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ANNUAL MEETING ONTARIO BEE-KEEPERS' ASSOCIATION

Address by Mr. J. Fixter, C. E. F., Ottawa.

SANFOIN.

This clover has again attracted much attention on the Central Experimental Farm, both as a fodder plant and also a honey-producer. Sanfoin sown in May, 1903, came in bloom on August 15th of the same year, was cut for hay on August 28th and gave a yield per acre of 1 ton 760 pounds cured hay. The autumn growth was allowed to remain as a cover for protection to the roots over winter. The summer 1904 growth, strong and even height, averaged 23 inches and came in bloom on July 31st, and lasted up to June 20th, when the plot was cut for hay. These results might have been extended had the plants been grown merely for hay, but as they were at that time in the best condition for hay they were cut for that purpose. The yield at this cutting was two ton 940 pounds of cured hay per acre. The second bloom came on July 30th, and lasted until August 15th, when it was again cut for hay, giving one ton 837 pounds of cured hay per acre, or a total yield for the year of three tons 1,777 pounds per acre.

This clover is really a grand thing for the bee-keepers, and I feel safe in

saying every bee-keeper ought to try some of it to see if it will succeed in his district. I have yet to see a plant that the bees crowd on and stick to from morning till night anywhere in comparison with this clover. The seed, as I said last year, is hard to procure. We had trouble in getting it to germinate, but I think as we get more of it in the country that difficulty will be overcome. I would certainly advise going into it. I sent a few packages out to people interested last year, and some of the reports were favorable. I won't say everybody will succeed, but those who can succeed in growing it will find a very great benefit from it.

Mr. Wood—How does it stand the winter?

Mr. Fixter—Very well. We have had it six and seven years, but that is too long to let any clover remain in the ground. Far better plow in when you have taken off two or three crops. All clovers are known to be wonderful fertilizers; it will pay for the extra-seeding to plow it up.

Mr. McEvoy—I think it is one of the finest honey plants ever introduced in this country for bees, because it comes into bloom at a period between fruit bloom and clover. It fills a gap. It comes in at the right time and teems with honey, because the bumble bee, the honey bee and the wasp are seen upon it, and it seems as though there has been an invitation given to every bee. Some of them are on the same

head. If we could only get enough of that kind at that period it would be very important, because the larvae that is fed at that period is the life blood that is going to gather in the honey in the harvest. There is nothing that I ever saw that takes the place of sanfoin. Does it pay for hay?

Mr. Fixter—Certainly it will.

Mr. Byer—What dates have you that that clover bloomed from the time it was sown?

Mr. Fixter—August 15th. That is the first year.

Mr. Byer—I sowed the sample you sent me on the second day of May. It made a rapid growth and never blossomed till it came onto summer. It is a difference of locality.

Mr. Smith—When I was in England I had an opportunity of seeing some sanfoin honey, and the sample I saw was one of the finest, both for color, body and flavor.

Mr. Holtermann—I don't know whether some of you saw recently an article on sanfoin in one of the United States bee journals. It didn't speak very favorably of it in some localities. Was it a section where the ground might be bare through the winter?

Mr. Byer—Yes, a section where no snow remained on the ground.

Mr. Holtermann—We are indebted to the Experimental Farm at Ottawa for what it is doing.

Mr. Fixter—I saw the article in "Gleanings." Speaking of sanfoin, I don't say that it will do in every district—no clover will—but try it on a small scale first. Don't buy two or three bushels of seed and then be disappointed, but try a few pounds, and if you see it is going to succeed go in for it extensively. Any man that can grow alfalfa and lucerne successfully can grow sanfoin. It may be that it is hard to get out of the land. It is as easily got out of the land as alfalfa.

It will not yield anything like alfalfa. The quality of the hay is first-class, choice, cannot be better.

Mr. McEvoy—Do you mean it won't yield as much hay?

Mr. Fixter—It won't yield as much as alfalfa or lucerne, but it is such a honey-producer I think the quality must be there. Last year we sowed an acre of it on the Experimental Farm, and I hope to give you fuller details of a larger plot. We should see an increase in the weight of our hives from that size plot, and, as Mr. McEvoy said, it comes in before the white clover and it lasts as long. This plant starts to bloom from the bottom of the head, and it keeps on blooming till it gets to the top. By the time it gets to the top it is done at the bottom and the seeds are beginning to come off. Then again it comes in after the white clover is done in August. Every season it won't be the same. It was not as good last year with us as it was the year before. The seed usually costs about 15 cents a pound, and any kind of soil will grow it where the water is not too near the surface, but it wants to be in fairly good condition.

The first thing is to test the germinating power of your seed and as sanfoin seed is the largest of the clover seeds, you require to sow about 30 pounds of the best seed. There is so much waste taken up with the hull.

The next experiment is the wintering of our bees, which is a very important subject. I have tried several experiments along that line with outside wintering, and also wintering in the cellar in different ways. The first is insulating hives for outside wintering. This began in 1903.

Insulating Hives for Outside Wintering

Two colonies of equal strength with good laying queens in Langstroth hives were taken for this experiment. The hives were insulated against the winter cold by cushions in the following

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manner. Slats one inch thick were nailed at intervals all around the hive, on these were tacked one layer of thick brown building paper, and then a layer of oiled paper, which increases durability and also keeps out vermin. order to provide extra protection to the hive a box six inches wider and six inches longer was placed over this, cut at the entrance 1 in. by 2 in., all other openings being closed. The wooden covers of each hive were removed and replaced with a chaff cushion three inches thick, the latter placed on the propolis quilt, and lapping over the sides of the hive; two layers of paper were then placed on the top of the cushion and a second cushion added, with the top of the outside box over it. The bees were put into winter quarters on November 18th. No sound could be heard from these colonies all winter up to March 10th, when a slight hum was perceptible. On March 20th the first bees made their appearance. There were many dead bees at the entrance of the hives. On March 21st, the day being bright and warm, the outside cases were removed, leaving the paper and one chaff cushion on during the cold spring. Upon examination one colony was found to be in fairly good condition, the other very poor with many dead bees on the bottom-board. A few days afterward the latter was found to be deserted. The frames in both cases were all dry and clean, and had abundance of honey to carry them through from November to the clover bloom. Weight when put into winter quarters, 53½ pounds each; in spring 7¼ pounds each or a loss of 16¼ pounds.

