

400

Folio _____

Mrs Deyar

Residence *400 77th St*

IN ACCOUNT WITH

C. STEFFENS,

GROCEER

58th Street and 9th Avenue,

NEW YORK.

J. J. McCLUSKEY, M'fr and Printer, 252 Greenwich St., N. Y.

1 straight @ price had 4 white
 with a before last stage. Not sure
 if this is any of last yr. structure

Mrs Dyar

in acct with

C. Steffens

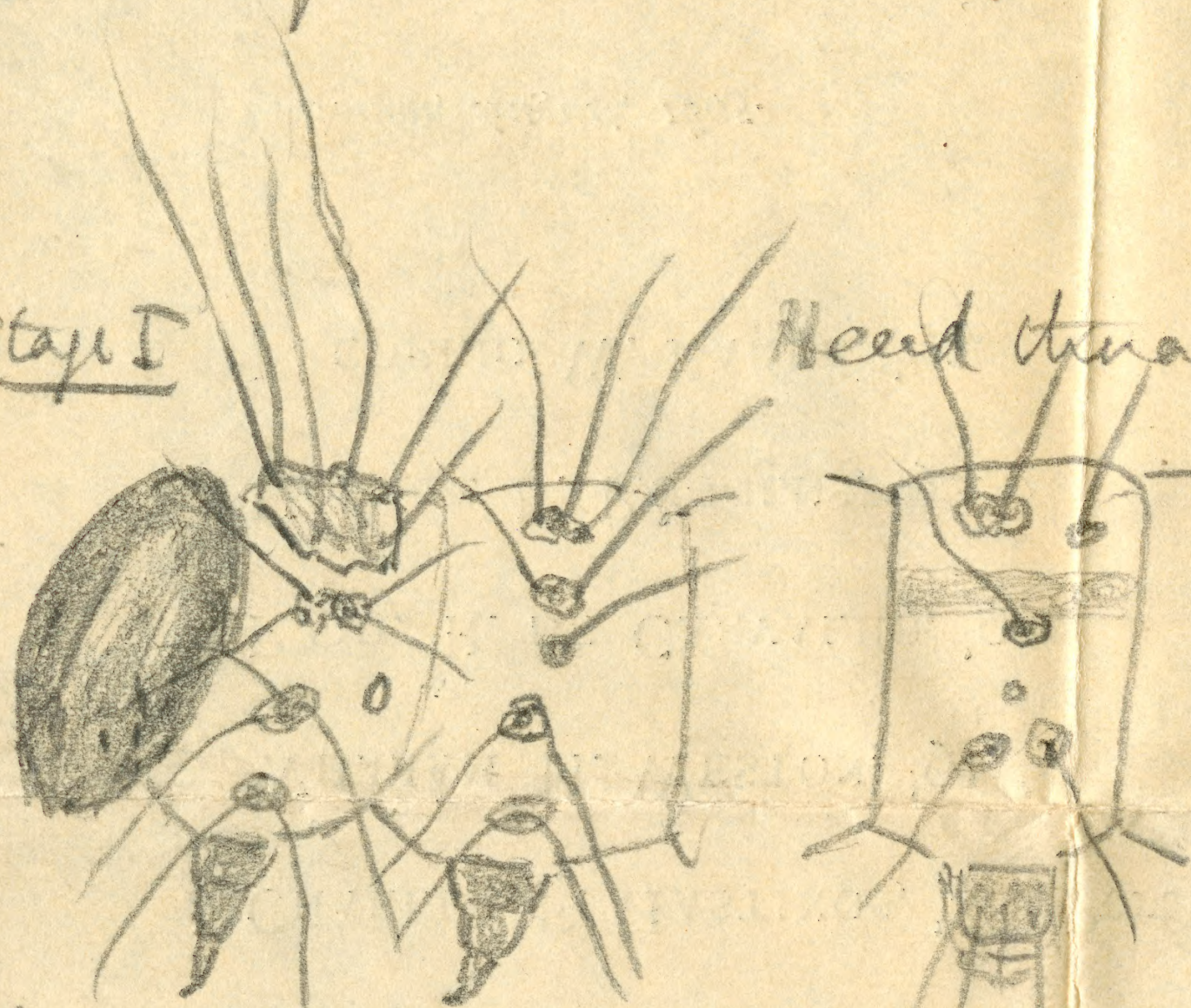
4 2 Pearlina	30
4 Oil	20
2 Starch	10
2 Milk	8
yeast	2
1/2 C. Meal	8
B Powder	25
C Apples	10
C Lard	35
Oat Flaker	15
1/2 Cheese	10
Celery	12
1/2 Potato	15
6 Soda	10
1/2 Vanilla	25
Average	2.63
378 All the Ph. hds.	235
2.5 3.0 (2.2) 2.9 2.7 2.6 2.5 2.45 2.5	
2.55 2.65 (2.2) 2.98 2.6 2.8 3.2 2.5 (2.4) 2.7 2.9 (2.4)	
3.1 (2.3) 2.6 2.95 3.0 3.2 2.6 2.6 (2.4) (1.8) (2.2) (2.15)	

the kitchen year found
 in some part very heavy.
 on 1 part slight. Hd. 45
 and 1 part fine fanites
 plate in 3, 4 and 12, a few
 to hand or harder than others
 some plate black. India
 only part indicated. Home
 longer than 20 (some 2 more)
 to thickness black. (Table 39 II)

=390?

Datanaeas on yellow birch Jefferson Highlands N.H. Aug. 10 1895
Egg Round, white with lighter lid and central black spot.

Stage I



Head truncate feet leg plates, c-sh

anal pl. c feet and tubercle black. Body pale yellow a lateral brown band and brown spotting, d. 3, 4 and 12 the latter often faint. In some, trace of a dorsal

line centrally. Hairs pale, 1^{st} ; anal feet long, hairy, some brown mounds along bases of feet, slight. Hd. $.45^{th}$ later beside the distinct brown d. a lat line fainter 5^{th} and 10^{th} ; widening into spots on 3, 4 and 12; a brown line next mid-venter.

Molt Aug 18 Brown with lines as broad or broader than spaces greenish yellow. Hd legs, c-sh & anal plate black. Median-ventral line distinct but pedal only just indicated. Hairs numerous all whitish 1^{st} rather longer than 2^{nd} (about $\frac{1}{2}$ more) all pointed spinulose, the little tubercles black. (Like 390 II)
Look like munista Aug 24.

LAST ADDRESS.

AECHIRAU HONGMA, '74, Railway Office, Nagano, Nagano-Ken, Japan.

JOSHUA B. F. BREED, '76, 1348 Second St., Louisville, Ky.

WALTER D. TOWNSEND, '76, Chemulpo, Korea.

FRANK D. CHASE, '81, Parral, Mexico.

DAVID S. GODDARD, '81, 125 Gorham St., Lowell, Mass.

FRANK C. MORRISON, '82.

JAMES A. HUTCHINGS, '83.

CHARLES F. HASTINGS, '88, Port Royal, S. C.

WILLIAM H. WESTON, '91.

RAUL R. DE CARVALHO, '92.

HORACE F. RUGGLES, '92.

FREDERIC W. BAKER, '93.

H. W. TYLER, Secretary.

Boston, August, 1895.

2 35

30

1 00

12

20

15

8

40

12

50

10

16

20

25

20

15

12

25

20

18

30

35

28

28

8.24

8.24

20

6

30

10

20

40

50

6

10

25

13

15

25

25

20

5

18

25

20

5

30

1 00

13

13.55

Butter
 Bag Flour
 9 Apples
 29 Sweet
 C. Fard
 3 Flour
 5 Sugar
 4 Corn
 P Cheese
 7 Soap
 2 Salsic
 Blue
 B. Starch
 Malaise
 9 Sugar
 Celery
 6 Lemon
 10 Apples
 9 Squash
 B. Paper
 Coffee
 10 3/4 Sugar
 3/4 Pol. Sugar

Sweet
 1/2 Cracker
 11 B. Paper
 Celery
 C. Paper
 17 5/8 Sugar
 B. Powder
 Cucumber
 Celery
 C. Flour
 Chestnut
 18 2 Sugar
 B. Olive
 2 Del. Paper
 1 Walnut
 3 W. Turnip
 6 Banana
 23 C. Paper
 Squash
 Salt
 D. Paper
 B. Flour
 1/2 Fig

		13 55
27	Sweet	25
	Corn	18
28	Celery	10
	Eggs	30
	Macaroni	12
	Squash	25
	Walnuts	20
30	Rice	20
	Sweet	25
	Peas	25
	Corn	17
31	Sugar	42
	Lard	35
		<hr/> \$ 76.59

PAID

Nov. 4/91
 C. STEFFENS, L. 15 W 5m

377 ♂ pupa...
 hd to tail, cases prominent. Like *Chrysis*
 9ths of body, horn hair represent the hairs
 appended to body & also occur on the slight
 leg prominences. Aenaste feathers with 2
 bunches of short hairs. Color brownish black.
 cases faintly creased, not shiny. Body finely
 punctured in the flat areas represent warts

Nov. 1st 1890

1	B Powder	25
	Corn	18
1/2	Fig	13
6	Bananas	15
	Celery	10
5	Sweet	40
	Squash	25
5	1st Sugar	40
5	2d Sugar	35
1	Coffee	35
	Beans	12
	Eggs	30
8	Match	8
	Celery	10
	Banana	18
	Cucumber	50
	Cocoa	25
	C Oil	20
10	B Powder	50
	Sweet	25
13	Salt	5
	Eggs	32
		<hr/> 5.41

5.41

1 Raisin	20
1 Currant	12
14 Am Sweet	25
6 Banana	18
15 Squash	15
1 Celery	10
1 Corn	15
1/2 Fig	13
1/3 Olive	25
18 Am Sweet	25
5 B Sugar	35
1 Potato	10
1 Turnip	25
21 1/2 Bean	24
1/2 Fig	13
1 Celery	10
2 B Sugar	18
1 Corn	40
22 Am Sweet	25
2 1/2 Fig	35
1 Oil	20
<hr/>	
	9.74

9.74

24 B Flour	1 00
5 B Sugar	35
1/3 Powder	50
25 Raisin	40
2 Currant	24
2 S Prachin	24
1 Fig	25
1 Celery	15
26 Corn	35
Am Sweet	25
1 Celery	16
1 Walnut	20
Squash	25
1 Fig	35
29 B Prachin	25
<hr/>	
	\$14.68

Paid Dec 2/90

C. Stephens
m

Dec. 1st 1890

1	6 Eggs	18
	5 ^{lb} Sugar	45
	5 ^{lb} C Sugar	35
	3 ^{lb} H Sugar	25
	On Sugar	25
4	B. Flour	1 00
	2 ^{lb} Meal	15
	1 Coffee	35
	Hammy	20
	Cabbage	10
6	Cocoa	25
	Celery	18
	Squash	25
	1/2 Tin	13
	qt Tomatoes	8
	B. Butter	35
8	Dy Eggs	38
	5 Sugar	35
	3 ^{lb} C Sugar	28
	B. Powder	50
	1/4 Lemon	25
10	29 ^{lb} Potatoes	00
	qt Molasses	20
		<u>6.48</u>

			6.48
	2 ^{qt} Beans	24	
	B. Flour	1 00	
12	Dy Eggs	38	
13	Salt	10	
	Matchin	8	
	6 Bananas	20	
	Corn	18	
	Celery	20	
	3 Oranges	15	
16	1/2 Figs	13	
	3 Oranges	15	
	Dy Eggs	38	
18	C Lard	35	
	1 Coffee	35	
	Celery	20	
	1/2 Squash	15	
19	Dy Eggs	35	
	4 ^{lb} Cheese	60	
	C Corn	18	
20	C Oil	20	
	qt Molasses	20	
	1/2 Lemon	18	
		<u>12.43</u>	

12.43

22	Flour	50
23	Raisins	20
	1 Currant	10
	Dt Egg	38
	Celery	15
	Squash	15
	2 Raisins	40
	2 Currant	24
	1 Citrus	30
	Dt Egg	38
24	Celery	18
	Orange	15
	6 Bananas	20
	4 Walnuts	10
27	5 lb Sugar	40
	5 lb Sugar	35
	Dt Egg	38
30	Flour	1 00
	yeast	2
	1 lb Sugar	8
	9 lb Sugar	15
	6 Bananas	20

18.44

Paid Jan 31/91
C. L. Steffen m.

Jan. 1st 1891

2	2 lb Beans	24
	5 Sugar	35
	Flour	45
3	Squash	15
	Celery	20
	2 lb Sweet	25
	Olives	25
	Oil	20
5	Dt Egg	38
9	Dt Egg	38
	1 Cracker	6
13	Oil	20
	Vanilla	25
14	6 Egg	19
	3 lb Sugar	25
	9 lb Min	18
	1 Waper	18
19	5 lb Sugar	45
	5 lb Sugar	38
	Salt	10
	Pepper	35
	1 lb Cracker	12
		<hr/> 5.56

5.56

20 B. Flour	85
Dy 1/4	35
Match	8
22 1/2 Potatoes	18
20 Meal	8
26 Potatoes	35
28 Dy 1/4	35
9 Meal	20
C. Lard	35
B. Powder	50
Oil	20
30 1/2 Lemons	18
31 20 Sugar	56
50 Sugar	45
Dy 1/4	35
<hr/>	
	\$ 10.59

PAID

Feb. 10/91

C. STEFFENS

M. F.

Feb. 10 1891

4 yeast	2
6 Dy 1/4	35
2 Rice	20
1 Walnut	18
2 Pearlina	25
1/2 Bean	6
7 B. Celery	20
1/2 Lemon	18
B. Cocoa	25
1/2 Banana	20
12 B. Flour	85
B. Powder	45
50 Sugar	40
1/2 Banana	20
13 Dy 1/4	30
1/2 Corn	10
14 Oil	20
Coffee	35
1/2 Spinach	25
1 Cheese	1 00
Celery	25
1/2 Chestnut	18
<hr/>	
	6.42

6.42

16 Apples	9
17 1/2 lbs	30
18 1/2 Apples	18
1/2 Beans	00
Cassia	15
Salt	5
21 1/2 Raisins	40
1/2 Currant	30
1/2 Raisin	30
1/2 Crackers	20
24 1/2 Sugar	45
3/4 Sugar	28
1/2 Bananas	20
26 Beans	12
1/2 Flour	45
1/2 Oil	20
28 1/2 Apples	18
1/2 Salt	10
1/2 Apples	8
1/2 Raisin	5
1/2 Raisin	10

PAID, \$ 10.60

March 11/91
C. STEFFENS.

