

why attempt to supply milk that has not been properly cooled and stored? It means poor cheese, and less cheese per 100 pounds of milk.

Let every patron do his best to secure for his factory a reputation for finest cheese, which can only be brought about by each patron exercising care in the production of the milk.

Do not be annoyed, and talk of going to some other factory, if some morning the cheesemaker returns the milk. He would not do it if he thought it possible to make good cheese from it. He must be the judge of the milk, and, although anxious to secure all the milk he can get of good quality, yet, in justice to himself and to the other patrons, he is obliged to reject sour and tainted milk. He has no "grudge" against you. Remember, it is far better that a few cans of tainted milk should be rejected than that a whole vat of milk should be spoiled. The maker at the other factory has no desire to take in sour or tainted milk; then, why expect him to accept what your own maker tells you is unfit for making fine cheese? Instead, then, of finding fault because the milk is returned, look for the cause, and remove it.

The dairy instructors will come to the farm and help the patrons in every way possible, giving suggestions, and offering remedies for difficulties which may be met with in handling the milk.

THE CHEESEMAKER.

Keep everything in and about the factory clean and tidy, then insist on the patron sending sweet, clean milk in bright cans. If the whey has to be returned, send it home clean and sweet, properly pasteurized, if possible.

Be firm, but courteous, with the patron. A man who loses his temper is very likely to say things that he will afterwards regret. Reject milk that in your judgment will not make fine cheese. It is true that in some localities competition is keen, and a few patrons may, when the milk is rejected, talk about disposing of the milk in some other way, but this does not do away with the fact that milk is an article of food and must receive some care, whether it is made into cheese or some other dairy product.

Do not take in milk rejected at another factory. You are not likely to make any better cheese out of it than the maker who first rejected it. Co-operate with your neighboring makers on this point.

Use the curd test on tainted milk, and explain to the patron what causes the trouble. Do your best to impress on the mind of the patron the importance of cooling the milk and clean methods in production.

Visit as many of your patrons as possible; have the instructor do so, also. A few words of advice from yourself or the instructor will often save many dollars. It is the business of the instructor to improve the quality of the milk, of the cheese, and general dairy conditions. Help him all you can. Remember, the future of the business depends on quality.

Look out for the open, weak-bodied cheese. Be quick to note the necessary changes in method to prevent this condition.

Let everyone put forth his best efforts to make this year's cheese the very best on record.

F. H.

APIARY.

The Anatomy of the Honeybee.

The U. S. Department of Agriculture's recent publication, on "The Anatomy of the Honeybee," (Bulletin 18, Tech. Series, Bureau of Entomology), embodies the results of detailed studies, and should prove of value as bringing to beekeepers reliable information concerning an insect of such great economic importance, and also as furnishing a sound basis in devising new and improved practical manipulations. The subject has been for years the object of study of many careful students, but the popular demand for information has also induced untrained men to write accounts of bee anatomy containing numerous errors, and illustrated by drawings more artistic than accurate.

All practical manipulations of bees must depend on an understanding of their behavior and physiology under normal and abnormal circumstances, and this knowledge must rest ultimately on accurate information as to the structure of the adult bee.

Following a brief introduction, the author first gives a chapter on the "General External Structure of Insects," and then, taking up the honeybee, he gives a detailed description of the head of the bee and its appendages; the thorax, and its appendages; the abdomen, wax glands, and sting, and alimentary canal and its glands. He discusses the circulatory and respiratory systems, the fat, body and the oocytes, the nervous system and compound eyes, and the reproductive system. The text is profusely illustrated, fifty-seven figures, including a full page median longitudinal section of the body of a worker, being used, all but three of which are new and original, having been

prepared by the author with a thorough realization of the need of more accurate illustrations of the organs of the bee, especially of the internal organs.

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System Necessary for Success.

By Morley Pettit, Provincial Apiarist, Ontario Agricultural College.

Every beekeeper will admit that bees require a great deal of attention in the swarming season. If one yard is not to take all the attention, to the exclusion of other important interests, the apiary work must be whipped into line, with a well-regulated system. It is for the sake of getting a system that we recommend the weekly examination of each colony. This does not mean that every week every comb is to be taken out and examined, whether it needs it or not, but that each hive is to receive weekly what attention, external or internal, experience shows to be needful.

It has been found that, by adopting some system of management in this way, the bees can be left to themselves the balance of the week right in the swarming season, without loss. Provided, then, the apiarist has sufficient help to do the weekly work of one apiary in one day, the number of apiaries to which he or she can give personal attention is equal to the average number of fine days in the week. In localities where rain in summer is not a factor, 6 apiaries of 100 or more hives each are cared for by one man and his assistants.

There are other systems of management for the prevention of swarming which may suit some people better than the one described in "The Farmer's Advocate" for May 19th. But, after all, it is not easy to get away from the weekly visit to the apiary. I have often thought that an outyard was safe for two weeks, but generally found that the neglect cost me more than the extra visit.

QUEEN CELLS.

Now, in spite of all watchfulness and experienced care during the swarming season, hives will frequently be found with queen cells. There are three conditions under which queen cells are built: (1) Under swarming impulse; (2) when the queen is failing, and is to be superseded; (3) when the queen has suddenly disappeared.

1. For Swarming.—Number one is natural and deliberate, and easy to detect. Cells are started in convenient places, lower edges of combs, holes in combs, and the like. When the desire to swarm is acquired, and persisted in, the final remedy is to take away all the combs of brood, but the one which has the least brood, and give frames of wired foundation. This gives the condition of a natural swarm, and will usually satisfy the desire. The brood can be given to weaker colonies or used for making nuclei.

