

The Canadian Bee Journal

Devoted to the Interests of Bee-Keepers

Vol. 18, No. 5

May 1910

\$1.00 Per Annum

Can you Solve the Problem?

SHALL we look for progress and advancement along apicultural lines from those who seek the line of least resistance, and who drift along with the tide, or from those who with a grim determination that knows no defeat, overcome seemingly unsurmountable difficulties, turning defeat into glorious victory? Bee-Keeping is still in its infancy; but little is yet known about the perfect control of bees which is the foundation of the most perplexing problems of apiculture. It is a mistake to suppose that we can attain to the highest success, financially or socially, by following the line of least resistance. For generations the bee-keeper has been a bearer of heavy burdens, over a pathway of uncertainties; for generations the pursuit of comb honey production has been fraught with disappointing results, and vexatious losses, on account of the inability of man, with all his boasted wisdom and superior intellect, to control the swarming impulse of bees with economy of labor. With this problem once solved, comb honey can be produced in our apiaries cheaper than extracted, and with the difference between the price of these two commodities, it is easy to see which it will be the most profitable to produce.—J. E. Hand, in Bee-Keepers Review.

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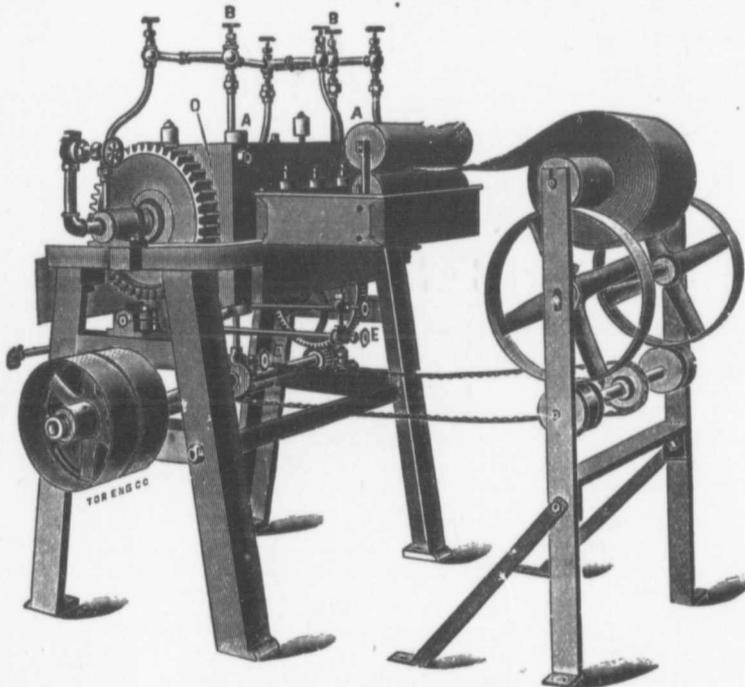
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The Canadian Bee

Devoted to the Interest

JAS. J. HURLEY

Published monthly
The HURLEY PRINTING CO.
Brantford, Ont.

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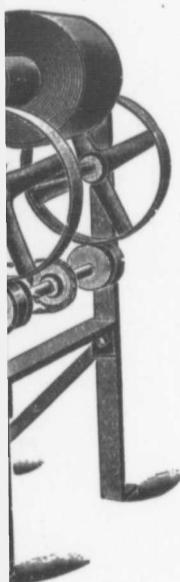
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Place of Meeting: Toronto. Hall and dates to be selected by Executive.

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The Canadian Bee Journal

Brantford

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Canada

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JAS. J. HURLEY

Vol. 18, No. 5.

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May, 1910

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Journal
Canada

The Canadian Bee Journal

PUBLISHED MONTHLY

JAS. J. HURLEY, EDITOR, BRANTFORD, ONTARIO, CANADA

Vol. 18, No. 5.

MAY, 1910

Whole No. 543

The last week or ten days of April was very wet and cold, and we fear a large number of hives have been caught with heavy brood-nests and exhausted stores. They were wise bee-keepers who fed a little at this time.

