



H. G. Dyar bluebook 626 - 678

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Short citation:

Smithsonian Institution Archives, Accession 12-447, SIA_12-447_B01_F20

Long citation:

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626-678

605 out from 24 1898
Chambers

♀ out Dec 31 *Eupocya albosomae*

29 good coms

5 dead

10 parasites

14 moths

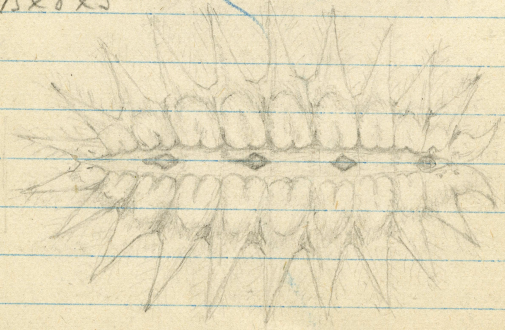
626

'Codi on mangrove, Mission river, Fla. Dec.
26 1896. Solitary on back of leaf; (white coms)
Elliptical, rather thick centrally but pressed
down at each end, fringed by a row of
fleshy, conical, appendages, arising sub-
donally, ^{directed obliquely downward to leaf} 11 in number (3-13 apparently). 1st
short curved, the rest straight, of about equal
length after 4th pair, short hairs above, on
the side fringed with long soft smooth
white hairs which form a continuous
though not very conspicuous fringe. At the
base of each appendage above (except 3 & 13
where they are not pronounced) is a thick
fleshy, heart-shaped piece which rises above
the appendage and also above the main
dorsum, converting it into a channel. There
have short rudimentary white hairs and
a single long black outward seta. Light
yellowish green, all the horns tipped
with orange red, most so anteriorly;

[Dec 28 got 21 out coms. + 43 parasitized = 64]

a bluish-red diamond shaped patch with
whitish center in the depressed dorsum
on joints 4, 5, 7, 9 and 11. (4 patches, the ant.
one slightly elongate) Horns on 3 & 4 very
faint, orange shaded. Side hid by horns.
Lateral area smooth, green, somewhat
hollowed irregularly without horns. Very
faint whitish areas along the spiracles
possibly represent them. The fleshy sd
horns come off when bent sharply up-
ward and leave an area which exudes
a drop of clear liquid. S-v setae below.
The spiracles rather distinct, white.

Size $13 \times 8 \times 3$ mm.



Dorsal view X 5

PINK Dec 27.

all horns but @ 3-13 are absolutely absent.
The horns arise about in the center of the
segment from depressions, and there is
a smooth bulge of the skin below. The
spiracle on joint 5 is in line with the
others but appears slightly unsymmet-
rical, rather higher in the fold in pos-
ition. There are on the horns a few short
pale yellow hairs enlarged toward the end,
on the dorsal aspect showing as sparse
yellowish dots, being very short there.

^(no 2) Dec. 28 another 13.5 mm. Same, dorsal spots
larger and rounded, the one 4-5 centrally constructed.
Horns on 3-6, 8, 10, 12 & 13 red tipped, the rest green.
^(no 3) Another (to shed) 11.5 mm. Same but uniformly
bright fiery red throughout; fringe hairs white,
short, chest hairs faintly yellowish.

^(no 4) Another about 9 mm, more than half the horns
gone. Green, no marks, the horn areas whit-
ish. Fringe hairs white, short chest hairs yellowish.
Along spiracle a small, smooth slender

Papilla represent ② on 6-R, absent on 5-
on at least on 4. A smooth anal flap
under the horns ① 13. One on 3 in line with
that on 4 and abd. ③ 2 setae 3-13

Date	Dec 29	Dec 30	Spinn by holding up all horn which are hairs withers. Spin a web against the smooth part of body, finally enclosed.				
No 1	13.4-5	Spinn					
No 2	13.11-14	Spinn					
No 3	11.5. "	to shed	2nd	3rd	4th	5th	
No 4	10 eating	11 eat.	12 eat.	13.5 eat.	14.5 eat.	Spinn	Out Feb 21 1897

Dec 30 No 4 has acquired d. red spots 4-5, 7, 9, 11, faint
diffuse, uniform. Dec 31 Red spots distinct but not pale
centred 4-6, 7, 9 and dot 10, 11, 12, 13.

SKIN has curved short pale hair from
large anal plate tubercle like. Prothorax
but colorless with white setae. The horns
have 4 hair 1) smooth long setae; and 2) the
latter on tip; 3) fringe hair from tubercle smooth
at base, then fringe feathered ~~at base~~
4) short smooth hair, like 2 without the long tip.
A new horn, a long blunt truncate cone in
place of ii. In front of ② which is a smooth
fringe like process a long pale seta. A seta on
3 between ① and stub ② but nothing visible on 4.

Egg elliptical, flat, somewhat irregular in size
and shape but not a circular translucent
pale yellow both in glass and leaves 1.6 x .9
1.4 x 1.2 etc. laid singly. Reticulation rather
prominent, quadangular, irregular, distinct
laid freely by infertile ♀ on 2nd day.

627

Megalopyge opercularis? on mangrove, Miami
Fla, Dec 28 1896. Hair soft, creamy white,
obscuring the body; at about joint 5 on the
side there is a parting the hair brushed
forward (ant.) up and backward (post)
from this spot on each side; along
the back a distinct crest reinforced,
especially about 6-8 by curled creamy
range hair, the hair from 13 projecting
in a somewhat twisted tail. Length
7mm (with tail)

Another (8mm) Skin pale purplish, not
concealed by the hair. Hairs thin, curving,
creamy whitish, ① 6-9 with some long
curled range hair which form a fluffy
dorsal crest and, by divergence, a short
lateral crest on each side, 2 setae on
3 hairs on j. 3 the lower small, the m & both
large, the m 5-12 moderate, one on 13.
Shed Dec 30 Hair creamy orange, crested,

also slightly laterally, end and lateral pres. hair pluffy. Body obscure. Much like mature larva but smaller and rather more pluffy. Shed Jan 14. Like mat. Hair paler than before, the side crests reduced as if to be absent and the dorsal crest curled and not prominent in the middle of the back. Length 14 mm just after shedding (with tail).

628

Alcoholic Pamphila etilius from S. Ruscheweyh, Buenos Aires, Argentina.

Head large rounded not bilobed, coarsely wrinkled, with fine shins pale pile, dark red brown, a large round crimson spot before the ocelli, a black shade on the mouth; width 5.3 mm. Neck small, a large red-brown sh. Body white, 2 (except shield) and bases of all feet except 13 crimson, laterally on each segment 4 or 5 little transverse ^{broken} black streaks, a trace of orange on each side of anal plate (on a pulverulent yellow field). Segs 6-annulate, skin very finely covered with minute white pile, inconspicuous. (tending to form a broken yellow sd line) Crotchets of abd. feet in a circle, the long hooks on the inner side and of 2 or 3 different lengths in different parts.

Calc. .32 .49 .75 .1.13 1.7 (2.1) 2.6 rat. 66
.87

629

Alcoholic larvae (A. Koebel coll.) from Nat. Mus.
sent up with Apatelas. Seem to be a *Calli-*
maphia. Head red, eyes & mouth black. W 2.6
Body long rather slender; warts small, well
alternating, is small, with csh. shining blue
black. Body brown black, a very broad bright
yellow d. line, narrowed to fine between, in
each segment, a broken sd line, distinct
in the incisures (iii), a broad dorsal line
(above) incised down by iv, somewhat notched;
a few yellow rings around vi, by plate
blue black, a broad median-ventral yellow
band. Hair black, small, not abundant.
Pale from v-vi. Csh. bristles into two
blue triangles. Hol 1.7 Same Hol 2.1 Same
ventral band yellow in the big ones,
pale gray in the small one.

Gnophacia latifemur Bd
(MSD 899)

DR

629

Stage VI Head small rounded, bright
red; eyes & mouth blackish, line
above mouth white; setae black.
Body brown, heavily marked with
yellow. Warts small, with big
plates shining blue black. Hair
black & white, not numerous,
short barbed. A broad bright
yellow d. band, incising into between
segs, but contracting to pass between
i narrow in front, passing in a
line between the small d. bands
of csh, reaching the dark anal
plate. A series of rather broad inter-
seg. sd yellow dashes (between ii
& iii). A very broad yellow stig
band supra- & sub-stig line joined
between behind the spiracle of the
line of gray color oblique down-
ward across iv and another 11 on
from below behind this; also
incised by iii, obsolete around
v in narrow ring. A very broad
vi. A broad ventral yellow band,
almost joining lateral one in the
incisures (2 examples)

Stage VI Head small rounded, bright red, eyes minute blackish, line above mouth white; setae black. Body brown, heavily marked with yellow. Vents small, with 6y plates shining blue black. Hair black & white, not numerous, short barbed. A broad bright yellow d band underlying the Venter segs, but contracting to pass between narrow in front, passing in a line between the small Δ bristles of cth, reaching the dark anal plate. A series of rather broad interseg. sd yellow dashes (between ii & iii). A very broad yellow stig band supra-; sub-sty line joined broken behind the spiracle of a line of gray color oblique down-forward across iv and another || one from below behind the; also incised by iii, obsolete surrounds v in narrow ring. A ring around vi. A broad ventral yellow band almost joining lateral one in the measures (2 examples)

Stage (interpol) Hd 2.1

Rostrum, color lost. Head red, the dorsal band as in last stage or even wider interseg. (1 example)

Stage V Head red, eyes + mouth

black. Body blackish, legs
shiny black + white. Ant.
blue-black as in mat. Dorsal
band yellow, narrowed between i;
sd dashes small, interseg.

Sty. band single, yellow, but
broken across at the spiracle
and with a few obscure centenary
marks of ground color. Ventral
band gray, a little tinged with
yellow, reaching between vii and
viii. In the other (2 headed and
much larger) the bands are as in
the stage VI, the lateral band
even running up interseg. to almost
join the sd streaks.

(2 examples)

Larva of *Pseudophasma lubricum* ♂ OK
Jim Jentel - eating rotten wood
Feb. 1897

Hd rounded, dull black, frons granular
with short stiff white setae. $W_2 \pm$
Body setae short & stiff, slightly curved &
granular at tip. Cylindrical segs
indistinctly 4-annulate, head blackish,
pale s.v. tracheal line pale, spiracles
small black. Spin. i-ii long on long
fleshy papillae 5-13, i-13 short also.
But i-b on 4 and trace on 1 at base of a
on 4. i-vi, iv behind spiracle, 7 setae
on leg plates. ii-b not seen, others normal
all perfectly single. 5 setae on coxal
laid for a rounded lump. Papillae
black grey, distal $\frac{1}{2}$ of ii whitish
feet normal, w7 much smaller
Papillae $\frac{1}{32}$ inch long; ii bent forward.
Another lighter dirt-white, tips of papillae
i also pale. Black granules distinct, largest
on papillae.
Crotchet of feet in single row, very long like
a series of claws

Mr. Harrison G. Dyer

to MARINE BIOLOGICAL LABORATORY

To Annual Assessment for 1897. - - - - -

Please remit to

LAURENCE MINOT, Treas.,
39 Court Street,
Boston, Mass.

Received payment,

Laurence Minot, Treas.,
by J. A. Whipple

JAN 8 1897

Cale. .32 .49 .75 1.13 1.7 (2.1) 2.6 wt. 66
.87

629

Alcoholic larvae (A. Koebel coll.) from Nat. Mus.
sent up with Apatelas. Seem to be a *Calli-*
myrma. Head red, eyes & mouth black. W 2.6
Body long rather slender; ant. small, well
alternating, 11 small, with cch. shining blue
black. Body brown black, a very broad bright
yellow d. line, narrowed to fine between i & ii
each segment, a broken sd line, distinct
on the mesosoma (iii), a broad stylus line
(abv. v) narrowed down by iv, somewhat notched
a few yellow hairs around vi, by plate
blue black, a broad medio-ventral yellow
band. Hair black, small, not abundant.
Pale from v-vi. Cch. bristles with thin
blue triangle. Hd 1.7 Same Hd 2.1 Same
ventral faint yellow in the big ones,
pale gray in the small one.

Euphranta latipennis Bol
(1899)

630

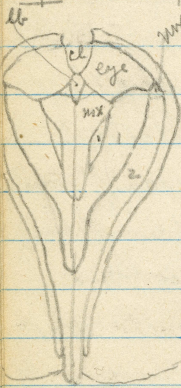
Larva of *Pseudoglossa lubricalis*

cch l

Larva found in corn in grass under a stone. On Catlandt Park N.Y. March 11, 1897. Head shiny dark blackish, o lips w. 1.5 mm. Body shiny, sordid blackish and clay-color mottled, obscure, dark. Segs. 2 annulate, tubercle small, blackish in large warty concave areas; i-vii nearly a line on separate annulet, ^{and} on ix annulet, iv+v substy in a single warty area, vi post single, vii 3 hairs in an ant. area at base of foot. Setae long, pale, darker at base. On thorax ia+ib, iia+iib, iii separate, iv+v, vi single haired. Abd. segs slender, rather long, expanded at tip, crotchets in a circle slightly broken on outer side. Tho. feet blackish

alcoholic Titaris helganthialis Murtfeldt from Min. Murtfeldt. Larva Head rounded, flattened; small, retracted in 2 up to eyes, chapped suture depressed, upper segment of labrum forming a ridge dark brown, bluish on the narrow lateral angle; w 1.3 mm. Body segs distinct, creased several times in incisions, but not distinctly annulate; ^{13 annulets;} each large, bristly, irregular marked in black. Setae distinct from ^{actae} large flat, dark tubercle i-iii in trapezoid, iii lateral, iv+v form a single as tubercle, vi post, vii above base of leg with 3 ^{viii single;} actae; a small secondary tubercle with one bristly seta just before the spiracle at its upper corner. On thorax ia+ib, iia+iib, iii single, iv+v, vi with one seta. On prothorax 6 setae in shield, 3 on mesopronotum tubercle, 2 on s-r. Thoracic feet well developed, armed with actae and claws; abdominal distinct, rather slender, crotchets in a narrow ellipse broken on the outer side, a single row but doubly clawed, a

slight hump on the outside as well as the
more distinct one on the inside, both blunt.
Pupa smooth, obtusely thickened through 2nd abd.



