

there is a patch of clear pale olive, without black dots; the dark stripes on posterior part of joint 9 olive tinted, giving the joint a darker shade. Head striped longitudinally with dull lilac and white, the latter broken and irregular; the top has the lilac replaced by black, with the orange dots of the preceding stage present; a short black stripe on each side from the clypeus. Venter white, the joints bearing legs with black patches tinted with orange, the others with orange patches. Piliferous spots the ground color, but a little rose tinted.

MATURE LARVA.—Length 2.50 inches, width of middle of body .30 inch, of head .20 inch; depth of middle of body .25 inch, of head .15 inch. Color characters the same as at the beginning of period; the three anterior ocelli black, the three posterior brown. Duration of this period 15 days.

CHRYSLIS.—Length from .90 to .95 inch; lateral diameter, through joint 5, .33 to .35 inch; dorso-ventral diameter, through the same joint, .28 to .30 inch; the cause of the difference being a lateral expansion of the wing cases; only a slight dorsal depression on joint 1 (referring of course to the abdominal joints); length of tongue and wing cases .60 to .65 inch, both extending to posterior part of joint 5; from joint 5 tapering regularly to the posterior part of the terminal joint, this ending abruptly in the cremaster; anterior part rounded, this and the tongue and wing cases moderately corrugated or wrinkled; abdominal joints punctured; the whole covered with a white or glaucous secretion. Duration of this period 28 to 30 days.

In this species, as in most I have bred, the eggs continue to hatch for several days after the first ones emerge from the shell, these later specimens being so much later in their pupation and in their other changes, when the hatching is not too long delayed. In some cases these belated examples are weaker than the earlier ones, and either die before reaching maturity, or produce smaller or imperfect imagines. For these reasons I have given the changes and characters of the earlier individuals. I believe, however, that in the woods the delayed hatching produces the late specimens that are to be found in good condition in September and often later.

The eggs from which these observations were made were obtained October 29, 1886, by confining a dilapidated female with hickory bark and leaves, the supposed food plant. They began to hatch April 21, 1887.