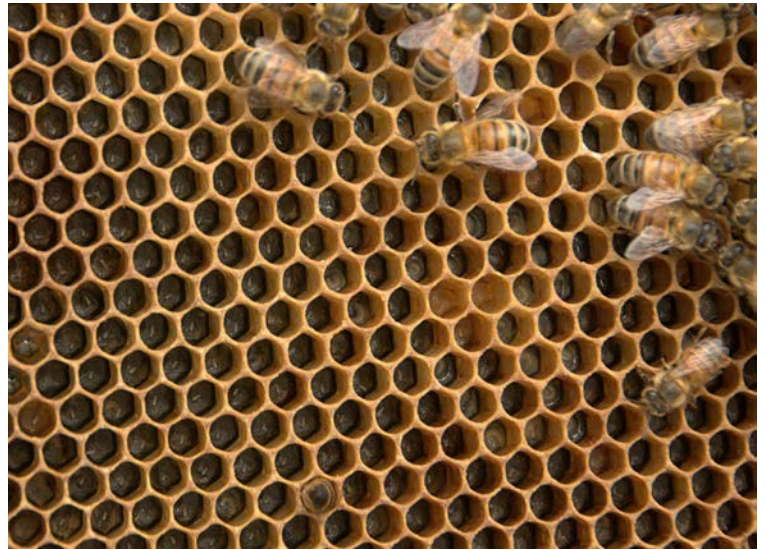


comb

The *honeybee* without its *colony* is unprepared to survive and unable to reproduce ... and the honeybee *colony* - with tens of thousands of individual bees - cannot survive or reproduce without its *hive*. This is simply true. The *hive* itself is an integral part of the *superorganism*.



Honeybees construct their hive from newly secreted wax, the colony coordinating its members to assemble combs according to rules laid down in genetic memory. Certain comb cells are prepared to receive eggs, so that constant production of bees can be maintained, as hatchlings are raised as brood, which are fed and watered, warmed and cooled - from their hatching until emergence as adults. Some wax comb cells are used to store pollen, while others receive nectar, which is worked to convert into honey, capped with wax, and stored for use as needed.



Without the wax comb, there is no honeybee.

The geometric arrangement of combs must allow for active ventilation and cooling of the developing brood. In late fall and winter and early spring, active heating (see [heat](#)) - by the metabolic output of designated *heater bees* - maintains the colony core temperature constantly near 90 degrees, even in the middle of winter. The hive must not only contain an absolute volume of honey to fuel this temperature management, but the placement and organization of the honeycomb must also allow constant access throughout the cold months, until warm seasons return. Failure at any point in time means death, and if the queen dies, the colony dies.



In another essay, the method of cellular production of beeswax and its chemical nature is discussed. In essence, wax is a mixture of specific lipids, whose long chains render it liquid at higher temperatures, and semisolid to solid when cooler (see [wax](#)). In a sense, wax comb may be considered a *tissue* of the honeybee superorganism. Like collagen and cartilage and bone in us, it is a structure that is not itself alive, but which provides support and function for the larger organism. In similar fashion, its components are not static, but constantly change and are reworked and refashioned and maintained.



Intimately exposed to the wax comb are the brood, during their entire development - from single-cell zygotes to larvae to fully-emerged adult bees. After that, another six weeks of life is spent on and around the wax comb. Though foragers eventually venture outside the hive, they always return to contact the comb.

Wax has a tendency to absorb and preserve other lipid compounds, often for long periods of time. Protected from water and air, there is slowing of oxidation and degradation of any lipid-soluble chemicals that are dissolved in wax comb. Over time, accumulation occurs; whatever is brought in from afar by honeybee foragers becomes concentrated in the comb, as do any chemicals applied directly to the hive.



Bees flying in and out are easy to see ... and the filling of cells with honey catches our attention. There's a lot going on in the wax comb as well, however ... and the *comb* is the tissue of the hive.



see: imagesays.com -> [comb](#)