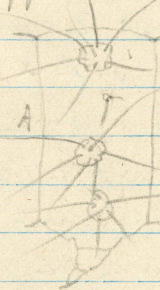
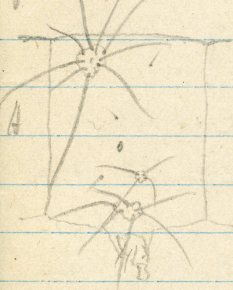
seg, slightly tapering each way,
rounded, head a little projecting,
anal end rounded, cremaster distinct
projecting but 4 radii long,
recurved stout hooks. 5-6
abd. segs unscabed. Ceres reaches
to end of 4th seg. Spiracle on

1st trachea by secondary which
extends a little beyond 1st on segs 1-3.

Light yellowish brown, all the sutures nar-
rowly & distinctly marked in dark brown.
Smooth, showing no distinct punctation or
wrinkles of any kind. Length $6\frac{1}{2}$, width $2\frac{1}{2}$ mm.
No maxillary palpi. Ground leg seems to join
eye, but on careful focusing a small piece
is seen to be faintly represented off (max)

633 = 409

Eggs of *Tolyte laricis*? from Dr. O. Seifert May
20 1897. These eggs laid on an old leaf of
hemlock. Ellipsoidal, dark brown smooth,
stuck over with hair-like scales of smooth
under in reticulation, broad & flat, not
elevated, quadrangular to hexagonal, distinct
Size 1.4×1 mm, height .8 mm. a little
flattened on upper & lower surfaces.



Stage I Body flattened
but dull purplish
dorsum greenish
gray, a white
geminate dorsal
line joined by

nodes along sutures; geminate white
line below; blotches white yellow in the
center of segments; purplish black line
above ii and along iii; white between; white
line above vi. Hair black & white, long at
the ends, 13 larger gray. Head black

a white labial line, a white transverse line a level of ocelli and white Σ line on vertex, a dash on each side connected by light v-marks in *Antennae*. vi. $8 \pm$ on secondary hair or ants. it is always very obscure, but present on searching.

Shed May 28 Hd $1.4 \pm$ ground white with lines of gray dots across labrum & eyes, top of Δ bent up each side and succeeded by a patch below on the lateral aspect, a quadrate spot in vertex on suture notched in front. Body gray with long white line, doubled, lat. sub-stig. and an orange tinted sd band. Nine reach extremity, dark gray, large, produced, 3 on abd and 2 on abd, the other last, a coating of short sparse 2^d hairs. Tubercle is as completely gone as any.

Later dorsum blotched with white in incision 3-4, 4-5 and faintly on segs 7 and 9.

Shed June 6 Hd as before 2.2 on Chr 2 and 1st abd, spinaculae and very large, s-v

[The other made another stage, but finally came out 3.5 shedding June 30; spun July 10]

Antennae 3, a long & large unit, s-v on produced into lappets. Hairs few stiff dark. Fin black 2^d hair d, numerous & pale s-v same with 7 of articulation top. Colors as before, very dark-like, a dark shade on sides of Δ , marks broken, fine line on lappets. Shed June 9. Hd 3.4 Gray, dots, the former pale marks pinkish & hardly contrasting. Red flat, vent i & vi papillae, dark gray, dark like, very spots below; faint. Hair scant & short, long s-v with winged fine at white ends. No prominence on 12, i always separate. The uniformity of the dark gray color is broken by a whitish shade between 4 & 5 - produced by a blackish clouding and a fainter white shade s-g. Ground fine parallel with black & pale, no differentiated lines. 2^d hair fine, short black, thickly on dorsum to vi.

Spun July 3. Emerges July 27 1897
Tohyse laricis ♀

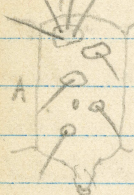
634

Eggs of Auctia nais from Dr. O. Seifert,
May 20, 1897. Flattened conical, base
flat, shining light yellow; D. 7 μ
Retic. obsolete consisting of broad ill defined
elevations between the small round
pits or hollows of the cell areas. Sharply
focussed the ret. are seen very narrow lines

Calc. .39 .65 1.08 1.8 3.0 5.0 cat.60
 Found .35 .6 1.0 1.9 3.0 (n) 1897

635

Little spotted? on lichen. Just Yes, n.g.
 May 23 (1897). Hd bilobed, pale brown with



long single black setae, w. 35
 Hair black, as in figs
 Body white, a large
 dorsal patch of dark

brown on 5, 8-9, 12, a little mottled
 by pale. Nests large, black. Hair stiff
 minute, unspined, not distinctly spinulose.

Shed May 24 Hd sharply bilobed, pale brown,
 a black dash in suture at vertex and pale
 white mark each side clypeus; w about .6
 Body of ashy white, not shiny, large mark
 and 5-8-9 and 12 dorsally purplish black.
 5-8 mark and all on 11 are whitish as body.

Hair stiff, thick, numerous, black. is small
 Hair of 11 sparse and pale? = 289 = 295 = 317 = 388.

Shed May 27 Hd 1 mm bilobed, black, shiny, a
 white mark each side 5 and labrum white
 Body white, marked mottled with blackish

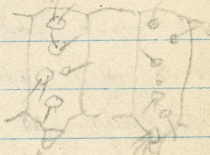
d. darkest 5, 8-9, 12, 11 conspicuous pale
 & weak. Nests dark, hair long & white 5-8,
 mixed black & white d., tufts with fine on
 5 & 12 the latter forming dominant tufts
 a regular little lenticular = 388. i is a
 large wart, larger than ii and nearly in line with
 shed June 1.8 = black & white v. Body black d
 fine white streaked lat, a pale yellow sd (on 10
 12) and subty margin line Black tufts 5 etc
 and good white ones 4, 6-7. Ant hair long.

Shed June 5 Hd .3 mm (sh hd 1.9) Black with
 v-mark & much line. Body black, orange d line
 yellow sd part. Tufts ⁱ⁻ⁱⁱ 5 dark brown, 3-4 ⁵⁻¹¹
 6 cream color, collared, black tufts 12
 divergent. No tufts 7-11, hair bristly, longer
 5-8 pale. Yellow subty line. Side mottled
 Shed June 13 Hd 4.8 (sh hd 2.9) outer asper lobes
 reddish, white v. Tufts fleshy color upper 5 and
 12 brown tipped; antenn tufts also iii 9 & 10
 a series dark red dorsal spots, yellow d, sd
 & sty line etc. Very fine. (Horn)

636

Introduced on young white oak spring
w/ the leaves. Found with the
spring oak *Blennocampa*.

Hd. shiny black with slender pale
setae, partly retracted; w. 1.4 mm \pm Body
translucent whitish, feet & transparent
dorsal vessel evident, dark. Tubercle
large, distinct conical, the setae
long, pale, from minute dark center
normal, $ir + r$. No marks except
a curved black shade on each
side of the large conical corn. osh.
Anal plate opaque whitish dotted
with translucent spots.



Solitary. iii 12 in front of and
a little below spiracle.

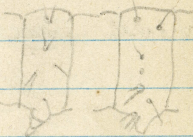
Oct March 23 1898 Cat. no. 14965

637

Another Introduced with 636 but
different. Head, osh. and 2 spots
below & thoracic feet shiny black
Body colorless translucent, slightly
whitish, tubercle smaller, conical
or colular, not evident, setae fine
& pale but long; normal $ir + r$
the upper one small and obscure
but evident with $\frac{1}{2}$ in. obj. the joint
12 iii is situated before the spiracle
on the other seg. normal. The black
spots on 2 are the stig. & sr marks.

sr w/ls rather prominent. Anal plate
as in 636 but less evidently marked.

Makes a more abundant web than 636
Solitary. w. hd 1.2 \pm mm
Hd 1.7 juv³ black, osh pale
with dark edges. No other



marks. Body green, setae pale

Oct June 21 1897 Introduced. Cat. no. 12788

638

Introduced on oak with preceding. May 1897. Hd held out flat. Black, a rounded dark brown spot on Σ and three confluent ones on each lobe, not conspicuous. W. 1.2 m. Both other feet black, body dark, variegated, tubercles not large but black and distinct, setae stiff white. A white d and s-s line and white ring around all the tubercles; otherwise ground slaty gray, lateral space velvety brown-black, the markings all blotchy but not blended. Tail tiny white dot behind iii suggest a broken lateral band. iii m 12 in front of spiracle. Solitary. The s-v band is broken and slightly orange tinted. Axial plate grayish mottled, concolorous. Free self-pupated 2, June 3, 1897 all small. (At June 25 1897) Cat. no 12790

639

Similar to 636 on hickory May 1897. Hd brown over the lobes, black on face with post pal, w 1.3 m \pm Body all translucent green, anal pl. dotted with translucent, c-sh green, nearly indistinct by a dorsal black dash each side side tubercles of 2 green, concolorous. Setae long pale fine moderate concolorous tubercles arranged as in 636, iii 12 in front of spiracle, ia+it a thorax. Thoracic feet black apically. Solitary. Not like 637. (Partly spun and long slender ich. larva can not)

2/7/99

680

Egg from Miss Smith said to be "Selenia belmarica" Woodstock Vt. Regularly elliptical from top view, the surface flattened but obliquely, wedge-shaped somewhat from side, hollowed. $.7 \times 1$ mm. "Green", dark red when received. Laid May 25-26 1897. Shagreened, not reticulated, shining.

June 8 turned black. Hatched June 9.

Thinks stout light black looper, abd feet normal.

Hd bilobed, brown black with pale setae

W. ⁽⁵⁾ \pm Body all dark velvety brown, abd. by plates ^{and anal plates} light red, contrasting and forming yellow dorsal dots (paired not high areas on front edge of segs 5 and 6 - not the tubercles!) Tubercles conic, distinct but inconspicuous, setae short, dark. Ant edge c-dh and mouth reddish. Sup

by thread in disturbing and trust ref. to kind.

Sheet June 20 Hd. 6 all the same dark

min black as before but the black high paired dot are supplemented by a faint pair on 8 and 1 of 5-9 is produced into a rounded prominence. Hd round, 5 pale.

Sheet June 26 Hd 1.2 \pm round brown with a short thick black band on each side. 1 on 5-9 high and sub-apical; white dots on 6-7 ant. Body still large brown but diversified with gray in 4 and 5d. clipp. & dotted bands 5-8 especially with a transverse black ring. 6 and 8 larger than elsewhere and lighter brown with dark tip. Thorax and 11-13 much darker.

July Hd 1.9 very angular & stick-like. Hd flat before apex retracted, tipped forward gray brown, darker streaked & vater. Feet 1, 2-3 apparent, 4 protrudes with purple bases, body angled slightly at 4 in rest. Slender 4-7 in 3-6 enlarged. 8-13 much thicker, 8, 9 esp. stout like collars, tubercles prominent. 10-13 more smooth dark brown, gray pointed; mostly brown d. esp on the prominent parts, feet 8 whitish shaded 11-13 dark gray. Below spotted gray & brown like back. Prominent larva 1 feet 4 bright brown. All shaded and dotted. (d. head pale dot gone) segs 8-9 Hd 2.7 Same; pair a thick pale ring. Hump of 8, 9 variegated with shades of brown & whitish. esp. a distinct dark Δ over 1 and a dorsal Δ thru 10.

Spun Aug 3 folding up a leaf

Bred in May 1898 Cal. nos. 15020-3

Selenia alciphheraria

241 1.34 1.65 2.03 ret. 81
2.19 2.52 2.9 ret. 87

641

Parorgyia achatina? = 241 = 118 = 63
from Mr. Beutenmüller June 3, 1897 on
oak. Hd 2mm black. Body appears black
and is nearly so d. but a little mottled
with pale, pale or, a faint not contrasting
pale dusky line. Ventr. concolorous.
Large black pencil on 2, square black
tuft on 5 and 12, gray tuft 6-8, each
thinner than in before it. Some feather
hair on 3 & 4 and long black hair ex 13
but no pencil. Other hair gray, thin.
Retractable tubercle pale.

Shed June 8 Hd 3 ± Same Fine long pencil
on 2, few hair not penciled on 13. Tuft
^{66 and} 5 & 12 black other hair except feet. and
around ret. tub. thick feathery and as
long as the black tuft all over length
light gray fine and dense. Some
long hair 5-V. Shed June 21 Hd 3.5 (sh
hd 2.5) Same. Shed July 4 Hd 4.3 (sh hd 3.5) B

Secund. hyp. Shed June 25 Hd 3.8 ± (sh hd 3.0)
[Both the h. y. mol. during July 22]

Same Belfort, V. D. June 13, 1897 but very small
Hd black 1.2 ± Black brush 5 & 6, gray
6-7, pencils on 2 slight. Roof blackish,
gale or. faint gray s.d. line. Hair
very even except long hair feet. black
Shed June 17 Hd 1.5 ± 3rd pencil 2, gray hair dark
6-8, all same. Ret. tubercle reddish.

