oy
by

Begun D. Walsh
Rock Island
Illinois

May 14. 1866 — to p. 15

1867 p. 16 — p. 61.
1868 p. 62 — 102
1869 p. 103 —

To attend to in 1869

~~"Vanessa" abu (Specimens too)~~

Gall-Cryptophilida (Grape-gall - [tree cut down] Juice (formic) dyeing)

~~Lepidoptera~~

Theila Palacea tube - plenty for Edwards.

1869

~~Stem~~ Leaf galls on ~~Asphondylia~~ Helianthus

— Asphondylia? like Helianthi globulus.

Gallers Before July 18. (See J. I. p. 158 & 166)

Enclose plums on my tree in gauze bags & introduce Curculios bred in 1869: then if plums are stung, Curculio is double-brooded.

Visit G. W. Thorn 8 miles a little S. of W. of Davenport. Take the Blue Grass road, go 6½ miles: then 1 mile S: then ½ mile W.

Climbing cutworms, &c. Truesdale &c.

Asp. conchyformis on Salix at Starr of Elcock by Riley (write for some)

Write to Saunders

Aug. 14 Caryocena Fitch. Inside now dark crimson, more or less blackish. Of 21 opened, 9 were empty, 8 contained moth-larva eggs & larva, 1 eggs & larva only, 1 eggs only & 2 larva only. No less than 7 (some of which were otherwise empty) contained a white serpentine acarus, 1 contained 3 thrips eggs & nothing else, & one a lepid. 16-footed larva & nothing else. Two contained a chalcid. pupa.

Aug 15. Found on a Black Walnut 100 yd. from any other tree a brood of Datana ministra averaging about 60 or 70 each long. About 150 in number. Placed 1/3 (by guess) on Blk Walnut, 1/3 on Apple & 1/3 on Oak.

Aug. 16 Those on Oak & Apple mostly off the leaves & don't eat except one or two nibbling a little. All came to nothing.

Aug 17. Young locust borers (¼ inch long) rec'd today from Kansas have no legs. Spiracle mesothoracic, as in Cerambycides.

Saleeis verruca. Found on 2 larva evidently cecidon. Other soled. An acrodon gall on same leaf, but dot small & hollow.

Aug. 18 One Cratægi verruculus gall on lower side of leaf, 2 others on same leaf above. Larva there as usual.

Cratægi gluea. Larva now orange (Hd. brown ¥). 10 long 2½ times as long as wide. [a single larva (sequelae) * Hd. black " (cast

HOW THE BRUTE WORLD LIVES.
HOMES WITHOUT HANDS. Being a Description of the Habitations of Animals, Classed According to Their Principles of Construction. By the Rev. J. G. Wood, M. A., F. L. S., etc. Illustrated. 8vo. pp. 651. Harper & Brothers.
Portions of this work have been from time to time made public, and of those who read them as they appeared periodically, no inconsiderable number will wish to possess the entire volume. One seldom finds, in fact, a book on natural history so [illegible] and in spite

Nearly ½ infested by external Chalcid. larva

Aug. 20. Quercus cylindrica n. sp.
On Burr oak. 1—25 on a leaf, always on lower surface, a cylindrical fleshy gall .13 or less in diameter & slightly longer than wide: base truncate & attached only by a point to leaf. Tip ditto, but slightly contracted. Inside excavated in a cup-like cavity, like a glass tumbler the basal portion only moderately thickened, & containing no larva. Color white generally with more or less pink; sometimes entirely pink.

Aug 21. Ulmi cornucopiae? White elm. Larva as usual. Same shape.

Juglandis caulis. Acaridae. Stalk solid, but on breaking it, 5 or 6 acaridan white imagos run about & inside rough surface near the stalk many minute white acaridan larvae. Twice as long as wide. In another a small 6-footed larva, imago, with plate behind head. Imaginum: In another 2 acaridan imagos below, & larvae among the outside brown fuzz, next green bark when split or broken in two, very numerous.

Vitifoliae. Of 20 or 30 galls opened but 1 (?) contained coccus or its eggs, & that doubtful. Color of. Gray-color. Galls open now above.

Aug. 21st Nematus Davenport intricosus: larva up to 1/3 inch long is Crypt grass-green, head black, legs brown except tarsi.

Vitifoliae. Galls on Lusk's vine full of coccus, eggs & larva; also several Semasp. ? larvae. Also a similar larva, but white-hyaline with a brown or blood-red stomach at hinder end of body. Head black, roots of tarsi external.

Aug 24 Noticed on two distinct isolated Carya glabra trees on Island 7 or 8 Datana larvae, full-grown, hairs not near as long as others noticed some weeks ago on Swarms that were all black. These had 8 white ventral, 4 on a side, a series of reddish spots above prolegs, & white line between along ventral. They were actually feeding on the Hickory. Head black, no yellow patch on T. 1.

Aug. 25 Celtidis cepa. A green or pale green (when ripe pale brown) pubescent onion-shaped gall .18 or less in diameter, growing often in dense bunches on the upper side of leaf, or on leaf-stalk or tip of twig, or in dense bunches surrounding a twig some inches long, rarely on lower side of leaf. Nipple slender & about ½-⅔ as long as globular part or bulb of onion. Bulb often pear-shaped (small end towards base) when densely crowded, sides often flattened. Texture hard. Inside smooth. Larva .15 of 12 long yellowish, caudy white marked B. b. reddish brown, U-shaped. Head part very retractile. Larva have made cross diaphragm of white cork so that lower ⅓ of entire cell contains them.

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reling at the Philadelphia Convention will be indo
The delegates already at hand are confused about
programme, but cling nervously to the terms of
Washington call, which excludes nobody who
fesses a desire to come in and pay his share of
expenses. We hear that a loyal resolution will
offered by Gen. Steedman, conformably to his re
reports on the Freedmen's Bureau and

4) Celtidos [cylindrus] read C. glans. A pale green gall on lower side of leaf, .15 long or less, with gas minute pubescence, twice as long as wide, cylindrical or swelled more or less at base, when young when mature to tip resembling an acorn, truncate with a minute central nipple. Tenant fleshy, solid. Inside smooth. Larva small whitish, with Bb. with two central teeth.

Celtidos spina. A minute generally prostrate pale green pubescent gall .13 long or less, on lower side of leaf, conical, base a little contracted, tip a little elongated, 2 – 2½ times as long as wide. Inside smooth Larva White, Bb. V-shaped. X young C. lutea by very hairy.

Aug 26 Nematus (gooseberry from Davenport). Four have now spun up among the leaves. Examined about 40 larvae of all sizes. Smallest as Aug 21st. Largest have pale green head with a lateral brown black stripe, more or less distinctly confluent on the vertex where it is also confluent with a dorsal brown-black spot, covering a pair of punctures transversely arranged. Body of all green with a rather darker dorsal line & a lateral pale line. Stink gland above spiracle. Spiracle black. Tail below white. Some few .50 long & fully mature. No dark anal plate. Feet green with no dark spots. Each with a dark spot at base of each outside. In the mature specimens, Before the last front pair a similar spot & dot.

Celtidos lutea (last year) Larva white Bb

Aug. 27. Coryli fusca. On Corylus . . A subfoliaceous or oval thickening of the margin or one of side-veins of leaf, with a transverse wrinkling of the border of the leaf, less obvious below, very conspicuous above where it opens covered by a cover & obliterates the upper vein. Length .18 – .35, diam. .13 – .16 inch. Densely pubescent below not above. Larva yellow, Bb

White semi-gall on Cephalanthus leaves inhabited by elongate white acarus. (several.)

Salicis semen. After cutting open many in vain, then ran out of one just cut open two acari. Gall acaridan, ½" inside rough. In another found very numerous minute white acaridan larvae, thrice as long as wide.

Aug. 27. Nob by Lepidopterous Larva in S. aequus. Length .33, 6 lines, stoutish, wide, cylindrical, tapered a little towards tail. Color rather pale fuscous (spun a thread) pale beneath towards tail. Head polished, fuscous, very minutely rugose, with a few hairs. Body 16-footed, legs normal, joints subfoliaceous subopaque, 2 – 11 with a double transverse row each of 4 polished small black tubercles, whence proceeds a hair from each. 12 with a single row of 4 anal plate black, subpolished. [Nobbed.]

Aug. 29 of 28 quite recent Rhois tomatas examined. 24 had both antennae [6 or] 5-jointed , 5 had one antenna so; all the other antennae [5 or] 4-jointed, , 3 being evidently made out of 3 & 4 in the abnormal antennae, which are those of Dyrsocrypta. Absolutely certain.

6

Body & legs entirely ~~brown~~ black, except collar very pale brown. Stigma not "salt-white" but pale dusky with a whitish reflection. 2nd p. ant. not "rather" but greatly the longest, when ant. are "4-5" as he describes them. Hind tarsi always with 2 discoidals.

Larva — supposed Dalaca minuscula found on Burr Oak large numbers a week ago moulting on a leaf, & shifted readily on to apple. Today (Aug 29) length about .30 inch. Color olive-fuscous, pr. yellow with a transversely oval discoidal dorsal black patch near two pr. ~~of~~ decidedly darker than the rest, & 4 yellowish lines on each side p. 2—12, lower one widest & most indistinct. Also a ventral line. Head & proleg black. Hairs generally 1/2 width of body, but a few very long behind head. A black lateral spot outside each proleg. On each side large spot on pr. 1 two black transverse cramped dots. Anal proleg black. Valve top of anal plate. NB. The difference of color in pr. 2 3 4 11 was still more strong before the moult, so that the insect seemed banded rather than fasciate.

Placed 8 larva Nematus paradoxus in jar with earth, to see where they spin. [Sep. 2 all 8 spun up among leaves.]

Sep. 1. Eurytoma Hordei drawn (3) repd. from Johnson Pettit, Grimsby C. W. Cut one open containing about 12 cells. Larva yellow & chalcidiform. Not hairy. Jaws brown ~~11~~ (not "transverse line" Fitch). Head distinct but yellow like body, as large as usual in Chalcidids. Larva (9 or 10 drawn) all lie with head upward. Cells not uneven internally but roughish opaque.

Fragaria monilis — n.y. A somewhat moniliform swelling on the leaf-stalk of cultivated Strawberry, each bead of the necklace containing a seed. Larva & some eggs [Eggs of a Sawfly — (Riley)] ? 6 or 8 in each leaf-stalk. Above spr. a yellowish line, beneath which color is pale.

Sep. 2. Hemaitus mesa n. sp. Sep. 13. 1877 larva on Salix rostrata, found about Aug. 25. stick up tail. pass edge of leaf like H. ochraceus of Europe (Westwood) the leaves. No earth & buried 2 or 3 pr. cocoons under sand. Length mature larva 7/10 inch. Color pale green, sometimes yellowish at tail. Head black, polished. Joint 5 body above with transverse rows of shining black dots or small spots (not tuberculous). Joint 1 with single row: 2 & 3 with double row. 4 to 11 with 3 rows post row widely interrupted laterally & not intercalated on 11 below 1st & 2nd 12 with 2 rows rudimentary; anal plate black with a divergent pale green acute stripe, tipped with black, at each hind angle. Beneath spiracles on pr. 5—10 a double long row of shining black spots upper one consisting in each pr. of 2 spots [one a mere dot] lower row of a single [much larger] spot on each pr. ~~but only the pr. 5 and 6~~ all prolegs. Legs with a few basal blackish spots. Prolegs unarmed. ~~pr~~ 4 & 11 legless. Does not "cock up" when touched. Three rows obscure on pr. 4 [11] [stretch between 10

Bottle No. 5

8) Sep. 5. Melaphis Rhois H.y. Even a larger proportion than from Ill. Have 5-j. ant.: those many with 4-j. antennæ certain. All 2 discoidals in hind wing.

Found on Obtifolia along with aviifels ♀ (as usual) a few (5?) ♂ with short but distinct lateral black wings, 2 of them? Mixed in oval with the gall. — Evidently several generations of lice in some galls, besides the mother-lice. — Found 2 or 3 very minute third active Acari ingredients in galls.

Sep. 5 The populus at Clapp's. W of big tree are Tremuloides. Found oak H. Hesperidis on Hazel & Euonymus.

Willow (Mega intrylambda) Rhamnus all gone mid-grown.

Sep 7. Vitis Tentaculum. New lot from Bloomington. Contained many Aleucopis larvæ.

Cornu tuba? on C. stolonifera (Red twigs & white berries)

Vitis sulcata. on mild V. cordifolia. Many now bored, brown inside empty, on main veins of leaf & round, .30–.35 inch in diameter. Two roundish or subovoal on leaf stalk same sex; One oval, on leaf stalk next leaf, .90 long, .40 in diameter. Polythalamous. Larva white, Bb top black, rest pale brown.

Corylis fulica. Empty now, brown inside (like many of the above) with numerous Lepidopt.

Sep. 8 The Delaware grape is claimed by the Germans to be derived from a foreign grape — the Traminer grape — of Germany (auctore Mr. Weil.) First raised by a man in N.Y.S. brought thence to Delaware, Ohio.

Packard (Proc. &c III p. 336) says larva of Lagoa crispata is 20-legged.

Obtifolia. Same on Delaware, Ind a little more woody beneath. Same cocoons &c; & Thrips larva large; also Cercopis larva & pupæ & some acarids & one imago. Galls almost all empty.

Sep. 9 Dual Datana minuta (shifted to apple) leave now no yellow necks. (One inch long.)

A red hexapod insect? with distinct head adhering by mouth to Brachymena annulata. No sutures to body; Knob dark dots for hairs (?) = Septus phalangii? fig? Custer T. Ins. p. 190

Found 1 Xerophylla on a leaf of Carya alba. Antennæ 1 (= 2 annate) 2 = 3 or 4 annate. Prothorax dull luteous. Thorax black polished abd. luteous.

Found many Dat. minutissima 1-40 long on oak. Yellow neck white pure white, Hairs white, pale as long as width of body. (One in alcohol — with "Swallow" type)

Carya ruso-pilosa. n. sp. (= Holotricha 2nd type) On C. alba, on lower face of leaf. Globular, .22 under in diameter, with dense fulvo-luteous pilosity. Larva milk-white .07 long, Bb

Carya lamina. Many now almost globular, but no larvæ yet. ✗ Carya ✗ by the semi-spherical protuberance above on leaf.

Carya O. S. on C. alba. Larva yellowish .10 long, low dorsal pseudopods. Sutures deeply indented. Bb. Brown: [illegible] Gall thin, hard, highly polished inside. .13 diameter or less.

Persicoides. C. alba. Shell very thick & fleshy. (Larva white twice as long as wide, Bb) almost .30 in diameter. small nipple.

Caryo boletes. Larva inside ⊗. White. Pb ##1.

Caryo fomes. In one found 1 large callenous? larva feeding

Caryo lamina. ◇ gall (black) larva white, Pb 1

Caryo patella. (Cup-fungus-gall) Larva whitish. Larva ad Pl 1

Caryo tuberculosus. ♯ globules in berry covered with tubercles. Larva white, 3 times as long as wide Pb 1 Uniform. In C. alba, below on leaf.

Cecis bulla n. sp. In C. stolonifera. Cecis? A blister like swelling in lamina of leaf, 1—3 on a leaf, more on leaf discolored with blood-brown, irregularly round, .10—.20 in diam. inside a hollow between the two plates of leaf, between which is larva .80 long, white-hyaline, 5 times as long as wide, Pb. ■ (shape indistinct). Many empty (1 bored.)

Cecis tuba. In C. stolonifera (carbon — berries white) Tube one .70 long & .20 in diameter. Open at small hole on upperside of leaf, the other, corresponding, on underside of leaf. Many different empty, yet all apparently bored. Pupa called a cocoon, within tube, pale ♯ .72 long. ♀ pupa. Antennae extend

Sep. 10 Eurytoma [illegible] galls. 1 larva head downward. Some galls bored with six holes, mostly about 3. About ♯ of whole lot not bored, or exactly 39 bored, 65 not. Two bored holes contained remarkable traps of some unidentified (or lefed. but could be Lepid.?) pupae. Many elongate dead black larvae found in cells, the one attached a small short pale glaucous chalcid?) larva. recent of not alive. ♀ out of another apparently

not skeletonized, wounded by accident, emerged a larger one of same color but wounded too.

Semiotellus chalcidiphagus ♀ bred

Parasitic? larva forms in one cell & belongs to fly out of another. Length .13, 4½—5 times as long as wide, pale glaucous green, darker except head ♀ 2 brown & anal pr. jaws dark, transverse, not distinct. Body a little tapered toward ends. — To this round belong 11 black dead larvae found in cells: 11 yellow found dead & shriveled belong to Hordei. (Mandibles of Hordei ♯ ♀) (as in tuberculosus ♀)

Internodes in straw usually much contorted, often to 1½ inch long, never exceeding 6 inches. Only 3 straws where 2 internodes bore galls, & then 2 successive internodes. Galls usually not far from base of culm, rarely in the middle or even close to upper end. some 2 feet from root.

Often 2 C. nervosus galls, 2 yrs old. One had 1 pupa & one (larva?), 1 dead 2 days later.

Found in Cecis stolonifera 2 pupal tubes made by some black Hymenia each by a mass of Aphis, which also fed on the plant. In a tube one about .6 long with a mass of Aphides at each end & a pupa in the middle, completely enclosed. Other tube had Aphides at one end only & pupa in upper end. Empty tubes 2 [illegible] [Figs. in P.E. Paper on Manitoba]

Sept 11. Tetramelus in Cecis stolonifera tube.

Polygonum New galls continually forming on [illegible] leaves. Many on old leaves nearly empty, bore [illegible] not dormant, for [illegible] Aphis. Very large galls on [illegible] Many larvae [illegible] in the [illegible] base [illegible]

12

Datana ministra — shifted oak to apple — now 1/5–1/4 grey. Tapering to rear yellow back. Some with whitish, most dark yellow stripes.

Sep. 14 Anhelospides roseus — [Cyclocephala borealis] A single oval excrement of peduncle of leaf 1/2 grain. Datana 3 all black now. Many full of pap. Whole rear legs, with [Cyclocephala borealis] found a Mideus imbricator gallmaker

Sep. 16 Vidplus Stet frost kills on young leaves, but Hamamelis ones & locus. found Tenuis inspect galls often a hope. Bl D. see no trace in them. Larvae stet pl 61 pl?

Sep. 17. Datana ministra have now all moulted. Were 4 or 5 days about it, remaining motionless on vine twigs on which shifted. Now all have white lines, immaculate transversely above yellow patch above behind the head.

According to Wm. H. Riggs of Mercer Co., the Chinch bug first prevailed in that Co. in 1845.

According to a State Fair Beeman, V. Porter of Auna Illinois, black bees entirely disappear from an Italianized hive in good summer weather in 3 months, later in the season in 4 or 5 months.

According to an Ohio Beeman, W. A. Flanders of Ohio, they disappear in from 58 days to 5 months. And the Italian bees disappear from an Italian hive supplied with a black queen in about 3½ months.

—

Oct. 3. Datana ministra. Mulberry remains. Shifted them back on to

Nov. 14 Dr. Smith

Corcus tortus to p

lineata — pierce

Dr. Semble says

The boll-worm (

= Heliothis armige

Monthly Report

Nov. 18. Found very

apterous bottle green

my apple bees, a

a few (immature.

Still green on tips

walking about.

Nov. 20 Found one

(pink) perfectly

insect. Can scarce

left, because dea

one ½ longer than

Nov. 24 Buried

ministra fed on

Nov. 28. Apple-mag

15 inch, 4½ times as

pale-brown tubercle

above, last pair

mouth from its middle. Head narrowly emarginate in front,

13

A) a white Acarus, very active p. 230

dark blood-red 6-legged(?) with short hairs p. 230

B. blood-red, not hexapod, ant. legs very short, scarce longer than mouth. legs & mouth yellowish p. 24

A) Pale yellowish, 8-legged, front legs as long as others, no antennæ [♂ of B.?] a pair of retractile palpi-like organs each side of ~~palpi~~ snout or mouth. p. 24

♂ cannibals on scale

White hairy adult mites. p. 53××

Pale yellow, two long palpi & short snout between them — ocloped & legs even

In company with 2 larvæ ant, one very fast, front legs = which none of the others did. very pale yellow. No thoracic division p. 54 (last×)

Synopsis of adult Mites found in or about scales of Aspidotus conchiformis

T.O

=(A)? A white Acarus, very active p. 230

dark blood-red 6-legged(?) with short hairs p. 2300

B. blood-red, not hexapod, ant. legs very short, scarce longer than mouth. legs & mouth yellowish } p. 24

A) Pale yellowish, 8-legged, front legs as long as others, ~~no~~ no antennæ { ♂ of B? } a pair of retractile palpi-like organs each side of ~~pelpi~~ short a mouth. } p. 24

⇒ cannibals on scale

White hairy adult mites. p. 53××

Pale yellow, two long palpi (anal). & short snout between them — octopod & legs even

⇒⇒ In company with 2 larvæ

Mites very fat, front legs = ant, & which none of the others ded. very pale yellow. No thoracic division } p. 54 (last ×)

Synopsis of adult Mites found in or about scales of Aspidiotus coniformis.

T.O

References to Nat. Hist. of these Moths

pp. 13x, 23x, 24x, 29, 53x, 54x ter

(12) Datana ministra — shifted back to apple — now 1 day — seems to turn yellow sooner. Some eaten, most rests [illegible] Feeders

Sep. 14 Hyalopsis [illegible] Buffs not in regard of [illegible] of leaf [illegible] pale green [illegible] all black now. Many full of pupæ & [illegible] now [illegible] Larvæ in Medium [illegible] [illegible] gallinules

Sep. 16 Diseases — Sick [illegible] on young leaves, [illegible] matter [illegible] eggs & larvæ found Larvæ [illegible] feeding after a time, [illegible] D. seem to [illegible] in them — [illegible] Start [illegible] pots

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Oct. 3. Datana ministra. Only five remaining. Shifted them back on to Oak.

Nov. 14 Dr. Smith of Grassco (near to Dr. Velie) found Cocoon [illegible] to prey largely on larva of Doryphora 10-lineata — piercing it with [illegible] beak & sucking it dry.

Dr. Smith says the Pear is [illegible] attacked by Fruit Caterpillar.

The boll-worm (of Cotton) the same as the Corn worm = Heliothis armigera — (not in Morris Cat.) See Dept. Bureau Monthly Report July 1886 p. 284. Three broods south, 2 in Kansas.

Nov. 18. Found very numerous Aphis nigra, some winged, some apterous both green & blackish with intermediate colors, on my apple tree, also very numerous eggs ○ mostly black, a few (immature?) grass-green. Late fall & a few leaves still green on tips of twigs, but on bare twigs found Aphis walking about.

Nov. 20 Found many Coccus Hesperidum minute (male) perfect, & [illegible] Todas — may be eggs of some [illegible] insect. Am search for young larvæ of Coccus [illegible] [illegible] Coccus diameter = [illegible] diameter of egg, & [illegible] not [illegible] longer than wide. [illegible] [illegible] [illegible]

Nov. 24 Buried in garden 12 pupæ of Datana ministra fed on apple, Oak found on oak.

Nov. 28. Apple-maggot from Wallingford Connecticut. Length 15 [illegible] 4½ lines [illegible] Color [illegible] white. pale-brown tubercle [illegible] below & two subobsolete [illegible] anterior ones above, each pair transversely arranged. Body tapered toward mouth from its middle. Head narrowly emarginate in front,

Inferior surface with two slender blunter ~~black~~ coal black hooks projecting in front when mouth is protruded at base of which is a smaller pair connected with the base of the others like the antlers on a stag's horn. At base of 1st pr behind head a dorso-lateral transverse ~~black~~ pale brown pseudopod.

Pupa oval, 2½ times as long as wide, pale brown.

Bores roundish cavities in flesh of apple, irregularly connecting, then inside brown.

Dec 1 - Antenna of acerulata are 14-jt. (4 etc)

Dec 2 Larva of Walshia amorphella. See Clemens' Ent. Mem. 1856 p. 57. Length .25 — 30/25 inch 4½ times as long as wide. Opaque greenish white. Head dusky, carina V (not Y) shaped & whitish. 1st seg. with dorsal transversely obsemicircular dusky plate, ~~middle~~ dorsal dusky; & a dorsal pale line. Spiracles distinct, dusky; anal pr dusky pr 2 & 3 with a single transverse row of 8 or 9 small flat tubercles, outer 2 on each side larger, 4th to 11 with a double row of small dusky tubercles, tinged on sutures with dusky. Prolegs ~~dusky~~ tinged dusky.

5 specimens

In one gall found whitish larva, scaly head.

Gall Incurvaria amorphella. An oval enlargement of a small twig to 2½ - 6 times its normal diameter, the part beyond the gall withering & drying up, the gall itself .65 — 1.00 inch long & .17 — .35 in diameter. Interior

woody with an irregular channel eaten by the larva, of a brown color communicating above with a small closed up tubercle by which the larva after hatching out from the egg evidently made its entrance. Larva always now lying at the lower end of channel & several of them spun up in a fine loose silken cocoon but not gone to pupa. In several the larva had died & dried up. In 3 cases 2 galls one above the other.

Described from 36 specimens

Dec 5. Opened puparium of Retinella Zelleriana. Found inside a fleshy robust pupa (white-hyaline) with head towards (A) end of puparium. They split off the puparium near anal hooks. this end (3 specimens preserved.)

Dec 26. Pupa of Apple maggot (?) from Miller & Fish, East Falmouth, [Mass.?]. Length .13 — .20 inch. Color pale yellowish brown, coarctate; 2½ times as long as wide. Tail end (?) with two brown obliquely placed flattened tubercles laminiform, then lips, which are obliquely directed backward, color with lips of anus. Head end with two small flat brown tubercles with apex directed backward on lip of pr 1, transversely arranged. Mouth blackish, tubercular, inferior, flattish, subtriangular. 8 Specimens. When immature (in apple) whitish, but tubercles & brown as above. [Pupa identical when compared with those of Cl. larva pp. 13-14.]

same pr. Trans. Wisc. Ent. Soc. 1869 — Two Lepidopterous Cocoons

16) Feb-82 Received 3 apple-maggot pupæ in fruit from Hicks. 1 (Compressed) placed in alcohol with Rotten larva: 2 placed in moist sand in smaller of 2 tin cans in cellar containing same insect.

New disease of Potato. ~~Knob Blister~~ Blister like elevations on skin of tuber about ¼ inch in diameter, often confluent & (Feb.) most of them burst open, showing the inside rough scaly brown, with minute globules of ~~eggs~~ excrement. Among these often in Feb. a milk-white parasitical larva .10—.15 long, & 10 or 12 times as long as wide; head black, polished; above sub-genital mandibles, & deauches 2/3 that of ps. 1 of body; breath ○; mouth (su) whitish. Joints of body subequal, 12 shortish, then 4, then 2; rest equal. From Hos. L. D. Baldwin, Del. [also Hos. Conard, Fauna P. 2 I. p. 111.]