* * *

Watch the weather conditions closely during and after the close of fruit bloom. The weather gives indications of continuing cold. The bees have been breeding heavily and shortage of stores now would be a great calamity. After fruit bloom there may be absolutely nothing to gather for two weeks. This is a critical time in which feeding should be plentifully but judiciously resorted to. Not too much at a time, but often. Do not under any circumstances allow a check to brood-rearing at this time. These are the bees that will gather your harvest. If there are any indications that the bees are removing larvæ apply the feeders at once

* * *

We notice in the Family Herald and Weekly Star, Montreal, that Mr. Holtermann, in reply to a question by a subscriber, makes the unqualified statement that "a large hive (a twelve-frame Langstroth) is much better than an eight frame." In view of the fact that this is a disputed question, we do not think that this statement should go unchallenged. There are some experienced bee-keepers who think that eight-frame is large enough; others think the nine-frame is best; others that the ten-frame is the happy medium, while there are but very few who favor the twelve-frame. We do not hesitate to take issue with Mr. Holtermann in this statement. The twelve-

frame is too large to winter in; it is too large for spring; it is too large for fall. There is, in our opinion too much "barn" room for the bees to keep at the necessary temperature. We would like to hear from some of our readers upon this question, Mr. Holtermann among the number. If we are wrong we will be glad to have it proven so. We would not recommend anything larger than nine or ten frames.

* * *

We have had the pleasure of a call from Mr. W. White, of Tiptree, Essex, Eng. Mr. White has determined to take up his residence in Canada. He comes highly recommended. He is a certified expert of the British Bee-Keepers' Association, and has had extensive experience in all branches of bee-keeping. He is also an expert in market-gardening and fruit growing. It is his intention to enter into these lines for himself, after he has had an opportunity of looking over the field. For the present he has engaged with Mr. W. J. Clark, of Cainsville, and will take charge of his fruit and bee interests during the coming summer. Mr. White impresses us as being a very refined and cultured man, and we feel that amidst the opportunities that Canada offers, his success is assured. He has contributed largely to the apicultural press, and we hope to have something from his pen shortly.

* * *

In a very interesting letter from a subscriber in New Zealand we are informed that there are over ten tons of candied honey cut into blocks and wrapped in paper and placed upon the

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King Edward VII, peacemaker and English gentleman, is no more. King George V reigns in his stead. His death has cast a gloom, not alone over the British Empire and its dominions beyond the seas, but over the entire civilized world. His life and work will add another illustrious page to British history, and his memory will long remain in the hearts of his loyal and loving subjects. Requisite in pace. Vive le Roy!

* * *

Further correspondence with Mr. N. E. France, and also with Mr. Hodgetts, reveals the fact that our statement last month that one dollar was sufficient to secure membership in the O.B.K.A. and also the National, was in error. It should have read one dollar and fifty cents. This secures all the privileges of both associations, together with all reports, and the Canadian Bee Journal for one year. Or fifty cents sent direct to Mr. France will secure membership in the National together with all its privileges.

CHALMERS' OBSERVATIONS.

Indexed **Spongy Wax.**

If I understand Mr. T. W. Cowan aright, Mr. Editor, in your April frontispiece, I would take him to say that spongy wax is caused by using hard water. It may be so, but I find it occurs with either soft or hard water. My cistern is bricked and cement plastered on the bricks, seems to be perfectly watertight, and I do not suppose any evil effects would come off the cement as it is on now for some years, so I consider the cause of spongy wax will have to be traced to something else than using hard water. It does not seem to be due to overheating either (as I partly suspected) for we can take say fifty pounds of wax and put it in the steamer to re-render, which will make eight or nine cakes, and the strange thing about it is that we always find that when there is any sponginess it is found on the underside

of the first two or three cakes, never on the wax which has been longest in the steam. I would like to see the trouble solved, but from my observations so far cannot accept Mr. Cowan's solution which theory we have also heard advanced at the bee-keepers' conventions.

[We quoted that particular paragraph because it was in complete agreement with what Mr. Byer said at the last O. B. K. A. convention. A number of persons at that time disagreed with him; but the same idea coming from Mr. Cowan, and apparently endorsing Mr. Byer's opinion, we thought it of some importance as further light upon the subject.—Ed.]

Ventilation.

Mr. W. T. Davis in his "Points," page 109, April C.B.J., seems to resort to upward ventilation with a view to keeping his bees at work. I know that Mr. Davis is a good bee-keeper, but must differ with him (and many others) on this mode of ventilating hives, for the simple reason that supers parted and supported so, will admit light as well as air and thereby attract the field bees on their exit and as well as being thus retarded they will worry and abuse themselves trying to get out. More than that, it must upset the bees' system of carrying on evaporation. If ventilation can be given right through under the brood chamber, over the bottom board, with the back shaded so as not to admit light, I believe it is just as efficacious in the way of keeping the bees at work as upward ventilation. I don't think any one can prove that upward ventilation in summer time is a necessity.