March 1st 1891

4 1/2 Lemons	20
year	2
10 3/4 Sugar	28
1/2 Sugar	25
Salt	10
1/2 Raisin	8
1/2 Raisin	85
1/2 Cocoa	50
1/2 Bananas	20
14 Buckwheat	15
1/2 Buckwheat	18
year	2
1/2 Raisin	18
Oranges	25
Coconut	18
17 Apples	9
18 Raisin	15
19 Raisin	35
1/2 Raisin	5
1/2 Bananas	20
20 Raisin	20
Apples	22

470

4 70

21	Oranges	25
23	1/2 Sugar	28
	3/4 Sugar	28
	1/2 Sugar	25
	1/2 Sugar	23
	Coffee	35
26	Tomato	15
30	Onion	20
		<hr/>
		\$ 6.69

PAID

April 4/91

C. STEFFEN

Pr. J.

Bupa (of 378) rounded conical, thickest through
 toward top of post. Cases large & prominent
 but very even & closely packed, and end
 rounded, post also rounded, much
 smaller; seg incisure abrupt not deep
 with little notch. ^{on a slight prominence} Crests reduced
 to a bunch of short hairs, red-brown, slightly
 curving outwards. All finely granular
 color dark mahogany red, cases = both
 paler. L 25mm w. thro. 9mm; w. abd at
 2^d moveable incision 7mm (4 incisures are
 well marked but the post. is scarcely moveable
 being coarsely punctured, while the others are smooth

April 1st 1891

2	1" Apple	22
	1 Orange	25
4	B. Powder	25
	1 Orange	30
	Spinach	20
7	Oil	20
	H. Oil	15
	Salt	0
	Mustard	25
9	Tomato	18
11	1 Orange	25
	Spinach	35
	Salt	5
13	1 Flour	50
	1 Orange	25
14	1/2 Potato	55
	1/2 Sweet	15
	1/2 Fig	13
15	1 Apple	10
17	H. O.	15
20	Coffee	18
		<hr/>
		4.66

Orygia 362 notes 4.66
 21 Clippings
 5-
 10-

362	♂	342 C brood 1895	Pay day
362		342 D brood 1895	Pay day
362		May 13 2 black 2 white	
362		1 black 3 white	
362		still not defined	
362		May 16 dying off like the clearwing	
362		May 21 2 black 2 white	
362		May 27 (17)	
362		May 30 several in last stage.	
362		The tuft on 12 preceding the black pencil may be light brown	
362		June 4 (11) none appear no imagoes	

BB	21x matings (1895, 1900)	Hatching	Apr 18 1894
AB	three broods	Hatching	Apr 19 "
AA	twenty-eight broods	Hatching	Apr 20 "

Apr 1894 mixed lot of 100 larvae BB, AB, AA.
 342C 1 black, 3 white = normal pupae
 342D 2 " 2 " = trans. ad. casa
 Got matings of both these pairs which began to hatch May 6 1895 (1 set each)

"	12	work	1.05	376
"	10	work	.25	
"	10	work	.52	
"	10	work	.35	

usual character. 2 line rather broad, slight
 bluish white contrast with lateral blue.
 2nd round & 3rd reduced bases of
 stripes, ferruginous, obscure. 3) Subdorsal
 blue dots large distinct, well separated
 blue 4) lateral line distinct, broken into
 dots, yellowish orange lateral region
 broadly smoky with blue, unmarked.
 5) dorsal hair thin red, not noticeable
 6) 5-8 hair thick red, subtended
 showing the skin above leg.
 7) line is not white till last stage

342 C Wood 1895⁻ ~~Paydye~~

May 13 2 black 2 white |||||
1 black 3 white |||||
still not defined ||||| (68)

[The $\frac{2}{2}$ are all small, the first $\frac{2}{2}$ faint or absent and may be 1 black, 3 white]

May 17 2 dead, took out; with 1:3

May 21 2 black 2 white ||
1 black 3 white |||||
still not defined || (59)

[one of the $\frac{2}{2}$ still not [positive] isolated
2 of these $\frac{2}{2}$. One shed May 24 came out
black 3 white, the other died, apparently
a true $\frac{3}{2}$

First cocoon June 1 1895⁻

June 4 16 cocoons (30 larvae)

only 10. 1 ♀ pupa but
died

342 D Nov 1895

Pay day

May 13 2 black 2 white |||||

1 black 3 white

still not defined |||

(24)

[one of the $\frac{2}{2}$ was dead and removed]

May 16 dying off like the *Clissocampa*

May 21 2 black 2 white |||||

(20)

May 27 (17)

May 30 several in last stage.

The tuft on 12 preceding the
black pencil may be light
brown

June 4 (11) none spun

no imagos

Vancouver lot badia

all tufts constant 2 & 2, though
brown may replace black and yellow
white or other ones (see description)
Almost all 2 black, 2 yellow in IV but
few white in V

Beginning to come May 13

Secretary

SAMUEL HENSHAW,

2 B's - white B.S. Made a few feathers here recalling
enclosed.

A list of the officers nominated at the last meeting is
attached.

most of the large to have traces of the side tufts
more or less distinct some seen with none.
lated to *Agaricus campestris*.

Prof. W. G. FARLOW: Edible forms of mushroom in
America

PAPER: applicable notes

Election of Officers for 1894-95.

Report of the Walker Prize Committee.

and Trustees of the Walker Prize Committee
hatched Fall 1881 and prepared out

Reports of the Curator, Secretary, Librarian, Treasurer,
about a dozen went and hatched

BUSINESS: 1881-5
in May

May 2d, at 7 3/4 o'clock.

The ANNUAL MEETING will be held Wednesday Evening,

stage I was chair only. Had some (50) in

stage II selected tobacco (11) in

1894. a few and a few more
Boston Society of Natural History.

April 11-20

Apr 1894 About 100 larvae of mixed BB AB and AA from 342A & 342B

May 4, mostly in third stage, the majority 1 black & three white tufts.

{ 18 with two black, 2 white tufts
2 " 3 black (4th not distinct)

Isolated these May 4, all constant in spite of moults; except 3 "no white" moulted & 2 came black and one 2 black tufts.

[white & brown interchangeable - black & brown do] so there are only 2 vars.

342C = 1 black, 3 white, normal guttae

342D = 2 " 2 " trans. ad. cava

342C May 7 some in stage IV tufts all white
Saw 1 black 3 white moults pale brown, 3 white several had front tuft pale, one white, the and one just a tinge of brownish, another (only) had 4 brownish yellowish ones, the and darker
Mant tufts white grayish on crest to black, gray on sides ^{with} white

342D May 7 may molting, no mat. (IV)

May 10 one moults, mat. tufts all white with dark crest (V?)

Cocoon single, with no outer preliminary layer

(5) 5-5 mm (2) 0-0 mm (3) 0-0 mm (3) 0-0 mm (3) 0-0 mm (3) 0-0 mm

After have a external mm

Oryza 362 Notes 4.66

21 Clapper 5-
 6 Banana 15-
 6 Berry 50
 1 Squash 12

 5.48

♂♀ David
 C. Stephens
 C. M.

362X = Plattsburgh nova + Port Townsend nova

362Y { Nanaimo badia + Nanaimo badia
 mixed } " " + " "

362Z { Plattsburgh nova + Nanaimo badia
 mixed } " " + " "

Obtained in July, 1893	Hatched in 1894
XX four broods	Hatching Apr 19
XZ two broods	1 Apr 18 1894 other hatched good (clean hatched fall 1893)
ZX four broods (1 poor)	Hatching Apr 20
ZZ three broods	Hatching Apr 19
YZ or X three broods	" Apr 19
YY ten broods	near hatching Apr 18

342 B Part of egg mass O. gulosa from Dr. Bell's "cane"

342 A One set eggs from ♂♀ O. gulosa BB 342 q.v.

BB Six matings (1 bad, 1 poor)	Hatching Apr 18 1894
AB three broods	Hatching Apr 19 "
AA twenty eight broods	Hatching Apr 20 "

Apr 1894 mixed lot of 100 larvae BB, AB, AA.

342C 1 black, 3 white = normal gulo-a

342D 2 " 2 " = trans. ad causa
 Got matings of both these pairs which began
 to hatch May 6 1895 - (1 oct each)

" 12 small 'express' papers	5 55
" of meat of "	70
" 15 small fruit .52	82
" " work 1.05 - 35	
" " express .25	
	(376)

Small character 2. line rather broad, slightly
 bluish white, contrasting with lateral blue.
 ① Dorsal line with reduced broken up
 stripes, ferruginous and obscure. ② Subdorsal
 blue dots large distinct, well separated
 blue ③ Lateral line distinct, broken up into
 dots, yellowish brownish blue dots from the lateral region
 broadly overlaid with blue, unmarked.
 ④ Dorsal line thin red, not noticeable
 ⑤ 2-4 brown thick red, and to feet
 showing the skin above legs.
 2. line is not white till last stage

376

which form
a double
conspicuous
ridge on
the surface
about 1/2
mm wide

Chalcidocampa americana Frankh. Salt Rocky
Mtn. Eggs in ring around twig. Flattened cylindrical,
flat on top, rounded a little smaller below,
somewhat prismatic from pressure. Smooth pale
slate gray, covered with brown feet. 1.1 x .4 x .3 mm

Hatched April 30, 1893 Head round, light tan
wide, smooth slightly shiny, black. The
labrum pale, several pale hairs w. 4 mm
Body slightly flattened, tapering post. with
distinct 2d elevation on 2. Uniform dull
black, the feet a little paler, covered with
sparsely dist. long white hair. Length 2.5 mm

As the stage advances the paler spaces
of the incisions appear making the body look
transversely banded, and the hairs are seen
to arise from distinct smooth black tubercles,
one from each. May 7, a double diffuse pale dr. and
single step line, absent at the extremities.

Molt May 8 and covered dull black hair w. br
setae. Second a little ad 12, hairy, the
hair thin white, black at extremities tubercle
small. The 2d on 2 & 3 rather conspicuous
Red black, yellowish white in the incisions
and in a next dorsal, lateral, & stig. narrow

very fine obsolete ad. tubercles. There are
also faint traces of a 2d line. Feet dark,
below the lateral line the color is gray.

12 & 13 nearly entirely black. Lateral line double
d. line become obsolete, widened on the post part
of the seg. where it joins the now fainter
transverse shade. The indicated 2d line is
distinct on the ant. edge, below entire of dull black

Molt May 11 1st velvet black with a pale
line above the mouth; under of same Body
black in dorsal area, the sides slate gray
Lines as before, but the space between the
double d-line ^{needed} filled in with a blue gray
dorsal line, even & regular, these line
each side of it reddish and round but
single. 2d line indicated interspersately,
lateral line wavy, stig. nearly straight,
distinct. Hair faintly reddish, more
abundant laterally.