Gall Silix ~~Interstitialis~~ ovum (on Balsamea Sp. p. 18) from Michigan very similar to Salicis ovum; length .45—.50 inch. Heart .20. Inside flesh white, with transverse laminate division ⊥ axis of body. Outside color of bark. Four specimens on twig 3 inches long, about 3/4 inches long as wide. Larva (3 specimens) - length .12—.14 inch. 2 of them confluent. Color pale yellow. Perfectly apod. Head large & scaly with black-tipped parallel mandibles, & on ventral a pair of parallel erect blunt cylindrical horns about twice as long as wide. Anus indicated by a black ~ superior. Tail with two tuberculiform conical processes conical tubercles contiguous, transversely arranged & tipped with black & directed backward. From Edw. E. Sheldon, Salem Wash. Co. Mich. Cephus? larva. Lyda? A species, does on Aspen (Weeks p. 107) Red on twig until was grassy when soaked.

March 10. In a Pelopæus lunatus cell divided by partition or diaphragm found ~~two~~ 2 fossorial? cocoons in each along with 6 or 7 leafed. (ata) larvæ about ½ inch long. Placed one in bottle; the other (opened) contained a very robust larva. ○ from memory, whitish, with small scaly head. [Bred boy ♂ 3 from paternus 3 from mud dau. ♀.]
In same jar small (ichneum?) cocoon, parasitic on Tryphonylon?

Scolia spinosa from the mouth of Rio Grande. (Fossorii apud St. Fars. III. p. 511

March 13. In a Pelopæus cell (Prior), egg unhatched, found 6 spiders with 3rd pr. of ~~legs~~ palpi branched out most curiously into a sub-tracheiform process. Preserved in 2 lunata bottle. [They are the ♂ ♂.]

Box 7, II-48

A puddle is not necessarily deep, because one is unable to see to the bottom of it; neither is a lake necessarily shallow, because the eye can catch at a single glance every object that exists beneath its ~~transparent~~ pellucid waters. [Because one author writes in a clear & intelligible style, it does not follow that he lacks depth of research & profundity of conception. Because another writes in a muddy, obscure & tautologous phraseology, it does not follow that he is a learned man & an original thinker. In practice, we often see ignorant fools cover up their lack of knowledge by a strong ~~technical~~ phraseology, as mud is recalled for as they are distasteful & unintelligible; while the really

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Some men, instead of going out of their way to lay in technicalities' head & shoulders, uses them only when they are absolutely necessary to give precision & accuracy to his statements, as a general rule, when an author thinks clearly he writes clearly; & when an author's ideas are confused, his expressions partake of the disorganization of his mental faculties

Apr. 7. Gall Tilia ovum (See p. 16) Gathered today, 12 specimens, one apparently dead, the 11 on 7 twigs. Twigs from .13—.27 in diameter. Galls .22—.49 long & .16—.20 wide. Mostly with the epidermis longitudinally cracked in consequence of irregular interrupted irregular cracks, so as to give a white appearance.

Reared two galls sent from Michigan March 19, one (injured) empty; other contained a healthy Diplolepis (Rhodites) Lengths .11 inch, 4 times as long as wide. Color pale dull green, interior ¼ black. Two slender reflexed pale green anal horns bracketed backwards. Two more robust & stoloe ones on sixth dorsal segment. On the anterior edge of XIII last segment, a ridge (exclusive of anal segment) on which are all round of minute black tubercles, each bearing a short golden thorn, which on all but the last segment is doubly interrupted & replaced by opposite the interruption by a row of about 8 placed

¼ of way to tip of segment & followed behind by a shorter row of 1, 2 or 3. On the middle of each segment below i.e. ventrally a group of about 4 such tubercles, but no interruption opposite them. Only 11 Rs, exclusive anal, besides head.

Apr. 9. Larva of Rubus (allegheniensis?) sent from Mayoraville have one pair of very large Thoracic Spiracles, [1 pair of very large ones on last (penultimate?) segment] & 1 pair small on the abd. segments 1—8. Each pair double & bears on inferior surface a pair of very large eye-like processes whether Spiracles, as they seem to have no opening. They are not in range with the true lateral spiracles.

Apr. 11. Larva of Selandria balteata? pooled — 10 prolegs with hooks very fine & dark even on anal proleg.

Apr. 9—12. 3 imagos of Leucopis [ornata?] came out from last year's pupa.

Apr. 12. Rec'd 2 grams gall found fall of '64 & which had spent winter enclosed with a larva in Feb'y. 1865 (J. I. p. 178) came out a fine L. grossus imago. Egg deposited fall of '63 or spring of '64; imago comes out at least 3 years afterwards. On opening the cell from which it had bored its way out, it was ½ full of frass, showing that the larva had fed 4 (or 5?) years.

A stalked Cecidia had grafted badly all over twigs.

Apr. 15. Gall Conia ovum. On C. stolonifera. A round or oval lateral swelling on twigs. .15—.35 inch in diameter, color of twig, but mostly rough with widely-split flat, outer-looking

longitudinal fissures. Length .27—1.05 mil; breadth .19—.49 mil. ~~Larva~~ Several often ~~more~~ or less confluent. Rom 13 infested twigs. Made of 1/11.16.

Larva .10 long, yellow with two dark markings, 4½–5 hairs as long as body, tapered to terminal 3, head rostrate-like when exserted, when retracted bifurcate in front, 1 each. 1 specimen.

Rubi nodus. On Ruby — (blackberry) Saxiopteva. In oval or roundish swelling in twigs .10—.18 mil in diameter, color of twig but with a few pale irregular rough pale brown cracks; ~~length~~ very generally but not always where a lateral bud is located, & several often partly confluent. Length 1.35—.90, breadth .23—.40 mil. Inside as in communis

Larva as in communis. Length .10—.13 mil, 5 times as long as wide. 9 specimens. A small white hairy chlorous larva in one cell.

Gall S. nodulus. on S. longifolia. Polythalamous. Larva 1.6. Length .13 mil Apr. 18.

Found a 2. globulus? gall on 2. prinus var. discolor, containing in the central cell a recently dead ♀ pupa (preserved) & in the surrounding cells 2 or 3 larvae apparently cynipidous, but too small for dissection. In another such gall found another dead cynipid. Cynipid ♀ scarcely differs from that of 2. alba from 2. globulus gall, except that ant. are 13-j. with 14-jointed, joint 12 being square, whereas in g. globulus it is oblong, & ♂ 13 having no distinct transverse suture & being much shorter than 13+14 in c.g. globulus ♀.

Allantus fr. Rondo viridipennis Cresson Trans. Am. Ent. Soc. p. 318. So of Dawfles also Curtis F. Ins. Septentrionales Vol. Hym. p. 109 Bumble

April 30. Found Helicia chalybea on grape-vine (its leaves not yet) — ♂ hybernates in image.

Found 2 of the fuzzy Blackberry galls on green stems. Cells all empty. Cecid? Comes out in fall?

May 5. Found under rotten log Camponotus pennsylvanicus. Under a log Polyergus rufescens. In nest of Formica pergandei found 4 Atemeles Cassida. Ants did not carry them into nest.

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May 7 - Found three 2. pcus (adult & pupae) on [producing a dodund Cypr.] Diplectron. In same form of L. globulus. L. bifasciata on this rock 3 Yrs.
May 11 - Bred Ceratomyia (inquilina) from S. Rotundata galls n.y. (Nothing else in bottle.)
Black Colpha hybernates. Found 2 under log.
Dr. Schaum opposed to resuscitating old names.
(Ent. Annual 1860 pp. 121–2)
May 18. Took Colpha lapponica for 1st time under log.
Larvae in Rubus nodes still alive. No pupae. Two [illegible] Nematodes 2 males.
May 19 Reed. from N.S. Falla N.J. a beetle. Bores in Hackberry [Ridgewood Bergen Co, N.J.] died
Maple. See J.E. 104
about 1-inch long, opaque white, with brown head & blackish mouth.
[Two more bred larvae, one of which is marked with white like see p. 109 cabinet specimens]
May 25. Found in a nest of yellow and white bees of an old rotten Honey-bound stump 4 larvae, colaptes? Head .28 long, 2½ times as long as wide, oval, flattened, with numerous short hairs for back dense white cotton, hairs like that of Pemphredon larvae. In removing some of this lightly with a camel's hair pencil, little globules of a yellowish fluid started out from skin. Pores whence the cotton issued? It wounded the skin? Scarcely the latter. [Came out one "Hyperaspis" punctata Mels. (Lec.)
June 20. Bred in my 2 spec. of that sp. Head black, tips of fangs yellow. Legs & legs more intensely yellow. Also in this bred sp. [illegible]

23

May 26. Examined Aspid. Cockerellana. Left about 100 scales: no egg yet detected (appearance in fall different, being as very tuberculate spots). Noticed many scales that had been irregularly gnawed into, just as if by an internal parasite; the ragged borders very large. Not old scales, a few plump eggs visible. Some of these among the scales noticed May 13 [See p. 13] [illegible] globulus eggs. Examined less than shortest, dessicated. 1 P.L. egg. Thought at first these were young A.C. but too small, no perceptible legs & perfectly motionless. Most of them punctured, a few tolerably. Noticed a white Acarus (very active) run into one of these bored scales. Today these a long time did not, after long watching, see her come out. Saw afterward another (or possibly the same) in another bored gall, her body being wrinkled outside. His mate [illegible] ran out as touched the rest three very egg Mites' eggs, & do not the Mites gnaw open the scales & prey on the eggs? In a gnawed scale off another tree (" " " Nematodes) found a dark red 6-legged mite, body with short hairs. It ran rapidly. Watching it for a long time, it seemed to be gnawing pieces off the bark & not to notice the B.A. scales. In a scale (gnawed?) on this same tree found 3 or 4 pale hyaline mites, 2½ times as long as wide, hiding among debris of scales.

24

Nest of another bored scale (same twig) another (adult) bored. Fearnes (B) Hab. keeper, but anterior legs about ¼ (scarcely ⅓) longer than usual. Legs & mouth yellowish.

Nest of another bored scale (same twig) came a pale yellowish adult mite 8 (8)-legged, body less ⅓ long as the other, but as usual mutilated like the rest. (A) Many of the blood-red ovoids (B) apparently belonging to another (same twig) gravid adult but not bold ones & white fearnes larvæ, keeper has before had legs for backwards. These mites must have been what I noted mistook for P.L. detected ovi. A few of the scales Fearnes (B) on this twig.

From a pale 8-legged mite (= A) (scales 8 legs), tuft of retractile palpi-like organs each side of mouth or mouth. Was moving about very actively. A number of Mites (?) like on the boy. In vain search could find no mite-work on this tree, perhaps because it leaves not so late. There were a few mites eggs on it.

Found no mite-work or mites (larvæ) on scales of Aspidiotus? Harrisii, taken from this tree.

May 30. Gall of Cecid. Texas mesquite Diplolepis sp. from Mr. Phelps, Miss. A green (soft) hollow conical, thin-like gall .28 long & base .10 wide, growing in divaricating bunches of 3 or 4 from lower side of the leaf. Outside longitudinally carinate with

about 10 or 12 carinæ. Larva .07 long, cream-colored. [See R.E. I. p. 101, for gall from Penna on Isabella grape.]

May 31. Black louse (impaled) Yellow Bellflower. Some of the eggs transparent yellow — perhaps 1 in 50 or 40. None hatched yet. See more of the globular eggs. The bore-scales certainly contain some eggs. Running about a very hairy boy raised (Dark Brown) octopod mite, hairs nearly as long as diameter of body — mouth [illegible]. Three spots on back. Saw an immaculate brownish yellow mite — octopod — no hairs noticed on it.

June 2. Opened the lot of pseudotuctoræ galls gathered June 6. 1865. from Red Oak (2 or 3 were apparently q. imbricaria) I contained a soft yellowish Cynip? larva, D nearly a broad as long: 4 dead & dry larvæ, (each a larva) not mouldy: 11 were empty or mouldy inside: 6 were bored, 1 containing the last of pupa of ♀ Callimome. On sand bottom of jar found 5 ♀ Callimome dead, apparently same as those bred found. Spongifica V. 2. imagos. Preserved them; they were in good order.

Also opened old lot of pseudotuctoræ galls of year 1863, gathered April 6. 1864 on ground from under a Red Oak at Isabella 4-maculata corner!! 3 were empty; 3 contained each a dead & dry but not mouldy larva; 3 Chalcid. imagos, each one. Pteromalus.

These — from Dr. Duryee's collection above, belonged to a very distinct kind of gall. Roundish, pale dull greenish-yellow-brown, shell very thin, generally shrivelled & collapsed, no nipples on top, dark inside. Inside surface of shell cinnamon brown: Central cell very large, oval, dark cinnamon brown .30 × .20, with a distinct pedicle at one end by which

it is attached to the shell, apparently at the ~~[illegible]~~ point of attachment of the ~~[illegible]~~ Cinnamon brown saccate pulvar, rather sleek. Of the above four, 2 contained dead Cymps empty in good order, 1 had apparently been bored by a Chalcid, & 1 was much eaten & contained about 8 dozen workers of Myrmica ~~[illegible]~~ my second species. Shell of cell thin but solid, inside smooth opaque, cinnamon brown with a whitish tinge or bloom.

[In the above (mixed) lot of galls, I had found (J. I. p. 80) when gathered in 1864 living Cymp. larva, & Apr. 24. '66 one plump & fresh.]

Cymps q. cinnamomea. 24. Very like accumulata, abd. same shape, but red not black. Ventral valve has long setæ at tip. [N.B. The true Q. pseudotinctoria galls in the same bottle all the time, has not changed color one particle, being still whitened. All the Cymps soon & none of them at all mouldy.] In this species also the two little pits before the scutel are much larger than in accumulata & separated by a distinct & lofty carina. Is this the Dimorphous ♀ form of C. q. tinctoria?

June 1. Q. obtecta larvæ has nearly hatched out. Egg yellowish white, & long & pear shaped. Crawl on back very perceptibly as they try to hatch. [illegible] the empty whole pale yellow [illegible] June 4 Q. obtecta pink has [illegible] from ½ to ¾ of kernel [illegible] or specks of fine flour.

June 4 Cerasi Cinerea now nearly full grown. No mites, but one gall a minute larva with pointed head, Cyphonous? Wmi loculus? Quarter-grown. No mites.

June 5. Many eggs now hatched out from C. kennedii galls. Larva blood-red, cannot be seen with naked eye, sluggish. Gall almost always [illegible] seen below now; 1 brownish mottle in each. (7 specimens (1 small & sickly) very like Curtis' Plate 3 fig 12)

June 6. "Gray cutworm" from Bowley Wise, feeds on tree leaves & roots hollyhocks, peas, cauliflowers, length of largest 1¼ inch, color pale greenish gray. Larva faintly dark lines on each side of dorsal line which is double, (III.) joint 1 with an obscurely polished transverse ♂removal shield [illegible] spotted & with dorsal pale line; Head subpolished & with scimilar spots. Joints 2 & 3 each with a single row of 6 spotted humps ...||... Following jts with 4 dorsal [illegible] & 1 just above spiracle. Ventral jt [illegible] nearly in square. Ventral ½ of anal jt [illegible] post. ½ spotted like jt 1 & subpolished. Head & cervical plate slightly more yellow than body. Spiracles black. Length 1.10 inch. Olive cutworm" found at base of apple tree. very pale olive with dark olive mottlings. Dorsal line pale, a broad, dark olive line shading off gradually toward the dorsal line. Cervical shield ⊙ dark olive, with pale dorsal line. Head as body, with (II) dark olive with each side. Beneath

very flat- olive. [June 13 Of the boy gave to Papa pulled under the sand. They [illegible]
Stigmata- like olive, also those
ral gradually upward. Dots or humps about
as in preceding, but undeveloped & not colored
Caudal tore- [illegible] conspicuous (combining in pairs) [illegible]
1st abd. 3d above. Red-brown. Thorax & brown above &
with the usual yellowish thoracic characters.
Larix Laricis Cosse-Brun.

June 9. Populicanles galls on cottonwood now ½ grown- each contains a single subglobular very large mother-larva & many small larvæ. No eggs. Globular bodies of very various sizes among them, looking like eggs, but dissolve into sap on touching them with pencil. Ant. with coarse 3-jointed. Tarsi apparently 2-jointed under Stanhope, & very distinct unequally retract claws. Pierced 12 galls. The mother-larva only in each.

Telea circumcincta? now over half-grown.

June 11. In Hesperia catalis (clover-worm moth) ♀ has two nearly naked telescopically protruded gonds beyond caudal brush.

June 10. In adjoining insect enclosure (p. 27) found the [illegible] apple-leaves freely fed and touched many larvæ [illegible] on 5 inches long. Refused milk apple leaves only.

June 11. Lep. coniciformis. Larvæ had now all become stationary, presenting the appearance of flat white conspicuous scales, oval & ⅓ longer than broad, less diameter = ⅓ transverse extreme diam. of old scales.

Found no many larvæ or white eggs under scale, but under 2 or 3 one or two yellowish eggs. Addled? Stationary larvæ lost always all appearance of segmentation, legs, with difficulty perceptible on holding up to light; motionless. No fecal ejecta. Scales full of empty shells of hatched eggs. White appearance of larvæ caused by pruinescence, which being removed by a wet pencil, they are yellow. May be detached from bark by a wet pencil. Should not have supposed them living animals, but for having seen them move the day previous. They were also motionless June 10, when I examined dozens. Thus in 6 days this great change takes place.

Saw globular minute blood-red (1 or a few) among the scales. Some of them by alive or before. Besides pruinescence, threads of hair-like cotton loosely attached to larvæ. The larvæ may now be easily rubbed off with finger or with a hard brush.

June 12. Washer tried on young bark-lice (coniciformis) (My own for 6 days afterward)

A. Tobacco (common smoking) 1 part to 7 parts water, boiled for 2 hours. White string. Further test.

B. Soft soap (domestic) 1 to 6 of water. Red & white mixed string. Further test. Two separate baths.

C. Potash (saleratus) water 1 to 50 of water, by measurement. Middle bath. Red string.

Extreme tips of above baths not tried. All stuck with stationary Larvæ.

The published recipes run from 1 ℔ to 1 gallon to 1 ℔ to 6 gallons. Dr Houghton used 1 ℔ concentrated lye to 1 gallon water.

Reduvius raptatorius (larva) feeds on Aphis & young Canker worms according to Dr. Wood, Masculus. Noticed 4 or 5 scales perforated by round small holes, as described by Dr Fitch. Shape of Corchitormis, but white. Empty egg-shells of Harrisii now milk-white like those of Corchitormis. Scales of Harrisii (young) now of pale brown color, without any fluorescence, & not visible to naked eye. Know them by finding some that had remained under old scale, as with the other species. Have a dorsal carina with lateral transverse striæ. May be removed like the others. Easily confounded with natural pores of wood by inexperienced eye.

Physcata nebulo state in last Coachtormis is verdant, feeds gregariously on Harrisii

Lyda. social larva on Willow

A with a yellow lateral & serrate roll on pts 4–11 & front 1/2 of 12, the roll much elevated.

honey-yellow, shining; eyes small black, behind & just below antennæ. Antennæ when mature 8–9, 10th pale, rest black, with white articulations. Cervical Shield

Disease of wild plums so that they are thrice the usual diameter, wrinkled outside like gall Rhus, & inside stony hollow instead of flesh, with the juicy white stone in the center. Up 2 ft of any branch. Length of largest 3.50 inch. Plums now about 30 inch long diameter.

June 14 Parasite larva when 1/2 grown, 1/2 inch long, 1/2 inch wide, 1/2 inch thick, with short stout legs, 3 pairs of (6) true legs, 2 pairs of (4) prolegs, & 1 pair of (2) anal prolegs, with short stout hooks on the ends of the prolegs, & 1 pair of (2) long tail-like appendages, & 1 pair of (2) short ones, & 1 long tail-like appendage, fixed in the flesh of the plum, & fastened to the stone by a very fine silken thread. Pupa not found.

June 15 Parasite larva when full grown, 3/4 inch long, 1/2 inch wide, 1/2 inch thick, fixed in the flesh of the plum, & fastened to the stone by a very fine silken thread. Pupa not found.

June 16 Parasite larva when full grown, 3/4 inch long, 1/2 inch wide, 1/2 inch thick, fixed in the flesh of the plum, & fastened to the stone by a very fine silken thread. Pupa not found.

June 17 Parasite larva when full grown, 3/4 inch long, 1/2 inch wide, 1/2 inch thick, fixed in the flesh of the plum, & fastened to the stone by a very fine silken thread. Pupa not found.

June 18 Parasite larva when full grown, 3/4 inch long, 1/2 inch wide, 1/2 inch thick, fixed in the flesh of the plum, & fastened to the stone by a very fine silken thread. Pupa not found.

June 19 Parasite larva when full grown, 3/4 inch long, 1/2 inch wide, 1/2 inch thick, fixed in the flesh of the plum, & fastened to the stone by a very fine silken thread. Pupa not found.

June 20 Parasite larva when full grown, 3/4 inch long, 1/2 inch wide, 1/2 inch thick, fixed in the flesh of the plum, & fastened to the stone by a very fine silken thread. Pupa not found.

June 21 Parasite larva when full grown, 3/4 inch long, 1/2 inch wide, 1/2 inch thick, fixed in the flesh of the plum, & fastened to the stone by a very fine silken thread. Pupa not found.

June 22 Parasite larva when full grown, 3/4 inch long, 1/2 inch wide, 1/2 inch thick, fixed in the flesh of the plum, & fastened to the stone by a very fine silken thread. Pupa not found.

June 23 Parasite larva when full grown, 3/4 inch long, 1/2 inch wide, 1/2 inch thick, fixed in the flesh of the plum, & fastened to the stone by a very fine silken thread. Pupa not found.

June 24 Parasite larva when full grown, 3/4 inch long, 1/2 inch wide, 1/2 inch thick, fixed in the flesh of the plum, & fastened to the stone by a very fine silken thread. Pupa not found.

June 25 Parasite larva when full grown, 3/4 inch long, 1/2 inch wide, 1/2 inch thick, fixed in the flesh of the plum, & fastened to the stone by a very fine silken thread. Pupa not found.

June 26 Parasite larva when full grown, 3/4 inch long, 1/2 inch wide, 1/2 inch thick, fixed in the flesh of the plum, & fastened to the stone by a very fine silken thread. Pupa not found.

June 27 Parasite larva when full grown, 3/4 inch long, 1/2 inch wide, 1/2 inch thick, fixed in the flesh of the plum, & fastened to the stone by a very fine silken thread. Pupa not found.

June 28 Parasite larva when full grown, 3/4 inch long, 1/2 inch wide, 1/2 inch thick, fixed in the flesh of the plum, & fastened to the stone by a very fine silken thread. Pupa not found.

June 29 Parasite larva when full grown, 3/4 inch long, 1/2 inch wide, 1/2 inch thick, fixed in the flesh of the plum, & fastened to the stone by a very fine silken thread. Pupa not found.

June 30 Parasite larva when full grown, 3/4 inch long, 1/2 inch wide, 1/2 inch thick, fixed in the flesh of the plum, & fastened to the stone by a very fine silken thread. Pupa not found.

A with a yellow lateral & dorsal  D H
roll on pts 4 — 11 & part 1/2 of 12,
the roll much elevated.

B) When mature  only a blackish mark on each sede in a depression, but beneath  . Anus transverse.

C) & above & before that
respectively a short black linear
villa (when mature)

The published recipes run from 1 ℔ to 1 gallon to 1 ℔ to 6 gallons. Dr Houghton used 1 ℔ concentrated lye to 1 gallon water.

Rediviva raptatorii (larva) feeds on Aphis & young Cankerworms accordg to Dr. Weed, Masticates. Noticed 4 or 5 scales perforated by round small hole, as described by Dr Fitch. Shape of Conchiformis, but white, Empty Shells of Harrisii non-milky white like those of Conchiformis. Scales of Harrisii (young) not of Conchiformis color, without any fluorescence, & not visible to naked eye. Known them by finding one that had cleaved under old scale, as with the other species. Has a dorsal carina with lateral transverse striæ. May be removed like the others. Easily confounded

Physcia nebulo state in last stage with natural pores of wood by microscope

Conchiformis is evidently fed gainly on Harrisii

Lyda. Social larva or Web worm. Yellow green, Black legs, Black head, Black thorax, Black transverse line between each pair of legs, & a semilunar Black one above each leg, with lateral row of Yellow spots. Spinous tubercles.

bodies & legs honey-yellow, shining; eyes small black, just behind & below antennæ. Antennæ when mature 5-7 joints, 1st pale, rest black, with white articulations. Cervical Shield

Leaves of wild plums so much like those of the cultivated varieties, wounded while yet in the bloom, & made honey dew instead of fruit, with the waxy white store in the center. No signs of any insect. Length of larvæ .90 inch. Pharynx .20 inch. Body .30 inch long transverse.

June 14 (4 specimens) Larvæ as figured when of long & slender form, & pale yellow green color, but when full grown, & about to spin, pale dirty brown, with dorsal stripe of pale yellow. Mouth black. Length of full grown larvæ 1.25 inch long, & 1/4 inch wide. Feed on the flesh of the plum, leaving the stone & skin. Pass the winter in the ground in cocoons of earth & silk.

Pupa of Plum-gouger ♀ pale yellow. Rostrum white & black projecting, bifurcate at the end. Thorax black. (1 spec.)

June 15 - Worms on three plums found 2 ♂

Worm from plum found 9 (Plum-gouger holes) worms all came out of the pit, eating & making outside.

NB. Eat does not always go perfectly

June 16. Peculiar cocoons from a rotten plum. Cocoon of earth & silk, very strong & tough, with a hard shell. Pupa of Plum-gouger ♀ in the cocoon. Rostrum & antennæ pale yellow, with black tips. Thorax black. Abdomen pale yellow, with black spots on the segments. Legs pale yellow, with black tips to the joints. Wings pale yellow, with black veins & spots. Length of body .30 inch. Length of rostrum .20 inch. Length of antennæ .20 inch. Length of wings .30 inch.

32 ♀ what seem to be ♂, there is a very distinct round blunt horn at top of front tibia, & an indistinct one on the other tibia; shorter & nearly as in ♀ ♀ but with a very indistinct spur occasionally perceptible on the hind tibia.

