

# “Beneficial Bees”



# Marcus Aurelius (121 AD-180 AD)



“We ought to do good to others as simply as a horse runs, or a bee makes honey, or a vine bears grapes season after season without thinking of the grapes it has borne”.

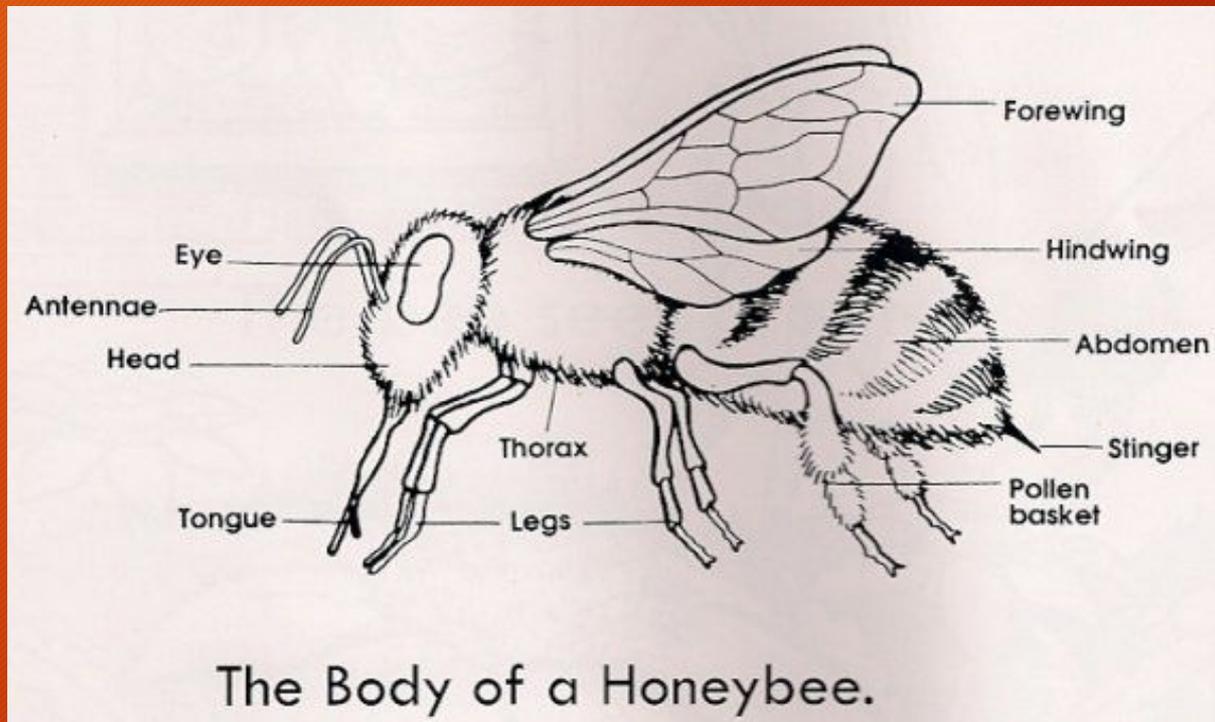
*BEES HAVE BEEN PART OF OUR STORY SINCE ANCIENT TIMES.....*

# An Introduction to Bees



# Honey Bees

Bees have existed for a few million years. For ten thousand years, records have survived of man's exploitation of honey.



