

## The Bee colony

- A honey bee colony has three castes –Queen, worker and drone.



### (i) Queen Bee

- Queen bee is the only fertile female in colony
- She is largest in size.
- No wax glands.
- Live for about 3 - 4 years.
- May lay eggs at the rate of 1500-2000 per day

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### (ii) Drones

- Drones are the male member of colony.
- Drones can live up to about 60 days.
- Sting and wax gland absent.
- Develops from unfertilized egg.
- The sole duty of drone is to fertilize the virgin queen.

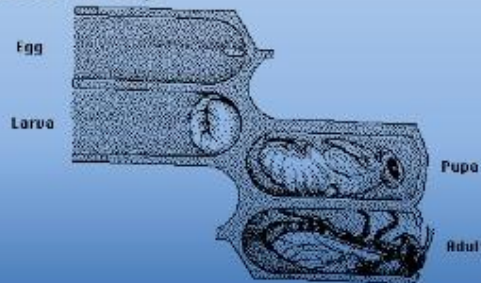
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### (III) Worker Bee:

- Have well-developed sting and Hind legs have “*pollen basket*” for collecting pollen.
- They perform different duties depending upon their age which are as follows:
- **Day 1-14:** Activity inside the hive such as cleaning the hive, feeding the larvae, etc.
- **Day 14-20 :**Guard the entrance of the hive
- **Day 21- 35:** Foraging, i.e. collecting the nectar and pollen from the surrounding.

## Life cycle & Development

- ✓ The 7 days old virgin queen goes out from hive along with some drones for mating. This is called as **Nuptial or marriage flight**.
- ✓ Only one drone mate with queen and she stores spermatophore in her **spermatheca**.
- ✓ Mating takes place while flying and after mating drone dies and queen returns to the hive.
- ✓ The queen has ability to control the release of the sperms from her spermatheca (sperm store).



## □ Methods of Beekeeping

- (A) **Indigenous methods of bee keeping:** This is an old method and the two types of hives used are in these method as follows –

- ❖ (i) **wall or fixed hive** - It is purely natural type of comb because bees prepare the hive themselves on the wall or trees.
- ❖ (ii) **movable hive** - It comprises wooden boxes or earthen pitchers.

The traditional beekeepers catch clustered swarms from trees, bushes, etc and transfer them to the above-mentioned spaces.



**Fixed Hive**



**movable hive**

### (b) Modern method of apiculture:

- The modern Bee hives were designed based on “Bee Space theory” by L.L.Langstroth in 1851.
- *Bee space is the optimum distance to be left in between two adjacent comb surfaces in a bee hive which is essential for normal movement and functioning of bees.*
- **Types of hives:** In general for *A. mellifera* we use Langstroth hive and for *A. cerana*, BIS (Bureau of Indian Standard) hive A and B type .



Lorenzo Lorraine Langstroth

### ➤ Parts of typical movable hive:

1. **Stand:** To support bottom board.
2. **Bottom board:** It forms proper base for the hive having an entrance for bees.
3. **Brood chamber:** Chamber used for rearing of brood. Frames are placed in this chamber on which bees raise combs.
4. **Queen excluder:** Perforated zinc sheets assembled in such a way that workers can pass through them but a queen cannot .
5. **Super:** It is provided with many frames containing comb foundation to provide additional space for expansion of hive.
6. **Inner cover:** A board which acts as a partition between brood/super chamber and the roof.
7. **Top cover:** A type of lid acting as roof placed over inner cover.



Typical movable hive(Langstroth type)

## Other equipments:

- *Comb foundation mill:*
  - Used to print natural cell size of desired comb foundation sheet.
  
- **Bee veil:** Used for preventing bee stings on face and neck.
  
- **Smoker:** Used to calm down the bees while opening the hive.