A second experiment was tried similar to the above. Four hives were taken for this test instead of having them packed single. The four were placed in a large packing case, the case being one foot larger each way than the hives, the hives being placed six

inches apart in the case with six inches cut straw on the bottom of the case for the hives to rest upon. The six-inch space between the hives was packed with cut straw also the one foot space all around and on top of the hives. The entrance of two of the hives faced east and the other two faced west. The entrance of the hives was kept clear of snow all winter to insure free ventilation. No sound could be heard from these colonies all winter. On March 22nd the bees made their appearance when many were flying briskly going out and returning. From March 22nd to April 22nd, the bees had but one good flight. On April 22nd they were then examined. Very few dead bees were found on the bottom-boards. The combs were dry and no sign of dysentery. They were then removed from the packing case and placed on their summer stands. The average weight of the hives when the bees were put into winter quarters was 62½ pounds when put on their summer stands 49¼ pounds, showing that each hive had lost 13 pounds 4 ounces.

The weather at this date being bright and warm the bees built up rapidly and were in excellent condition for the honey flow.

This experiment was tried in a well-sheltered corner, where no cold winds could get at the hives.

Damp Cellars For Wintering Bees.

Many letters were received inquiring whether a damp cellar is a fit place to winter bees in. An experiment was conducted during the winter of 1902-3 with three colonies of bees. During the winter of 1903-4 it was thought best to try this experiment with six colonies in a similar manner, as in the previous experiment. Seven pails of water were arranged in such a way that the colonies of bees would rest on the edges of the pails allowing the full surface of the water to be exposed.

Six colonies were selected for this

experiment all of about equal strength and all in Langstroth hives weighing on an average $57\frac{1}{2}$ pounds each. The wooden covers were removed from the hives and replaced with propolis quilts, the bottom of each hive was loosened from the brood-chamber and a block two inches square was placed at each corner between the bottom board and the brood chamber, insuring free ventilation from the bottom of each hive. The cellar was kept at a very even temperature of 44-48 degrees. The bees could be seen hanging below the frames in a quiet cluster all winter. They were all examined once each week and at no time did there appear to be any sign of uneasiness from the extra moisture. There were scarcely any dead bees on any of the bottom boards, nor any sign of dysentery, and all came out in excellent condition. The colonies were set out on their summer stands on March 20th, the day being fine and warm. All began flying at once. The average weight of the six colonies when set on their summer stands was $44\frac{1}{4}$ pounds each. During the days intervening from March 20th to April 3rd the weather was cool and no flying took place up to the later date. At this period there was but one good, bright, warm day (April 5th) and the bees had to content themselves to remain indoors until April 22nd, when the weather turned quite warm. The bees then built up very rapidly, and were in excellent condition for the honey flow.

A second experiment was tried adding more moisture. Six colonies were selected for this experiment, all about equal strength and all in Langstroth hives, weighing on an average 58 3-4 pounds each. The wooden covers were removed from the hives and the sealed propolis quilts left on. The bottom-board of each hive being loosened from the brood chamber and a block 2 in. square placed at each corner between

the bottom-board and the brood chamber, insuring free ventilation from the bottom of each hive. Seven pails of water were then put on the floor in such a way that the six hives were resting on the edges of the pails allow the full surface of the water to be exposed. In addition to the pails of water six inches of sand was spread on the cellar floor between the pails and covering six inches of the floor outside of the pails. There was also a large cotton sheet spread over the six hives. The sand and sheet were kept thoroughly saturated with water once each week during the winter. The cellar was kept at a very even temperature of 44 to 48 degrees, and was well ventilated during the whole winter. The bees in this test were more uneasy than in the experiment first described, where no sand or cotton covering was used, having to keep up fanning for ventilation. There were also considerable more dead bees on the bottom boards and several had drops of water along the entrance, but there was no sign of dysentery. On March 20th, the day being fine, the colonies were removed to the bee-yard, where all began flying at once. The average weight of the colonies when set on their summer stands was $44\frac{1}{4}$ pounds each. From March 20th, to April 22nd, the bees had but one good flight. After April 22nd the weather became considerably warmer and they began building up rapidly, and they were in excellent condition for the clover bloom.

The average strength of the six colonies that had the extra moisture was not as great as in the former test, but as soon as they got fine weather they gained rapidly. Care was taken to see that the colonies in both tests had plenty of unsealed stores before fruit bloom, and between fruit and clover bloom. This was done by uncapping one side of a frame of honey nearest to the brood for food and providing

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space for the queen to lay her eggs. Although so much moisture was in close proximity to the colonies, a great deal of the success of this experiment is no doubt due to the good cellar in which it was tried, the cellar having stone walls, cement floors good ventilation and the temperature being easily regulated. This goes to show that good ventilation and even temperature have a great deal to do with successful wintering. An excellent plan for ventilating is to have sliding ventilators in the doors, so that much or little air may be let in as desired. Also connect an extra stove pipe provided with a damper to the regular heating stove. This may be done by means of a T or an extra flue will answer. Allow the pipe to extend into the cellar. This plan of ventilating has proved very successful.

Cellar Wintering.

Description of Cellar and Arrangement of Hives.

The cellar is below a private house. The walls are of stone and the floor of cement. The bee room 11 feet, 6 inches wide, by 15 feet long, and 7 feet high. Allow three tiers of shelves and two passages. It is boarded off from the remainder of the cellar by a partition which extends all around the chamber and far enough from the stone wall to allow of an air space. Should a person have enough bees to fill the cellar the boarding could be left out. Under the cement floor a layer of one foot of stones varying in size acts as a drain and keeps the cellar perfectly dry. The lowest shelf is 18 in. from the floor, the second 20 in. in the clear above, and the third 20 in. above that. Neither the hives in the third or uppermost shelf, nor the uprights supporting the shelves touch the ceiling so that no vibration can reach the hives from above. This chamber is thoroughly ventilated, as is also the whole cellar. Before entering the bee room

is a small compartment with a door leading outside and another leading to the bee room. Both rooms have sliding ventilators in the doors so that outside air may be let in at will. Ventilation is carefully attended to and sudden changes of temperature are avoided. For this a thermometer, which is always kept in the cellar, is watched. The best temperature for the bee cellar has been found to be from 42 to 48 degrees Fahrenheit. This arrangement has given entire satisfaction. In former years there was not proper ventilation and the cellar was always damp. Since the concrete floor has been laid and the ventilators put in, the cellar has been much dryer and cleaner. It is also rat and mouse-proof, which is a very great advantage.