Shed June 24 Hd 1.8 ± (sh hd 1.4) Same, fluffy

Shed July 2 Hd 3.2 ± (sh hd 2.2) Same

Shed July 13 Hd 4.3 ± (sh hd 3.1) Same

Spin. July 24 Imago of *tephra* Aug 14
[*spry + face]

641 Meepot* 1.2 ± 1.4 2.2 3.1 4.3 ±

35 .51 .72 1.03 1.47 2.11 3.01 4.3 ret 7
241 + 1.3 ± 1.65 2 ±

641* 2.2 2.5 3.5 4.3 ±

8 stages is O.K. (See note under 241)


Hybernate in stages VI or interpolated
before VI or certainly IV, perhaps III, (cf
512 hyp. in III which is not specific)

642

Catocala on hickory, Brown Park, N. Y.
May 1897. (Shed twice) Hd 3.8 pale slate
gray with numerous short white vertical
streaks. Setae single, coarse, upper ones
black. Body somewhat flattened feet
on 7 & 8 much smaller than the others.
Setae from very large tubercle, coarse
distinct, perfectly simple and normal,
only 3 on leg plate. Anal feet spreading
5-8 "toes" present, small white sparse
thread-like processes, not 2 hairs. ^{without tubercles}
Body back gray, brown mottled with black
dots forming powdered broken s-d, lat
and stig. line. Tubercles orange with white
rings. A dorsal hump between ii on 9
and ii on 12 much enlarged, conical
Later hump all broken in with dots, tubercles red
center creamy white a dark brown patch in
center of each segment.
Spin up among the leaves June 14.
ant

643

Notodontan eggs (2) on young leaf of white
oak on upper side Belleport 2. S. June 3
1897. $\frac{2}{3}$ spheroidal, less flat, clean, slightly
shining, translucent pale yellow, stigmas
white fringed toward vertex but with a
round large not fringed micropyle. D.
1.05 mm. Under $\frac{1}{2}$ inch distinctly reticulate
with rather large regular rounded hexagonal
raised lines, linear, widening a little at
the junctions and more elevated on the
upper part of egg except in the round
micropyle area where they are suddenly
flattened and obscure and also smaller.
Hatched June 14 Schizura sp. Hd lobed, pale
brown, 4 mm Body yellowish, red on 5, 7
and 12 and 5-8 except the large conic
tubercles. Setae long, white. 12 humped
and anal feet held up. (The larva got
out, but doubtless = ipomoeae) [found again]
Shed June 21 Hd red-brown & greenish white

the latter in spots  Body crimson red
and yellow, red d. in 5, 7, 9, 12 and
all along the sides, a very narrow red d.
line. Tubercles large, conic, concolorous or
a little testaceous, setae long, pale.

Shed June 26. Like 398 III q.v. Hd 1.4 mm
next very regular little apophyses. [But not]

Found collected in May, 1898. Incidentally out
in fall before.

Lythra antennata JBS. Nov 15 1898
644 = *Stingerlandi*
antennata

Noctuid common on planted ornament-
al maple at Belknap 2.3. June 5 1897

Several on a leaf, three more for a space
feet normal, 12 slightly enlarged, setae
single normal, ii ii thin, well separated
ii to very weak, iii, iv in line; no i setae on
abd. leg plate, that one ant. Light green
narrow dorsal, narrow but distinct sd,
narrow supra-stig, subconfluent with a
head stig. white line. Tubercles white
prominent. Stig band a shade yellowish.
Setae pale, distinct & rather long. Sub
route & feet green, not marked by the
white v & vi. In some dorsal line absent.
Hd. whitish green, velli dark W. 1.5-1.4 mm

Shed June 6 Hd 2.2 Same spiracle. Faintly dark
rimmed. Hd. green. D. line distinct. Seg.

measures folded June 13 Hd 3.3 Same a little
more pronounced. Hd all green, d. line head whitish
some white dot & green on sides. Stig band
faintly yellowish. Spiracle black rimmed June 21 d. line
slightly whitish and enlarged.

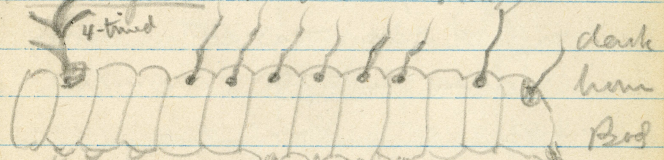
Psaphidius (Diopeis) thaxterianus
No **Hot pub** 645- (Oct 27 98) JKS
20198

Loopers? in any oak ^{chickory} Bileport June 6 1897
a little short pair of feet on 9, otherwise
true loopers in habit and appearance.
Smooth, green, marked with white.
Setae very obscure, small, pale, nor-
mal. Hd. whitish green. Body whitish
green, dorsal dark, a distinct straight
white sd line, d space with irregular
wrinkly dotted white marks; a narrow
lateral white line the ^{margin} edge.
Dorsally white blotched. White mottling
sty. s-v, scarcely segregated into a line
above s-v fold. Spiracles finely black
ringed. Rest not straight on back of leg.
Feet on 9 have 5 long crochets on feet side.
1 no plants; there is 10 a set of hooks before
& behind, broken on inside by large plants
all down end in June. More June 13 1898
Oct May 1898. Cat no 15024 ^{below}
This is obviously *Alaphila pomatorum* ^{very} ^{lower} edge
HSD Nov 15, 1900 - See coll.

646 = 203

2 eggs on under side black oak leaf Bileport
L.S. June 6 1897. Yes, than hemispherical
— flat at base, clear pale green, not shiny
not opaque. Diam 1.2 mm, height .6 mm

Ret. regular hexagonal, narrow on sides
the sides casting shadows and the cell
areas darkened on the side toward light
Hatched June 14 Little horns. Hd horns each



min. red, yellowish in incisions and on
Hd. Feet & leg plates dark. Anal feet up.
Horns long 5, diminishing to 10, long 12, short 13.
The horns is very imperfect all red horn late
More June 19 Hd large, high, narrowing above,
scarcely notched. S. annular, all dark min.
brown, w. 1 mm C. horn 2 short horn point, other
gone. Body all min. brown, smooth, uniform
anal feet elevated. Dorsum a little darker

then the side, abd. feet 7-10 pale, a pale patch
represents tubercle i on 12 (St. hd. 6). Late a
pale s.d. line is indicated midvent in-
wardly on 11.

Shed June 25 Hd $1.5 \pm$ Short brown tipped c-
horn. Free s.d. yellow line, faint white
dorsal with branches indicated (see 203)

Dorsum all filled in with brown and
dorsal side on 7 and frontally 3, 4, 10.

Shed June 29 Hd $2.3 \pm = 203$ but a heavily
brown blotched gutturata. Chorn short.

(Put it out)

IV IV 15-
1900

647

Fine noctuid on white oak, Bunkerham
L. I. June 7, 1897. Hd labrum brown
dotted with white, a black patch
each side clypeus with a brown shade
up behind and narrowly a angle
of tube widening above to suggest an
elliptical pale enclosure on side
is 3.8 mm. Body brown, a light
greenish tinted, a series of large s.d.
creamy white patches 2-14 on thorax
covering sides of c-sh, setae ia-ii, on
abd. i-iii (somewhat trilobate) and
whole of anal plate. Tubercles and
spiracles white; setae normal, single
distinct but fine, pale - thoracic well
separated and all present.

name at 645?

Yes!

648

Pyralid or Tortricid resembling 638 a white oak Belfort L. 2. on young leaves. Hd white, curiously spotted with dark brown.



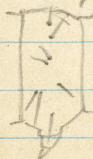
W. 1.2 mm 8th annularly marked the large spot at the sides; and some conspicuous 5d black spot on ^{chocolate} 3 and tiny one on 4 and 13. Body brown and white. Dorsum white with geminate fine brown d. line and black i and ii. A very broad brown lateral band reaching to iii centered by a series of white dashes, dividing it in thorax; ix + v, black. no marks below the region white with feet.



Tubercles all black, setae not very fine white.

649

With preceding but on expanding not the same. Sclerites, well shaped tubular like on the young leaves. Head & large smooth shield all shiny black. 1 mm. The feet black. Body brown & white but different. a double brown lateral line the lobes well separated (8-d, below ii and ~~surpassing~~ iii) but connected by seg. oblique bands, the 2d pair also connected over dorsum by a broad irregular band in the center of each seg. which avoids tubercles i and ii. Venter white. Anal plate nearly black. Tubercles very small, dusky, setae pale. Joint 3 entirely chocolate brown, the outer edge of 4 white. and on 13 tends to be produced into a d. line.



650

Like 649, same but 3 white ant. instead of all brown, 4 also white ant. Three straight brown lines on each side, ad-dorsal (above i), subdorsal (below ii), subventral (below iii), all the rest white. Maxillary feet, head and legs ochraceous black, w 1.1 \pm Tubercles small, black, setae white.

Ant July 7 1897 Cat. no 12827

651 = 534 = 25

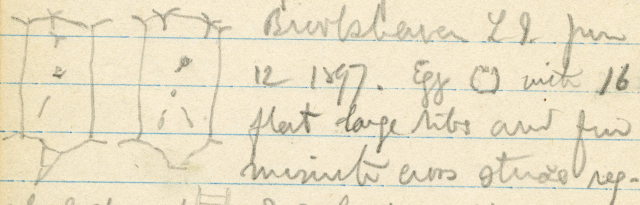
Egg black leaf white oak Receipt 29 June 1897
 $\frac{3}{5}$ Spherical, base flat, slightly shiny white, not
 fine of grey and not very greenish. Pts hexag.
 indistinctly distinct, regular, cell areas dark on
 the light side. D. 1.2 H. 7. Like 646 but white.
 Hatched June 13 all green, looks like Madata.
 Setae pale, no tubercles nor anything else
 dark. Head a shade more testaceous than
 body, large, higher than 2.

Shed June 18 Hd 1.4 (sh. hd. 7) Green with
 yellow sd line. See 534

Shed June 23 Hd 2.2 (sh. hd. 1.4)

[But Madata. Put it out]

Skipped on hickory in folded house



Burlington 28. June

12 1897. Egg C with 16

flat large ribs and fine
minute cross striae rep.

ular, spaced. D. 8 laid on upper side

Shell white. Larva Hd. 4 orange, sheathed
rounded, slightly bilobed, the simple coarse
white setae with enlarged tips. C-sh
small faint orange. Body greenish yellow
a light orange tinted, seg. 5 annulate, skin
punctured, setae white, glandular tipped
i and ii fuscate. joint 2 not small.

(Do not see viii on thorax or abd.)

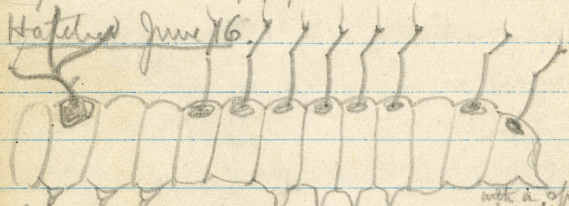
Shed June 16 Hd. conical lobed, large black, rough.

Neck small, body all ochre yellow. Root hd
body with numerous short 2 setae with enlarged
tips, white. Hd. 6 Body seg. fine annulate, not
shiny, no marks, neither shield nor plate dif-
ferentiated. (dormant).

653 = 110 = 64

Horn? egg on Hickory, New Haven L.I. June 12
1897. $\frac{2}{3}$ spherical, regular, large, semiopaque
pale green, dull, not shiny. D. 1.4, H. .7 mm.
Ret. small regular hexagonal the pit
rounded cancer like, giving a shine in one
side as well as discolor on light side;
edges not sharp, pitted rather than reticulate.

Hatched June 16.



Regular "horns" and 3 times a cth here,
these i 5-11, 12, 13 of equal length.

Horn 1 plate here. Body yellow, and streaked
on the sides and around i 5-7, 12. Anal
feet divergent long. Hd light brown.

Larva distinctly yellow dorsally in two places
and the sides beautifully finely streaked in
red lines. Shed June 20 = 110 (no 28) Shed June 23

Hd 2.2 \pm (Pl. hd 1.2) Horns 4 pranged $\frac{1}{2}$ (But not)

Cent Aug 3 1897 Crippled ♀ *Helioconia unicolor*
654

Very large Notodontid? egg on Black oak
(*Q. tinctoria*) Reelfort, June 13 1897. Slightly less
than hemispherical, base flat, 1.4, H. .6 green
around the base, the whole top covered by a
very large, irregular edged rim horn
plate. Ret. broad sharp flattened and
shiny, hexagonal rather sharply angled
and somewhat irregular. Cell area not shiny.
The pigment is in the egg, not laid on outside.

June 14 pigment broken up by pale patches

Hatched June 16 Five "horns" with 4 thin antler
and all the i 5-11, 12-13 of equal length,
long and large as *brundata* (653) Hd, 5

pale horn tubed. Body predominantly pale
green, slightly yellowish. A narrow red line lat.
line on thorax giving a dorsal horn band on 5;
a band across 7 containing a lat. spot of green color,
a faint lat. red rim on 9 and a band on 10 and
11 like the one on 5. This feet black, legs and
anal pl. dark brown. Horns on 2 and, the

Prepared 3 a narrow black line in valley each lobe.
Lobes antequam, but tapering above. w. 3.5 ±. Chaper light very
thick, smooth, rounded shiny black, thin at base. Body
flesh greenish, orange tinted, broad velvet brown d. 7-9, then
thin black, the highest are serrate & spread
on its upper side. Body brown with antech
black, later pale joined in one plate except

on 12 and where there are no horns. Several
ri absent, several on leg plates. Anal feet cloudy.
Note the round spots around in between distinct white
the surrounding. There is a general round mottled character.
Brown gets more distinct and refined and last.
mottled spots on all the segs.

