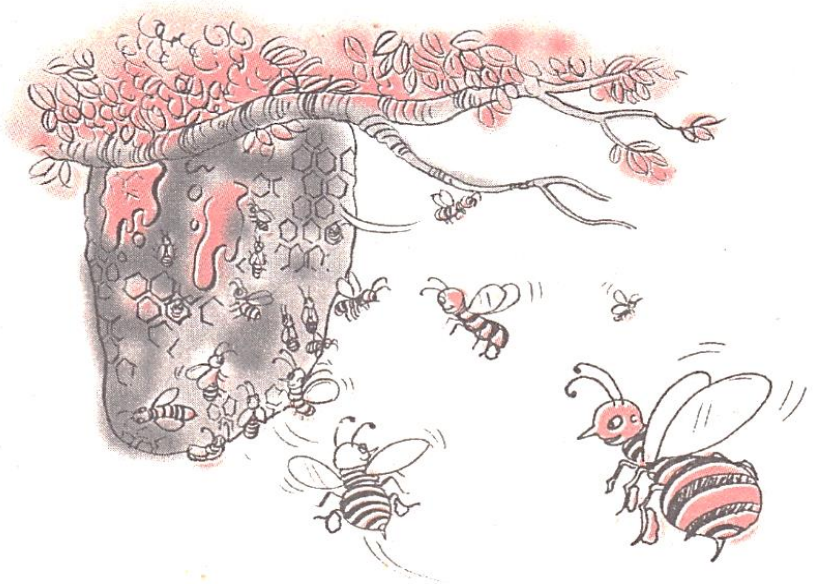
Read-09

# Wonderful Workers



Honeybees are special insects that live in large families in **hives** (the place where honey bees live) or **honeycombs** (a wax-structure of six sided cells made by bees). There are three sections in them. In each section families of different forms or castes live. They are : queens, **drones** (male bee), and worker bees. Thus, a bee colony has one queen, hundreds of drones and more than one lakh workers.

The queen bee is nearly 2.5 times longer and 2.8 times heavier than a worker bee. Her **function** (duty) is reproduction. She lays 1000 to 2000 fertilized eggs every day. Some of the eggs will develop into worker bees or into queens. But this depends on the size of the wax cell in which eggs are laid and on the type of food given to the **larvae** (first stage of insect's life-Singular: Larva). The queen also lays unfertilized eggs from which only drones develop. The bees cannot live long without a queen. So when the queen dies, the bees choose some three-day-old eggs and hatch them. From that pearl like egg a larva comes out. It is taken to a big wax cell and fed with **royal jelly** (sweet substance produced by worker-bees). Therefore it develops into a queen.

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The function of drones is to fertilize the queen. A drone cannot get food for himself. It is completely dependent on the worker bees. The drone has no baskets on its legs to collect **pollen** (પરાગરજ) and its mouth has not parts to suck **nectar** (sweet liquid found in flowers). Drones do not work at all. They just play around, fly out in the middle of the day **chasing** (પીછો કરવો) the young queen and mating with her in flight.

***What is common between a bee-colony and a human community ?***

Worker bees spend their whole short lives in tireless labour. They have no childhood. From the third day of their life they have to clean the walls and floors after the young bees go out. From the fourth day they become 'house-bees' and feed other bees with honey and pollen. From the seventh day they start producing royal jelly. From 12th to 18th days they develop wax glands and work on the building up of the honeycomb. From 15th to 18th days they become field bees. Now they fly to **explore** (search for) and collect nectar and pollen. They collect large quantities of pollen, make it wet with saliva, mix nectar into it. Then they place it in special hollows or 'baskets' in their **hind** (backside) legs. Two baskets contain around four lakh grains of pollen ! In those baskets or 'honey-stomachs" **excess** (extra) water is **absorbed** (taken in). And to that mixture **enzymes** (a type of chemical) and organic acids are added from the bee's body. This thick mixture is given to the house bees. They again store it in their honey stomachs and again there is same chemical process. Thereafter the house-bee finds an empty cell in the honeycomb and deposits the nectar there. It is still not honey. Nectar contains 40 to 80 percent of water in it, whereas honey has only 18 to 20 percent. This nectar is transferred from one cell to another for several times. Moreover, a group of bees fan their wings at a speed of 4600 times in a second to **evaporate** (turn liquid into gas, બાષ્પીભવન) water ! Thus the nectar turns into brownish honey.

***Why is honey-bee a very special creature on the earth ?***

And here are some other amazing facts about honey-bees. They have a wonderful communication system. The explorer bees tell their sisters about direction and distance of flowers through definite movements which we can call 'dances'. A round dance suggests that the



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flowers are quite near. The **shuffle** (random-આડો અવળો) dance suggests that the bees should be ready for a long flight. Certain other movements are also used to **indicate** (point out) even the direction of the nectar source of flowers.

