

CONTRIBUTIONS TO THE KNOWLEDGE OF MASSACHUSETTS COCCIDÆ.—II.

BY GEO. B. KING, LAWRENCE, MASS.

Ortheziinæ.

- (21)
- Orthezia insignis*
- , Dougl.; 1887-1892. I.

Found at Amherst and Cambridge, Mass., in greenhouses. A very general feeder on greenhouse plants. It is recorded from New York, Pennsylvania and California.

Lecaniinæ.

- (22)
- Kermes galliformis*
- , Riley ; 1881-1897. N.

A very abundant species at Lawrence, Methuen, Andover, Haverhill, and Dracot, Mass., on white, black, red, and scrub oaks. It is recorded from Ohio, Colorado, New Mexico, New York, and Oklahoma. In Massachusetts it is attacked by a Lepidopterous larva, *Euclemensia bassettella*, and a new species of *Encyrtus* has been reared from it in large numbers. It is attended by a number of species of ants, the following already observed : *Formica subsericea*, Say.; *F. obscuripes*, For.; *Camponotus pennsylvanica*, Deg.; *Cremastogaster lineolata*, Say.; and *Lasius americanus*, Em. In the spring of 1898 one adult female was found under a stone in a nest of *Formica subsericea*, Say, at Andover, Mass.

- (23)
- Kermes pubescens*
- , Bogue ; 1898-1898. N.

This is found to be quite destructive to young white oaks at Lawrence, Andover, and Methuen, Mass. It is parasited by *Microterys cincticornis*, Ashm. The coccid was first described from Kansas.

- (24)
- Kermes nivalis*
- , King and Ckll.; 1898-1898. N.

A very pretty species and comparatively rare. Covered with a snow-like meal which soon disappears after the young begin to move about. It is found on *Quercus alba* at Lawrence, Mass.

- (25)
- Kermes Kingii*
- , Ckll.; 1898-1898. N.

Like the above, quite rare and handsome. Found at Lawrence, Mass., on red oak. Prof. Gillette has sent Prof. Cockerell specimens collected in Delaware.

- (26)
- Lecanopsis lineolata*
- , King and Ckll.; 1897-1897. N.

Found in the nest of *Cremastogaster lineolata*, Say, at Lawrence, Mass.

- (27) *Lecanium hesperidum*, L.; 1758-1828. I. Described as *Coccus hesperidum*.

Very common in greenhouses, and a pest not only in greenhouses, but also to many plants in dwelling houses at Lawrence, Mass.; on ferns, palms, ivy, and many other plants not yet identified; recorded from Utah, Ohio, California, Florida, Georgia, New York, New Jersey, and Washington, D.C.

- (28) *Lecanium coffeæ*, Walk.; -1896. I. Syn. *hemisphæricum*, Targ.

A first-class pest on greenhouse plants at Lawrence, Mass.; on ferns and several other plants not determined. It is reported from Cambridge, Maine, New Jersey, New Mexico, California, Pennsylvania, and Washington, D.C., on Orange, *Diospyros*, *Oleander* *Chrysophyllum*, Sago palm, and *Croton variegatum*.

- (29) *Lecanium quercifex*, Fitch. 1856-1898. N.

On white oak at Lawrence, Mass. Parasited by a new species of *Coccophagus*. Originally described from New York.

- (30) *Lecanium quercifex*, Fitch, var.; 1898. N.

At Methuen, Mass.; on cork oak and an ornamental shrub. It is parasited by *Aphycus lecanii*, How.

- (31) *Lecanium filicum*, Boisd.; 1868-1869. I

According to Dr. Packard it has been found in greenhouses frequently. Prof. Cockerell informs me that this is only a variety of *L. coffeæ*.

- (32) *Lecanium corylifex*, Fitch; 1856-1898. N.

A very common species at Lawrence, Andover, and Methuen, Mass.; on hazelnut, *Corylus americana*, and is attended by *Cremastogaster lineolata*, Say. It is parasited by *Aphycus lecanii*, How., *Cornys fusca*, How., *Microterys*, sp. A new genus, near *Chrysoplatycerus*, and a *Tetrastichus*, sp. (Hyperparasite), were found with one lot. The Coccid was originally described from New York.

