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st deposited, combs are mb-building wax plates, bee habits is autiful plan b. The cells nat each cell ; surrounded the only renitecture, for double row being formed which is likeon the other method the sible capacity t expenditure e cells of the an object of bee-keepers; perfection asoubtedly been vet we cannot ne remarkable n intelligence, build cells so

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this way the tself an abode by sealing u stores it pres er. to the colour swarming too is there. Th retains all the d has a newly en no necessit

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mal condition, except that the queen is not yet ready to perform her duties, and he will receive our attention now. A very young queen receives little attention from the workers, but goes about the ombs practically unattended. When bout five days old (the exact time depending on the weather), in the afteroon, the virgin queen flies from the hive to mate with a drone. She first takes several short, preparatory flights to get her hive located so that she may find it on her return, and finally she flies upward n constantly enlarging circles, high in he air. Thus far she may be easily folowed: but few have been fortunate nough to observe the actual mating. ometimes the mating takes place at a ower point, and a few men have recorded he fact of witnessing the completion of he mating flight. The queen, on leaving he hive, in some way attracts a great nany drones to her from all parts of the miary, provided her hive is located in a ee yard, and the swiftest and strongest successful in the race. The other drones iten follow the queen back to her hive, me cells con- and for an hour or two remain on the putside of the hive after she has entered, at later they return to their former ves.

The queen returns from the matingght in about half an hour, carrying with her the generative organs of the vith which is killed during the union of e two. Near the posterior end of the meen is a small sac, which, before the ght, is filled with a clear liquid, but after her return this sack is filled with an aque fluid; and it is the reception of s ogapue substance which is the esenthing in mating. This liquid contairs lions of spermatozoa, or male sex cells, ch one of which is capable of fertilizing egg as it glides past the opening of the This supply of spermatozoa is alst always sufficient to supply the eggs id by a queen for three or four yearsen no necessaria rarely happening that she sealing up the second time before laying. ready in a not men can, during her lifetin rarely happening that she mates a Since a en can, during her lifetime, lay a

total of 500,000 eggs, most of which receive one of these spermatozoa, it will be seen that the apparatus for preserving them is very perfect, since the queen can not generate more, and they do not divide or increase in number in any way.

The mating of queen and drone never occurs in the hive, but always in the air, on the wing. This fact prevents what is known as in-and-in breeding; for, if the queen mated in her hive she would receive spermatozoa from her brothers, and we know that such close breeding is undesirable in all forms of life. The cause of the undesirable results of in-breeding are yet a mystery; but we do know that they follow, and this habit of the queen of mating outside the hive renders close crossing less probable. After the queen has returned to her hive, the workers remove the male organs. These parts of the male are not absorbed by the queen, as is sometimes claimed; but the spermatozoa contained in them are taken into the spermatheca and the rest dries up and is removed. Almost as soon as the queen returns from her flight there is a difference in the treatment which she receives from the workers. It happens at times that she is not received kindly after taking her flight, and may be killed by the workers, which do not recognize her as their queen, probably on account of some new odor which she has acquired during her absence. This is rare, however, for ordinarily she is the object of much attention on her return. From this time on, whenever she stops for a moment on the comb, either to deposit an egg or to rest, she is surrounded by the workers. In about two days after mating the young queen begins to lay, and this one duty she performs until her death, never again leaving the hive except with a swarm.

The colony with the young queen is now in the same condition as the one which left the hive, both having laying queens, combs, brood, and a sealed hive. Their histories, under normal circumstances, are then practically the same. Both prepare for winter, and the following