

27 292

H. O. DYAR  
MONTICELLO, CAL.

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33  
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Stm lds of *V. antropea*

1.2	2.4	3.2
1.5	2.4	3.4
1.5		3.2
1.4		
1.4		

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271

Eggs laid by white of *Coleia eurythema* Yocum  
Cal. June 4, 1891 on little alfalfa-plant

Egg spindle shaped, set on end, longitudinally  
ribbed, the ribs hardly more than lines and  
apparently very minutely striated but hardly  
seen with glass. Pale yellow, becoming reddish

Length 1.6 mm, width .5 mm Laid singly  
[Larva in 1st stage? Hd dull black W. 25 mm

Body minutely trans creased dull dark greenish  
Length 1.6 mm when found Molt June 8 Head

green with minute black dots, ocelli black,  
mouth brownish W. 4 mm. Body dull green  
minutely roughened & pilose, the brightness pale

Hatched June 11 Hd black, same as above desc.

[Molt June 16 Hd round pale green thickly dotted with  
small <sup>brown</sup> black piliferous spots, ocelli black, mouth  
pale; w. 7 mm. Body leaf green, annulated,  
covered with black piliferous dots, each sur-  
rounded by whitish. A stigmatal whitish  
line. <sup>ant</sup> legs short, blackish] Molt June 17 Hd green

[Molt June 19 Hd green speckled with black piliferous  
dots, mouth a little yellowish, ocelli black.

W 1.2 mm Body as before but stig. line very distinct, white, almost absent on 13. Nest June 24 Hd. green, thickly covered with little black piliferous dots; ocelli black mouth brownish. W 2.2 mm. Body green, annulated, the black piliferous dots each indistinctly surrounded by whitish. very faint indications of a dark d. & pale s-d line. Stig. line distinct <sup>high</sup> white, marked below by a row of segmentary black spots. Later a pink & yellow line appears in the white band with black spots are faint.

Chrysalis Tho slightly enlarged, abd legs wing cases projecting, large, head terminating in a point - as usual in Colias eyes prominent. color light green, a yellow shade on the point on the head & a yellow lateral band on the abdomen below which is a row of black dots and an interrupted dark red streak. a row of black dots at outer margin of wing cases 2 19, w 4 mm. By loop & cremaster Imago July 7 ♂ *Colias eurytheme*

Scale. Hb. 847. 1.25 Y 1.37 2.8 ratio .67  
found .6 Y Os 1.3 Butt. 1.8 CA 1.8 / copied 7/12/91  
desc. of larvae 272 from yr. - I.

Mat. 5. *Logan's* on willow along ridge at entrance of Nevada trail. *J. coenia* II June 9 1891  
Hd bilobed, the apices produced and tuberculate as if covered with *Lehy. & prota* and *Att. californica* IV  
than wide, depressed along *L. zephyrus* VI  
Dull olive brown, the *Merla 270A* black, mouth *Wygans* var *leucis* black, mouth *P. cardui* 288  
dorsally at 3, 4, 5, on 3 a pair of 2-d *Papilio indra* VIII IX  
roughly tuberculate, 2 mm long. On 4, 6, 11-13 small o-d tubercles *P. eurytheme* VII  
and close together. A number of small *P. rutulus* VIII  
smooth elevated bluish dots *Merla 283* dorsally on 5-7 & 11-13. The *Merla 283* properties? *Merla 283* brown, shading into pinkish on joint 2-4, but still partly mottled with the ground color. on the hump on 6, pale olive yellow, except in a dorsal band where the ground color prevails, a large patch nearly white on 8-10 dorsally but on 8 part of 9 laterally, containing a few streaks of the ground color. *Merla 283* Apr irregular head *Merla 283* *Merla 283* *Merla 283* *Merla 283*

H. G. DYAR

white sub-stigmatal band on 5-13  
Spiracle ~~black~~ <sup>YOS = WHITE</sup> pale centrally, & enclosed  
by white. Processes on 3 & tubercles on 13  
blackish brown venter mottled with  
whitish with a median-ventral nearly  
white line. Anal feet elevated in apex  
and body hunched, turned to one side.

Pupa June 13 As usual in *Limnitis*. Eye cases  
prominent, pointed, thorax beaked, wing cases  
very large, projectory; on the ant part of the  
abd. dorsally is a very large circular disk  
like projection, its sides somewhat creased  
abd tapering the last segs rounded off  
Cremaster large, flat, fastened by its nu-  
merous hooks in the spirals of side spun by  
the larva from which the pupa is suspended  
Cases & abd. hump subtranslucent, <sup>dark</sup> olive  
gray, thorax dull purplish mottled with  
white, abd. nearly all soiled white but  
shaded with gray and black, dorsally, laterally  
and in a <sup>double</sup> broad ventral band, but the terminal  
segment & cremaster are entirely black.  
Length 25mm; thickness through thorax 7mm,

H. ~~willow~~ choke cherry & poplar  
DYAR.

Height of adult projectory ~~3mm~~ <sup>3mm</sup>; greatest  
width through wing cases 8mm. ✓

Imago June 27 *Limnitis lorquini*  
In egg June 28, sub-spherical, the base  
flat, covered with rounded depression,  
from the intersection of <sup>(which)</sup> the elevated ret-  
iculations, which ~~cause them~~ arise short  
spines <sup>the def. bet. the setae are rounded</sup> like ~~file~~. Color pale green with  
a silvery luster. Singly at tip of leaf. <sup>D. 9mm</sup>

Stage I? June 29 on little perch made of bit of  
stuff spun to end of leaf. Hd round, ~~pale~~ brown  
not shiny, eyes & jaws black, a few minute  
hair from yellowish elevated bases W. 6mm  
Body slightly enlarged at 12, feet normal,  
yellowish, with row of short conical tubercles  
largest dorsally on 3, 4, 6 & 12 with some  
very short and minute hairs. <sup>Without</sup> a long perch

Egg hatched July 3 W. hd. 6mm as above. L 2.3mm  
Inst 1 July 3 Hd rounded, brown, with 2 pale  
lines in front converging toward vertex; roughly  
tuberculate, the tubercles yellowish <sup>[sh. hd. 9]</sup> W. 9mm  
Body densely tuberculate, each tubercle with

\* black dorsal dot on 8 & 9. Indication of a white s-v band especially on 11-13. Feet black

H. G. DYAR

several joints, besides many minute granulations. General color dark brown with

YOSEMITE, CAL.

a broad dull ochre dorsal patch which widens on joint 3-5 and 8-10. Sits out at end of long perch, with bits of dead leaf at base

Molt July 7 Hd bilobed, bulging in front, very rough & tuberculated but tubercles not large.

Color <sup>nearly black</sup> dull brown dyspnea & tubercles pale, the latter, laterally, tipped with yellowish <sup>[Sh. hd 1.3]</sup> w. 1.4 mm

Body rough & tuberculate, a pair of s-d tuberculate processes on each joint except 2, those on 3, 12 & 13 largest, those on 4, 6 & 11 next in size, the

other all smaller. Other similar, tubercle in a double d. line & 2 lateral beside numerous

small granulations. Body black with a dorsal white patch on 8-10, reaching down the side on 9

All the tubercles & granulations are dull yellowish more especially on joints 2-4. Pupids no perch.

Molt July 12 Hd bilobed, densely tuberculate, the tubercles larger laterally & especially so at the vertex blackish brown, darker centrally the tubercles pale w. 1.8 mm.