Apiarian Uniform.

Mr. J. W. Henderich in April C.B.J., page 112, describes me as being "easily recognized" in the engraving "in apiarian uniform which I recommend." There is very little difference in my uniform from that of others, only I recommend and practice rolling the shirt sleeves up to the elbows when at work amongst the bees. By this the apiarist will not be stung

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about the wrists so much as when the sleeves are down.

When the sleeves are down there is less or more odor from the body carried to the wrists which attracts the bees and cause them at times to go for that particular part.

The veil I use at home is fastened to the hat and to a wire bent to suit the round of the shoulders; this is easily dropped over the head and secured in place by elastic bands, one of which is fastened at the back of the wire and to the centre of a band which is brought forward and united in the front by a hook and eye. A short piece is also fastened to the front of the wire and hooked into the band which comes around the body.

Stolen Goods.

In May 1st Gleanings, Mr. R. F. Holtermann in his "Notes" says: "To Jacob Alpaugh, inspector of apiaries, credit is due for the idea of warning, by letter, the bee-keepers in foul brood districts against allowing bees to rob out hives in which colonies perished during the winter or early spring."

If Mr. Holtermann will turn up 179 of May, 1909, Canadian Bee Journal, he will find Mr. Jacob Alpaugh telling us in his own words that during the last two weeks in April he went over what he considered the foul brood section of his territory," etc., etc.

Let Mr. H. also read Mr. Byers' "Notes" same Journal, page 166 to be told what kind of weather we had in April, then let him look up the July C. B. J. and on page 253 he will see who warned bee-keepers by letter, etc.

Instead of giving credit, I consider there was great room to question the wisdom of Mr. Alpaugh's expenditure of public funds at that particular time, so will refrain from further comment or from attempting to suggest the amount of credit there is due the writer of "Notes from Canada" as a truthful writer.

DAVID CHALMERS.

Poole, May 7th, 1910.

THE APIARIES ACT.

Convictions at Otaki, New Zealand.

The first cases heard under the Apiaries Act were brought before Mr. A. D. Thomson, S. M., at Otaki, when Mr. W. B. Bray, Inspector of Apiaries, proceeded against Alfred Catly, of Manakau and Hoani Tawhiri, of Otaki, under section 9 for keeping bees in other than frame hives in compliance with written notice to do so.

Evidence was given by the informant that he had visited the defendant's place at Manakau on December 17th last and had given him written notice to transfer his bees within fourteen days to frame hives. When he again visited the place on February 18th the bees were still in the box hives.

The Magistrate said as this was the first charge under the Act a small fine would meet the case. He took it that proceedings had been taken to show the defendants and others that the provisions of the act had to be complied with. It was now necessary for everyone who kept bees at all to keep them in the proper hives.

Mr. Bray asked leave to withdraw the second charge provided a conviction was obtained on the first. Defendant was, therefore fined 5s. and costs on the first charge, the Court consenting to a withdrawal of the other information.

Hoani Tawhiri pleaded guilty to the first charge and was fined 1s. and costs. The second charge was withdrawn.

[Our Ontario Foul Brood Act: 6 Edward VII, 1906, gives our Inspectors similar powers, though we do not know of an instance where a case has actually been prosecuted. Sec. 4 of the above act says: "The inspector shall have full power, in his discretion, to order the owner or possessor of any bees dwelling in box or unmovable frame hives within a specified time, and in default the inspector may destroy, or order the destruction of such hives and the bees dwelling therein." 10 E. 7, C. 27, S. 4. It appears that this fact is not generally known.—Ed.]

QUEENLESS HIVE IN

Indexed

I have a very strong hive out a queen. I gave it a n with one, two and three-day had also capped brood, but drawn out any queen cells frame from one of my best I got forty or more Italian Mr. Frank Adams of Brant advise me the next best mo another frame of eggs wou draw out a queen cell? Whic sider the best plan of gettin also explain Pratts' simple read so much about in the but never an explanation.

ALEXANDER

Enfield, April 29, 1910.

Reply.

