

CANADIAN COCCIDÆ.

I. THE SPECIES OF CHIONASPIS WHICH INFEST TREES OF THE TRIBE BETULÆ.

BY T. D. A. COCKERELL, LAS CRUCES, NEW MEXICO.

In 1869 Signoret described a species from Switzerland as *Chionaspis alni*. It was found on the bark of the alder (*Alnus communis*). This species has never been seen in America, but in 1883 Comstock announced a form from alder and *Viburnum* as *Chionaspis Lintneri*. Since the latter date our knowledge of the matter seems to have remained without additions. Mr. James Fletcher has just sent me a *Chionaspis* plentifully infesting the bark of *Betula papyrifera*, from Charlottetown, Prince Edward Island, about 46° N. Lat. I examined this with interest, owing to the locality and the host plant, and on comparing it with Comstock's account of *C. Lintneri*, I have no doubt that it is the same.

The following description was made from the Charlottetown specimens:—

♀ scale white, with the exuviae rather small, orange-brown. Scale very broadly pyriform in outline, some nearly circular without the projection on which are the exuviae. Length of scale about 2 mm.

♀ (soaked, not boiled, in liquor potassæ) pale lemon-yellow. Mouth parts large. Ventral grouped glands well-developed, caudolaterals 31, cephalolaterals 38, median group with 18 orifices. A group of nine to fifteen oval dorsal pores situated nearly opposite the lateral groups of ventral glands. Bands of dorsal oval gland-orifices very distinct. The usual sac-like bodies between the lobes. Anal orifice between the cephalolateral groups of glands.

Median lobes large, rounded at their ends, but not truncate; their two sides, if continued to a point, would meet at a little less than a right angle. Lobes touching at base, thence widely diverging at about a right angle; not distinctly notched.

Second lobes shorter, rounded, with a small appendage or lobule placed cephalad.

Third lobes rounded, low, forming less than a hemisphere, with a small lobule placed caudad.

Margin beyond the lobes irregularly crenate, slightly serrate.

Spine-like plates as in allied species, two between first and second.

lobes, three between second and third, next a large pair, then another larger pair, and then a group of five to nine. These characters are quite variable.

Comparing the above with Comstock's account of *Lintneri*, one or two points call for notice. Comstock says he found the ♀ reddish-brown, with the last segment yellow, but supposes in life it would be reddish. This I doubt, but my specimens are not alive, so I cannot say certainly what colour they originally were. In his table of *Chionaspis* (2nd Cornell Rep., p. 98) he separates *Lintneri* from *salicis* by two characters:—

- (1.) *Distal ends of mesal lobes pointed or obscurely trilobed.*

They are not exactly pointed, and the trilobation is very obscure, but the distinction intended seems a valid one.

In *salicis* these lobes are more truncate altogether.

- (2.) *A single plate laterad of each second lobe, and usually two plates laterad of each third lobe.*

This appears to break down altogether; the first specimen I examined was as above described, with two and three plates; but the character was not constant, the next one looked at being as typical *Lintneri*.

On comparing the Charlottetown scales with scales of *C. salicis* received from Mr. Newstead, I found that they were practically alike. Comstock says he cannot tell the scales of *Lintneri* (♀) from *salicis*,—neither can I.

If Comstock had not described *Lintneri*, I think I should have placed the Charlottetown insect, for the present, as *C. salicis*, var.; but although it is extremely near to *salicis*, it must be admitted that it is not really the same, and the name *C. Lintneri* stands valid.

Fortunately I had some scales of *C. alni*, Sign., sent to me by Mr. K. Sulc, collected at Kralové Dvur, Bohemia. On comparing them with the Charlottetown *Lintneri*, they were manifestly distinct, being narrower, not so white, with paler exuviae. They were from *Alnus glutinosa*.

It may not be out of place here to call attention to *Aspidiotus betule*, Baren sp., 1849, which is listed in Prof. Smith's New Jersey Catalogue. It is a pretty and distinct species, but I have seen only European specimens.

II. PRELIMINARY NOTE ON THE SPECIES OF *LECANIUM* FOUND ON OAK IN
NORTH AMERICA, WITH ESPECIAL REFERENCE TO ONE
ON *QUERCUS RUBRA*.

