

Zoology
B.Sc III Year Paper I Applied And Economic
Zoology
UNIT – 3

Topic- Apiculture

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LIFE HISTORY/CYCLE OF THE HONEY BEE

1. Virgin queen goes out on Nuptial/Mating flights away from their home colony and mate with multiple drones before returning. The drones die in the act of mating.
2. Eggs are laid singly by the queen after mating flight, in a cell of the wax honeycomb, produced and shaped by the worker bees.
3. Using her spermatheca, the queen chooses to fertilize the egg she is laying, usually depending on what cell she is laying.
4. Drones develop from unfertilized eggs and are haploid, while females develop from fertilized eggs and are diploid.
5. Larvae are initially fed with royal jelly produced by worker bees, later switching to honey and bee bread or bee pollen. The exception is a larva fed solely on royal jelly will develop into a queen bee.
6. The larva undergoes several moultings before spinning a cocoon within the cell and pupating.

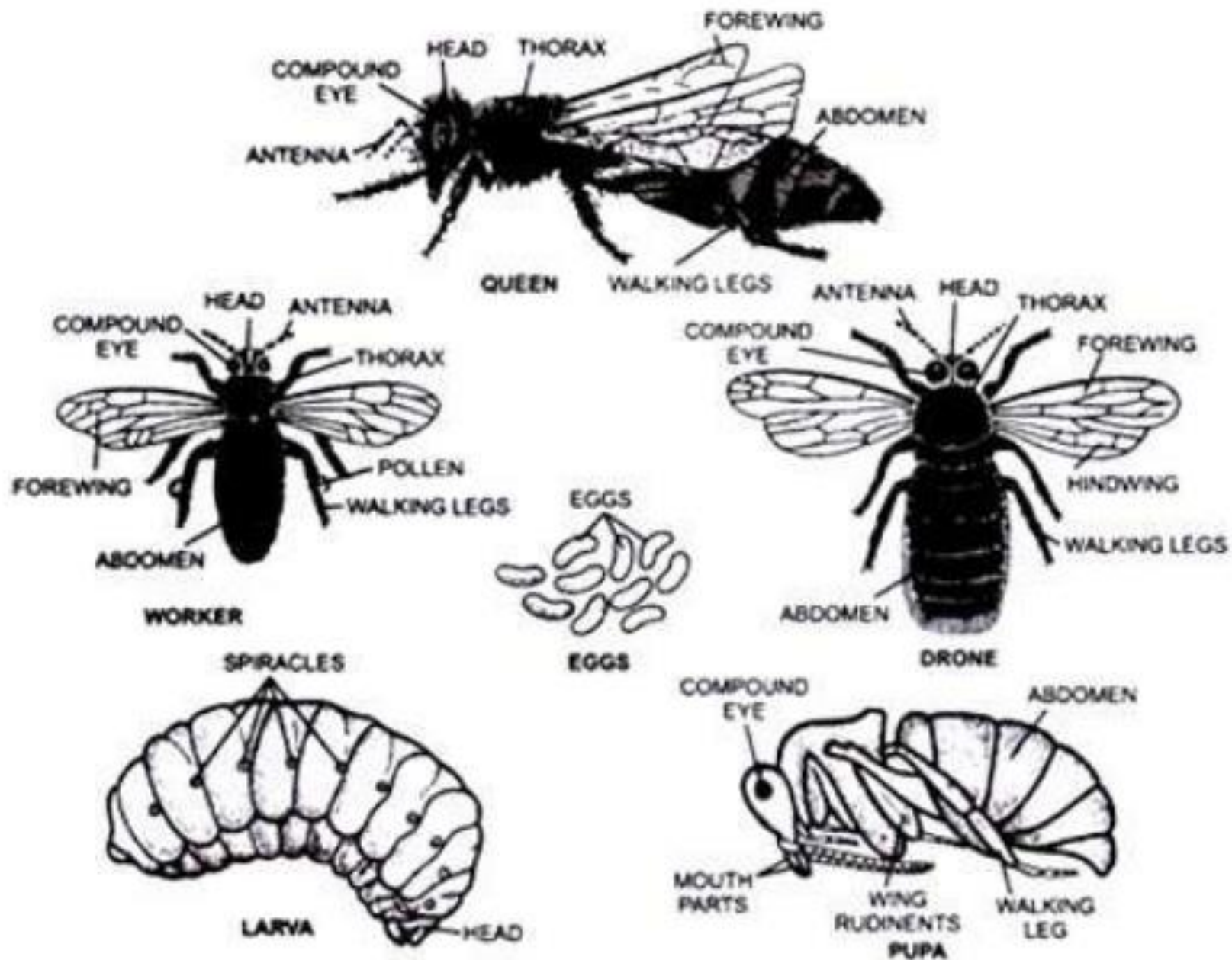


Fig. *Apis indica*. Castes and stages of life history.

Swarming

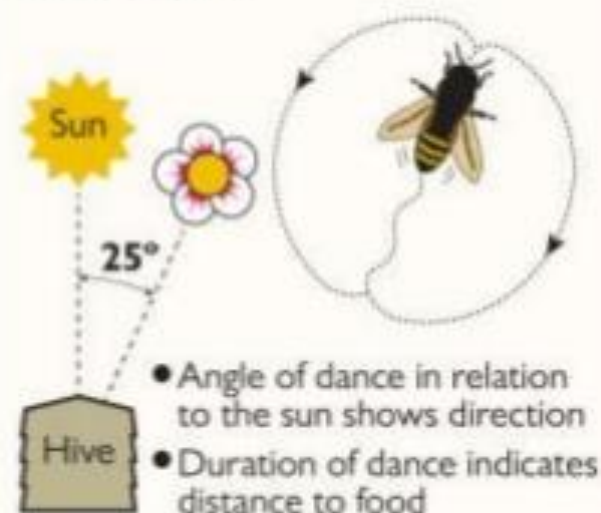
Swarming is the process by which a new honey *bee* colony is formed when the queen *bee* leaves the colony with a large group of worker *bees*.

Bee language/Foraging

Worker bees cooperate to find food and use a pattern of “dancing” (known as bee dance or waggle dance) to communicate information regarding resources with each other.

In bee dance the middle course of the dance communicates to other bees the angle from the hive with reference to the Sun. Taking a hint from this angle they have to fly to reach the food source.

How it works