It is always a difficult pr just what to do with a qu early in the season. The s taken so far are correct; th them with uncapped broo other colonies. The fact th not started queen cells w that there is a queen of s in the hive. Either the c failed and the bees have r ceeded her, or they have l virgin that has not yet c lay. Virgins raised in th early in the season are f perfectly developed and are mating. They stay in the l vent the introduction of new also prevent the bees from queens for themselves. Th to do is to hunt up the w and destroy her, before att roduce another to the colou has been found, our advice your bees are Italians, to p weak colony that has a go place it quietly on top o queenless one. You will b a few days to see how quic in the upper colony will

APIARIES ACT.

Otaki, New Zealand.

heard under the Apiaries Act before Mr. A. D. at Otaki, when Mr. W. of Apiaries, proceeded to Manakau and Otaki, under section 9 for other than frame hives in written notice to do so. given by the informant of the defendant's place December 17th last and written notice to transfer fourteen days to frame again visited the place the bees were still in

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I leave to withdraw the ovided a conviction was first. Defendant was, t. and costs on the first t consenting to a with- er information. e pleaded guilty to the was fined 1s. and costs. e was withdrawn.

Foul Brood Act: 6 Ed- gives our Inspectors sim- gh we do not know of e a case has actually Sec. 4 of the above act tor shall have full po- iscretion, to order the r of any bees dwelling in e frame hives within a d in default the inspec- or order the destruction the bees dwelling there- 7, S. 4. It appears that enerally known.—Ed.]

QUEENLESS HIVE IN SPRING.

Indexed

I have a very strong hive of bees with- out a queen. I gave it a frame of brood with one, two and three-day old eggs. It had also capped brood, but it has not drawn out any queen cells. I took the frame from one of my best Italian hives. I got forty or more Italian queens from Mr. Frank Adams of Brantford. Kindly advise me the next best move. If I give another frame of eggs would they likely draw out a queen cell? Which do you consider the best plan of getting queen cells; also explain Pratts' simple way that I read so much about in the bee journals, but never an explanation.

ALEXANDER SMITH.

Enfield, April 29, 1910.

Reply.

It is always a difficult problem to know just what to do with a queenless colony early in the season. The steps you have taken so far are correct; that is to supply them with uncapped brood from your other colonies. The fact that they have not started queen cells would indicate that there is a queen of some kind still in the hive. Either the old queen has failed and the bees have not yet superceded her, or they have hatched out a virgin that has not yet commenced to lay. Virgins raised in this way very early in the season are frequently not perfectly developed and are incapable of mating. They stay in the hives and prevent the introduction of new queens. They also prevent the bees from raising other queens for themselves. The only thing to do is to hunt up the worthless queen and destroy her, before attempting to introduce another to the colony. After she has been found, our advice would be, if your bees are Italians, to pick out a very weak colony that has a good queen and place it quietly on top of the strong queenless one. You will be surprised in a few days to see how quickly the combs in the upper colony will be filled with

brood. We mention Italians in this connection because they unite more readily than the blacks. The same can be done with blacks if you are very careful to put them together without any disturbance. A cool cloudy day is best for this work.

The Pratt system of rearing queens does not differ materially from the other systems used, except that Mr. Pratt advocated very small nuclei for mating the queens. He had a number of very ingenious devices for starting cells some of which are now used quite extensively for this work. Among them might be mentioned a hive fitted with small frames in which he kept the breeding queen, and as brood was required one small frame was taken out and replaced by an empty one, thus keeping up a constant supply of young brood for transferring into the cell cups. His cell cups were small wooden cylinders, hollowed out on one end and filled with soft wax. This wax was then punched out by a special die to the shape of a natural queen cell in which the young larva was placed. In some cases he got the breeding queen to deposit eggs directly into these cups, but ordinarily we believe he transferred the larvæ a la Doolittle. As before mentioned he used very small clusters of bees for mating up the queens.

It is difficult to say which system is the best. Most queen breeders use a combination of different systems, with a few extra kinks of their own added.

With regard to feeding the colonies from which you reared queens by the plan named, I am not quite sure whether you mean the colony with the empty combs in which the cells were being developed, or the old colony with the brood which you set off to one side. Of course, naturally the old colony would feel pretty blue with the best part of its workers gone and nothing left but a few young bees running around on the combs, but if lots of honey were coming in the queen rearing colony should be as active as a newly hived swarm. If little or no honey

were coming in we should say to feed the cell building division certainly, as the quality of your queens would depend directly upon the abundance with which they were fed.—Ed.]