Experiment No. 1.

Six colonies were put into winter quarters in the cellar and placed on the shelves. Under the back end of each hive was placed a 2 in. block, each hive was besides raised from its own bottom board by a 1-inch block being placed at the back so as to insure free ventilation. All front entrances were left wide open, the wooden covers were all removed and replaced with cushions made of chaff $\frac{1}{2}$ in. thick, sufficiently wide and long to lie over the hive two inches. Temperatures were taken once each week all through the winter and were kept very even, from 44 to 48 degrees. The bees were quiet, only a very slight hum being noticeable up to February, when the temperature having risen to 48, the bees began to get uneasy and made considerable hum. Cold air was carefully let in during the night by opening the slides in the doors and closing them in the morning; this, of course lowered the temperature and the bees quieted down. During the past winter every colony in this experiment was perfectly dry and clean, and all came out in excellent condition. Average weight of

each hive when put into winter quarters 58½ pounds, when taken out on April 22nd 49¼ pounds per hive, showing that each hive had lost 9¼ pounds on an average.

Experiment No. 2.

Six colonies were put into the cellar and placed on the shelves, a three-inch block being placed between the bottom board and the brood chamber only in front, making the full entrance 3 inches high across the whole front. The wooden covers were removed and replaced with a chaff cushion. Temperature same as in experiment number one. During the whole winter all the colonies in this experiment were perfectly dry and clean and showed no uneasiness of any kind. The bees could be seen hanging in a quiet cluster below the frames any time during the winter. The average weight when put into winter quarters on November 23rd was 59 pounds, 12 ozs., when taken out on April 22nd, 51 lbs., 8 ozs., showing that each hive had lost on an average 8 lbs. 4 ozs.

Experiment No. 3.

Six colonies were put into the cellar and placed on the shelves with tops and bottom boards of the hives left on just as they were brought in from the bee yard. They were watched for dampness, mould or dysentery also to compare the amount of honey consumed. Temperature of cellar the same as in experiment No. 1. During December and January all were very quiet. During February there was considerable humming. Drops of water were noticed along the entrance of three hives. There were but very few dead bees on the bottom boards and no signs of dysentery. On examination when set on their summer stands two of the hives had considerable moldy combs. The average weight when put into winter quarters 58 lbs. 10 ozs., when taken out on April 22nd, 49 lbs. 3 ozs., show-

ing that the average loss of each hive was 9 lbs., ozs.

Experiment No. 4.

Six colonies were put into the cellar and placed on the shelves with bottoms of the hives left on just as they were brought in from the bee yard. The wooden covers were removed and nothing left on except a tightly-seated propolis quilt; the natural entrance was left wide open. Temperature of cellar same as in experiment No. 1. During the entire winter the bees kept perfectly dry and a very slight humming could be heard. There were but very few dead bees on the bottom board and no sign of dysentery. On examination when set on their summer stands all the hives were found to be in first-class condition. The average weight when put into winter quarters November 23rd was 5 lbs. 15 oz.; when taken out on April 22nd, 51 lbs. 3 ozs., showing that on an average each lost 8 lbs. 12 ozs.

Experiments to Determine Whether Bees Would Consume the Most of Honey or Sugar While Being Confined in Their Winter Quarters.

Eight colonies in Langstroth hives were selected for this experiment, of as nearly equal strength as could be secured. On September first the natural stores were removed from the sets. On September 2nd all were weighed, as follows:

(a) The four colonies fed sugar syrup:

- No. 1—30 lbs. 7 oz.
- No. 2—31 lbs. 12 oz.
- No. 3—31 lbs. 10 oz.
- No. 4—31 lbs. 3 oz.
- Average—31 lbs. 4 oz.

(b) Four colonies fed extracted honey:

- No. 1—30 lbs. 9 oz.
- No. 2—31 lbs. 10 oz.
- No. 3—30 lbs. 12 oz.
- No. 4—31 lbs. 1 oz.
- Average—31 lbs.

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Miller feeders were placed in empty section supers close to the top of brood frames, any part of the brood frames not covered by the feeder being covered by a propolis quilt cut so as to allow the bees a passage through it. By keeping the feeder well packed around except where the bees enter the heat is kept in and at the same time the bees cannot daub themselves with the liquid. In both experiments the bees had a constant supply of syrup and honey. Both the honey and the syrup were supplied to the bees at about blood heat. The syrup was made of the best granulated sugar, two parts to one of water by weight. The water was first brought to a boil, then the boiler was set back on the stove and, the sugar having been poured in, the mixture was stirred until all was dissolved.

The four colonies fed sugar syrup when put into winter quarters November 24th weighed as follows.

No. 1—61 lbs. 4 oz.

No. 2—62 lbs. 9 oz.

No. 3—62 lbs. 7 oz.

No. 4—62 lbs. 0 oz.

Average—62 lbs. 1 oz.

The four colonies fed extracted honey when put into winter quarters on November 24th weighed as follows:

No. 1—62 lbs. 13 oz.

No. 2—62 lbs. 14 oz.

No. 3—62 lbs.

No. 4—62 lbs. 5 oz.

Average—62 lbs. 8 oz.

The four colonies fed sugar syrup when taken from their winter quarters March 22nd weighed as follows:

No. 1—47 lbs. 3 oz.

No. 2—49 lbs. 4 oz.

No. 3—51 lbs. 12 oz.

No. 4—51 lbs. 2 oz.

Average—49 lbs. 13 oz.

The four colonies fed extracted honey, when taken from their winter quarters March 22nd, weighed as follows:

No. 1—50 lbs. 9 oz.

No. 2—53 lbs. 1 oz.

No. 3—51 lbs. 12 oz.

No. 4—51 lbs. 2 oz.

Average—51 lbs. 10 oz.

Difference in favor of the honey—1 lb. 13 oz. per colony.