Molt before May 11 (Stage 1/2) 1st 1/2 velvet black with
black hair - line above around white. Body
hair long, pale reddish white, then more
numerous laterally, not wavy. A rather
long even dorsal pale blue hair, not

(not evident in all spec) → a ^{irregular} dash at ant end of st. seg.

broken on construction, except n 2 & 12-13
each side it can occur in 1/2 to 1/3
single broken, faint reddish or orange
s-d form of indistinct cut ant. but in mod
of segment a transverse blue dash. Later
6 st. line whitish, wavy, dotted
with black with some bluish mottling
between brown feet black, clasper
reddish, black below with whitish
padding. In some d-band rather broad, broken
Molt May 22 Has black hairy front
over ch. base, base of ant. & central
with 2 mm. ^{in various} ^{in various} ^{in various} ^{in various}
12-12. Hair mostly white, brown
black laterally. Rather broad and blue
line broad & irregular, pale orange
band, thickest centrally, a row of dots
edge, wavy and somewhat broken. s-d
black, wavy, in a large st. s-d
blue dots, red, long, foot, tan, with
distal pale mottling, in various.
Lateral line coarse, wavy, black, cut ant
dot & brown at post. (long) side of
slightly pale, narrow, in various.

gray
black, mottling. Dorsal black with black
dottings. The d-line is paler blue than
the lateral dots which are lateral mottling
in various. ^{Later they appear less red}
Distinctly redder both in line than in head stage
In some the d-line is distinct narrow & central appearing
like a row of contiguous ellipses (or blue white patches
but more often it looks continuous. The ant. blue
dot (long) associated with the blue mottling
below lateral line & there is also a little blue above
this line post. on seg. so that these dots are not
conspicuous. The brown dots are conspicuous, being
situated nearly centrally on seg. in a black area
The next d. & lat. line are wavy, thin, seg.
nearly absent. They are slender, wavy & irregular
reduplicate, scarce in all, in the one with
elliptical dots, nearly absent. Hair red black, both
on back & side. One shows a faint dorsal white
s-d line, narrow, broken centrally, and in the anterior,
but curving above above the blue dots. The dot lines
Molt May 28 Prothoracically some H.A.S. 2 mm dorsal
line straight, nearly white. Next d. narrow, wavy, red,
and extensive ^{contribution} s-d line distinct broken by the trans
blue dot, the long by immediately below it. Lateral
line yellow, undulating distinct broad, ^{long} ^{long} ^{long}
trans. dot. s-d line faint. Lateral seg. black with
yellow ^{blue mottling} s-v line quite black, red. Dorsal has thin
long, red & black blue mottling, subtle lateral
black of ant. pale, sand dotted blue dot on 3rd
white body is mottled with either yellowish, orange or
blue except a space around transverse dot. D.
line nearly white, but with bluish tinge.
On lateral region (dark in 1/2 wavy) blue, bluish dotted
next d. line long & broken up into oblique rays
Final character [See paper before]
Began to come Jun 6 5 Days July 2

Calc. .6 1.0 1.67 2.78 4.6 7.7 rat .60
 Foundy .6 1.0 2.0 2.8 4.5 6.5 July 13 1893

377
 2 m
 Collected in dispar eggs from Mrs. Hallowell
 West Woodford Mass. 1893
 Egg. Spherical, flattened, even concave below
 smooth, shining. Laid in a mass,
 thickly covered with short brown hairs
 from the body of the ♀ moth. 1.1 mm.
 Under 1/2 in slightly wrinkled and flattened
 but obscurely so. Brown when found (hatching)
 Hatched May 12 Head rounded, shining black,
 .6 mm. Body brown, densely clothed with
 short pale hairs. Thorax fat black. Vents
 large, heavy among them those 5d on 2 especially
 large & conspicuous with long hair which
 overhangs the head. 4th pair long with large
 clasps. The dense hair hair-like down like
 drops on them giving a frosty appearance in
 general view. Trace of a fine black s-d line
 & transparent spherical enlargements near the
 base of each hair. The hairs are glassy white
 slightly barbed or cleft with pointed ends.
 Later the hair from 2 was seen to be almost
 & even, some lateral ones large. The color
 got brownish, 7 red spots on the back

(See pg 4 for pupa) The 1st brood, descended
 of those hatched April 24, 1893
 The 1st brood of pupae. The den deep on
 the hairy surface less conspicuous through present
 2 rows of warts (2) and (3)? An very large
 & black the others very obscure
 Molt May 20. Hd. shining black W. .8 mm?, On
 5-8 a pair of small red & pale ones, reticulate
 tubercles; on 10 all a single large dorsal
 one. Body & vent. black, s-d. lat., and
 s-v warts large & evident, the vobes, if present
 very small. Ear warts (3)? large but no
 plumbed hair 4 on 1st, some long & some
 short, black & white mixed. On 7-9 some
 orange & warts, small indistinct on 9, trace
 of whitish lateral line. Warts (1) small, replaced
 by 2 large (2) large (3) dorsal & ventral
 (4) large close together, almost fused, (5) also
 base of leg. Side of body marked with yellowish
 with obscure striped d, slight s-d, & lateral
 yellowish line, the s-d the most distinct.
 Molt May 24 Hd. exactly black above, shiny over
 the chrysalis, faintly marked with pale in the
 median anterior W. .15 mm? Body black, no
 with pale below the s-d line, but not nearly
 showing trace of a yellow lateral line a tubercle

yellow & blue and row of red patches 5-11, connected by a broken red line which begins on 4. On 5-9 these patches have a black central dot and on 5-8 contain in the place of a dot and instead of any trace of bush tufts a pair of small simple setaceous tubercles. On 10 & 11 a single large set. tubercle in the center of the red patch. Warts on 2, ② on 3 the ③ very large, produced forward, but without pleural hair ⑤ 5-7. On 3-4 ②-⑤ On 5-12 ②, ③, ④, ⑤, ⑥, ⑦, ⑧, ⑨, ⑩, ⑪, ⑫ three warts, 11 warts ② on 2-6 & 12 and ③ on 2 are blue black; ② on 7-11 are dense purplish, the rest are whitish brown or pale. dorsal hair about a stiff, pale, the lateral was longer & mixed with very long black ones; all uniplumed // a series of segments very minute ① discernible but ② quite absent. Molt Head / Hd rounded, large, dull, brownish white with black maculae, clypeus & labrum white; a broad rounded central black stripe each side clypeus & small black smudge over the head, which become confluent as rounded patch below center of each lobe. w 2.8 mm Body as before (see hd 2.6) 2.8

One (Hd 3.6) on 17 flimsy with 6 strands between leaves and made of pupa. Shd 3.6 of another but dried mottled all over with yellow & red line narrow, continuous, yellowish. Warts ② 2-6 blue black, ③ on 2 whitish ② on 7-12 pale wine color, the rest yellowish fresh color. Hair long, thin, brownish & black, mixed, with no pleural hair. Red tubercles 5-8 yellowish, 10-11 orange but ⑥ is smaller than the rest, just above legs. The spiracles are concealed by the large central structure formed by ③ & ④. Above the large lateral wart on 2 (cannot) is a pale yellow spot. A tubercle warts may be more extensive, or conceal the head but median outline. Warts / Hd pale yellow, mottled as before w. 4.5 mm Body black, thickly dotted & mottled with yellow fading into whitish on the sides, then appearing gray. The feet pinkish testaceous and slender tipped. Warts very large ② on 2 (thickened ash) 3-6 dark blue, ② on 7-13 dark blood red the rest dull pinkish yellow. Hair long thin, everywhere concealed in black & brown mixed, each black hair from the projecting black wart ② on 2. Warts ① present, both minute, red, in front of the set. tubercles on 5-8 which are flesh color, & some distance in front of the large blood red set. tub. on 10 & 11; ② large, circular ③ & ④ ovalized, ⑤ just over joint than ③; ⑤ long ⑥ small. A d. yellowish dorsal line, but only trace of the d. yellow line on the light of the head, white. Molt Head / Hd 5.5 Same, warts ③ reddish black dot on head lateral segment into 3 large patches which are again subdivided. Warts / w 4.5 mm Body as before (see hd 2.6) 2.8

Calc 68 1.06 1.67 2.65 4.20 wt. 63

Found 7 1.0 1.7 2.6 4.2

Overwintered ⁵⁷ 378 = 349 = 322
Egg from Miss. Kinder, Watsonville, Calif.
Laid in a neat ring around a leaf stem. Look like is egg. Oval, flattened at the sides, rounded at the bottom but flat on top forming a distinct elliptical area, slightly depressed centrally as the microphyte smooth shiny pale brown, dorsal with a white pig ment below and on the narrower sides forming a distinct ring around the top surface inside which is a dark brown border.

Height 1.8, broad centrally 1.6, at top 1.1; narrow diameter centrally .8, at top .7 mm
Hatched May 11, head and thorax shiny black, antennae brownish, width 2 mm }
Body dull black feet reddish, 3 rows }
of modified spines. On hind legs 2 }
of a single spine. On very long, but }
shorter than, fuscate, each fork with }
a long hair; 2 similar but shorter }
3 short, not fuscate, but bearing a hair }
Anal plate concave, with 4 small teeth }
molt May 26 How and shiny black, labrum

found limits
7-75 1.0-1.2 1.4-1.8 2.2-3.2 3.7-4.5
~~6-8 9-13 1.4-2.1 2.2-3.3 3.5-5.2 Calc.~~

~~1 larva found from W 1.1 mm Body black the tips of the spine also colored. Spine 3 rows on each side, a single d on 12. Very long, especially in 1st row, where there are 15 mm. The other one resembles a long but taper greenish, feet. On each spine about 6 branches, fuscate at tip. Each branch bears a single pale stiff hair, longer than the branch. The branches arise alternately. Anal plate large black 9 pieces, one on anal and 1 at base of each and foot.~~

3rd June 7 had depressed medially, shiny black, shiny on white with 2 mm Body black, spine in 3 rows, Row 1 on 4-12 (single d on 12) brown on short shaft and close set branches each topped with a short black bristle or long pale scale. The branches are pale yellow, contrasting with body. All the other spine with long thick shaft and separate branches as all were in previous stage, each branch a well set fuscate tip, bearing a long pale setae. Pale hairs on the body, not on the head. ^(now assuming anal. 4-seg.)
20th June 20th (before 25th) had 2.6 like 344 III The basal branches on spine ¹⁰ on 2, 3 & 13 are closely set, but the top part are thin, not like the lateral ones. Row 2 are also more closely set at base but 3 are all distinct
*Average of 36 heads 2.63 Limits 2.2-3.2

J July 23 without special days 20 p. 16 4.0 4.5

any sign of cover
or without entirely
ground

Head 3.6, Head 2.4 mm, same

[Antenna 2nd joint 2. Hd 3.8, Sh hd 2.6 mm]

Body hair white, on vertex & head as well,

Spines 4 rows on 2-6, 11; 3 rows 7-10, 1d, 2 rows on

12; 1d joint. 6 3 rows, 4 small and

5-8 on 12; (rows on 14, but a short

black spine below anal plate)

Processes type A, rosette type. Shaft very

short, some 50 light brown quills with short

black tips & a few central black ones with

long terminal hairs. These on ① on 3-12.

Type B intermediate. Shaft long with brown quills

around the base & some 10 black quills with

hairs, irregularly branching from the shaft

usually forming a trifid or bifid apex to shaft

These on ① 1-2, 13, on ② 1-13. Type C of size

2w quills. Shaft & long with irregular

distributed, subradiate branches tipped

by long hair. The branches are black but

many partly or wholly ^{these are ① ②} white

35mm black irregularly indented ^{hair} plates

6 a large rounded \square cth ^{scary} ① & ②. Spines

reddish white. Distinct ^{eyes & legs} ^{appearance than a}

appearance than a ^{stump} ^{ant. 5-8} ^{leg 2-4}

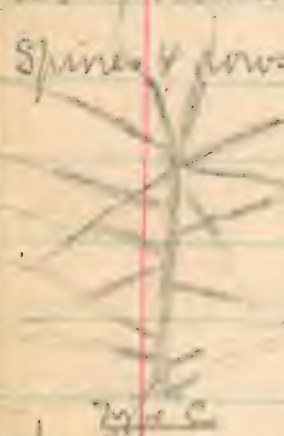
appearance than a ^{stump} ^{ant. 5-8} ^{leg 2-4}

appearance than a ^{stump} ^{ant. 5-8} ^{leg 2-4}

appearance than a ^{stump} ^{ant. 5-8} ^{leg 2-4}

appearance than a ^{stump} ^{ant. 5-8} ^{leg 2-4}

appearance than a ^{stump} ^{ant. 5-8} ^{leg 2-4}



379
L. 14 W 5 mm

Wings cylindrical, but flattened on ventral side
rather thick. 1st abdominal coxae, rounded; and edge
of seg. prominent. 3rd coxa shiny blackish, probably
covered with a rather long dark spine with slight
terminal hook. 379 L. 14 W 5 mm

Eggs from CA Wiley, mile city Montana
said to be Ichthyura bucci. Laid May 20

hemispherical, flat below, slight stem
salmon pink. Diam. 9 mm. Length 1/2 in

Another hatched slightly earlier like a
hen's egg. When dead, on irregular dark

blurred line about egg near base; later
the color becomes blackish or in color,

the larval head showing by transparency
as a black spot at middle, and an

an space in rear of the vertex, just the
heads at vertex, mouth filling up the air.

Hatched June 4 like a narrow jagged hole in
the soil, came out and walk off lively, not

eating the shell. 4d subcaste, shiny black
on long hair ^{sh. 1/2 in} 4.5 mm. Body rather flattened

flat animal. Thorax was large, black;
a dorsal rounded prominence on 4 & 12

Body brown, head, sides white
dorsal, except on 5, 12 & 13 part where the

lines color granular. Feet, white pale.
Hair quite numerous, long, curved, dark

coming from minute tubercles. Length 2 mm

red paper, immediately visible between & over-
lapping leaves & become still. One side a little
first. Spin the leaves together for a house
Molt June 7 Hd flat in front, median suture deep,
slightly bilobed, shiny black; held out flat.

W. imm Body normal, csh & anal plate black
Colored as before but the minor color is deeper
The dorsal fat color (about on 4-12) is greenish
with a narrow faint triple dark line
Tubercles inconspicuous with markings, rather
large. Hair numerous, pale, fine.

in some imm. some moved June 9. Later the
dorsal color becomes distinctly yellow.

Molt June 11 Hd various ^{or pale victory, sublaterally, with black} black, shiny; bilobed,
media & chypal sutures small depressed,
hairy. Held out flat. w. 1.3 mm. Dorsal
area with tubercles ①-④ on 3-4, 6-11 & 13 and
yellow, pale at incisura, with a purplish
narrow line. Lateral area, dorsal
elevation on 5 & 12 dark blackish brown
Feet, csh & anal plate black. Stig
& S-V pale yellow line, somewhat raised,
the S-V broken into spots and. Long
hair from the tubercles (angly) pale, other
short hair from the skin also pale.