Body with a series of round wart like prominences curved backward into a pair of horns. 1 mm long, those s-d 4, 12 & 13 larger than others. Body densely tuberculate black, a dorsal white patch 8-10 down sides on 9

All tubercles pale brown. Some d. clear color <sup>on 3 & 4</sup> ~~shades~~

Scale.	.47	.73	1.1	1.8	2.8	ratio	64/16
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found — — 1.0 1.8 2.8

\* general color wood brown mixed, streaked with black esp. laterally in def. next the abd & around the spiracles. a lustrous silvery spot <sup>3</sup> to the <sup>st</sup> a small one on the joint just prox. to it. L. of pupa 18 mm w. 6

(Ribes) (Cano 6648)

Head square, flattened in front, tuberculate and hairy, with a spined process from the vertex of each lobe. Bases of antennae pale. W 1 mm

YOSEMITE, CAL

Body reddish rufous with long black spined processes as follows on 2 none, but a few hairs in 3 & 4 s-d & stigmatal with a few hairs s-v.

on 5-12, 1 dorsal spine, s-d, lateral & s-v on 13 two s-d. C-shield, anal plate & feet and spine black except bases of those on 3, 4, 6, 8, & 10 which are yellow, the

d. & s-d spines on 4, 6, 8, & 10 very especial yellow. Spiracles black in a white ring

An irregular double waved d. and stig. pale yellow band.

Molt July 16 before but body nearly black with <sup>[Sh. hd 1.8]</sup> of head 1.7 mm. As stage advances the stig. line is in duplicate, above & below the spiracles, irregular & wavy with a third part more indistinct

dull orange. broken subventrally. Dorsal line is much replaced, especially anteriorly, by transverse streaks on the annulets which are ~~not~~

shaded off to pale yellow posteriorly  
 and here presenting more of the character  
 of dorsal line. **YOSEMI** ~~of 5 June~~ on 8 & 10 pale  
 yellow, on 3, 4 & 6 buff. In pupae anal  
 feet are elevated. head turned around trunk  
 molt June 23. Hd bilobed, a spiracle process at the  
 vertex of each lobe, below which is a smaller  
 process not spiracle but topped with a hair, clypeus  
 large, color shiny black with many small  
 yellow pitiform tubercles. W 2.8 mm Body black  
 the branching spine black, large, except the  
<sup>spiracle</sup> <sup>processes</sup>  
 s-d s-d 3-6 which are orange, while those on  
 8 & 10 have their bases white and tip pale  
 orange a narrow dorsal pale yellow line  
 on 2 & 3. On 3-6 trans. streaks of orange and  
 on 7-12 of creamy white, especially in the  
 seg. incisures, connected on 8-11 by traces  
 of a double dorsal line. Str. line represents  
 a few orange spots in the region of the  
 spiracles. Spiracles black to the stage  
 advances the white increases on the dorsum  
 appearing more faint at bases of the process  
 on 7, 9 & 11, leaving however a distinct oblique  
 elongate patch of the black ground color  
 before each s-d spiracle <sup>on joint</sup> 7-12 in  
 (larva or wild current same but very red, hind  
 color is still black but largely obscured by the dorsal  
 whitemarks a ventr. very pale, all the normally black  
 spines are dark red, the s-v are straw color.  
 dorsal on 3-6 are orange, 7-12 white tipped reddish  
 Hd dull red, clypeus eyes & spines blackish  
 June 30 Pupa July 1 As in length thorax with a  
 dorsal naimated prominence, a protuberance over  
 the eye & 2 laterally at edge of wing cases. A s-d  
 row of rounded points & another lesser row below  
 the spiracles. wing cases project abt tapering  
 cremaster large flat, its hooks in button & gilt\*

H. C

YOSEMI

copied July 31 1891

YOSEMI 274, CAL.

Yosemite on horseberry Yosemit June 14, 1891  
 elongate elliptical, flat below, the feet all  
 short, sides sloping, dorsum forming a narrow  
 flattened ridge, slightly wider on 3 & 4. Body  
 highest at 5, tapering down each way to the  
 extremities. Hd actuated under 2. W 2.8 mm  
 the mouth parts surrounded with brown. W 1 mm  
 Body minutely pilose, with very small white  
 granulations, a s-d white line along the  
 ridge (.6-1.3 mm apart) interrupted at the  
 seg. incisures (which are deep) beginning on 3,  
 most distinct on 3 & 4, somewhat fainter  
 centrally and somewhat more continuous  
 posteriorly. a similar fainter line on the  
 s-v ridge, becoming obsolete at the extremities  
 Both lines look as if not quite on the surface.  
 Length, 17 mm, width 5 mm) Spiracles small  
 circular, yellowish. No subdorsal tufts of  
 setae. Ashield very small, triangular, depressed  
 in the center of 2  
 Pupa micros Robinet, short, rounded, def.  
 recessed bet. tho. & abd. small, abd. sep.

appressed, motionless. General color sordid  
 green, mostly ~~yellowish~~ ~~white~~ ~~and~~ ~~usually~~, thorax  
 with a few blackish speckles and a smoky  
 black dorsal line which is continued in a  
 row of dots ~~on~~ the abdomen. Each side of thorax  
 on the central part of the thorax is a white  
 streak supplemented on the ~~post.~~ part by  
 a <sup>short</sup> white curved line. On the abd. a ~~d~~  
 row of black spots and a number of small  
 black dots besides an obscure white line  
 on the first part of abd. each side of the  
 dorsal row of dots. Abdomen pinkish  
 laterally. Length 12 mm, width 5.5 mm  
Imago July 6 Cat. no. 6594

*Chrysophanus arota* Bd

Hds calc.	.3	.5	.7	1.1	1.8	2.8	4.37	7.64
found	.3	.5	.9	1.2	1.9	2.8		

275

Oct 4, 1893

Egg (proctid) from wild gooseberry proctid Jan. 14, 91  
 rounded hemispherical [O] ~~with~~ ~~reticulated~~  
 with numerous depressions, forming rows ~~running~~  
 to the vertex (like a thumb), micropyle a  
 circle of smaller elongate depressions [O]  
 Some 40 rows all around the egg. Color sordid  
 grayish white, not shiny. Diam. 7 mm.  
 Laid in a mass, 2 layers, on back side of leaf  
Hatched June 15 - Ad pale testaceous, shiny, mouth  
 brownish, eyes black, W. 3 mm. Body pale  
 whitish, subtranslucent covered with large  
 black piliferous dots. Only the last 3  
 pair of abd legs <sup>dist</sup> present with larva loop  
 about very active, with abd feet rudimentary.  
Molt June 22 Hd pale whitish testaceous  
 densely spotted with black. mouth brown W. 5 mm  
 Body pale soft green, 12 enlarged, the 2 and 8  
 pair of abd smaller than the rest. Piliferous  
 dots large, black. A broad evident white  
 stigmatal line beside narrower d, s-d  
 and lateral similarly colored lines. Pile  
 short, black.



Molt June 27. Head pale white with large  
black piliferous spots, mouth brownish  
W. 9 mm Body blackish green, a dusky  
s.d., faint lateral & broad distinct stig-  
matal white lines, the latter a little  
greenish centrally. Piliferous spot, large  
black, faintly encircled with whitish  
12 enlarged, feet normal, pile short black

Molt July 1. Same. Piliferous dots not distinctly  
encircled with whitish. Body minutely  
mottled with black. 12 a little enlarged  
feet normal, abd. each with 2 black dots  
1st dots as in Chrysa <sup>① 2</sup> ④ not small ① also  
not small. The feet greenish tipped black.  
Spiracles black, with small white center. <sup>with 1.4</sup> Hd 1.2 mm

A broad dull red band appears in the center  
of the stigmatal band. Black of body variable

Molt July 5? Head shiny pale whitish, articulated  
with brown and bearing a number of large  
black piliferous spots; ocelli black; a blackish  
streak at the vertex of each lobe W. 1.9 mm  
Body dull green, heavily mottled with black  
specially at the sides where it is more

entirely velvety black. D. & s-d line narrow  
white, stig, reddish, bordered  
above & below by white. Piliferous dots  
black with white center, legs pale.