A FEW QUESTIONS.

I have been helped in my bee-keeping by reading the C.B.J., but I think an improvement could be made in the paper by devoting one or two pages to questions to be answered by the Editor or some of the most prominent Canadian bee-keepers. Of course your subscribers will have to furnish the questions. Here are a few to start with:

1. What would be the best time of the season to transfer bees from box hives to the ordinary frame hives.

2. Can bees be wintered successfully in a house built for that purpose? If so, how should it be built?

3. Do bees get nectar as well as pollen from tree buds, such as elm and maple?

G. E. WEBB.

Sunbury, Ont.

Reply.

We welcome all the questions sent us.

1. About the middle of June, when the honey flow starts.

2. They can, but we would not advise it. We think it would be an extravagant expenditure. Winter in your cellar. If you have not got one, it would pay better to make one for its general utility. With proper packing cases, either single or double, you can winter your bees outside as successfully as in a cellar or such a house as you mention—in fact we believe more so. Such a house, if built, should be of double walls—wood or brick—well ventilated at the top, with a fresh air supply at the bottom. House to be kept very dark and floor dry.

2. Yes.—Ed.]

LIST OF APIARY INSPECTORS 1910.

The following are the apicultural inspectors for the ensuing year, as furnished by the Department of Agriculture:

1. J. S. Schrank, Port Elgin, Bruce and Huron.

2. D. Chalmers, Poole, Waterloo and Perth.

3. William Idle, Clarksburg, Wellington and Grey.

4. W. A. Chrysler, Chatham, Lambton, Kent and Essex.

5. John Newton, Thamesford, Middlesex and Elgin.

6. James Armstrong, Cheapside, Norfolk, Haldimand and Welland.

7. W. Bayless, Grand View, Oxford and Brant.

8. Alexander Robertson, Waterdown, Wentworth and Lincoln.

9. Arthur Adamson, Erindale, Halton, Peel and Dufferin.

10. Hy. Johnson, Craighurst, Simcoe and Muskoka.

11. J. L. Byer, Mount Joy, Ontario, York, Victoria and Durham.

12. W. Scott, Wooler, Peterboro, Northumberland, Hastings and Prince Edward.

13. J. B. Checkley, Linden Bank, Lennox and Addington, Frontenac and Leeds.

14. A. A. Ferrier, Renfrew, Renfrew, Lanark and Carleton.

15. Alexander Dickson, Lancaster, Russell, Prescott and Glengarry.

16. Homer Burke, Tayside, Grenville, Dundas and Stormont.

[As we go to press we are informed that two of the above inspectors have resigned, thus leaving two more to be appointed. William Idle, of Clarksburg, has been advised by his physician not to act. Mr. A. A. Ferrier of Renfrew, we are sorry to learn, has resigned.—Ed.]

VENTILATION.

Results of Experiments

Dear Sir,—Some time ago to give you a few thoughts I appealed to me in my experience the bees on the subject of winter hives.

Looking back over the many improvements which have been made in the bee-keeping fraternity since the straw skeps, we have, indeed, a great deal to be thankful for.

There has been wonderful progress in making the most out of the natural history given by God for our use and enjoyment.

But in the matter of ventilation I thought for a long time that I had been too conservative and stuck to the old straw skep idea of that era. At the lowest part of the hive I thought it seems to me it ought to be better. Now, please, don't jump on me together, before I explain myself. For seven years ago, my attention was called to the fact of some bees being quartered in the gable of a stable one mile of where I live; and I was even to this day, doing well. I was taking off one and two swarms at a time. They are tremendous swarms. The space they occupy is 8 feet long, 10 feet high and 12 inches wide, and the point of entrance is at the high end of their home. I made a mistake. The owner of the stable soon told me to let me take them out, but I would not let anybody touch them, so they were apparently doing well.

Thinking, especially as the winter had never before, I had never attempted to winter bees in a winter stand went under. Now, with my experience with my own bees, I am on this point. Last fall I took a 1/2 inch bit (one inch bit) and bored a hole up as I could under the cover of the front of the hive and put it in the cellar and (20) just inside

BEE INSPECTORS 1910.

are the apicultural in-
ensuing year, as furnished
ment of Agriculture:

nk, Port Elgin, Bruce and

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press we are informed
above inspectors have re-
ving two more to be ap-
m Idle, of Clarksburg,
by his physician not to
Ferrier of Renfrew, we
t, has resigned.—Ed.]