Some time ago Mr. James Fletcher sent me specimens of a *Lecanium* found at Jubilee Point, Rice Lake, Canada, on *Quercus rubra*. This was handed to Mr. J. Bennett for examination, and was found by him to present the following characters:—

Scale, 4 mm. long, $2\frac{1}{2}$ wide, 2 high. Antennæ 7-jointed, formula 3 (2 1) 7 5 4 6. 7 was almost as long as 2. Tarsus, $\frac{2}{3}$ length of tibia; claw short and not very sharp.

There are four species of *Lecanium* known from oaks in North America, the characters of which, according to Signoret, are as follows (excluding non-essential details):—

L. antennatum, Sign. — Scale, 5 mm. long, $3\frac{1}{2}$ wide, 3 high. Antennæ 7-jointed, 3 very long, 7 longer than 4, 5 or 6, which are short. Tarsus a little longer than tibia, claw stout. Distinguished from *quercitrionis* by its more elongate form.

L. quercitrionis, Fitch.—Scale, 3 to 5 mm. long, 3 to 4 wide, hemispherical, somewhat elongate in lateral profile. Antennæ 7-jointed, 3 and 4 longest, nearly equal, 5 and 6 shortest, 7 as long as 4. Tibia longer than tarsus; claw very small. On black oak.

L. quercifex, Fitch.—Scale, 7 mm. long, 4 wide, 4 high. Antennæ 7-jointed, 3 and 4 equal, 5 and 6 equal and shortest, 7 as long as 5 + 6. Tarsus as long as tibia. On white oak.

L. quercus (Linné?), Sign.—Scale, 7 mm. long, $3\frac{1}{2}$ wide, $3\frac{1}{2}$ high. Antennæ not seen by Signoret. Tarsus not quite so long as tibia. More rugose than *quercifex*, but less so than *antennatum*. This can hardly be the true Linnean insect.

In Europe are found on oaks:

L. emerici, Planch.—On the "evergreen oaks" in South Europe.

L. fuscum, Gmel.—On *Quercus robur*; scale, 6 mm. diam.; antennæ 6-jointed, 3 much longer than 4. See Douglas, Ent. Mo. Mag., Oct., 1887, p. 98.

L. ciliatum, Dougl.—In England. See Ent. Mo. Mag., 1891, p. 67.

? *L. quercus*, Linn.—On *Quercus robur*. See Douglas, Ent. Mo. Mag., Oct., 1887, p. 99. These four names appear to represent only three recognizable species.

Putting aside the European forms, which do not appear to occur in America, we have two elongate species and two short ones. Our scale on *Q. rubra* evidently belongs with the latter. The main distinction between *antennatum* and *quercitronis* is in the antennæ, and here we see at once that our form falls in with the former, having the third joint very much longer than 4. There would seem, however, to be a slight difference in the legs.

On the whole, the evidence so far obtained cannot be said to support the view that the Canadian insect is new, and distinct from *antennatum*, though it may stand as a variety. For the present it can be recorded as *Lecanium antennatum*, Signoret, variety.

PROTECTIVE MIMICRY IN SPIDERS.

BY F. M. WEBSTER, WOOSTER, O.

In the concluding volume of his admirable work on "American Spiders and their Spinning Work," page 47, Dr. McCook gives the experiences of Mr. H. O. Forbes, and myself, with two species of spiders, whose forms and habits of spinning webs on leaves, together with the peculiar coloration of their bodies, gives them a deceptive resemblance to the droppings of birds. Dr. McCook tries to account for the phenomena of this protective resemblance, by attributing it to the results of natural selection.

Now, it seems to me that natural selection, alone, would not have carried the deception so far as seems to have been done in these cases, and I think, away from their curiously arranged web, these spiders are not so deceptive in appearance, and that the spider has itself learned that by remaining in a rigid position on a sheet of web, arranged in a certain way on the leaf, it will be enabled to escape its enemies, and, what may be of almost as much importance, secure a better supply of food.

To suppose this is hardly over-estimating the intelligence of these spiders. In my own case, I have thought that the deception might have been due, in part at least, to myself, and have often thought that on meeting with it a second time I should recognize it without much trouble.

The Doctor has apparently overlooked the fact that Mr. Forbes