

PUPAE OF THE LEPIDOPTEROUS FAMILY
SPHINGIDAE

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The pupae of the family in Sphingidae belong to the so-called obtect type of pupa in which the appendages are firmly soldered to each other and to the body.

They retain, however, one very primitive character, the presence of a portion of the first femur between the maxillae and the remaining portions of the first leg.

By far the most interesting thing about these pupae is the way in which they provide for the very long maxillae which are present in most of the sub-families. The body is strongly curved on the ventral surface, and the labrum is found on the dorsal surface of the head in many instances, thus allowing for considerable extra length. Others have a prominent

convexity at the proximal end of the maxilla where it is curved away from the remainder of the appendages. In one sub-family to which our common tomato worm, *Protoparce sexta*, belongs, the extra length is taken up in a sort of loop at the proximal end of the maxillae. This loop is closely appressed to the surface of the body, or prominently arched and touching only at its tip, forming the "jug-handled" type of pupa belonging to the above-mentioned species.