VENTILATION.

~~Approved~~

Results of Experiments Promised.

Dear Sir,—Some time ago I promised to give you a few thoughts which have appealed to me in my experience among the bees on the subject of ventilation of hives.

Looking back over the many and great improvements which have been given to the bee-keeping fraternity since the days of straw skeps, we have, indeed, a great deal to be thankful for.

There has been wonderful strides made in making the most out of the wonders of natural history given by God for man's use and enjoyment.

But in the matter of ventilation I have thought for a long time that we all have been too conservative and stuck to the old straw skep idea of that entrance down at the lowest part of the hive, when as it seems to me it ought to be at the top. Now, please, don't jump on me all together, before I explain myself. Some six or seven years ago, my attention was called to the fact of some bees which were quartered in the gable of a stable within one mile of where I live; and there they are even to this day, doing well and moving off one and two swarms a year and they are tremendous swarms too. The space they occupy is 8 feet long, 6 inches high and 12 inches wide, and the point of entrance is at the highest peak or point of their home. I made an offer to the owner of the stable some years ago to let me take them out, but he won't let anybody touch them, so there they are and apparently doing well. This set me thinking, especially as the only hive I have ever attempted to winter on its summer stand went under. Now, for my own experience with my own bees this winter on this point. Last fall I took brace and bit (one inch bit) and bored holes as far up as I could under the cover and in front of the hive and put them (14) in the cellar and (20) just inside; darkened

and ventilated the shed about the 10th of November, where they wintered. I took out the twenty first and set them out on the 5th of March, and the fourteen on the 17th of March, on their summer stands, and I must say I have not in my nine years experience had them come out in such good shape as this year. Looking through them two weeks ago, I saw drones being hatched. Of course this year has been early and they have all got away to a good start. Now, I don't want anyone to misunderstand me about that one inch hole up near the top of the cover. They had also from a third to one-half of the lower entrance open too. Of course when the bees were set out that inch hole was plugged up with a cork for I know from bitter experience it don't do to have more than one entrance to a hive, excepting at the honey flow. Should I be spared through another year to follow up my work with the bees I propose to open up four or five inches right over the frames for a permanent entrance, and close the bottom one at the end of the harvest. These I shall winter outside on their summer stands protected in a winter case.

Now, if my presentation of these few ideas will be of interest to any of your readers I will feel fully repaid for I do not want to be like a sponge in getting so many good ideas from your valuable paper on our business as bee-keepers, and not give out any myself. As before intimated I will give your readers the result of my experiment next year D. V.

CHAS. RYDE,

Guelph, Ont.

HOW FARMERS CAN PRACTICE CONSERVATION.

Canada, being a nation of farmers, has to pay a very large seed bill each year. Last year our crops called for 33,000,000 bushels of seed grain—wheat, oats and barley, and we are constantly increasing our agricultural acreage. This being so, the economy of sowing good clean seed

is at once apparent. The advantages to be derived from it are like the proceeds of a sum of money laid out at compound interest—they are cumulative in their effect and grow in ever increasing ratio. Some years ago a competition was carried on in some 450 places in Canada to see just what the actual results of using clean pure seed would be. If we reason from the results obtained from it, we find that our grain yield last year would have been increased by 190,000,000 bushels had clean vigorous seed been sowed on every acre under cultivation. Now, 190,000,000 bushels of grain would fill 1,500 miles of railway grain cars. It is such a large amount that it is hard for the mind to comprehend, but, at any rate, it goes to show that it would pay our farmers to be particular about the kind of seed they sow.

ONTARIO DEPARTMENT OF AGRICULTURE.

Fruit Branch—Circular to Correspondents

Kindly answer as fully as possible the questions given below. This information is desired for the usual spring report on the bee-keeping industry of Ontario. All the information you can give about bee-keeping in your neighborhood will be valuable. Please mail in the enclosed envelope not later than the end of May. Postage free if not sealed.

P. W. HODGETTS, Director.

- What is your name?
 Post Office.
 County.
 Township.
 Con. Lot.
 What is the prevailing soil of your neighborhood?
 What is the sub-soil?
 Is there good drainage?
 What are your chief honey plants in summer?
 What are prospects for honey this season?

Have you a Fall honey flow?

Does it yield surplus?

What source?

What was the number of colonies in your apiary in fall of 1909?

Present number?

If any change state cause.

What is general condition of bees this spring?