June 17. Found numerous eggs & very young larva under many large-sized apterous females in a gall (very nearly) = caryæfolia [= Caryæ palea (p. 37)] on C. alba, very abundant, left of slough side road on Island about 200 or 300 yards from Rocky R.R., a little off the road; antennæ & 3.p.c. Gall & caryæfolia, a lofty cone above more or less conical on lower surface of leaf, sometimes bulging. No eggs in Caryæcaulis galls, but infinite larvæ of all sizes & gray flocculescence, none of which in the supposed caryæfolia gall. A single large rounded mother-louse in caryæcaulis, in two galls in two joining dead degs & antennæ black; those of larva (three as long as broad) only a little obfuscated. Infested sometimes by a white Syrphidous larva, which sweeps xerophylla almost clean off. Another gall infested by a large curculionidous larva, (perhaps that of Conotrachelus posticatus, found outside today near these galls) with Infours head. Replaced it in bottle, gall tied up with pink thread. Found two caryæcaulis on stem of leaflet close to base. Just like the others.

× † In three (same plants) found 5 curculio crescents.

Caryæ habitaculum. Lepidopterous gall, on C. alba. The manner of the leaf bored & swelled near its tip so as to appear thus

& hollow with thin walls inside, the larva lives inside, but spins an irregular web full of frass outside; the tip of the manual beyond the gall usually cut off & withered & black. Very abundant on the Island. Many galls empty, the larva having probably gone underground. In some larva outside among the web. Larva about 3/4 inch long, dull greenish.

Celtidos mirabilum. Cecid. gall on Celtis. An irregular polythalamous swelling on twig, leaf stalk or base of midrib of leaf, or rather several confluent roundish monothalamous galls .20—.25 inch in diameter, pubescent & green like normal twigs &c. When ripe bursting gradually open at tip & ejecting an oval leaf-like kernel .15 long, twice as long as wide, & gaping & truncate & crenate at tip. sometimes a little constructed in the middle. Inside this kernel is the larva, which is dirty milk-white .08 inch long, tapered towards the tail, 2½ times as long as wide, Bb [M] Head Infours, not quite attaining tip of [illegible]one; head large, conical, mouth dark Infours. Rolls over sideways, like Helianthi ... larva. One larva had a small external parasite (Torymide?) attached to it, & one cell contained a large white chalcidous (Torymide?) larva. After gall has discharged the larval nucleus, it is occupied by a cup-like cavity at tip. Most of them then empty; others contain nucleus partly free; in others the nucleus is internal but loose.

Nucleus when just ready to drop out turns black, except at tip. Larva curves dorsally ⌒.

Haws are now perforated by a snout-beetle, but on opening the round punctures, though there were brown cuttings & channels inside, could detect no larva. Cuttings not deep nor very extensive.

Cut open solitary D. ovarium gall on Red oak. Contained several S. rhodesformis? Thrown away.

Negundo (leaf.) galls all now empty. Thrown away. Were in jar where now are "Curculio" Plums.

Of D. prunus galls preserved with old larva (J. I. p. 100) 2 now contained dead & mouldy imago C. g. prunus, several ♂ larvæ & pupæ, & one a ♂ Syn. rhodesformis? Preserved the last, which is perhaps Syn. n. sp. bred from g. prunus.

Wm. H. Edwards sends me two specimens of Chrysopa oculata Say, which he says stink badly.

Cynips ~~quercus cassa~~ tumifica O.S. Proc. IV. p. 356

On q. rubra ♀ gathered June 15. Gall a simple enlargement of the leaf stalk on the lower side exclusively to .30 in diameter, but extending hardly (⅓ of it) on to the midrib. Polythalamous. Bred June 22, 1 ♂ 1 ♀. ♂ antennæ robust, 15 ♂,] — 14 as broad as long, 15 a little longer. Areolet entirely obsolete ♂♀. ♂ Black; ♀ head bright rufous, thorax except scutel dull rufous. ♀ ant. 14 ♂. [O.S.'s galls were on midrib entirely.]

June 22. Of a large lot of larvæ of Hematus ventricosus rec'd today from Dr. Smith, 8 or 10 of the largest were very pale green, including the head, ~~the~~ pt. 1 & ½ ♂ up to 11 & ½ bright lemon yellow. No tubercles ⇒ ♂. Others about same size, & all the small ones, had tubercles (black) & black head. One that was pale & had no tubercles when packed (June 19) had spun up on the road. Placed all the pale ones in a glycerine bottle. Rest in Glass jar.

[Probably pale larvæ are ♂♂. Breed from all pale ones, & cut open cocoons in vase, to see if any contain tubercled larvæ.] all become pale after last moult, see p. 36

Gall castanea globulus. On Chestnut. A subglobular sac about .45 in diameter, attached by a very short peduncle to the flower-catkin. Outside (dry) rough, coarsely rugose & opaque cinnamon brown. Inside (dry) rough, coarsely rugose & opaque black.

Phylloxera Xerophylla? C. globulus. Venation as in Xerophylla. Head & thorax black. Abd. dark rufous? Antennæ very short. — From Pecan.

June 25 Imported Barklouse. Largest now about as long as the extreme diameter of old scale: inflated part as long as scale in largest: some have none. Young: On Medicated boughs seem as large as on others. On a broken & withered twig all dead? & no ventr:

In a cocoon spun in bot, where no pale larvæ of gooseberry remarks ventricosus were put the larva was pale & no tubercles. In all (3 small) 4 large tubercled larvæ 1st p. 11th & tip of 12th (yellow) bright. Both tubercles & head hairy. In one (large), apparently just moulted, head & tubercles were almost pale, but hairy. In shelfing large jar, only one pale larva found. Placed in small jar, where was one cocoon only, the larva 1st placed on it (sickened from close packing on journey) dead or dying & ∴ removed.

+ July 24 Took 1 sp.ⁿ Balaninus nucleus Say (♀) off infested Plum-trees. Placed in a bottle with clear plums, & p.ᵈ no attention to them & did not stay them.

Spermophaga roseæ bred in Honeysuckle seeds.

June 26. Caught Cynips quercus radicis on the ivy by a pool in Wyre [Hyrst?] Park wood, & very relished bits of the bark.

June 29. Of 7 or 8 Ves. sylvestris sent me by Peter Inwin, all but three shrivelled (after 4 to 5 weeks of age) & kept (as above) in boxes. Of 24 Nem. ventricosus larvæ (4 spotted, 20 pale) 20 were now all pale. Put 4 spotted ones in green bottle, in which already 1 cocoon & pale larva. Cut open two cocoons from bush containd pale larvæ. [By next day 3 of the 4 spotted ones had moulted pale.]

June 29. Gall Caryæ - fallax Cocc. dan. to C. alba (Sec I. p. 32). Mother-insect only .002 long, .003 round: ~~was a little rounded behind~~. Yellow; tips of antennæ & feet black. Antennæ 3-jointed (I. p. 32). Gall pale green, turning black when very mature, conical on upper face of leaf, the larger .25 inch in diameter at base & .27 high, generally tapered a little at tip, but never opening there as in caryæfolie. Below a cone of the same diameter but only about ½ or ⅔ as high, & opening at tip in a mouth-like slit, closed in immature, gaping widely open in mature galls, the lips pubescent. Found in one gall a large pale Xerophylla larva. In another two Leucaspis larvæ + Chalcid. pupa. Leucaspis larvæ (as in Q. pedunculata galls - very abundant. Chalcid. larvæ hairy) in at least 5 galls. In several others very acute at tip. Sometimes one mother-insect in a gall, sometimes several (as in vitifoliæ). Many ♀♀ & young larvæ, or eggs by themselves in the galls. Many now gaping widely open below & deserted. Leucaspis larvæ wander from gall to gall. Chalcid. preys on Leucaspis ?? Scarcely 1 in 20 galls is unoccupied by parasites. One gall contained a Leucaspis larva, & two to 10 others. The true fallax gall was tenanted by 7 or 8 winged Xerophylla & a few larvæ, but no eggs. Had the coccus built a gall in the very spot fixed on by the Xerophylla? Opened 2 or 300 other galls, but found nothing like this in them. The Xerophylla had yellow collar & black thorax. [So have caryæcaulis when fresh out of gall; but after long out, collar speculates to thorax. Covered this today.]

A singular dipterous larva, about ¼ inch long with 8 pair of pseudopods on basal 8 abd. joints; bluish white, head horny but small. Pseudopods dorsad with many, little, black hooks or hooks. Had spun a web by side of sucked (?) spider on a Hickory leaf full of fallen galls. Placed on leaf, but without the web. Do dipterous larvæ ever spin?

On Carya ovalis galls (C. glabra) same hairy chalcid larva with mandibles ℞ as in Carya fallax.

Some galls .10 inch in diameter.

About June 25th I had shut up two Anthon. prunicida in a bottle with wounding plums. Saw them repeatedly bore them with their beaks, penetrating at different angles so that hole ∪ But laid no eggs—℞. June 30 examined plums: full of holes, some forth 20, but no eggs in holes that I cd. discover. They penetrated ⅘ the length of beak. They flew readily & often.

July 3rd Eurytoma hordei. Examined a large lot of green barley-galls. Found in them 20 larvæ, all Chalcid & apparently those of E. hordei = tritici. Not a single Cecid. larva or any signs of one. Larvæ now .006—.004 inch long & about 5 times as long as wide, hyaline including large head. ∴ D. Fitch is right.

July 12 reared 14 larvæ taken from ten of Aug. 3 Cecidomyidæ. All bulgy.

Gall Ulmi fusca. On U. fulva, from Dr. Smith, N.Y. A pale green hollow fusiform gall .85—1.25 long & .32—.45 inch in diameter, generally erect from the upper surface of the leaf, sometimes a little curved. Exterior surface opaque & finely pubescent under the lens; interior longitudinally ribbed with about 18 anastomosing carinæ. Grows from the midrib or a little on one side of it, & is more tapered at base than at tip. Four specimens.

Inced a Pemphigus; a few with one or both pair of wings like those of Eriosoma.

Gall Vitis tuba? On V. cordifolia. Ceredon. Bay green-yellow elongate conical hard gall, attached by a point only to the under side of the leaf, usually on one of the principal veins, the base more or less swelled. Length .50 inch or less, diameter (basal) .15 or less. Sometimes over a hundred on one leaf. Inside hollow throughout.

Larva (July 14) yellow, 3½ times as long as wide, .12 long, Bb. ∩ paler in front, pale behind. Gall sent me from Sask. Two pale dark thorns directed upward from top of anal jt. & a tubercle projecting from top of penultimate joint, so as to make a prehensile apparatus as at tail of Mycetaxe. Larva lies near top of gall. Gall snaps like a pepper-stem. Did not see larva jump.

July 18 Acroncyta fissi from Clisiocampa-like larva(?) as Plum described in J. I. ℘.

Cut open 20 apple windfalls, bored by C. pomonella. All empty.

40

July 19 - Bred 1st con. nemapteran from infested plums - Mantes egg ad by Ale's correspondent to be found on an apple tree in his Orchard - in Isle Co.

Lyda cerasi. Larva on C. serotina

Immature larva. Length .60 inch. ~~Color dull orange.~~ A broad dulnet dorsal & a narrow indistinct subdorsal stripe, greenish brown. Lateral roll (shiny as in L. prunivora) & a narrow ventral vitta, length ~~orange~~ color dull green. A broad subdorsal stripe, the lateral roll (which is as in L. prunivora) & ~~the~~ a central linear abd. vitta, all bright orange. Head black, polished; antennæ black, 7-5th. 1st pr. & hps 2-4 white. 1st pr. ~~black~~ black, legs dusky-green, tarsi & tips white. Anal joint above laterally ~~dusky~~ black, beneath entirely black. Thorn whitish 3-5, last pr. black, middle black except tip & base, basal pale dusky at base. At "A" the middle is dull green, edges orange.

Mature larva. Length 3/4 inch. Bright deep grass green, with a darker dorsal vitta. Lateral roll pale. Head black, as well as antennæ & polished. pr. 5th as in preceding. Legs black, tarsi whitish. Anal pr. green above, with an impressed black patch on each side; beneath black behind the thorn. Thorn pale ~~greenish white~~ instead of white, with same markings of black. No black marks between legs as in L. prunivora.

July 20 Bred one ♂ (8) Con. nemapteran, several days. +10 in all afterward

Lyda ~~nemoratensis~~ pruniveda. Larva now has burrowed into kernel. Length .12 when partially straightened out, .10 when curled up. Milk-white, head yellowish white, mandibles tipped with brown. Most of holes lead to ~~center~~ no burrow - being simply bored for food. Tried 18 or ~~20~~ before finding a larva. Two or three holes led to kernel, but larva had perished. This lot of plums were gathered 4 or 5 days ago. Larva Stones now quite hard. A few containing larvæ on side of trees, among the lot.

July 21. Cut open about 50 wormy apples - Found the larva only in 3. Each empty. Found crabs yesterday apparently infested by this insect - Put them in jar -

July 23 — 3 "Curculio"
July 24 — 4 —
July 25 — 2 — (+16 = 42 in all + 13 = 55
July 26 — 7 — +19 (some out in night, &c)

Apple crop a failure. Many (7 or 8) dead, only 2 (larva one) show punctures. A ~~dark~~ green tinted. Larva on the ebony leaves, ~~20~~ 20 or 22-legged.

July 28. The "Drake" of Imported Barklouse now at forced state, but smaller than when first found. (Note a dark "Curculio" ♀ from prunivora below.)

July 27 — 2 "Curculio" +6
July 28 — 2 — +3
July 29 — 3 —

42) Caterpillar (Saturnia maia ♀?) on Poplar. From Miss Hobart. Length 1¾ inches. Head shewing dark sanguineo-rufous. Body dull black, dorsally with numerous white dots, & a broad stigmatal dusky white stripe. On each segment a pair of dorsal yellowish-brown brushes, the hairs thorn-like & tipped with black, on each side of which arise also below the stigmatal stripe a longer brush composed of sprayley thorn-like hairs black & medially banded with white, & except on segments bearing prolegs below the substigmatal brushes a similar but smaller thoracic one. Beneath dull opaque black; legs black, prolegs colored as head, but tipped with black. Stigmata edged with black. July 27 Found cocoons of Dineutes (brassy species) under rejectamenta logs on Rock R., attached to lower surface. Oval & twice as wide as long. Inside larvæ, pupæ, & 5 imagos. Pupæ has double eyes ⊙⊙ connected by a dark transverse band, which is always dark, even before eyes turn dark. Preserved in alcohol. Cocoon thin, of sand with some silk, for it does not melt in water, but will crumble in the fingers.

July 28. Found a "Curculio" larva in a plum (turned blue) still hanging on the tree. Crescent slit to it. Several plums with crescent slit still on tree, but egg apparently aborted. Also another, smaller, on green plum.

Found one prunicida larva that had burrowed into kernel. Milk white, ¾ long, head white, mandibles brown. Most of the round holes (49 out of 50) are empty. The plum with 9 curculio crescents. Stones of plums now very hard.

Found a Lepid. (⇨) larva in green plum bored Curculio fashion. Head & obscure, cerv. plate black. Body dingy white, hairy; legs dingy white. (Hind part cut off)

July 29. Bred 1 curculio { Placed in a green bottle with existing plums

— 30 — 2 — 1 from Canadian plums

— 31 — 1 — 1 from Prunus plums [under bark 20 Nov log]

July 31 Bred Calopteron discrete from a log (the pupa case) which apparently had changed into pupa was pierced thro' bore with a No 8 pin. Reperforation pierced the ½ inch thick of case.

Aug 2. Bred 5 Curculio (1 left in pan) { Put 4 in bottle

— 3 — 4? — { Put in bottle

— 4 — 2 —

[Now come up to Aug. 10th]

Which pin was removed and re-inserted after moult.

44 Aug. 1 Grape Curculio ?? Calosoma sayi Sent by Joseph Wood, Marietta, Ohio. Burrows into flesh of Grape on one side & finally into the pip. In two opened, larva was gone; west underground? The one containing the larva was burrowed externally, & had not penetrated to the pip. Much frass in all.

Larva length .20 when extended, tapered in front. Body-segments with a lateral acutely-pointed prominence, all of them ( ), anal joint ☆. Color yellowish white, with a darker stomach, semi-transparent, 4–5 times as long as wide; does not curl up & walks readily. Head, large, horny, pale brownish yellow; mandibles chestnut-brown, ; labr. suture impressed along dorsal line of head. Does not use head in walking as Dept. larvae do.

In another grape which had only an external (·) hole, larva was gone & pip not eaten. In another the pip was only a little eaten into, & the larva (same as above) lay close to outside & had been apparently squeezed in handling. Was dead. In another pip was shallowly eaten into, & larva was gone. In another, a larva had penetrated only a little way into flesh (judging from pulp) & had died. In another larva was gone, & pip not touched. Proposed the larva to breed from.

Mr. Wood also sends apple-leaves affected by what I took for a gall (orange-color) on crab leaves. I think now it is a fungus, the dots ⁘ the spore-receptacles.

July 31. Noticed on wild parsnip flowers a pale yellowish spider sucking the juices of a honey-bee & holding it by the head. It was only 1/2 the size of the bee. Saw two specimens thus engaged.

Aug 2. The shallow holes which I formerly took for those of Prancoda are made by Scraptia. Plums so affected largely in grounds.

Aug. 10. Ne & Catyded (Hal. concavum) can make a loud creaking noise by rubbing the internal edge of the base of either left or right front wing against the under surface of the other one. I produced this noise artificially in the living insect, & saw it produced by the insect itself. Noise resembles that made by a Cerambycide.

Gall Rhois byrsa. Accidens. On Rhus toxicodendron. near Alton. A green much-crinkled subglobular gall, basally constricted, subglobular, on upper surface of leaf. Inside very full of white hairs. Contains white elongate larva, & running about on leaf a white mature Acarus.

Found 2 Scarabaeidous (?) larvae (in fuzzy galls on Red Elm at Alton. Also Embedded in base of gall Ulmi fulva gall (empty) on same bush.

Aug 13. Phycita nebulo ♂ & Ph. [carya] are phytophagic species. carya ♂ differs by prothorax head & scape being white (not gray); ♀ carya ♂♀ have the spot on disk of front wing double (:), while in nebulo ♂♀ the spot is geminate or confluent (:). No other distinction between ♀♀ of the two species. Examined nebulo 8♂, 7♀, carya 3♂, 6♀, all bred. Two ♀ of carya much larger than rest & rather differently marked. At base of antenna in ♂ Phycita a △ patch of scales.

Aug 14 Found N. stigillana (= antiphila) on sea-beach. Two ♀♀ (Techina?) attached to base of Salsola [illegible] Did this cause death of so many a day afterwards?

Aug. 15 Imported Barklouse. Scales now full-sized & already contain full-sized white eggs, but enclosed in a pellicle (Aug) near the bark, not loose between bark & insect. Found 2 such scales on this year's wood. In some scales a white fleshy (once) mass at one end still enclosing some of the eggs? Many ♂♂ scales (small) intermixed without any abd. each (=) Are these the remains of the males?

Fallen (late) apple now contained 2 apple-worms, one entered at calyx, another at stalk. Of 4 apple, cut into, none were empty & larvæ were full-sized.

Aug 16 Of four windfalls (late apples) cut into, 2 contained apple worms.

Aug 22. Of 30 windfalls (— — —), 23 were empty; 1 contd a very large worm, 5 medium-sized worms, & 1 (which had been very extensively eaten) a very small one (—), so small that there must have been a previous worm which had escaped & this must have belonged to a second brood. ∴ A second brood in many empty ones very small yellow ants.

Aug 21. Found very numerous D. duguesii larvæ on an isolated Shell-bark Sapling. Mostly with narrow white lines, a few with the lines nearly obsolete. None with any yellow on neck. Put them in cage. Less mature ones 2cd with tinge to black.

+ Aug 23 From 2nd lot of wild plums, gathered July 27, came 1 ♀ cuculio & 1 ♂ Hedya? Two broods of Cuculio? Noticed before dead larva in plums.

+ Aug 24. Bred 1 ♂ pruinicida } from last lot of plums.
+ 1 ♂ neaphes
+ 1 ♀ Hedya

Hedya from 1 left over in tube the plums or the pails / Aug 25. Bred 2 ♂♂ Carpocapsa + 1 Hedya

38 48) Stomacera ♀ n. sp. or the only Aglossonide in my collection without dark dot on disk of anlepeud tinate submarginal cell

Aug. 25. the number of the (carnivorous?) mites with uniform front legs now very largely increased in the Potato Scab. All of them now have front ½ of body pale brown; before only some of them. Still a few of the white hairy acari, which I shifted into the experimental potato.

Aug 26 Bred Pleurotes ♀ 2 nemphan + 1 Hedya + 1 Prunicola

Aug 27 - 2 nemphan + 2 Hedya

Aug 28 2+1 —

Aug 29 2 —

Aug 30 - 2 —

Aug 31 - 2+2+1

Sep 1. 1+2 —

Sep 2 - 1 —

Sep 4 5 — +3 Hedya

Sep 5 2+4

Sep 6. 1+2 —

Sep 7 - 2 —

Sep 11 - 1 —

Sep 13 1 —

Sep 14 - 1 nemphan

Sep 15 - 1 Hedya

Sep 16 3 nemphan

Sep 24 1 —

Sep 28 1 —

(Effete ♀)

Aug 29. In Halesodota caryæ (on apple, from Dr Smith, N. Y.) there are a pair of subobsolete white pencils on pt. 3 behind head, a pair of black do on front 4, & same on pt. 10 & a pair of subobsolete white pencils on 11 & subobsolete pair do on ant. ½ of 12, the latter in one out of 8 specimens, black instead of white. Hence figure in Harris & his description. The belly is not black, as described by Harris, but yellowish white.

Sep 4 13 Cercaria placed with flukes in Gammarus All dead.

Sep. 11. Large larva on Blackberry (from Dombeck) near Halesodota. Length 2 1/4 inches. Skin & Head very pale green & yellow covered with long not dense silky bright glaucous-yellow hairs curved backward. A lateral transverse black patch on pts. 2–11, & a dorsal ditto on pts. 5–11, behind this dorsal patch on pts. 5–10 a short black dorsal pencil no longer than yellow hairs, & on pt. 11 a long black pencil directed backwards. Abdomen black; tips of prolegs vermilion red. legs black with whitish incisures: 16 legged. A subobsolete short pencil on pts. 2–4, which in another recent specimen was on 3 & a long pencil similar to that on 11. [beat underground, both mine & Dombecks specimens]

In Vanessa Antiopa (Europ. specimens) hind edge of hind wing is whiter than in N. Y. specimens.

See Speth, Antiq. Man

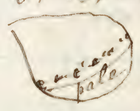
49

Sep. 11. A large, white cerambycidous larva 2.40 long in decaying pine. 6 small legs, 1st pair on "fold", which is subconfluent with prothorax & outside of the "fold" which [illegible] segments dorsally (not laterally) very much bunched.

Placed in a plugged hole in fence where taken, & put the block under lower fence-rail, 5 ft. East of Privy.

Thrachia hithionica Reed. from end of June from N. Summerel, of Salisbury, N.C., & operates there as in Texas (see P.Z. I. p. 110.) They have no "bed-bug" smell, but rather a pleasant odor; two reached me alive.

In Lycaena Phlaeas (Europe) the outer ⌣ of spots on lower secondaries is much further from pale hind border of wing than in N.A. specimens = americana Harris [illegible] nob



Sep. 17. Scales of Asp. Harrisii now formed; very many shed skins (such as I saw last week) among them. Under each scale (10 specimens & over) & distinct & quite loose, is a larval Apod form (= decayed bark-louse?) with lateral bunchings on thorax (representing 6 legs) & smaller bunchings on the two succeeding segments. Color of larva yellow or pink or blood-red, length about .03 inch (more correctly)

saw me more distinctly. No perceptible mouth or rostrum.

Sep. 22. Received many Gordius white, 9½ — 10½ inches long, & will stretch without breaking to 21 inches long. Color white, not black, like that of Agassiz (Method, &c p. 63) From John Akhurst, Brooklyn, N.Y. His informant saw 40 - 45 "delivered" from larva of Attacus Cecropia. Larva with alcoholic specimens of Gordius sent me; also 4 living specimens in clay mould, 3 of which unwounded, I placed in water, & 1 being wounded I stretched till it broke. Required a strong pull to break it. See also Ex. Class. Part 1st p. 125

On Sep. 19 P. B. Sibley, of St. Joseph, Mo., saw "millions of Danais plexippus filling the air to the height of 3 or 40[illegible] flying from north to south[illegible] as the locusts & grasshoppe[illegible] specimen sent me. Coccinella 9-notata P.Z. II. 41 See also P.Z. I. p. 163

Tetracha virginica, Calosoma calidum & calidum, Pasimachus elongatus, Harpalus caliginosus, 4 or 5 Platynus, 5 Lebia including grandis, & Collops 4-maculatus, all attack larva of Colorado Potato Bug.

Oct. 15 6-legged Coleopterous larva on hickory. Yellowish, head behind darker. Three front legs, stigma near thorax.