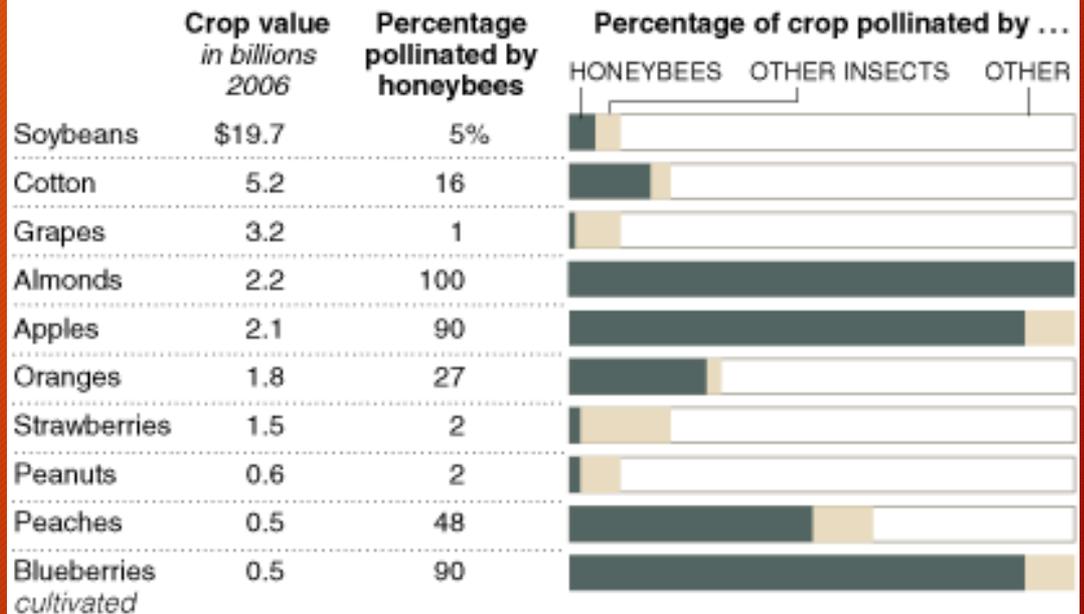
Source: "The Archaeology of Beekeeping"  
by Eva Crane

# Why care about bees?

According to Theodore B. Mitchell who devoted 38 years of his life to studying bees, "Bees are essential to our economy, being the chief pollinating agents of the flowering plants. They have a relation not only to agriculture, but to the conservation of wildlife and game management, and constitute an important element in the various ecologic factors that combine to form our environment.

## Relying on Bees

Some of the most valuable fruits, vegetables, nuts and field crops depend on insect pollinators, particularly honeybees.



Besides insects, other means of pollination include birds, wind and rainwater.

Sources: United States Department of Agriculture;  
Roger A. Morse and Nicholas W. Calderone, Cornell University

# A Honey Bee Colony

Honey bees live in a colony of many individuals whose joint effort is required for survival.

The males are called drones and are necessary for mating with the queen. They gather no nectar or pollen for the hive. They also have no stinger. There may be 300 to 500 of these in a strong hive.

Each colony will have a queen. She is the mother of all the bees in the colony.

The females are called worker bees. Both the queen and workers have stingers, but only the worker bee is associated with stinging.

The queen uses her stinger to kill rival queens.



# The inhabitants of the hive

## The queen:

The queen is a mature female. She lays thousands of eggs during her lifetime. A queen may lay over 2000 eggs in a single day. A queen has the longest live span in the colony, living for up to five years. She is larger than the other bees in the hive and has a slim torpedo shape. She does have a stinger, but she uses it to kill other queens. Under normal conditions a hive will have only one queen.



# The inhabitants of the hive

## The worker:

Worker bees are sexually underdeveloped females. There may be as many as 60,000 in a colony. The workers maintain the health of the colony. They collect food and water for the colony, build wax comb, do the housework, maintain the interior temperatures of the hive and guard the hive against intruders. Female worker bees under certain conditions can lay eggs but because they are not mated, they produce eggs that only develop into drones.



# The inhabitants of the hive

## The drone:

Drones are the males in the colony. Their heads are large, and their eyes dominate the head. Also, the rear-end of the drone is rounded. They have no stinger and cannot sting, unlike the worker bees. Although they are usually considered less valuable than workers, they contribute to the continuation of one generation to the next generation.