When put into winter quarters they were placed on the shelves in the cellar, the wooden covers were raised at one end $\frac{1}{2}$ of an inch, while the sealed propolis quilt was left undisturbed. The hives were all given extra ventilation at the bottom by placing at the entrance a wooden block between the bottom board and the brood chamber, thus raising the front of the brood chamber three inches extra. During the balance of November and December very slight humming could be heard; January and February scarcely any appreciable hum could be heard. During the whole winter there was no sign of uneasiness of any kind and very few dead bees about the entrance, the bottom boards were quite clean and no sign of dysentery in either experiment. All came out in first-class condition and built up rapidly for the honey flow.

Introducing Queens.

Eight queens have been introduced during the season, four on the Benton plan and four with frames of brood taken from several hives. All queens belonging to the colonies that were to receive the imported queens were removed 24 hours before introducing the new queens.

The Benton Introducing Cage—The Benton mailing and introducing cage is ordinarily used over the country. This consists of an oblong block of wood with three holes bored nearly through, one of the end holes being filled with good candy, and the other two being left for the occupancy of the bees and queen. On the back of the cover are printed the directions for introducing, and at each end of the cage is a small hole bored through the end of the grain of

wood, but which in the mails is stopped by a cork. One hole is for the admission of the bees and queen preparatory to mailing, and the other for the liberation of the queen, by the bees eating out the candy in the course of 20 or 30 hours, thus releasing her automatically. When the cage is received the cork covering the candy is to be removed, as well as the wooden cover over the wire cloth. The cage is then placed on top of the frames, care being taken to place the wire cloth over the space between two frames in the centre of the brood-nest. The queen is then released by the bees in the manner explained.

I would advise all to have extra cages for introducing, so that no disease may be brought in with the queen. See that the cage you introduce with is thoroughly cleaned, and have fresh food made from your own honey placed in the cage in readiness. Then remove the queen and bees from the cage they were received in to the one prepared for them and follow directions above.

How to Make Honey and Sugar Thick for Feeding—Take good thick honey and heat (not boil) it until it becomes very thin, and then stir into pulverized sugar. After stirring in all the sugar the honey will absorb, take it out of the utensil in which it is mixed, and thoroughly knead it with the hands. The kneading will make it more pliable and soft, so that it will absorb or take up more sugar. For summer use it should be worked, mixing in a little more sugar, until the dough is so stiff as not to work readily, and it should then be allowed to stand for a day or two; and if still so soft as to run, a little more sugar should be kneaded in. A good deal will depend upon the season of the year; there should be more sugar in proportion to the honey in warm weather than in cool weather.

Another Method of Introducing

Queens—Select a strong colony, remove the wooden cover, and place a fine wire netting over the tops of the brood frames to prevent passage from one hive to the other; place on top of this wire cloth a brood chamber with four frames, of well-sealed brood, selected from different hives, with young bees just hatching out, but with no unsealed brood. Put the queen in this, and close the hive bee-tight, and keep it over the strong colony four or five days. By that time a respectable force of young workers will be present, and the hive may be placed on the stand where it is to remain, and the entrance to be made large enough for only one bee to pass through at a time. As a matter of precaution against robbing, the entrance may be opened as the colony gets stronger. This latter plan has never failed with me.

The President—We are very glad to hear Mr. Fixter's experiments. We are always glad to have him with us at our convention. The meeting is open now for discussion on the paper, and I hope that no one will speak more than once and try to speak quickly and not say too much.

A Member—How was the sugar syrup made?

Mr. Fixter—The sugar is made two parts of sugar to one of water. We give them a constant supply and weigh the hives when we are through.

We find we lose about the amount of water we add. The stores and the sugar weighed about the same when they were put into winter quarters. We have to give more sugar stores than we do honey.

Mr. Byer—The deductions are that one pound of sugar is about equal to one pound of honey in wintering results.

Mr. Fixter—I think the honey is in favor of about a pound and thirty ounces to each hive. There is a slight difference in favor of the honey.

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would never advise any man to feed sugar for wintering. I would say provide yourselves with full drawn combs. When carrying on this test I didn't think it was just the right thing to advise feeding sugar because I have had people come to the Experimental Farm and say I am going to take every pound of honey out of my brood chamber; I can feed sugar; it only costs five cents a pound. There is trouble of that going too far and feeding too much sugar in other ways; and another thing, no man should ever extract a pound of honey out of the brood chamber unless it be for feed. What would be the use of that?

Another subject I would like to take up some time is the extracting of honey out of the brood chamber. When you find that your bees are not strong enough in the fall put them in.

Mr. Brown—I understand Mr. Fixter would prefer to give the full combs of honey in preference to the syrup or liquid honey, for feed.

Mr. Fixter—I would rather give the bees fully sealed combs every time, if it was the best clover honey, fed back.

Mr. Grainger—In giving capped stores how would you do in case you wanted to stimulate in the fall. Don't you think if you fed either honey or syrup early enough in the season, in case you wanted to stimulate that that would have as good an effect as giving the sealed combs?

Mr. Fixter—I don't practice that.

Mr. Holtermann—I would say it might. But when we are dealing with living things we have got to be careful. I would like to see Mr. Fixter's experiments conducted with much larger groups and in order to make those experiments truly valuable I think we would discourage the feeding back of syrup and still more the feeding back of honey because in feeding back honey generally through the country there is always a danger that foul brood germs may be present.

If the experiment is continued next year I would suggest that the stocks be weighed before they are fed at all, and then feed them syrup and see how

much they lose, and see again what amount of stores are consumed during the winter.

Mr. Fixter—That is in the paper.

Mr. Hurley—Last fall when feeding my bees for foul brood I had to treat the whole of them, and it was after the first of August when I started. Those bees built out their new comb on sugar and wintered on it. They had absolutely nothing else and they came through the winter successfully.

Mr. Sibbald—There is no question in my mind about bees wintering well on sugar syrup. I am sure they will; and they will winter well on good ripe honey. There is no question about that. In introducing queens, I understand you took the brood of some other colony and put it on a strong colony, and put a queen into that.

Mr. Fixter—That is the way I did it.

A Member—Did you destroy that queen below or was she left there?

Mr. Fixter—She was left below; there was wire netting put between.

Mr. Grainger—The object of covering that over is to keep them in a warm room?

Mr. Fixter—Yes.

