

bated by the heat maintained in the hive by the worker bees—or imperfect females—many thousands of which occupy the hive. These bees attend to the feeding and nursing of the young, do all the work of the hive, such as keeping it clean, defending it, building combs, and gathering everything required for the needs of the colony. There are also bees much larger than the others, which are credited with being lazy and of no use in the hive, viz., the drone or male bee; he is much broader than the worker bees, and when he flies generally makes a loud buzzing noise. His sole function seems to be to fertilize the young or virgin queens. The egg as laid by the queen is covered with a glutinous substance which dries quickly, causing it to adhere to the base of the cell where deposited. About the third day a tiny larva hatches from the egg, which is fed by the worker bees on a milk food for two or three days, after which it is weaned and fed on a mixture of honey and pollen. The larva is full-grown at about the eighth day from the laying of the egg. No more food is given to it, and, to protect it while undergoing the transformation to the perfect insect, the end of the cell is covered over with a capping made of wax and pollen. This capping is slightly rounded on the worker cells, and spherical on the drone cells. On the twenty-first day the worker releases herself from the cell by gnawing off the capping, the drone requiring a few days longer to develop. The queen is raised in a different shaped cell—something like an acorn, and the open end points downwards. She is fed during her larval life, viz., up to the eighth day, on the milk food previously mentioned; the cell is then sealed over, and she emerges a perfect queen on the sixteenth day. Queens are not reared unless the bees intend to swarm or wish to replace their queen, who may have been accidentally killed, or who is getting too old and feeble to attend to her duties. If the bees intend to swarm, a number of queen cells are generally constructed. On the eighth day the first queen cell is sealed. The bees now reach a state of great excitement. The queen has been decreasing the number of eggs laid for a few days, and on the following—the ninth—day the old queen goes off with a swarm to found another colony, accompanied with the majority of the bees old enough to follow. The young bees unable to follow the swarm, and those rapidly emerging from the cells, are sufficient to care for the brood and queen cells left in the hive. On the sixteenth

day, i. e., the seventh day after the issuing of the swarm, a young queen emerges. As soon as she has gained strength enough to look through the hive, she will run all over the combs in search of queen sisters to destroy them. If the bees have decided to swarm again, they will confine her in the cell until all is ready for leaving the hive, when a “second or “after” form will issue. Often several virgin queens will accompany these after swarms, each having been confined until all was ready to leave the hive. When several virgin queens accompany a swarm, it is a case of “the survival of the fittest,” for only one queen is required in the new colony. The after swarm does not leave the parent hive without providing for its future welfare, for a queen cell is left in the hive from which a young queen will emerge in a few days. These young queens leave their hives when five days old (weather permitting) to meet the drone, and when mated together do not again leave the hive unless with a swarm. She will lay during the remainder of her life as required by the bees, from a few eggs to two or three thousand eggs daily, according to the quantity of prepared food given to her by the workers. The queen frequently lays three times her own weight in a day. The commercial products of the bee-hive are honey and wax. The former is the principal food of the bees, and is gathered by them from the nectararies of flowers and conveyed to the hive in their honey sack or second stomach, where the natural nectar undergoes a chemical change, due to an addition from the salivary glands situated in the heads of the bees. The honey is placed in the cells of the comb, where it remains by capillary attraction. As gathered by the bees, the nectar contains too large a proportion of water, and, unless some of the water were removed it would soon ferment. Bees evaporate the surplus water from the honey, partly by keeping up the temperature of the hive, and partly through digestion when removing it from one cell to another. The nectar is gathered by the bees for food, and what is not immediately consumed is stored away for future use, when food supplies may be scarce. Nature has given the bees this instinct to provide for its future, and it is this supply the beekeeper takes for his trouble. In order to facilitate the labour of the beekeeper, hives are conveniently constructed, and by the working of these hives with a perfect understanding of the habits of the bees, large crops of honey