Shed June 21. Some! Hd. covering higher than 2, not high, brown
a dark brown on each lobe before joining above. Venter
squamish, not mottled. w. 1.2 mm. Body yellow & venter
brown. A narrow yellow d. line widening into a rounded spot
5-11, 13, forming a V mark on 11, absent 12. A yellow s.d. lat.
spot on 3rd, large lat. spot 8-13, mottled yellow and
brown s.v. brown heaviest on sides 5, 7, 10. Leg plates black
esp. Short thoracic c-horns 3-cusped & pale acanally with
brown tips. Anal feet long, dark brown elevated.

Later 8-9, 12 arches Heterocera-like and a pale Δ patch
dorsum itself 5-7 and Δ 9-11. Shed June 26. Hd. light
reddish, not lobed, ground yellowish white blotched with brown
shades, a broad dark chocolate band from base of antennae to
back of each lobe, subline brown w. 1.8 mm. Short c-horn with one large
and 3 small cusps a tip reaching above top of head colored as before. Body
chocolate brown & pale yellow, very mottled. Dark d. band 2-13, widest & en-
closed pale patch spot 7, a broad oblique band on 10 & 11, one broken on
10 & 11. hatched on 9 running to 11 s.v. joining with hatching, a faint line
to 10 on 10; d. patch 11-13, widest on 12. Pale part of sides and the
d. pale spot mottled with lighter brown bands, confluent together
with the markings breaking the pale color into rounded spots.
and feet up. 12 all red enclosed. Later patches between horns 2
d. 4-7 and 7-12 white with red band, sides solid greenish yellow.

Shed June 27. Hd. below 2, hatched 7-10 high leaving
horns as before Hd 2.8 whitish with
single images both sides horn line. Dark horn row, rough mottled, shaded
4, 7, slightly 10 and d. 4-seg. white patch 2 below horns 4-7, 9-11
with smooth red centers lines. Spot of patch obscurely furnished
and diffuse just along on sides 9-12.
Shed July 5. Hd. creamy white at face, ground white on side

and all another & shaded with brown dots esp. on
band 3-5 d. to 4-joint. 6-8 d. to 7-joint and shading on
each seg. obliquely 7-8, 9-9, 8-10, 9-11 and last 9-12
the one ending d. patch. Below horn a round white
patch; then a diffuse mottled d. band widest and enclosed
acutely d. patch 5-7 with central double brown ellipse
just all dark red down 6-5-5

Apertate egg on *Quercus* Redfoot VI. 13
Flattened segment of sphere D. 1 mm, H. .3 mm
Circular, ribbed 45 ± free, not chinked
in number till $\frac{1}{3}$ from apex when the
alternates end free, then passing
in bending somewhat, ending in a circular
ridge around the micropyle M. reticulate
highest in the center. Ridge waves the
grooves between likewise waves; no striae.

Hatched June 16 Whitish, colorless, a large pupil
brown d. spot on 2, 4, 5, 8-9 and small on 12
Hd pale with a similar spot on each lobe
mouth brown; w. .3 mm. Tubercles large & dark
minors smaller elsewhere, normal, single,
slight i-iv black, v white & small white
seta on pale leg plate. On-thorax ia + ib, dark
ii a black ii b small, pale as above.

Shed June 21 Hd whitish, a brown spot above and 2 below
on the face of each lobe. w. .4 Body white, dorsum
dark purple brown 2, 4-5, 8-9, 12, that a

Another creamy patch 9-12 with centenary double line the
patch differs from first, dovetailing into a forest
from d. line 12-anal. patch. Anal feet up

2 double, with conic with a crown of glandular
tipped hairs and central long setae, 2 setae on i-
i-iii black. 2 hair black in spot, white on white
ground. Hairs 9 xi pale and translucent. Gate spot
on head outlined behind, leathery point of lobes marked
white, green and brown of white d. patches on the pale
eye. July 25 Hd .8 white, 4 brown-black spots in front
and a streak on wing of back. Brown d. patch on
2, 4-5, 8-9, 12 annulate, 1 faint 5d line, evanescent
white spots present in isanures. Setae whitish.
Not same dense glandular 2 hair also from skin
St IV June 29 Hd 1.5 square lobes, apices reddish, pink
whitish & large black spots in front and another
on sides. Red whitish, dorsum line III all shaded with
dark brown, hairiest 2, 4, 5, 8, 9, 12, the other segs.
yellow; a broken pale d. line. Hair black & white
8-9, the point of a both long come back and body glandular
tipped and concolorous with the marks. Gate dorsal
more brownish leaving behind broken pale d. set line, yellow
pale annulate on 3, 6, 7, 10, 11, 13.

St IV July 2 Hd 2.2 whitish with brown mottled dot
hardly repugated into the 4 face spots which are more
confused. Apices light red. Body gray finely
dotted the light segs. yellowish center segs.
but not markedly contrasting. Yellowish white
d. and 5d lines. Hairs few & dark d. abundant
with the white s-v nos. the skin d. with a few
space black spinules. Whit hairs all spin
minuted, few [cf. lobeline]

Shes July 7 Hd 3.5 - they little blackish 5 & 12 d.
End July 12 Hd 5.5 Same. (Sp. hd. 4.2)

Grows into a fine lobeline July 16
(taken for spines)

Egg Sent D. Packard 28
9m 656 (eggs) 108
9m 656 A 136
9m 656 B 78

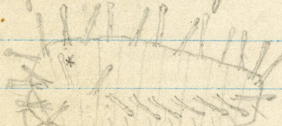
Range June 10-18
67% out

$$656 = 256 = 121 = 12A$$

Packardia geminata (geminata) out from cocoon
June 10 1897. Night 10-11, 11-12 molting came to
Cape at 9:30 P.M. Night 12-13 left cocoon
288 in A.M. no mated. Egg, night 13-14.
♀ did not fly till after mated.

Egg. Rather narrowly elliptical, flat as
usual, translucent whitish. a glass, singly
shiny like a wet spot on back of leaf. 1.3 x .7
x .1 mm. Ret. rather distinct all over egg but
very much rounded like circular configurations
shall be pit varying a little in size.
The elliptical granular translucent center is
surrounded by a transparent narrow zone.

Embryos follow similar course to *Eupocys* 626
Began to hatch June 26 about noon. Ranges,
Hd pale yellow, segs blackish smooth shiny



Thick, tail rounded, spines
all of moderate width
s-v small. Translucent
whitish. Spine transparent
short, clubbed tipped @ 5, 7, 9 leaving out
and @ 5 up. 2 not much retracted a
large coil with several setae. Spine

656A Another ♀ ant June 13. Mated night 13-14 with ♂ from cream. Sad eggs night 14-15 but only two about 25. None 15-16. First hatched June 27.

656B Another ♀ ant June 17. Mated night 17-18 with ♂ from cream. 78 eggs night 18-19. Hatched

all alike no knots. Dorsum and sides a little

green, the segment ridged. Skin smooth. Light paired seg. hollows shiny in first light near the center of d. groove.

Another shows ants on O very slight and near base of joint 4 has all 3 setae white 3 has just.

Seta 3 is erected from basal 2/3, coracium incomplete. (The spine is clear single while it is a pair in red-cuts, narrow setting)

Alternation in O very weak near straight line.

July 2-3 Rache elongate elliptical tail rounded quadrate, 3 truncate. Space normal.

July 4-5 Rache elongate, the dorsal side concave, grooved. No reticulae, 2 head 20. Setae dark, at

July 6-7 Rache elongate, 2 in O and only on on lat. of 4. Skin rather

July 8-9 Rache elongate, 2 in O and only on on lat. of 4. Skin rather

July 10-11 Rache elongate, 2 in O and only on on lat. of 4. Skin rather

July 12-13 Rache elongate, 2 in O and only on on lat. of 4. Skin rather

July 14-15 Rache elongate, 2 in O and only on on lat. of 4. Skin rather

656A 656B

late L R L R

June 28 95 cat
" 29 1.2 "
" 30 1.5 "
" 31 1.5 "
" 2 1.4 "
" 3 1.4 "
" 4 1.6 cat
" 5 1.5 cat
" 6 1.5 cat
" 7 1.5 cat
" 8 1.5 "
" 9 2.0 "
" 10 2.2 "
" 11 2.1 "

June 12 2.5 cat
" 13 2.1 "
" 14 3.1 cat
" 15 3.0 "
" 16 3.0 "
" 17 3.6 cat
" 18 4.2 "
" 19 4.8 "
" 20 4.6 cat
" 21 4.6 cat
" 22 5.3 cat
" 23 5.3 "
" 24 6.1 "
" 25 6.6 cat
" 26 6.6 cat
" 27 6.6 cat
" 28 6.6 cat
" 29 7.0 cat
" 30 7.0 "
" 31 7.4 "
" 2 8.3 "
" 3 8.3 "
" 4 8.3 "
" 5 8.3 "
" 6 9.6 cat
" 7 10.1 "
" 8 11.5 "
" 9 11.5 "
" 10 12.5 "
" 11 11.8 "
" 12 11.1 "

June 12 2.5 cat
" 13 2.1 "
" 14 3.1 cat
" 15 3.0 "
" 16 3.0 "
" 17 3.6 cat
" 18 4.2 "
" 19 4.8 "
" 20 4.6 cat
" 21 4.6 cat
" 22 5.3 cat
" 23 5.3 "
" 24 6.1 "
" 25 6.6 cat
" 26 6.6 cat
" 27 6.6 cat
" 28 6.6 cat
" 29 7.0 cat
" 30 7.0 "
" 31 7.4 "
" 2 8.3 "
" 3 8.3 "
" 4 8.3 "
" 5 8.3 "
" 6 9.6 cat
" 7 10.1 "
" 8 11.5 "
" 9 11.5 "
" 10 12.5 "
" 11 11.8 "
" 12 11.1 "

June 12 2.5 cat
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" 14 3.1 cat
" 15 3.0 "
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" 17 3.6 cat
" 18 4.2 "
" 19 4.8 "
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" 21 4.6 cat
" 22 5.3 cat
" 23 5.3 "
" 24 6.1 "
" 25 6.6 cat
" 26 6.6 cat
" 27 6.6 cat
" 28 6.6 cat
" 29 7.0 cat
" 30 7.0 "
" 31 7.4 "
" 2 8.3 "
" 3 8.3 "
" 4 8.3 "
" 5 8.3 "
" 6 9.6 cat
" 7 10.1 "
" 8 11.5 "
" 9 11.5 "
" 10 12.5 "
" 11 11.8 "
" 12 11.1 "

June 12 2.5 cat
" 13 2.1 "
" 14 3.1 cat
" 15 3.0 "
" 16 3.0 "
" 17 3.6 cat
" 18 4.2 "
" 19 4.8 "
" 20 4.6 cat
" 21 4.6 cat
" 22 5.3 cat
" 23 5.3 "
" 24 6.1 "
" 25 6.6 cat
" 26 6.6 cat
" 27 6.6 cat
" 28 6.6 cat
" 29 7.0 cat
" 30 7.0 "
" 31 7.4 "
" 2 8.3 "
" 3 8.3 "
" 4 8.3 "
" 5 8.3 "
" 6 9.6 cat
" 7 10.1 "
" 8 11.5 "
" 9 11.5 "
" 10 12.5 "
" 11 11.8 "
" 12 11.1 "

June 12 2.5 cat
" 13 2.1 "
" 14 3.1 cat
" 15 3.0 "
" 16 3.0 "
" 17 3.6 cat
" 18 4.2 "
" 19 4.8 "
" 20 4.6 cat
" 21 4.6 cat
" 22 5.3 cat
" 23 5.3 "
" 24 6.1 "
" 25 6.6 cat
" 26 6.6 cat
" 27 6.6 cat
" 28 6.6 cat
" 29 7.0 cat
" 30 7.0 "
" 31 7.4 "
" 2 8.3 "
" 3 8.3 "
" 4 8.3 "
" 5 8.3 "
" 6 9.6 cat
" 7 10.1 "
" 8 11.5 "
" 9 11.5 "
" 10 12.5 "
" 11 11.8 "
" 12 11.1 "

June 12 2.5 cat
" 13 2.1 "
" 14 3.1 cat
" 15 3.0 "
" 16 3.0 "
" 17 3.6 cat
" 18 4.2 "
" 19 4.8 "
" 20 4.6 cat
" 21 4.6 cat
" 22 5.3 cat
" 23 5.3 "
" 24 6.1 "
" 25 6.6 cat
" 26 6.6 cat
" 27 6.6 cat
" 28 6.6 cat
" 29 7.0 cat
" 30 7.0 "
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translucent whitish green, a faint white line under each sd ridge not reaching the extremities. Skin covered with remote, small, low conic granules, no spine angules over on the tubercles. Depressed spaces small, shallow, not sharp edged, smooth in bottom. Shed July 13 whitish green, a white line under O a little wavy. Setae stiff, black tipped, skin skin rather densely low granules. Dep. space very obscure. Tail produced, a little tapering and slightly notched. Late sd line yellowish and white irregular ring. Shed July 20 Ellip tail tapering a truncate produced tail. Tubercles isolated, rather small, not forming the ridge. Sd line yel-

July 26
1897

6 Ground white 3-13, not dark edged; (1) dots
white 4-11; (4) white ringed center. Hair green
4 hair, nearly contiguous, covering the def. space.
6 Still lighter not as sharp, not tail, tubercles
4 clear, setae small and obscure, perianth
6 dense, not quite contiguous. Whitish green,
4 @ line converging, free, (1) (4) as white dots
6 [656A shed July 19 different. Ridge rather
markedly tubercular with distinct line,
dark setae. Shape about the same, but
much less prominent, not (black) whitish
green, clearer. Def. space as white dots, (1)
4 (4) with green center. 8d line white 3-
tail without distinct edging. Skin greenish
dense, clear, about the same.]