Molt June 12 Hd rounded, anterior moderately
deep, chypa depressed. Head held flat w. 3.2 mm
Pale brown with darker brown reticulation
Shiny, eyes & tip of jaw black. Apical hairs
Body flattened, 5 & 12 slightly enlarged ^{deeply} dorsal
Hairs all white, long hair singly from tubercles,
short numerous from skin. Tub. normal,

④ foot spin, ⑤ SV, all bright yellow
Body brownish purple, marked with white
forming a broad d-band with 3 narrow
purple bands (d & along ①) and a narrow
stig line beside molting through out. Vent

①-④ on 5 & 12 are dark. Centered area
around ①-④ except on 4 & 12 stains yellow
Feet pale, whitish. Later the color fades so
that the appearance is soiled white mottled
with spots of pale purplish & three indistinct
lines on the back. The slightly enlarged dorsal part
of 5 is ^{large} purplish. Tubercles very small ^{all deep} yellow
around ①-④ on 3-4 (patches ^{deeper} ^{or color} ^{sub} ^{lateral} ^{area} ^{deep}) 6-11 the
anterior extends to bilobes. Spiracles black
Length about 25 mm [How does it differ from near]
Cover June 21 of side between 2 leaves. Thin, slight
rather steeper than a house ^{will I June 11, 7:30 AM}
Image July 6 Cal no. 9102 *Schizopyga caen* var
astoriae (?)

Cule .98 1.48 2.2 3.4 5.1 ratio .66

Found 1.0 1.45 2.15 3.4 5.

380

July 14 1933

Platygaster glover? from C. D. Wiley, Miles City
Montana Egg. elliptical, slightly flattened
above below L. 2.2 w. 1.8 thickness 1.6 mm.
Smooth, white, not shiny, with irregular
blotches of a brown substance from mouth.
Hatched by a hole in one end. ✓

Hatched June 12 Hd rounded, about as high as wide,
median suture deep at vertex but very shallow
in front shiny black labrum pale a few
shad pale hair ^(sh. hd 1.0) w. .9 mm ✓ feet normal, anal
pair very large, the anal plate arched,
color entirely black! the armature consists of
a series of thick stiff processes, shiny black,
slightly swollen at top and bearing a bunch
of spreading pale hairs, most twice as
long as the stem ^{2nd} of about equal length,
slightly longer on the seg. 1st row appear to
be 2 rows, a single d. on 12 & a pair on
the anal plate. In cph indistinguishable
Length about 5 mm ^{Color entirely black} Lateral around base of each
process except those on 2 & d on 12, is a
large orange patch; complete below process
on 12, forming incision on dorsal bands. The

growing color becomes pale dorsally about
anterior margin on 2-4
molt June 19 Hd rounded, shiny black, labrum
whitish w. .5? mm body orange, with 2 brown
black bands on each segment, indented toward
the middle corresponding to the bases of the spines.
but suture very. Spines in 4 rows on 2-4, 3 on
5-12 & single d. on 12 & 2 on anal plate.
^{processes} Spine cylindrical, with enlarged conical base
a beak at top broad at top, stiff spine
with enlarged conical base & one vertical
one of 2 vertical on the single d. on 2. Spine
as long as the processes, not longer. ✓ The
feet, all on tarsi & processes with the
spines all shiny black. Spines white
with black edge. No setae, but on anal
plate & plate on abd. feet, ^{the} all processes
about same length, about 3 mm
long. On 2-4 probably conical, with only
apical spine. These spines on 2-4 not on 11-12
on 3 2-4 are light yellow with a large black
patch each side of process & one on ocelli
labrum ant. palpi black a few pale
hair ^(sh. hd 2.15) w. 2.4 mm body pale greenish yellow

darker around base of ^{processes} spiracles, a row of
 black dots, 2 per seg & row ^{at} 1/2 seg.
 post to spiracle. The feet black. Processes of
 uniform length, thick, ^{blue black} thin spin about as
 long as themselves. (as before, on 12 ①d
 ②, lat ③ S-S; on 13, 2 each side, on 14
 (base of anal plate) 1 each side). S-d on
 3-5 are slightly thicker than the others.
 Abd. feet yellow, claspers brownish. A few
 ventral black spots. Spiracles white with
 narrow black edge. Processes ^{black} black
 (shaded 3.4) ^{shaded 3.4}
 July 5 Head same w 3? mm. Body
 bluish green. Black dots same but
 reduced, in the scumple slightly
 connected transversely by melanistic
 streaks (not normal?) which obtain
 distinctly on and side of 3 & extend to
 ventral margin all black. The feet, basal
 joint yellow, 2 terminal black. Abd
 feet yellow with blackish claspers.
 Spin not more than $\frac{1}{2}$ or $\frac{2}{3}$ as long as
 the processes which are thick, & form
 slight enlargements at base of spiracles.

Processes 4 rows 2-6 2 rows 1-4
 ① S-d on 2-11, 13-14, ① on 12: ② lat 2-12
 ② S-d on 13: ③ S-S, 2-12 ④ S-V, 2-6

Processes & spins all shiny black
 except ① on 3-5 ¹² are pied with yellow
 on the shaft. Spiracles white + black edge
 (not July 5) not round full, median suture well
 marked, yellowish green, and shiny with a
 small black spot or ocelli & a narrow
 streak each side claspers, mouth whitish.
 w. 5? mm. Body large, thick, cylindrical. S-d
 enlarged at the 12; c large beyond c on
 13 & anal plate, yellowish green. Body
 bluish green with a gray tint. The feet
 yellowish green with black tips, abd yellowish
 green outwardly. Processes ① on 3-12 gamboge
 yellow, shaded, ^{almost orange at tip} pale at base, ^{the rest black}
 white shading into pale blue at base, all
 the terminal spin black as well as the
 short rudimentary ^{processes of spin} ① on 2 on ^{and 3 on 1} 2. The
 spin on all short ($\frac{1}{2}$ process long) & are partly
 absent. Only the apical one is present on most or
 bases of a few others. Processes club shaped, thick
 ① ② on 3-5 and ① on 12 larger & rounder thicker
 than the others & possessing the normal spirulation
 like as short spiracles black spots representing
 them, viz. apical spin & 2 concentric rows of
 radiating ones. Spiracles elliptical, white
 with black rim.

Reputed to be July 27
 Imago May 9 1894 ♂ *S. glaveri*
 var *reducta* at no 10860

35.5 65 85 115 160 22 28

Sept 11 1893

381 cat 9001.

Eggs laid by Arctic volanders from C. A. Wiley, Miles City, Montana. (Recd June 12)

Circular, rounded, flattened at base smooth shiny orange yellow. diam. .55 mm; height .16 mm. Laid perfectly loose.

Hatched June 15 Hd bilobed, shiny black, labrum pale, antennae brown. Body whitish, warts, each with feet blackish, the warts nearly hair long, stiff, singly from the warts, black on the back, pale laterally. Warts normal w. l. .35? mm. Length nearly hatched 2 mm.

July 2 Hatched Hd slight, bilobed, rounded, shiny blackish; mouth brownish; occelli black; w. .5? mm. Body pale brownish, darker s-d than defining a whitish d-line. Warts low, black with numerous radiating stiff hairs which are not long, not blackish. ✓

July 3 in 26 Same Hd .8? mm. a few hairs post. are long and white. ✓

July 3 Hd .8? mm Hd slight bilobed entirely shiny black with a few hairs body blackish, especially s-d and warts black, giving appearance of a pale

d and s-d line between the warts

Hair short stiff, black d, whitish s-v with 3 or 4 long white hairs post. The black hairs are longer post. (Sk hd 1.15)

July 10 Hd same, w 1.2? mm. Body black s-d, pale lat. but all the warts very large, shiny black. An orange red d-line, ending at anal plate & c-sh.

Hair stiff, short, black, pale s-v with a few long hairs post. ✓

July 18 all deep black except the narrow bright red dorsal line side a little pale, s-s hair pale Hair thick, mostly black, heavily barbed except a few long post. black hairs. Warts shiny black. (Sk hd 1.63)

Warts head 1.6? mm

The warts of ② have shiny blue black base, the top punctured & bearing the hairs warts ③-④ are also elevated, but the bases are fleshy brownish, giving the appearance of obscure pale bands. Top of all warts deep black. The red d-band becomes yellowish white in the incisures, forming conspicuous dots. ✓

Lateral area grayish, against which
the black apices of the warts contrast.
Hair from ①-③ black, from ④ shading into
glassy white, from ⑤-⑥ pale salmon
abd feet blackish brown, the clasper
slightly reddish.

July 24 11m Head 2.3? Same yellow dots as
light red d. band ^{Water evident} not ~~indistinct~~. Base of warts

③ distinctly lighter reddish, contrasting and
forming a broken s-d band. Lateral area
below ③ mottled with yellowish, then
appearing gray. Bases of warts ④-⑥ not
very pale. Abd feet salmon reddish.

Wght Aug 1. Head shiny black, w 2.8? mm.
Body black, mottled with whitish*, bearing
a black s-d band below which the
wart ③ one distinctly light red, highest
at their bases, the hair bearing minute
granulation only black. ①-③ very black.
D band rather broad, vermilion red,
becoming yellowish white in the center
and the color is most seen when the
segs are contracted. *Just on segments
above s-d band ①-③ have smooth shiny

light bases as also the large red wart ③
warts ④-⑥ less reddish than ③. Hair
with, barb cleft, black, becoming pale
laterally, and pinkish red from s-v warts
have about 20-25 mm long. Hd black
clypeus large, black hair. Labrum slightly pale,
bases of warts & abd feet pale salmon.
The feet shining black.

Aug 8 crushed for several hours and on
Aug 9 at 6 AM had covered on surface of
ground with stems, a large reticulate net
with rather broad meshes - 4th larva.
Pupa cylindrical rounded, abd tapering,
18x5, color blackish analogy with
a whitish bloom, cremaster short
& thick, slightly conical, with a tuft
of spiny hooks.

♂ bolanderi
Munro Aug 29, 1893. cat no. 9456

May 16 1894

382 *Symphoricarpos*

acumatus

Symphoricarpos ~~*acumatus*~~ (or *acutus*) from C. D. Wiley, Mills City, Iowa. (Hatched when red)
 Elliptical, flattened above & below, smooth green slightly shiny. Under $\frac{1}{2}$ in very slight irregularities like new egg. L. 16, w. 1.4, height 1.0 mm.
 Stage 2 (on "newberry", ate summer) 2d round, antenae not distinct, ocelli near front a circle. Fall greenish, slightly reddish around the mouth ocelli black; w. .7 mm. Body cylindrical, annulated, annuli yellow; smooth brown luster whitish green. Caudal horn long, thick black, not tapering & only slightly thicker at base. Length of it 1.1 mm. It is held nearly erect. Length of larva 5 mm.
 Molt June 15 2d round, higher than wide, covered with spongy layer white granules; yellowish green, mouth pale w. 1.2 mm. Body dark green annulated, covered with large white granules. 7 oblique whitish lateral lines. Feet green reddish tips. Caudal horn 2 mm long heavily covered with short stout spinules black. Not green at extreme base. Spinules are slightly curved, with short setae.

	.68	1.14	1.9	3.16	5.26	7.6
Found	.7	1.1	1.9	2.6-8	3.6	

June 3 (140 rounded) rather square, higher than wide. Under $\frac{1}{2}$ in. annulations. Pale green with large white granules, & a faint whitish yellow line along side and reaching atop. Ocelli black. w. .9 mm. Body as before but black heavily, frosted with white. Lateral oblique line pale yellow becoming white dorsally & continued backward in the general white shade. Feet pale to body. Horn spinular, pale brown shaded with black legs, behind and at tip. Length 3 mm. ✓ of Wiley about 23 mm.
 June 4 (122) 2d round. The faint yellow stripe arises at base of ant. before ocelli, & body of (before water) annulation faintly yellow w. 2.5 mm (Sh. 2.8) (Sh. 2.6)
 Body less green, heavily covered with large conical white granules & frosted white dorsally. Oblique line pale yellow, annulated with large conical (black rings of peaks) dorsally, continuing along the dorsal area & frosted white streaks. Horn with conical granules which are slightly more slender than those on the body, & are each tipped by a minute seta. Spinules white with brown center. Horn tapering to tip, marked as before. The feet reddish and fleshy, brown with black line at extreme tip.