- (33) *Lecanium cynosbati*, Fitch; 1856-1898. N. Syn. *Caryæ*, Sign.

From Methuen, Mass.; on three-thorned locust, *Gleditschia triacanthos*. It is attended by *Formica subsericea*, Say. Originally described from New York.

- (34) *Lecanium tessellatum*, Sign; 1873-1898. I.

Found by Mr. J. W. Folsom in the botanic gardens at Cambridge, Mass. (Ckll, in litt.).

- (35) *Lecanium Kingii*, Ckll.; 1898-1898. N.

Quite frequently found on high-bush blueberry, *Vaccinium corymbosum*, L.; at Lawrence, Mass.

- (36) *Lecanium tarsale*, Sign.; 1873, var. 1898. ..N.

On dogwood, *Cornus alternifolia*, at Lawrence, Methuen, and Andover, Mass. Generally found on the trunk of trees, seldom on the limbs. It is parasitized by *Blastothrix longipennis*, How.

- (37) *Lecanium Fletcheri*, Ckll.; 1893-1898. N.

At Lawrence, Mass., on *Arbor vitæ*. It is found at New York by Mr. Pettit and was described from Ottawa, Canada. Found there by Dr. Fletcher on cedar.

- (38) *Lecanium nigrofasciatum*, Perg.; 1898-1897. N.

Found at Methuen, Boston, Springfield, Holyoke, and Deerfield, Mass., on *Acer rubrum* and *Acer saccharinum*; also found at Washington, D.C.; Maryland, Georgia, Tennessee, Pennsylvania, New Jersey, New York, Delaware, Ohio, Missouri, Illinois, and Florida. It is parasitized by *Aphycus flaviceps*, How. Dr. Howard, who has had all the parasites reared by me for study, reports to me (in litt.) that these specimens were badly shrivelled, so he could not make the determination with absolute certainty, and that the parasite had been previously reared from *Lecanium* by Prof. W. G. Johnson at Champaign, Ill. Dr. Dimmock informs me that some of the trees were very badly infested by this scale, which has been nearly exterminated at Springfield by a parasite. The food plants in other localities are olive, *vaccinium*, plum, apple, peach, birch, maple, *Bumelia* and *Lindera benzoin*. It also occurs in Western Ontario, Canada, on maple.

- (39) *Lecanium pallidior*, Ckll. and King; 1899-1898. N.

On young native white cedar, *Chamæcyparis thyoides*, at Methuen, Mass.

- (40) *Lecanium caryæ*, Fitch; 1856-1898. N.

At Lawrence and Methuen, Mass.; on pignut hickory and wild red cherry. The writer has endeavored to find the original type of Fitch's species. At present it looks as though there were none to be found. Prof. Cockerell will in the near future redescribe the species, as it is very much confused with many others, owing to the very short and incomplete description by Fitch. The unrecognized *Lecanium platycerii* described by Dr. Packard in 1869, said to be common in greenhouses in Massachusetts, was probably *Lecanium coffeæ*, Walk.

(41) *Lecanium (Saissetia) anthurii*, Boisduval; 1868, var.

This insect was referred to Mr. Cockerell, who supplies the following remarks :