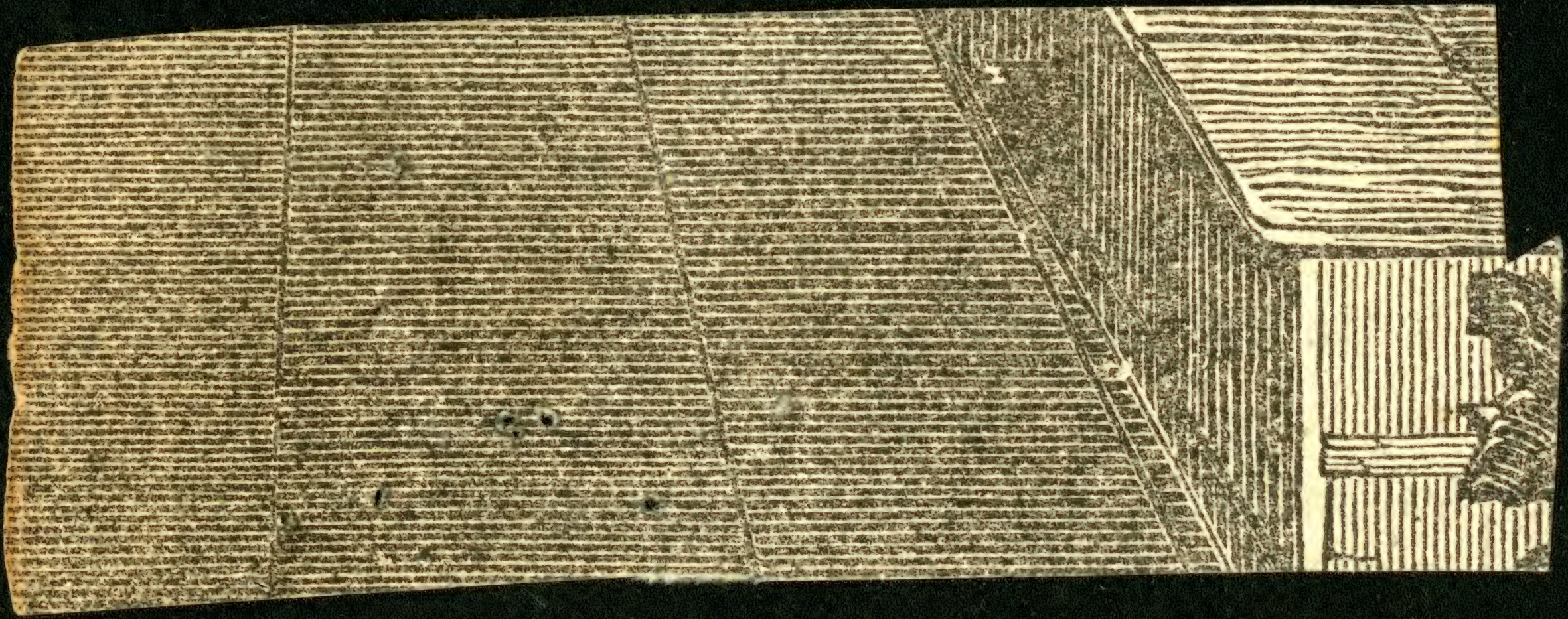
March 1. 1856

Gathea Carlin

THE CANADA FARME

E CANADA FARMER.

greater part of Canada. A friend informed
when travelling through a portion of the cou
York last summer, he met with immense swa
these butterflies, all proceeding westward, and
ing a column of three or four miles in leng
estimated their number at some millions! A



Sep. 11. A large, white cerambycedous larva 2.40 long in decaying pine. 6 small legs, 1st pair on "fold", which is subconfluent with prothorax & outside of the "fold"; infra & transversely elliptical segments dorsally & ventrally (not laterally) very much hunched.

Placed in a plugged hole in pine where taken, & put the block under lower fence - end, 5 ft. East of Privy.

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In Lycaena Phlaeas (Europe) the outer ⌣ of spots on lower secondaries is much further from pale hind border of wing than in N.A. specimens = americana Harris

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with lateral hunchings on thorax (representing 6 legs) & smaller hunchings on the two succeeding segments. Color of larva yellow or pink or blood-red, length about .03 inch

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On Sep. 19 P. B. Sibley, of St. Joseph, Mo., saw "millions of Danais plexippus filling the air to the height of 3 or 400 feet for several hours, flying from north to south, & quite as numerous as the locusts [grasshoppers] last fall." A living specimen sent me. (Coccinella 9-notata P.E. II. 41) See also P.E. I. p. 163 Elater 4-punctatus

Tetracha virginica, Calosoma calidum & externum, Paxmachus elongatus, Harpalus caliginosus, 4 or 5 Platynus, 5 Lebia including grandis, & Collops 4-maculatus, all attack larva of Colorado Potato Bug.

Sep 15 6-legged Aphidius larva in body of full-grown pink-footed Tussock Moth Caterpillar. Many pupæ & cocoons of Apanteles glomeratus

Iowa counties infested by Grasshoppers in 1867

came from West

Adams
Page
Woodberry
Cherokee (agr. Bur.)
Ida,
Sac
Calhoun
Green
Dallas
Guthrie
Adair
Madison
Warren
Clark
Ringgold
Carroll
Polk Co. (Desmoines)

Agr. Bureau

T.O.

Oct. 23. Found 7 or 8 Carpocapsa pomonella spun up, but still in larva state, on middle standard trees, mostly on upper surface of main forks. Also 4 or 5 empty pupa shells same place. None of either on Yellow Bellflower.

Oct. 17 Caught musca domestica ½ mile from house beyond Sandy Ford.

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The extract with which we shall close concerns an insect of Texas called the Agricultural Ant, and [illegible] most remarkable of all the [illegible] counts. He gives the [illegible] of D[illegible]

[illegible] to be [illegible] guage [illegible] large, [illegible] ties, [illegible] able [illegible] nit [illegible] dry [illegible] ice [illegible] d, [illegible] er [illegible]

THE NORTHERN ILLINOIS HORTICULTURAL SOCIETY WILL HOLD
ITS FIRST ANNUAL MEETING,
IN KETTINGER'S HALL,
In the New Block west of Howard House,
IN THE CITY of FREEPORT,
STEPHENSON CO.,
Feb. 11th, 12th and 13th, 1868.

Every Person interested in Horticultural pursuits is invited to be present, and will receive a cordial welcome.

Iowa counties infested
by Grasshoppers in 1867

came from West

Adams
Page
Woodbury
Cherokee (agr. Bur.)
Ida,
Sac
Calhoun
Green
Dallas
Guthrie
Adair
Madison
Warren
Clark
Ringgold
Carroll
Polk Co. (Desmoines)

} Agr. Bureau

C. McKee Co. Ill. Thought to have
from Decatur: first came about Aug. 25
Fly till last Sept. Came with wind.

T.O.

Nebraska, Grasshoppers
in 1867. Agr. Rep. p. 311

De Soto — Aug 29
Glendale, — 24
Richland — 27

The extract with which we shall close concerns an insect of Texas called the Agricultural Ant, and is perhaps the most remarkable of all the stories which Mr. Wood recounts. He gives it on the authority and in the language of Dr. Lincecum, a correspondent of Dr. Darwin:

The species which I have named *Agricultural*, is a large, brownish ant. It dwells in what may be termed paved cities, and like a thrifty, diligent, provident farmer, makes suitable and timely arrangements for the coming season. When it has selected a situation for its habitation, if on ordinary dry ground, it bores a hole, around which it raises the surface three and sometimes six inches, forming a low, circular mound, having a very gentle inclination from the center to the outer border, which on an average is three or four feet from the entrance. But if the location is chosen on low, flat, wet land, liable to inundation, though the ground may be perfectly dry at the time the ant sets to work, it nevertheless elevates the mound in the form of a pretty sharp cone to the hight of 15 to 20 inches or more, and makes the entrance near the summit. Around the mound, in either case, the ant clears the ground of all obstructions, and levels and smooths the surface to the distance of three or four feet from the gate of the city, giving the space the appearance of a handsome pavement, as it really is.

Within this paved area, not a blade of any green thing is allowed to grow, except a single species of grain-bearing grass. Having planted this crop in a circle around, and two or three feet from the center of the mound, the insect tends and cultivates it with constant care, cutting away all other grasses and weeds that may spring up among it, and all around outside the farm circle, to the extent of one or two feet or more. The cultivated grass grows luxuriantly, and produces a heavy crop of small, white, flinty seeds, which, under the microscope, very closely resemble ordinary rice. When ripe, it is carefully harvested, and carried by the workers, chaff and all, into the granary cells, where it is divested of the chaff and packed away. The chaff is taken out and thrown beyond the limits of the paved area.

During protracted wet weather, it sometimes happens that the provision stores become damp, and are liable to sprout and spoil. In this case, on the first fine day, the ants bring out the damp and damaged grain, and expose it to the sun till it is dry, when they carry it back and pack away all the sound seeds, leaving those that had sprouted to waste.

The illustrations of this work are carefully prepared, and may be fully trusted.

will do it again, if you happen to give it the name o reconstruction; Mississippi gentlemen, who are de termined to reconstruct by burying the negro; pirate from the Gulf, a little soiled by the work at New Orleans; and chevaliers of the most rancorous kind all the way from Texas. Here are all the elements for splendid pot-pourri; a genuine conservative chowder; and though conciliation between Copperheads and ex Rebels is not a good way to put the Union together, we have not a doubt that Disunion will be consoli dated finely, and that all the delegates will continue to swear at their enemies in chorus. If they do n't they will have a terrible time of it in swearing at each other. There will be a swarm all over the wigwam from platform and pillars to dome and rafters. will be a small vessel to hold all its elements of tem pest. Everybody will be there who can pay h passage-money and hotel bill, and who has opinion of any kind to be conciliated a reconstructed — the Col. Murphy who has be convicted of murder, the Colorado delegate w robbed a store, and declared "that the nigg who did it ought to be hanged for it" down to the Judge who was so unfortunate as to ha presided at the trial of John Brown. There will men of fossil respectability, who are willing open out old essays on the Constitution in most an company: and we pity them! There will be sermo on sermon of law-abiding piety to mesmerize the spir of Rebellion until it is time for it to wake up; but th Convention does not propose to operate to cu kill anything unless it be negroes. The Ra

President ;

SAMUEL EDWARDS, La Moille, Bureau Co.

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No rain for weeks afterwards. [Coated a few other limbs near these (N & NW) but not marked]

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On a piece of a twig 1 ft. long & averaging ⅓ inch in diameter, which had been covered in the Spring of '67 with many hundred scales, most of which were still adhering today to the bark, but of course contained no plump eggs (eggshells plenty), & which twig had been thickly salted over with young barklice when June 12 (?) it was treated with soap solution; I found on removing all the hundreds of scales, both old & new, with the point of a penknife & examining each separately under the lens, but seven scales, containing eggs & therefore recent, which must therefore have survived the effects of the Soap. On the same twig, after the above process had been gone through, which necessarily obliterated or removed many of the young barklice killed by the Soap, I counted 422 young barklice still adhering to the bark & which must therefore have been killed by the Soap.

Hence, assuming that only these 422 were killed by the soap, & that the 7 surviving ones had been there when the Soap was applied; the Soap must

have destroyed life in the proportion of at least 422 ~~to~~ out of 429, or 98⅓ per cent of the whole number to which it was applied.

But I feel confident that there must have been nearer 4000 than 400 young bedelice on the piece of twig when the soap was applied, & that many of them were subsequently to their death beaten off the twig by the weather, besides those detached by the above process. It is also not impossible that some, if not all, of the living scales had crawled on to the twig from its tip, which was not dosed with soap.

Found two white hairy Mites (adult) under a scale, where ⅓ eggs were white & plump, the rest yellowish & shrunken. Sucked them? Found two larval mites under scale, among débris of eggs; milky white, ⅓ thin, as long as wide, legs of coccus-egg: thorax distinct by transverse indented line; not hairy; sluggish.

Oct. 29 Mature mite is pale yellow — two long palpi? & short snout between them — octopod — legs even — another whitish pale yellow pupa? Found a single globular pinkish egg near a scale. In one scale found two acarid larvae — eggs white. Found acarid pupa — hexapod — 4 hind legs remote from 4 front legs — white like larva & larval case etc., but rather more elongate. Also a 2nd ditto — case of 8 legs.

a larval acarus under a scale, containing nearly all plump white eggs: ∴ attacks recent eggs.

At this season but very few scales (1 out of 100) have eggs fall from them like flour.

In a rough estimate, ½ the recent scales are attacked by mites; a good many completely so that nothing but the shrivelled egg-shells remaining. Sucked eggs are yellow, not white.

(Grubs alive still)

Oct. 30. Acarid larva(?) active. Not elongate. Has 4 pairs of legs but little in walking.

In a similar piece of twig, [illegible] treated with Saleratus water June 12 (see p. [illegible]), 201 scales undoubtedly containing recent eggs, & [illegible] scales, killed immaturely. A great many [illegible] probably 200), which might have been gutted by [illegible] been last year's dead scales, were not counted.

Very minute Acarus, found in company with 2 larvae under a scale, runs very fast, & uses its front legs as antennae, which none of the others did. Very pale yellow. No thoracic division.

Twig treated with tobacco-water, same results as that with saleratus water. Probably at least ⅔ of the recent scales on both twigs infested by acarus: maybe ¾.

Snout too long;
only $\frac{1}{2}$-$\frac{2}{3}$ as long as thor

0.8 mm

very fine hairs
from above

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(Gardens close still)

Oct. 30. Acarid larva: octopod. Not elongate. Hind legs but little in walking. [Mistaken about the long palpi]

†† In a similar piece of twig to † p. 53, treated with Saleratus water June 12 (see p. 27), found 201 scales undoubtedly containing recent eggs, & only 9 scales killed immaturely. A great many scales (probably 200), which might have been gutted by Acari or been last year's dead scales, were not counted.

Very mature Acarus, found in company with 2 larvae under a scale, runs very fast, & uses its front legs as antennae, which none of the others did. Very pale yellow. No thoracic division.

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Harrisii scales now all contain pink eggs

Nov. 4th Buried pupa Dig up May 4 '88 { 1 rotten, 2 hollow? 3 sound
Vig. 24 Datana Angusii
bred on Hickory (see p. 47) 6 Halesidota caryæ bred apple sound
from N.Y. Dr. Smith (p. 49) 1 Larva (?) from Dombeck (see p. 49)
This last pupa is much swollen in front. [placed in front at A in cage.

Nov. 7. See page 52.

Golden
Nov. 21st Found on a White Pine at Paul Hopkins Aspids
pinicortis abundant in company with Coccus pinicortis,
Under ~~both~~ former are now numerous coal blood-
red eggs. On another tree nothing but the latter. Plans
to go (today Nov. 22) to see if ~~my~~ pinifolia is developed
there from. In this last tree very numerous Chilocorus
bivulnerus, which had perhaps devoured all the insect.
It was on North side of House, the first tree on South
side. Noticed the insect of pinicortis black & about
.1 long as described by Dr. Fitch

The ♂ Semasia pruniana is probably of an unusually amorous disposition, for the aphro-disiacal ecstacy fluttered off the delicate tip of the hairs composing his head brush a few million of years ago =0

Dr. Pennington, of Sterling Whiteside Co., finds pure petroleum, so far as he can see from its application to about 100 apple trees, not injurious, applied to about ½ of large limbs (say 1½ inch & over in diameter) & to trunk. Prunes trees first.

Uses a solution of soap with lye with as much petroleum as it will take up, & some sulphur, against bark-lice applying it from May to June. Finds it pretty effectual.

Nov. 21. All larvæ of Apple-root borer seen were dark lead-color or slate-color, not of a "pale dull yellow color" as described by Fitch (I. p. 9.) [They were plenty yellow when home] .64 inch long, as Fitch describes them. The antennæ were 6-j^s as in cut on p. 1 & 2 short, 4–6 rather short, 3 = 4+5+6

Found yellow ones, (immature?) with j^s 3 short; body .03 long

Found an orange-color hairy mite (magn) among them. The ♀, over .05 long, bean color. Legs in all dull yellowish. A good egg dark one had j^s 3 only 1½ times as long as 4 or 5. In some immature ant. apparently 5. j^s

Specimen found on bark (in Sept) ft. from butt, apparently identical with those found on Pool.

Specimen of Aph. Harrisii on Sorbus (Mountain ash) from Colden. Eggs bloodred.

Nov. 23. Specimen now have sky-blue cottony filaments (about as long as body) erect & proceeding from all parts of body

Dr. Fitch says of figures. Generally ~~somewhat~~ a reduced globule of same = diam of body, at anal end (both anus a

5 Nov. 29 Jar of "Curculio" plums examined. Plums = 183
XX dead Curculio found among them. Sand full of perforations
where Curculio had ascended. IXX dead (immature) under
the sand. XX IIXI
Plums deposited June 24 ~~Subsequently~~, both this & following
jar, many subsequently added to 1st jar from Garden plums
"Prunicida" plums examined. Plums 165 Scarce
any of these bored (1 only observed); almost all of 1st. lot
were bored. Several had split open. Shells of all in both
lots soft & easily broken. No Curculios of any kind
found.
Plums (from excisions) gathered July 27. Plums = 243,
Tolerably moist now; the others very dry. Shells quite
hard. 1 Curculio among sand
Carried down cellar
Jars (large) 1 with grubs & larvae (coleopt.?) from
S. Illinois + tin pot with "Feathr. green larva on pear,
Mass. June" (cocoons stuck to side of pot near top.)
Jars (large) 1 with "Cherry Lyda, all gone under Aug 4."
(nothing but sand)
Jar (smaller) 1 with leaves in it. Plum Lyda.
Jar (tall) "Rock. polistiforme Harr. Ky
+ 3 Curcul. larvae from Carya Jallan July 19
+ Syrphid. larvae from Rhois D. Fitch
1 glucine bottle (from Egypt) " 1 Lepid. pupa (Datana
minuta?) (apple roots. 2 Ns tachina inparvum. 3.

Syrphus puparium (or larva) on Pemphigus pyri. Came at May 23 Syrphus

x Prof. Turner told me at State Fair that he had had his grapes bored.

Dr. G. L. Kimball, of Iowa City, Iowa (met on Cars) recommended me to apply to the following, as very intelligent men: — J. L. Budd, Shellsburg, Benton Co, Iowa, who

o finds the following good against Earlines; water 80 parts, Benzole & soap 20 parts. Also to Capt. J. Matthew, Knoxville, Iowa, who inserts earth under plum-trees, & rams it hard, & finds that on alternate trees thus

x treated the Curculio is headed off.

Baker of Cobden finds salt good to kill Aphis, Lepisma, & does not hurt cabbage. He has seen Curculio in the window in the winter (Jan. or Febr.) Holcomb has seen it under loose bark of pear-tree in winter (Feb.)

"Soot will kill Cutworms, Wireworms, Lither that from turf, coal or wood, but that from coal the strongest. (Jas. Flimm, an English gardener from Whitehaven in Cumberland, now Resident as Boss mule-driver at Coal-mine near Duquoin.)

— Locust year in West Virginia in 1867 (anon.)

— Spirits of Hartshorn will destroy young caterpillar nests. ~~If~~ I go over 2000 trees. (anon)

Dthyc. novebor.s infests Pear badly (Parker Earle.)

Holcomb finds an interval in the depredations of the Curculio: hence he inferred two broods.

Paul Wright found Curculio/larvae last September in Peaches

S. W. Beckwith (near Cobden) found 5 or 6 Colodes Curtus (shown him) on his grapes in forepart of August.

Carpenter (of Cobden) finds woolly plant-lice 2 or 3 feet from ground on young appletrees in nursery, but only in damp weather. Afterwards brought me a shaving from bark, apparently of a tree several inches at least in diameter, which contained in a filamentous cocal knothole 3 or 4 apted. larvae, which I compared when at home at R.I. with Root Plantlice & could see no difference.

In many sections [of U.S.?] 9/10 of the pears are reported as ruined by the Codling Moth in 1867. A large Indiana grower picks up windfall apples every day & makes into vinegar, which pays well for the operation. (Parker Earle)

I could find on close examination no Physcita nebulo in Egypt. [Ed. Joseph Riley: but common near Chicago.]

Whyte, novebor: (Spec.n shown) amputates rose twigs

C. J. Farrell killed Nemph. Pyri by boiling water. He found ashes no use. A strong wash of soap & water pretty effectual, but not always.

Col. H. C. Forbes finds Grape Curculio worse than the Rot. It attacked J. J. Prichett's grapes 3 years ago & since. Took 3/5 of Grapes on 1 Isabella & 1 Concord — utterly ruined them. Mr. Spaulding has known it for 4 years — the darker the grape, the darker the larva. One particular vine was nearly ruined for 3 consecutive years.

Mr. Carpenter finds blight on the roots of seedling apples, in the fall following the spring when the seed was sown. Mr. — has seen the same blight in seedling apples, when no other appletrees were within 200 yards. One land lately reclaimed from forest. "Early Harvest" apple is peculiarly subject to "rotten roots".

Chickens will eat Chinchbug, but not Ladybird or their larvae (Holcomb)

Silandria oryzae feeds like Procris americana & is common in Egypt (Riley)

Grapes stung by Curculio mostly drop (H. C. Forbes)

Mr. Fox (late of R.I. now of Cobden) thinks he found the true Curculio in 3 or 4 wild plums, when ripe, in July

61

in the solid flesh, with no hole bored externally, so far as noticed. (Spec.s of Curculio & Plum gouges shown him.)

Aspidotus Harrisii on Mountain Ash. (Spec.s grown me at Cobden & preserved.)

Bucculatrix pomifoliella (Clemens) Cocoon on apple bark at Cobden Grown me & preserved.

A few vitifolia galls on Iona Grape-leaves. Taylor is a smooth-leaved variety (Dr. Morse) & as Hussmann says bears vitifolia galls. Delaware vine is sometimes covered with these galls.

Tree frogs change color like the Chameleon (Holcombe & Clark)

Cetonia inda consumes peaches in the autumn (Dr. Warder's book, p. 302.)

Somebody having recommended the employment of hedgehogs to exterminate beetles and other household pests, Mr. Frank Buckland, the well-known writer on Natural History, gives the following account of his experience with the animals: "I have tried hedgehogs to kill beetles; they don't act. A hedgehog cannot possibly hold above a pint of beetles at a time, and in my kitchen there are gallons of them. I once tried the hedgehog plan at the Deanery, Westminster. The first night after his arrival the Abbey watchman was frightened out of his wits—it was the hedgehog. The next night, fast asleep, I felt a cold nose on my face, and then a prickly

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62

The larva of Tubulea batatorum kills pumps 4 or 5 inches high. (Dr. Abraham Hostetter, Mt. Carroll — is certain of it.)

Judge Olney, Herkemer Co. N. Y. starved out "wire-worms" by 1 year fallow, plowing it 3 or 4 times. P. F. Nov. 16. p. 308

A fleshy Californian plant grows after immersion in boiling water & dryes. P. F. Nov. 16. '67 p. 310

Benj. Borden, Morristown, Montgomery Co. Penna. informs has noticed Grape-vine Fidia 4 or 5 years. Has examined in 1867 carefully both Spring & Summer Vears find nothing that can possibly be larva. [So with Chrysobothris crenata on Deciduous]

When a boy, recollects (about 50 years ago) his folks grew potatoes on some low wet clayey ground, in New Jersey, near the seashore. The whole of the ground was infested with "white grub"! In taking up the potatoes, we turned up many of the grubs, dead, with two little plants growing one from each side of the head. An old Soldier Yourself examined these & pronounced it a fungus growth.

Thyreus grandis, Say, provisions the nest with Cicada. [Letter filed with MS. of "Wasps & their Habits."]

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how much Tea or Coffee he wants, and select the kind and price from our Price List, as published in the paper or in our circulars. Write the names, kinds and amounts plainly on a list, and when the Club is complete send it to us by mail, and we will put each party's goods in separate packages, and mark the name upon them, with the cost, so there need be no confusion in their distribution—each party getting exactly what he orders, and no more. The cost of transportation the members of the Club can divide equitably among themselves.

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Oct. 18. 1867

Y-YORK SEMI-WEEKLY TRIBU

eat a certain number of beetles, and the beetles, having good spawning ground behind the kitchen range, breed much faster than the hedgehog can eat."

NE, FRIDAY, OCTOBER 18, 1

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Cetonia inda consumes peaches in the autumn (Dr. Warder's book, p. 302.)

Dec 11th. On Apple bark (with Pemphigus pyri) from N.C. Hays, Alton, received a specimen of a Psylla very closely allied to pyri but distinct. Ant. much shorter & costal vein in front wing ⬭ (not ⬭)

the larva of Tubulea batatarum with jumps 4 or 5 inches high. (Dr. Abraham Hostetter, Mt. Carroll — is certain of it)

Judge Olney, Herkimer Co. N.Y. planted out "acre-rooms" by 1 year fallow, plowing it 3 or 4 times. P.F. Nov 16. p 308

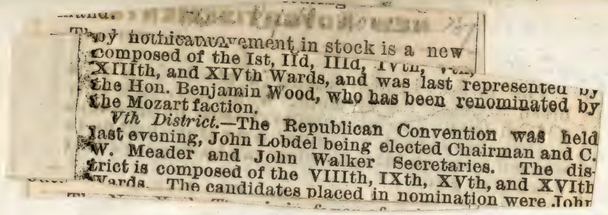
A fleshy Californian plant grows after immersion in barley water & dries. P.F. Nov. 16. '67 p. 310

Benj. Borden, Morristown, Montgomery Co. Penna. says follows has noticed Grape-vine Fidia 4 or 5 years. Has examined in 1867 carefully both spring & summer & can find nothing that can possibly be larva. [So with Chrysochus auratus on Dogsbane.]

When a boy, recollects (about 50 years ago) his folks growing potatoes on some low wet clayey ground, in New Jersey, near the seashore. The whole of this ground was infested with "White grub". In taking up the potatoes, we turned up many of the grubs, dead, with two little plants growing one from each side of the head. An older brother & myself examined these & pronounced it a fungus growth.

Stizus grandis, Say, provisions its nest with Cicada.

[Letter filed with MS. of "Wasps & their Habits."]



...by nothing new in stock is a new
composed of the Ist, IId, IIId, IVth, Vth,
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Cerambycidae larva in Hickory — yellow — & with 6 very small legs, as in Arhopalus robiniae. Spiracle mesothoracic — Length 1 inch.

A small larva (.30 — .35 long) curled up, & with 6 legs in Sapwood of Hickory, Miamisburg. Received infested wood under fence near Priory. [died]

"Mr. Clark found in Brazil that Trypoxylon figulus & closed with clay the cells of a nest of Pelopoeus, thus using them for its progeny" (Proc. Zool. Ent. Soc. IV. p. 77. 1858 — paper of Mr. Smith.)

[from O.S.]

Synophus lacvventris, 3 specs. sent to O.S. (= Q. favosa)

" 1st. bred from gall of C. q. forticornis, is a Cerapteres

2nd. bred from same gall, is a new Synergus

3rd. bred from Q. spongifica is Synergus laevealus O.S. "

(O.S. March 7. '65.)

"In Central Europe the following oaks occur.

1st (White oak group) Q. robur, Q. pedunculata, Q. pubescens

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(O.S. Nov. 7. 1865)

Hill ant (Formica rufa Linn. (Black Red) nurses Termes fontalis. (Fitch 2-4 Vol. II. 4th Rep. p. 84)

Aranea spinosa Walsh found sucking an Andrena ½ inch long (J.I. p. 146)

Same infest. larva of Col. Potato Bug (July 10, spec. sent from Central Illinois)

Aranea n. sp. (near modesta) preys on larva of Hyphantria textor (see J.I. p. 135)

Stictoptera finibriatus Say was found by myself in a Caterpillar nest in abundance

All the above belong to the Spiderines of N.A.S. & are perhaps exclusively Cannibals.

March 4. Specimen sent me of the Cocoon of Oligia leucostigma, in which the abdomen of the moth had changed into a kind of soft white wax, having much the smell of Spermaceti, & size of Grape seed. Analogous to "Greasy" Specimen. Sent me by Joel Barber, Lancaster, Wisc. & found on an apple-tree.

How Muskrats Swim Under the Ice.