Mrs. H. G. Dyar,

City

prominent, a double carinated ridge begi
on the thorax & runs to middle of abd.
when it's continued post. by a row of 5-d
conical tubercles, each with a short seta
A small flattened process on the ridge
on thorax & another larger one on the 4th
abd. seg. flatters laterally & furnished with
5 points like saw teeth. (It is 12 mm high)
The middle one of which is longest & similit.
Color yellowish green, the process brown
& 8.5 mm on the 2nd, abd centrally 1.5 mm
Insects Jun 26 1893. Cal. no. 9057

Cryptilus periscelidactylus
Fitch

384/Quart larva & pupa(?) from the cocoon
June 2 1897 in alcohol. Hd rounded, slightly bilobed
stiff large, a broad black band around D, covering
the sutures & complicated with another which
runs from scelli to apex of D; vertex & base
of lobes & side of head post. black. Between the
bands the color is yellowish brown, slightly
yellow below. Some stiff white hair. w. 2.8
Roof cylindrical, not tapering 12 creased to 13.
oval. feet normal with hooks in a
row slightly behind. setae normal, going
single with white hairs, arranged in a
triplicate, 3 on leg plate, 2 on distal plate

black abd. pole & other shaded more
darkly in the leg plate. stig region more or
less dotted with pale yellow which gives
dots on 11-12 & 13 hair a distinct patch

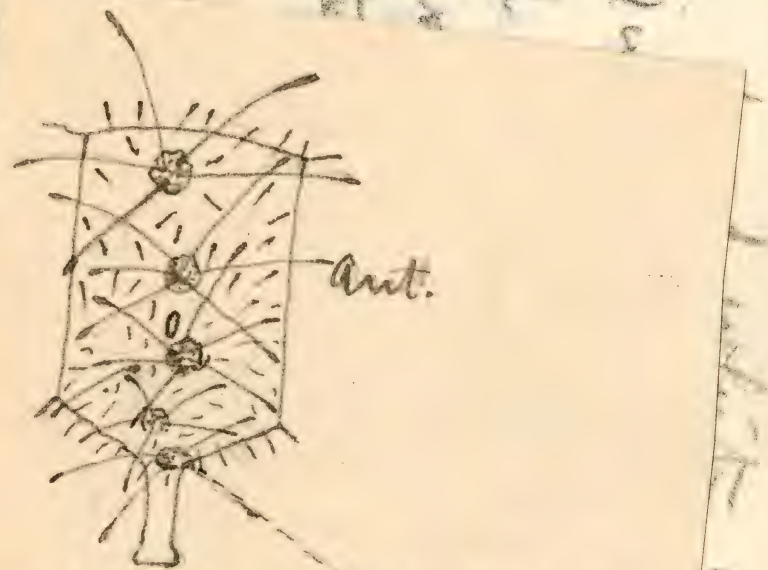
Spina
Egg 1/8
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VI

Ammonit.
Same

blackish, aliphatic
95 yellowish
i - vii 3 on leg plate
primary, non-conical
simple, rather ho

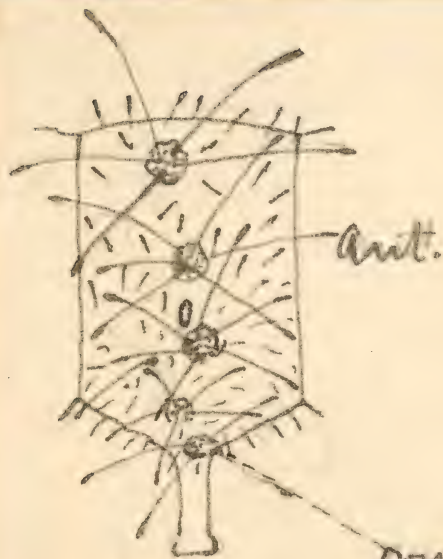
4/11/2 yellowish
with white edges
with non-conical
simple, rather ho

1 - vii 3 on leg plate



corresponds to
last want. on legless seg.
= vii; viii not seen anywhere.
(single seta)
BB 383
Pterophoridae
with
with
with
with

latter of plant, supracolliar
to dots & vertical tubercle black, the feet



ant.

Corresponds to

last wart on legless segs.
 = VII; VIII not seen anywhere.
 (Single seta)

BB 383

Pterophoridae



That Miss Zella Peabody is a Graduate
in Piano Playing, having pursued the
highest branches of Musical Study under my
personal instruction, I fully recommend her as an Instructor

CHARLES H. WEBSTER.



Hd 1.2 yellowish broad white d. a sty line
 all defining edges. Tubercles large black, a little
 pointed, row conical; setae distinct, pale smooth
 simple, rather long. 12 enlarged
 i-vi vii 3 on leg plate no other form

Hd .75 yellowish white line very faint. Tubercles
 blackish, slightly conical, setae simple
 smooth. Same but characters less developed

Hd .5 yellowish, hd = tubercles testaceous the
 latter well marked, large a little conical
 setae same

[omit later 1.8 1.9]

— 2.8
66

.35 .53 .80 1.2 1.8 2.8

168

.5 .75 1.2 2.8

168

.32 .50 .77 1.2 1.8 2.8 r.65

— 1448

66

$$\begin{array}{r} 28 \\ 65 \\ \hline 140 \\ 148 \\ \hline 182 \\ 65 \\ \hline 910 \\ 1092 \\ \hline 1183 \\ 65 \\ \hline 5915 \\ 7098 \\ \hline 769 \\ 69 \\ \hline 3875 \\ 4614 \\ \hline 4999 \\ 69 \\ \hline 2495 \\ 2044 \\ \hline 11088 \end{array}$$

Mrs. H. G. Dyar,

City

Madam:

Your favor of even date enclosing check for \$25.- in payment of rent on Piano is to hand and we have duly placed the amount to your credit.

Please accept our thanks.

We shall send a tuner to attend to the Piano on Monday as requested.

Yours truly

A handwritten signature in cursive script, appearing to read "Helen Brown", with a long horizontal flourish underneath.

Molt June 28 (had young) same head change, HD
 slightly depressed at anterior sutures rounded,
 clypeus lanceolate shaped, green, smooth
 with a conspicuous white dot & faint
 yellowish vertical stripe next reaching vertex.
 border behind by a faint black shade
 W. 3.6 mm. Body smooth, annulated, on the

just edge of 2 & 3 are elevated, hind lateral
 studded with smooth white granulation
 soft white green
 body back part in cross-section dotted with
 white granulation uniform in color
 lateral oblique line white, each
 indented in front by a narrow distinct black
 line, & continued by a white shade to the
 middle of segment the last pair reaching
 horn, horn greenish white, black above, below
 & at tip 4-5. The feet whitish with red
 tinge. Abd. tipped with yellow & black
 spiracles ~~black~~ ^{translucent with pale rim}
 behind the granulation is in sutures 4-5.
 smooth, steepened, no setae.

Images May 16, 1894 *Sphingus wasp* Coit no 10862
 Mother from Wiley, through Doublet's report
 are *Sphingus wasp* Stackman

T. moth larva in house on grape leaf, probably
 inside HD slightly lobed, convex in front,
 higher than wide, thickest above the middle
 clypeus large D. Pale green with a faint
 brown tinge, ocelli black not shiny; a
 few hairs. W. 1 mm. Body with 13 segments,
 (j. 13 divided by a suture as distinct as the other)
 smaller part cylindrical, segments thick,
 slightly folded at suture. Feet normal,
 the abd long slender, dilated at tip
 5 rows of warts (row 1 of tubercles wanting), the
 2 or rows small. 's-d, 'lat. 's-s, '2 a-v.
 warts & tub. pale green, the warts somewhat
 whitish with cluster of radiating white
 hair & many short hairs from the body with
 club-shaped tips. Under 1/2 in. body curved into
 minute parts. The long hair appear truncate
 a slightly dilated at the tip, while the short
 ones are flattened and broad at the end,
 paddle shaped or cleft at tip like a scale
 on a wing.

Pupae suspended by cremaster only, slender,
 piriform, subcylindrical, the eye cases

prominent: a double carinated ridge begins
 in the thorax & runs to middle of abd.
 when it is continued post. by a row of 5 d
 conical tubercles, each with a short seta
 a small flattened process on this ridge
 on thorax, & another larger one on the 8th
 abd. seg. flattens laterally & furnished with
 5 points like saw teeth. (It is 1.2 mm high)
 the middle one of which is longest & sinuate.
 Color yellowish green, the processes brown
 L 8.5 mm. w. thor 2 mm, abd centrally 1.5 mm
 Diego, Jan 26 1893. Cal. no. 9057

Cryptilus periscelidactylus Fitch

384/12/1897/12/1897 in alcohol. Hd rounded, slightly bilobed
 clypeus large, a broad black band around D, covering
 the sutures & confluent with another which
 runs forward from scell. to apex of D; vertex & back
 of lobes & sides - head post. black. Between the
 bands the color is yellowish brown, bright
 yellow below. Small stiff white hair. w. 2.8
 Body cylindrical, mesothorax 12 enlarged d. 13.
 small, feet normal with bristles on a
 sharp striae line. Setae normal, from
 angle of white hairs, arranged in a
 unbranched, double plate. Body 2.8 mm
 small size

black, abd. pale a little shaded most
 dusky on the leg plates. 5th seg. more or
 less dotted with pale yellow which pre-
 sents on 11-12 forming a diffuse patch
 spiracle black 384

Egg of *Hyppia ridingsii* or *manifera* from
 B. Lambert, Yosemite, Cal. flattened,
 round, somewhat button like, although
 depressed centrally at the micropyle
 rather less than 40 deep grooves run
 vertically, a few not reaching the summit,
 the edges of these grooves are somewhat
 sinuate as if formed of rows of large
 pits which had become confluent
 in a vertical direction. In a rostr.
 layer one around the micropyle, the grooves
 cease and are replaced by closely crowded
 punctures, but not small, with sharp
 slender rim like a thimble. diam. 7 mm
 height about .2 mm. Base flattened

Fove plant (little narrow leaf)
 of *manifera* = *Geodra williamsi* } Anct
 & *Clarkia elegans* } Lambert
 of *ridingsii* = " rhomboides
 member with velvet black; a broad black
 patch covers i-iii & ind. down a little below
 spiracle on each side & a small white
 patch in the mid. & post. edge of the segment. ii, v
 & vi each surrounded by black patch, the
 latter confluent & supplementary in pairs between
 5 & 6 dots. 4 vertical tubercles black. The feet

Calc	.32	.54	.90	1.5	2.5	max. 60
Found	.3	.5	.8	1.5	2.5	

285

Olybia *maculata* n. sp. July 1 1893
 Stage hd. 3 mm Hd bilobed, shiny pale brown
 ocelli black. Body cylindrical, water
 thicker at 5-6, 12 enlarged d. Feet
 normal, but those on 7 & 8 are rather
 smaller, and used in walking, not
 at rest. Larvae loop, resting on last
 3 pair of legs. Color subtransparent greenish
 yellow, faint orange central on each
 seg. most distinct on 5-7, enclosing
 the blackish smooth, minute, piliferous
 tubercle. Feet blackish. Hair fine, pale.
 Stage hd. 5 mm Hd slightly bilobed, bulging
 a front, clypeus large, shiny pale brown
 ocelli dark. a few hairs. Body thick at
 5, 6 & 12 & elevated in 2 humps in the
 parts of rest. Feet normal, all used,
 though the larva humps along. Tubercle
 ① & ③ on 5-7 & ② on 12 are larger than
 the other, conical, black. otherwise
 much as before but a little more
 distinct orange banded and the body
 is more whitish, still watery

Stage hd. 8 mm Hd. as before. Body mottled
 with white & honey yellow, becoming
 orange around the bases of the larger
 tubercles. Tubercles & feet shiny black.
 5, 6, 7 & 12 distinctly enlarged dorsally,
 especially at 12, & held elevated.
 Tubercles conical, ① & ③ on 5-7 and
 ① ② & ③ on 12 especially large and
 projecting. a whitish patch laterally
 between 11-12. Setae fine, long, white.
 Tubercles normal ② and ④ small on 5-7
 spiracles black with white center.
 Stage hd 1.5 mm Hd slightly bilobed, shiny
 dark orange with about 8 black spots
 on each lobe. ^{new} fine white hairs.
 Body marked with blackish white & black
 somewhat mottled, but tending to form
 transverse narrow lines. Feet & tubercles
 black, the latter conical and characterized
 as before. Hair long, fine, white, single
 center of 5-7, 12 & other legs laterally marked
 with orange. Lateral white spot 11-12
 supplemented by a series of white ones
 around distance 5-8. [See 00372]

386

Kelepa larva in the road woods Holl Mass
 July 5, 1893. 1st stage, round, rounded anterior
 shallow, lobes full but scarcely separated
 very densely covered with large punctures
 black, not shiny, with scant pile
 most abundant near mouth w 3.2 mm
 2nd very small, body just thick & white
 3rd again small. a narrow c-sh
 reaching spiracles on each side with a
 dorsal antenna. the feet well jointed
 3rd joint small, pointed with terminal
 spine. these structures shiny black.
 body dark blackish purple, faintly
 mottled with pale, numerous. The
 d. ves. shows darker. thickly covered both
 d. & ventrally with very minute, short
 pointed stiff black pile. spiracles
 small oval, black. Ant edge of 2 white
 and ventrally on 11 & 12 ant. are large
 transverse snow white patches, the
 posterior one divided along mid line into
 two elliptical areas.

Ant distinct
 from 0 Antenn distinct

March 31 1901

387

Big yellow leopards - on ^{Bayberry; Myrica cerifera} ~~vegetable~~ ^{small} shrub
 at Wood-Holl, Mass, July 10, 1893 4th very slightly
 bilobed, lobes full laterally, clypeus ^{not high} large
 antenna not deep, color light yellow with 4
 round black spots outwardly on each lobe,
 a spot on ocelli & some smaller brownish
 one on clypeus. Labrum white. w 2.4 mm.
 The feet distinct; abd on 12 & 13 joint only
 Body light yellow, about 12 annulate but
 somewhat irregularly with very narrow deep
 brown long. line. S-d, dist; lat., supra-stig,
 & stig faint (the 2 latter connected before &
 behind each spiracle by a conspicuous black
 patch between them a white spot around
 the black spiracle); s-v, just below s-v ridge,
 faint; 2 ventral (each side) quite distinct
 Abd feet with brown black spots like
 those on head. The feet less distinctly
 marked with brown. (Tachina in one)
 Angl made some coarse open net work of
 yellow silk up on leaf. (H. 1) ^{Kelepa} ²³
 Jamaica Sep 8, 1893 Zerene catenaria
 cat no 9532 a pale brown subcaudal
 black

Calc. 1.28 1.98 3.2 5.16 rates 62
 Found 1.2 2.0 3.2 5.