Molt July 11 Hd pale whitish with a tinge of  
green, a patch of brown reticulation on each  
lobe, bordered above & below by a broad  
dull brown streak; a number of large black  
piliferous dots; mouth brownish; ocelli black

W. 2.8 mm Body enlarged slightly at 12, feet  
normal, <sup>13 divided by a distinct</sup> color blackish green, consisting of  
black reticulation on a greenish ground, a  
narrow <sup>black edged</sup> white d. line interrupted by a series  
of black intersegmental shades, double on 12,  
a reddish tinge s-dorsally, a narrow black  
edged white s-d line; a broad lateral black  
shade; piliferous dots white, a broad  
dull red stig. band bordered with white  
venter paler than above, mottled with  
brown, s-r piliferous dots black. Spiracles  
white with a linear black edging. Feet  
all pale. Hair fine, pale, about 1 mm  
long.

In molt July 17 Hd. as before, Pil dots smaller  
to Body as before but the green color is nearly  
all replaced by a pale brown line.

Fluck July in a compact hardened elliptical  
cell in the ground without web.

Pupa cylindrical, abd slightly enlarged  
to centrally, cases moderate prominent;

a slight depression bet. the abd.

no nemata very short, consisting of 2 fused  
or spines, separated at the tips and two

on other outside, but in line with them

color light brownish yellow, unicolor.

Length 14 mm; w 5 1/2 mm darker in  
the abdominal sutures.

Head formed in pupae Sept 2 1891

Xylomyges puelubens Lat (2)  
auct J.E.S

noctuid or? Ypsocrita, (265B) Head pale whitish  
brown, reticulated with dark brown, shiny.

mouth & antennae pale W 2.5 mm Body  
reddish brown only slightly mottled

by sparsely streaked with black. Pil.

dots white. Traces of a dorsal s-d

paler line, defined by narrow blackish

borders & a broad sly band enclosing

the pale spiracles, only slightly more

yellowish than the general even & very

inconspicuous. Ventr pale. Body not

shiny. (Head)

Calc. .33 .63 1.38 2.6 ratios .53

Found <sup>35</sup> H. 7 G. 4 D. 4

Copied July 30

277 Ichthyura  
YOSEMITE AL.

Eggs on willow <sup>found June 17 1911</sup> Hemispherical

or a slightly conical, base flat but edge

rounded, smooth, dark gray/blue diam. 7 mm

Hatched June 18 Hd shiny black, labrum pale

[Sh. hd .35] W. 4 mm Body slightly flattened whitish

shield black, a few pale hairs, 5 & 12

slightly enlarged dorsally, the lateral region

and 5, 7 & 12 dorsally are widened the

rest large, pale; abd. normal, all used. 7.20

Hatched on 20th in water, off and down at 20th

Spun together 2 larvae on long & began to eat

[Sh. hd .7] [65] 20th Hd brown Hd black shiny,

central suture deep. Body flattened, pale

whitish yellow, narrow topical dorsal, a

very broad lateral bands of dull wine color

as also humps on 5 & 12. C shield small

plate black, <sup>the</sup> dull greenish, legs black

July 20 Head shiny black, labrum pale, a

[Sh. hd 1.5] few dark hairs W 1.2 mm Body as before

used upon pale willow, 2-4 show the

hump round pale, with an indistinct top

line of dull wine color like a house with

which has by the sides a rounded hexagonal

July 1 Hd flat in front, slightly bilobed

horizontal black, <sup>dark</sup> <sup>YOS</sup> <sup>OS</sup> <sup>YAR</sup> <sup>CA</sup> <sup>at</sup>

clippers; a few hair W 1.4 mm Body pale

yellow, joints 5 & 12, a topical line, broad

lateral & confused triple 5-8 line all

black brown, C shield small plate blackish

Scattered <sup>pale</sup> <sup>rise</sup> hair from smooth round tubercle

concolorous with the markings, ~~hair pale~~.

July 8 Hd pale brown shaded with black

a white shade each side clippers

in front, jaws & eyes black, width 2.6 mm

Body as before but the lateral band is faintly

divided, a double yellowish line. J. 13

mainly all yellowish. The round smooth

quilliferous tubercle are distinctly yellow in the

yellow markings, C shield small, <sup>tubercle</sup> pale

brown, anal plate not distinguishable

Hair whitish from both body & head as

stage advances the color becomes quite pale

and the appearance is much changed, humps

on 5 & 12 very slight, dark purple. Ground

color whitish gray, <sup>becomes pale purple</sup> a topical dorsal

<sup>dark</sup> dull purple line, 3 lateral lines, the

central <sup>out</sup> most distinct, the other broader &

(Rhamnus cal)  
Egg on coffee bush, spherical-conical, base flat.  
Smooth shiny chocolate brown; diam 1 mm.  
Also on choke cherry, June 18, '91 (Moulton)

(27) cont)

diffuse. H. G. D. Y. A. R. <sup>some in leaf</sup> somewhat broken  
into mottling. YOSEMITE, CAL. (spruce  
block) some purple or mottling  
fab. Pit tubercle yellow, normal in  
arrangement. Small post spiracle. Cells  
apparently absent. Hair whitish. One  
from each tubercle. Hd. head not flat.

Cocoon of 2 leaves spun together and  
lined with threads. Made July 19.

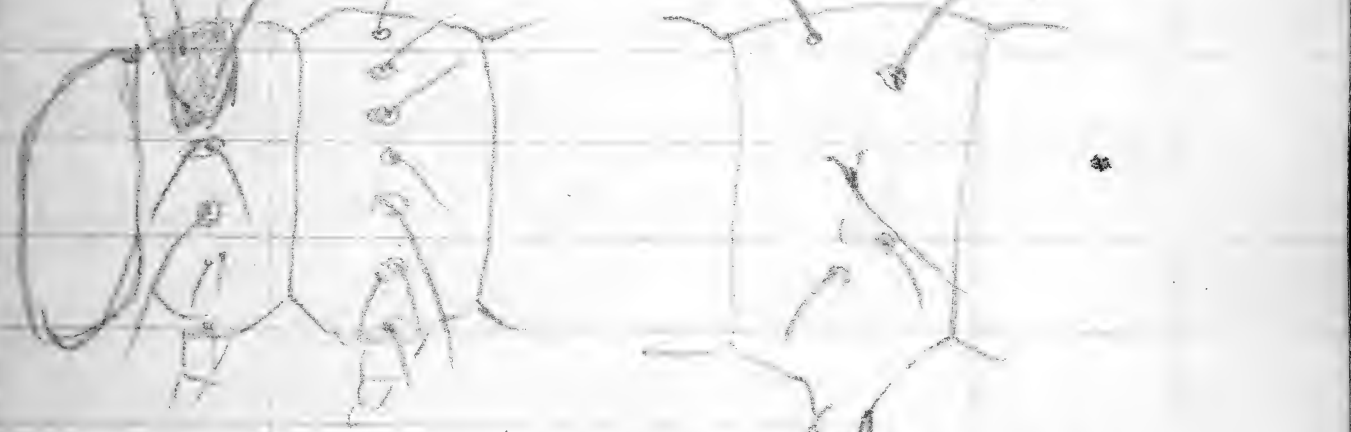
Pupa heavily cylindrical, flattened a  
little ventrally, gradually tapering  
posteriorly, but of nearly even width,  
no part enlarged, last abd. seg.

rounded posteriorly by slender, ter-  
minating in a knob, that appears to be  
radiating strongly recurved  
faintly of minute hooks. Sides and ven-