How were your bees wintered?

What winter stores were fed, honey or sugar syrup?

Give date of removal from cellar or packing cases?

Have you noticed any disease or pests among your bees?

Give fully their nature.

Are your bees Italian or what?

What is the name of the make of hive you use?

How many combs in the brood chamber?

If it has no name give dimensions of frame.

How many years have you been a bee-keeper?

What has been your chief difficulty in bee-keeping?

If you are not a bee-keeper kindly sign name and address and add the words "Not a bee-keeper" and return. Please give as far as possible names of all other bee-keepers in your township.

[The above notice has been sent out by the Government in large numbers, and it is to be hoped that all fruit men, bee-men, farmers, and others, will take time to reply. It will give the government much valuable information, and this information enables the government to assist us in various ways where we cannot help ourselves. If you have not received the above sit down and copy out the questions with your answers following.—Ed.]

Last fall I had four swarms good and strong. From 200 lbs. of extracted honey here is generally very good here in months. When winter comes to leave them on their feet and risk them coming through winter was not very severe. New Year. Then we had several feet in depth. covered up with snow and for several weeks, when come on and melt some of the hives. I would ban snow again. They came right and at present they are 74 in the shade. Yesterday working strongly. I had three good flights winter. One about Christmas between the 1st of January and 1st of March. Can you beat it? I now have, in the season, good strong hives.

S. M.

New Glasgow, N.S.

[You have done very well, Kenzie, but you took good care of your wintering. We will try to do so again. Please let us know next time. This is an exceptional one. Bees gathered pollen the 1st of February and first of March. soft maple, but last year it was more later. If you will let us know next winter, you will have a chance of losing all your bees.

* * *

I wintered 55 colonies and they came out in good shape on the 28th of March. I will gather pollen the same day.

W.

Mitchell.

SPRING REPORTS

Wintered on Summer Stands.

Last fall I had four swarms. They were good and strong. From them I got over 200 lbs. of extracted honey. Our winter here is generally very severe for four months. When winter came on I decided to leave them on their stands all winter and risk them coming through. The winter was not very severe until after the New Year. Then we had snow storms several feet in depth. The hives were covered up with snow and were that way for several weeks, when a thaw would come on and melt some of the snow from the hives. I would bank them up with snow again. They came through all right and at present the thermometer is 74 in the shade. Yesterday they were out working strongly. I might state that they had three good flights during the winter. One about Christmas, and two between the 1st of January and middle of March. Can you beat that in Ontario?

I now have, in the second spring, four good strong hives.

S. M. MACKENZIE.

New Glasgow, N.S.

[You have done very well Mr. Mackenzie, but you took great chances with your wintering. We would not advise you to do so again. Put them in packing cases next time. The past winter was an exceptional one. Bees in Ontario were gathering pollen the latter part of February and first of March here, from soft maple, but last year it was a month or more later. If you winter in the same manner next winter, you will run great chances of losing all your bees.—Ed.]

* * *

I wintered 55 colonies of bees. They came out in good shape. I took them out the 28th of March. They started to gather pollen the same day.

W. H. STATTON.

Mitchell.

Strange spring we have had for our bees. In March and beginning of April fine honey gathering from soft maple and willows, and what excellent brood rearing; a nice lot of young bees by 20th of April; also hatched drones. Some colonies had seven and eight combs of brood. Since then later kinds of willows and fruit trees have come in bloom, but it has been cold every day and hives are getting light in weight, and brood rearing greatly checked, except where stimulating feeding is done. Usually we want no such feeding before fruit bloom, but would it not have been wise this year?

As to the different wintering in my two cellars. The warmer cellar, about 40-50° temperature, was best; the other cellar, 38-42° temperature, had the bottom rows rather damp, and more dead bees on the bottom board. So warm and dry is better than too cool, even if fairly dry.

Never before had we any mixing when setting out our bees, but this year, being set out at a warmer temperature than ever before and windy besides—we got it badly—had drifting and lots of trouble with robbing afterwards. We will not set bees out again in day time at a temperature of 70°.

As the Huffman frame was so much used and recommended, I purchased a few hundred of them the last two years, but I find the narrow frame more convenient. It was said they could be handled few frames at once. Yes, but very awkward if you want to look into the center of the brood nest, when you have to move the combs right from one end, and sometimes you have to disturb the bees more than they should be, especially when examining store and brood nest in early spring.