# Key Facts on Bees

- All honey bees come from eggs.
- All honey bees develop from larva.
- All honey bees go thru something called metamorphosis.
- The development times for all honey bees differ by caste.

Lets look at each of these.

# All honey bees come from eggs

- A queen honey bee can lay over 2000 eggs in a single 24-hour period.
- If your math is good, multiply this by 10, 20, 30, and 40 days the general life span of worker bees.
- Eggs are deposited into cells.



# All honey bees develop from larva

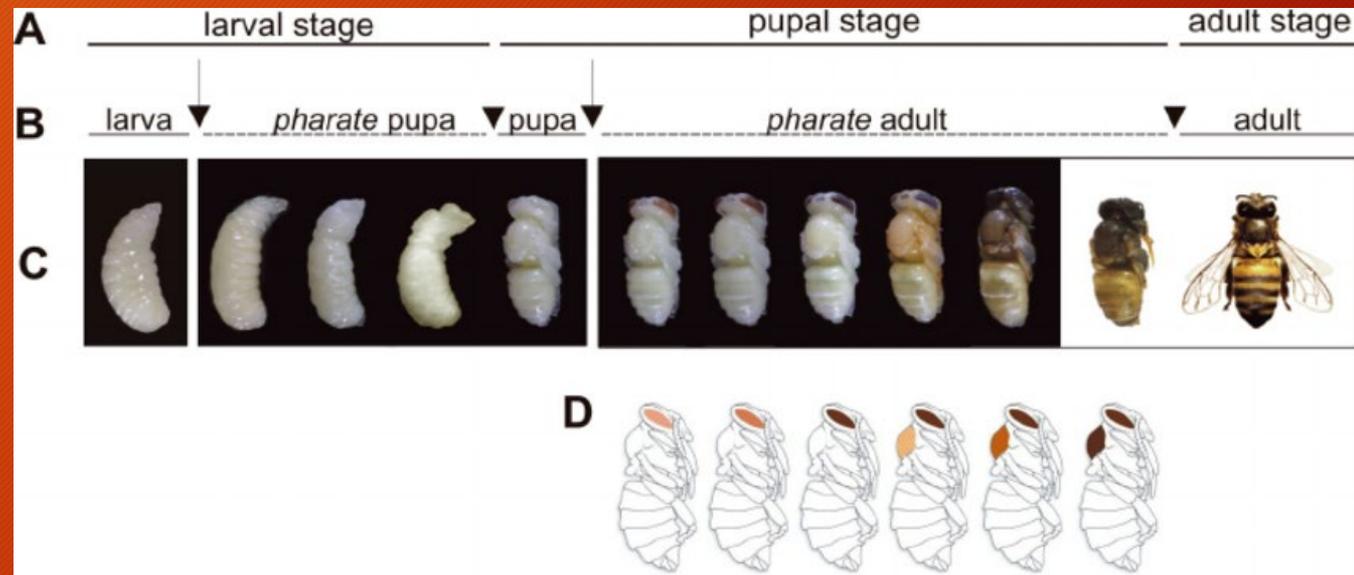
- Larva in cells look somewhat like little worms. The body is composed of a head plus 13 ring-like divisions or segments.
- Larva grow to fill the cell very quickly. Each day between the day it emerges from the egg until the fifth day of development, it grows six times its body weight.
- Healthy larva are white in color.



# All honey bees go through metamorphosis

As the honey bee develops into an adult, it goes through metamorphosis, or changes in distinct stages.

When a cell is capped, the larva transforms into a pupa. From a pupa it will develop into a imago. It then emerges as an adult.



**May 20 is World Bee Day**  
**#Worldbeeday**



# I hope you've learned something from this brief lesson on bees:

Bees teach us that everyone has a role to play in building a successful community.

Helping bees thrive is good for our environment and our economy because they help plants grow.

# EVERYONE HAS A ROLE TO PLAY

