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X.—The New Mexico Coccidæ of the Genus *Ripersia*

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Yrias brunca.

Head and abdomen brown, mottled with reddish-brown scales; dorsal tufts on abdomen black. Thorax brown shaded with violaceous. Primaries brown; a darker space at base; costal and subcostal veins streaked with black; the costal space mottled with red; an oblique median geminate darker line; the outer line fine, dentate, dark reddish brown; the reniform finely outlined with dark reddish brown; a sub-terminal reddish-brown shade, the most distinct of the markings; a fine terminal line and reddish-brown marginal spots. Secondaries with a reddish-brown discal spot; the subterminal as on primaries. Underneath dark silky grey, the fringe greenish yellow.

Expanse 38 millim.

Hab. Demerara.

[To be continued.]

X.—*The New Mexico Coccidæ of the Genus Ripersia*.

By T. D. A. COCKERELL.

IN the course of an investigation of the insects found in ants' nests my wife and I have met with a surprisingly large number of Coccidæ, almost all associated with *Lasius*. The ants' nests are under rocks, and the coccids feed upon the roots and underground stems of plants, mostly grasses. Some of the coccids appear to be only accidentally associated with the ants, as it were; but others, especially those of the genus *Ripersia*, are carefully collected and cared for, and removed to places of safety by the worker ants when the nests are disturbed.

These myrmecophilous Coccidæ are hardly to be found in the southern parts of the country, owing to the rarity or absence of *Lasius*. Professor W. M. Wheeler writes me that he has never met with any species of *Lasius* in Texas.

Ripersia aurantia, sp. n.

♀.—“Bright orange, with very little mealy powder; very convex, almost hemispherical. Long. 2 millim., lat. $1\frac{1}{2}$ ” (W. P. C.). Legs and antennæ reddish brown. Antennæ 6-jointed, fifth joint cup-shaped; joints measuring as follows in μ *:—(1) 33, (2) 39, (3) 48, (4) 18, (5) 30, (6) 80.

• All measurements of antennæ and legs in this paper are in μ .

$\frac{1}{4}$ *

Formula 6 3 2 (1 5) 4. Anal ring with six bristles; caudal tubercles not at all produced, each bearing a bristle about the size of bristles of anal ring.

Hab. Las Vegas, N. M., April; rarely, with *Lasius americanus*.

I have seen an ant wildly rushing about with one in its jaws. By its convex shape, together with the orange colour, this species is very different from all the others. First found by Wilmatte P. Cockerell.

Ripersia Cockerellæ, King, ined.

Hab. Beulah, N. M., about 8000 feet, with *Lasius niger neoniger*, Emery.

Antennæ 7-jointed.

Ripersia confusella, sp. n.

♂.—Length of body 1300–1550 μ ; antennæ 660 μ ; wing 1150 μ ; cottony tails about 700 μ . Dull greyish brown to pale pink, antennæ and legs almost white; dorsum of thorax pale, with a yellowish tinge, no distinct vittæ; wings very white; mesosternum whitish; middle of abdomen pale. *Head seen from above large, triangular, broadest behind the eyes, which are small and dark crimson.* Males discovered by Wilmatte P. Cockerell, April 23.

♀.—Pale pink, varying to pale yellowish, without lateral tassels; small caudal tassels present. The young larvæ are pale yellowish; half-grown individuals which have just moulted appear bright pink. Adult (with eggs forming) about 2 millim. long; antennæ 6-jointed, formula 6 3 1 2 5 4; joints: (1) 33, (2) 30, (3) 45, (4) 21, (5) 27, (6) 60. Middle legs:—femur + trochanter 150; tibia 105; tarsus* 66.

♀ (*penultimate stage*).—Antennal joints:—(1) 36, (2) 33, (3) 39, (4) 24, (5) 33, (6) 75. Middle legs:—femur + trochanter 132; tibia 65; tarsus 60. The antennæ and tarsus of this stage are about as in the adult, but the femur and tibia are shorter. The antennal measurements are variable to some extent, but on the whole remarkably constant in a considerable series.

Egg.—Pale ferruginous, oval; 650 μ long.

Hab. Las Vegas, N. M., about 6400 feet, very abundant, in nests of *Lasius americanus*; also at Trout Spring, Sapello Cañon, April 27.

