

SOME FACTS IN THE LIFE HISTORY OF HYPOPTA BERTHOLDI GROTE.

BY J. J. RIVERS, SANTA MONICA, CAL.

The color of the larva when about half an inch long, is yellowish white; but as it increases in size the tone of color becomes warmer until at its full growth it assumes a beautiful carnelian red heightened by an enamelled surface.

The exact larval changes are not easily observed, because this, like other species of endophagous larvae, will not yield to the prying methods of the lepidopterist; a second disturbance ends the life of the larva. *Cossus ligniperda* of Europe will endure barbarous treatment, but this Californian prefers death rather than submit to molestation. Its food consists of the fibre of the main stem and larger roots of the lilac flowered lupin which grows on the hills of the Coast Range. The duration of life in the larval state is undetermined, but the occurrence of larvae of several ages in the same shrub would imply that its period of growth must extend beyond one year.

The fully grown larva leaves the food plant and wanders a long distance before burrowing. It descends into the ground a foot or more where it forms a cocoon by weaving together granules of sand or any other material within reach and pupates and reaches maturity in five or six weeks.

The pupa may be said to be active, as it appears at the surface of the ground, head projecting, just before the moth emerges. The moth does not

entirely leave the pupa case and climb some friendly twig to give support, while the wings are unfolding, but the anal portion of the abdomen is still retained in the gaping pupa case. While the wings are growing the body of the moth is nearly vertical, the pupa case being its base. Then the wings unfold outwards and upwards back to back, describing a high angle. When the growth is completed and the wings are hardened, they drop deflexed, the moth withdraws entirely from the pupa case and crawls a short distance upon the surface of the ground where it remains until the shadow of the descending sun reminds it of the approach of the period of its activity.

DESCRIPTION OF THE LARVA OF HYPOPTA BERTHOLDI.

MR. J. J. RIVERS has sent me some examples of the larva of this cossid, the first larva of this genus found in America. Head small, partly retracted; clypeus small, tapering above, corrugated as are also the lower sides of the lobes; jaws and labrum large; antennae rather short; red, the most of the exposed corrugated part dark brown. Body flattened, especially ventrally, smooth, shining red. Each dorsal segment has a single transverse groove, laterally two longitudinal ridges. Thoracic feet small, pointed; abdominal ones very short, practically absent, the crotchets distinct, arranged in two long parallel transverse rows. Joint 13 is small and in place of feet there is a black hardened area. Above on the suranal flap a large black,