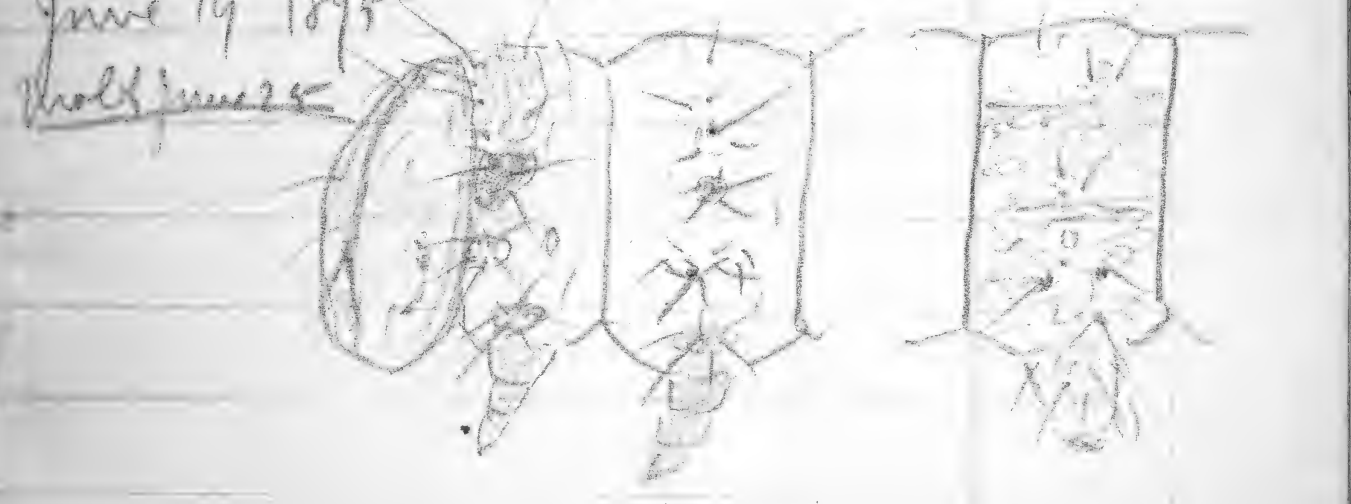
case & three nearly black. L 11 mm W 3.5 mm  
Imago F July 28. Carnob 143 Ichthyura bifida

*I. bifida*  
This species as well as *I. brucei* by Edw  
must come very near to *I. crani* Fitch  
if they are <sup>not</sup> merely western forms  
of it, but the <sup>SPERMATOPHYTES</sup> <sup>of</sup> *I. crani* is still  
unknown so <sup>that</sup> it is impossible  
to compare the <sup>early</sup> stages.

These larvae have but 4 stages  
and then are too black to appear



Ichthyura, probably *I. crani* hatched from  
egg on poplar, Jefferson Highlands N.H.  
June 19 1895



Molt June 24

Pupa on a rock Yosemite June 17, 1891 Much like a *Scaptia*. Thorax very slightly elevated centrally, & obtusely pointed. eye cases large, wing cases very large, rising round above the abdomen at their posterior end, a gentle depression bet. thorax & abdomen. Abdomen curved over ventrally, the annulata fastened in a circle button on the L side of each seg. pupa touching along its ventral surface. General color chocolate brown shaded with pale brown and black; eye & wing cases black, slightly smotted with pale brown; thorax largely smotted with pale brown and with 2 dorsal black shades, obscure & diffuse. On the anterior part of each abd. seg. is a broad black shade, cut triangularly on the dorsal line by the pale wood brown of the posterior part of the segment and shading into chocolate in the seg. incisures. 2 little elevated black dorsal spots on each seg. Spicula shining black. L 20mm W 5.5mm **DEAD**  
Hsd slight blunt point on each seg. just covered the L of the black band

Case	.75	1.18	1.84	2.88	4.15	ratio .64
found	7	1.2	1.8	2.9	4.5	(2/7/92)

*Hosackia grandiflora*  
Eggs on leaved of bean, (Pulse fam.)  
Yosemite, June 16, 1891. Laid on under side singly. cylindrical, slightly conical, flattened above and below, about 15 slight ridges running to the micropyle which is slightly depressed and obscurely reticulated. color uniform ~~very~~ pale yellowish. diam. 9 microns. ✓  
Hatched June 23 Hsd large round, shiny black of a shield large, black, joint red. Body not shiny, uniform greenish yellow, another pale sage  
Molt July 28 Hsd large, slightly bilobed, dull black, <sup>(altho hsd 1.2)</sup> covered with minute whitish pile. W 1mm  
A shield large, <sup>over all of 2</sup> shiny black. Body uniform green, covered with minute piliferous <sup>yellowish</sup> granulations which seem to form an obscure sd line dorsal vessel slightly darker. ✓  
Molt July 31 Hsd large, rounded, <sup>uniform</sup> <sup>[sh hsd 1.8]</sup> non lustrous black as in last stage. W 1.9mm  
Body as before, sd line <sup>markedly</sup> distinct  
Molt July 7 Head large, rounded, minute & densely punctured, covered with minute white pile which does not obscure the surface. Color

[Sh. hd 2.9]

m. ~~antennae~~ ~~antennae~~ ~~antennae~~, black W 2.7 mm. ~~hd~~  
 Crest of 2 dull red  
 C-shield large, shiny black, Body greenish  
 yellow, minutely granulated, corollae ant.  
 very minute short pile. A not very distinct  
 red yellowish line. First pair of thoracic  
 feet black, the rest colorless with body  
~~antennae~~ ~~antennae~~ ~~antennae~~ 16 Head large, rounded, median  
 suture shallow, somewhat deeper over vertex, clypeus  
 very indistinct - densely covered with small  
 granulations, merging into creases around the  
 mouth - densely but minutely pilose. Color  
 deep brown, almost black, unicolorous (with  
~~no trace of yellow spots~~) somewhat reddish above  
 the mouth, mouth black W 4.5 mm Body, 2 small,  
 C-shield large, covering the upper part, half of 2  
 black, the rest of 2 dull red, its apical large  
 pale Body largest centrally, tapering each way,  
 sordid greenish yellow, <sup>pale at the sides</sup> mottled with black  
 around the numerous yellow piliferous granulations  
 An indistinct blackish d. & lateral lines and  
 median more distinct yellow s-d line, all  
 becoming obsolete at the extremities. Pile  
 covers the body & head, except the smooth

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eggs on choke cherry Ypsenites June 18 1891.  
 Spherical, smooth shiny chocolate brown D. 6

~~Shield~~ ~~antennae~~ ~~antennae~~ ~~antennae~~, whitish, appearing  
~~slightly~~ frosted like Boysides batavicus  
 Late suffused with a coppery tinge, ✓  
 began to hibernate about the last of July <sup>put in ice box</sup> ✓  
 still alive at Santa Barbara. Took out last ~~of~~ ~~of~~ ~~of~~  
 still alive Feb 10, 1892 but shriveled & weak.

Dead Feb 11, 1892

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whitish, a darker dorsal line and yellowish  
red are the whole surface thickly dotted  
with small yellowish spots. All parts  
concolorous. No c-sh. nor anal plate.  
Died early Aug 24 (See also Aug 24). Larva on  
cinnabar bark, off branch 1000 ft.  
and out (see Feb 16, 1891) and did not  
find to be the same.

alt .6 .9 1.4 2.1 3.2 1st. 66

282

Little larva in house on willow in Endau  
opposite June 18, 1891. Hd bilobed, black,  
not shiny, labrum pale, a few short pale  
hairs. W. 4mm Body not shiny, pale yellow  
immaculate, minutely but sparsely pilose  
(1st)

Another Aug 6 Hd bilobed, apices of lobes pointed  
rough but without distinct tubercles or punctures  
densely covered with short white pile; labrum  
smooth; w 2.2 mm. Body small at 2, largest  
centrally, no c-shield. Seg. sutures rather deep  
& all minutely pilose. Mucosae pale green,  
rather whitish & densely covered with small  
obscure yellowish spots, a darker dorsal and  
pale yellow s-d line, faint at extremities (see 283)  
Next Aug 8 Hd very cordate, roughened, not shiny,  
minutely pilose; pale brown but black on  
the labrum, occiput and vertex between the  
apices of lobes, as also slightly along median  
suture above clypeus. Two obscure whitish  
orbital streaks on each side of the front.  
W. 3.2 mm. Body uniform corded greenish