Muskrats have a curious method of traveling long distances under the ice. In their Winter excursions to their feeding grounds, which are frequently at great distances from their abodes, they take in breath at starting and remain under the water as long as they can. They then rise up to the ice, and breathe out the air in their lungs, which remains in bubbles against the lower surface of the ice. They wait till this air recovers oxygen from the water and ice and then take it in again, and go on till the operation has to be repeated. In this way they can travel almost any distance, and live any length of time under the ice. The hunter sometimes takes advantage of this habit of the muskrat in the following manner:—When the marshes and ponds, where the muskrats abound are first frozen over, and the ice is thin and clear, on striking into their houses with his hatchet, for the purpose of setting his traps, he frequently sees a whole family plunge into the water and swim away under the ice. Following one of them for some distance, he sees him come up to renew his breath in the manner above described. After the animal has breathed against the ice, and before he has time to take his bubble in again, the hunter strikes with his hatchet directly over him, and drives him away from his breath. In this case he drowns in swimming a few rods, and the hunter, cutting a hole in the ice, takes him out. Mink, otter, and beaver travel under the ice in the same way, and hunters have frequently told me of taking otter in the manner I have described when these animals visit the houses of the muskrat for prey.—TRAPPER'S GUIDE.

NEW ADVERTISEMENTS.

GLASS BOTTLES, Vials. and Prescription Ware—a full stock—and Window Glass, all sizes. **MEARS & ROCKWOOD,** Druggists, **192** Lake st.

WEST'S HAIR RENOVATOR—Best in the wide world. Restores the hair to its original beauty. **MEARS & ROCKWOOD,** Druggists, **192** Lake st.

—The latest improvement in stock is a new breed of cats in Vermont, which have tails only an inch long. The advantages claimed for such tails are that they cannot get under a rocking-chair or be stepped upon, and that the door can be closed quicker when they go out.

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ber, all to be journalized, posted and closed in the manner previously taught. It is readily seen that the number of books opened and closed during this department are fourteen, sufficient to lay a good foundation for all attentive working students, giving them light upon considered "mysteries," with the full ability to remove opposing impediments.

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Syophrus lawrentii, 3 specs. sent to O.S. (= Q. fascia)

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All the above belong to the Epeiridæ tribes of A.V.S. & are perhaps exclusively Carnivals.

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March 8. In Dunlap's field, to immediate right of R.R. about 100 yds. from cattle-guard at N. end, found on top of bank a Q. discolor covered with the gall Q. transitica. Also noticed the Cottonwood there covered with the vagabunda gall.

[no new ones Aug 1. 1888]

Apr. — Upon some Q. globulus galls gathered July of 1886, found a tiny cynipid larva in the central cell of 2 of them.

March 31. The apple-twigs scraped Nov. 1886 now have plenty of scales containing sound white eggs, some of which are loose & scatter out when the scale is lifted.

Canker-worm in Dane Co. Wise (Madison) from J. J. Smith, specimen 57 recd. April 10th.

April 13. Bendo- Coccus? Azaleæ n. sp. Mature ♀, just beginning to lay eggs. Length .09 inch, 1/2 longer than wide, side view, back view; segments distinct, thor. segments much the largest. Legs 6, wide apart. Rostrum distinct, with a distinct long seta sometimes protruded from it. Color Lake red, or Carmine blood-red. Eggs (but few yet laid) small, oval, 1 3/4 times as long as wide, pale lake red: ♀ covered above with a thin papery milk-white envelop, rougher & more cottony outside, smoother & more paper-like inside. General shape of envelop, nearly that of ♀, but rather more rounded at the ends. From W.C. Flagg, on Azalea.

One specimen distinctly alive, moony one of eggs repeatedly. Very like Westwood's figure of ♀ Pseudococcus (Introd. II. p. 443, fig. 9.) On May 17 this spec. having been gummed x/x/ exuded glary cotton from all parts of its body. "naked" as recorded on table, had "

April 16. Holcomb says find Phytocoris linearis (spec. sent) on Pear blossoms & on White flowers in the garden. Mrs. H. says they are a plague to her all through the Summer. Mr. Rece says they are destructive to Grapes.

"I have today found 2 Curculios under some rough bark on a Pear tree." (see also p. 66 x/x)

April 20. Yellow Bell-flower tree. Paid all the wood limbs with Benzine. & the following labeled limbs as follows; to them tips from the label-string

No. 1. Kerosene
2. Benzine
3. Linseed oil (+ 2 bottom boughs on E end of NE espalier
4 ——— + tar (1/2 & 1/2 — mix well
5. Lard
6 Benzine & tar (mix badly — 1/2 & 1/2
8 Soft soap. (Soap won't mix with kerosene nor will water even with Carb. Potash)

5 & 8 put on with my hands; the rest with a sash-brush.

Dashed a wash-boila-full of hot water (nearly boiling) by dipperful over espalier W of Yellow bell-flower mostly on E 1/2 of the Espalier. A pretty warm day.

April 21. Caterpillar burrowing in the soled paper of a book, from Sharon Tyndale, State Secretary.

Length .55—.70 inch, 10-12 times as long as wide. Color pale greenish brown, sub-polished, with long pale hairs especially on sides, = diameter of body. Head rufous, with similar hairs. Feet ♯. simple, no cervical plate 2nd & third ▭ with two grooves; 4th—11th with a transverse groove 2/3 way to hind end; 12th with the groove making the anal plate in the middle, all the grooves ravine-wise, the hind edge of each joint broadly dash brown. Legs & prolegs pale dirty greenish, immaculate. — Prolegs 10, normal. Spins a thread, & runs backwards as freely as forwards, wriggles very much. Pyralide? Asopia costalis? No. May 23 still about & eggs,

April 22. Anointed 34 Summer-pear trees in apple-tree at Kinney's — 6th row from end S of Rented ? house. Commence at East end — anointed entire tree, fast running moderately.

No 3. (6 trees) Linseed oil
No 4 —————— + tar (1/2 & 1/2
No 1 —— Kerosene
No 2 —— Benzine = benzole
No 5 —— Lard
No 8 4 trees — soft soap.

1—5 put on with Sash-brush; No 8 with hands.

May 25. Trees looked out, according to Kinney, No 8 came out well & looked best; then No 2; then No 5; then No 1 & 3, 1 slightly the best; No 4 by far the worst of all. Scarcely now beginning to leave out.

— "The books destroyed, (we have found two dozen) have been stored in a comparatively dry room ever since 1860, one of them perhaps as long as from 1848 or 1850, & no particular signs of mould. Stored in one of the store-rooms of the Male-house."

"Hancock Co. Frost of April 4 killed all the bloom on apple trees" A.C.H. in P.J. April 25. '68 p. 260 ×

No rain from April 20 & 22, 1868 till April 24, when there was a pretty heavy rain.

Conotrachelus nenuphar, (sent me by T.N.S. Holcomb) one of 2 specimens found alive under bark April 16. 1868

April 26. 1868 Coleoptera pulicaria (Holcomb) found on Strawberry bloom near flower garden, & was on Coreopsis; last summer in destructive numbers.

Apple-tree Barklouse Mite, or its work, rec'd. from Mygatt, Huggins, & Jas. Reed

April 30. [early in morning] Middle espalier on South row: W 1/2 of No 7 Bottom bough & bottom but 2 brushed over thoroughly with solution of Saleratus, 1 water 1 Sal.s

No 9. Bottom bough but 1 (longest) brushed over with saturated solution of table salt, strong enough to bear up an egg. [Rained hard on 24 or 32 hours after.] Upper bough & E side of tree paid with benzine, not thoroughly, but wherever lice were seen.

May 1 ~~1~~ 2 deposited in large glass jar two kinds of elaterid larvæ about 1 inch long: with strawberry plants.

1st Simple anal ♀ ♂ slenderer, more cylindrical & manifestly elateride: 6 of them (1+6+2+6+2=17)

2nd Semibuprestiform., anal ♀ ♂ doubly emarginate, body more robust, not so cylindrical: 5 of them

1 specimen of each preserved in alcohol in vial with large crystals larvæ

№ 2 found in other years abundantly in house-garden. № 1 always abundant in South garden.

In same jar about a dozen eggs of Aldrichia Carolina: found arranged regularly in a kind of sack or cocoon (found 5 or 6 more, dissected, pale-cream) — 2 dead. See p. 78 Found.

May 2. Supposed Syrphus? pupa from apple-root (Egypt) had crawled up out of sand (& attached itself to stopper of bottle) 2 inches. Was placed last fall under sand. Vial 58 — rather bristly body — color dirty ash color.

+ Larva of Hyperaspis punctata had transformed inside a perfect ball of flossy white flowry matter. Two specimens preserved. Larval skin visible in middle of ball. (See p. 22.)

May 4. — Had crawled up again out of sand up side of glass. Is certainly Syrphidous, for closely resembles those found in Rhus galls I now alive in a jar.

May 5. On a Q. podagra-like gall (smooth, but lateral on the twig & probably solitary, as I labeled it Q. punctata) found Sept. 13 on Black oak found dead in the bottle 16 Sp.? of Pemphigus querce n. sp. Cottony floss under one of the hollow scales or caverns in the gall. Preserved 14 specimens.

In bottle with same gall 3 Q. podagra ♀. Might have come out, as usual, in April. Dead. Venter pieceous in all three. See J. I. p. 184–6, but abdomen black.

May 11. Found in valley over asparagus bed 6 wireworms, apparently = 1st species of p. 69. Tail ~~Emarginate~~ at tip & closely punctured near tip. Four carinæ, longitudinal, two middle ones conversly curved towards each other, one of the six half as long only as others. Found also in valley Melanotus (preserved.) May 12, 2 ditto put in jar.

May 11. Found in rotten wood of sun-burnt apple-tree at Brooks's lot of Scaura (Mol. fus.?) 5 carinæ (4 plainly) pupæ? In alcohol. Breeding.

In nest of ant (dull-mottled fuscous) lot of coleopt larvæ. In alcohol. Breeding. May 17 some gone to pupa.

May 27 = Hymenoura punctulata.

Searched 3 or 4 hours in Brooks's orchard in vain for apple-worms. Found lots (30 or 40) under hoops (loose) of his apple-barrels, all but one in larva (not pupa) state. The Sapsucker peculiarly attacks the Summer Bellfleur. Ten or 12 trees all so, & none of any other variety. A tree with part of the limbs of this variety & part of Early Harvest, had the former bored up & the latter not at all.

May 19. Large noctuade larva, abundant under stones on the Island — 15 or 20 found. Length 1.85 inch, breadth .30 inch, 16-legged. Color umber-brown, a dorsal & a lateral stripe (narrow) & a wider stigmatal stripe, all brownish white, featuring whole length of body; 1st p. & anal plate shining black, with the stripes always distinct on them; the dorsal & lateral stripe sometimes obsolete elsewhere. Beneath pale brown; prolegs with a basal shining black outer band; legs almost immaculate. Head often yellowish brown & paler than general color, subpolished, slightly rugose. Stigmata black. Curls up sideways. Occurs under stones in grassy places, along with much pale bright green grass, apparently made from grass. Feed them on grass. Preserved 1 normal & 1 dark var. in glass-stoppered vial. Placed in same vial 5 or 6 agate-like larvæ also found under stones. Failed to breed. Chrysalises placed in vine-case.

May 19. Two about .80 inch long, found under stones on Island apparently from hairy black Saturnia-like larva; also one (no cocoon) like that of Acronycta near psi. Also 1 Arctia virginica. Placed all 4 in front right-hand corner.

In "Plum Syda" Jar small chrysalis in cocoon found under stone on Island; cocoon tied up with fine white thread. (came out, dark moth)

Three — 1 tufted pupa (like Arctia Isabella) + 2 [illegible] pupa all found under stones.

All the above of May 19 & 20 failed.

Placed 42 Noctuid larva (found under board at Brooks's) in jar with Garden Glaleud larva. (13 X)

In Brooks trees both Imported & Native Bark-louse; but the latter is almost exclusively confined to the trunks & large limbs, the old dry dead scales being coarse (in some trees quite thickly) with old dry scales. Very few indeed on smaller branches & twigs, & only on a few trees. The latter not numerous. Found plenty of eggs under the former.

May 13. Shifted Glater jar (p. 69) Found
No. 1. 13 larvæ (1 missing) + 1 on May 19.
No. 2. 5 ——— (right)
+ 3 noctuid larvæ (right) + 1 (May 15) (to new jar)

Lecanium corni (spec. sent) infests the roots of Coreopsis. (Holcomb) In 1856 plants nearly killed by it.

May 17 - Two noctuid larvæ found under the board, + 2 from Glater-larva jar (p. 69) Placed in new jar. Also May 18 on 5 more.

May 18. Graham Lee "Lachn. quercina & pilosicollis (1 of former to 10 of latter) infest chestnut-trees in swarms!" (Hamlet, Mercer Co.)

May 18 & 19. Found 2 clalende larva No. 1 (p. 69) under dry dung & 2 under stones on the Island.

May 19. Found under stones on Island, attached to their lower surface by a white silk pedunde .10–.15 long, 3 roughly subglobular, earthen cocoons .30–.38 inch in diameter. Earth mixed with small pieces of gravel, small pieces of straw &c. Pedunde  basally spread out, like that of butterfly larva, to stick the tighter. ~~Wasp's nest~~? Look like rabbit's dung.

[In same jar (bottle) Coleopt. pupa about .30–.35 long found under stone.] Opened one: contained 6 or 8 large soft-looking eggs enclosed in a white silken bag  of which the pedunde forms part. Eggs agglutinated by a kind of mucus, of a pale dull greenish color.

May 22. At Capt. Coe's. Two lepid. larvæ found burrowing sapwood & bark at butt of apple-trees, like Sap. bivittata (young). Length .3–.35 inch. Color pale;  head honey-yellow, 1st segment  two triangular plates, honey yellow, slightly excavated in front, ~~Stomach darker~~ followed by a larger

but indistinct one, partially resolvable into 3 plates placed .·. but indistinctly limited. Pale hairs on body, legs & prolegs immaculate. Placed in Bottle. 1st segment [illegible] Body a small [illegible] worm & spirit

Found Lepid. conchiformis moderately thick on two separate cherry-trees near Port Byron. Shewed them to Coe. Contained healthy white eggs.

Two distinct forms of Sap. bivittata found burrowing exclusively in sapwood by Capt. Coe, 1st smaller varying much in size, 2nd larger & with a large horney yellow plate on 1st ♀, not seen in others. Specs preserved in glass-stoppered vial 2 of first type, 1 of 2nd. (= 1st & 2nd year's growth) None found of 3rd year's growth, burrowing in heart-wood supposed, but only a pupa, which also is preserved in the same vial.

A whole Coleopteron larva found in rotten apple at Coe's. 6 legs 0a prolegs. Last ♀ with brown horny terminal emarginate appendages, preceded by dilated simple. ♀♀ 2–11 each with lateral fleshy white  pseudopods, excavated except on ♀ 11, where it is  . Head honey-yellow, brown in front: 1st ♀ with honey yellow horny plate  . Head with 2 divergent ~~arcuate~~ striæ . Placed in Cherry Hyda jar: Some small Dipt.? larvæ also in apple.

Castings of Sap. bivittata very distinct now (no rain for 8 or 10 days) & of an orange-Tawney color. Many in distinct rolls  cylindrical. Rain washes them away & obliterates them. .·. Dry spell best time to find them.

May 24. Shifted Elaterid larvæ (p. 69)
1st specier – remain 18 (missing 1)
2nd — — 3 (" 2)

May 26. C. pomonella came out from cocoon found under log in Orchard (Brooks.) May 28th 1st from barrel cocoons. (on a branch")

aphis valley nigra n. sp. on Salix nigra, from Coe, Bob Byron, Pupa & larva. Length .17 inch: color dull pale olive green, Basal 2/3 ant. & , legs & honey-tubes honey-yellow. Terminal 1/3 of Ant. & tips of tib. & entire tarsi dusky. Honey-tubes short, robust, 1½ times as long as tarsi. Beak pale green. (see p. 79)

From Riley. "Calopt. femur-rubrum, & what Uhler has marked for me as a variety, are well nigh as thick as bees all over the county west of the Missouri. I learn from Uriah Bruner of Omaha & the P.M. at Fort Kearney, who are men competent to judge, that they is the species which ravages them crops to a great extent & prevents the culture of all vegetables beyond a certain point."

May 28. Eggs of ~~Phallopteron oblongifolia(?) n. Thamnoptera cuneicauda~~ Steed. per Prof. Geo. Hunter from Henry K. Taylor of Allentown n. y. (?) Eggs oval, .12 long, ½ – ⅓ longer than wide, attached by one end by [illegible] glue-like matter to side of old dead stem (of reed?) & found "in an old pond-hole". Attached in 7 or 8 regular longitudinal rows of 7, 8 or 9 each, closely together.

The outside rows of 1, 2 or 4 eggs only. Each egg dark brown at top, with a still darker dot at the upper end. (Eggs slope slightly one way, supposed to point upward on stem from analogy of Catydid eggs.) Beneath the dot a white semicircular line on upper half of top of egg, very conspicuous. Then brown in streaks longitudinal, fading into a more or less wide band (very variable in width) reaching all round the egg. Then the remainder brown. (B)

dark dot A B

Two patches on same stem, touching one another, but the upper one higher below than the lower one is above, because it is the upper eggs that slope upward the most, the lowermost eggs being ⊥ the stem.

[failed to hatch.]

[Mistake: eggs in reality point downward, being attached to sheath of the leaf of the reed; two sections of reed sent, which show this

sheath

no sheath

May 28. James Reed (of Muscatine) found Caloosoma scrutator (Spec. sent) "destroying the worms in a tent Caterpillar's nest. He had consumed all but 4 or 5 in one nest & was doing the job for the one I found him in." (Recorded as destroying Cankerworms Harris p. 470, both on ground & on trees.)

May 29. Leaves of Carya alba now just about fully developed. Found lots of the stem-inhabiting Lepid. larva in pupa-nidus [illegible] about ½ inch long, ♂ brown. = "Carya tabulaeulum" Wlsh.

Also — a single Caryaevora fall. Slit closed, but visible. Inside full-grown mother louse & one egg. Male 5-f.; as she tried to lay another egg under the lens, dat. 3-5; 3d twice (1+2). Color body dull greenish white: 2 black ocelli; eyes black, apparently simple & scarcely larger than ocelli. Tarsi 1-f., claws apparently (in one tarsus) two.

May 30. Barklice (imported) hatching out pretty freely. Noticed many (12 or 15) Chelocoms bivulnerus moving about slowly among them: also saw one also a Scymnus? or Hyperaspis? larva, 1 specimen or two close to them.

A bivittata borer apparently in crotch of ♀ hellflower: the characteristic feces. Found it next day, killed.

Many eggs still under scales, unhatched: a few young locomotive larvae also under scales.

On Examination today,

No 1 Kerosene: effectual. No larva

No 2. Benzine. Not very effectual: 1/3 or 2/3 perhaps larva.

No 3 Linseed oil: effectual: no larva

No 4 Linseed oil + tar: —

No 5 Lard: —

No 6 Benzine & tar: not very effectual. Say ⅓ larva.

No 8 Soft soap: —

5 cont'd. opposite *

May 30. Larva of Trochilium polistraeformis (pouky). Length 1¼ inch. Color ♀ pellucid greenish white, with extensive curdy-white towel-like markings, occupying nearly all the body, but a dorsal line on ps. 4—12. Joints with an undistinct horny plate tinged in front with tawny yellow, & two divergent dusky [illegible] on hind ½. Legs tinged at tip with same color, & with pale large bulges. Prolegs each pair represented by two nearly confluent bulges, each with a double transverse series of about 10 fuscous flat teeth, separated by a furrow; which open & shut. On joint 10 forward row of teeth consists of only 2 or 3. None at all on anal ps., the terminal ½ of which is pale greenish white with no curdy markings. Head retractile; tawny at tip & at antennae, as well as mouth, fuscous. Spirade, normal.

* Hotwater 2 qts of explain ½ of hellflower: pretty effectual

No 7. Saleratus solution, 1 to 7. No use

No 9. Saturated brine.

Rhipoda Carolina(?) larva very abundant in my garden, especially on asparagus bed. (See p. 69.) June 6 they disappear.

May 31. Some larva still locomotive. But few larva in branches scraped in November: they sprout vigorously.

June 1. Took Carp. pomonella in window of House. X

Worm a pupa in cellar. June 2 ♀ came out from barrel June 3 cocoon

Aphis salicis nigra. (see p. 75) Winged specimens received from Coe, also wingless ♀♀. (but neither of them any anal style or ovipositor) Color of both black, with a lateral & dorsal row of white spots, ~ Van abbreviated individual row inside the lateral row. Winter dull pale olive green, sometimes white with pulverulescence. Thorax of winged ♀ black immaculate, & Tarsi tips of fem. & of tibiæ black. Legs wingless ♀ as in p. 75. In both forms a dull white patch on each side of dorsal row of spots just behind honey-tubes, Vin wingless ♀ a similar patch on metathorax. Length body .10 — .17 Wing veins stout, black.

June 6. Both Caryæglobuli & Caryæfolia galls now contain each gall one yellow mother-louse (undistinguishable from that of Dactylosphæra), many hyaline larvæ of various sizes, & a lot of eggs. Opened 10 or 12 of each & found 15 to 20 in all. Caryæglobuli a slit below (closed), Caryæfolia an elongate nipple below. Some of former .40 inch in diameter.

On limb of apple coaped Nov. 1867 found a strongly locomotive louse a yard from base of limb, & under a scale (lifted) another. Many Ch. brachiurus on Yellow-bellflow. Found 9 or 10 more locomotive larvæ on 2 trees N of Bellefleur; also 2 or 3 of the ladybirds.

Pink acarus eggs plenty. In one of two twigs, each 6 or 8 in. long, cut & taken to office found 1 locomotive larva; & on lifting scales, found numerous healthy eggs unhatched, both white & yellow.

(see p. 75) Carpo. pomonella cocoons from ~~[illegible]~~ 14
~~[illegible]~~ 9
~~[illegible]~~ 4
~~[illegible]~~ 8
~~[illegible]~~ 4
~~[illegible]~~ 4
~~[illegible]~~ 2
~~[illegible]~~ 0

Proconia undata. "Hundreds on a Catalpa tree. Simmons grisea, shaken from a peach tree". Holcomb. June 3d.

Diplotaxis frondicola? Say "feed on Cherry, Plum, Hazel, Oak & other trees — in fact they seem omnivorous. They feed on the leaves in the night, & burrow in the ground during the day just under the surface, usually close to trunk of tree, leaving the hole open. [♂ & ♀ only?] They are playing havoc with my young cherry orchard." D. B. Weir, of Macon. Remedy, tramp the ground close down, where they have gone under.

June 8. Shifted Halecede larvæ. (See p. 75.

1st species remain ~~XX~~ 17; missing 1
2nd " " 2; " 1.

One of 1st species was either moulting or had eaten into body of another, whence it protruded. Do not seem to have grown at all.

June 9. A. Gilbert, of Tipton, Iowa has had plums hollow & wrinkled outside like those on my wild plum tree apparently: (2 preped specimens sent.) "The disease commenced about 4 years ago, & now has taken almost complete possession of my trees!" [See my experience on wild plum, above]

Mr. Lochkan doubts that Chrysopa generally stinks (Ent. Ann. 1863 p. 137)

After an hour's search, found 3 (or 4?) locomotive Bankliee, & at least a dozen apparently recently hatched. Those 1st hatched now ♂ not ♀ & much larger.

Rec'd. from D. B. Wier a lot more Diplotaxis; also 2 ♀ Eudrosa quercus (and 9 ♂) which he took for May bug (and 10-5?) They bore under ground like Diplotaxis. Of Diplotaxis he says "Plums 2 yrs. have as many as 25 holes, within 6 inches of the trunk, & are entirely denuded of foliage. They appear to prefer Plums.

June 10. Found in ½ hour 3 locomotive Bankliee, & 2 or 3 more apparently fresh-hatched.

Coccus pinicorticis. Specimens rec'd. from D. B. Wier show eggs, dull yellow, ½ longer than wide, ovoid, under the remains (very obscure) of body of ♀, apparently .08 or .09 inch long.

A 22-legged green feathered larva, .40 inch long, with whitish & some dusky-yellowish bifurcate bristles on the whole body, each about ⅓ or ¼ length of body. Bred by Riley—Selandria pygmaea Fallen

YYY. Infests Raspberry, with Wier: 3 specimens. Starved, from leaves drying up: ∴ did not try to breed them.

June 11. Found Kinney's potato leaves riddled pretty freely (∴) with small holes by Haltica cucumeris (not pubescens as erroneously stated by Riley, for he says it is very bad in Egypt. (Trans. Hort. Soc. '68 p. 108)

Examined trees at Kinney's

No. 1. (Kerosene) 3 of 6 have the tops ½ dead, one quite recently so.

No. 2 (Green leaves) (Benzine)

No. 3 (Oil) leaves green

No. 4 (Oil + tar) leaves yellowish green

No. 5 (Lard) leaves green

No. 8 (Soap)

June 12. Re-examined medicated bands in garden
No. 1. Effectual. Dried off long ago.
No 2. Not quite effectual. A few larvæ below.
No. 3 Limb (branch) partly killed & Espaliers almost wholly so.
No. 4 Bark bursting.
No. 5 Effectual
No. 6 Not quite effectual
No. 8 ~~Dead~~ Not much effect.

Bands soaked in November almost entirely free from larvæ, except below

Noticed today & previously a scarlet mite among the scales, travelling freely: full-grown.

— In all the medicated bands, larvæ had crawled on to them from them base for a foot or two: below them base, pretty thick

June 14. Found in ½ an hour 5 locomotive bark-lice; all (as well as those found on previous day) seem destinctly under the knee to be travelling: (also a few, apparently just not long hatched out,) Took one to office & verified it to be a Barkouse under strong lenses.

— Beebe of Galena send me specimens of Plum badly infested by Aspidiotus conchiformis.

Gall very near Prunus crumena, but always growing on lower (not upper) surface of leaf, & with the mouth on the upper face of gall with white wool, the gall itself not tinged with pink, as sent me by Beebe growing on tame Plum. Gall also with a few longitudinal carinæ, & some of them .55 inch long (not .10 — .16 inch)

— Chippewa (= species taken at Chippewa) sent by L. Bruce of Du Bois, Washington Co, Ill. "Taken in the act of capturing & killing the [17-year] year Locust and sent with him". Ate good part of Locust on the ~~toe~~ head, & ate a hole in one of his own hind legs which had come off.

— June 15. Found 3 locomotive Bark-lice — all on the limb dosed with brine this spring. Could see none on other limbs.