Mr. Smith—There is one experiment that might be tried. It might be well for Mr. Fixter, if he could, to determine how much boiling diseased honey would require to make it a safe food for wintering bees; that is to kill any trace of foul brood.

Mr. Fixter—I don't know how that would be managed. First of all we would have to have diseased honey.

Mr. Smith—It might be got for experimental purposes.

Mr. Fixter—That wouldn't be in my line, but of course I could get assistance from Prof. Shutt; it could be arranged if we could get diseased honey and feed it.

Mr. McEvoy—I don't want you to feel honey at all at any time, but if you will bring it to a sharp, bubbling boil that will kill any germs.

Mr. Chadwick—Would it be out of order to ask whether honey gathered where the colony has been exposed to the spraying of apple blossoms or from colonies that have been destroyed or partly destroyed would be suitable to put into another colony?

The President—Honey that is in a hive that has chilled brood should be all right; there should not be anything wrong with the honey.

THE CANADIAN BEE JOURNAL

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Editor, W. J. Craig.

Brantford, August, 1905

EDITORIAL NOTES.

The annual meeting of the Ontario Bee-Keepers' Association is announced for Wednesday, Thursday and Friday, November 15th, 16th and 17th at Toronto. The place of meeting will probably be in the vicinity of the Massey Hall, where will be held the Fruit, Flower and Honey Show. The prize list for this latter is quite attractive, and we would like to see a good display of honey by the Association.

†

The Honey Exchange Committee has issued its annual circular, asking for crop reports. It is very desirable that these queries should be answered as fully as possible, and returned to the Secretary at once. It is the desire of the Association to make this department as useful as possible to its members. The committee will meet probably about the 15th, when everything in connection with the season and the crop will be taken into consideration, and the members advised regarding probable market values as soon after as possible.

†

We had the pleasure a few days ago of visiting the apiary of Mr. Frank P. Adams, Bow Park Farm. Frank has had a fair share of the good things of the season. We are pleased to note that he is coming into prominence as a queen breeder as well as being an extensive honey producer. The "Swathmore" and Laws System is fol-

lowed to some extent in the "Bow Park" apiary, and we were very much interested in the working of the "baby nuclei." Frank says he has been quite successful with them for mating his queens. "Just a teacupful of bees is required for each little hive." This reminds us that we are indebted to friend "Swathmore" for his kindness in sending us a copy of his book, "Baby Nuclei."

†

We have only just now had an opportunity of examining the marked copy of "Farmers Bulletin No. 59," issued by the United States Department of Agriculture, and entitled "Bee-keeping," by Prof. Frank Benton, revised and enlarged to 48 pages. The bulletin is valuable, as we would expect it to be from such an authority. Among the new matter we note the following subjects:

"Overstocking."

"Value of bees in pollination."

"The various races of bees."

"Relative gentleness of races."

"Adding bees to natural swarms."

"Comb foundation, not artificial comb."

"Comb honey, not manufactured."

"Utilizing brood and honey from diseased colonies."

"Bee paralysis."

"Legislation affecting apiarian interests."

The bulletin may be had on application to the United States Department of Agriculture, Bureau of Entomology, Washington, D.C.

†

We are favored with the following report from Mr. F. W. Jones, of Quebec Province. Mr. Jones has a large business connection and has a good idea of conditions in his province:

"Bees did not winter any too well in Quebec, and the Spring was rather late and wet, but flowers bloomed abundantly, notably dandelions, and bees built up pretty well. Clover

came on later than usual but it has been very abundant, and bees have done fairly well on it, in fact they are still working on it (July 31), the farmers, owing to the rainy hay weather, not having been able to cut it all yet. Basswood was not up to some years, prospects for fall flowers, buckwheat, etc., are good. Swarming has not been excessive, and there has been a very fair amount of honey already obtained. Altogether, the season should be a profitable one for the careful bee-keeper who looks after his bees

All bees should be built up good and strong in August, for they do not breed much in September, and those lacking stores should be fed good and heavy by the middle of September."

Mr. E. L. Colpetts, of New Brunswick, writes:

"Since the opening of clover until about a week ago we have had remarkably good honey weather, and the crop so far has been much above the average, quality extra good, clover in abundance. White clover forms a carpet for the roadside and pasture fields. With the best possible season the usual amount of honey will not be produced as the winter and spring losses were the heaviest in over 20 years."

Quebec and Eastern Provinces seem to have had a fair honey crop from clover. Taking in the whole situation, would conclude that the crop has been fair generally, but there has not been anything extraordinary. The flow has been rather irregular, some districts have fared well, others again quite adjacent, where it was rather disappointing. We will not venture to say anything about prices until after the meeting of the honey exchange committee, but think that there is no reason for a panic. Owing to the much reduced number of bees in the country there cannot be such

an extraordinary quantity of honey on the market, and last year's prices should be pretty nearly maintained.

†
The Hon. Mr. Brodeur, Minister of Inland Revenue, has announced his intention of rigidly enforcing the Act respecting impure foods, but he gives the manufacturers a chance by warning them by circular against the use of adulterants. Bee-keepers will be pleased to learn of the stand taken by the Minister, as this Act covers the adulteration of honey in any form.

†
That tested queens are sometimes injured in shipping is a point brought out by Mr. J. P. Moore, the Kentucky queen breeder, in conversation with the editor of the "Bee-keepers' Review." He says that "a young queen that has just commenced to lay stands shipment much better, and usually proves to be of value as an egg-layer after shipment, while a tested queen often turns out very poorly; and that a tested queen ought to be shipped in a full colony of nucleus, to say the least." This is something we have noticed in handling queens ourselves, and would account for the bees sometimes superseding tested queens. Editor York, of the "American Bee Journal," suggests that such queens be taken from the hive and caged 24 hours or more before mailing.

DRAGOONS AND ARTILLERY.

By special request the executive of the Canadian National Exhibition of Toronto have decided to give both the musical ride, by the Royal Canadian Dragoons, and the artillery drive, by the Royal Field Artillery, Kingston, twice daily, the one opening each afternoon and evening performance and the other closing it.

Fifty colonies of bees for sale, in Langstroth hives. Apply M. B. Holmes, Athens, Ont.

NOTES AND COMMENTS

By a York County Bee-Keeper

Second Crop of Sanfoin Disappointing.