283 Aug 16

H. G. DYAR, 1891. Hatched greenish  
testaceous, **YOSEMITE, CAL.**

Head pale, jaws black. W. mm Body flat ventrally  
a 2-v ridge, sides sloping, dorsum flat,  
widest where the body is thickest (5) and  
narrowing to each extremity, summit  
granulated with white fine short pile  
white <sup>decidedly whitish on the sides</sup> Soft light green (not yellowish) a  
distinct s-d white line, <sup>beginning on 3 near</sup>  
<sup>1.6 mm apart!</sup> together widening to 5, then gradually  
narrowing past, being faint and some-  
what diffuse on 11-13. A single very  
distinct line on 2-v, fold, obsolete on 2  
but distinct even to anal plate. On  
the sides between the lines a series of  
oblique faint white lines <sup>joined at the steps.</sup> 2 on each seg.,  
the body larger above than in the other  
chests. G shield in center of 2, small,  
indistinct, sunken, irregularly triangular  
L 15 mm W 4.5 mm

Pupa By cremaster & steep. Head ventrally  
abd. large, rounded, segs. appressed; a

slight depression. **H. G. DYAR**, **YOSEMITE, CAL.** <sup>thorax</sup>. <sup>whitish</sup>  
pale. <sup>Some yellowish</sup> ~~with~~ <sup>with</sup> Indian purple  
(Pl VIII f 6), mottled with blackish, <sup>case</sup> dull  
greenish, heavily mottled with black, an  
obscure pale s-d line (1.2 apart) and a  
faint black dorsal line, the latter run-  
ning the whole length. L 9.5 W 4.5 from  
Imajo July 5 Cat no 6592 = 6478



*Ikelloggii* *I. chrysolepis*

Shamrock willow *Salix* spp

284 *CA*<sup>25</sup>

Aggias on live oak road to Oak flat June 20, 1991

Stage I mated, Hd brownish black shiny

Body & warts black, hair thin black, bristly, on pencil nor brush tufts. S-d warts on 2 large, retractile tubercles on 10 all small, dull blood red. Dorsum pale on 3, 4, 5, 9.

Stage 1.2 mm Hd black with a brown tinge, labrum white.

Body black except on the dorsum on 3 & 4 where it is yellowish white with a black dorsal line, and a yellowish spot on 7 & 10 ant. Warts all black, thin long black, short plumbed black pencils from ① on 2 (none on 12) small dorsal black brush tufts on 5 & 6 and a few short tufted white hair on 7 & 8. Warts ② on 9 a little red tinted. Retractable tubercles red. Length 4.9 mm

Stage 1.7 mm Hd brownish black, labrum & antennae soiled white. Body general black below, gray on the side a black s-d and yellow 2-v line. Dorsum largely soiled yellow; shield, a black dot on 3, 4: a

Warts 6 8 1.2 1.6 2.2 3.1 (4.3) 8.72

Hds 1.7 1.1-1.3 1.8 2.1-2.2 3.1-3.7? 3.9?

shade surrounding the tufts on 5-8, and a broad ~~black~~ <sup>black</sup> band on 9-12, all black. Warts ①-⑤ red, tubercles all blood red, <sup>(except on 2 which are black)</sup> plumbed pencils of short hair on 2 & 12, tufts on 3 & 6 brown, on 7 & 8 white. On hair long black, whitish subventrally.

Stage 2.1, 2.2 [Sh hd 2.2mm] [Sh hd 2.6 sect 2.2]

Stage 2.2 Hd shiny black with a faint brownish tinge. Labrum & antennae pale yellow. C-shield black, pencils of 2 & 12 3 mm long - as before. Body as before and hair the same. The warts are ①

ant. sub-sub-dorsal 5-12 ② s-d, ③ ant. st. [④ absent] ⑤ 5-v ⑥ 2-v, just at bases of legs

⑦ small on vertex of legless legs. On 2 ② ③ on c-shield, small; ④ large, s-d; ⑤ large lateral; on 3 & 4 all present but ①, and curved up so indistinct, on 13 but 3 want the upper 2 large; very minute warts on the anal plate. Spinacle black, a white dot on each. The black <sup>shade</sup> surrounding the brush tufts fills in nearly all the dorsal space. Brush tufts from ① & upper part of ②

Calc. 46, 71, 141, 1.7, 2.6, 4.0 ratio .65  
 Found 4 5 1.3 1.8 2.6 4.0

[Stage 4 mm, hd on deciduous oak, in the cranny  
 June 22. Hd shiny black, labrum a little paler.

H. G. DYAR

Body corded **YOSEMITE**, a dorsal yellowish

shade on 3, 4 & 9 and whitish stig. line.  
 Vents black, sd on 2 large, hair thin, not several  
 from a vent, black. No brush tufts, pencils.

no retractile tubercles, but the places of  
 the latter are indicated by a dorsal red s/p  
 on 10 & 11, not elevated, July 24 = 5th 2 hd 7

[Sp hd 3.1 mm] 5th stage, July 24. A marked change. Hd brown-  
 black, shiny; clypeus pale, labrum & antennae

white. W 3.7 mm. Body velvety black, a little  
 buff & d line on 3 & 4, represented by buff spots

on 5, 8-11, a little further down the sides; a  
 similar smaller s/v near the whole length

as well pale, shaded with brown, its venter  
 crimson. Tufts of the ①-⑤ fine dark crimson,

large, the hair long & black. Pencils pointed  
 black, 7.5 mm long! Retractable tubercles

crimson, a little brighter than the venter.  
 Brush tufts large, all unicolorous! brownish  
 silver gray, darker along the crest. Feet

\* could not pull head  
 through 3.6 hole but  
 just did with 4.0  
 sh hd 2.5 - 24 with 2.2

Calc. 57, 1.1 1.5 2.2 3.1 4.4 ratio .70  
 Found 9 7 1.2 1.7 2.2 3.1 4.0

[Another Sh. hd. **H. G. DYAR**, hd 3.5+ 4 tufts gray, same]

[ " head 2.1 molt. hd. 2.8 [3mm] 4 tufts gray ]  
 [ " Sh. hd 2.3 molt. hd. 2.8 [3mm] " ]

Later the brush tufts darken to black cen-  
 trally, the side hairs remaining white.

[cut right tuft] July 24 hd round, black shiny, a white line  
 above the mouth; ant. <sup>ochre at base</sup> [head hd 4.0] w 3.8 mm

Body dark gray, black dorsally, a s-d band  
 and stig. broken yellow band. All vent

tufts ① ② ③ ④ ⑤ & not tubercle & crimson shield  
 fine crimson, the tubercle a little brighter

tufts ⑥ small. feet. ① pinacles other yellow.  
 Hair long, black. Pencils & brush tufts as

before the former - 6 mm. long. [5 mm as sh. hd]  
 venter pale.

