

THE HONEY BEE AND ITS MANAGEMENT.

The following paper was read before the Wade Settlers' Association by Mr. G. A. Green :—

The subject I have to deal with to-night is so large and comprehensive that it is impossible that I can hope to do more than give you a few facts, which must be taken as simply giving the barest outlines of the subject. The honey bee holds a unique place both in itself as an insect and in its relation to the human family. Probably there is no other domesticated insect, bird, or animal that is so much misunderstood, and about which so much ignorance prevails, as concerning the honey bee. Although the product of the hive has been held in high esteem from prehistoric times, it is only within the last 100 years that the real physiology and habits of the bee have been understood. To Francis Huber, the learned Swiss, beekeepers are indebted for placing the study of the bee on a scientific basis. This energetic man was born in Geneva in 1750, and in 1795 he invented and used his leaf hive, which was the first known attempt at the construction of a movable comb hive. His observations proved the fact that the queen was the only perfect female bee in the hive, that she laid two kinds of eggs — i.e., unfertilised, which produce drones (the males), and fertilised, which produce workers (undeveloped females), and when placed in a suitable cell and fed with proper food (royal jelly) produce perfect females or queens. That the queen, the only perfect female in the hive, leaves the hive when a few days old to mate with the drone on the wing; one impregnation lasts all her life. Unfertilised queens lay only drone eggs. If the young queen does not mate within three weeks after hatching, she remains unfertile all her life. Huber also discovered that pollen is the natural food of young bees and drones, being mixed with water and honey, while pure honey is the food of the working bees generally. He also proved that wax was not gathered, but was a secretion from the body of the bee. There are a large number of honey-producing

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RACES OF BEES

distributed over many parts of the world, but for our present purpose it is only necessary to mention two strains of the *Aphis mellifica*, the black or German, and the yellow or Italian. The former was introduced into New Zealand about the year 1840. Lady Hobson, the Rev. W. C. Cotton, Mrs. Allom, and others each made successful importations, and from these the common bee has become distributed far and wide. It was not until forty years later, viz., in 1880, that the yellow race of bees was successfully introduced. The Christchurch Acclimatisation Association, Mr. J. H. Harrison, of Coromandel, and Messrs. Hopkins and Clarke, were the first to successfully import them. About this time, thanks to the energy of a few, considerable interest was manifested in beeology. The movable comb hives, comb foundation, and the honey extractor came into use. Honey was also secured in the comb for the first time in the colony in a presentable shape, in the dainty little one-pound sections. This brings me to the practical part of the business. The question will no doubt be asked,

WHAT STYLE OF HIVE IS BEST?

Having had considerable experience with several styles of standard movable comb hives, I have no hesitation in stating that for this climate the standard ten-frame Langstroth hive is a long way preferable to any other in use. This hive was patented in America by its inventor, the Rev. L. L. Langstroth, in the year 1852. About this time several other improved hives were patented in England and elsewhere. This hive has now stood the test of practical work both for extracted and comb honey-raising for over 40 years. One great advantage of the Langstroth frame, other things being equal, is that it is a standard size throughout the world. Frames from one hive are interchangeable with all other Langstroth hives the world over. I may here mention that I have had no experience with any but the black bee, but the general opinion of those who have is that the black is the best where comb honey is the object -- their product is whiter and of better finish; while for extracted honey the yellow race is best, as they gather considerably more honey in a general way, and are said to de-

send their hives from insects and robber bees better than the blacks. The hybrids are favourites, however, with some, as they are said to combine a kindly disposition with the good finishing and honey-gathering qualities of both races. For the purposes of this paper I will suppose it is springtime, say early October. The bees are then in the first flush of the

SWARMING SEASON.

