. These turn down over the face, and give front portion of larvæ a reddish appearance. Spiracles orange, in some specimens faint. Skin of body deep velvety black. Thoracic feet shiny, jet black, sparsely covered with short rust-red bristles. Prolegs, upper two-thirds shiny, jet black; lower third and claspers dull reddish; the whole bearing short rust-red bristles.

On the 23rd July three larvæ passed the sixth moult, and by the 31st all but a few had moulted.

*Stage VII.*—Length 24 mm. General appearance, velvety black larvæ with black tubercles, bearing short stiff black bristles on dorsum, and bright rust-red bristles from the tubercles below stigmata. In some specimens there is a distinct clear ochre-yellow dorsal stripe, expanded somewhat in the middle of each segment. In others, instead of the dorsal stripe there is a series of elongated spots of the same colour, one on each segment; the number of spots constituting this series varies, some specimens having as many as nine, others only one or two. Head 2.5 to 2.8 mm. wide, slightly smaller than second segment; shiny, jet black, depressed at apex, and sparsely covered with short reddish hairs, and some long slender blackish hairs, the reddish hairs being mostly around the mouth-parts. Base of antennæ and mentum pale. Bristles from dorsal tubercles black. On dorsum of segment 2 the anterior half of tubercles bear rust-red bristles, which turn down over the face. In some specimens the bristles from tubercles on segment 2 are all reddish, with only a few black bristles. Dorsal tubercles on segment 3 also bear some rust-red bristles in some specimens. Medio-dorsal tubercles on segments 5 to 12, inclusive, bear a small bunch of short black bristles. Tubercles on dorsum of segments 12 and 13 bear a few longer black bristles. In some specimens all the dorsal tubercles bear a very few bristles of a dark rusty colour. Lower halves of the stigmatal tubercles bear bright rust-red bristles. All bristles below spiracles, including those from ventral tubercles, are bright rust-red. Tubercle i, small, about one-fifth size of tubercle ii.; tubercles

without shining base. Bristles smooth, not barbed. Stigmata bright orange. Thoracic feet shiny, jet black, dull brownish at tips, and sparsely covered with rust-red bristles, some short and some long. Prolegs, upper two-thirds shiny, jet black; lower third and claspers light rust-red, covered sparsely with short, reddish bristles.

Length of mature larva before spinning cocoon 30 mm., width at widest part 8.5 mm.

On the 26th July one larva passed the sixth moult, and showed the clear ochre-yellow dorsal stripe (rather faint on segments 2, 3 and 13). Another moulted the same day, and in this specimen, instead of the dorsal stripe, occurred a series of elongated ochre-yellow spots, one on each segment, from segment 4 to 12, inclusive. On the 26th July, also, seven more specimens passed the sixth moult, the ochre-yellow varying in these specimens from very faint elongated spots only on one or two segments, to a distinct dorsal stripe, faint on segments 2, 3 and 13. On the 28th one larva moulted, and in this instance the dorsal stripe was distinct, but only present on segments 8 to 12, inclusive. In this, the sixth and last moult, out of the whole batch of 64 larvæ, only 17 specimens showed the ochre-yellow on dorsum; the remaining 47 were perfectly black, and no dorsal stripe or spots whatever were present.

On the 1st August eight specimens began to spin their slight cocoons between the leaves, and on the following day changed to pupæ. In some later specimens it was two days before the pupa was formed, but in the majority of the specimens the change took place the following day.

The cocoon is very thin, and is simply a slight network or web of reddish-brown silk, covering the pupa. The larva draws the leaves of the food-plant together by means of threads of silk, or folds up a leaf, fastening the edges together, and spins its slight cocoon inside.

*Pupa*.—Length 19 mm., width at widest part 6 mm.; black slightly pruinose, abdomen minutely pitted, thorax and wing-cases slightly wrinkled, dull reddish-brown in folds of abdomen. Cremaster rough and short, rounded above and hollowed below, terminating in a bunch of about 20 capitate bright rust-red bristles of varying lengths.

On the morning of the 13th August four female moths emerged, and by the following morning five more females had appeared. During the afternoon of the 14th the first male moth emerged. The moths continued to emerge every day for about a week and a half.

Length of pupal stage about 12 days.

On the 23rd August two live females and one male, all of which had just emerged, were placed out of doors in a cage made of wire cloth, and two days later the females laid a large number of eggs.

On the 2nd September, 80 larvæ hatched, and by the 4th September 35 more had emerged. The description already made of this stage agreed with these specimens.

The larvæ which hatched on the 4th September passed the first moult on the morning of the 9th, and showed no difference from those described in former brood.