Indigenous method of bee-keeping

1. Commonly used by traditional apiculturists.
2. Wall or fixed type of hives in rectangular spaces in the walls with a small hole or movable boxes or earthen pitchers.
3. Swarms are caught from trees, bushes, etc. and transferred to above mentioned spaces.
4. When honey is ready the bees are driven away by smoking the hive.
5. Then the comb is cut away and the honey is squeezed out through a piece of large cloth.

PRODUCTS FROM A BEEHIVE

1. HONEY

Honey is the food material for the bees and their larvae. Chemically, honey is a viscous water solution of sugar.

Nectar is sucked from flowers and mixed with saliva. It is swallowed into a special region of the gut, called honey stomach.

Inside the hive the workers regurgitate the processed nectar. The honey produced initially is very dilute, hence after placing it in storage cells of the hive, the bees “fan” it with their wings to evaporate the excess water and bring the honey to its required concentration.

Table 2.2 : COMPOSITION OF HONEY

Nutrient	Percentage
Water	13-20
Fructose	40-50
Glucose	2-3
Sucrose	1-2
Maltose	7-8
Acids	0.5
Proteins	0.25
Minerals	Traces
Enzymes & Vitamins	2-3 (B1, B2, C)

Economic importance

Honey bee as economically very important insect. Bee keeping has developed into Apiculture industry in various countries. Honey bee produces honey and wax. Honey is used as food and also as medicinal product. Honey contains levulose, dextrose, maltose, ash and water.

As medicinal substance it is laxative, antiseptic and sedative.

2. **Bee Waxes** have several important use in manufacture of candles, Wax is used as embedding substance for microtomic sections and in all biopsy and histopathological studies.