— Noticed 2 dep. conchif. old scales on my pear-tree: also in one spot hundreds of empty (? white) Mites' eggs. Also the elongate scales supposed by Harris to be O dep. harrisii. Old scales? Also numbers of these back on middle standard tree.

— The Chilocorus swarms now on the Yellow Bellflower on the lowest limbs: Counted 6 of them on 2 ft. of a limb. Saw also 5 or 6 active scarlet mites, 3 of them within 6 inches of each other on the same badly lousy limb. On this tree scarcely as many larvæ as old scales.

June 15. Medicated boughs on middle Expalea in South row:

1st. West half of tree

No. 7 bottom bough but 2 & bottom bough, the latter with comparatively but few basilica larvæ.

Saleratus water, 1 saleratus to 8 water [all these by measure]

No. 9. Bottom bough but one. Brine, strong enough to bear up an egg. [Both these medicated with the same before the hatch, i.e Nos. 7 & 9.]

2nd. East half of tree

No. 10. Bottom bough but 4. Soapsuds, 1 part of domestic soft soap to 12 of water.

No 11. Next bough below. 1 part of powdered white hellebore to 10 of water; ~~taken~~ steeped for 3 hours & threw away sediment

No. 12 Next below. Carbolic acid 1 to 15 of water. Mixes well & smells & tastes very strong when mixed. Hard to get smell off hands.

No. 13. Blue vitriol [sulphate of iron] 1 part to 40 parts of water.

No. 14. Much whitewash, fresh slacked Port Byron lime: very hot slack, slacked with hot water. Consistence of thin paint or thin cream.

All the above put on with a sponge.

July 10. At Champaign, on poplar & willow, burying 4—12 together in ~~a~~ collective cocoons composed of leaves drawn together.

Sep. Larva 1—1¼ inch long. = [Clostera americana Harris]

July 12. Found in bottle containing 5 (perforated) mud cells from Egypt in November, 2 large Anoplius + 1 Ceropales (red abdomen) ∴ Ceropales parasitic on Anoplius ∴ cells all alike. N.B. Nothing else in bottle.

July 12. Shifted clatered larvæ (see p. 80)

1st species remain 14; missing 3 [2 empty skins not counted]

2nd —— —— 0; —— 2

Not grown at all.

"Hybrid. Ephemera fornicata always dies without laying her eggs." (Riley in P.F. 1868. p. 11) Eggs under Papa BDW

"Strong lye would kill Bark-louse scale" (P.F. I p 11)

(E.S. of Wisconsin?)

"Doryphora or 10-striped Spearman is in Danville, Ind. in considerable number June 16. 1868." A. Furnas. [Danville is slightly W of the centre of the State.]

From "Rural's" letter of May 20. 1868 in Chicago Tribune.

The White Pine is infested with Plant-lice [Bark lice] & which often kill the trees before we are aware of their presence. Various remedies have been recommended from time to time, but none of them of much value. Last year we applied cold water in a hot day by the use of a garden engine with marked success [Why then does not rain kill the lice? BDW.] but as few people have garden engines, this as a practical remedy is of no great value. Our author [Josiah Hoops of Penna, in his Book of Evergreens, published by Orange Judd & Co. N.Y.] has a more simple remedy, & to us at least, a new one.

"To completely destroy these little insects (Thrips juniperi) [!!!], it is only necessary to drench them well with a solution of whale oil soap or tobacco water. Perhaps the best & most convenient remedy is hot water a few degrees below the boiling point which will not injure the plants, but effectually destroy these pests." If this remedy is valuable for these plants, why not apply it to our orchards at the time the bark-lice are hatching out & before they become fixed in their scales? This might be done during the 4 or 5 days that they move about. I trust our State Entomologist will give this new remedy a thorough trial. It has been found practicable in the case of the Peach Tree yoke, & may yet

figure largely in our warfare on the whole class of plant-eating insects.

July 12. Red-bud Leaf-roller (often doubles a leaf up thus )
Length .40–.45 inch. Color greenish white. 1st segment obscure circular & closely connected with head. Head ⅓ of head black. A black dorsal velvety band on hind ½ of joints 1, 11, 12 with a narrower band on top of each of the two subsegments. Legs black, sutures & tips pale. Prolegs pale. Eyes black, 6 in number on each side. Labrum yellow. A dusky band, interrupted in the middle, between the eyes.

July 16. Gathered promiscuously a lot of infested plums & placed them on shelf in cool cellar. Temperature 70°

July 18. Arcuela punctulata flew in to lamplight.

89.) July 17. Two Clostera americana cocoons from larvae found near Champaign. Therefore here, as well as in Georgia, the species is double-brooded N New England. (See Harris) It also feeds here, as in Georgia, on willow as well as poplar.

July 22 From apples fetched from Champaign bred 1 Ath. 4-gibbus & 2 Carpoc. pomonella. July 25, 2 Ath. 4-gibbus

July 23. Saw Vanessa ~~J~~-album on window, but it escaped.

July 26 1 Ath. 4-gibbus bred from apples (from S. Ills.)

July 28 1 Carp. pomonella

July 29 1 ——

July 30 1 ——

Aug. 3 1 Ath. 4-gibbus

Aug. 8, 1 ——

—— 10, 1 ——

—— 11 1 Con. nenuphar; very pale & so kept to Aug. 15 (when killed (preserved))

—— 15 —— (crushed) + 1 4-gibbus

Aug 18 1 nenuphar (well col.) [added 3 Rock Island apples]

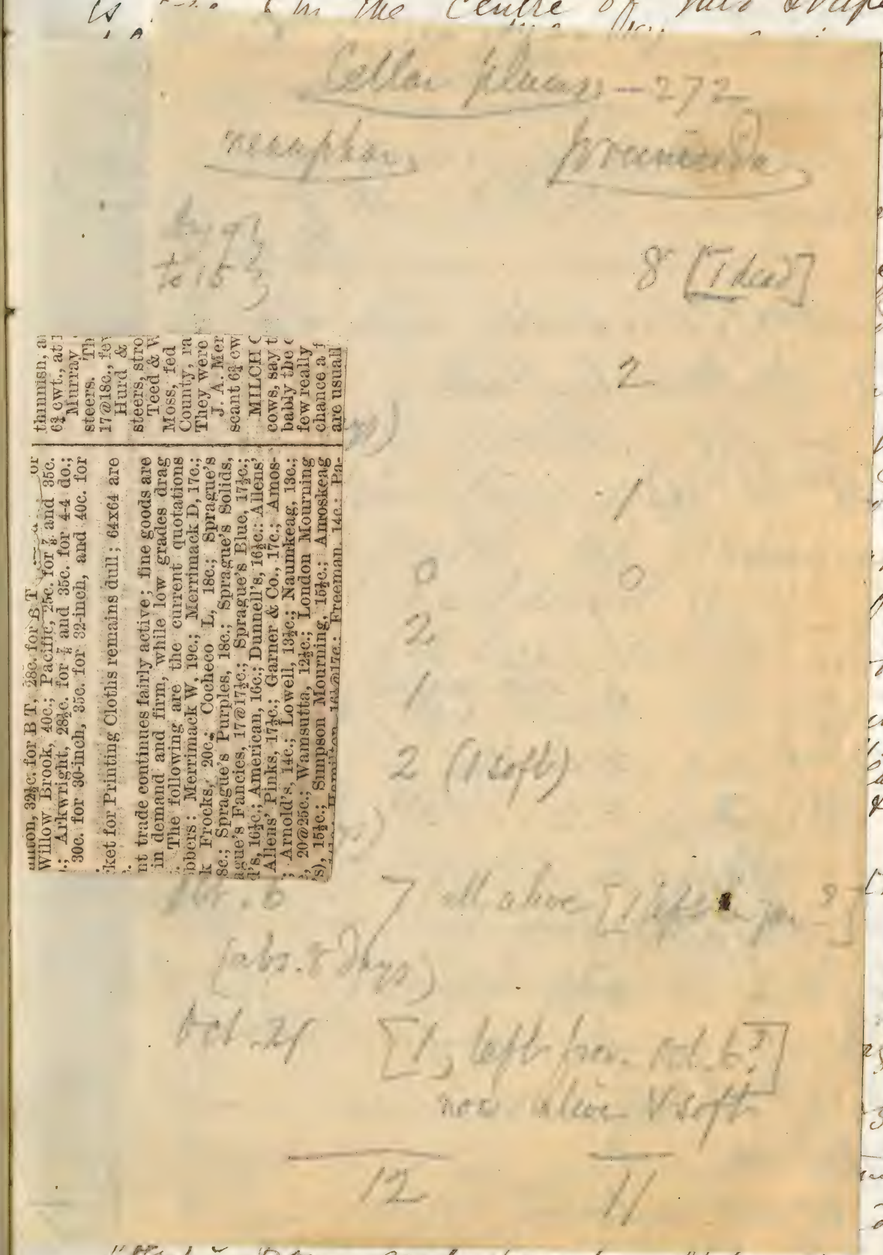
Sep. 10

Oct. 10 1 nenuphar (living)

Bottle No. 17. (agrotid cocoons "Prodenia n. sp" Grote)

July 27. Grass-caterpillar (on corn) recd. from Daisy went underground July 18 & came out July 27 (9 days only). Burrows into corn-stem, much like Gortyna nea, but from the outside; eats leaves also.

Length 1.10 — 1.50. Color pale brown to pale dirty green. A pale dorsal & sub-dorsal line & immediately below the latter & just above the stigmata a broad dusky stripe ⅓ as broad as each segment



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in demand and firm, while low gra
. The following are the current q
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's, 16½c.; American, 16c.; Dunnell's, 16½
Allens' Pinks, 17½c.; Garner & Co., 17
; Arnold's, 14c.; Lowell, 13½c.; Naumk
; 20@25c.; Wamsutta, 12½c.; London
s), 15½c.; Simpson Mourning, 16½c.; A
Freeman, 14c.; Pa

broad dusky stripe ⅓ as broad as each segment

In the centre of this stripe a

(90)

Pl. 2-12

dorsal lines
on pl. 2-3,
on pl. 4-10
. On V. 11
square & on

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on anal plate,
reduced pale
, wide as the
on pl. 1-3, a
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& stem
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[Work this page
Pl. 55. July 27.]
New
5. Scales now
on & as described
d (several times
, from cast bough) & found & as follows:

MILK SICKNESS.—*The Medical and Surgical Reporter* states that the affection of cattle known as milk sickness, is caused by eating the white snake root, *Eupatorium Ageratoidis*. This discovery seems to have been made by three seperate observers, at about the same time One of them Mr. William Jerry, of Edwardsville, Ill., in 1860 gathered this plant by mistake for the nettle, and eat it as boiled greens. On the day following, he was suddenly seized with violent trembling, prostration, and faintness, and on the next day with vomiting, and violent retching. He did not fully recover in five years, and in the mean time tried the plant on domestic animals with similar results. Dr. Amos Sawyer of Hillsboro, Ill., Mr. R. N. Lee of Nokomis, Dr. McPheeters of St. Louis, Botanist, and Mr. Enno chemist, all coincide in the opinion that milk sickness is caused by this hitherto unsuspected plant, which animals are said to like when it is in bloom.

...nton, 32½c. for B T, 28c. for B T ... or
Willow Brook, 40c.; Pacific, 25c. for ⅞ and 35c.
...; Arkwright, 28½c. for ⅞ and 35c. for 4-4 do.;
30c. for 30-inch, 35c. for 32-inch, and 40c. for

...rket for Printing Cloths remains dull; 64x64 are

...nt trade continues fairly active; fine goods are
in demand and firm, while low grades drag
. The following are the current quotations
...bbers: Merrimack W, 19c.; Merrimack D, 17c.;
...k Frocks, 20c.; Cocheco L, 18c.; Sprague's
...8c.; Sprague's Purples, 18c.; Sprague's Solids,
...ague's Fancies, 17@17½c.; Sprague's Blue, 17½c.;
...d's, 16½c.; American, 16c.; Dunnell's, 16½c.: Allens'
Allens' Pinks, 17½c.; Garner & Co., 17c.; Amos-
...; Arnold's, 14c.; Lowell, 13½c.; Naumkeag, 13c.;
...e, 20@25c.; Wamsutta, 12½c.; London Mourning
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Cellar flues – 272

remarks	Presented
Aug 9 to 15	8 [1 dead]
Aug 21 (abt. 5 days)	2
Aug 27	1
Sep. 2nd	0
Sep 9	2
— 15	1
— 19	2 (1 soft)
(abt 17 days)	
Oct. 6 (abs. 8 days)	7 all above [1 left from Sep 9]
Oct. 24	[1, left from Oct. 6. now alive. Soft]
	12 11

Office flues – 135

remarks	Presented
Aug 11	1
Aug 17.	1 2
Aug 20	1
— 24 [abt. 5 days]	1
— 27	1 2
— 30	1
— 31	5 (after rain) + 1 since
Sep. 11	2
— 13	1
— 19	2
abs. 7 days (Sun)	
Oct. 6	5 [1 dead]
— 9 (abt 8 days)	1
Oct. 20	1
Nov. 17	15 dead] 24 1 [dead] 7 1

July 17. Two *Closteras americana* ♂ reared from larvae found near Champaign. Therefore here, as well as in Georgia, the species is double-brooded N. New England. (See Harris) It also feeds here as in Georgia, on willow as well as poplar.

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July 30 1

Aug. 3 1 Anth. 4-gibbus

Aug. 8, 1

— 10, 1

— 11 1 Con. nenuphar; very pale & so opts Aug. 15 1 (tho' exposed to light when killed (preserved)

— 15 (crushed) +1 4-gibbus

Aug 18 1 nenuphar (well col.)
[added 3 Rock Island apples]
Sep. 10
Oct. 10 1 nenuphar (living)

& all to Sep. 10, 8, 4-gibbus + 4, nenuphar.

Bottle No. 17. agrotidous "Hydroecia n. sp" Grote

July 27. Grass-caterpillar (on Corn) reed. from Dalby West underground July 18 & came out July 27 (9 days only). Burrows into corn-stem much like Gortyna nea, but from the outside; eats leaves also.

Length 1.10 — 1.50. Color pale brown to pale dirty green. A paler dorsal & subdorsal line & immediately below the latter & just above the stigmata a broad dusky stripe ⅓ as broad as each segment is long. In the centre of this stripe a shining black tubercle & on pl. 1–2–12 between dorsal & subdorsal lines, 2 smaller tubercles, arranged transversely on pl. 2 & 3, but sloping downward & backward on pl. 4–10 [:·:·:], all these tubercles bearing hairs. On pl. 11 the 4 tubercles are arranged in a square & on pl. 12 they slope downward & forward [:·:·:]. Anal plate without any tubercles, but with the 3 pale lines & shining blackish. Joint 1 as anal plate. Beneath the broad dusky stripe an indistinct pale stripe, ½ as broad but 2½ times as wide as the pale dorsal & subdorsal lines. On pl. 1–3 a large shining pale brown tubercle above each leg; on pl. 4 & 12 two smaller ones sloping downward & backward, all bearing hairs. Head pale brown (or pale dusky green) mottled with black, the submargin behind the mouth & eyes & stem of Y black. Legs & prolegs normal, immaculate, save that tips of tarsi are blackish where hooks come. Legs & pro-anal & specimen stripe & pale.

[Plenty more – 14 or 18 – rec'd from Dalby July 27.]

July 27. Examined medicated bowls from p. 85. Scales now full-sized & contain underneath them ♀ as described by Riley. Scraped a lot off into hand (several times over) from each bowl & found ♀ as follows:

No 7 (apperbough) plenty of — Sol. Saleratus
No 9. Pretty dead. Fewer, but 5 or 6 at least. — Brine.
No 10 Plenty. } the greenest with leaves } Soapsuds
No 11 — } of all } Sol. Helleborus
No 12 — } } Sol. Carbolicacid
No 13 — (pretty dead — Sol. Sulph. iron
14. — rather dead. — Whitewash

July 27. Shifted Halesus-larvae (p. 86)
1st. species remain 13; 1 dead, wounded in the middle; missing none.
[July 30 saw him again under a dead grasshopper]

July 29. Saw one of the Telephorus pecan-eating larvae still alive & vigorously burrowing underground. I had yesterday morning put 4 or 5 Plusias, containing Curculio larvae, in jar. Subsequently, he had travelled to one & was chawing up the larva in it.

Larva of Doryphora juncta? found on "wild potato vine" by Wm. H. C. Keenan of Cobden.
Pale Yellowish. Eyelets, one pair transversely arrayed behind base of mandibles & another behind them a little higher up & arranged so as to slope a little backwards & upwards. Head otherwise punctulate. Dorsum of composed of separate transverse horny plates, each finely & closely punctulate & edged with black all round: pro- & meso- & meta- each with a lateral black horny tubercle & pro- & meso- each with a similar tubercle but on meta- this on p. 1 below the level of the others. Each horny plate bears a spiracle enclosing a spiracle

the row of tubercles. Last of the series of mandibles dusky. Legs immaculate. Tips of mandibles dusky. Dorsum of pts 8 & 9 a little composed of 3 transverse horny plates, each finely & closely punctulate & edged with black all round; pro- & meso- each with a lateral black horny tubercle & meta- with a similar tubercle but on meta- this placed above the row of 3 thoracic tubercles. Last of the series of mandibles dusky. Dorsum of pts 8 & 9 an enteroi dusky & for the tips of the femur & tibia; tarsus small, one joint dusky & with a dusky claw.

about 1/2 a crop of grass in Page Co., Va., left by grasshoppers (P.-S.- p. 40 — 1868)

Arma spinosa preys on larva of Pushphora polita. Latter stripped gooseberry bushes generally at Port Byron in 1867 & 1868; in '67 (not '68) took currant bushes also, but not so badly as gooseberries.

Odynerus (small & other kinds) makes its clay nest in holes in cotton-spools (Miss Holgarth, May 1st.)

Aug 2. Of all my Gortyna nitela larvae, found in potato at Bacon, but 1 remains. One was as big as a week ago or shifting.

Aug 2. Bred Philampelus Achemon from one of 3 larvae fed this same summer. Heard of another such case at Geneseo formerly. [Other 2 dead]

Aug 3. Thermometer at [illegible] conical, [illegible] to-insects, [illegible] in each side [illegible] the other four [illegible] the antennae. [illegible] separate transverse [illegible] points all round; [illegible] joint, below Hehind [illegible] each with a similar [illegible] enclosed at [illegible]

Podevia commelina (noctuid) bred by Riley from cutworm-like larvae (3) found under a board at South Pass. (Figured by Riley)

a pale yellow" or Cream color.

Dorythora juncta German; Larva.

~~Each Two~~ three-jointed, joints 2 & 3 h
pair longitudinally arranged & placed
arranged in a square & placed a
Tip of mandible blunt. Dorsum of
horny plate, rounded at the sides, tinged more or less with dusky &
1–3 each with a lateral black hor
the dorsal plate & enclosing a spira
lateral tubercle enclosing a spirac

~~sliced behind~~ behind base of ~~antenna~~ ~~dilated~~ ~~Very~~ Very
~~pale~~ pale yellow. Antenna robustly
black. Precisely as in conical, ~~2-f. Fig. 3~~
the simple black 10-lineata, they are
below the antenna; the other four
little above & behind the antenna.
and composed of a separate transverse
edged with black all round. Joints
tubercle, that of joint 1 below & behind
cle. Joints 4 — 11 each with a similar
; but the row composed of these

No 7 (upperbough) plenty ♀ sol. Saleratus

No. 9. Pretty dead. Fewer, not 5 or 6 at least. Brine.

Soapsuds

No. 10 Plenty. } the greenest with leaves of all Sol. Hellebore

No. 11 — }

No. 12 — } Sol. Carbolic acid

No 13 — (pretty dead Sol. Sulph. iron

14. — rather dead. Whitewash

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July 29. Saw one of the Telephorus beetle-eating larva still alive & vigorously burrowing underground. I had yesterday morning put 4 or 5 plums, containing Curculio larvae, in jar. Subsequently, he had travelled to one & was chawing up the larva in it.

Larva of Doryphora juncta? found on "wild potato vine" by Mr. H. C. Keenan of Cobden.
Pale Yellowish. Eyelets, one pair transversely arranged behind base of mandibles & another behind them a little higher up & arranged so as to slope a little backwards & upwards. Head otherwise immaculate, horny. Prothorax with 3 pairs of compound & separate transverse dusky & edged with black tubercles & 4 on hinder segment with a similar lateral tubercle on each side. Meso & Meta thorax with 2 pairs each of similar tubercles, but smaller than those on pt. 1 below the prothorax. Abdomen with 6 pairs of similar tubercles, but smaller than those on the thorax, & a terminal pair of conical tubercles on the penultimate segment. Anal segment with a conical tubercle on each side & a terminal one projecting backwards. Legs dusky. Dorsum of pts 8 & 9 with an enteriorly dusky dot on the top of the tubercle & a dusky dot on the lip of the tubercle. Spiracles dusky. Length about ⅔ of an inch.

(92)

Pupa of Doryphora 10-lineata (P.F.-p.40-1868) found in the ground at Cobden, Aug. 1st, by Mr. H. C. Keenan.

Apanteles glomeratus issues from cocoons on larva of Pieris rapae. Latter stripped cabbages generally at Port Fairy in 1867 & 1868; in '67 (not '68) took currant bushes also, but not so badly as gooseberries.

Odynerus (small & other holes) makes its clay nests in holes in cotton-spools. (Miss Hobart, Aug. 1st.)

Aug 2. Of all my Gortyna nitela larvae, found in potato at Cheshunt Bacon, but 1 remaining. There were 4 or 5 a week ago or so shifting.

Aug 2. Bred Phelampelus Ichneumon from one of 3 larvae fed this same summer. Heard of another such case at Geelong formerly. [Other 2 dead.]

Aug 3. Thermometer at 70° in Cellar.

Prodenia commelina (noctua) bred by Riley from cutworm-like larvae (3) found under board at South Pass. (Figured by Riley)

Larva pale; [all the corpse with exception of the collar enteriorly a little dusky, the 2 hinder pairs each more & more so; a double dusky & horny spot above the corpse]

73) Madarus (vitis) n. sp. (Lee) bred by Riley from Vitis vulnus gall on Concord? vine. Also Black madarus (See 1.12.x) one gall-maker with pelvis. See p. 12

Vitis vulnus } 10 doz

Larva transforms inside the case; Barrows 3-notata in potato.

of the cane, mostly a little above the joint, with a slit, resembling ♀ pudendum, at Alton, abundant on cultivated grape-vine. Commonest on Concord (Riley); "Greenish white, with a rosy tint" and the "Delaware" (Riley).

Used to bear both Madarus vitis n. sp. ♀ M. ampelopsidos off wild Vitis cordifolia. (memory)

No 948 (in Drawer) is Riley's Raspberry-worm, eating the berry — prongs to each side of body like my Hyperchiscus recurvus. Packard says it is an Aploder near flaveana of Guénée. (Send Riley 1 specimen to figure from.)

— Drawer 6, No 225 Hetellura hyalinatalis Z

— 170 (2 v. hom. sp.) Ac. cruciata Grén

— Agrotis messoria Harr. bred by Riley in 2 Different Cases from Eggs found on leaves or twigs Fed on many kind of woody Plants. "Cut" cypress vines &c also. Bred many to Imago; not a very variable sp.

On cultivated grape, var. unknown, near Alton (Riley)

Gall vitis glans, n. sp. A smooth, globular, fleshy, grass-green gall, .90 inch in diameter, attached by a rough base of about .40 inch diameter, to like the base of a hazelnut, to cane of grape-vine. External surface with about 8 or 9 impressed (thin) longitudinal, dividing the gall into 8 or 9 segment, like those of a melon. Internally fleshy, like hull of walnut, for ⅛ diameter; then a series of elongated cells, divided by a regular series of transverse partitions, each into 2 cells; the lower tier about .20 long, the upper tier about .30 long. From centre of one cell to that of adjoining cell .10 inch. & about 7 or 8 series, longitudinally.

Bb ♀♀ (chestnut brown)

Larva bright yellow, normal, Pupa ♂ ventrally with 2 transversely arranged slender brown spines, directed upward & backwards, above which on dorsal tip a tubercle. Pupa ♀ Processes prehensile.

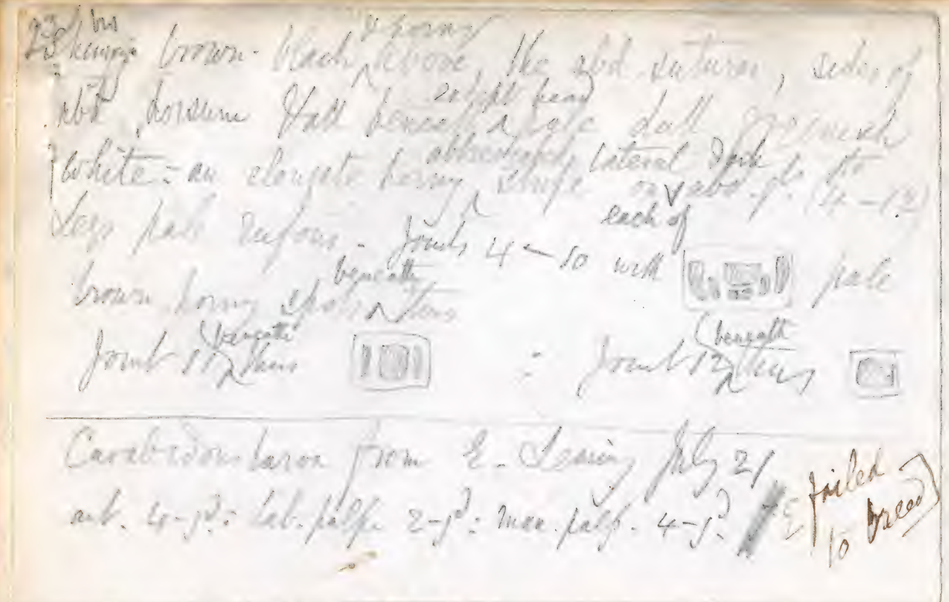
Diplosis?

Gall Vitis vulnus conglobata — larva yellow, about .14 long Bb as vitis glans

"Chalcis near ovata Say" is parasitic on Gastropacha velleda Stoll. (Riley)

— Pimpla caleb Walsh MS. is parasitic on Dryops lecontejana (Riley)

— Cryptohypnus pectoralis Say supposed to bore Osage Orange roots in Illinois (Riley) 2 Spec.ns



Carabid-larva from E. Lexing. July 21
ab. 4-p.: lab. palp. 2-j.: max. palp. 4-j.: ♂ ♀ failed to breed

Psyche helix (depidopt.) for many years sought by Prof. Siebold out of thousands of specimens bred, all were ♀: now ♂ is known to occur, but very rarely (about 1867) by Prof. Clauss. (Dr. Hagen)

Aug 15. Two larvae of D. juncta sent by Mr. Freeman a week ago (about) fed on potato leaves, ate nothing of them but a few small pin-head holes, & died. Not conclusive, because starved on road, & leaves withered: pasteboard not tin box.