On the 12th September one larva passed the second moult, and many others on the following day. These also were the same as the specimens described previously.

On the 17th September a number passed the third moult, the remaining specimens moulting on the 18th and 19th. At this time the number of larvæ living was 85, and in this moult, out of the whole batch, 22 specimens showed the dorsal stripe; in three or four of these specimens the stripe was present on segments 3 to 11, inclusive, but in most of the specimens it was only observable on a few of the middle segments.

On the 25th September a number passed the fourth moult, and by the 28th nearly all had moulted. The larvæ in this moult showed no sign whatever of the dorsal stripe, and the description already given above of this stage answers well for this batch.

On the 4th October some passed the fifth moult, and by the 7th nearly all had moulted. These also corresponded with the description already made. In many of the specimens, however, the rust-red bristles on sides were not so bright or numerous as in the first lot of larvæ.

On the 16th October eight specimens passed the sixth moult. At this time—in fact, a few days earlier—the larvæ were very quiet, and had almost stopped feeding, only a very little frass being found each day in the breeding jars.

On the 18th October four more specimens passed the sixth moult. Of these 12 larvæ, only one specimen showed any sign of a dorsal stripe, and in this case the colour of the stripe was just a little lighter than the velvety black of the skin. The rust-red bristles from sides of these specimens were also not so bright or numerous as those already described. The hairs on the face were mostly blackish, and in some specimens none of the dorsal tubercles bore rust-red bristles.

From the 16th to the 26th October the larvæ had practically stopped feeding, and at this latter date they were put down in a cool cellar, to be left there throughout the winter.

*Food-plant.*—The larvæ of the first brood were fed on dandelion and plantain, those of the second on dandelion only.

In the Journal of the New York Entomological Society for March, 1900, Dr. Dyar publishes an article entitled "Preliminary Notes on the Larvæ of the Genus *Arctia*." In this paper some remarks are made regarding the mature larvæ of *Arctia phalerata* and *Arctia vittata*, and it is stated that "the matter is not decided beyond question as to whether *phalerata* or *vittata* has the larva with the dorsal stripe, or whether this is a specific character at all." The notes on the mature larvæ of *phalerata*, as given in the present paper, throw some light upon the matter, and it will be readily seen that the dorsal stripe is not a specific character, as it is present in some mature larvæ, and totally absent in others. This will agree with both Professor French's description and also with the notes of the Department of Agriculture at Washington.

With regard to *vittata*, I might say that on the 26th May last I found a specimen of the mature larva at Ottawa, which spun a very slight cocoon two days later, and produced the moth on the 1st June. This larva was a reddish, hairy caterpillar, with no sign whatever of a dorsal stripe, and not at all like those mentioned above.

The following description was taken from the cast skin and head of larva: Head 3.3 mm. wide, jet black, bearing sparse long slender blackish and reddish hairs, and some short rust-red hairs. Skin of body velvety black, tubercles rough, not polished, bearing bright rust-red bristles, those on dorsum slightly darker. Bristles smooth, not barbed. Tubercle i. about one-fifth size of tubercle ii. Thoracic feet blackish brown, covered sparsely with rust-red bristles.

*Pupa.*—Length 24 mm, width at widest part 8 mm.; black, pruinose, covered with a bloom similar to that on a ripe unribbed plum; folds of abdominal segments with slight reddish tinge. Abdomen minutely pitted, wing-cases and thorax slightly wrinkled. Cremaster rough, short, rounded above, slightly hollowed beneath, and terminating in a bunch of about 18 capitate rust-red bristles of varying lengths.

From the first brood of *phalerata* 55 moths were bred. In over half of these specimens the costal edge of the primaries is narrowly black, that of the others being yellow. Dr. Dyar, in the above paper, says that the



costal edge of *phalerata* is yellow, and remarks that this may possibly be a distinguishing character between *phalerata* and *nats*, as the costal edge of all his specimens of the latter is black. This, of course, agrees with many of our specimens of *phalerata*, but on account of the black edging being present in the majority of those bred at Ottawa, it would appear that this character is not of specific importance. In about ten female specimens all the yellow markings on the primaries are suffused with the ruddy colour of the secondaries, but there is a remarkable lack of variation in the whole series, both with regard to colour and markings.

I beg gratefully to acknowledge assistance from Dr. Fletcher in confirming my notes in the above investigation, and also to Dr. Dyar for the determination of this species and of the specimen of *A. vittata* referred to above.

