general color is very uniform, the warts yellow but small and inconspicuous. Some of the whitish lines of the ground color are broken into ring-spots and streaks; about six remain on each side nearly continuous; the body is therefore dull dark purple, mottled with the narrow pale lines and rings and the small yellow tubercles. Hair very inconspicuous, fine, short, about one from each wart; secondary hair very fine, pilose. Spins an imperfect cocoon between leaves, the moth emerging the following season. The larvæ have the habits of *I. apicalis* (*vau*) living in houses formed of leaves spun together.

## BIBLIOGRAPHICAL NOTES. — VII.

BY SAMUEL HENSHAW.

MINOR ENTOMOLOGICAL PUBLICATIONS.— GARDEN AND FOREST. Vol. 5 (1892) contains the following notes and articles: —

Jack, J. G. The perforation of flowers [by bees]. p. 29–30, fig. 7.

S. The gypsy moth and its extermination. p. 81–82.

Smith, J. B. Insects in the soil of greenhouses. p. 117.

Nutter, F. H. Help against the gypsy moth. p. 119.

G., T. and Editor. Insects [Myzus cerasi] on cherry trees. p. 203–204.

Hoskins, T. H. Insecticides and fungicides in the orchard. p. 261.

L [odeman], E. G. The pear Psylla. p. 285.

Bailey, L. H. Is spraying overdone? p. 310.

Jack, J. G. Notes on two [Cyllene robiniae, Aegeria rubi, Bembecia marginata] troublesome borers. p. 426.

Editor. Legislation against injurious insects and plant diseases. p. 457–458.

Smith, J. B. Legislation against injurious insects. p. 490–491.

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Editor. Co-operation against insect invasions. p. 601–602.

Slade, D.D. A campaign against the tent caterpillar. p. 604.

Vol. 6 (1893) contains the following: —

Wright, Walter C. Legislation against insects. p. 69–70.

[Lintner, J. A.] A destructive elm tree bark borer [Saperda tridentata]. p. 75.

Anon. [Notice of Smith's Cranberry insects]. p. 84.

R[obbins,] M. C. War upon caterpillars. p. 318–319.

A., E. B. and Editor. The white grub [Lachnosterna sp.] in lawns. p. 357.

Smith, J. B. The white grub [Lachnosterna sp.] in lawns. p. 369.

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Smith, J. B. Notes on blister beetles [Meloidae]. p. 423–424.

[Rudd, W. N.] To kill grubs and seeds in greenhouse soil. p. 427.

Smith, J. B. Is the woodpecker useful? [as a destroyer of insect larvae]. p. 483–484.

Vol. 7 (1894) contains the following: —

Jack, J. G. The plum Curculio as an apple pest. p. 44–45.

Smith, J. B. The plum Curculio on apple. p. 104.

Anon. Review of Sempers's Injurious insects and the use of insecticides. p. 149.

Orpet, E. O. The onion maggot. p. 187–188.

Anon. Review of Adler's Alternating generations. p. 259–260.

Beach, S. A. A scale insect [Lecanium cerasifex] on plums. p. 284, fig. 47.

G., D. and Editor. Injuries by seventeen year locusts. p. 288.

Smith, J. B. The San José scale. p. 344, fig. 55.

Hopkins, A. D. The relations of insects and birds to present forest conditions. p. 348.

Smith, J. B. The flat-head pear borer [Agrilus sinuatus]. p. 373–374, fig. 60.

C., S. and Editor. Insects injurious to plants. p. 448.

Smith, J. B. The pear-borer [Agrilus sinuatus] again. p. 448.

Sirrine, F. A. The pernicious scale on Long Island. p. 449.

Vol. 8. (1895) contains the following: —

S., R. A. and Editor. The chestnut weevil. [Balaninus sp ]. p. 8.

Anon. [Notice of Smith's San Jose scale]. p. 60.

[Slingerland, M. V.]. Insects injurious to fruits. p. 79.

Wright, W. C. The gypsy moth in Massachusetts. p. 108.

[Hubbard, H. G. Effects of cold weather on insects in Florida]. p. 140.

Goff, E. S. The kerosene attachment for spraying pumps. p. 143, fig. 21–22.

Weed, H. E. Kerosene attachment for knapsack spray pumps. p. 186–187, fig. 29.

Orpet, E. O. Insect pests. p. 187.

Christ, H. An enemy [Steganoptycha pinicolana] of the larch on the high Alps. p. 238–239.

Cockerell, T. D. A. New facts about scale insects. 1. p. 244.

Anon. [Notice of Slingerland's Cigar-case bearer]. p. 270.

Anon. [Ravages of Orgyia leucostigma in Boston]. p. 300.

[Southwick, E. B.] The tussock moth, Orgyia leucostigma. p. 308.

Lowe, V. H. The white-marked tussock moth, Orgyia leucostigma, in western New York. p. 314–315, fig. 43.

Jack, J. G. Another herbarium pest (Ephestia interpunctella). p. 323–324, fig 45.

A., S. J. Fighting the elm-leaf beetle. p. 346-347.

Smith, J. B. Why certain hickories died [Ravages of borers]. p. 352–253, fig. 49.

Britton, W. E. The columbine leaf-miner. Phytomyza aquilegiae. p. 443–444, fig. 61,

Anon. [Raupenleim]. p. 470.

Cockerell, T. D. A. Scale insects liable to be introduced into the United States. p. 513.

Anon. [The cabbage maggot, Anthomyia brassicae.] p. 520.

## Proceedings of the Club.

14 February, 1896. The 190th meeting was held at 156 Brattle St., Mr. S. H. Scudder in the chair.

Prof. C. M. Weed read his presidential address for 1895 on the Hibernation of Aphides.

In continuation of his remarks at the last meeting, Mr. A. G. Meyer said the cells from the scales of Lepidoptera were modified hypodermic cells and homologous with hairs. The pigment of the scales is derived from the blood, a haemolymph, of the chrysalis, which fills the scales while the pigment is forming. The haemolymph is an albuminous fluid containing a strong acid; its mineral bases contain a large amount of iron and also potassium and sodium in small quantities. The following facts confirm the statement that the pigments of the mature wings are derived from the blood of the chrysalis. The red band on the hind wing of *Samia cecropia* becomes yellow by the addition of hydrochloric or nitric acid, but its red color is restored by ammonia. The blood of the pupa of that species when treated with warm nitric acid becomes yellow, and is changed to orange-red by ammonia; the application of hydrochloric or nitric acid again turns it yellow, the color being restored by ammonia, exactly as is the case with the red color of the mature wing. Also, if the blood of *Callosamia promethea* is treated with hydrochloric acid and a minute crystal of chlorate of potash at a gentle heat, it becomes purple, but is blackened to a drab color by nitric acid. The purple spots near the outer edge of the hind wing of the female moth are similarly bleached to a drab color upon application of nitric acid. Most of the colors of the wings are probably derived from the blood of the chrysalis by processes of oxydation.

In answer to questions, Mr. Meyer stated that it was in the last stages of the pupa that the pigment was developed; and that colors