Aug. 15. En.d jar of plums in cellar, not en.d for 6 days. Found in it 1 dead A. pruinosa & 7 living ones. About Aug 11 bred 1 pruinosa from plum jar in office.

Mr Tiffany of Davenport, has seen Phytocoris pulicaris & sp puncturing a plant & [pale green] louse that was locomotive on Maple & sucking them dry. Thought before that he sucked larva of Lecanium acericola.

Young transparent scales of Lecanium aceris have a pale-yellow [illegible] & extended [illegible] (Lecanium) under them. ??? Some a black pupa: Coccophagus? Yellow scaled. Aspidiotus? Leucopis?

Aug 17. Larva of Lec. aceris much as now like Westw. II. p. 443 fig 7, but no tail. (finely pulverulent) pale tawney on leaf. Lecanium acericola under a scale. Ant. 9-j. p. 3 the longest; 4–9 indistinct; 2 short; 1 robust. Eye black, facial (!!) above base of antenna. Abdom (fold beside .....) Tail [illegible] (2 setae, longer than body) which grow gradually after change to imago.

Office

Aug. 11 (about) 1 pruinosa
Aug 17 Plums (Office)
2 pruinosa
1 nemophar
Aug 20, 1 ——
—21, 1 pruinosa (about 5 days St Louis)
—27, 2 ——
+1 nemophar
—30 1 nemophar +1 Senoscia pruni?
—31 4+2 —— (after rain —3)
Sep 11 2 nemophar (absent 17 days)
—13. 1 ——
—19 2 ——

W split at tail (not head) end of shield. Pupa ♂ projects forwards its legs (ita Westwood). Pupa ♀ under shield; so imago ♂; projects behind its setae from under shield. Hence easily found.

Larvae almost always (when on leaves) by side of veins or rib.

Some ♀ on leaves: no ♂ seen on twigs: ♀ now mostly locomotive still.

Larvae mostly (not all) on lower face of leaves.

Oct 6 5 nemophar (1 dead)
Oct 9 1 —— (absent 8 days)
Oct 20 1 ——

25 Dr. Hooker thinks that about 100 plants peculiar to St Helena have become extinct during the last century.

Aug 20. Saw, Telephor. larva from Jersey crawling about.

— "J. B. Plumb of Madison, Wisc. writes me that he has found Xylta vittata Fitch preying upon larva of D. 10-lineata.

Dr. S. H. Knickerbaugh of Clarinda, Page Co, Iowa, has sent me the genuine Reduv. raptat. of Say found preying on same larva" Riley

Cellar plants produced [see p. 93 K K]

Aug 21. 2 pruinosa — about 5 days St Louis.

— 27 Sept. 1 about 2nd. no insects at all.

Sep. 9th 2 nenuphar

— 15th 1 ——

— 19th 2 —— (1 quite soft)

(17 days absent)

Oct. 6.] nenuphar (all alive) [1 left in jar?]

[8 days absent 13th to 20th]

Oct. 21. [1 nenuphar — left from Oct. 6? now alive & soft]

96

"Covington, Ky. Aug. 17. 1888. Thyrid. ephemeraformis is eating up the vegetation at a terrible rate — seems to eat nearly everything but peach-tree [leaves?] Grasshoppers are swarming all over the country, even flying into people's faces along the streets of the city" V. T. Chambers

on evergreens (& soft maple) swarming in streets of St Louis. Also at Jerome's, St Louis.

August 27. Shifted Elaterid larva

1st specimen remains 8; missing 5: added 2 preserved.

Total now in jar 10.

— Put 2 small earth worms in Telephorus-larva jar.

Aug. 28 Saw Telephorid larva again crawling about. Fed him yesterday 2 small earth worms.

— Dead Diplosis atroculans in apple (S. Ill.) jar (one bred before)

Aug 29 Telephorid larva eat again.

Aug 31. In the flesh of a grape, infested by Calocoris rapidus Uhler, received from Marietta, O., found a larva of Sciara. — [Put these grapes on old cans of grape moth grapes.] Seven of them had left the grapes. Preserved 5 or 6 in alcohol. (Tinged with brown)

Sep. 2 Aphis acericaulis Harr. in company with leaf-rolling scales of Xerxium acericola Walsh on maple near Shenandoah, Ia. ♀ of abdomen (about 1/3 of abd) covered with irregular white fluorescence — in mature winged ♀ (which are more or less mature) & (2 specimens) which are green, or green

"My apples being badly infested with Bark-lice (Asp. conchy. - Spec. Pear scale)" in Dec. 1867 I took crude Petroleum oil & painted two trees with it using a painter's brush. Both these trees have grown more than usual this summer (1868) & have also set an abundance of fruit - Specs

Sept. 1868 J. G. Flech, Dixon, See Co., Ill.

Sep 7. Miss Hobart brings me a larva of Pseudophora profulanica now stripping Gooseberry bushes at Park Ridge, & says it is the third brood there this summer. Sep 8. Received from D. C. Hammond, Warsaw, Ill., a same shown me by W. T. Nelson, Wilmington, at State Fair

lot of leaf-folders, Hammond's Leaf-tyer, Phelotongia the leaves of apple & tying them together with silken web. Defoliates many trees, especially in young orchards that are in an unthrifty condition. In Hammond's own orchards, which are carefully cultivated, have done but little injury."

Length when full grown, .43 inch, uniform in front, tapered at both ends, color dull green, yellowish dorsally with numerous pale yellow tubercles, giving rise to long white hairs, some of which are nearly twice as long as the body, arranged in 4 places in a square on the middle of the back, so as just to be on the inner edge of a broad dull black subdorsal or lateral stripe extending from p.1 to 12, both inclusive. Joint 1 immaculate; with a large shining black tubercle on each side in front bearing a long hair; joint 2 with a similar black tubercle, & also a pair of larger pale yellow tubercles, all 4 transversely arranged. Head clay-yellow behind, tinged with green in front, with some whitish pale freckles or small tubercles & a few short whitish hairs. Beneath immaculate, except that the legs have a few dusky dots. The pale yellow tubercles that bear hairs always have a dusky or black dot in their centre, & there are about 4 lateral ones on each p. arranged thus relatively to central four A.

In many specimens, the subdorsal black stripes are obs. or subobsolete, but even then the 4 black tubercles on p.s 1 & 2 characterize the larva sufficiently.

Spins up apparently among the leaves. Placed in Cage No. 4. Near Chestochela Jonquelly, the Palmer-worm, but that appears in June & is X.

A) "with numerous pale yellow or whitish freckles, & pale yellow tubercles bearing a central black dot & giving rise to long whitish hairs."

Hæmatopis grataria (Common Sanguineous geometa) bred by Reley from Chickweed (Stellaria media)

Sep 10. Phaneoptera oblongifolea ♂ makes by flirting its elytra a single creaking chirp, not by any means loud.

99 Immature ♂ Thyreoptera ephemeraeformis, like immature Sesia diffinis, has scales scattered on glassy parts of wings, which subsequently fall off.

Of cicada ♂, I have compared

3 ♂ septendecim?, 1 ♀ from Crespon 2 from Rathvon

13 ♂ tredecim, 11 undoubted tredecim from Ill. & Mo., 1 from Rathvon & 1 from Cabinet.

Hoohlets in all agree with Dr. Hagen's figures.

When tredecim & septendecim come out same year, this ~~does~~ happens every 13×17 = 221 years. But they may, apparently, never come out in the same year.

Sep. 12 In cutting open Strawberry roots (plants) sent me last Spring from South Pass found most of the borings empty, but in one found a sanguineous lepidopt. larva, with yellow head, .20 inch long. Sanguineous? Preserved in alcohol.

The galls like {2. mamma Walsh / g. globulus} seem to be on Burr oak (not g. prunus), as also the g. [Cynips] Quercus Ilicifolia galls, differ from g. globulus in being opaque, not shining, & often having a little terminal pointed nipple. Are much more crowded together (like g. ficus.)

Sep. 15 In cage where were a lot of Thyreo. ephemeraef. pupæ found a large Tachina larva crawling about. Head pointed, 2 transversely arranged black dots on the truncate hind end. Placed in Cage No. 6.

Sep. 14 Dr. Velie told me that Grasshoppers were decidedly scarce in 1868 in Steuben Co. N.Y. Wanted by fishermen. (190)

Prionus brevicornis (= laticollis) said "to infest the Lombardy Poplar, Balm of Gilead & other trees" [Ida Hoge Harris] (Can. Entom. I. p. 23.

Agrilus ruficollis destroys stalk of Antwerp rasp-berry. (Haldeman, Farm Journal I. 193 & Quarterly Journal of Sc. & Agr. 1846)

Buccideres [Saperda] cinctulatus lay girdles hickory twigs, having first oviposited in them (Haldeman in Farm Journal 1851. I. p. 34 & Am. Philos. Trans. X. p. 52, 1837.) (twigs ½ inch to ¼ inch ♂ on which she deposits her eggs.) Seen in Penna. during 2 last weeks in August & 1st. week of Sept. Both sexes rather rare, particularly ♂)

In Euc. elaphus ♀ top of labrum ∧; in Rima ∧

Nov 17 Office plants – Erie and Ithaca (Some & Better) Number of plants 155 – gathered July 16–29 / resumption of work in Sept

(Cellar) 272 – nothing found either

Many plants (?) in Sand (Gathered ♂ ♀ July 16) [seed not mixed in bottle Jars.] but 30 Sept & Oct to 29

Nov. 17 - Carried down cellar
1 big gr. — Sciopus Abbotii cocoon [bed]
1 ——— Harpalus ♀ ♂ Issued from Seminole Nov
1 (tallest) narrow gr. 1 Helenites nasutus (Mo) = 0
+ 1 Mamestra picta ♂ = 0 ♂ 1 Black ant, with
White dorsal line Oct. 28 = 0
1 (shorter stout gr.) sea-nut larva (S. Ill) = 0
Dicerdes Cucullatus ♂ ♀ brig (pear). 3 ♂ ♀ = 0
3 Curculios, larvae from Carya fallax July 19. = 0
1 apple [illegible] with 4 larvae (screw worm ?) [illegible]

...erged Cicada while
... covered with
...g it, and have
...ack it in the
...ously injured.
...pon the newly
...lly of S. Pass, Ills.
...ewing larva
C. V. Riley

...Riley

...ard's Guide each
...now ? Ought
...and the Canada

...ff, as yet to be ...pe
(Baron II. p. 231)

Pemphigus (melaphis) Rhois

The smaller ...
... I saw when it first settled on the ...
... enclosed in ...
... leaf, not more ...
... to the exact time. ...
... one tomo is found ...
... with ...

The narwhal or unicorn ... of an ungulate ...
trical mammal. Left tusk only developed.

[Crefson]
We do not know Anthrenus museorum in this country that I know of. Our cabinet pest is the Anthrenus varius — also common in Europe. I will send you some (dead) specimens. I find that these fellows will thrive among the fumes of camphor, carbolic acid, benzine, oil of cedar & Chloroform.
Stronger

F. Hoy
Racine, Wisc.

If cockroaches ...
Ill.

Extract from ...
Yellow Pine ...
0.30 and Benzine ...

the latter in good order
antennæ. Being very busy just now,
I can only say that the 90 specimens of
what you consider as the true Sphex cæ-
rulea is the Chlorion cyaneum (vide
Proc. Ent. Soc. Phil. iv. 463). If the note
to M. Fargeau's description of Sphex cærulea
is wrong, as both you think, then I feel

[Crespon]

We do not have Anthrenus museorum in this country that I know of. Our cabinet pest is the Anthrenus varius — also common in Europe. I will send you some (dead) specimens. I find that these fellows will thrive among the strongest fumes of camphor, carbolic acid, benzine, oil of turpentine & chloroform.

P. Rhois
lour, which is of a dark green almost black color. When it is first noticed on the upper surface of the Sumac leaf, blackens out after it becomes enclosed in the gall to a yellowish hue. It does not remain stationary long, not more than a week or two, I think, though I am not certain as to the exact time. It is only while the galls are still quite minute that only one louse is found in them.

Lewis Wm Madison Smith

I have seen the recently emerged Cicada while yet white and soft, perfectly covered with ants, that were eagerly devouring it, and have no doubt but they will attack it in this state without its being previously injured. Harris says the ants prey upon the newly hatched larvae, and Mr. Colby of S. Pass, Ills. has seen them (the ants) attack the living larva of the common curculio.

C. V. Riley

a small [illegible]
refer to it in the copy.

Shall I send you Packards' Guide each month, or do you get one now? I ought we not to briefly notice it and the Canada Farmer again?

Yours ever

C. V. Riley

Nov. 17 - Carried bar collar

1 big jar — Dolichopus Abbotii cocoon [bed]

1 ——— Harpalus ? ♂ taken from Leaning Place

1 (tallest) narrow jar, 1 Holcothy nasuta (9mo) = 0

+ 1 Manacina picta ♂ = 0 + 1 Black ant, with

White Dorsal line Oct. 28 = 0

1 (shorter small jar) Sea-mud larvae (S. Ill) = 0

Dacedera Confusa Labus Lata larg (jar). 3 ♂♀ = 0

3 curculio, larvae from Carya fallax July 19. = 0

1 gumme (Alc with 4 larvae (screw worm ?) for

Step Dang ♂ Known = 0

Winter Magetim Apple free from Cocoon in Europe
(Darwin II. p. 231)

The narwhal is an example of an unsymmetrical mammal. Left tusk only developed.

" The larva of Callidium violaceum (so-called from Canada), which is very common in Canada, lives on the Black Spruce (Abies nigra) & on the Balsam Fir (Abies balsamea); but never upon living trees, but only when they are dead, & generally ~~in the~~ under the bark of those which are felled."

Asphodera pruinosa (Kirby) Larva (from Mr. Peabody) yellowish - by aid of a glass & sides & disk: brief yellow subdorsal line: last or anal (caudal) pair of pores ~~round~~. No perceptible legs or mouth. A double short thorn at anal tip. Scale (March 4) (Fig. 6) round or short-oval, brownish gray, or color of bark. Central ⅓ semitransparent, & eccentrically sometimes brownish yellow, sometimes color of rest of scale, in scales with larva under them. Old scales very abundant, no larger than new ones. Size .02 - .03 inch in diameter.

March 9 1869. Polygonum? galls Riley's galls on Lygodesma juncea on stem. From L. P. Austin, Omaha, Nebraska. Larva, yellow; mandibles tipped with brown, left side bidentate, right unidentate. Body 12-jointed, anal ~~pr~~ small & double. Spiracles only perceptible on 6 prs. viz. 6 - 11, [or 5 - 12.] An indistinct mesothor. spir. Joints 4 & 5 ventrally very small. (1 spec.) The larva black & shrivelled, open at head end, & showing a depleroous? parasitic larva.

March 10 Blackberry stem larva - from Chas. Lamy, Cannamenon, N.Y. Length ¾ inch, to 9/10 inch, 6 times as long as wide. Color pale yellow; Head dark reddish brown, mandibles black, with a few whitish hairs. Cervical shield pale brown, obovate-circular, horny. Joints 2 & 3 each with 8 hair-bearing pale tubercles transversely arranged & interrupted in the middle (.... ....) Joints 4 - 11 (.6.6.: : .6.6.). Legs lightly tinged with brown. Prolegs (except hooklets which are dark) immaculate.

Riley has invariably bred ♀ Lophyrus from (before Apl 4 Found a cecropia cocoon, with a hole in end evidently made by beak of bird, through which it had sucked out almost all the muscle of pupa, which was still timber, & the remaining part of inside fresh. Preserved it!

Aphis killed by frost P. F. Apl. 25. 1868. p. 280

Army worm(?) in Huron Co. Aug 29. 1868 P. F. p. 88

Sphenophorus zea P. F. July 25. '68 p. 26 in Cayuga Co. N.Y.

* Theodore Engelmann of St Clair Co. Ill. finds a small annular to peach borer infests roots of Raspberry & kills them Trans. Ill. St. Hort Soc. 1867 p. 241. Theod. Engelmann Looking Glass Vineyard Marcoutah, St. Clair Co. Ill.

Four-legged Chrysopa larva produced a six-legged imago, legs full-sized (Skinner P.E.S.S.P. IV. p 211 ×

Buprestis decorticata Say = cherry Buprestis

Trochilium aceris (Maple) { Riley P.E. April 17. '69 p 122 & Hammond

April 25. 3 taperoid currant-borers 2 cc. 2 from Stevenson Superno-of Warsaw: .45 inch long: nd ~~Lep~~ tatus, larva of which is "nearly or quite 0.30 inch (Fitch) Otherwise it agrees. (All 3 larvæ have a slim (of face, from tail, .10 – .15 long: 2 others dead & blackened.)

Ebalus elora Say taken twice in Hoboken N.J. ♀ ♂ in having white bands less pale in color

1 ♂ taken at Schoharie N.Y. (Weybridge latitude 42° 30') (J. A. Lintner)

Conchylena pulicaria (May 6. '69) in infests cherry & quince. In very large numbers on cherry, causing stems of young fruit to wilt & shrivel. Also attack blossoms & leaves, but seem to do most damage on stems." G. Wilgus, Rochester, Ill. P.E.R.R.

Aspeira typi? (See p. 73.) Larva similar, but head △ obsolete. Length .30 inch. Pupa length .33 inch.

May 31. (Near Burlington Junction on L.S.C. & M.R.R.) Found in nest of Formica rufa Fitch (Hilland) 3 Crematochilus n. sp. Also numerous larva about ½ grown, (Lamellicorn). Head-color, head pale rufous, hairy. Ants carried these off very greedily.

3rd & same place. Took about 8 Lema collaris Say on ~~Lob~~ monocotyledonous bright blue flowers (habit of Rattlesnake master-piece) growing in most places & often found in gardens. Had gnawed leaves & buds. Breed therein?

Lema hammondi

~~See p. 97 - Chrysomela scalaris~~ apple

Not rec. ♂) 1 specimen striped as in p. 97, β) 2 or 3 small green, with black cervical shield. γ) many small green (←1 b→) immaculate, one (smaller size) often on any leaves. γ = Lema? ravaccina? but too small altogether

(G. Wilgus Rochester Ill

June 12. Larva borny cuts peach & apple (A.C. Hammond, Warsaw). Length ½ inch. Pale green with many white small dots & spots. A stigmatal white band.

June 24. Dr. J. Woods sends me Ath. 4-gibbus found with its mouth buried in a young pear [illegible] length."

June 31. Gortyna nitela bores tips of thorns of Black Currant at Kenney's. Compared two larvæ with two taken from Tomato. Agree exactly.

Selandria rubi — feed raspberry leaves — sent me by Parry of N.J. Larva green, smooth, ~~un~~maculate when young: after last moult, covered with ~~fungate~~ bifurgate tubercles. Some changed after they were received. Had gone into ground today. More sent me by Beebe of Galena, ~~—~~ stung,

July 22. Two bots. flies from two larvæ.

placed in jars (2) A+B July about 27th. found more stung,
July 31st. Found 27 stung, between 27th & 31st. Placed in jar (C) by themselves.

Aug 1. Found 8 or 10 more: placed in jar C.

Aug. 1. Beak & Cercules off wild plum. Placed them in double muslin bag (15 inches long) on bough of tame plum bearing 17 plums, none of them wounded or stung.

Hesperia Nyxis Say.
= 0

Aug. 2. Coccidomyia? accreada. On soft maple leaves. On upper surface of young leaves, curling & crumpling them upward (like leaves) & living therein gregariously in the hollow thus formed, a white curdy larva. 10 mm. long & 5 thus, as long as wide. Stomach pale greenish, thickly, head with a dark dot on vertex & another (smaller) at tip. Bl. claw shaped, pale dusky. Tail truncate & subemarginate

Head must have Cone on it  2

Constructs a white cocoon on the leaf; 2 already, inserting thro' cocoon. Many loose threads in some of nests: 20 — 25 larvæ in one nest, Usually 3 — 7. [See p. 109]

Aug. 3. Recd. lot of grapes, contaning Grape Curculio from Miller of Iowa: also two Gr. Curculio. Also colaspis flavida, said to be bred from "Strawberry worm" infesting that (& other) roots. Cut into one grape: two Gr. Curculio larvæ. Bred both Pauth. vittivorana & Calodesma aequalis. p. 110

Aug 4. Gathered 13 ~~U~~ plums off my tree, at least 1/2 new ~~U~~: Since July 30th not shaken from upper bough. & One plum (U?) from muslin bag: another U left in bag. Many plums in bag, badly eaten by Curculio & many dead & rotting. Saw no Curculio, but only peeped in. Thought I saw 1 Curc. fly out of basal end of bag; if so, must have bored out. Put these 13 plums in Jar D. Aug. 8 added 6 more off tree (U).

Coalburgh, Kan[a] Co. N Va. 3 may 1869

B D Walsh Esq
Rock Island. Ills. Dr Sir. I noticed last week that one of my young apple trees was dead & found on exam[n] that some one working in the orchard had pulled the bark off which for 15 inches from the ground up, seemed to have been dead all around the trunk — tree 2 ½ in in diameter. Was told that said "some one" was passing & noticed that worms were at work - had therefore pulled the tree & found a great many - decided as thirty or forty. I examined the ground just above the pulled part & found 2 little larvae & 4 chrysalids, opening 2 of the latter. The larva eat the sappy part of the bark. make the chrysalis in a web which a ball of dust from the grawings. I send the 2 larvae. One a pale green I judge. Also in the cotton, in same vial, the one chrysalis. I retain one. I find no mention of such a depredation on the apple tree in any book I have at hand. Evidently, though so small, it is a dangerous species.

Yours W H Edwards

Algeria Myri Edw.

= 0

June 31. Gortyna nitela bores tips of twigs of Black Currant at Kenney's. Compared two larvæ with two taken from Tomato. Agree exactly.

Leucania unipuncta — feed Raspberry leaves — sent me by Parry of N.J. Larva green, smooth, inconspicuously subdorsal line, when young: after last moult, covered with fine bifurcate tubercles. Some changed after they were received. Had gone into ground today. More sent me by Beebe of Galena.

placed in jars (2) A & B July about 27th found more stung, July 31st Found 27 stung, between 27th & 31st. Placed in jar (C) by themselves.

Aug 1. Found 8 or 10 more: placed in jar C.

Aug. 1. Beat 6 Curculios off wild plum. Placed them in double muslin bag (15 inches long) on bough of tame plum bearing 17 plums, none of them wounded or stung.

Aug 2. Coccidomyia? accreta. On soft maple leaves. On upper surface of young leaves, curling & crumpling them upwards (Like leaves.) & living therein gregariously in the hollow thus formed, a white curdy larva. 10 inch long & 5 times as long as wide. Stomach pale greenish, thickly beset with a dark dot on dorsum & another (smaller) at top. Bl. clear shaded, pale dusky ?. Tail truncate ? subemarginate

Head must have Cone with ? already, inserting three cocoon. Many loose threads in some of nests: 20 — 25 larvæ in one nest, Usually 3 — 7. [See p. 109]

Aug. 3. Recd. lot of grapes, containing grape Curculio from Miller of Anna: also two Gr. Curculio. Also Colaspis flavida, said to be bred from "Strawberry worm" infesting that (& other) roots. Cut into one grape: true Gr. Curculio larva. Bred both Perth. Rhyncolus & Calandra magnifica. p. 116

Aug 4. Gathered 13 ✓ plums off my tree, at least 1/2 new ✓ since July 31st: Last shaken from upper bough. One plum (✓?) from muslin bag: another ✓ left in bag. Many plums in bag badly eaten by Curculio & many must & rotting. Saw no Curculio, but only peeped in. Thought I saw 1 Curc. Fly out of basal end of bag: if so, must have bored out. Put these 13 plums in Jar D. Aug. 8 added 6 more off tree (✓).

Lebia grandis used see 1888 as Prepon in Dict. to-[illegible]

Aug. 7. Cecid.? acericola: (see p. 108) Lots of imagos came out today. Saw in glucine bottle, where I had put leaves & (say) 200 larvae, 5 or 6 different larvae destitute of spinning cocoons from the mouths, just like any other insect, moving heads in all directions as usual, also shifting bodies as usual. ~~Had~~ Made cocoon between leaves & glass; saw thro coddington lens. Make out many loose threads, 2 or 3 often spinning in company. — In fresh lot of infested leaves gathered today, found many empty cocoons; also many still tenanted. ~~By one a Semipupa, legs & abdicles,~~ Found 7 pupae but no larvae in cocoons whitish with yellow stomach

Pupa .07 long; front emarg. at ∠ of 110° ~~a 120°~~

Legs & free as usual. Sides of abd. modestly hunched, especially towards anus. Anal joint (9th) emarginate small. Humeral thorax = ⅓ extreme diameter. ~~In "semipupa" part ⅓ = pupa (thorax & emarginate part), but rest larval & legs & abdicles stuck.~~ Tips of affected leaves turn brown-black & die. Deforms tree much. Abd. ♀ (recent & immature) dull yellow: of mature ♀ brown (recent). Aug. 8. Emerged ♂ ♂ ♀ that when immature yesterday had yellow abd. Also 2 more ♀ that came out after the ~~rest~~ 1st ♀. Hair now brown abd. Abd ♀ (recent) 12+2 joints, counted repeatedly & antenna

Aug. 8. Placed plum bough bagged up Aug. 1. (p. 107) July 2 (living & lively) Cuc. ♀ in it remaining ♀. Must have eaten out. Left 4 roundish plums on tree 1st with 2+1? crescents; 2nd (counting from base) with 3 ∪; 3rd = 0; 4th with 1 ∪? Remainder badly rotten or cracked. Either pulled off or shook off. Ought to be 12 of these, but they are 14 (2 others must have got mixed in.) Of these 14, 5 have one or more ∪; 1 or 2 may have, but rotten cracked or eaten by earwigs. Placed the whole 14 in jar E.