#### ENTOMOLOGICAL SOCIETY OF ONTARIO.

The thirty-seventh annual meeting of the Society was held in London on the 13th, 14th and 15th of November. On the first evening a joint meeting with the London Horticultural Society took place in the Normal School, and was very largely attended. Prof. James, Deputy Minister of Agriculture, presided, and gave an interesting address on the beneficial effects of the pursuit of horticulture. Mr. W. E. Saunders read a paper on "The planting, care and pruning of the trees in the parks and streets of the city," and was followed by Dr. James Fletcher, who gave an address, illustrated by lantern pictures, on the growth of trees, and the insect enemies of the flower and fruit garden.

The morning of the 14th was taken up with a business meeting of the Council. In the afternoon the various reports of the Directors, Officers, Branches and Sections were read, and then followed an important discussion on the San José scale in Ontario. Mr. Fisher, the Provincial Inspector, gave an account of the work that had been performed during the year for the repression of the scale, and the results that had been obtained from the use of various remedies. Dr. Fletcher, Prof. Webster (of Ohio), Prof. Lochhead, Mr. Dearness, Dr. Fyles, and others, took part in the discussion. The speakers insisted strongly upon the very dangerous character of this insect, its wide dissemination in several parts of the Province, and the destruction that would be surely wrought among the orchards and fruit plantations if stringent measures were not taken for its subjugation.

In the evening the Rev. Dr. Fyles read his presidential address on "Insects as agents in the cross-fertilization of blossoms," and papers were read by Prof. Webster on the Codling moth, Prof. Lochhead on Forest Insects, and Mr. Gibson on the life-history of *Arctia phalerata*. The points brought forward by the speakers were discussed with much interest and animation at the close of each paper.

On Thursday a large number of papers were read during the day, which will be published, with a full account of the proceedings, in the forthcoming Annual Report. The election of officers resulted as follows :

*President*—Rev. T. W. Fyles, D.C.L., F.L.S., South Quebec.

*Vice-President*—Professor William Lochhead, Ontario Agricultural College, Guelph.

*Secretary*—William E. Saunders, London.

*Treasurer*—J. A. Balkwill, London.

*Directors* : Division No. 1—C. H. Young, Ottawa.

Division No. 2—J. D. Evans, Trenton.

Division No. 3—D. G. Cox, Toronto.

Division No. 4—James Johnson, Bartonville.

Division No. 5—R. W. Rennie, London.

*Directors Ex-officio* (ex-Presidents of the Society)—Professor Wm. Saunders, LL.D., F.L.S., F.R.S.C., Director of the Experimental Farms, Ottawa ; Rev. C. J. S. Bethune, M.A., D.C.L., F.R.S.C., London ; James Fletcher, LL.D., F.L.S., F.R.S.C., Dominion Entomologist and Botanist, Experimental Farms, Ottawa ; W. H. Harrington, F.R.S.C., Ottawa ; John Dearness, Normal School, London ; Henry H. Lyman, M.A., Montreal.

*Librarian and Curator*—J. Alston Moffat, London.

*Auditors*—J. H. Bowman and W. H. Hamilton, London.

*Editor of the Canadian Entomologist*—Rev. Dr. Bethune, London.

*Editing Committee*—Dr. J. Fletcher, Ottawa ; H. H. Lyman, Montreal ; J. D. Evans, Trenton ; W. H. Harrington, Ottawa ; Prof. Lochhead, Guelph.

*Delegate to the Royal Society*—Rev. Dr. Bethune, London.

*Delegates to the Western Fair*—J. Dearness and Dr. Bethune, London.

*Committee on Field Days*—Dr. Woolverton, Messrs. Balkwill, Bowman, Elliott, Law, Moffat, Percival, Rennie, and Saunders, London.

*Library and Rooms Committee*—Messrs. Balkwill, Bethune, Dearness, Moffat, and Saunders, London.

#### ERRATA.

Vol. XXX., 1898, page 280, line 10 from bottom, for "clavipennis" read "claripennis."—D. W. COQUILLET.

Page 236, third line from bottom, for *Guaris* read *Gauris*.

Page 320, line 22 from top, for "varieties of Aphrodite and Bischoffi ;" read "varieties of Aphrodite, and Bischoffi,".

[Comma after Aphrodite and another after Bischoffi, instead of semi-colon.]

#### NOTE ON *SESIA ARCTICA*, BEUTEN.

BY WM. BEUTENMÜLLER.

In advance of my forthcoming memoir of the Sesiidæ, I published in the current volume of the CANADIAN ENTOMOLOGIST, page 208, a description of a new *Sesia* from Alaska, but through a curious blunder on my part omitted to mention the name of the species, and herewith propose to call it *Sesia arctica*.

Mailed December 10, 1900.



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