Since penning that note for July C. B. J., and reading Friend Fixter's report in same issue, have been wondering if season, locality or some other factor is responsible for the progress our second crop of sanfoin has made. The first crop was cut on June 24th. and although we have had abundance of rain, it has not in over a month's time grown more than two inches. In fact, from present appearances, think it has given up all intentions of blooming again this year. The plot is well drained and in fair condition, and some alsike that was among the sanfoin is ready to bloom again. However, we are not ready to condemn it as yet, as conditions are peculiar in more than one respect concerning honey plants in our section this year. More than once we have stated that, in our humble opinion, the much-vaunted sweet clover was but an indifferent honey plant at most. Observations this year have strengthened that opinion more than ever. A field of alsike near us had considerable sweet clover amongst it, which, owing to late season, was in full bloom before alsike was ripe. Visits to this field showed scarcely a bee on the sweet clover, while they were literally swarming on the alsike. After the other forage became scarce there were plenty of bees on the sweet clover. A recent trip through the north-west part of Toronto made me think that, if sweet clover was much of a honey-yielder, our friend Mr. Grainger would be able to report a good yield from that source, as every acre of vacant land around there seems to have

been taken possession of by the weed. If it has no other virtue, it provides a lot of work for the unemployed, as the city authorities require all land-owners to cut the stuff before it seeds. As a result some parts of the city presented quite a farm-like appearance—on every side could be seen men swinging the scythe in the good old-fashioned way our forefathers were fond of telling "how they used to do when they were young." We noticed that the swath taken was not very wide and that frequent "whettings" of the blade were necessary, one of the men remarking to me that "it was beastly stuff to cut."

Material for Smoker Fuel.

Editor Root of "Gleanings" has lately been booming as a smoker fuel "greasy waste," such as is used around engines and other machinery. While we have not tried it, presume it would have a tendency to soil the fingers a good deal, which would be one disagreeable thing in connection with its use. Some time ago we noticed where one writer stated that he started with cedar bark, and then tried ALL OTHER kinds of smoker fuel, and had again come back to cedar bark. The writer started with oak and elm-wood just rotten enough to break easily with the hands; have since tried NEARLY all other kinds of fuel, and have again come back to rotten wood. Cedar bark, in my estimation, is not a desirable fuel, although a number of extensive apiarists use it exclusively. With me, I find it makes too much ashes and is not lasting enough for steady work, although it makes a great smudge when everything is in working order. Old propolized quilts torn up make a splendid fuel, almost entirely free from ashes—a quality, no doubt, which the greasy waste spoken of would also possess.

The Season's Crop.

With good reports coming in from

almost every direction, rather tough to acknowledge that we chaps in immediate district have not shared in the good crops. While prospects were never so bright during our experience as they were this year, owing to tremendous rainfall, returns are quite disappointing. Don't think we are exaggerating when we say that during the whole period of clover bloom we had not more than six days that we could walk into the rank fields of alkise without getting wet to the knees. Soaking rains every day; in fact, we came to the conclusion that the term "local showers," as used in our dailies, meant "showers in east side of York county, and lots of them." Five milés south of us, and the same distance north of us, had not nearly so much rain, and was led to think that if my yards had been in a line north and south, instead of east and west, we would have fared better. However, we are not feeling at all blue, as we intend to feed more than ever this year on "hope," an element which enters largely into the diet of most people who depend on bee-keeping for a living.

Cause of Basswood Not Secreting Nectar.

Basswood bloomed to perfection, and although we had "all kinds" of weather during period of bloom, yet blossoms were dry as a chip. No use to say "not enough trees for a crop," as five years ago, with practically same number of trees, a good yield was secured. If we urge that weather was too hot; the year yield referred to was secured the thermometer was up in the nineties every day, and yet bees were falling in the grass at mid-day. On the other hand, while thistles last year would not have a bee on them, this year they are yielding enough to keep bees out of mischief and make work pleasant in the yard. There is something peculiar regarding the at-

mospheric conditions necessary for nectar secretion in different plants that have not yet been solved.

Proper Time to Extract Honey.

While we have always advocated producing well-ripened extracted honey, and endeavor to produce such an article ourselves, yet cannot help but think some well-intentioned writers are too radical in their views when writing on this subject. Would like to see the "knife-went-over-every-inch" man, as well as the "leave-all-till-August" fellow get in their work this year in our section. It has been no easy problem to take off our small crop in good condition, and not have it tainted with the early buckwheat sown around here as a result of the wet season. In a matter of this kind it is well to make allowance for peculiarities of different seasons, localities, etc., never forgetting that what may be applicable to our immediate section may be entirely unfitted for other localities.

York Co., Ont.

A Cleveland daily announces as something wonderful that a man now living in Canada is going to establish a bee farm in Texas of 480 acres. Even if bees could be confined by fences that would not be a very large beehive. Then the man is going to do what was never attempted before. He is going to import his queens from Italy! They will be so valuable as to be worth their weight in gold—that is about 20 cents apiece, if we take that statement literally. We are further informed that good queens from Italy range in price from \$50 to \$100. What a fine story was spoiled by the ignorance of that writer, when the truth would have served him much better! The whole matter was explained to the editor, but such trifling deviations from the truth do not seem to disturb him in the least.—"Stenog" in "Gleanings in Bee Culture."

RE-QUEENING COLONIES DURING SUMMER

BY C. P. DADANT.

The re-queening of colonies, or replacing of queens by younger ones has been much discussed. Some of our large producers have advocated the replacing of queens every two years. One of our western leading bee-keepers has even advised and practiced re-queening, that is, removing the queen to compel the bees to rear another, and thus making an interruption in the breeding. When this method was recommended, I wondered if it was possible to follow such a method and succeed. My view is that bees need their queen at all seasons. It is true that they need her less in the summer, after the crop is over, than in the Spring, before the crop begins, but the depletion of bees by colonies in the summer is so prompt, that there is need of constant refilling of the ranks by new additions, though they need not be so numerous. So I felt that this was a move in the wrong direction.

