



The Wonder of Metamorphosis

Now that winter is upon us, we aren't seeing too many insects around. But they are present, in one form or another. The insects are overwintering as eggs, hibernating adults and larvae, or as cocoons and pupae.

One of the most fantastic things in nature occurs with those insects such as moths and butterflies that form cocoons (silken protective structures) and pupae (the actual resting stage of the moth or butterfly enclosed in the cocoon). These critters started out as eggs laid by the adults during the summer, they hatched into caterpillars, which fed on plant leaves until they were fully grown larvae, and finally they spun their cocoons for the winter. It is this cocoon stage that is so fascinating. The caterpillar's body is tube-like, has chewing mouthparts, a head with tiny simple eyes and tiny antennae, prolegs (false legs) to hold on to leaves and branches, and a soft segmented body adapted to digest leaves. But, in the cocoon stage, as a pupa, this body structure completely breaks down into a nondescript mass of cells that does not resemble either the caterpillar nor the adult moth or butterfly. It is simply a blob of cells enclosed in the pupa. In the spring, these cells completely reorganize into the structures of the adult insect. A definite head with large compound eyes and large antennae develops. A thorax with two pairs of wings and an abdomen with reproductive organs is formed. Tiny scales cover the body and wings. The chewing mouthparts of the caterpillar are gone and in their place is a coiled tube for sipping nectar from flowers. Truly an amazing transformation! This dramatic change is called metamorphosis (Greek for "change of form").



To illustrate how dramatic this process really is, think of a cow melting into a big blob of cells and then this blob changing into a giant hummingbird. Impossible type of change? Metamorphosis occurs every day in the insect world!