

at the end of the honey-flow. From their structure they are unfit to gather nectar or pollen from blossoms, so the bee-keeper considers them as merely consumers, and rather costly ones at that; therefore he limits their number as closely as possible to the actual needs of his apiary. By the use of wax foundation in the brood-frames he prevents the building of drone-cells; should the bees outwit him, he cuts the drone-comb out of the frames.

The mating of a queen with a drone occurs usually only once, when she is but a few days old, the event taking place in the air. When she makes her marriage flight, she flies swiftly away from the hive pursued by thousands of drones, the swiftest of them being the winner of the race; but he pays for his success with his life, for she deprives him of the sex-organs, rupturing his abdomen so completely that he expires almost immediately. As the result of the intercourse, she is able to fertilize the hundreds of thousands of eggs she may lay in the course of her life, which may endure from a few weeks to several years.

Worker-bees are produced from eggs that have been fertilized, but drones are raised from eggs that have not been impregnated. These, therefore, have no father: consequently, any queen that has failed to mate, and this is not very unusual, will be the mother of drones only. Such an one is known as a drone-laying queen.

#### DEVELOPMENT TABLE.

The following table shows the duration in days of the various stages of development of queen, worker, and drone:—

|              | Egg. | Larva. | Pupa. | Total Time. |
|--------------|------|--------|-------|-------------|
| Queen .....  | 3    | 5½     | 7     | 15½         |
| Worker ..... | 3    | 5      | 13    | 21          |
| Drone .....  | 3    | 6      | 15    | 24          |

From the start the novice will know the workers, as in suitable weather they are continually moving in and out of the hive. Drones appear about May 1st. They are bigger than the workers, fly generally in the heat of the day, making a loud hum, from which their name is derived. The queen never leaves the hive excepting to mate or with a swarm; therefore, to be seen she must be looked for on the frames. She is easily found in the spring months when the colony is weak in numbers, but rather difficult to find in the height of the summer. Once seen she will be readily recognized, as her abdomen is very much longer than that of the bees that surround her. Also she moves very slowly, especially when she is laying freely, as she is then heavy with eggs. There is but one queen to a hive.

For the first two weeks of her life the worker does inside work only, her recreation being a short flight along with thousands of her kind round the hive entrance in the heat of the day. These play-spells are sometimes mistaken for swarms coming off, so numerous become the young workers in midsummer. At the end of two weeks the worker becomes a fielder—that is, a provider. It is worth while to note, for it is of practical value in hive-management, that five weeks elapse from the laying of the egg to the day when the young worker carries in her first load of nectar.