The ants collect large piles of the eggs, from which we found the larvæ hatching in enormous numbers.

• All measurements of the tarsus are without the claw.

This is an ordinary-looking form, with antefinæ much as in *R. candida*, King, ined., but it is of a different colour from that species and occupies a different region. It differs from *R. flaveola* by having the third joint always longer than the second, whereas in *flaveola* these antennal joints are equal in length. *R. Kingii* is a pink species with a superficial similarity to *confusella*, but the antennæ are decidedly different*.

In *R. confusella* and *R. candida* the fourth antennal joint is always decidedly the shortest; in *R. Kingii* it is no shorter than the fifth, or, at any rate, is not noticeably the shortest joint of the antenna. Prof. Tinsley gives the following formulæ for *Kingii*:—6 (1 2) 5 4 3; 6 3 1 (2 4 5); 6 3 (2 1) (5 4).

Ripersia fimbriatula, Ckll. & King, ined.

Hab. Las Vegas, in nests of *Lasius americanus*, often in the same nests as *R. confusella*. Also at Santa Fé.

Easily distinguished by its small size (about 1170 μ long), uniform yellow colour, and fringe of cottony tassels all round the body. Antennæ 6-jointed.

Ripersia flaveola, Ckll.

Hab. Las Vegas, N. M.; originally described from Massachusetts.

The following particulars refer to specimens taken at Las Vegas with *Lasius interjectus*, April 30, 1901:—

♀.—Length a little over $1\frac{1}{2}$ millim.; light orange, thickly covered with white meal; caudal lobes quite prominent; bristles of anal ring 39 μ ; middle legs with tibia 102, tarsus 72; antennal segments:—(1) 36–39, (2) 42, (3) 42–45, (4) 36, (5) 30–33, (6) 33–36, (7) 75–84. This accords well with Mr. King's measurements of Massachusetts specimens. The antennal formulæ of Las Vegas specimens are 7 3 2 1 4 (5 6) and 7 (2 3) (1 4 6) 5. Prof. Tinsley has found the formulæ 7 2 (4 3) (1 6) 5 and 7 2 5 1 (6 3) 4 in Massachusetts material.

Ripersia Porteræ, sp. n.

♀.—Globose, very pale pinkish or sometimes yellowish: mounted specimen $2\frac{2}{3}$ millim. long and $2\frac{1}{3}$ broad; enclosed in a snow-white sac just like that of *Dactylopius lichtensioides*.

* In making these and other comparisons I have been greatly assisted by data kindly furnished by Messrs. Tinsley and King.

Labium not elongated; hairs of anal ring remarkably short; legs ordinary, middle leg with femur + trochanter 135, tibia 70, tarsus 60. Antennæ 6-jointed: (1) 35-39, (2) 39, (3) 42-45, (4) 24-27, (5) 33-36, (6) 60-66.

Hab. Las Vegas, on roots of grass, April 25 (*Wilmatte P. Cockerell*).

A very distinct species, with its pale colour and snow-white sac.

Ripersia salmonacea, sp. n.

♀.—Length about 1700 μ . Plump, of ordinary form, pale salmon-pink, appearing white above from a dense mealy secretion, which leaves the segments well marked; not so mealy below, hence pinker. *Margin with an irregular but distinct fringe of cottony tassels*, almost or quite obsolete in the thoracic region; short caudal tassels. Legs and antennæ extremely pale.

Boiled in liquor potassæ turns a fine deep claret-colour; labium dimerous, long. 120, lat. 90 μ ; anal ring with six bristles; skin with many small glands, not hairy; legs large, only sparsely hairy, about four hairs in each longitudinal row on tibia; femur stout.

Middle leg: femur + trochanter 200; tibia 126; tarsus 84. Width of femur about 67.

Antennæ 7-jointed, formula 7 (1 2) (6 3 4 5). Joints: (1) 42, (2) 42, (3) 30, (4) 30, (5) 30, (6) 35, (7) 78-84. Joint 7 has a notch about 35 μ from base; joint 6 is cylindrical, not cup-shaped.

Penultimate stage.—Tarsus about 80, tibia 80.

Very young.—Salmon-pink, not mealy.

Hab. Near Gallinas River, at La Cueva, prox. 5800 feet, April 20 (*Wilmatte P. Cockerell*).