2. For Superseding.—Number two is also deliberate, and it is not easy to say positively that a colony has built cells for the purpose of superseding, and not from swarming impulse. The scarcity and irregularity of brood and eggs is, of course, a good indication of superseding. In a complete non-swarming system the cells cannot be left, because the young queen will often take out a small swarm. Where indications point strongly to superseding, the old queen should be killed, and only one, the best-looking, cell left in the hive. Good, large, capped cells, from either swarming impulse or superseding, produce the best of queens. Spare cells can be saved by giving them to newly-made nuclei.

3. For Requeening.—Queens sometimes die suddenly from various causes. Then, cells are built hastily on the sides of the combs wherever eggs or very young larvae are found. These cells are always easily distinguished, and this sudden queenlessness is proven by an entire absence of eggs and young larvae. All cells built under such conditions should be destroyed, as they are more than likely to produce poor queens. The colony is then hopelessly queenless. The best way to dispose of a queenless colony at any time is to unite it with one having a queen. This is easily done, as follows: Towards evening remove its cover, and spread over the frames a sheet of newspaper having a small hole in the middle. Place over this a nucleus having a good young queen. The bees will gnaw away the paper and unite peacefully. There should always be a supply of nuclei in the yard for this purpose, and for what increases in demand.

MAKING A NUCLEUS.

To make a nucleus, proceed as follows: When the main honey flow has well begun, place two combs of brood, mostly capped, and a comb having plenty of honey, in the super of a strong colony. At the next visit, a week later, bring Italian queens that have been secured from a reliable

queen-breeder, or good ripe cells of your own rearing, and proceed as follows:

First, examine the two combs of brood and destroy any cells that may have been started because of the excluder separation from the brood-chamber. Do this carefully, so as not to drive the bees down out of the super. You now have in this super a proper nucleus, with hatching brood and young bees which will not return to the parent-hive, and which will easily accept a strange queen, and, because of the week's separation from the queen, there is no open brood to perish from neglect. Now set the whole super gently off on a bottom board, contract the entrance to about two inches, introduce a queen or cell, and carry this new hive to its own stand, wherever desired. Nuclei should be made as early as possible, and not, as a rule, later than the middle of July. The safest way to introduce a new queen is to a nucleus, and the safest way to require a strong colony is to unite with a nucleus.

GARDEN & ORCHARD.

Some Good Old Apples.—IV.

In bringing up the names of some varieties of apples which are seldom planted in these days of commercialism, I speak more because of their real worth from the consumer's point of view than of their profit to the grower. For, until the public learns to distinguish between apples by reason of quality and flavor, instead of by outside appearance, such apples as the Baldwin will be the leaders; but may we not hope that in time, at least, a small portion of the public will be seeking for the highest excellence in these respects, and be willing to pay a higher price, according to real value. Forty years ago, great ignorance prevailed among our city cousins regarding varieties. I remember a lady visitor from Toronto, in the year 1870, to whom I was pointing out the different apples in my orchard. "Why," said she, "I always thought there were just two varieties, the Red and the Green."

In a recent article I spoke of the Lady Apple as a very choice little dessert apple, and perhaps I may be allowed to mention it again in this connection. It is a very old Roman kind, known in Italy as the Appian apple, and there so much esteemed that it gave rise to the proverb already quoted, "Omne malum malum, praeter Appium malum," meaning "Every evil is evil except the Appian apple," being a play on the word "malum." I have seen trees in the Niagara district with enormous clusters of this pretty little apple, so that it is evidently very productive, but the tree is a very moderate grower, and could not be made profitable unless one were making a special business of growing fancy table apples. Possibly a dwarf orchard of them could be made a paying investment if the fruit were put in fancy packages and put them on the markets.

The Swazie Pomme Grise is an apple that is too little grown. Its home is in the Niagara district, and it is said to have originated with Col. Swazie, somewhere near the Niagara River. Fifty years ago, nearly every orchard thereabout included at least two or three trees, and in my great-grandfather's orchard at Grimsby stood one big old tree, which we boys always claimed, and stored the fruit in the cellar for the Christmas season. I do not think we ever got more than three or four barrels in a season from that tree; it was thought too valuable for home eating to be offered for sale with the other kinds, and so we kept the best at home. Many a time in recent years have I regretted my foolish haste to turn everything into gold, which led to the destruction of that fine old tree and the loss of its golden fruit, which to-day I cannot buy with golden dollars.

The prominent characteristics of the apple in my memory is its delicate, crisp, fine-grained flesh, and its brisk, rich and delicious aromatic flavor. It was below medium in size, deep yellow when ripe, mostly covered with cinnamon russet. Its season was from December to March. I do not know of any apple I would choose in preference for dessert, unless it be the Snow, and after Christmas the Snow must certainly give place to the Swazie.

It is time we paid some attention to these good old apples, not for the dollars, but for the enjoyment they give us, the increased interest in our home gardens, and the means they place in our hands of giving pleasure to our visitors. The home garden should receive more attention in Canada. It should have a collection of the very best of fruits, not for sale, but for home uses; and, if so planted, will be to the owner the most interesting part of his home surroundings.

LINES WOOLVERTON.

The season of 1909-10 was a record one for the export of apples from Nova Scotia. The total exports were 709,267 barrels, 628 half-barrels, and 1,554 boxes. Box-packing of choice dessert and eating apples is becoming popular with Nova Scotia fruit growers.