Later, I had occasion to meet the person in question and to inquire as to the success of his idea, and he acknowledged that it was not satisfactory, though in his opinion this lack of success was due to the conditions of the crop and dates of the harvest of honey. But I doubt very much if any conditions can be found that will justify a killing of queens to compel the bees to rear others, thereby losing some 20 odd days of breeding. In addition to this loss there is also a risk of the loss of some of the young queens. In fact we can safely calculate on losing about ten per cent. that will either be lost in their wedding flight or that will prove worthless. To eliminate good queens that may prove still

good for another year, and run the risk of having a part of them, at least, repaced by worthless ones, is a mistake.

It is also a mistake to re-queen hives that have good prolific queens, just because they are two years old. If the bees did not usually change their queens by rearing another as soon as they notice that she is failing in her laying, there would be good excuse, for such an action, but there is no doubt that the bees do change their queens whenever they lessen their breeding, and it is only in exceptional cases that a colony allows itself to run down because its queen has entirely lost her fecundity. Those who clip their queens' wings have noticed how often these queens are replaced without the knowledge of the apiarist. If this were not the case, an apiary in which no queens were replaced artificially would soon dwindle down to nothing.

But it is advisable and even necessary to replace queens when there are evident signs of lack of prolificness. In my experience extending over nearly 40 years, with several apiaries, I have noticed that the bees are less likely to replace a queen that is only of very moderate prolificness, but whose capacity is unchanged; that is a queen that from the first has been of but little value, than to change a queen which has been all her life vigorous and begins to fail. Our attention must therefore be directed to the naturally inferior queens—to those colonies that have given but little crop. It matters but little whether the queen looks bright, if she has not filled her combs with eggs she should be condemned, and looks should not be considered. Not only must those queens be changed, but the bees must not be allowed to rear others of same blood. Too often our bee-keepers have paid attention to the looks of the bees rather than to their working qualities.

That is why so many of our bright Italians are sluggish and slow though beautiful to look at.

The months of August and September are good months in which to change queens, because queens are plentiful and cheap at that time. We have also been able to discover the poorest and the best colonies.

Those who have produced neither honey nor swarms can probably be made to give a good harvest the following year by changing the queen.

If we expect to rear our queens ourselves, we must be sure and have the queen cells from the most prolific, and at the same time the gentlest colonies in the apiary, if these two qualities can be found united in the same colony. If we breed from the best honey producers we will be sure to make no mistakes. But let the queens be reared and laying before we attempt to change our breeders. Better have a queen of mediocre value in a hive than an interrogation point.

As a matter of course if we buy, we must know the man of whom we buy our queens, and we must get young queens from an apiary where foul-brood is unknown, for there is but little doubt that this disease may be transmitted by the queens, though it is probably only in exceptional cases. Honey, being used in the larval food is much more likely to spread the contagion than any other thing. But there is too much danger in foul brood for us to risk anything from a foul-broody apiary. There are plenty of good reliable breeders, and the business of queen-rearing has become so much of a specialty that it is hardly worth our while to rear queens. I never realized the truth of this as vividly as I did when at the St. Louis convention. Mr. Gill, of Colorado, one of the most practical honey-producers in the United States, said that it did not pay him to rear his queens; that he preferred buy-

ing them, although he needs several hundred every year. Scientific queen-rearing requires a special outfit, and daily care, and is better conducted as a specialty.

Let us bear in mind that the best time to introduce a queen is during a flow of honey; that robbing is the greatest incentive to the killing of strange queens by the bees, and that after we introduce the queen it is best to let the colony alone for several days. Queen-introducing is always more or less risky. Some apiarists will tell you that there is nothing difficult about it, that they have always succeeded. You can just rest assured that the man who has always succeeded is the one who has done the least of it. We practiced introducing in former days when we imported some 40 queens from Italy every season. The best method in my opinion is the one now generally used by breeders; Cage the queen in the hive, just after removing the old one, and let the bees liberate her by eating their way to her. — American Bee Journal.

"LEBKUCHEN" OR SPICE CAKE

It's German, and called by the Germans "Lebkuchen," taken from Praktischer Wegweiser. Boil a quart of honey in water to which has been added the rind of a lemon. When cooled to milkwarm, add a quart of rye flour, and one of wheat flour, besides two ounces of cinnamon and cloves, then a handful of preserved orange peel cut fine, a heaping tablespoonful of soda, the whole thoroughly mixed.

Knead this dough well upon the board, roll out as thick as the little finger, cut into cakes, glaze with the white of an egg, put almond meats on top, and bake in tins in a tolerably hot oven. While still hot glaze with powdered sugar stirred thick into water, which immediately dries into a glass-white glazing.

These cakes keep well in tin cans, and are excellent.—Emma M. Wilson, in American Bee Journal.

QUERIES and ANSWERS

[Department conducted by Mr. R. H. Smith St. Thomas, Ontario. Queries may be sent direct to Mr. R. H. Smith or to the office of the Canadian Bee Journal.]

"What kind of a building would be most suitable for wintering bees, stone or cedar, above ground or underground?"

"What would be the most suitable to put under the hives to prevent the dampness—would you advise a plank floor, or leaves or felt paper, and what distance should the hives be raised from the ground?"

John Mahon,
Rupert, Que.

Answer to Questions.

For the province of Quebec I would not recommend any kind of building above ground as a repository for wintering bees, but if such a building were used, cedar being a better non-conductor than stone, would be the better material to build it with. The walls of such a building should not be solid, but built with two tight air spaces. The most satisfactory place I have found to winter bees in is a good cellar built of stone or concrete entirely below the ground level, under a dwelling or other building, where the temperature can be maintained at from 44 to 50 deg. F. The dryer the cellar the lower the temperature may be, within the above limits. I have not found that dampness will be injurious to bees in a temperature of 48 to 52 degrees, while a long-continued spell with the temperature 40 degrees might cause a heavy loss of bees. I would not advise a plank floor for a bee cellar, as the bees would be likely to feel the jar

from a person walking over it. I would prefer an earth floor if it was dry. A good cement floor would be the best. It would be solid, would not decay, and would prevent the dampness from rising; leaves or paper are not necessary. Hives should be placed on stands about 15 inches high, place the first hive on the stand with the back end raised an inch higher than the front, then raise the rear end of the hive off the bottom board and block it up with 3-8 or 1-2 inch blocks, remove the cover (leaving the quilt over the bees) and place the next hive on top of the first and treat it in the same way; they may be tiered up three or four high. We find it advisable to place each tier on a separate stand to avoid disturbing the other bees. If many colonies are placed in the cellar, a good system of ventilation should be provided, so as to keep the air pure in the cellar.