"Length 2, breadth $1\frac{1}{2}$, height little over $\frac{1}{2}$ mm.; pale reddish-brown to brown ochereous, broad oval in outline, fairly convex, shiny; with weak ridges forming an H, as in the *oleæ* group; these ridges marked, as in *Beaumontiæ*, by rows of waxen or glossy patches. Dermal structure as in *Coffeæ*, and exactly as Signoret figures for *anthurii*. Marginal bristles of two sizes, about 24 and 39 u. Legs a little larger than *coffeæ*; coxa 150, femur with trochanter 180, tibia 135, tarsus 84, claw 20, claw-digitules 30, tarsal digitules 52 u. Tarsal digitules filiform, with a small knob. Claw strongly curved, its digitules bulbous at base, and with large round knobs at the end. Antennæ practically as in *coffeæ*; segments, (1.)39, (2.)42, (3.)54, (4.)42, (5.)39, (6.)30, (7.)24, (8.)36u. Formula: 3(24)(15)867. This is evidently very close to *L. coffeæ*, but the specimens seem to be adult, and in that case they cannot belong to that species. They very nearly agree with *anthurii* as described by Signoret, but are half a mm. shorter, and very much flatter; the tibia also is not twice as long as the tarsus, as it should be in *anthurii*. In many respects the insect is very like *L. Beaumontiæ*, as described by Douglas, but the description is very inadequate. The present insect was found by Mr. King on grass in a greenhouse, so its native country is uncertain. On the whole, it seems more discreet to leave it as '*anthurii*, var.' than to give a new specific name." (Cockerell, litt., March 23, 1899.) Originally found on Anthurium (Ckll. in litt.).

(42) *Pulvinaria innumerabilis*, Rathv.; 1854-1869. N. Syn *Acericorticis*, Fitch.

Quite frequently found through the State on maples and perhaps on other food plants, and is preyed upon by *Hyperaspis signatus* and *Chilocorus bivulnerus*; an *Encyrtus* sp., *Aphycus* sp., and *Chiloneurus albicornis*, How., have been reared from it. Recorded from Washington, D. C.; Virginia, New Jersey, New York, Maryland, Pennsylvania, Georgia, Indiana, Illinois, Colorado, Washington, Utah, Oregon, Ohio, Florida, Kansas, Missouri, Michigan, New Mexico, Nebraska, and Western Nevada, on box elder, maple, locust, elm, woodbine, currant, gooseberry, plum, peach, hawthorn, mountain ash, Lombardy poplar, weeping willow, upland willow, swamp willow, flowering currant, osage, orange, oak, linden, rose, hackberry, sycamore, spindle tree, beech, and

sumac. There is much doubt about the identity of the species on all of the above food plants. The only way to be sure about these *Pulvinaria* spp. will be to get a large number, say 25 or 50, of each and measure all the antennæ and legs. (Ckll. in litt.).

(43) *Pulvinaria innumerabilis*, var. *tiliæ*; King and Ckll.; 1898-1898.

A variety readily recognized from *innumerabilis* by the colour of the female scale, which is gray with several black spots, giving it a mottled appearance. Found at Methuen and Lawrence, Mass, on *Tilia americana*, white oak, and elm.

(44) *Pulvinaria Macluræ*, Kennicott in Fitch; 1855-1898. N.

What I take to be this species is found on Sumac. It is the largest of the *Pulvinaria* type found here, and not very often found. It has been recorded from New York, New Mexico, and Pennsylvania, on Osage orange.

(45) *Lichtersia viburni*, Sign.; 1873-1898. 1.

The species is new to America and found at Lawrence, Andover, and Methuen, Mass., on leaves of *Spiræa salicifolia*, L., and *Prinos verticillatus*. It is parasitized by *Aphycus Lounsburyi*, How. Dr. Howard, who has so kindly determined all the parasites of my rearing from coccids, also says (in litt.) that he agrees with me that the supposed *Pulvinaria innumerabilis* from different localities and food plants needs further study.

THE MEDITERRANEAN FLOUR MOTH AGAIN.

BY PROF. W. G. JOHNSON, COLLEGE PARK, MD.

Some few weeks ago I had an inquiry referred to me by the Editor of the *American Miller* from a Canadian correspondent, who stated that the flour moth was less than fourteen miles away from his mill, in Wellington (Ontario) district. I contributed a short article regarding this moth in the May number of the *American Miller*, in response to which two other localities have been discovered. One comes from York district, along the Lake, and one from Leeds district, along the St. Lawrence River. It seems clear to me that this insect is spreading along the watercourses of the lakes and inland along the railroads. Four other cases were reported to me, with larvæ and pupæ from each, from the United States side, one coming from Ohio, the first reported from that State, and three from New York. I also have one from Southern California. In every instance the pest has maintained its former reputation as a most dangerous insect.