388

Pyra autotipis, close connection
 Apatela like *Cyprina* oak but ate bayberry
 Pale, like our eastern species & without red.
 Shid twice becoming paler. Woods Hole.
 Stage hd 3.3? July 20, 1893 Hd whitish, mottled
 with brown & shaded with black in
 a diffuse band from ocelli upward and
 on each edge of the clypeus. Mouth parts
 largely black and under side of head.
 A fine pale hair. Hd large, slightly bilobed,
 rather flat in front, oblong, bordered
 by long white hair from 2-3 & partly concealed.
 Body cylindrical, tapering gently posteriorly.
 12 enlarged d. slightly. Warts ① as large
 as any other, only a little ant. ② set. ③ lat.
 ④ minute, post sup. ⑤ S-V, ⑥ S-V post, middle
 ⑦ 2-4, ⑧ absent, ⑨ little higher up. On 12 ⑩
 ⑪ are nearly in line & ⑫ longer. On 13, 4 warts
 alternate & close, rounded & one low one sd
 on 13 post. Body striped, mottled with
 white & black, the black predominating
 & becoming continuous centrally on
 the top & adjoining the narrow broken
 yellow d. line. A hood hd 15.3

Wet corn between 2 leaves
 Sept 2 " " " 4.6 ± 7 tufts black & white

bars, the former broken & obs. and, of
 yellowish white, pale red in the middle
 warts pale, with fleshy tufts. Hair pale,
 long & peculiar, thin, with a few black
 ones at extremities & certain tufts of
 plumose hair. These are a few very short
 plumose hair from ② ③ on 3 & small tuft
 on 4. Longer from tuft from ④ on 5 and
 small white tuft from ⑤. 3 equal
 separated white tuft from ① ③ on 6, the
 size of them looking far like around later.
 A few hair from ① on 10. A black somewhat
 divided peral from ① ② on 12 (found 2
 in case of each) and white tuft ③ 12.
 Warts July 24 changed. Hd whitish brown, much the color
 of tufts & black line at margin of clypeus & patch
 before eyes. The feet white. W. hd 5 mm. Body somewhat
 same but the narrow yellowish d. line more obscure, a
 series of velvet brown d. patches. Warts all very pale
 Spinach white, black buds. Some stiff bristles from
 ① long hair and a few lateral hairs besides. Tufts of
 short plumose hair (branches whole length) mixed
 with the stiff bristles. Tufts all fine light pinkish
 brown or very leather color, ④ on 5 and the long ⑫ on 12
 a little darker in shade. Small tufts from ① on 7-10
 Some of the long single hairs 15 mm. Venter & feet pale
 Stage hd 1.2 Black & pale greenish line seen on entire
 body clear mottled S-V narrow broken d. hood 5-10-12 S-V
 just yellow line. Among the wool hair a few fine ones
 mostly black but ② ③ a few white ④ ⑤ ⑥, ⑦ and di-
 versus peral ⑧ ⑨ ⑫ Woods Hole July 24
 Images May 17 1894 Cat no 10863 *Apatela laticornis*

Jul 13
1897

389 = 129
other on elm

Purple *Apatela* on beach plum *Prunus maritima*

[Previously found on apple at Linwood Hill?]

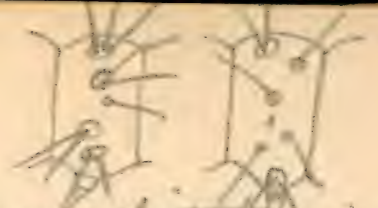
Head large, slightly bilobed, median suture deep before vertex, not shallow behind, flat in front. Blackish malarian, shiny, darker below. Clypeus black with central slightly purple pale mark forming a V shaped mark which divides clypeus. Side post marked with pale. Base of ant pale. A few reddish hair. W. 3.5 mm.

Body 7 even with, 12 enlarged d. w. a round-quadrate elevation which bears ① ② at the corners & pulvate central warts slight, consisting of scarcely more than an aggregation of 3-10 piliferous tubercles with a slightly enlarged common base. ③ as large as ant, ④ rather small, post. to spiracles. On 2, ③ ③ are scattered over the large side, not distinctly aggregated into warts. ① about 2-4, ⑤ stag. On 3, 4 attached close to & a diff. 8-d one post.

Head very thin, long, quite thick, tapering reddish, with a few short pale ones s-v from body. Body lilac, shading into blackish lat. & s-v. C-sh, feet 13 post blackish. a series of d. hair glass shape or divided thick red spots 1 per seg from 5-11 (red dash on 3-4) in a ant-elliptical velvety black patch which surrounds ① & ②. ① shining blue black at base, ② as a yellowish white patch ^{on 5-11} which ^{which is strain yellow 5-11} surrounds ① & ②. A diff. blackish broad d. shade connects these warts & covers dorsal part of 12 which is unadorned. 13 purplish, with its wart as well as the other 1 ③-⑤ obscure feet color. A lateral black line just above ③. Below ③ the blackish s-v shade begins. Spiracles black with white center.

(See also 129 where it was a strain)
Images Apr. 27, 1897, cat. no. 10854
Acronycta occidentalis

Natania ~~contracta~~ ^{marginata} on black-oak, Wood, N. Holl
 Mass, July 23, 1893. Egg nearly spherical,
 somewhat cup shaped, the lid like top
 showing distinctly of its contrasting color.
 with a central depressed black micropyle
 color white, the side somewhat grayish
 in contrast with the very white lid.
 diam .9 mm, width lid .6 mm. Height .55 mm
 Under glass obj. aa smooth or faintly reticulate
 like hen egg, micropyle white or black,
 punctured. Under glass C divided into
 small rounded hexagonal areas by
 low reticulations. Micropyle in a slight
 depression, elevated, irregularly granular
 The reticulations are less distinct at the
 sides, becoming obscure punctures. The
 bottoms of the eggs are flattened and curved
 to adhere to the leaf by a whitish substance
 Stage I hd round, smooth, not bilobed, the
 sutures not evident. Mouth and antenna
 projecting; entirely shiny black w. 50 um
 a few short glassy white setae arise from
 minute colored tubercles. Prothoracic shield



black
 rectangular, a little wider centrally than
 at the corners, slightly rounded, bearing 3
 glassy tapering hairs from minute tubercles
 at each ant. corner, 1 at post corner and
 1 each side on a line behind the center.
 On 2 a sd black spot bearing 5 setae from
 colored tubercles with black apices. A
 small black spot just behind the spiracle
 a large spot below with 4 setae and another
 above base of foot with 3 shorter setae.
 The feet shiny black with dark hairs. Spir-
 acles black. On 3-4 ② as in all a black spot
 surrounding the tubercle, head like which has
 setae, 3 in number. ③ with 2 setae. ④ 1 seta
 ⑤ ant. 2 setae. ⑥ center 2 setae. On 5-12 ① ant
 a little above s-d, large, 2 setae. ② post. s-d
 smaller, 1 seta. ③ lat. 1 seta. ④ s-s just, 1 seta
 ⑤ s-s a little below ant and to iv, 1 seta. ⑥
 absent, base of leg clear. ⑦ on 5-6^{13 out} in line of leg
 4 setae not well connected by black, scatter
 ⑧ single minute dot each side median ventral
 line. Outer plate of abd feet 7-10 black
 with several setae. plantae pale, crotchets
 black. On 13 2 next dorsal spots in line

each with 1 seta. between them a tolerably
distinct median, nearer to 12 than to anal
plate, a sd seta in front of the incision.
A lateral one behind it, a s-v one in front
which is row ① already mentioned. Row
② before antenna. Anal feet rather long, truncate
with no evident clefts, black with
8 or 10 long black setae. Suranal plate
hemispherical, black, indented on its
irregular and edge centrally with a
row of 6 marginal setae post. and one
each side the indentation ant. Color
light yellow with a d. & lat reddish
brown diffuse bands. not reaching the
extremities, with faint trace of similar
s-d, stig and s-v bands. Skin smooth
and shiny with no hair except those
from the spots. Bases of abd feet minutely
covered with black granules under Zeis C
The granules become absent ant to 5, but
are present s-v on legless segs slightly.
Length about 4mm. Sit on punk or wax
it gurgles & elevates both extremities
when disturbed. Lata the no. horns

becomes very distinct on bases of the feet,
3, 4, 12 & sometimes centrally a lobe, giving the
appearance of patches or transverse bands.
III July 28 Head higher than wide, slightly
narrowing upwards, not bilobed, the sutures
well impressed; clypeus $\frac{1}{2}$ as high as head
& shiny black minutely shagreened a few
setae from very small tubercles, one from
the vertex of each lobe rather longer than the
other - Celli 5 is a semicircle, from the center
of which arises a seta. Antennae black, with
a pale basal enlargement. The setae are
minutely barbed or cleft throughout their length
width .9mm. The feet shiny black. Body red-
dish brown with net d, sd, lat, stig, s-v
(interrupted by base of legs) & medio-v, yellowish
line, becoming confluent posteriorly. C-sh rounded
rectangular, augmented by its piliferous
tubercles, black. Anal plate, hemispherical
with a central widened indentation, black.
Anal feet black, long. Propagating backward
being several stiff black setae. Other
setae on the body all pale, those of the
last stage supplemented by a large
(preceding)

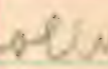
number of rather fine and short
(but almost as long) ones growing from
minute black tubercles all over the
body. Outer plates of abd. feet black.
The 4 primary hairs from the ant. edge
of the csh are much longer than any
others. Witt Aug 6 (real minutia) Hd same, width
1.55 mm. Secondary hair rather less than $\frac{1}{2}$
as long as primary, all pale. Hd, thorax,
abd. feet, anal plate & anal feet showing
black. Head, dark reddish brown with
four narrow yellow stripes on each side
equidistant, the lower S-V, & 3 ventral
stripes, the outer on each side broken by the
legs. Minute tubercles which bear setae, black.

Witt Aug 13 Hds 2.5 - Repuber minutia
stripes not confluent feet except the
two lower of the 4 lateral. Hair all
white, the 2^d about $\frac{1}{3}$ as long as 1st,
but abundant. Hair from 2 still
much longer than any other.

Witt Aug 22 Csh yellow, or part is
largely black. Hair all white, the 2^d
short, but very numerous $\frac{1}{2}$ as long as the

primary ones. Line narrow, not confluent
hair from csh very long, reaching to the head.
The three lower of the 4 lateral joints, feet
not over the 2 upper. Body black at feet
line light yellow, the bases of all the
feet somewhat orange tinted. Median ventral
line color of lateral one. The pedal hair
somewhat orange tinted with enlargement
on the apical seg. corresponding to feet.
In some the 2^d line is confluent, but the feet
does not go back of 12. Feet black.

390 A

On white oak & contracta? Spherical, flattened at base, a distinct cancer-shaped depression on hollow on top, occupying rather more than half of the white lid. Microspore black granular, slightly elevated at the center of the depression. Surface faintly shagreened. Lid white, sides grayish. diam 7mm height 7 width of lid 6mm. Aug 7, 1884 Biting shell ^[sample]
 Lid round, not lobed, smooth shiny black with a few coarse, spinulated setae from minute tubercles. Body normal, anal feet not used, long black with a bundle of long black setae. C-sh  hollow out in front, 3 setae from each of the rounded lobes, 1 from post. corner, yellowish shaded with black. Body yellow. The setiferous tubercle situated in blackish areas, ^{setae} long pale, cleft all along the length — want ① ant, 2 setae, large. ② post 1 seta. ③ lat 1 seta, ④ 5-8, in line, 1 seta each. A faint 2-d reddish band, feet black. On 2 short pedicels with 2 or 3 setae and

the last (s-v) row runs only 2-6. Anal plate Δ 3 setae on post margin on each side & one each side mid line on ant margin — blackish. All setae from minute tubercles.

Upper Aug 16 ^[sample] Don't look like contracta, No c-sh & white anal plate black. Body not brown, stripes too dark yellow. 2^d hair abundant, about $\frac{1}{2}$ as long as 1^d, long ones on c-sh. Line narrower than spaces, bases of feet pale, scarcely confluent with lines.

Upper Aug 26 Body brownish, line yellow moderate, hind, hair all short, 2^d about $\frac{1}{2}$ as long as 1^d. Hd & plates & feet black. Pedal line present, bases of feet pale. Hair all white. Looks like minista.

Upper Aug 31 Same, line aephan yellow, not confluent. S-sh yellow or partly as in some. Could be angustis, but = minista = 390

[390C]

narrow. Hair thick very long almost
trifid. Hd. plates & feet black, the
base of abd. concolorous.

390C

On Sunday at 49 Winton St. Reading, Aug 23
D. integrum II (See sample for egg and I)

In stage II narrow brown with stripes
slightly narrower than spaces (or as broad)
scarcely broader, pale yellow. Hd. cell, anal
and 1st & 2nd feet black. 2nd hair $\frac{1}{2}$ as
long as 1st both short, except on long
hair from cell. As the stage advances
the line fades out nearly white. Ventral
stripes very obscure. Median-ventral narrow,
the pedal ones indistinct. Base of
feet nearly concolorous with body.

Woff Aug 25 Line narrow, yellowish white
Hair white, abundant, 2nd $\frac{2}{3}$ as long as 1st
or almost as long, all long, curved
beis much longer. Tubercles of hair ended
black - body blackish brown. Pedal line
appears to be absent.

Woff Aug 31 A marked change. Suddenly
very hairy, more so than contracts. Body
purplish brown, line white, the three
ripps very narrow, lower one broad,
pedal line absent, median ventral

350 B

Egg on white oak D. contracta. Spherical, flattened base, smooth, top dome shaped no depression nor ring of any kind, the black micropyle scarcely impressed. White lid as wide as egg, reaching half way down the side in lateral view. Diam. 7 H. 7

Lower half grayish, top pure white.

