

this respect ; head rounded ; color shining black ; many black hairs scattered over the face curving downward. Duration of this stage 3 days in May, 2 in summer.

After 1st Moulting.—Length .14 inch soon after the moult, in 24 hours .20 inch ; slender, even ; color red-brown, with indistinct whitish lines ; of these, a wavy line runs with second laterals ; from base of each first lateral is an oblique line outward to the front of the segment, and from each dorsal are two such lines, one on either side ; armed with seven rows of spines, one dorsal, and three on either side, disposed as in *Comma* ; these are short, stout, black, beset at top with short branches, with some shorter spines on the sides, each ending in a black bristle ; as the larva approaches second moult, the bases of the dorsal and 1st lateral spines become white or yellow, or reddish-yellow, while the color becomes more red, and the lines become more distinct ; on 2 is a dorsal transverse row of 4 short, simple spines ; legs and feet dark brown ; head rounded, depressed at top, the vertices a little produced, each bearing a stout, thick, black process, with conical spine at top, and shorter ones around the base of this ; color black, with many black hairs. Duration of this stage from 2 to 3 days.

After 2nd Moulting.—Length .24 inch ; color black, the lines as before, with the addition of one running with lower laterals, more distinct, often macular ; spines as before, but variable in color ; in some examples, all are black except the dorsals and 1st laterals on 4, 6, 8, 10, where they are reddish-yellow ; some have the spines on these rows light, except on 9, 11 and 12 ; usually the second laterals are black and the lower row is pale yellow ; in all cases the tips are black ; as the stage proceeds the color of body changes to olive-brown, and the lines become more conspicuous ; head as before, much covered with white simple spines. Duration of this stage from 2 to 3 days.

After 3rd Moulting.—Length .5 inch ; color black, with cream-white lines, quite macular ; spines very variable ; some examples have every spine of the upper five rows reddish to reddish-yellow, the lower laterals pale yellow ; some have the dorsals and 1st laterals from 3 to 11 red, the rest and all of second laterals black ; some have the body color vinous instead of black, with no black spines, the upper rows very red anteriorly, the lower laterals yellow ; the lines yellow ; head either deep brown-red, or decided red in the vinous larvae, the processes red, with spines both