DESCRIPTIONS OF SAWFLY LARVÆ.

BY CHESTER YOUNG, ELLENVILLE, N. Y.

Macroxyela ferruginea.—Larva is about 1.5 cm. long and caterpillar-like, green with yellowish-white markings, prolegs on every abdominal segment, anal area smooth and concolorous with the body antennæ six-jointed. Feeds on *Ulmus mericana*.

Head green; antennæ green, except three brown distal joints and a brown ring around the middle of the second and third joints; mandibles rufous at the tips; ocelli black. Body green, with the following parts yellowish-white: two dorsal stripes, a substigmatal line extending along the substigmatal fold of skin from the head to about the third or fourth abdominal segment, and the tubercles; a ventral line of pearly white extending from head to 4th abdominal segment. Segments four annulated, with the tubercles on the normal following parts yellowish-white: two dorsal stripes, a substigmatal line, three on the second annulation, four on the third annulation, and three on the fourth annulation. They are arranged in three general transverse rows. The substigmatal fold of skin with many rudimentary tubercles; dorsal tubercles with many and lateral ones with few to no setæ; setæ very short; two conical projections, with many setæ just above the anus. Legs greenish-white, except for basal joint, which is concolorous with the body.

Cocoon a light shell of sand held together by a few strands of silk.

Larvæ sit curled around the young leaves or terminal buds with the front part of their body free. They feed by eating a line across the bunch of leaves, thus truncating them all. A single brood each year, the adults appearing in April. A few days before the appearance of the adult the larva which has lain in the larval state in its cocoon until this time changes to an active pupa, which bursts its cocoon and comes forth without shedding its skin and exists then as an active pupa at the surface of the ground from twenty-four to forty-eight hours. It then sheds its skin and becomes the true imago. These breedings have proven the, hitherto considered, distinct species of *Macroxyela ferruginea* and *Macroxyela infuscata* to be identical. The former has consisted of the females, while the later has consisted of the males. Larvæ enter the ground about June 1st.

Pteronus fulvicus.—Young larva jet black and possessing a lateral row of yellow spots; anal area black.

Intermediate stage has head black and body green with yellow spots and a dorsal band of black; venter light with black tubercles; prolegs greenish except for black tubercles. The black line on the

dorsum grows more and more broken with each moult until it disappears, except for the black of the tubercles.

Full-grown larvæ are about 1.75 cm. in length and caterpillar-like, green with black tubercles and a lateral row of yellow spots, prolegs on abdominal segments 2-7 and 10, anal area like body, black, antennæ wart-like. Feeds on *Salix sericea*.

Head black or dark brown, with the following parts lighter: a small spot on the genæ between the ocelli and the post-clypeus, the antennæ, the labrum, the labium, and the mandibles and maxillæ except for rufous tips. Body green, with the following parts black: a "Y"-shaped sclerite on the venter of the prothorax, two dorsal tubercles and two tubercles just above the base of the leg on the prothorax, five dorsal tubercles and two just above the base of the leg on both the meso- and metathorax, also a slight cloud of black on the caudal annulation of both segments and one on the cephalic annulation of the metathorax, on normal abdominal segments five dorsal tubercles, two just above the base of the proleg and one on the proleg itself, a black dot between each pair of prolegs except the anal pair, a spot at the centre of the anal area, and the tips of the cerci. A yellow spot of more or less quadrate outline on every segment of the body except the last two abdominal segments just caudad of spiracle. Legs greenish-white except for a black tubercle on the basal joint rufous claws. Cocoon is about .9 cm. in length, double elliptical and spun of dark brown silk.

Larvæ are gregarious edge-eaters, two brooded, the adults appearing in May and July. Spins cocoon below the surface of the ground.

Phymetocera fumipennis.—Larvæ about 1.25 cm. in length and caterpillar-like, body white above and yellow beneath, tubercles black, head black, prolegs on abdominal segments 2-8 and 10, anal area like the body, antennæ five-jointed. Feeds on *Smilacina racemosa*.

Head dark brown, with the following parts light: the post-clypeus except a spot at the base and one in each depression, the ante-clypeus except a dot in each lateral angle, the labrum at the base, the maxillæ except the tips, a spot on the front at the base of the post-clypeus, and the genæ below a line passing just dorsad of the antennæ. Palpi black except at the joints. Ocelli black.

Body.—Prothorax yellowish, with five black tubercles in a line above the base of the leg. Tubercles simple. Meso- and metathorax

white above and yellow below, with eight black tubercles in a double line above the base of the leg. Metathorax with a black spot on the stigmatal line. Abdomen yellowish below and white above, with eight black tubercles in a double line above the base of the leg on each normal segment. A black spot on the stigmatal line of each segment except the tenth, and a dark clouded area connecting the dots of adjoining segments. Clouded area absent between the dots of the eighth and ninth segments.

Legs gray, with the following parts white: an oblique suture on the first segment, the whole second joint and the third and fourth below.

Remarks.—The larvæ feed on the flowers of the plant, stripping the racemes of the blossoms. In habits they are gregarious, and when the blossoms are consumed the larvæ migrates to the leaves and there complete their development. When feeding on the leaves the larvæ change from the light colour of the time of flower feeding to a dark greenish-slate. This is caused by the food showing through their thin skins. Cocoons are of dark silk, single, and spun beneath the surface of the soil, larvæ entering the ground last of June.

THREE NEW COCCIDÆ FROM BRAZIL.

BY T. D. A. COCKERELL, N. M. AGR. EXP. STA.

Icerya (Crypticerya) Hempeli, n. sp.—♀. Exposed on bark, subglobose, much like a very large *I. rosae*. Length 8, breadth $7\frac{1}{2}$, height $5\frac{1}{8}$ mm.; dark slate-gray, with a thin but rather dense coating of cream-coloured mealy secretion. Subdorsal areas marked by a longitudinal series of small round spots free from secretion. Legs piceous or dark brown.

Boiled in liquor potassæ, stains the liquid bright pink. Antennæ and legs after boiling pale reddish-brown. Antennæ small and short, 9-segmented, formula approximately (219) (345678), the segments bracketed being subequal in length: 1 nearly twice as broad as long; 9 short and broad, inversely heart-shaped. Legs small but stout, femur fully twice as thick as tibia; tarsus not quite half length of tibia; claw large, moderately curved. Skin chitinous, very strongly so at the sides, remaining deep sienna-brown after prolonged boiling. There are numerous small glands, which in the less chitinized parts are situated on chitinous patches, the skin between these patches being free from coloured chitin. Towards the sides these patches coalesce, and the whole surface becomes reddish-brown, with the gland-orifices showing as clear dots. There are also some larger