Larvae in stage II must be contracta and

with except the canal for abd

ventrally black. Body yellowish with

d. & lat. black brown bands, s-d & s-s

faint reddish ones. Hair white, the

2nd hair about $\frac{1}{2}$ as long as 1st from umbra

black tubercles. Heads above brown. (Sept 10)

III ^[same as I] 12 2nd hair $\frac{3}{4}$ as long as 1st, all white, the

1st 2nd hair head very long, both 1st & 2nd body

from black stripe yellow, very broad, 1st 1st

IV Aug 22 2nd hair very abundant, almost

tufted - 1st hair as long as 1st, all white,

the black - from white rather obscurely

distinct. Squamous tubercles. 6-8 black, upper

lateral line not complete 7 feet. (Sept 17-18)

May 29 yellow oak very hairy D. contracta

1st hair 2.8 now suddenly very hairy

391

391

on back of willow leaf

K.V. 6-27-94 possibly eximius

very pale yellow with a greenish

tinge, slightly shiny. 15-20

widths, narrow, basal

reticulate, a little irregular

a considerable area

around the micropyle,

apparently solidly granular

and opaque as if

acculated, but may not

sufficient

attached July 2 Like unicornis

July 5 = unicornis

July 10

July 15

July 20

July 25

July 30

August 5

on oak

side of new

leaf

very faint

hex of lobes

very

a low

p. tuberc

low

striae

a deep

at 10

in lateral

at 10

very faint

from

white V-mark on 10 which is continued

on 11, almost reaching the lateral line there

a darker dorsal shade 12-13 & ventrally

11-13. Setae rather long, brown, normal

substigmatal post. yellow dot 3-V on 10

4 eggs on back of willow leaf
K.V. 6-27-98 possibly eximma
very pale yellow with a greenish
tinge, slightly shining. 85 diam
nearly circularly 6 angular
reticulate, a little irregular
a considerable area
around the nucleus,
apparently solidly granular
and opaque as if
condensed, but may not
suffice

Hatched July 2 Like unicolor
Molt July 5 = unicolor

S. unicorni?

Egg more than hemispherical, flat at base. Diam .8 mm. 60 diam etc. scarcely reticulated, rather faintly reticulately creased, but covered with sparse, with erect, minute short pale pile, each with very frequently with enlarged pinhead like tip

Larva cylindrical, tubercles large

① with enlarged bases. 5 & 12

smaller densely. Area feet elevated. Hd. slightly lobed, rounded, light brown. with a

few pale setae, with 4 on

thickly mottled with red brown

on a pale ground. On 4, 6, 7 &

a light yellow spot surrounds

②, less distinct on other seg.

except 5 & 12, on 11 extending

obliquely forward & back, forming

mediums on the V. Tubed,
dark, quite as on ① & ②

This feet blackish, abd.
black outwardly (except anal)
Setae long slender, pale,
slightly swollen at top,
glandular, often with
a drop of clear liquid
width of hd .45
(accidentally killed)

Egg (265 diam.) beautifully
reticular, the irregularly
hexagonal cells radiating
out from the micropyle in
concentric circles (9 cells in
first circle) like shingles
on a dome, the pile like
structure arising from the

angles of the reticulation
as slender rods of about
equal thickness throughout,
not appearing swollen at tip.
Becoming more regular, hex-
agonal further down the side
391A

Same egg and larva on
white birch, Keene valley
N.Y. June 19, 1894. Setae
as follows, glandular with
drop of fluid at end or middle
① near central ② a little past of
it ③ top of abd., the spiracle
and furrow, black, resem-
bling a tubercle, ④ SS feet,
⑤ below ant. (⑥ absent, base of
leg clear) 5 setae on black
leg plate. On legs egg
⑦ is 3 tubercles in Δ, ⑧ is one

⑥ being equally absent
in the higher seg. [5 + 6]
Altus on hazel stage I as above
~~with~~ (with) 4d dull brown, lobed
a tubercled vertex, 1 each
Red dark vinous brown, a little
lighter at sides of 3-4 pair; marked
with yellowish. all uniform to
11 when a yellow oblique dash
5-d represent v-mark. This
part colorless abd all brown
i with curved lines, and ii
slightly so; slight purple on
5 and 12. Setae glandular; vi present
~~with~~ III IV V VI VII VIII IX X XI XII
on 3-4 yellowish brown; body dark
brown the feet with a yellow
v-mark on 11 very distinct. Later
the thro. side become light green
and there is a yellow mark at
apex of 11



Another has a tiny tubercle
and seta dorsal of (ib) on
joint 4, not visible from 3



molt June 24. All red horn, mottled
yellow spot represent V-warts and
a part of the patch, i.e. yellow on
I on 4 and a Δ Δ patch on II
all the rest mottled greenish vinous, hump
5212 vinous (also 5-V. Setae glandular
Evidently going to be unicornis (Part
in bag on tree June 27)

350 B

Eggs on white oak, D. contracta. Spherical, flattened base, smooth, top dome shaped no depression nor ring of any kind, the black micropyle scarcely impressed. White lid as wide as egg, reaching half way down the side in lateral view. Diam. 7 H. 7

Larva half grayish, top pure white.

Larvae in stage II must be contracta. Hd. csh. anal pt. the anal feet cold outwardly black. Body yellowish with d. & lat. black brown band, s-d & s-s faint reddish ones. Hair whitish, the 2^d hair about $\frac{1}{2}$ as long as 1^d from minute black tubercles. Heads about 1 mm. (Sept 11.1)

III ^[sample] on 12 2^d hairs $\frac{3}{4}$ as long as 1^d, all white, the 1^d on 2^d on head very long, both 1^d, 2^d Body brown black stripe yellow, very broad, Hd 1.5

IV on 22 2^d hair very abundant, almost tufted 2^d neural as long as 1^d, all white, the black s-d from which they are quite distinct. Regular contracta. c-sh black, upper lateral line not complete post (Sept 17.5, 18)

V on 29 yellow csh. very hairy D. contracta
1st hd 2.8 / now suddenly very hairy

391

Schizura unicornis or Centropus, Cornus etc woods Holl. July 27. Hd higher than wide, somewhat narrowed above, lobes pointed. Tarsi red-brown, obscure, marked with a very faint blackish band from ant. to apex of lobe before the lateral angle width mm. ant so high as head, 3-4 high, a low body horn on 5 with fucate apex. Tubercles 3 slightly elevated on 9, and a low prominence on 12. Anal feet distinct but not used, and 11-13 held elevated color reddish or dead leaf brown, a deep brown d. band 2-4, narrowing just to the hump & defining, ant on 5, the lateral clean green patch on 3-4. The feet reddish. A darker brown lateral line & narrow oblique s-d lines on 5-10, filled in faint with pinkish 5-8, with a deep brown streak on 9 & forming the apex of the yellowish white V-mark on 10 which is continued on 11, almost reaching the lateral line there. A darker dorsal shade 12-13, & ventrally 11-13. Setae rather long, brown, normal. Substigmatal post. yellow dot 3-V on 10

Calc. 51-68 .93-1.2 1.7-2.25 3.0-4.0 5.6-7.4
 Found .9-1.2 1.7-2.25

392 (=31)

Amisota ^{virginensis?} on white oak, Woods Hall, Mass July 29, 1892
 Hd elliptical, higher than wide, and lobed,
 clypeus small, the upper 1/2 of its surface &
 the median impressed; shining brown-
 black, mouth & calli darker. (St. hd. 1.05, 1.15, 1.20, 1.20) w/1.2 mm (1.0)

Body approx. cylindrical, the s-v ridge
 quite prominent on 12. Stage black
 5th: anal plate concolorous with body,
 tuberculate. On 3 a pair of long s-d
 horns, black spinose with 2 divergent
 setae at tip, 2.6 mm. 3 rows of short anal
 black tubercles ① s-d ② lat ③ s-v 4-12,
 scarcely distinct, tubercle ant to 4. On 13
 s-d & lat and one each side anal plate.

Body dark honey brown, the feet & abd
 outwardly (except anal) black ^{Round s-d} ^{white dots} ^{part on legs}

Molt July 30 Hd same, shining dark ^{reddish}
 red, labrum pale & brownish w/1.7 mm
 Body full like brown with indistinct white
 longitudinal streaks. 3 rows of ^{small} tubercles
 than like shining black tubercles (single
 d 2.0 mm on 13 and 1 edge anal pl) slight
 rounded, spinose horns on 3, 4 mm long

ratio .55

On black, anal plate pale. Many white
 elliptical flat, or smaller ^{with central} pointed tubercles
 spots with minute black center, all on
 body on s-d & anal plate. Feet black (all
 outwardly) but paranal plates on anal feet
 pale like anal plate. Spinacles black
 Stage hd 6 Same structure shape Hd shiny black.
 Process on 3 smooth with 2 apical setae half
 as long as shaft black. Shaft .6 mm long
 Spin same unbranched, each short, smooth,
 curved black with a seta longer than
 the process. all shiny brown black anal
 plate & s-d darker. (Abd hd 1.0, 1.1) w/2.25

Stage hd 3.5 (St. hd 2.3) shining brown. Ant
 hd 5. ① s-d 2 smooth small, 3 long 4-12 sharp
 pointed conical, 13 single d, 2 apices
 small on first edge anal plate. ② lat.
 2-13, like ① but shorter, a small one on
 edge anal plate. ③ on s-v fold 2-12, ④ s-v
 2-6, 11, 13 ant. Horns 4 mm near anterior
 All tubercles shining black. Body dusky
 covered with smooth oval white granular
 tissue. Black (appearing gray), a dull
 ferruginous ^{irradiated} s-d & s-v strip. The feet

3 anal plates pale brown, abd feet
black outwardly. Spiracles large black
To J Aug 12 appearance gray and light (brown) red

393

Eggs of Janassa lignicolor on blades white oak,
2-10 in a batch on underside. Woods Hole Aug 1.

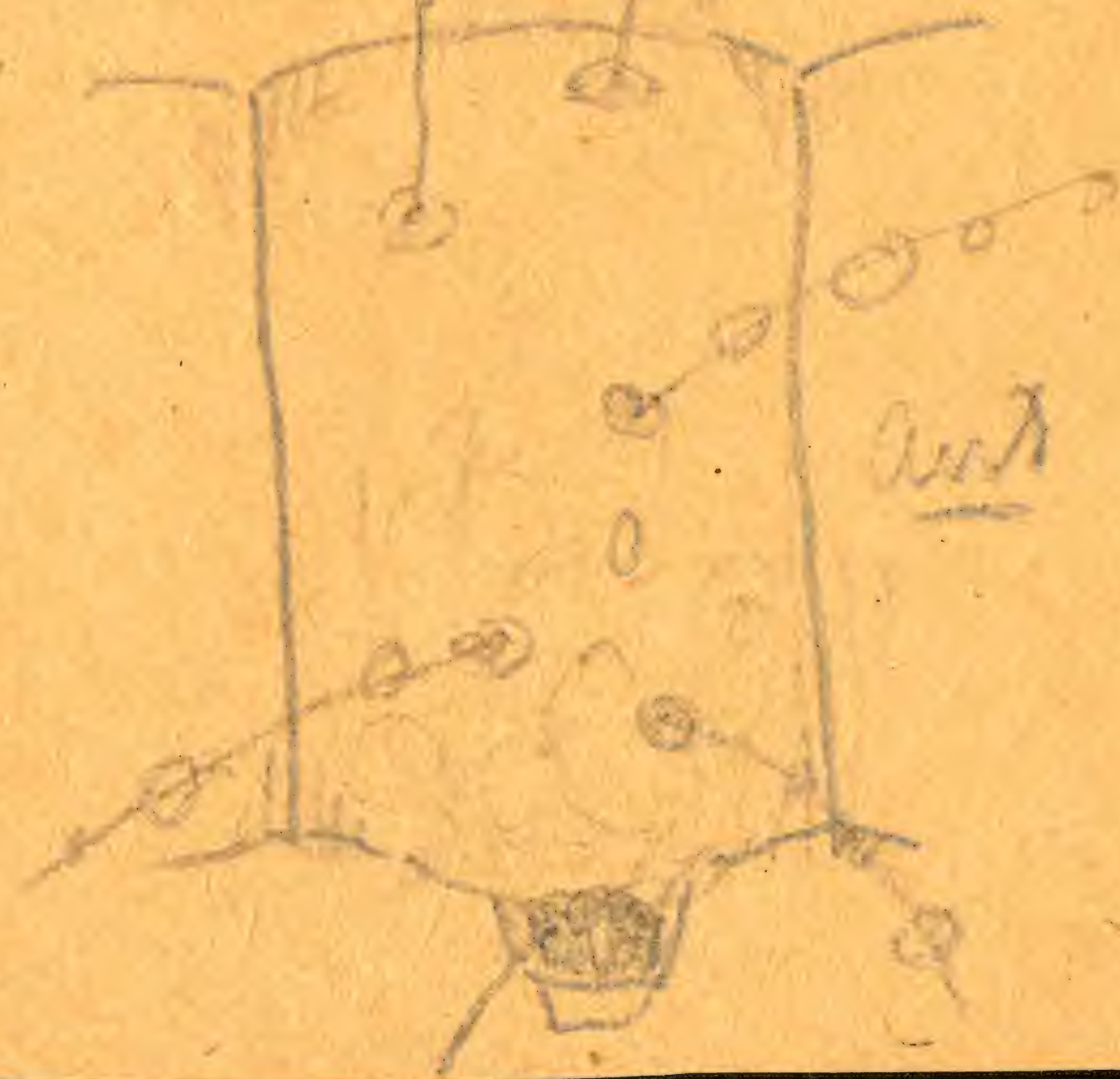
lignicolor (30393) Feet black
except anal pair in 7 with
reddish flush at base. Abdomen
a so shade of this and ventral
the rest yellow with a
granular tinge



449 Janassa lignicolor Shelton
Bridgport, Vt. 1908
on Juniperus, a 22
mild, some other small
specimens on 11. 5 specimens
on 10-15 d with white
and. Collected on 20 Aug 12

4 egg together in white
wax, pale yellow. (see page 1)
d. 1.1 more than 2
sph. Ret. well defined sharp
margin but not high on a
flat surface, smooth at
microscope irregular 6-angled
and a sixth layer at LS then
is center of cross line something
like collenchyma cells though
no actual enlargement
Hatched July 23. Like desc of

L. lignicola (BB 393) Feet black
except anal. Pair on 7 with
reddish flush at base. Also
a sv shade of this and ventip.
The rest yellow with a
greenish tinge



5 eggs together on beech
Hemispherical, base flat. Closely
covered with well marked
pits the edges of which form
rounded hexagonal reticu-
lations. These edges are quite
narrow and linear appearing
sharp and well defined
becoming small at micropyle
Diam 1.1 mm - pale whitish
green slightly shiny. In
white shade, as if not opaque.