Easily recognized by its colour and fringe.

Ripersia tenuipes, sp. n.

♀.—Length 2 millim. Very light pinkish, looking almost white; no lateral or caudal tassels; not a hairy species; eyes well developed; labium about 90 μ long and 60 broad; antennæ and legs, especially the latter, unusually slender; middle legs with femur + trochanter 156 (femur 35 broad); tibia 108; tarsus 62. Antennæ 7-jointed, but the suture between 3 and 4 obscure. Joints: (1) 30, (2) 24, (3) 24, (4) 24-25, (5) 21-23, (6) 24, (7) 60-69.

Hab. Trout Springs, Gallinas Cañon, April 27 (*T. D. A. & W. P. Cockerell*).

Quite distinct by the rather large size, pale colour, and slender legs.

Ripersia trichura, sp. n.

♀.—Longer than usual, pinkish, but covered with white mealy secretion (*W. P. C.*).

Skin unusually crowded with round glands; cephalic region somewhat bristly; caudal region very bristly; caudal lobes not prominent, their bristles about $165\ \mu$ long; six bristles on anal ring, $135\ \mu$ long; legs not unusually slender; anterior femur $105\ \mu$; middle leg with femur + trochanter 138 (femur alone 105 , width 36); tibia $8\frac{1}{2}$; tarsus 57 .

Antennæ 6-jointed. Joints: (1) 39–45, (2) 33–36, (3) 30–42, (4) 25–27, (5) 30, (6) 60. Formulæ $6\ 1\ 2\ (3\ 5)\ 4$ and $6\ 1\ 3\ 2\ 5\ 4$.

Hab. Las Vegas, April 29 (*Wilmatte P. Cockerell*).

My wife brought this in with the remark that it seemed to be new; but I thought it was *confusella*, until I saw the extraordinarily long bristles of the anal ring and caudal tubercles. The caudal bristles of *confusella* measure about $117\ \mu$, of *trivittata* $114\ \mu$. The bristles of the anal ring in most of the species are under $100\ \mu$ —for instance, 72 in *Portera*, 45 in *trivittata*. The legs of *R. trichura* are similar to those of *confusella*.

Ripersia trivittata, sp. n.

♂.—Body 950 – $1050\ \mu$ long; antennæ about 600 , 10-jointed, joints cylindrical, with whorls of hairs; wings $1100\ \mu$; two white caudal filaments, short, about $150\ \mu$. General colour, including legs and antennæ, light straw-yellow; head, prothorax, extreme base of antennæ, and abdomen suffused with lilac; mesothorax with three purplish-brown longitudinal stripes; sides of thorax purplish brown; eyes black, relatively large, prominent, shiny; head seen from above widest in region of eyes.

♀.—About $1\frac{1}{2}$ millim. long; of ordinary form. Pale yellowish, with a slight pink tinge, some decidedly pink; sparsely mealy; turning dark brownish red on boiling in liquor potassæ.

Antennæ and legs pale brown; antennæ 6-jointed, (1) 30, (2) 30, (3) 30, (4) 18–24, (5) 24, (6) 72. Formula $6(1\ 2\ 3)54$. Anterior tibia about 60; tarsus 63.

Hab. Las Vegas, under a rock with *Lasius americanus*, April 18; males and females together in numbers, apparently copulating.

The female is known from *confusella* by the first three antennal joints being of about equal length; but I should have thought it only a variety but for the essentially different male.

Ripersia viridula, sp. n.

♀.—Length $1\frac{1}{2}$ millim.; form ordinary. Pale sage-green, legs and antennæ reddish brown; dorsum rather thickly covered with mealy secretion; no lateral tassels, two extremely short but thick caudal tassels; not a hairy species; middle leg with femur+trochanter 150 (width of femur 45); tibia 90; tarsus 60. Antennæ 7-jointed, 6 cup-shaped, 7 narrow. Joints: (1) 36, (2) 33, (3) 30, (4) 30, (5) 18, (6) 27, (7) 60. Formula 7 1 2 (3 4) 6 5.