Aug 3 10.8 ant
" 14 10.1 " | Aug 5 all livid to spin.

[656A shed Aug 6. Glabrous dots all pale
than ground & pink. No setae. Aug 11 all
livid greenish, still eating. To spin.

657 = 594

An Arctia in the white sand in piney
woods Brookhaven June 18. Body uniform
dull gray, waist and plate black. Hair
stiff, black, short and uniform except
from ii thorax, iii abd leg and 13 where it
is long, forming a curious ridge of hair
the whole length on the middle of each
side. Hd black above, setae brown, w
1.6+ Shed June 28 Hd 1.8 (sh hd 1.6+) same.
Imago July 23 1897. Crocota opella
mated with ♂ in cage w/ 25-6.

Calc. .27 .38 .55 .78 1.12 1.6

Sept 15
1897

658

Egg laid by ♀ *Pyromorpha dimidiata* from
Cushbaven June 18, 1897. Elliptical, ^{flattened}
above & below like flattened egg with
more elongate cylindrical than those.
White, moderately shining but looks soft
& thin skinned. L 1 mm, height & width .6
Rets. distinct, regular, much rounded, in
series of contiguous circles. Hatched July 1
Hd rounded, black; body thick, slightly flattened
grayish white, hair straight, pale, rather
numerous. Tubercles conical. W.S. ± vent.

low, a group of hairs from the
tubercles bases, colorless,
finely dotted spinulose, a
few hairs at base of each ①②; 1 Spm. finely
spinulose. Hatched at back of oak etc
Sept July 13 Hds 4, retracted black shaded
over vertex lobes ① pale, minute pointed, brown.
Hair numerous from large lobes ant. oblong
pale & short, black tipped. Vent colorless, body
smooth, the appearance gray. No wrinkles.
Feet small, hairs diminished with basal bulbs.

659 = 658

Apatela eggs on *Q. coccinea*, *Q. tinctoria* (4)
Cushbaven June 19. Low rounded & circular
flat, distinct, 45° tilted to ring at vertex.
Pale, wavy, non-confluent, diminishing $\frac{2}{3}$ up
L 1, h .3 mm (Like 655) Translucent white.
Hatched June 21 Like 653. q.v.
Shed June 25 Hd .5 Like 653. 1 with 2 hairs.
Shed June 29 Hd .9 Like 653. III

(Next ant)

658 was eating the dead browned part of a black oak leaf, pinkish
on feeding darker, gray from desiccation of cell, cannot
take a faint whitish red line along ① seen against the
dark ind. D. numerous dark brown & line and trace of
smoother, a rich yellow & pale line. C-sh brown
Sept July 20. Hds 7, light brown with large black eye;
strongly retracted. Red thorax & extant, densely hairy
C-sh large exposed dark brown and nearly asped
color dead leaf grayish to dark brown mottled.
line vent tub. flat but very large, ①-③, hairs
rather pale but in general concealing, stiff, short
pointed with clear basal bulbs the spinules
being especially ring, representing the hair
curiously ($\frac{1}{2}$ in. sh.). Skin dorsal minute spinulose
the large patch vent gave the appearance of
small faint pale s.d. cell. Hairs dark
late straight & broken led, dark brown line defined.
Sept July 31 Hds 1 in. w. less light brown eye black
capped & curved large dark brown C-sh. Stiff
as before, large great vent pale, the

660 = 655

Apatela egg on *Q. celsa* Brookhaven June 19 97
Low curve Δ flat at base, 45 \pm -ribbed or
rather grained, wavy, no cross striae to an-
irregular microphytes ring. Ribs diminishing
in two series, none confluent. D 1.0 H. .4 mm
Nourishment white Hatched June 21 Like 655.

Not too dark marks faint, mostly confined
to the large units. Setae i-ii black, rest pale.

Shed June 25 Hd .5, four black spots. All
like 655 II g.v. [Jaws more from eggs
like 659. Hatched June 25 mouth white, the
dark marks just indicated as faint shades.
Later spots quite distinct]

Shed June 29 Hd .8 mm Like 655 III and IV

(Part next)

hd above as chirolobo shown narrow line
H and S d. Hair abundant, short, white,
a little longer on and at ends. Bulb small
at very bases of the hairs, shafts represented
black tufted. There are no transverse bands
as between the vent the body is not very dark
shiny. Aug 10th Hd 1 mm all same. Short appressed
clumpy hairs with basal bulbs. Vent shiny

661 = 655

Apatela egg on *Q. celsa* June 19, rounded, subcylindrical,
low, flat at base, trans. white \pm 60-ribbed
sub-confluent diminishing, the ridges beaded
fine rather than wavy, no cross striae.
Microphytes are irregularly ringed. D 1 H. 3

Hatched June 21 Like 655 g.v.

Shed June 25 Like 655 II. 2 setae from i Hd .55

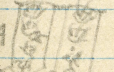
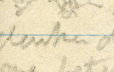
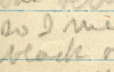
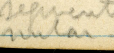
Shed June 29 Hd .8 Like 655

(Part out)

in large pale grey areas which are of dark
brown stage it dark, very red and broken
stipulated lines. IV region. Pale brown
indistinct dark, obscure connecting bands.

2 pale i front, dark behind, covering head.
The rest of units the S-V series. Feet pale.
Hd brown eye black. Aug 28 L 9.5 W 3.5 H 3.2

To shed Aug 28. Uniformly dark purplish brown
close color of dead rotten leaves.

A    
Giant large but hair very short and
all curled brown vent area pale
pale and no marks but a faint
darker dorsal line and irregular white
one between units D and E. Hd 1.5? (calculated
as I measure head & allow for skin) 2 large
black on top. Skin minute of shagreen. Hair
represented. Sub-banded, a slight obscure an-
nular enlargement about at very base of

662

Apetale egg on wild cherry, circular, lens rounded, trans. white. D. 1.1, H. .25, rather coarse, ± 40 ridged, subimbricate dimpling, scarcely raised, smaller at microphyll which is reticulate, flat, without rim.

Hatched June 24 White, colorless, prod green. Hd whitish 3 mm. Setae, black, the rest white, single i-v and leg plates, spinulose.

shed June 27 White, prod green, hd 5 mm. low conic, stiff setae and crown of small smooth tipped hairs spreading off at apex 2°. Central seta; black, all else white.

shed July 1 = Hd 1.1 body brown a dusky patch behind each eye. Green on sd white line, joined in patches before i and ends behind 5-12. Hair pale, few branched small hair glandular tipped. shed July 5 = Hd 2.2. Hair heavily shagreened, a cal tube standing to posterior apex, yellow sd band 2-13. Sclerites in with brown on each of 3-12, the edge of yellow reaching 6. Sclerites few dark, last plate + 5 v. 2°. No granular hairs. Skin with clear long sparse spinules but very little 2° hair density. 12 high.

shed July 9 Black with red dorsal line of dashes 4-11 edged velvety black. Hd. black 3.6 mm. Hair; black, rest pale with grey hair. Abundant distinct long 2° hairs from tubercles.

663 = 646

Notidonts egg on P. coccinea like 646 but shiny and with larger reticulations. Diam 1.2, h. .6 mm. flattened, rounded O distinct. Smaller at base. Not hemispherical, shiny pale green, translucent and looks rather like a drop of water but opaque. Ret large, distinct & narrow, hexagonal, dark in the bright side light ($\frac{1}{2}$ in obj.) while the flat cell areas are shiny.

Hatched June 26 Like 646, but hairs; on 5 widely divergent, the rest erect as in 646 4-branched antler a 2, 5-10 if from unpaired plate, the hair shorter post; 12 from paired plate, long, 13 short. Body narrow red, a back lighter 11 d. Hd high, rounded brown, pale on 5, w. 5 mm.

shed before July 3 Hd 1.1 brown with darker brown vertical band. Body brown and a side streaks 4, 7, 10. A narrow white d line and yellow sd are broken at 11. No

harmish with trace of brown dotting.
Red, arched dorsal horn, a dull ground
with reddish brown markings. Dark narrow
d. line; indistinct narrow sd and lat. line.
broken into dots and mottling. S-V region dotted,
without defined line. Tubercles small, black.
Setae very short, pale, slender tipped, i-vi, and
several for legs plate, normal, ix stippled: vi
and a few at ends are blunt tipped. Feet small,
normal, 12 slightly enlarged; length $6\frac{1}{2}$ mm.
Hints the dead leaves by a soft web.

Jul 21 Hds 6.0 fine brown reticulate. Smooth
Body mostly mottled with yellowish and
dark brown pattern as before but more
mottled. Just the color of dead hind leaves.

Aug. 27 Hds 1.7 All leaf brown, yellow green
finely reticulate with dark red brown
uniformly, nearly the red much a faint
brown dorsal line. Tubercles small, black.
Setae inconspicuous vi & vii white, coarser.

On sand Sep 10 (Sh. hd. 1.4) new hd 2.1

another hd 1.1 (Sh. hd. 9) Like stage 1.8

Calc. .57 1.82 1.17 1.67 2.38 3.41 $\frac{1}{2}$ 7.0 $\frac{1}{2}$ 7.0

Car. no. 15014

665

Out Apr 20 1898

Fifth apatite on white oak I Barkhara II 21
All whitest translucent, setae all white except
2 on cth, single, pointed, no subprimaries.
112 □. Feet greenish, tubercles large, white. No
marks. Skin with fine sparse granules $\frac{1}{2}$ in
dij. Hd. 3 arched whitish slightly testaceous.
Shed June 24 White, sharp bilobed .4 mm. Body
colorless, feet green, tubercles white, high, with
central setae and crown of about 4 shorter
but equally thick ones. ix & v single, not
high, vi of two small setae, not high, 1 style

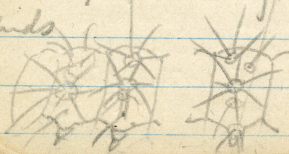
June 28 Hd. 7 Whitest, body faintly greenish, hairs
slender, long smooth, ^{conic} all white with central setae
and small ^{basal} hairs, all white i-iii, iv small, v
single hairs, vi with several long hairs. No cth seen
except faint 5-v on 12-13 (cf 6108)

Jul 3 Hd 1.8 whitish i, ii tubercles esp. yellow, head
below i. Body greenish, tubercles yellow but more dark
dorsal i-ii. Hairs white, single with short hairs of
crown. Just Hd 2.5 pale whitish, granular, a small
brown reticulate streak a coaly like above. Tubercles
large, 1 haired with tiny crown yellow with d, sd
& lat. rows of yellow spots. Head reddish, faint red-
dish tinted. Shed Jul 12 Hd 3.4 Setae single
Like 15 A g.v. g. 20 del dark brown to J. Tubercles
white, contrasting.

666 = 119

Eggs on *Q. tinctoria* *Aspidobacca*, hemispherical with flat base with distinct radial ridges, diminishing above and ending by becoming flattened to surface of egg near micropyle. Number 28 ±. Reticulation distinct, rather squarish, a line at vertex of each rib and one in each groove and slightly more, the cross ret. form striate all equally distinct. Ret. smaller at micropyle. Pale whitish green, a black dot at vertex and narrow concentric ring $\frac{1}{2}$ diam. irregular or broken. D. 9 h 45 mm.

Hatched June 23 Fastened two leaves together with a few silken cords. Flattened, the legs spreading; hd rounded, whitish 5 mm Body whitish, green from food, csk reddish and a series of red spots (iii) distinct, ventral absent behind 7. Hair long, white, esp. long at the ends.



Many haired warts present, hair black & white, spinulose.

Box 2 more eggs also on *Q. tinctoria*, same but all pale whitish green. Note the ring and dot appears at first narrow red.

the long ones *Aspidobacca* ventral. iv absent and vi absent. Skin spinulose esp. d.

Shed June 26 Hd .8, all pale whitish. Body whitish, feet dark, against which a whitish sd line is defined. Five dark red sd spots as before. Warts pale, large & rounded esp. sd on 2 which is *Aspidobacca*-like, tall many haired. vi present. W. iv? Hair black & white. Late spot fainter than a thorax gone. Shed July 5 Hd 1.4 Red spots gone, head with black markings = 119 (put out) Red spots indicated on 5 & 6.

Range June 23 - July 2
50% out.

667 = 252

Packardian elegans (elegans) ♂♀ out June 23
1897. Mated night 23-24, eggs 24-25.

Elliptical flat, 1.0 x .6 x .1 mm colorless
whitish translucent. Retraculation distinct
irregular quadrangular, narrow, raised.
In the bright light ($\frac{1}{2}$ trial stop) with green
lamp behind they appear as narrow black
lines bordered by a bright area on both sides,
the front cell areas dusky, grayish.