\* Coon, dream on 3 & 4 eggs. In cocoon black & like  
 [Another Sh. hd. 3.1, head 4.5, 3.5+ 2.2 on 4 and ... ]  
 [ " (from 5th stage!) 2.6 x " 4 - 3.5+ ] cut a tuft, in cocoon

not 3 pupa July 5  
 Coon July 3 Hd 3 mm. **DEAD** Coon, oval  
 regular, creamy opaque, composed of 2 rows side  
 Another coon July 3 Hd 3.6 mm. not **DEAD** as was  
 Coon July 4 (no 3) Hd in cocoon 3.6 mm ♀ pupa July 6  
 Egg July 11 laid in cocoon with 4 tufts  
 vent. of white just - small & old shield, with the  
 slightly oval, smooth pale yellow & white lines on  
 faint brownish spots along the flattened end. 2.1 mm

Save eggs to Packard, Lintner & Soler

♂ pupa Robin H. Aug 1. *D. vespa* caeca prominent

Abd tapering, acroaster long tapering  
in minute hooks. **YOSEMITE, CAL.**  
Sparsely covered with  
such short fine whitish hair. Color  
rather light brown, spiracles black.  
Length 12 mm, width 5 mm. ✓

♀ pupa very large & robust, thorax & caeca  
small, wing case of moderate size. Abd  
nearly cylindrical, acroaster flattened  
ending in many hooks. Smooth very  
shiny pale brown with a few of ashy  
inclined pale hair. Spiracles black  
Length 22 mm; width abd 9 mm,  
width thorax 4.5 mm. ✓

July 18  
♀ imago extremely large & robust, thorax and  
legs small, wings large thin & veined, brown  
long ✓ Color white with a faint brownish  
tint, hair dense especially on abd. Body  
brown mostly like cinereus both on  
thorax & abdomen. Wing faint brownish  
eye black, on venae black. *Yosemite*  
Length 8 mm, width of abd 12 mm. ✓

Reared with ♀ Aug 24, 1891. *U. cana*

Insects on willow & wild currant Yosemite  
June 22, 1891 <sup>[Sh. hd 2.4]</sup> Hds 2.6 mm 2.7 mm 2.7 mm

Hds black, shiny smooth, labrum & base  
of antennae pale yellow. Body not  
enlarged at 12 but 13 shape. Pyliferous  
tubercles very large, shiny brownish, each  
with a single hair. Spiracles present. Hair not long, pale. Body andid  
greenish white of an special color and  
slightly translucent. a. d. & s. a. pale  
white lines, a broad pale yellow stig.  
line shaded with orange centrally  
continued narrowly & indistinctly on the  
anal feet. Spiracles black. Body more  
or less mottled with little white spots  
Molt. Ad high, shiny red brown labrum & base of  
antennae white, jaws & ocelli black. W. 4 mm  
Tho. feet pale red brown Body andid sub-  
translucent white. D. & S. a. thin narrow,  
faint, white: stig. broad pale yellow, en-  
closing the black spiracle. Pyliferous dots small  
black, with somewhat elevated larger bases,  
and a glass body mottled with white. Larva in  
honey of leaves lined with silks with hole in  
one end.

Damage 7th / Cad. no. 6908 by *U. vespa crucialis*

Call .267 .506 .954 1.8 3.39 ratio .53  
Found .25 .5 .75 1.8 3.5

286

July 23 91  
Bull II

Egg laid by ♀ J. forvina June 23, 1891. Spherical a little flattened at the base with about 12 vertical ribs running to the anisocycle. Color shining pale green.

Hatched June 27. Hd. rounded black & shining. Body dotted greenish with long black hairs arising from small tubercles. Feet colorless with 10d.

Molt July 2 Hd. bilobed, black & shiny, with a number of hairs W. 5 mm. Body sodid purplish, almost black, tubercles about black bearing numerous short fine hairs, three cervical shield yellowish (ocher) anal plate black. Tubercles on shield black.

Molt July 3, 6 Hd. bilobed, a conical tubercle at apex of each lobe. Shiny with yellow piliferous tubercles W. 7 mm. Body & branches of spines black, more reddish subventrally, a lateral conical orange tubercle on 2 and a yellow annular 3-4 tubercle on joints 2, 3 & 4 each. Spines none on 2; 5-d & lat. on 3 & 4; d, 5-d, Supersty & substy on 5-12; 2 5-d on 13. Feet

July 22 <sup>dupa July 23</sup> ~~spun~~ <sup>H.I.</sup> <sup>figured 22</sup> with later <sup>gen</sup> yellow <sup>sq</sup> dash  
this stig. ann. & a continuation

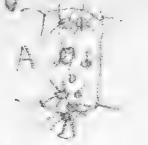
circumstances tubercles at base of CALY legs. A stage adv. a double d. & s-v row of white & later bases of substy. spines & anal feet orange tinted

Molt July 13 Hd. bulging laterally, bilobed a long spinose process at the apex of each lobe, pointy forward: black, very shiny with many white conical setiferous granulations, labrum & bases of antennae whitish W. 1.8 mm. Body velvety black the long spinose processes shiny blue black, a short one above the spiracle on 2 & a longer one below it beside a short one

sty. on 3 & 4, orange. A geminate dorsal & stigmatal row of white dots, 3 or 4 per seg. Feet all black, thy abd. tipped with reddish

Fold of skin ~~at~~ head & 2 orange tinted  
Molt July 17 Hd. bilobed, a short process from the center of each lobe: many conical granulations each bearing a hair; several hairs from each process. Hd. shiny black, largely fulvous posteriorly and at the sides a fulvous patch covering the diaphragm; granules on fulvous or yellow process - black; labrum & bases of antennae white W. 2.5 mm. Body velvety black, the body shining and slender a fine process shiny blue black except 3 & 4 which are pale orange & geminate dorsal series of numerous minute yellow dots. A geminate sty. row of large yellow spots with many minute dots like the dorsal series. Spat at base of spin 3 & 4 and abd. legs reddish orange the feet black. Speech black with a pale yellow border. 3 & 4 pale orange

Imago July 15 Cat. no. 6681. A feather wing moth, *Pteridactylus*



287 May 13 1898

On aster (pupae June 23). Larva slender but resembles a sawfly. Hd. rounded, lighter than sides, green, faintly elevated, ocelli black, mouth brownish, body nearly cylindrical, tapering a little each way from the middle. Uniform green with a whitish dorsal line and many small concolorous tubercles from which grow 7 or 8 radiating short white hair & from the dorsal rows (1, 2, 3) another long dark hair Rows as follows (1) (2) beside each side near base (3) lateral (4) subapical just small (5) (6) beside each side subapical. the post. one small (the 5-6 fold) (7) 5-8 (8) 5-8, at base of legs (9) 4-6 on on venter. Feet normal, i.e. 3 tho, 5 abd on 7-10 & 13, the legs very slender, clasper longer. At extremities the vent. are fewer.

Pupa July Lay, slender, <sup>no corn</sup> impinged by cremaster only. This small, and tapering, cases projecting over abd. half way to extremity. Uniform green covered with tufts of sparse radiating hair like the larva. 2 11 mm w 2.5 mm

Calc	.32	.58	1.06	1.92	3.5	ratios .55
found	.3	.6	1.1	1.9	3.5	

cpd  
10/21/91  
Butt

S SSS 288.  
S S S

Head of *S S S* Pupa in a little time threads, imp. etc. June 24. Egg shell cylindrical, base flat (top green with several vertical ribs, diam <sup>(sh. hd. .3)</sup> 1/2 mm. Hd. round, black & shiny W. 3 mm. S. S. anal plate black, body very black with a number of short dense hairs. Feet normal. Spin. etc. (sh. hd. .6) \*21007

June 27 Head black shiny. a few hair, W. 5? mm Body dull black, furnished with row of short conical tubercles each with a long hair, blackish, those of (1) (2) (3) on 6, 8 & 10 pale yellow. Hair blackish, feet black.

June 31 \* Hd slightly bilobed, black, shiny a few black hair from minute tubercles. W. 9 mm Body black covered with spined processes as in S. S. S, black but 3 dorsal on 6, 8 & 10 yellow their spines black. Uniform

July 2 Hd bilobed, black shiny, many black hair from elevated bases W 1.7 mm Body black, minutely dotted with yellow. Spines black except base of 3 dorsal ones on 6, 8 & 10

Spin. house mainly of ant.

which are ~~dark yellow~~ ~~spines~~ ~~apparent~~  
~~an~~ ~~as~~ ~~in~~ ~~the~~ ~~shaft~~ ~~of~~ ~~the~~ ~~larva~~

As <sup>the</sup> stage advances a very numerous geminate  
dorsal & single s-r broken yellow line appears

July 5 Hd rounded, mouth part projecting  
uniform sub-larval black, mouth paler  
base of antennae reddish. Covered

with black hair of considerable length which  
arise from <sup>small</sup> tubercles. Width 3.5 mm. Body <sup>deep</sup>  
black with numerous <sup>brownish s-r s-v s-v legs</sup> numerous annular yellow

filiferous tubercle bearing whitish hair

The shafts of the body spines are all  
more or less colorless but the branches  
& tips are <sup>the bases being blue black</sup> all black. arranged as follows

① dorsal ② sub-d ③ supra-stig ④ sub-stig

above bases of legs a cluster of <sup>small</sup> tubercles. Joint 2 has two spines  
3 & 4 have but two (s-d & lateral) white 13

two but two, both s-d, (i.e. one each s-d on

the 9th & 10th abd segs.) Body deep black

brownish subventrally on the legs, a

row of obscure intersegmental stig-mata

red dots and a similar row of larger

sub-stig ~~SS~~ yellow dots. Color of  
abdomen ~~S~~ pale. Still makes house  
of netting & leaves similar to *Pyrausta*.