Each normal colony of bees then contains one queen or mother bee, from 40,000 to 80,000 workers, and several hundred drones (generally far more than there is any need for). At this period of the year the average life of the worker bees is only a few weeks, certainly not over two months at most. To make up for this constant loss, breeding goes on very fast. For a while the queen lays on an average from 2000 to 3000 eggs per day. This great production is only rendered possible by the fact that she is, in fact, an egg-producing machine, being fed exclusively on highly-concentrated food, readily digested, and prepared for immediate assimilation into the system. The eggs when unfertilised, or drone, take 24 days from the time of laying until the perfect insect emerges from the cell. The fertile eggs, if in worker cells, take 21 days to mature, while if in queen cells only 16 days are required. When the hives become populous the bees make preparation for swarming by constructing a number of royal cells, in which the young queens are raised. These cells are known by their size and shape. They are about an inch long, of a peanut shape, and usually built on the edges of the combs. About a week afterwards, the weather being favourable, the first swarm issues, led by the old queen. Anticipating this, the beekeeper should have one Langstroth hive, with each of the ten frames filled to within half an inch of the bottom with good stout artificial comb foundation, in readiness for each old stock he possesses, or if increase is more desirable than honey, two new hives should be on hand for each old one, one for the swarm, the other for the old stock; but I would strongly advise the novice to go slowly at first. If he has had no previous experience with handling bees, I should not advise more than half-a-dozen hives the first

season. With these he can gain experience first. But to return to my subject, the swarm having come off, hive it in the usual way in a light handy box, and place it on one side to settle quietly. If increase is your object, place the new hive in the position you intend it to occupy; but if you have decided to make haste slowly, place it alongside of the old hive. See that the stand is level with an inch fall to the front. Now raise the front up, say, two inches from the stand. See that the frames of foundation are the proper distance apart (3 in), place on the mat and cover. Now fetch your swarm, and carefully shake the bees down at the entrance, and your work is finished; in a few minutes the bees will enter and start operations. In the evening lower the hive on to its stand. Should a second swarm issue from the old hive, which it may in a few days, it should be hived, and then shaken on to a sheet in front of the new one, and the bees allowed to crawl slowly in. The young queen should be captured, if possible, and if not required, should be destroyed. By this time it will be necessary to add a top storey, as the augmentation of numbers will crowd the lower one. If no second swarm issues in the ordinary way, this may be delayed till the bees from the old stock are added, which is best done in the following way:—Eighteen or twenty days after the issue of the first swarm, most of the larvae will have hatched, and there being no laying queen in the hive, the combs will be almost empty, except a little honey, as the surviving young queen will not have yet commenced laying. Now, have a sheet at hand, blow a few puffs of smoke into the old hive, then place it upside down on the sheet, and put an empty box on the inverted side, and drum on the old hive for fifteen or twenty minutes, by which time the bees will have ascended to the empty box, and they can now be utilised as a swarm and hurried on to foundation comb, or, if my advice is carried out, they will be added to the first swarm in the same manner as that advised in the case of the second swarm. Should it be necessary additional surplus room should now be given. The old hive can be removed, the honey strained, and the empty

combs turned into wax. Some transfer the old empty combs into frames where the bees soon fasten them in, but I do not advocate this plan, as such combs are never so good as those made from full sheets of foundation. In the matter of

SURPLUS HONEY

every beekeeper must decide for himself or herself (for beekeeping is eminently adapted to ladies) in what form they shall procure their surplus, whether as comb honey in sections or in the extracted form. For home consumption, a little of the former should always be raised, but on account of the limited local demand, its perishable nature and the present low price as compared with that of extracted in bulk (when the extra cost of production is reckoned), it will be found to pay best to raise the extracted article, for which there is generally a good demand for quantities in bulk for export. In raising comb honey, it will be found best to adopt the half storey system. It is much easier worked, and better results can be obtained in this way by tiering up than with the full storey supers. I have adopted it altogether myself, after several years' trial of the full storey. The sections should always be furnished with full sheets of very light comb foundation made from the purest beeswax. No difficulty will be experienced in getting the bees to work in the sections if honey is being gathered freely, provided always that the hives are kept well supplied with bees. It is poor policy, yet a mistake very often made by the beginner, to allow the hives to get weak in numbers, through the owner's wish for increase causing him to allow his bees to swarm themselves to death. With regard to

