

pupating under the larval skin beneath stones, boards, etc., in damp situations. He did not mention when they could be found. Last summer (Aug. 6, 1913) while collecting along the bank of Salmon River I was attracted by the large number of empty larval skins of this species. Though I had noticed such skins previously I had always discovered them empty. In searching over a large number I was fortunate to find two pupæ not yet transformed. Nearly a month previously the adults had been observed egg-laying, so evidently the time of pupation extends over a considerable period. How long the pupal period lasts I did not determine.

The pupæ are found on the under side of stones, boards, etc., in damp situations. I found the larval skins very abundant under loose rocks overhanging the Salmon River. These sedimentary rocks are soft and many cracks extend in all directions, retaining a considerable amount of moisture. The last larval skin is firmly attached to the rock. Under this skin the pupa is formed. The larval skin on the ventral side splits transversely just in front of the mouth parts and is forced back to the tip of the abdomen where it remains (fig 4). The pupa is pure white in colour and very tender. It is held in place under the larval skin by the unshed anterior ventral portion and the shed skin at the caudal end. In this way the pupa is prevented from coming directly in contact with the hard underlying rock, etc.

Although there are several extended descriptions of the larva and larval structures I have found scarcely a word regarding the pupa. The pupa is pure white in colour, measuring 4.5-5mm. long. The anterior end is firmly held in place by the remaining portion of the larval skin, while the end of the abdomen remains beneath the cast larval skin. However, if one carefully lifts the pupal head, then loosens the abdomen he will be surprised to find the pupa still firmly held in place. Carefully pushing the pupa it soon breaks away and discloses a process on each side extending from the latero-dorsal angles of the first abdominal segment. These processes are firmly attached to the lateral walls of the enveloping larval skin. A dorsal view of the pupa showing these peculiar processes is shown in fig 5. The pupa is perfectly smooth without any spines or setæ. There are eight abdominal segments on the