R. H. SMITH,

St. Thomas, Ont.

WILL POOL HONEY CROP.

At a meeting of the San Diego Honey Producers' Association it was decided to pool their crop and work on the co-operative plan this year. It was voted to rent a warehouse in San Diego and have all the honey brought to this place, to be graded and sold, or held for better prices if the market is not in a satisfactory condition. It is thought that if most of the honey producers in the county bring their honey here the prices can, to some extent, be controlled. The price at this writing range from four to four and one-half cents a pound for extracted honey, and the San Diego Union says it is likely to fall to four cents. The estimates of the value of the honey crop in San Diego county this season varies. Some put it as low as \$20,000, while others put it at the \$100,000 mark.—Rural Californian.

MOVING BEES SHORT DISTANCES.

It is well known that, if we move a hive of bees less than three miles, many of the bees when out at work, will recognize old landmarks, and return to the old location and be lost. Where the winters are severe and the bees confined to their hives for several months at a time, they could, of course, be moved at the end of that time without loss, as they take bearings afresh on the return of warm weather; but here, where the bees can fly all the year round, these conditions do not exist.

I prefer to move during late spring or early summer, when the bees are at their busiest time preparing to swarm. The first thing I do is to draw the hives close together into groups, each group consisting of from two to five hives, according as is most convenient, and requires least handling. I prefer to place three in a group. This moving must not be done too rapidly. I start by moving each hive about one foot a day, of course moving stand and all complete. The two outsides are thus brought nearer to the centre of the group. Sometimes the hives are very scattered, and it takes a long time to get them together. On each visit I move them a greater distance than I had done before, so that they will soon be going at the rate of four or five feet a day. If the distance is far I turn round the hive a little each time, so that the back is looking the way the hive is to go. I do all gradually and quietly, so as not to disturb the bees more than I can help.

After the bees get used to this moving, the distance can be rapidly increased per day. They get educated to following their hive up, and I have often shifted it as much as 25 feet at a time. When they see the front of the hive looking toward the place it was taken from, they follow it up much more readily. On reaching the centre it should be turned round again, and will be looking the same way.

Having accomplished this and got all

the hives into groups, I next come along some day, when the weather is bright and warm, and the bees flying,—preferably in early afternoon. I select the weakest hive in each group and give it a good smoking. This is done to prevent fighting and make them treat strangers with civility. I then remove the rest of the hives that have composed that group, setting them down temporarily, a few yards away, so as to get all away quickly, and not let any fighting start. The flying bees, finding only one hive left, all go into that one. On account of the smoking, the guards will not offer resistance, and there will be no fighting, but all the same I smoke them again after a few minutes to make sure. The removed hives are then taken right away to their new stands, and what was a weak colony will now become a powerful one; and if it does not pile in the honey, it ought to. If increase is desired and all the hives are strong, I prepare a new hive having one frame of brood, and a queen cell, and the rest as for a swarm. I then remove all the hives from the group, leaving only the empty one in their stead. This is a most excellent way to make increase.

The second process has now been accomplished, and we have the majority of the hives removed to their new locations, but there still remains one hive in each place where a group has stood. We now proceed again as in the first case, and draw up the remaining hives into groups, and these groups will again be removed, with the exception of one hive. By this means the entire apiary will soon be reduced to one group, and finally to a single hive. This hive should be left there for several days so as to receive all the bees that may return, when it also will be removed.

By following process we lose only the bees that return from one hive, instead of from, say fifty hives, or every hive in the apiary. Instead of a loss, as is usually the case, the manipulation has resulted in a gain, either in honey, for it will have discouraged swarming or else an increase in the number of stocks. If the last remaining hive is removed in the evening, and taken a distance of three miles or more, we have accomplished our object, and not a bee has been lost.

Fernhill, Napier, New Zealand, in "Gleanings in Bee Culture."

**Programme Ontario Bee-keepers'
Association Convention,
Toronto.**



**Wednesday, Thursday and Friday,
November 15th, 16th, 17th.**



Wednesday, November 15th—

- 2.00 p.m.—Minutes and discussion.
- 2.30—President's address. Vice-President to open discussion.
- 3.30—Address by Hon. Nelson Monteith, Minister of Agriculture.
- 4.00—Paper read by Mr. R. H. Smith, St. Thomas, on "Systematic Advertising and Marketing of Honey," G. A. Deadman to open discussion.
- 5.00—Question Drawer, Mr. W. J. Brown, Chard, in charge.
- 7.30—Address by Prof. F. Shutt, Ottawa, on the "Food Value and Various Uses of Honey."
- 8.30—Paper by Mr. R. Lowey, Cherry Valley, on "The Production and Care of Comb Honey," Mr. Morley Pettit to open the discussion.
- 9.30—Question drawer.

Thursday, November 16th—

- 9.00 a.m.—Paper by Mr. F. J. Miller, London, "Are Amendments Necessary to the Foul Brood Act?" Mr. A. E. Hoshal to open the discussion.
- 10.00—Paper by Mr. John Fixter C. E. F., Ottawa on results of experiments. Discussion opened by Mr. W. A. Chrysler, Chatham.
- 11.00—Official reports.
- 2.00 p.m.—Paper by Mr. Morley Pettit, Belmont, on "What Can be Done to Make the Association More Useful to Bee-keepers," Mr. J. L. Byer to open the discussion.
- 3.00—Election of officers.
- 4.00—Question drawer, Mr. J. Alpaugh, Galt, in charge.
- 7.00—Address by Prof. F. C. Harrison, O. A. C., Guelph.
- 8.00—Addresses by American visitors.
- 9.00—Address by Mr. Arthur Laing, Ash, on "Bee-keeping in Canada vs. Bee-keeping in Jamaica."
- 9.30—Question drawer, Mr. John Newton, Thamesford, in charge.

Friday, November 17th—

- 9.00 a.m.—Unfinished business.
- 10.00—Paper by Mr. Dennis Nolan, Rewton Robinson, on out-apiaries, discussion to be opened by Mr. C. W. Post, Trenton.
- 11.00—"Points in Judging Honey, and Where Exhibitors Failed at the Honey Show," by the judges.