EXTRACTED HONEY,

it will be found in this (Wade) and surrounding districts that the honey, as a rule, is far too thick to be extracted by the ordinary process. True, I have managed to extract several tons during the last ten years, but then I have nine tinned wires embedded in the centre of each comb, the frames being first wired, and then the foundation pressed on to the wires. By this means more money and time are expended than most people are prepared to give, and

even then the process is a slow one, and unless you have a very good and extra strong extractor your efforts will be in vain. To those intending to go in for extracted honey here, I would recommend them to use half storeys fitted with nine narrow frames each, and work them on the tiering-up principle; that is, when one half storey is nearly full, place another half storey filled with full sheets of foundation between it and the next bottom storey, and so on till the end of the honey season, or, at least, until the honey in the top super is nearly all sealed. Then the combs should be removed from the hive, and the honey scraped off the sides of the comb with a new tablespoon. The backbone of the comb will be left, and can be returned to the bees to be built out again, and refilled with honey, while the scraped honey is put into narrow, deep, wire-cloth baskets made to fit inside your extractor, and the honey thrown out in the ordinary way. I have not tried this plan myself, but I know those who have used it with the most complete success for years. Another plan of dealing with the scraped honey is to press it out. This method works well, but I like the extracting best. In this connection it may not be out of place to point out that it is necessary that, whether extracting or pressing is resorted to, it is necessary that the honey be handled while still warm from the hive. If this is impossible, the honey must be slowly warmed up to 90deg. or 95deg. Fahr. before being handled.

LOCAL NORTHERN FLORA.

In conclusion, it may perhaps be as well for me to give you my experience as to the flora available here, and the seasons of the year when it blooms. Most of the northern districts are unique from an apiarist's standpoint; our honey season is over before it commences on the other side—Auckland. The following is a calendar arranged upon the basis of twelve years' careful observation of the local flora and subject to slight modifications in different locations:—
January: One of the slackest months of the year, bees living on their stores. February: Not much better here, a little honey coming in from nikau palm, white vine, koromiko, and pennyroyal, but not enough to

support the bees. March: A very short month generally. Brood-rearing stops in most of the hives towards the end of the month, but little honey is coming in. Care must be taken, or any hives that have been robbed too closely may die of starvation, as there are but few flowers out in bloom.

April: During this month the teatree commences to bloom on the hills in warm situations. The puriri is also in flower. Towards the end of the month honey commences to come in freely and brood-rearing is resumed. May: There is plenty of teatree in bloom on the hills, and the gorse is coming out. The weather being generally warm and dry, the bees gather most of their winter stores, besides raising a large stock of young bees to meet the winter with. June and July: These are the winter months proper, but nevertheless the bees gather considerable honey, mainly from the teatree during the fine days. Brood-rearing goes on, but slowly; in fact, the brood nest about July 10th is reduced to a small patch in the centre of the hive. If the weather remains wet for several days together, care should be taken to see that the bees do not run short of food. August: With the advent of warmer weather and longer days, more honey is gathered, still mostly from the teatree, and brood-rearing goes on apace. Towards the end of the month, the hives begin to get strong in numbers. September: The pukepuke, kohai, and other native trees and shrubs, including fruit trees, are in bloom, from which a good deal of honey is gathered. The bees, liking the other flowers best, now leave off working on the teatree. A few extra forward hives may swarm this month if not prevented by proper management. October: When fine, a good many swarms issue now, and the bees start working in the surplus boxes. Fruit trees, rewarewa, hinan, and other flowers are out. November: The best honey-gathering month. Care must now be given, surplus room added as required, and swarming kept down. In addition to the flowers mentioned last month, a little clover and spring flowering plants are now in bloom. December: The honey flow usually ceases about the 10th of this month, except in years when the rata flowers, or where there are plenty of pohutakawas in bloom; then the season lasts till the end of the month.

To secure a good crop when the flowers bloom take it as a motto and act upon it: Firstly, "Keep your hives strong;" secondly, "Do;" and thirdly, "Never allow them to get weak." To this end do

allow them to get work. Do this and do not take any honey from the lower storey at all, and feed your bees if it becomes necessary. No domesticated insect or animal will pay better for the attention bestowed on them.

At the conclusion, on the motion of Mr. Evan Bond, seconded by Mr. L. Vickers, a hearty vote of thanks was passed to the lecturer for his interesting and instructive discourse.—[Own Correspondent.]