In some the sub-stig yellow dashes almost  
form a continuous band, and there are  
indications of a geminate yellow <sup>also</sup> dorsal line  
almost disappearing under the glass however.

July 12 Pupa July 13 Hd. large, eyes prominent  
thorax very slightly ridged along d line with  
an elevated point post. centrally and a pair

of s-d small points, 2 points on the lateral  
edge of wing cases & 1 near saddle of outer

margin of wing. Abd rounded dorsally, nearly  
straight ventrally. <sup>a row of conical points</sup> cremaster long & flat

its hooks <sup>in side of</sup> ~~in side of~~ <sup>color</sup> ~~color~~ <sup>dorsal</sup> ~~dorsal~~ whitish  
with an obscure golden tint dotted with black

& shaded with smoky gray, broadly dorsally  
(except a narrow d. line), narrowly stigmatal

& broadly ventrally, more irregular & clouded  
on thorax & cases. All the points tinged

with shining gold or bronze. L. 13 W 6 mm  
Imago July 21 *Pyrausta cardui*.

calc.	.33	.47	.67	.96	1.37	1.96	2.8	4.0	ratio	7.0
found	.3	.5	.7	.9	1.4	2.0	2.8	4.0		

See 28295

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July 16 1917

Little hairy fern on willow, Yosemite Jun 28  
 Hd bilobed, flat in front, black & shiny  
 mouth reddish <sup>[Sh hd .9]</sup> Body enlarged  
 dorsally at 12 and apparently also at 5  
 as the part is held highest. Feet normal  
 Bristly black hair grows from black coat  
 in 5 rows, (① apparently wanting) ③ & ⑤ small  
 Body whitish, almost white in place  
 especially s-d on 10-12. The hair is  
 almost wanting on 11 and is thick &  
 tufted from s-dorsally. <sup>\* because it is almost in line and ① is very small.</sup>

July 24 Hd black shiny, bilobed, rounded  
 clypeus reddish, white <sup>[Sh hd 1.4]</sup>  
 Body black a s-d row of yellow spots  
 forming a broad band on 10-12 & s-v (on 10-12  
 fold) similarly colored band. The s-d  
 line on 10-12 is supplemented by a narrower  
 line below it, both ending on the first joint.  
 Hair black bristly, mixed black & white,  
 tufts of shorter softer black hair s-d on 5  
 almost missing, with black & white

divergent s-d only on 12, not near each  
 Later narrow white lines, orange s-d on 11.  
 July 2 Hd bilobed, high, shiny black  
 mouth & 2 converging bands each side of the  
 clypeus, white; <sup>[Sh hd 2.0]</sup> width 1.8 mm. Body as before,  
 hair long, white. S-d tufts on 5 brown,  
 a similar white one on 6; short s-d  
 divergent <sup>black</sup> pencils on 12. The feet black  
 Later the s-d & s-v bands become strongly  
 shaded with red & the s-d tufts on 5 & 6  
 separate into 2 tufts each.

July 6 Hd bilobed, black shiny, thin  
 white lines (the lower labrum) surrounding the  
 clypeus & bases of antennae white <sup>[Sh hd 2.8]</sup> W 2.8 mm  
 mottled with white laterally; venter whitish spotted  
 Body & venter black, a narrow interrupted  
 yellow dorsal line, a similar but broader  
 crimson s-d one, more distinct on 11 and a  
 more continuous <sup>sub-sty</sup> s-v crimson one. Hair  
 bristly white, mixed with a few black,  
 hairy head, thicker on anterior part  
 On joint 4 s-d, some brownish plum  
 hair on 5 - two s-d tufts of orange  
 and hair & below them a lateral tuft of

short white hairs; on 6 there tuft of short white hair, the tufts not distinctly separated but arranged fan-like. On 12 the long divergent pencils of black hairs. Joint 12 a little enlarged & held elevated, with a small white tuft just below each. Has

the appearance of *Argyria* BB284 at 1st glance. <sup>very small, but spiracles</sup> spiracles large, <sup>small</sup> large present, rather small. a few plumed short white hairs from ① & ② on 3 & 4; longer plumed brown tufts from ① & ② and white tuft from ③ on 5; white tufts from ① ② & ③ on 6; long heavily plumed black pencils from ① & ② (the tufts are almost coalesced, 1 post. spiracle) short white from ③ on 12, (the tuft ④ on 12 is small & situated post. spiracle)

Molt 8, 15. Frontal unchanneled. Hd. bilobed lobed, shiny black surface. Setae of hypostoma & a central line white as also labrum & base of antennae. W. 4 mm. Body as before. Spiracles white. Body black. Under limb orange, other legs dark red. white trochantal cream color, upper 2 on 5 brown. Tufts pale, hair long, mostly blackish.

late discoloration color tuft becomes pale brown (Dead July 27) - same form?

290 AR

Eggs from abdomen of *C. bicincta* June 27  
spherical, smooth, pale lustrous, yellow. 1 mm  
(antile)

The yellow d. line gives appearance of the yellow dorsal suture of *Argyria*, the red s-d & s-s. line of the red tufts & the tufts of the brown & white tufts & post. black pencil

291 A Sc. 3 18

larva *Argyria* *trunculata* with juvenile of 29  
4th inst. <sup>with</sup> <sup>black</sup> <sup>lateral</sup> <sup>marking</sup> a lateral marking, yellowish line, the former broken, the latter continuous but faint. Spiracles small, faint ochreous. very anastomosing (2+, 2.5-) form in appearance. width head 2.2 mm  
B 2 4, Hd 2-5 not s-d line is moderately distinct, pale yellow, no other line and s-d line more reflex than in A (labeled 1.45)  
late discoloration like A.

labeled B, Hd slightly bilobed, not 2, pale green  
uniform pale red s-d line, with green spots  
a faint yellow s-d line, no other markings  
A & B same. Late discoloration most distinct, the s-d & lateral faint, ✓  
pale green



Calc. .63 .96 1.48 2.27 3.5 ratio .65  
 found — .9 1.45 2.3 3.5

Mrs St John came to work

Oct 31<sup>st</sup>. Ten dollars for Nov

after chat 12 per month.

Dec 25<sup>th</sup> paid Margaret 10.00

of Jan 10 1892 291 P tremuloides  
 P balsamifera

Elaphis on Poplar Mountain July 2 1891

abd very slightly bilobed, somewhat flattened

in front uniform pale green, subventral

mouth parts pale, jaws black; w 3.5 mm

Body long & slender, noctuidiform in appearance

without humps nor tubercles, piliferous spots

absent the hair being reduced to <sup>were</sup> ~~the~~

minute rudiments. Uniformly non-

lustrous pale green, semitransparent,

showing plainly the pubescence of dorsal region

an obscure pale yellow stigmatal line

spiracle dull ochre. Sit on web on back

of leaf. <sup>in walking</sup> feet normal, all used, convoluted.

the claspers whitish. Length 25 mm.