Aug. 8. Cecid. acericola. Of later larvae ovc. 24 to make cocoon. One commenced ovc 24 hours ago & not yet done. Had made it against glass, leaving glass uncovered, so had full view of his operations. They undoubtedly spin. Flosh pale very distinct & motions as usual

Description. from recent spec. Head with dark brown. Antennae (12+2) j. 2nd & 3rd joints globular, pedicels ⅔ as long as joints; whorls bushy, nearly as long as complete jt. with their pedicels. Scales prominent & recurved. Beneath central to patch beneath bony dull dufous thorax brown black, almost glabrous Halteres pale, stem ~~dark~~ deep ~~especially in front~~ abd. Lower slightly pubescent; ventral sometimes slightly fringed with dufous. Legs brown, pale beneath, also the tarsi & tibiae towards base of femora. Wings subhyaline, with

111

the usual fringe dusky. Costa & 1st long. vein heavily brownblack: ~~2nd long vein rather heavy~~ Basal cross-vein ~~distinct~~ absent. — Length .07 inch. 1♂, 3♀

♀ differs as follows: 1st. the ant. have the flag. more reform, the ~~1st~~ 3d as broad as long, last V. 1½ times as long as broad: hairs sparse, dusky, & nearly as long as 2 fls. 3d. abd. above is dull sanguineous, all but the sutures covered with appressed short brown pubescence: venter bright sanguineous. 2nd. Tubercle is sometimes infuscated dull yellow, never inserted beyond diam. of abd. — Length ♀ .07 inch.

Gall Plum[i] vaculus. Differs from Plum[i] crumena (J.I. p.203) only as follows: 1st. Always on lower side of leaf. 2nd. Is about three as long, reaching .5 in length. 3rd. is much slenderer, being ~~about~~ 10 times as long as wide. 4th. Does not exceed 35 on one leaf. — Differs from Cerasi crumena in not bursting open laterally.

On one tree scarcely anything but this gall: but also occurs sparsely sometimes on leaves where P. Cerasi is very abundant in 1869 (Never noticed before 1869) ~~I am~~ not near so abundant as P. Crumena.

Bupresti truncata bores Peck. P. T. Vol 15 ('65) p.122 [also Cherry p.105.]

Melanotus incertus Lec. Bay from Asparagus bed with Hales. Penna May 11. 1865.

Conotrachelus posticatus found on Carya globra gall. Irregularities in that gall? See Fitch on that hickory gall.

Hyperaspis normata Say, 5 of them infesting Leucanium acericola July 11.

Scymnus cervicalis Muls. inside Carya globra gall June 12, 2 of them.

= 0
A lot taken together at Hales all colors, & immaculation very variable

In & Hall. Areolata 5th ♀ of gall, as commonly related (as in Collops on ♂ the basal ♀): Rub of 7 bifustulata more than ♀; 1 ♂ 2 distinct species?

Bred Hall. areolata from Strawberry roots Aug 15.

Aug. 15. Larva of Melan[s] (Gabotti n. sp. Hale not determ. &c.) length .12—.13 inch. Pale. Mouth tinged with Chestnut. ocelli 5 or 6 on each side, black, arranged vertically in ~~Hairy~~ behind the antennæ. Legs 2-jointed with a single claw. a pair of anal hooks, curving downward & inward, tinged with dusky at tip. Dorsal surface with 2 longitudinal lines, & a transverse slightly ~~Horny~~ plate on each of 1st abd. joints & in middle. Ventral surface with 2 longitudinal lines. Last segment ~~bifid~~ bifurcated by a general color: yellowish. 3 thor. ♀ truncated. by a anal proleg. legs.

Pupa of cane. Length .10 inch. Yellowish. Eyes conspic. black. Head & thorax hispid and thorn. Body very hairy. Cast larval skin almost always attached to anal fork. Head & thorax often more or less chestnut.

10 specimens of pupæ: 7 of larvæ; preserved all in alcohol.

~~Anales Entomologici~~ Fragaria n. sp. (Strawberry crown borer)

~~Eruca~~ Apoda. Head ~~Thorax~~ larva. White. Length when curled (like a Tapeworm) ~~.15 inch~~. Expanded .20 inch. Head glabrous, pale tawny yellow. ~~Mandibles~~ Mand. ~~dark~~ tipped with black, ~~tawny~~ before. Hyp. in L of 80°. A faint darker median dorsal line on abd. pc. Legs replaced by fleshy tubercles, not very conspicuous & articulate. Labrum emarginate & as well as mandibles pale, with some faint transverse vibrations on △ above mouth

Larvæ rec'd from Miller Aug. 17. '69
Pupæ "
Imago "

11112 (small) 11 111

Total larvæ 6, pupæ 2, imagos 3.

General appearance of larva that of Wasp. Ins. I. p. 350 fig. 4, but head ½ larger, & scarcely any neck.

An imago put into the box (on the rod-crown) had not long commenced eating his way out, throwing forward much tawny frass.

Specimen of imago had not changed color in 20 hours exposure to light in vial. But developed 2 oblique white bands on elytra & Cephl. obliquefasciatus = white has only 1.

Distinct specific from Hessian fly straw

J. I. 35 (chestnut-brown, el. pubescent)

Plum Curculio Jars

Aug. 17. Jar A — 1 curculio. [25 days]
— 19 — C — " " [19 days] (recent)
— 22 — A " " (mature)
— 21. Turned out contents of Jar B, which had become a semi-fluid mass; found on sand at bottom & Cure. 1 pupa & 1 imago very soft. Probably more.

Jar B had had fine to water with insects & 1 Tallowyia larva

Aug 22. Jar A. 1 curculio.
— 23 " " " "
— 28 " C " "
— 29 " C " "
— 31 " C " "
Sept 1 " C " "
— 3 " C " "
" " D " "
— 7 " D " "
— 8 " D " "
" " C " "
" " D 3 "
" " D 1 "
— 12 — D 2 "
— 13 — E 1 "
" — C 1 "
" — B 2 "
15 — " 1 "

Jar A July 23
" C " 31 Aug. 1
" D Aug. 4—8th
E. Aug. 8th
F. Aug. 19th

Sept 17. Jar D, 1 curculio.
— 18 — E " "
— 21 — F 1 "
— 22 — D 1 "
— 23 — F 1 "

Horned Toad is Phrynosoma Douglasii.
Dr. J. G. Cooper in Am. Nat. Aug. '69 p. 298

+ Aug. 19. Examined plums on tree after 10 days interval (abroad at Sterling). A great many say 30 or 40 fallen to ground more or less rotten. about 20 or 30 rotten on tree. Found 3 on ground containing full-grown (nearly) curculio larva, & one on tree containing ditto 2/3 or 1/2 grown. All 4 badly rotten. Placed in jar F, with 3 nearly sound plums (green) for food for them: no ♂ on these 3.

"Blackwall (Linn. Trans. Vol. XXI pp. 31-7 accounts experiments to support his opinion that the bite of the large British Species of Epeira causes no more injury to man, to other Spiders, or to insects than an ordinary puncture or laceration of equal extent & severity. [Dr. Wilder's paper on Epeira diadema: Texts, Vol. VI.]

+ Aug 21. Found a scarcely ½ grown Carculio larva in a ripe plum still on tree. Placed it in Jar F with 3 nearly sound plums. Partly rotten. All plums now all gradually going rotten.

Found today & previously many stiff & sclerous skins of larvae & pupae in & decaying plums.

Aug 22. Bred two Perth. vitivorana from grapes with no leaves among them. Cocoon spun of thin white silk among grapes as they lay on moist sand. Cocoon & pupa-shell preserved. Another cocoon 23rd. (2 inches in diam.

+ Two anales fragariæ 2.4 kept in large dry vial 3 days had not changed color, tho' exposed to light.

All curculio larvæ seen this year (20 to 50) had blackish not ferruginous stomach. So in Kenney's plums: so in wild plums: so in my tame plums (Imperial gage).

Xylocores ... (my largest spec.) found by W. Hartman abundantly in a bone factory among Quosita colon & Corynetes (3 species).

+ Aug 22. Opened remaining Strawberry-crown (p. 113) Imago 3, pupa 2, larva 1; 1 empty with 3 white mites in it; 1 with dead body of larva & 11 of the same white mites preying on it. Mites. Might have seen in jar, being one in which I had bred other insects & sand being old.

+ Aug 23. Gathered another ½ or 2/3 grown Curc. larva in plum on tree: placed it in Jar F.

Cage No. 3. Bred many Nolodonta concinna.
Two cocoons on surface attached to twigs.
+ Nolodonta mucronata see p. 118.
Cage No. 6. Bred two Ephira Gordius. from
Vickroy of Champaign. Gone under.
+ Euchaetes Egle (many) +2 Phigalia
+1 Manestra picta

No. 3 cont. — 2 Ceratoa +1 Acronycta
(disappeared as often Feb. 14) + 1 Empretia stimulea +2 (1 pupa)
Ophiusa

No. 2 1 Apatela americana (Sept. 11.) from
egg Sept 2 in cage back of stand corn.
Sept 15. (Sept 11) Lacunate green larva

No. 4. Lacunate spotted larvae (J. III. p. 123)

+1 larva p 126

No. 1: 1 Ackeron, 1 Satellitia 2 cocoons of Arctia
virginica? + 4 Dr. rubricosa (Decatur) + 1 Leopard (Arctian) larva
No. 8 1 Agrotis exclusa? from Parry N.J. or both of Earl
Richmond Cherry. [Cg. 1 magnata Aldenberg — all bred?]

July 25. J. K. Vickroy of Champaign finds young
apple defoliated by Acronycta oblinita;
also finds a great many Cecropia on apple-tree.

Color pale brown, [illegible]
for 8 to last larval stage = N. mucronis?

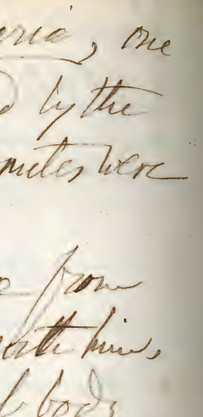
Horn on 4 extremely pointed at first
Sept 19 some still in larval; 4 or 5 quite long & erect.
Aug 27. Gall Populi pisum. n. sp. On young twig. A
sub-globular swelling .20 inch in diameter, pale brown & rough
outside with longitudinal anastomosing ridges like
a musk melon, on the terminal end of leaf stalk
but not confluent at all with leaf. Inside a globular
greenish & tolerably hard on surface
hollow sub-pubescent walls of hollow green & about
.05 inch thick. On one side of the hollow a circular
brown-black rough opaque flat table grows out of wall
like style of a flower, sessile, & .07 in diameter.
Larva pale yellow. .12 long & 6 times as long as wide.
cylindrical joints of body (12) much humped
below to the breast obscure
1st joint plate, head end of body, Head tinged with
marked with & above pale in four, retractile
yellow like Feb shining & horn like
head. Body with sparse pale yellow hair,
½ as long as diameter of body. Curls up towards dorsum
Mandibles dark reddish brown
Labrum exsertile — moves them vigorously

See p. 125

Aug. 28. Of three remaining Thalera fragaria, one had become imago, one was entirely devoured by the white subglobular mite, & one was dead & mites were at him.

Reed 2 cabbage-eating Agrotis? larvæ from Mr. Apse. Very abundant & destructive with him. Head like Riley Male I fig. 10 (II), but body more like 12 & 7. Work underground chiefly. Length 2 inches about: sticky skin.

Aug. 29 On Burr Oak (sent me by Mr. Apse) Larva of Hyparchiscus venustus, Body & head brown & scabrous. Lon. furrow of head very deeply impressed, behind the bifurcation. Joints 1–3 laterally 4 or 5 small teeth. Jt. 4–8 one large tooth directed forward & depressed horizontally. Flattened. 9 & 10 almost simple: 11 with one lateral thorn II & a pair (larger) above directed upwards & backwards. Anal Plate semi-elliptical, hairy.



My L. brassicæ (Reed) is Bassett's L. pomivora but differs in having several cells (shaped like a grape pip) among the leaves. Occurs both on Burr & on White Oak. Larva pale dusky with cross white markings. Cells caducous about this time,

Mrs Mary Treat had a Polyphemus moth, (fed in open air) come out same season.

Sinoxylon [apate] bassillare Say sent me (2 sps) by Dr. Hull as "found in Mr. Guyer's of Mo. grapevines. Many similar bugs were found in the interior of a two-year-old cane, which they had completely honeycombed. I think the boring was done by them as larvæ, & that they had not yet made their way out."

Sept. 4 Found in Cobleben stems (borne) a larva about 3/4 inch long: tail end obliquely truncate with two short thorns transversely arranged. Head large. Placed stems in tall glass jar with 2 Agrotis larvæ. [Oct. 30 found therein 2 Sphenophorus pulchellus, one of them alive.]

Gortyna nitela (determined by Riley) on July 21. 1869 (Cautions Edw. Norton) is "doing great damage to the corn at a point in New Jersey, beginning when the corn is young & growing with its growth. A farmer there has ploughed under several acres of his corn" [in consequence].

[Riley letter, of July 30. 1869.] "July 28th Mr. Bush brought me 2 mature beetles & 3 pupæ, taken from pearoots; both the beetles were ♂'s, Prionus subcornis; & the pupæ were evidently [injured] of the same species." [How he judge from antennæ?]

Sep. 7. Two ♀ Blackberry Agena came out. All ♂♂ came out early in the morning, or by 9 or 8.

Sep. 7. Cucumber worm. A 16-legged greenish white worm, 2/3 inch long, boring into green cucumbers. A small hole outside through which apparently it enters. Tapers toward head end. Head retracted. Spins a web in a hole in a cucumber in which it placed one. Legs & pro-legs colored as body, legs slightly tipped with brown. Cervical shield very pale ochrous, with a darker green dorsal line. Tubercles (simple except on joint) colored as nearly body, each emitting a short dusky hair. Placed in Jar H. (4 specs. 1 injured at tail) Sept 10. I cannot find it has changed.

21 Tachina Eggs on Shoulders of one Sphinx larva (Deilephila lineata — purslane)

In P.T. Sep. 4. 1869 p. 283 (n.s.) D. B. Weir speaks of a Raspberry cane girdler. Probably Agrilus ruficollis. [He says not; specimens sent him.]

Sep 6. H. K. Vechery (Ind. University, Champaign) sends me 2 of "Hammond's Leaf-tier" "do very considerable damage to the apple."

Sep. 11. Bred Anthicus cervinus (from) from Cherry Black Knot. (very abundant)

Gall Quercus ovum. On upper face of leaves of Q. tinctoria. A hard almost woody roundish deciduous shelling, .18—.22 inch in diameter, but one or more often confluent, sometimes into a great bowl-like elongated mass. Surface scabrous & pale greenish brown, the tortoise like markings red near to obvious as in D. fibula. Inside greenish white, the single galls only monothalamous. Reverse side of leaf a pale green blister-like elevation, with an obscure central nipple, the compound galls with many light nipples. ♀ 2—2½ lines, as long as pale. Larva .07—.08 long, dull yellow with curved pellucid whitish markings, the tail often (when retracted) appearing truncate & emarginate ☐. Bb two dark dots only (as even when head is fully exserted. ✝ D. fibula, which has a clove-shaped breastbone.

"Bladder plums" (hollow like our Amer. ones) common on the sloe in England. Said to be caused by a parasitic fungus (Ascomyces deformans)

Science-Gossip. Aug 1. 69. p. 186

See Letter to T. H. p. 31

Sept. 15. Found 4 of another cucumber-born larvæ, in company with the other (p. 121)

Length ½ inch. Color pale greenish yellow: 16 legs; Head pale yellow: the ♈ of the mouth black. Cerv. shield ⊏⊐ each ⊏ edged with black, centre yellow. ⁘ under shield on each side, & same lateral marking on jts. 2 & 3. Above on jts 2 & 3 (• • • •) On 4-11 jt. eight (excluding 2 lateral) spots transversely arranged & behind them two dorsal spots (A) • • (A) Jt 8 spot 2 lateral ones on each side subequal Stigmatal Anal jt ⁘ 5 spots, middle one larger & transverse. Body ⁘ with some sparse long dusky hairs, 6-8 times as long as wide, a little tapered towards head. Spins a thread. In Cage No. 4. Sept. 16. Sept. larva in front of Chalazus tomentosus on Island, abundant. Length .35 inch 6 or 7 times as long as wide. Color brownish white, or sometimes pale & yellowish. Head pale brown, darker ⊗ behind & on ⋎ the mouth, marginate behind. Cervical Shield scarcely darker except behind than body ⊐ Anal clasper brown. Legs & proleg immaculate. A few scarcely perceptible hairs on head & body Stomach ferruginous & a narrow dusky dorsal line. (2 specs.) Spins a thread.

Larval larva found in same hawthorn

Length .30 inch. 4½ times as long as wide. Pale whitish with a narrow dusky dorsal line, obsolete on thorax. Stomach ferruginous. Distinct lateral tubercles on all the jts. A few short hairs on head & body. Head yellow. Mandibles black ⋃ ⋃ except at base, tipped with two-toothed at tip, teeth almost vertical or one above another. Tail generally with dark matter sticking to it, which will not wash off. In one hawthorn 2 small specs. .10 inch long.*

Another leaped larva found in the same hawthorn with a dozen differences in head. Jaws black, and shield darker behind & anal clasper scarcely discolored. Length .20 inch Another .13 long, has anal clasper dusky, but otherwise alike.

Placed the above hawthorn (with the larvæ by all of them, viz. 4 or 5 No. 1, 10 or 11 No. 2, & 2 No. 3) in a jar with fresh sand.

A new Grape-vine & maple-feeding Sphinx cat. with horns on 2nd & 3rd segments like Ceratomia & an anal tubercle, described by LeBaron (W. A. E. in P. F. Sept. 15. '69, p. 300, col. 4 [=Dryocampa imperialis Riley]

Larva of Populi preceu gall (See p. 118). Largest now .18 inch long, yellow tinged with green. Travel about as well as a caterpillar.

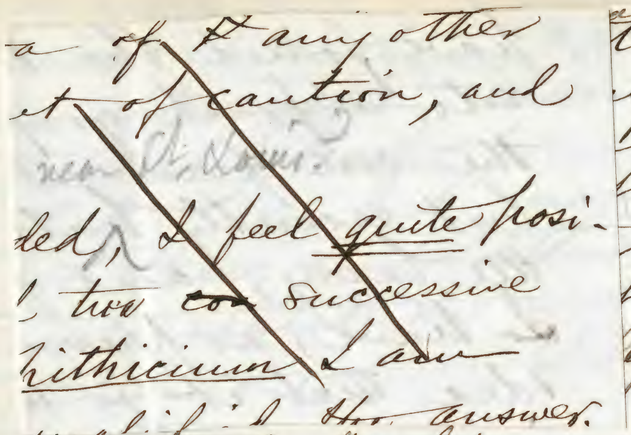
Have most of them now left the gall thro' a small pin hole, & spun up flat oval brown opaque cocoons with a little floss outside, attaching them to bottom of glass jar, to which they do not stick very tight.

Gall Populi ——. Acard.? [or Ceced.?] On lower surface of quaking asp leaf a hollow cylindrical smooth gall (opening above) .14 long & .08 wide. Crimson spotted outside, brownish white rather rough inside: 3 galls. In one a reddish mite dead or dormant & cyclosed in a web: in another a bright orange ceced. larva, .18 long Bb as per margin: 3rd empty. Same as one of my old Populus acard. Galls?

Sep 20- 11 Sphaerocera had pupated on return surface of ground.

The common Black Tipula was bred by Riley from a brown silk oval cocoon about an inch long.

"Blackberry Oberea makes a circular ring of punctures in the cane" (Riley MS.)



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Clemens describes & Ancylopera in P.E.S.P. III. p. 509 See if N. fragaria be identical with any of them.

(Jas. Angus)

At West Farms N.Y. Dim. ursula was very abundant in 1869. Other years scarce, as I represent it. Wm. H. Edwards says that ursula is always common in W. Virg. & disippus rare.

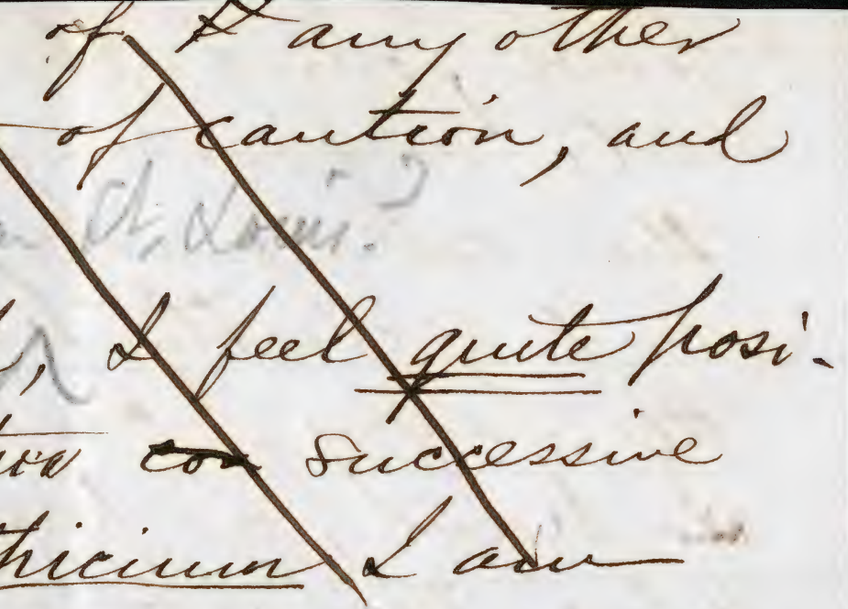
Found under my locust trees a larva 1/4 or 1/2 inch long, curled up like an Arctian, short evenly-shown stubby hairs of a very pale dirty brown color, & pencils (black & rubbobsolete) such as Acronycta accericola. Has no hint of yellow. Placed in Cage 1.

Larva of Tipula (black) fm cocoon (Riley). Length .40 inch, head bent down on breast,  abd. fs #1-8 with a very strong transverse semiroad lateral pseudopod. Color (excluding head) opaque yellowish white, salmon edged with brown a broad impressed dorsal area whole length of body. Segments strongly marked annuli transversely "Scostriform."

I have found the larva of Xenthus vitivorus eating into a fresh grape after getting through with the one first attacked; I have found it but recently hatched when but just entering the berry, and for these and other reasons, I have, as previously stated no sort of an idea that it is ingulicious.

have never yet seen larva of & any other species. But I confess to want of caution, and & have altered to suit.

That Sphinx myron is 2-brooded, I feel quite positive though I have never bred two successive [illegible] As to pithicium I am [illegible]



Larva of Populus pruina gall (See p. 118). Largest now .18 inch long, yellow tinged with green. Travel almost as well as a caterpillar.

Have most of them now left the gall thro' a small pin hole, & spun up flat oval brown opaque cocoons with a little floss outside, attaching them to bottom of glass jar, to which they do not stick very tight.

Gall populi ——. Acarid.? [or Cecid.?] On lower surface of quaking asp leaf a hollow cylindrical scarlet gall (opening above) .14 long .08 wide. Crimson opened outside, brownish white rather rough inside: 3 galls. In one a reddish mite dead or dormant & cyclosed in a web: in another a bright orange cecid larva, .18 long Bb as per margin: 3d empty. Same as one of my old popla acarid. galls?

Sep 20. Ichneumon fly (Lepeyed on natural surface of ground.

The common Black Tipula was bred by Riley from a brown silk oval cocoon about an inch long.

On Blackberry Vorea makes a circular row of punctures in the cane" (Riley MS.)

(Riley M.S.)

Clemens describes & Ancylopera in P.E.S.P. III. p. 509 See if N. fragaria be identical with any of them.

(Jas. Angus)

At West Farms N.J. Lim. ursula was very abundant in 1869. Other years scarce, as I represent it. Wm. H. Edwards says that ursula is always common in W. Virg. & disippus rare.

x Found under my locust trees a larva 1¼ or 1½ inch long, curled up like an Archay, short coarsely-shown stubby hairs of a very pale dirty brown color, & pencils (black stubbobsolete) such as Heterocampta asericola. Has no trait of yellow. Placed in Cage 1.

Larva of Tipula (black) Sep from cocoon (Riley). Length .40 inch, head bent down on breast,  abd. pts. # 1–8 with a very strong transverse semioval lateral pseudopod.  Color (excluding head) opaque yellowish white, tubercles edged with brown; a broad impressed dorsal stria whole length of body. Segments strongly marked. anus transversely "Sexstriporn."

D. imperialis bad on Maple & grape vine in
Grundy Co. Ill. (P. F. Vol. 9. 1863. p. 322)
Hutton. 4-gibbus very destructive to apples
in Troy, Iowa. (Ibid.)

Illinois Horticulturists &c

L. Woodard, Nurseryman, Marengo, Mc Henry Co. Ill.
Wm. Stewart, Fruit-grower P.O. Box 794 Quincy (Grapes)
D. B. Wier, nurseryman, Lacon, Marshall Co. Ill.
Geo. Husmann, Hermann, Mo (Grapes)
× C. V. Riley, 2130, Clark Av. St. Louis.
Edw. H. Beebe, Galena, Ill. (245 Broadway N.Y.)
George Thurber, [Rotamich] Thurber] Office Am. Agricult.
D. Wilcox Scott, 99, Main St. Galena Ill.
Graham Lee, Hamlet, Mercer Co., Ill.
Dr. L. D. Morse 9, S. Fifth St. (St. Board Agric.)
St. Louis, [or Journ. Agr. St. Louis.]
Marshall P. Wilder, Pres. Am. Pomol. Soc., Dorchester, Mass.
Dr. Pennington, Sterling, Ill.

Hon. Elmer Baldwin, Farm Ridge, Ill.
W. C. Flagg, Alton, Ill.
Dr. E. S. Hull,

M. L. Dunlap, Champaign, Ill.
O. B. Galusha, Lisbon, Kendall Co. Ill.
A. R. Whitney, Franklin Grove, Lee Co. Ill.
Jonathan Huggins, Woodburn, Macoupin Co. Ill.
Parker Earle, South Pass, Ill.
G. W. Minier, Mackinaw, Tazewell Co. Ill.
Jas. E. Starr, Elsah, Jersey Co. Ill.
Prof. J. B. Turner, Jacksonville, Ill.
Wm. Cutler, Beverly, Ill.
Capt. A. S. Coe. Port Byron, Ill.
John P. Reynolds, Springfield, Ill.
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Capt. Edw. H. Beebe, Galena, Ill.
F. K. Phoenix, Bloomington, Ill.
Dr. Abraham Hostetter, Mt. Carroll. Ill.
Dr. W. D. Hartman, West Chester, Penna.
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S. Jackson,
W. B. Ranson, St Joseph, Mich.
Prof. S. S. Haldeman, Chickies, Lancaster Co. Penna.
Rev. C. J. S. Bethune, Credit, ontario, Canada.
Chas. D. Bragdon, 41 Park Row, N. Y.

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[Will go to Europe for a year from Oct 29. 1868]

Joseph M. Wilson, [9 miles North of] Sterling, Illinois
(writes me to visit him — will fetch me from Sterling — a quaker.]

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