Hatched night July 5-6 just like *P. geminata*
Spin on 3, 2-2-1 4 1-1-1, 5-12 1-1, 13 2 all
short, irregular knobbed tipped. Branches of
O very short, just distinguishable as slight
protuberances. Elliptical rough, dorsal
and side grooved, s-v sp. small. Ridges
smooth, setae colorless. Body shiny, skin
smooth, colorless transparent. Jaws green
Head concolorous.

Short July 4 Albino, not shiny pale whitish
just tinted with green, translucent. Skin

667A ♀ out June 27. mated 27-28 with ♂ of same
day [29 of ten days would not mate, but begged]
Eggs night 28-29. Hatched July 9 (night 8-9 a few)

667 Sample
D L R

July 6	.9	eat
" 7	1.0	"
" 8	1.3	"
" 9	1.4	"
" 10	1.4	tail
" 11	1.5	hide
" 12	1.7	eat
" 13	2.1	"
" 14	2.0	still
" 15	"	both
" 16	"	"
" 17	2.1	still
" 18	1.4	still
" 19	"	dead
" 20	"	"
" 21	"	"
" 22	"	"
" 23	"	"
" 24	"	"
" 25	"	"
" 26	"	"
" 27	"	"
" 28	"	"
" 29	"	"
" 30	"	"
" 31	"	"
Aug 1	"	"
" 2	"	"
" 3	"	"
" 4	"	"
" 5	"	"
" 6	"	"
" 7	"	"
" 8	"	"
" 9	"	"
" 10	"	"
" 11	"	"
" 12	"	"
" 13	"	"
" 14	"	"
" 15	"	"
" 16	"	"
" 17	"	"

gate elliptical, narrow, the tent
narrow, quadrilateral. Ridges
slight, non-tubercular, the
setae 2 on 1, 1 on 2, 1 on the
middle row of 4, black tipped and
with short expanded bases. Skin
granular small spines, low conical,
clean, setae everywhere, most
produced on the ridges. The largest
depressed spines (1) and (4) are in-
dented as slight hollows.

July 17 elongate elliptical,
resembling *quadratus*, tent smaller
not produced. All fringed
whitish scarcely tinted with
green. Setae distinct, sharp.
Black tipped arising from
slight tubercle on 5th ridge

distinct conic sep. on lat ridge. All
 of skin surface and tubercles covered densely
 with small low conic clear granules, all
 uniformly ^{over} over the obsolete d. spaces
 where they are scarcely thinner. Granules very
 numerous, almost contiguous, but small, not
 apparent. They give the frosted appearance
 d. space broad, not narrowing much, lat. moderate
 very colorless, translucent, blood even scarcely
 green and no pigment. Unusually narrow
 [Lat] ~~thin~~ ant. of the leg seg 24 3.2, 3.5 - cat
 narrow, elongate, truncate before; tail
 prominent but tubercular like the
 ridge. Frosted whitish from the granules
 and is slightly opaque, almost entirely
 without pigment, blood visible pulsating,
 slightly green tinted from blood; an obscure
 whitish dot under the sd ridge at end
 interspace representing s-d line. Setae short,
 black distinct. Granules small, even
 dense, conic, but not quite contiguous,

running uniformly over whole surface;
 d. space broad even in distal angula
 short just as above.

Shed Aug 1. Small granular greenish, flexible.
 A very white @ line, no pigment. Tail
 produced, notched at end. Setae short dark

Shed Aug 7. Nice very sd line looking clear
 pigmented d. space, upper $\frac{1}{2}$ of side
 pigmented, (4) dark. Setae small
 Tail produced, notched at end

Shed Aug 14 Last stage. Setae white, but
 ridge very. Patches of pigment
 in d. space; upper $\frac{1}{2}$ side pigmented
 as before. Taint reddish on tail.

Aug 19 13.5 cat
 " 20 10.5 "
 " 21 8.5 pin

Aug 21 Small emerald green
 to spin.

Shed July 10-11. Pale whitish green, a brownish patch shell and hind foot. Body with a white line along each ridge. Setae distinct, black. Skin granules sparse, conic, becoming true 2^d setae on the ridges.

Depressed spaces broadly indicated.

Shed July 16 a very distinct yellow sd. line from end to end. Green d. from foot and 1/2 as round pale dot with green center, recalling fasciae. Very spring setae, the primary setae dark. Side pale watery, obscure green. Dorsum granular, D ridge with few 2^d setae. Tail squarish, spring.

Date	W	R
July 22	3.7	cut
" 23	4.3	"
" 24	5.1	"
" 25	5.5	both
" 26	"	"
" 27	"	"
" 28	"	"
" 29	6.0	cut
" 30	6.1	"
" 31	7.0	"
Aug 1	7.6	"
" 2	8.4	"
" 3	8.0	both
" 4	"	"
" 5	"	"
" 6	9.0	cut
" 7	9.1	"
" 8	10.0	"

Shed July 22 Eating whole leaf.
Green, filling in with whitish pigment d. sp. c. suff. 1/2 cut.
hind leaving a clear dark line to the free yellow sd. line, which is broad, distinct granules denser, not quite cut-up, conic, sun 2^d spring

on C more on D ridge. (1) c/4 has white dot (1) with green center.

Shed July 29 granular, sparse on ridges, setae large. Whitish green, broad yellow sd. line edges dark above, nearly meeting at ends.

Tail notched at end by two teeth, Def. space as white spots. Eating whole leaf.

Shed Aug 1 - no setae. Whitish pointed.

Sd. line white, distinct. Aug 13 getting high

Aug 9	10.2	cut	and thick.
" 10	10.8	"	
" 11	"	"	Sparse Aug 13
" 12	11.2	"	
" 13	10.6	"	

669 = 558 C

Little code I on chestnuts Bronx Park, N.Y.
July 2 (1897). Eggshell, elliptical, flat as usual
1.1 x .7 skin colorless white. (can't see sets.)

Stage 1. A Y-back, differs from T. pallidus in Y's
being smaller and all in line or nearly
so, not strongly alternating.

XXXXXXYY. Rounded, elliptical, tail round,
all colorless, skin smooth,
defined a little paired of segs. Setae pale,
head colorless, eye black, retracted. 2 nearly all
retracted. On joint 4 are five setae. Tips not
distinctly swollen. and limbs of Y's
a little shorter than post. limbs.

July 5. Narrowly elliptical, tail
rounded quadrate; dorsum
flat a hump, ridge sharply
angled, smooth, regular, all the
depressed spaces large and very
distinct. Side concave, lat ridge
smooth, s-v area retracted.

B.	L.	R.
Jul 3	1.4	with
" 4	1.3	to hind
" 5	1.4	to hind
" 6	1.5	cat
" 7	1.7	"
" 8	1.8	"
" 9	1.8	to hind
" 10	1.9	Ab21
" 11	1.9	cat
" 12	2.2	"
" 13	2.3	"
" 14	2.4	to hind
" 15	"	"
" 16	2.6	cat
" 17	2.9	"
" 18	3.2	"
" 19	3.2	stuck
		dead

Covered with smooth, dense, finer appressed
granules, uniform, not papillose anywhere
even on lat. ridge. Setae absent. All colorless
opaque whitish. Depressed spaces (1) to (6) present
humps on latitudinal ridge (now, appressed) ~~among~~
Late, distinctly pale green.

Shed July 10. Rounded, broadly elliptical, sides cir-
cove as the dorsal stands up as a undulating
hump area, gently arched 3-13. Tail slightly notched
off, rounded. Dep. spaces very distinct, O O very large.
Dorsum elongate, deep sharp edged. Lateral
ridges beaded into the clear appressed granules,
in the narrowest part but 1 granule wide, usually
more. Bottom of dep. spaces finely granular dotted.
D with shallow crata-like center. Color all
pale green, slightly tinted by the granules.
Granules uniform, low, monilose papillose.

Setae a faint yellowish bar on 8. O O not permanent
Late a distinct sep. dotted yellow line along O Sta
5-9 like 671 C III. 2-15 but faint reddish spot on bridge.
just a hint and hardly visible.

Shed July 15. Like 671 C II yellowish line 4-10. and red.
July 16 a rounded pale red patch between hump, surrounding
the depressed spot 7-8 and receding to there before 10.
July 17 red dot encircles an O line (but is also red)

Hds 4 mm. Green, d. band white a little dusky
chocolate brown (induced by pale yellow
3-13. Dark brown dots 8, 9 at 1

670 = 559

Apatela in chestnut = *lithospila* at
Fitz Lee July 2/1897. One of those less than
Hol 1.2 described (see 559)

Hol 6 all greenish, a faint brown patch
d. on 5, 8, 9, and 12. i with 2 setae, the
other single and plume of short glabrous
lipped brown above on dark segs, pale
on the rest. vi with several smooth hairs.

III ^{var. cruce, rudecta, emulorans.}
lobes, pointed lobes, whitish, a brown
shade below apex each, shiny. Body green from
the otherness, several columns a white sd line
tracing each seg. most distinct 7-10 where it
forms a faint trace of patch 8-9. Slight tint of
brown also on 5 and 12. Hair long, dark, sparse
with many slender short fine setae. Pale ones sparsely
scattered on 20 and a few dark ones on dark markings.
Egg 1.4, 3 apices, Pals 3 48 surrounding not
conspicuous, smooth a very line on apex and
in hollows round to irregular ring. Venter -
pyle finely reticulate. Hatched July 5. Whitest
translucent first green purplish d. patch 5, 8, 9
faint on 12. 1 setae black, rest white. Hol 3
setae ample, skin smooth, iii black, iv-v white
still July 8 Hol 4.5 (pale whitish) Body nearly color
a with brown streaked on apices

... I have pupa 4.5 & 9 12. ...

less green d from first, a purplish brown patch
1-ii 5, 8, 9, 12 and trace of white sd line
in darker on iii on the pale segments.
Dorsal hair blackish but pale. Hairs with
long setae (2 from i) and chryse of short d with
slight bulbous tips, capitate with marks.
Later white sd line more distinct, sharpened
in center of the small dorsal band.

Molt July 14 Hol 1.4 (sh. hd. 8) = 559

Calc.	33	45	76	1.16	1.75	2.66	4.	rat	⁶⁶ ₁₀₀
Found	3	45	8	1.2	2±	3±	4.2	(BR 559)	

T. testacea

671

Codes on chestnut, Port Jefferson L.I. July 8, 1897

671 A. In stage I a regular Y-back like red cross, the Y's large and strongly alternating. Colours, limbs equal.

Egg shell white 1 x .6 mm.

Shed July 12 Red + with distinct black setae and subapical granules. Colours, transverse. End def. space

Shed July 17 Colours, greenish, no setae granules on last ridge subapical

tail notched quadrately and def. space July 19 large faint red patch 6-8 and reaching edge of both ridges, a trace of yellow on the ridge before & behind it

Center around (1) 7-8 pale whitish. Later round all whitish yellow, and a little red before & behind (1) 7-8.

Shed July 23 Ridge 2 granules wide, subapical illuse, thick on last ridge, clear yellow line 4-11 spot large 5-10, to (5) a side by it yellow line very pale salmon

with a whitish center oval (1) 7-8. Eat whole leaf.

Shed July 31 Normal but very pale color spot to (6) not to head or tail. Red dot on head.

Shed Aug 8 spot on head gone. No markings. Aug 13 evident, mature

(not ant)

D L R

July 8 1.4 Cat

" 10 1.6 Cat

" 11 1.8 Cat

" 12 1.8 Cat

" 13 1.9 Cat

" 14 2.1 Cat

" 15 2.2 Cat

" 16 2.3 Cat

" 17 2.5 Cat

" 18 2.4 Cat

" 19 2.6 Cat

" 20 2.7 Cat

" 21 2.8 Cat

" 22 3.1 Cat

" 23 3.3 Cat

" 24 3.4 Cat

" 25 3.2 Cat

" 26 3.2 Cat

" 27 3.6 Cat

" 28 3.8 Cat

" 29 4.0 Cat

" 30 4.4 Cat

" 31 4.8 Cat

Aug 1 4.5 Cat

" 2 4.5 Cat

" 3 5.0 Cat

" 4 5.3 Cat

" 5 5.5 Cat

" 6 6.2 Cat

" 7 6.7 Cat

" 8 6.5 Cat

" 9 7.0 Cat

" 10 7.0 Cat

" 11 7.0 Cat

" 12 7.0 Cat

" 13 7.0 Cat

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

" 220 7.0 Cat

" 221 7.0

D L R

$$671C = 558C = 669$$

July 8	2.3	tail	elliptical, rounded, tail a little notched
" 10	2.4	"	" at the sides; dorsal flat-side
" 10	2.5	neck	oblong, s-v reflexes the back and s-v
" 11	2.6	"	ridge cartilaginous: sd ridge sharp in
" 12	2.9	"	direction only; even arched ant-post.
" 13	3.2	"	Light green, a yellow line on each sd
" 14	3.2	tail	ridge, 5-9 connected, passing by a
" 15	"	"	ridge centrally. Depressed spaces all
" 16	3.4	ant	present, large, distinct about each
" 17	3.7	"	the lateral ridge smooth appeared
" 18	4.0	still	dear granular, all are present on the
" 19	4.3	cat	warmer parts. Scales very smooth,
" 20	4.2	tail	not papillose except a little on the
" 21	"	"	tail. Setae all absent, scarcely trace.
" 22	"	"	July 10 Rather narrow, elliptical, tail
" 23	4.8	cat	rounded quadrate. Dorsal rather low,
" 24	5.3	"	green, sd ridge prominent. Lat ridge
" 25	5.8	"	extending beyond sv. Depressed spaces
" 26	6.0	"	very distinct, large, sharp, the lateral
" 27	5.8	tail	ridge scarcely more than one granule with
" 28	"	"	lat ridge sloped SD . All very smooth
" 29	"	"	moderate. Light green a yellow line on
" 30	"	"	each side of a pale
" 31	6.7	cat	
" 32	8.0	"	
" 33	8.4	"	
" 34	8.8	"	
" 35	"	"	
" 36	8.6	"	
" 37	"	sun	

Start July 10 Rather narrow elliptical, tail
not depressed. Dorsal rather low,
green, sd ridge prominent. Lat ridge
extending toward sn. Depressed spaces
very distinct, large & deep, the lateral
ridges scarcely more than one quarter
high ridge sloped  all very smooth
mottled. Light green, a yellow line on
sd ridge 5-9, yellow connected areas
in lines between the spaces (1). Yellow also
on 5-10, faintly connected across dorsal
central, a reddish tinted ridge on 8.
(Like Plate IV fig 3 of *T. pallida*! gr.)
Tail patch large, gray & red \square around dep.
space 7-8 and dorsal with yellow, yellow
fine and quite reaching like the extremity
with a pale dentition 3-2, a depression 
and narrow ridge 7-8, fine red.