Penultimate stage.—Labium about 120 long, 70 broad; middle legs with femur+trochanter 117; tibia 66; tarsus 60. Antennæ 6-jointed. Joints: (1) 27–30, (2) 27–30, (3) 30–33, (4) 15–21, (5) 18–21, (6) 51–54. Last joint stout. Formula 6 (1 2 3) (4 5), 6 3 (1 2) 5 4, 6 (1 2 3) 5 4.

Hab. Las Vegas, under rocks with *Lasius americanus*, abundant, April 19.

Easily known by its pale green colour, which is quite uniform.

East Las Vegas, New Mexico, U.S.A.,
May 9, 1901.

POSTSCRIPT.

Ripersia magna, W. P. & T. D. A. Cockerell, sp. n.

♀.—About $2\frac{1}{2}$ millim. long. *Dark pink*, darker and pinker than *R. confusella*, sparsely mealy, no caudal or lateral tufts; legs and antennæ pale brown; on boiling in liquor potassæ turns wine-red, but does not stain the liquid.

Middle leg with femur+trochanter $204\ \mu$; tibia 111; tarsus 76.

Antennæ 7-jointed; measurements of joints in μ :—(1) 39, (2) 42, (3) 27, (4) 24–30, (5) 21, (6) 27–30, (7) 63–66. 6-jointed phase:—(1) 42, (2) 39, (3) 51, (4) 18, (5) 24, (6) 60. Formula 7 2 1 6 (3 4) 5 and 6 3 1 2 5 4.

Hab. Trout Spring, Gallinas Cañon, N. M., April 27 (W. P. & T. D. A. Cockerell).

This was omitted from the original paper, because both Mr. King and I thought it might be conspecific with *R. Cockerellæ*. My wife all along maintained that it was distinct, and on May 11 collected further material of *R. Cockerellæ* at Beulah, which fully confirms her opinion. *R. Cockerellæ* when boiled in potash turns yellow-orange and then brownish; when alive it varies from yellow to pinkish and is never the deep pink colour of *R. magna*. It appears to be the New

Mexico representative of *R. Lasii*, to which *R. magna* is not nearly related. The following measurements in μ are from the new lot of *R. Cockerellæ*:—

Middle leg: femur+trochanter 174; tibia 129; tarsus 63.

Antennæ: (1) 30, (2) 30, (3) 18, (4) 33, (5) 21, (6) 27, (7) 63. 6-jointed phase: (1) ?, (2) 30, (3) 42, (4) 21, (5) 28, (6) 66.

I take this opportunity to describe the following species of the allied genus *Phenacoccus*:—

Phenacoccus Wilmattæ, sp. n.

♀.—Brownish olivaceous; without lateral tassels; no ovisac observed; surface sparsely mealy; length when mounted $2\frac{1}{2}$ millim.; body pinkish after boiling in potash; legs and antennæ pale brown; legs very sparsely hairy; middle leg with femur+trochanter 213 μ (width of femur 87), tibia 150, tarsus 89; claw with a small denticle on inner side near tip; hind tibia 180 long, 42 broad; hind tarsus 75 long, 21 broad; body not hairy; bristles of anal ring about 90 μ long; caudal lobes not at all produced; rostral loop short, not nearly reaching to middle legs; second joint of antennæ conspicuously broader than third, and always longer.

Antennæ: 9-jointed phase, formula 2 9 3 1 5 (4 6 7 8); segments, (1) 39, (2) 54, (3) 45, (4) 30, (5) 36, (6) 30, (7) 30, (8) 30, (9) 48. 8-jointed phase: formula 8 2 (1 3) (5 7) (4 6); segments, (1) 42, (2) 54-60, (3) 42, (4) 27, (5) 30-33, (6) 27, (7) 30-33, (8) 81-87.

Hab. Beulah, N. M., 8000 feet, on *Viola* aff. *pedatifida*, May 11 (*Wilmattæ P. Cockerell*).

Allied to *P. americanæ*. Easily known by the remarkably thick hind tibia, which is much broader than its tarsus. The four other legs are quite ordinary.

XI.—On a Collection of Butterflies made by George Migeod, Esq., in Northern Nigeria between September 1899 and January 1900. By ARTHUR G. BUTLER, Ph.D.

THE collection of which this is an account is chiefly interesting owing to the strong North-eastern character of the species, tending to confirm the evidence in favour of a complete connexion between Western and Eastern types above the Equator. It was obtained at Yelva Lake, Borgu.