Hatched July 26

Junonia leucodora (?)

3rd larval plate pale brown, abd feet
black outwardly. Spiracles large black
To J Aug 12 appearance gray and light (humped)

Eggs of Jannasa lignicolor on black white oak,
2-10 in a batch on under side. Under Hole Aug 1.
More than hemispherical, flat below. Smooth
slightly shiny whitish green. Diam 1.1 mm
height .7 mm. Under Zeiss aa (60 diam.)
covered with small slightly raised hexagonal
reticulation which become gradually
smaller toward the micropyle, becoming
there very minute & flattened. The micropyle
is not depressed. The rets. are slightly elongate
on the side but become round below and
near to the under side where they become
somewhat irregular, forming a triangular
area of much elongate rets. the center of
which is and always at center of egg

Approximate diam of
reticulation of upper
surface = .05 mm (.50 μ)
Sept 12 42 Jannasa
larva 5 1/2 P. 1/2
dark black, tubercles all
slightly raised, covered with
white granular spines or 11, several
large in size on 10-15 & with black
3rd, for faint. Oct 2nd so away
- Jannasa



Sept 12 42 Jannasa
larva 5 1/2 P. 1/2
dark black, tubercles all
slightly raised, covered with
white granular spines or 11, several
large in size on 10-15 & with black
3rd, for faint. Oct 2nd so away
- Jannasa

394

to 17 1895

A var. of *Beccaria guttata*? on *Gilkey's* *Hydrangea* 8/3/93
 Head oval, higher than wide, flattened in front, smooth, green, a purplish band on a whitish ground preceded by a narrow black line from above base of joint to vertex, joining the one on other side; a short similar band on post lat. of head at ventral side. ocelli black, joint black, antennae yellowish. W 3.5? mm
 Bod. smooth, the minute black normal setae from whitish spot; anal feet slender, slightly used; bod. slightly arched at extremity, appears enlarged centrally from the position of rest of larva. Head white s-d line broken on 2 & 11. Dorsal area yellow to green, lat. area leaf green, brown dotted, spiracles salmon color. On ant. edge of 2 a narrow yellow line containing two purple brown spots. A narrow white d. line edged with black linear line to 4. On 5 it divides into 3, coming together again on 8, forming an elliptical area; on 9 it again divides throwing a branch which joins the s-d

band on 11. joined to the break, the central part varying 8-13 unts. It is yellowish white, scarcely black banded first to 4. S-d line narrow black banded above. Besides these normal marks there are the following dark purple brown patches: (1) a narrow oblique line s-v on 4, from base of foot upward & backward (2) a s-d pyriform patch on 7 between d & s-d bands (3) a single dorsal cordate patch, the depression out, situated on 8, dividing the d. line and barely reaching the s-d on each side. A few black setae on head. A blackish line on side of anal foot. In front of the heart shaped spot the pinctures of the d. line form a white spot, and the branches of the d. line become indented and yellow centrally on 7 & ant. on 11. (Failed to emerge)

Might be like 395 but from a little more of the same. W. 2.1. only 21.

Another on yellow Jefferson Highlands Mt. June 28 1895
 Hd 2.4 ± 2. white line blurred, the central one not defined. Besides the marks described there is an oblique brown s-v patch above foot on 7 and 10, sloping the same way from the one on 4; the d. patch on 8 is continued onto 9 forming a round area, cleft behind the cleft (as also 3-2-2-2-2-2 patches on 7) filled in with white, a cloudy brown patch on 12. Anal horns short conical, red with black tip. Band on head semicircular black filled in with uncolored purple (indented) behind with yellow

Calc. .62 .95 1.44 2.18 3.3 ratio .66
 Found — .9 1.5 2.2 2.9-3.3

395

Cecita bilineata on elm woods Hill Aug 4.

Stage? Hd 2.9 mm Hd as in guttata with only purple stripe on white ground. D yellow green but blue green ^{purple spots} ^{hairs} ^{white} s.d. black edged above, close on 2-4, bend up to ① on 12. Dorsal triple white shade. Setae rather coarse, ① on 5 with enlarged reddish base.

Stage hd 2.2 mm Same but pale. No white d. shade, but narrow single yellowish line. ① 12 with enlarged base. Faint yellow str. line also in 2.9 stage.

~~Stage hd .8 mm Hd slightly bilobed, narrowed above, m. antenne deep. Shiny brownish black, clypeus pale, appearance black. Body with anal feet striated, with enlarge d. 5 & 12 where the large black tubercles. ① are uniform light green yellowish s.d. line faintly yellowish anal feet reddish. 2 dorsal purple-brown patches, 2-5, 10-12, incised or almost notched at incision. Setae rather coarse, blackish, single from normal, inconspicuous tubercles.~~

Feet all pale. Length about 9 mm
 W.B. Aug 4 - Head 1.5 green with black line
 Body same, s.d. band moderate distinct whitish yellow, no other line. Anal feet orange, purple spot on back as before.

396

A Schizura on willow Woods Holl, Aug. 4, 1893
Exactly like unicornis but head & body
light fleshy brown, the markings brown,
blackish, not well defined, whitish
d. shade on 5-8; V white with a faint
greenish shade and on 9-10 head
obscurely finely mottled with purplish
width of head about 3.2 mm. No band
Imago Aug 24 A large ♀ S. unicornis

397 (=186)

A Schizura on hop hornbeam Woods Holl, Aug 5.
(shhd 2.8)
Hd 2.8 mm high, slightly lobed, whitish ground
thickly mottled with brown streaks which
scarce from any vertical bands. Rather low
prominent on 5, 9, 12 bearing ① with enlarged
whitish glandular bases. ① same on 8 without hump
Body marked like head, oblique white shaded
streaks 5-8 & lateral line. Dorsum 2-4 ^{velvety brown} darken
aid 3-4 whitest (not green) slightly red marked
V distinct, yellow white with enclosed dot on 11
Otherwise much as in unicornis but paler, darker than 396
Molt Aug 12 Hd 4.2 Same of first Aug 15 V less defined, reddish centered
= leptinoides but V more distinct than in planchet ones

Calc. .66 .99 1.48 2.2 3.3

[See BB217] 398

Schizura pomonae
This single egg on white oak. Woods Holl, Aug 1
Egg hemispherical, flattened below, light yellow
diam. .85 mm under mag. 60 diam. evidently set.
265 diam 9 pyriform pointed cells around the annular
central annule, then in alternating radiating cir-
cular circles for 5 rows of hexagonal elongate cells, then
for a distance of about 2 rows the cells are replaced by
an irregular reticulated vacuolated area forming a band
around top of egg. then the cells are continued again somewhat
irregular pentagonal or hexagonal around the side
diam. central area .18 mm, of vacuolated ring .08 mm whole egg .80.
of one lateral cell about .03
Larva hd slightly bilobed, blackish, shiny
width 4.7? Tubercles ① all with distinct
enlarged bases, on 2, 5, 7, 9 & 12 none distinct
on 5 forming a high fat cushion on which
the 2 tubercles ① rest. Setae very long,
richly covered with dew drops, pale.
Yellowish green, shading into reddish
mottled on the sides, 2, 5, 7, 9 & 12 reddish
throughout. Feet and tubercles black
① on 3, 4, 6, 8 & 11 distinctly surrounded by
bright yellow. 11-13 elevated; anal feet pale
Molt Aug 9 Hd. distinctly bilobed, arching to
vertex the lobes pointed. Ground greenish
white with a brown black defined band from
base of antenna to vertex of each lobe, these
bands crossed at at 5 by a band just

On the under side
the reticulation
become very broad
through the cells
because of central
after separated by
as much as 100
on diameter. The
meas. are mag. 60
in egg. & compared
at least 1/2 inch can
the bottom. On side
the center is if
then had been a
junction of the side
there. On top the
rows of cells in the
net, between cells
between them not
narrowing & on
quitting the cells

tubercles minimal in amount
with black dot in black line

before venters of clippers & another $\frac{1}{2}$ way to apex, the latter containing a series of setiferous tubercles. All bands continued to back of head. Jaws dark, as ^(sh. head 1.0 mm) mm. Dorsum scarcely elevated anywhere but the tubercles of ① have separate elevated snout like bases, on 5 & 12 become slightly confluent. These long processes ($\frac{1}{2}$ as long as the black glandular setae) are distinct on 5, 6, 7, 8, 9 & 12, present but less on 10, very slight on 11. On 2-4 & 13 the 5 d tubercles have enlarged conical bases. The feet black, all the rest ^{reddish} colored much as before, yellow (vinous red, the latter laterally & dorsally) also on 2, 5, 7, 9, 12, forming a dorsal line 2-4 & 11. Later sides 3-4 whitish almost translucent, contrast with brown dorsal band. The vinous feet become whitish leaving the yellow snout distinct on bases of tubercles & 5 d on 3, 4, 6, 8, 11 & 13 and a some irregular lateral patches. Molt Aug 13 hatched 1.5 (see Aug 15) Hd greenish white, the 2 broad vertical bands dark red brown with black edges. The trans. bands are somewhat ^{slightly} jointed & connected by a line along ^{apical} sutures & one upward from ocelli, forming a \times -shaped mark in front, and a λ -shaped one on side. A band on feet, edge of head, setae black, distinct with swollen tips. Slight processes on 5, 9, 12 with long furcate tips. ①, ② on 6-8 also very long the other tubercles smaller, conical, but all the setae coarse, black with swollen glandular tip. 11-13 elevated anal feet slender, long ^{setiferous} 13 small markings faint & irregular. A watery greenish patch edged with brown on side 3-4 containing yellow tubercles; a white d. patch on 6 & 7 each with ^{2 dots on 8, tubercle ① yellow} center, crimson line & tubercles ① yellow, a white V. mark on 10 & 11, broken into 3 patches, the 2 post on 11 yellow, with white dorsal dot

399
Egg in elm - Wood Hole. Aug 7. ^{60 diam} evident reticulated ^{265 diam} Small nodular pyritous cells around anisopyle. The area far about five rows of concentric cells slightly depressed. Cells gradually growing larger & more regular hexagonal down the side. Forming a neat reticulum with narrow strands. Cells vary from pentagonal to hexagonal. On the ^{slight} ridge surrounding the depressed vertex the meshes are minutely ^{accumulated}, but not enough to broaden them much or to confuse the reticulum. Rather more than hemispherical flattened base, shining light yellowish. Diam. 8 mm.
Hatched Aug 9 as lobed, sutures distinct; blackish brown, shining with a few pale setae. W. 5 mm. Anal feet up, black. Tubercles black, ① all more or less elevated with long pale divergent setae yellowish vinous laterally and also d on 2, 5, 7 & 12. Feet all black. C. & anal pl. blackish brown. Length on hatching 2.5 mm. (Resembles a *Schizura* in coloration & structure but ① is less developed)
Hd rather .55 mm
Molt Aug 13 Same as BB 398! Hd .9 mm.

Sides of 12-13 light yellow. Dorsum of 2-5, 8-10 and 12-13 dark red-brown lateral region 5-12 with a coarse broad reticulum of red work on a greenish yellow ground, the meshes broader and the spots predominant, & becoming confluent into the lateral portion of the V on 11. The feet long yellow with red ^{outer} line and reddish. Venter pale. [= *Schizura ipomoeae*]
Next day (Aug 16) had become a regular *ipomoeae* the patch on 3-4 became green the white dorsal one on 5-7, a line on 8 and the V distinct
[See BB 217 where the last three stages are described III, IV and V]

400

Sessid larva boring in pith of small twigs of pine with
a hole from which a lump of gum exudes. Woods Hole
Mass. Aug 10, 1893. Stage hd 1 mm, partly under 2, chypers
lays, all the sutures evident, shiny horn, blackish
around lower side, abd. feet 7-10, 13. Ceb. lay, over all
d part of 2, light brown. Tuberc. ① and ② small, just
③ super. str. ④ sub. str. ⑤ post. SV, ⑥ ant. du. ⑦ on ventr.
of 5, 6, 11, 12, 13 ant. all reddish honey brown, tuberc.
small blackish with small dark setae.

Spiracle ringed with black.

Diapause in a hollow under the lump of gum.

The empty pupa case protrudes from a hole in
the gum, cylindrical, long slender, abruptly
smaller at the extremities, cases not prominent.
7 abd. segs. are furnished with two rows of spine
each, pointing backward. Color blackish
brown, the abdomen light brown. No ce-
mester, but a few spines diverge irregularly
from the last segment. 9 x 2 mm.

Probably a minor well known

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1850

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