July 15 - yellow line 3-12, broadhead
centrally, covering top 9 (4) on 6-9. The
yellow body covers 6-9 in 2 space, the
daddil patch 7-8 is column arched.

and dark brown on the latitudinal ridges. Others a green
dip. spaces large, rounded, sharp, green. Shape even
right, tail rounded, scarred and shed off, dorsal not
broad, arch oblique, concave. Latitudinal ridges several
parallel with, summits even, granular, a little pointed
space first shaped a circular shallow saddle in
center. In center, all very smooth. Yellowish brown
does not yet reach 3 ant. or 13 feet. 9th 18 and
mark became \oplus (16) - (15) x middle \ominus - middle \ominus and a
faint red mark at a 3 between the lines. Yellow
Spots in upper part of dip. space (4).

2d juv. eating whole leaf. Green yellow dot-
on lower half of (4) and center of (6). Brown red
patch on 6th juv. in clove leaf form, skin behind
in same like leaf of clove and red mark on 3
3d juv. 3-tail, white place just reaching center
of (4). Lathred ridge about 2 points with at the
thinned; above fine granular except in the area
like center which are distinct to the large ones.
Below fine, short and curved over on skin.

Shad. 30 Same, granula small & fine, ridge
at least 3 granula wide. Red spot widening a
little toward the outer edge of yellowish
line. (4) whit double yellow spot, (5) single
spot in center. Red granules, vertical
edges, brown on ridge, fleshy in deep spaces.
Later complete broad 3-tail, side fin reaching
upper end of deep spot. (1) 7-8 widened and edge 3
spin any? without lively color, inf a little salmon-
ence of the green.




Coccoloba elliptica. In a curled end
of leaf tied up with numerous cross bands
of white silk, no soil. Color brown, a little
whitish, not extra dark. 7x5 mm. Sides often fluted

Apatela.

672

Egg at Port Jefferson L.I. July 8 1897. Like
670 g.v. Hatched Like 670 Hds. 45-

pale with 2 faint black spots on front of each
lobe. Red, orange, and greenish purple d. patches
4-5, 8-9, 12, the other sps. whitish. Setae
single, smooth, black d. Skin smooth.

Shed Hds. 6 whitish, 3 black spots on each lobe,
Red green from front, broken white d. and 1 thin
black cutting the purple brown patches 4-5, 8-9, 12
2 also brown marked, 3, 6, 7 & 10 white ann
i.e. Single stiff dark setae, 2 from i, on
corn of glandular tipped. circular. hair
from the two conic vents. S-V hair pale.
one above, 2 below each side 

Shed July 14 Hds. 9 whitish, 4 brown black patches
the upper, outer small. Body greenish from
front, all as before, some 2d hair from skin.

Shed July 17 Hds. 1.4 Like 655-II g.v.

= *lobeliae* (first ant.)

Calc.: .36 .59 .99 1.65 2.75 4.58 7.6 $\frac{6}{10}$

673

Apatela on maple, Deepcut July 18, 1897.
Hd. covered with mouth produced, tip of
jaw brown. ^(upper edge of tube for 3) Body oblong, green
from front, setae single from low concolorous
tubercles, i 5-14 black the rest whitish
long, slender, spinulated. Hd setae alone
and one of each also black. Tubercles whitish.
Skin shining, faintly annulate, no marks
setae apparently i-v, but the larva was obscure
shed July 16 Hd .6 below, white. Body green from
front, no marks, hairs fine, long white a
few black ones of arising in bunches from
small concolorous warts, normal, 12 black edges
shed July 20 Hd 1 mm white, a large black patch
on lower $\frac{1}{2}$ of each lobe, irregular above &
a small patch over s. Body green from front,
no marks, hair long, abundant from low
small warts, with a few black one d.
esp. in straggling tufts 5, 7 & 12. Prolegs
& few 2' hair wandering from the warts.

late traces of ^{live} ~~greenish~~ d. & single red black &
shed July 22 Hd ^(shed 1.85) 1.8 below, all black, labrum
and setae white. Body greenish white, dusky
d. & lateral black line more distinct. Hair
long, dense, all white except long pencil
i, 5, 7, 12, ^{among from black spots} then 5 & 7 double & disarticulate.
Warts white, oblong s-v. Much shorter hair
the feet, abd leg plate, first part of 13 black
late hair greenish except at tips.
shed July 27 Hd .5 black. Body greenish white
greenish d. single lat & stragg black line,
but black streaks s-v & curved. Legs
black & white of 13 d. & spot 5, 7, 12 d.
Hair long, very abundant, much 2', warts
obscure, yellowish white, pencil long black
dusky 5, 7, high 12. all as in another.

(=Americana. Put out, as I have had ten
stages from Riley's *Blenn* specimens)

Hemiptera?

674

Apatelid? egg on black oak, Brookhaven L.I.
July, 15, 1897. Circular, flattened; a broad
very thin rim, finely, radially striate 2 mm
another rising area 18 ribbed, sharply marked
at its upper edge by a gipping cross rib; .2
top .6 mm, low rising to micropyle, coarsely
9 ribbed, the rib starting from the cross
rib and alternating with the lower one.
D. 1.4, height .3 mm. Pale whitish green the
shell like rim whitish. Under the $\frac{1}{2}$ inch
obj. the whole egg is broadly faintly re-
ticulated in all the hollow between
the curious ribs, but not as as to affect
any of the angles. Micropyle a low rounded
prominence, faintly reticular. Ridge
very marked but slowly sloping.

Another also black oak Bellport L.I. July
22. A very long slender rapidly tapering
noctuid, length 5 mm, width .4 mm.
Hd whitish prob having a darker line on each

side, as wide as body .4 mm 5th large pale
brown. Abv. feet rudimentary 7-8, distinct 9, 10
13. Body full 6+ annulate faintly greenish,
shiny, a broad red brown lateral stripe 3-
disappearing anal feet. Tubercles very large,
black, distinct, 1-4 with single long dusky
setae curving forward, fine, not very distinct
feet all very faintly reddish (died)

Aug 28

675 = 117

^{IV}
Apatite or Agalena wisasa Middle Island, L. I.
July 16 1897. Hd 1.2. Black, apical tubercle
produced, greenish to brown, a brown line up
from eye to apical tubercle then down to the
front & little away. Body compressed, 1 pair
dorsal and 1-11 12 esp. 11; yellowish green,
green from pro. spring: a faint brown
faint dot 2, 3, a distinct spot 4-5, 6
11 and 5. divided & pale d. line; sd line 7-10
widest on 7 and narrowing behind, 1-11 on
7 & 8, 11 and 9, 10, just joining another spot
11-12 which widens and covers all of 12
1-11, narrow, produced. 13 to head plate.
Exclusively green patch 8-11. Hair few, even-
and from a want (pal), all simple non-
glandular; a mixture of white & 2^d ones.
s.v. below the white tracheal line.
Show July 20 Hd 1.5. Same, the brown shade around
down from tubercle i on the face and inward to
notch of vertex, as well as all away down to

into side to eyes. Body green, as before. 6 & 6th
and exposed without any brown. A white spot
under to the lower band on 7-10.
^{IV}
Show July 24 Hd 2.4. Same. Body green, brown d. line
faint on 6, widening to 11.5, widening about on 6,
begin with 11.7, branches running along 11 and a
8-11, come together on 12 covering 11-12 and
narrowing to anal plate. Tent small, green
central hair long, brown scattering, all black
a few pale 2^d s.v. scattering from vi.
Show July 30 Hd 3.5. greenish, a dark rim
brown band a face of 1 cell like joined
above, post. in darkest, edge diffused.
Body clear green scattered as before in deep
rich blackish brown, posterior tubercle
reddish. Tent small, 1 long hair & several
short ones, black 1-11, white & mixed 2^d
s.v. 12 13 clear & sharply, and part of
body not compressed, apparently dilated
of the green just 6. Round on 13 jump high
Spinacles black rimmed. J Aug 9



hamamelis (JRS)

676

Remarkable little *Apatela* on black oak.
Hd. 8 whitish, tubercle i, ii large, a trace of a
brown line above. Body yellowish-green,
tubercle with 1 white seta curving forward
and a crown of short spines. A bundle of 3 on
each side col. II much produced* twice as
long as any other, like a group of bristles.
③, 4 and ii 5-13 large but not higher than
wide, II conspicuously small. All the other
small, obscure. Body tubercles have a diffuse
crown, not apical only as others; tubercles
of II single haired. ix & v hardly distinguishable.
vi several haired, low. 9 & 2nd hairs seen.

(*2 fruit and antapex of the four regular col. setae)
Another Hb. 12 Same tub. i with brown dot. Body
tubercles as before, single haired except vi,
the large ones i-iii with short spines crown
yellow with d. and sd yellow streaked
dots. Hair white, curving forward. II
conspicuously weak. Body whitish,

676 A One came out nearly uniform chocolate
but higher white spot around i, big dot over ii
broken white d. line, pale faint side line

green from prod. J-style, eat whole leaf.

July 23 Hd. 1.7 Same, brown reticulation on lobes.
Body greenish, as before, crown of tubercles, slight
the col. ones still largest. Tubercles yellowish
broken d. & sd line. II weak, d. line down
at tip. Hair practically single except vi.

Young stage, shaded with brown surrounding
white i-iii in irregular rings.

Aug 30 Hd. 2.2 whitish, brown reticulation
over face of lobes. Vents small, all
single white haired, but still with spin
cubus; vi with several soft bristles.
Green greenish whitish on irregular ground
d. red, fine center of whitish. Tubercles yellow
sd, lat. lines brown hind. distinct on
12-13. Vents i-ii yellowish, others small concolorous
faint whitish. sty. line. No sd hair. II very weak
[another Hb. 2.8 same, vent low single haired]

Sept 5 Hd. 3.0 as above. Vents 1 col. surrounded by
red. Hair single, vent low, no crown.
Sept 14 Hd. 3.6 apparently several patterns of 673
but color are different don't look at all like
it. Color dull dead leaf red. I. hair broader
wider & line ferruginous, on 12 sd bright
narrow red d. line edged with brown. Broad
bracket of white d. line is a faint and not
contrasting. Vents small, whitish. [No true
white!] Aug 16 chocolate brown light white
class May 1898 Cat no 15025-6

moor on beech at
Rinkbuckema Lake
Aug 13.

677 = 558A

Code on tree black oak Southaven, L.S. July

Date	Length	R.	23.1897	elliptical, not much
Jul 23	2.8	5.5		elongated, tent rounded quadrat
" 24	2.7	"		distinctly notched on the side
" 25	4.5	5.1		slightly, lateral space distinctly
" 26	4.8	5.1		concave, S-V very small & contracted.
" 27	"	"		Sd ridge prominent, beaded in-
" 28	"	"		vesicular segmentarily. Both ridges
" 29	5.1	5.2		with short distinct black 1' setae
" 30	5.2	5.2		(Skin granules large on the tubercle
" 31	5.5	"		bearing a crown of minute black
Aug 1	6.5	"		spines, being) deep space large
" 2	6.5	"		& distinct esp. (1) and (4), the small
" 3	7.2	"		ones (3) absent, (5) and (6) visible in
" 4	6.9	"		grain, more very sharp edged
" 5	"	"		these, & grading off smoothly on the

(Skin granules large on the tubercle bearing a crown of minute black spines, being) deep space large & distinct esp. (1) and (4), the small ones (3) absent, (5) and (6) visible in

grain, more very sharp edged these, & grading off smoothly on the latticed ridges, on sides (and 2) with fine 2' spines as does the horns in finely furrowed area Lateral ridged also less distinct

677C at Southaven mts. generally missing
furry, pink white as in 677V
between 5.3, 6.5 to the yellow line 3, broken bridge
as in red.

seg. waved, then single setae at the tubercle
all colorless frosted white, opaque, no
marks

wide 2
size 1.8

[Others 1.
more

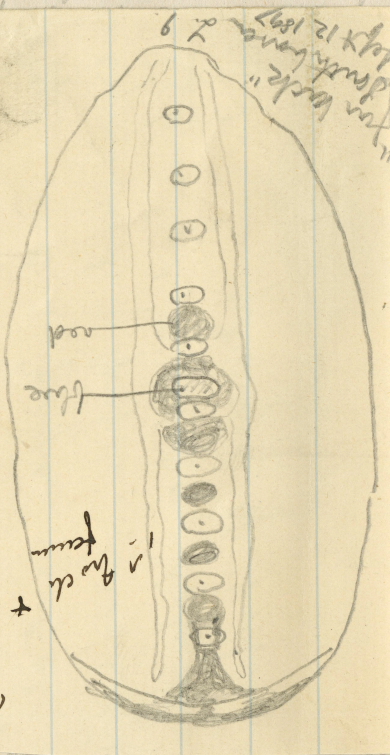
ridge a
greenish
Others 2.

the edge
distinct.