As stage advances <sup>appear</sup> to yellow line on sides of

from base of antennae behind ocelli, in hind with stig. line in

head, stig. line distinct, pale yellow

dorsal region whitish green, <sup>being almost white</sup> subventral

dark green dotted with yellow

44 on Populus grandidentata Fort Lee N. J. May 31 1896 found with Mr. Beutenmüller who took it

Stage IV & V exactly same! I allowed June 3

Out Apr 14 1897 *S. avimaculata* Hudson

Spiracle raised, feet firmly stopped

with union. Head held out flat when

at rest <sup>abd mottled with white especially</sup>

each side of clypeus <sup>differs white centrally +</sup>

yellowish, <sup>being white as a somewhat more distinct part of</sup> sd line 1 on each side of the

dorsal vessel <sup>w/</sup> bordered above very narrowly

with crimson in the thoracic legs, and

reaching nearly to the end of

abdomen meeting around the anal plate

contiguously with the line on the head when

the insect is in its normal attitude of rest.

Still later the rudimentary piliferous dot becomes

surrounded with yellow then are 7 on each

side above stig. line & 7 in s-r space with

<sup>where they appear more distinctly on account of the absence</sup> ~~other~~ on ventral of legless segment L 41 mm

Began to work between 2 leaves July 8 Cocoon of

2 leaves & gummy silks. slight but tough.

Pupa nearly cylindrical, rounded, no cre-

master; abd punctured, cases coarse &

crossed; color uniform dark brown,

meanly black. L 17 W 6 ✓

Emerges at 5.7. Jan 10, 1892 cut no 6874

*Elaphis severa* F (?)

Another Keene Valley, N. Y. June 29 1894

see 318

see 318

see 318

see 318

see 318

see 318

Cule. 1.2 1.8 2.8 4.3 6.6 ratio .65  
 Found 1.1 1.8 2.8 4.0 Cfd Aug 13, 1891  
 H. G. 292 AR.

Egg by ♀ *H. californica* on oak leaf singly  
 July 3, 1891 Yosemite, heavily spherical, base  
 flattened a little, covered with hexagonal  
 elevated reticulations from the intersections  
 of which arise short spines. Color uniform  
 leaf-green with a silvery lustre. W. 1.5 mm.

Hatched July 14. Larva hatched July 13 Head 1.1 mm  
 large, round flat on the post. side, roughened  
 with a few little tubercles that bear minute  
 setae. Color pale wood brown, mouth dark  
 brown, ocelli black. Body cylindrical, with  
 short conical tubercles and many minute  
 granulations, each with a minute seta. The

s-d tubercles blackish. 3, 4, 6 & 12 are larger than the  
 others. Color green, the tubercles pale yellowish  
 as are joint 12-13. Feet concolorous with body.  
 Length on exclusion from the egg, 4.5 mm

Builds a patch of silk of leaf at end of the leaf.  
 No July 20 Hd large rounded densely covered  
 with 3 spines arranged in a Δ at the apex of each  
 lobe; pale greenish with 2 brown shades, one before  
 & one behind the eye running nearly to vertex.

clypeus small, Δ, pale yellowish, ocelli  
 the three spots at apex of lobes black. many  
 of the spines at the sides spread  
 w. 1.8 mm. Body of uniform indist. densely  
 covered with yellowish conical tubercles and  
 a s-d row of tuberculated processes those on  
 3, 4, 6 & 12 much larger than the rest,  
 especially the one on 3) and especially 4 or 5,  
 black conical spines. Color pale brown  
 yellow with indication of a blackish s-d  
 band and paler subventrally. As stage  
 advances dorsum becomes streaked with brown.  
 Molt July 25 Hd larger than body, flat below and  
 somewhat flattened in front, not lobed  
 but central suture depressed, clypeus small,  
 triangular; densely covered with tubercles,  
 a double row of long conical spines along  
 the sides and over the vertex, with another  
 below the vertex of each lobe and a large  
 rounded tubercle above the ocelli. Hd  
 reddish brown, the clypeus, a vertical band  
 over the ocelli, tapering upwards to a point  
 and all the tubercles & spines yellowish  
 white, ocelli and the tips of the vertical  
 & lateral spines black. Molt July 28  
 Body as before, densely tuberculate, many of  
 the tubercles in the s-d & s-v regions granulated,  
 the character of branching spines. On 3, 4, 6 & 12  
 are a pair of s-d large thick processes (2.5 mm)  
 covered with granulation & large conical spine  
 like those on the head; on 8 & 11 a smaller but  
 similar pair. General color light reddish  
 brown, with a greenish tinge especially on  
 the sides. The processes are brown, most of the  
 tubercles & spines yellowish but the larger  
 spines are tipped with black. Traces of a black  
 s-d. line and black dorsal marks between  
 the processes on 3, 4, 6 & 12.

No. 4 July 31 Head very large, flattened before and  
 behind, almost disk-like not beveled, the  
 outer from front obtusely conical, clypeus  
 rather small, median suture deeper on  
 vertex than elsewhere, **YOSEMITE GAL**  
 with only a few slight granulations, but around  
 the lateral edge & vertex a double row of long  
 spin. the vertical ones most prominent, all  
 intermixed with many shorter tubercles, much  
 as in the previous stage, <sup>color</sup> brown with a pinkish  
 tinge in front, pale behind & below, a <sup>lightish</sup> ~~lightish~~  
 band over the ocelli & another obscure one each  
 side clypeus ~~whitish~~; labrum whitish, ocelli  
 black, the spin. except a black one below  
 the apex of each lobe yellowish white. W. 4 mm  
 body densely covered with small conical  
 pointed yellowish tubercles, on an olive green  
 ground which gives it a <sup>beautiful</sup> mossy green appearance,  
 along the s-v fold these tubercles are very long  
 and thick which give the appearance of a  
 yellowish s-v line. A lateral row of angu-  
 sty conical tubercles, larger than those of body,  
 the one on 3 branched; row on 2 or 12 (2nd)  
 subdorsal row of processes are very long and  
 large those on 3, 4, 6 & 11 the largest (5 mm)  
 dark brown covered with many conical  
 thick spin. of varying length white tipped  
 with black. On 2, row 5-d process; on 5 only  
 a slight tubercle; on 7 a somewhat large one  
 branched; on 8 & 11 a moderate process (2 mm)  
 on 9, 10, 13 and anal plate a branched tubercle  
 On the feet, short hairs arise from the granulation  
 but not elsewhere on the body. Spiracles on  
 2 faintly black rimmed, the others inconspicuous  
 when at rest the head is turned down, cranial feet  
 elevated, the process on 3 <sup>point forward</sup>, then  
 on 4 project after laterally, those on 6 lean  
 backward. Below s-v line, legs rather brown

as at adv. the olive green assumes a rather  
 lighter tinge and shades into yellowish at  
 the s-v line. Aug 10 began to turn other yellow in patches  
 especially laterally & at bases of horns. Aug 11  
 entirely straw yellow, more **CAL** below the  
 head pale brown and I by tip on back of **Vf**.  
 Pupa shaped somewhat as in *Linum*,  
 a long, pointed, three sided angular  
 prominence over each eye & a carinated  
 ridge runs the length of the dorsum,  
 on the thorax prot. elevated into a  
 prominence which diminishes rapidly  
 posteriorly. On the end. part. of abd. a  
 flattened prominence, much as in  
*Linum* but less disk-like. From  
 which the ridge continues down abd. end  
 about 2 seg. from end. **Vf** cases very  
 prominent, projecting above the surface  
 of pupa, with an angular point  
 at base, & the outer margin elevated.  
 Color pale wood brown with many  
 short darker brown strigae; a dark  
 brown tinge along dorsal line, the  
 edges of **Vf** cases & the point over  
 the eyes. Between the tho & abd  
 prominences, along the thorax by the  
 laterally and back of the eyes are  
 large yellowish-white metallic  
 patches, L 23 w 9 mm  
 Imago Aug 23 ✓

*Heterochusa californica*