Now let's look into their eyes. Bees have five eyes : two compound ones and three simple ones. The surface of a compound eye of a worker bee has nearly 5000 hexagonal facets, whereas drones have about 8000. But surprisingly bees are poor in **identifying** (dustinguishing-recognizing) colours. They can identify blue, yellow and white colours only. They cannot see the red colour at all !

The famous scientist Darwin studied the bees for many years and said that only a stupid person would not be amazed by the structure of a honey-comb. Bees invented an engineering skill of building a house. They use the minimum amount of building material (wax) to create maximum amount of space.

## Do it Yourself



**Q.1 (A) Match "A" with "B" :**

| (A) | (B) |
|---|---|
| 1. Nectar | 1. a kind of chemical |
| 2. Enzyme | 2. six sided |
| 3. Larva | 3. sweet liquid |
| 4. Hexagonal | 4. first stage of life of an insect |

**(B) Fill in the gaps with appropriate word/words from the unit (Make necessary changes.) :**

1. When we hang wet clothes in sun light, the water _____.
2. The _____ of blood is to carry oxygen to every cell of the body.
3. A bear invited a lion to eat honey. The lion tried to eat _____ so all the bees attacked on him.

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4. When I started for school, I found that _____ wheel of my bicycle got punctured.
5. I put a chalkstick on a drop of water and I found that water was _____.
6. The thief was running away so we _____ and caught him.

**Q.2 (A) Say true or false :**

1. Drones collect pollen but can't make honey. ☑
2. House bees become field bees. ☑
3. A honeycomb proves the engineering skill of honeybees. ☐
4. A shuffle dance suggest that the flowers are quite near. ☐
5. A queen bee doesn't need drones. ☐
6. Royal jelly is produced only by a queen. ☐
7. The bees can easily recognise red colour. ☐
8. If you feel amazed by bee's life, you are stupid. ☐
9. A drone has more facets on its eyes than a normal bee has. ☐
10. Bees inform about direction moving their wings. ☐

**(B) Who are these expressions related to ? Write WB for worker bees, Q for queen, D for drone, HB for House bee and FB for Field bee :**

| | | | |
|---|---|---|---|
| Baskets on hind legs | ☐ | Lays unfertilised eggs | ☐ |
| Develop wax glands | ☐ | Second chemical process | ☐ |
| Extra water is suck | ☐ | Meets the queen in flight only | ☐ |
| Ready for long flight | ☐ | Clean the floors | ☐ |
| Feed the young bees | ☐ | Has 5000 facets on the eye | ☐ |



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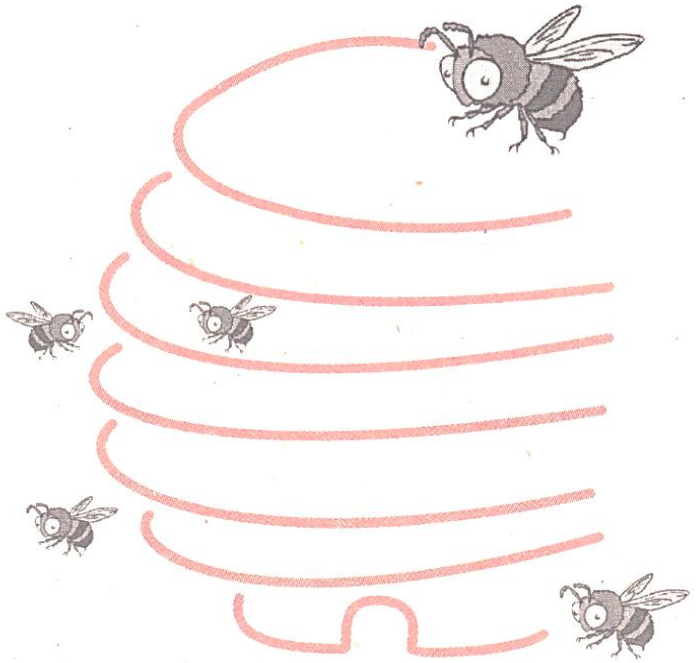
## (C) Answer the following questions :

1. How many sections are there in a honeycomb ?
2. Describe the queen bee and its functions.
3. What function does a drone perform ?
4. What develops from the unfertilised eggs ?
5. How do worker bees spend their short lives ?
6. Who produce royal jelly ? When ?
7. What does a bee suggest by a round dance ?
8. How fo honeybees communicate with one another ?
9. Describe the growth of the worker bees.
10. What is amazing about the eyes of the bees ?







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