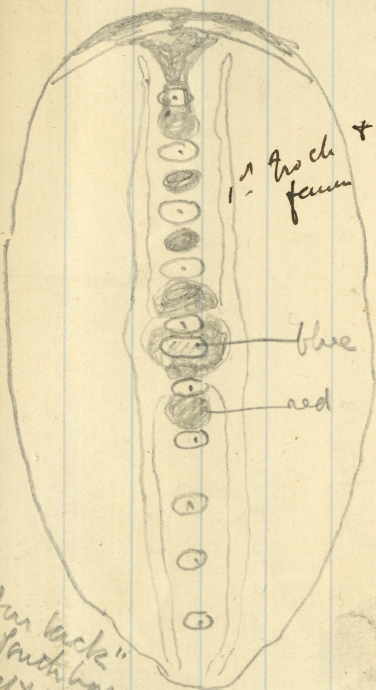
by a sh
either of
Others 2

yellow
the line

on the, orange
ish red in the other two. The brown with
spines give a shade along all the ridges,
coming at the ends.



m



"fur back"
Sanchi
Sept 12 1897 L. 9

Fig 3. *univittatus* (prothoracic) (sp)

Fig 4. End of pupa, ventral view

Fig 5. End of pupa, dorsal view

Fig 6. End of pupa, lateral view

Fig 7. Sculpturing of pupa

Worm on beech at
Runkbuckema Lake
- Aug 13.

677 = 558A

Code on tree black oak Smith Haven, L.I. July

date	Length	X	
Aug 23	2.8	6.5	23, 1877; Elliptical, not much
" 24	2.7	"	elongated, tail rounded quadrat
(in leg)			distinctly notched on the side. Dorsal
Aug 24	4.5	back	slightly, lateral space distinctly
" 25	5.1	cut	concave, S-V very small & retracted.
" 26	4.8	tail	
" 27	"	"	
" 28	"	"	
" 29	5.1	Still	Sd ridge prominent, beaded in-
" 30	5.2	cut	beccular segmentarily. Both ridge
" 31	5.5	"	with short distinct black 1 st setae
Aug 1	6.5	"	(Skin gummily large on the tubercle
" 2	6.4	"	bearing a crown of minute black
" 3	7.2	"	spine, being) deep space large
" 4	6.9	"	& distinct esp (1) and (4). the small
" 5	"	done	one (3) absent, (5) and (6) visible in

677 C
 Aug 29 4.5 cut
 " 30 4.6
 " 31 " "
 Aug 1 6.2 "
 " 2 5.5 "
 " 3 5.3 tail
 small back
 these & grading off smoothly on the
 (around of 7th & 8th)
 lateral ridges, on sides, and 2nd
 into fine 2nd spines so that the
 horns in finely fuzzy mass of
 Lateral ridges also less distinct

677C at Runkbuckema mts. *Germes minutus*
 fuzzy, just visible as in 677 I
 between 5.3, 6.5 to head yellow in 3, broken bridge
 as in red.

seq. waves, the single setae at the tubercle
 all colorless frosted white, opaque, no
 marks. Lateral ridge broad, many spin
 with the moderate spaces finely granular & base
 size 1.8 x 1.1 mm. Apparently just in stage III.

[Others 1.8, 2.1 eating all faintly bluish green,
 no marks. The fur give the lumpy sd
 ridge a brown cast under lens. Trace of
 greenish white sd line just appearing.

Others 2.2, 2.4, 2.6 eating. Distinctly (bluish) green
 the edges & ridge clean, more colorless. An in-
 distinct dotted yellow D line 4-10 connected
 by a short bar in interspace 7th, which is
 either yellow or pinkish red. D ridge in tail

Others 2.8, 2.8, 2.8, 2.6 to shed. Same green. The
 yellow sd line is a series of about 10 dots in
 the dorsals (i. intersp.). The bar is wanting
 in two, though the dot 7-8 is enlarged, pink-
 ish red in the other two. The brown mott
 spine give a shade along all the ridge
 joining at the ends.

IV Ridge esp. ① very slight but can be traced.

Others all sizes up to 3.8, 4.0 to head. Like 558A yellow line below sd. ridge, seen waved or in con-
spicuous double & refracted. Red ridge, yellow edged
5 granules near uniform on all latitudinal ridges, 4 wide, each
with mass of minute radiate pile, brown in ② and ③ ant.

④ 4.0, 4.0, 4.2, 4.5 cent. Elliptical, head rounded,
slightly notched at the sides, d. sp. about half as
long as lat. flat. Lat steep when slightly
concave. S-r small, retracted. On ridge 7 ③ present

Def. spaces fairly large, distinct; latitudinal ridges
rounded, side 1 space not +. Skin looks smooth
minutely granular even shining a little; def.
spaces smooth with large round center. all
light yellow green, rather translucent on edges,
yellow ① line 3 post - 12 ant, narrowed at adducal
spaces esp. slender not reaching ends, a
yellow band along 3 ant, shaded & minute brown
spines. Def. sp. ④ yellow in line with green center
sd. line free at ends, a yellow ridge 7-9 post
reaching adducal ⑦ and ⑧ containing a red
red spot on 7 post and 8; line not widened nor
enclaved on granules small, rounded, not quite
cut from, uniform all over, the narrower latitudinal
ridges 4 granules wide. Each granule with central m
and radiate crown of 4-6 minute dusky spine
beaver so as to give a shade on ant. edge 3.

8 July 29 absolutely smooth fine clear green,
the granules low round smooth without a trace
of fine under microscope, close cut from not
not apparent, small, the ridge never less than
5 granules wide. Def. spaces acute small
and sharp, still more fine granula, 11
fine before with fine glandular center

She Uge small and bioge

for all uniform white

She July 26 like 677 III; July 28 trace sd line very narrow.
July 29 short green, narrow dotted sd line

677A Another a same tree. Elongate elliptical,

Date	L	R	
July 25	1.1	cut	3 truncate before, tail broadly square
" 24	1.9	"	scarcely notched at the sides. Dorsal
" 25	1.6	to head	and sides moderate, not distinct
" 26	1.9	Still	concave, nearly flat. Sd ridge esp.
" 27	2.1	cut	tubercular with large, low round
" 28	2.2	"	tubercle bearing 2 short black setae,
" 29	2.6	"	alternately, those on 5, 7, 9 a little
" 30	2.8	"	tipped out, looking further out
" 31	2.8	to head	than the others. Lateral ridge and
Aug 1	2.6	"	tubercular, gently waved only
" 2	3.3	cut	segmentarily. Both ridges broadly
" 3	3.8	"	nearly contiguous granules produced
" 4	4.3	"	into long pale slender spines
" 5	4.2	to head	like pile, dorsal and lateral spaces
" 6	"	"	centrally smooth containing the indicated
" 7	"	"	depressed spaces, all alike smooth and
" 8	5.0	cut	slightly sunken, protected by the setae
" 9	5.4	"	ridges. Colours, whitish, faintly tinged
" 10	5.6	"	with green, dorsum darker from food. A very
" 11	6.2	"	few rosettes among granules at the 1 st setae.
" 12	5.9	to head	
" 13	6.5	cut	
" 14	7.5	"	
" 15	8.2	"	
" 16	8.5	"	

like pile, dorsal and lateral spaces
centrally smooth containing the indicated
depressed spaces, all alike smooth and
slightly sunken, protected by the setae
ridges. Colours, whitish, faintly tinged
with green, dorsum darker from food. A very
few rosettes among granules at the 1st setae.

(=669)

677B Litter Y-bark on oak (R. coccinea) taken with

Date	Length	R	preceding. Setae as in T. pallida.
July 24	1.2	cat	
" 25	1.3	"	
" 26	1.2	cat	3-2-1, 4 Y-2-1, 5-12 Y-1, 13-2. Y-spin
" 27	"	"	short shaft, limbs subequal; spin
" 28	1.4	cat	thicker, tapering, knotted-clift
" 29	"	"	on tip, all pale. Elliptical, squarish
" 30	1.7	"	
Aug 1	1.9	cat	
" 2	2.0	cat	truncated before, rounded behind,
" 3	2.4	cat	highest in front. Spaces broad,
" 4	2.4	cat	not sunken. Skin smooth &
" 5	2.5	cat	shiny, double hollow d. at 0
" 6	2.6	cat	all nearly colular, tinged with
" 7	3.2	cat	yellowish green. Y-s only slightly

(first ant)

After emptying there is a square yellow blotch 8-10.

Shed July 27 Practically no setae; d. space very large.

Latticed ridge, 1 row large appressed granules = 669

Shed Aug 3 Smooth colular, late sd dotted yellow line on central segs.

Shed Aug 8 Red spot @ hind yellow sd line

Regular new. (first ant)

(677II) (2) rounded, highest in center, (4) elongate.

As in 558 B. Bright green, prominent d. space leaving a narrow wide above sd line, & in upper 1/2 lat sp. Sd line narrow, 4-13, parallel, a little wavy; a hind yellow ridge, 7-8 covering and a square dent, red spot prominent a little behind a reaching sd line on each side. A distinct transverse yellow line on ant. segs, not joining the sd. line. (4) yellow & green center. Skin not at all shiny. Yellow line on 3 edged in front with callosities broken. Pupae first, by July 30 eating whole leaf. Aug 1 larva made in ant. den a 3 cinch. A faint circular spot a 3.4 Aug 4 a broken yellow line along lateral ridge and white sd edge, obscure, but truly joining the yellow collar on 3 and running across 13. Aug 5 all nearly hind greenish white to J, shining.

678 = 558 A

A Egg on black oak Smith baron July 23 1897 laid
up against a smaller vein. 1.0 x .6, very
small flat, shiny, slightly sticky and
iridescent. Pts. obscure lines, elongate
irregular quadrangular, not feculious.

B Another on same leaf as 677 B, 8 x .5. Same

Date L. P. L. P. A Hatched June 26. B. (Failed to hatch)

June 26	5.5	cat	hd pale, eye black, mouth
" 27	.9	"	brown, cth large
" 28	.9	"	dark brown. Red ash
" 29	1.0	"	669 head Y's altered
" 30	1.1	"	and limb shorter, i
" 31	1.2	small	head and 1/2 eaten
June 1	1.2	1.5	with a white spot on the
" 2	1.2	shed	head & thorax pale
" 3	1.4	cat	normal a pink
" 4	1.7	"	shed on black oak
" 5	1.8	shed	another same shed. 8 x 5
" 6	2.0	cat	+ 5, 7, 9, 11.
" 7	2.2	"	shed Aug 1 Regular
" 8	2.3	"	both for vol = 677 A
" 9	2.5	"	
" 10	2.6	shed	
" 11	2.8	shed	
" 12	3.0	shed	

found in cage

Another I. Yaphank 4
Aug. Y's altered 5, 7, 9, 11
Died 5, 11, 45°, 7, 9 90°!!
limb 11 1/2 as long as first
rounded, others of which
are shorter than first
thorax tips all white
less whitish, cth
brown, retracted.
Shed Aug 1 Regular. Two
black spots on midges

7-1.2

1.2-1.8

1.8-2.8

2.8-4.0

4.0-5.0

5.0-6.0

Back on the
June 1898
Hatched June 26
Song eating Sept 12

Blackcardia plumata

June 15 - 1898

Hatched June 28

Some eating Sept

most have

14



678 = 558 A

A
Egg on black oak South Lane July 23 1897 laid
up against a smaller vein. 1.0 x .6, very
small, flat, shiny, slightly sticky and
iridescent. Ret. obscure lines, elongate
irregular quadrangles, not peculiar.

B. Another on same leaf as 677 B, 8 x 5. Same

Date	X	P.	X	P.	
	A	A	B	B	A Hatched July 26. B (Failed to hatch)
July 26	.85	cat			Hd pale, eye black, mouth
" 27	.9	"			brown, c-sh bands
" 28	.9	"			²⁵⁰ brown. Red on
" 29	1.0	"			669 head Ys alternate
" 30	1.1	"			and. limbs white, a
" 31	1.2	half			head on 1/2 circle
Aug 1	1.2	half			with a white stripe
" 2	1.2	shell			tip of brown tape
" 3	1.4	cat			normal a/pink
" 4	1.7	"			slightly more black tape
" 6	1.8	half			another same. Shell 8 x 5
" 7	"	"			+ 5.7, 9, 11.
" 8	2.0	cat			shed large regular
" 9	2.2	"			with fur body - 677 A
" 10	2.3	"			Another I yolk on 21
" 11	2.6	shell			large. Ys small 5.7, 9, 11
" 12	"	half			Dark 5.11, 45°, 7.9, 90°!!
Aug 12					head 11 1/2 as long as foot
Aug 13					rounded, other 9 inch
					seg. white head with
					brown tips, all white
					legs whitish, c-sh
					brown, retracted.
					shed large regular. Two
					black. light on ridges

7-1.2
1.2-1.5
1.5-2.5
2.5-4.0
4.0-5.7
5.7-8.2