JACOB HABERER.

* * *

**Successful Wintering—Prospects Good—
Clover Seed Distribution.**

My bees wintered in first-class condition and came out strong; no loss out of 25 colonies. There was not a quart of dead bees in cellar; bottom boards clean.

Clover never showed up better in this locality. I distributed about 800 pounds of clover seed among farmers within a mile radius, letting them have it at cost, wholesale price. In this way I induced many of them to sow more alsike, and hope to get paid in honey for my trouble another season. The C.B.J. has been worth to me many times the price of subscription; through it I have been fully posted on foul brood matters.

JOHN A. MCKINNON.

Indexed

QUEEN TRAPS.

I enclose a stamped addressed envelope in which you will kindly advise as to the advisability of placing queen guards on the front of hives to prevent swarming; also when would be the best time to put them on if advisable. Thanking you in anticipation of your reply.
Norval Station, Ont. F. G. S.

[We would not advise the use of Queen guards in front of the hives. This is a played out little hobby. It traps the drones as well as the queens and does not allow them flight. No up-to-date bee-keeper uses them. Watch your hives for queen cells and you will be able to know pretty well when they are going to swarm. Instead of using those guards, we would advise you to clip with a sharp scissors one wing of the queen. Then when your hive swarms, go to the front of the hive and look closely for your queen. You will find her crawling around in front with a little bunch of bees around her. Pick her up gently and confine her in a cage or something that's handy, then move the hive that has swarmed to one side. Put your new hive on the old stand and let your queen run into it. By this time or a few minutes later all the bees will be coming back, as they will not go away without their queen. The result is you have your swarm hived with no trouble at all. Leave the old hive alongside of the new one for a couple of days, first turning it around so that the entrance will be at the back of the new hive. This will give you all the old bees

in the swarm, giving it the full strength of the old hive. After two days move the old hive to a new stand. The young bees hatching out together with the new queen will soon build up a good strong new colony. As a further precaution, you might lift out one frame of brood and give it to the swarm in the new hive. This generally prevents the bees swarming out a second time. With clipped queen there is always a danger of the bees swarming out at a time when you are not present to observe it. If such an event should arise your clipped queen will likely be lost. After the bees have returned to the hive and find themselves queenless, they will wait till one of the queen cells have hatched. When this queen goes out on her mating trip they will swarm out with her. Possibly there may be more than one virgin queen. In such case the bees may not return to the hive, and if they are not immediately hived they may depart. This demonstrates the necessity of your watching the condition of the hive and knowing what to expect. Clipping queen is a good plan if carefully worked. But if it is not worked properly it may prove disastrous. In no case, however, would we recommend traps.—Ed.]

A British Columbia correspondent refers as follows to our criticism of "E. A." of Victoria, B.C., whose report on Canada to the British Bee Journal, we criticized last month: "These freshmen, who are arriving daily, from all parts of the world, start to write up the industries, possibilities, advantages and disadvantages of the country before they have unpacked their trunk, totally unacquainted with local conditions, as to climate, market, etc. They either mislead the new-comer like themselves and deter the would-be settler from trying his chances in a new land of opportunities. To the right kind of man, young, strong, and willing, the whole of Canada offers chances of independence never dreamed of in the more congested centres of England."

INDEXED HONEY D

Is it Produced by Plantation of the

After hearing Colonel V paper maintaining that the production of plant the Chairman of the B. up the discussion and sides were right, because dew produced by exudati You will always find a honey-dew after hot and followed by hot and damp night is dry, you do not There are two causes honey-dew. First, insect the leaves, and digest c liquid they suck up, greater part in sticky c all know. Then, in the a there was the exudation c exudation forms in small under-side of the leaves, ore leaf to another. Th fed by experiment, and the experiment. If you a tree and put it in wat leaver to be in an atmo with moisture, after car the leaves to see if they insects, you will find in t honey-dew form on these are certain trees which more readily than others, the ash. He had intende ash leaves, with him to night with the honey-dev them. The two honey-d many respects; that p leaves being formed at ni verse to the other; that insects being formed duri the hotter the weather t produced, the greatest p in the middle of the day cause the aphides were fe day. During the night t on the leaves, so that

INDEXED HONEY DEW

Is it Produced by Plant-Lice or by Exudation of the Leaves.

After hearing Colonel Walker in an able paper maintaining that honey dew was the production of plant lice, Mr. Cowan, the Chairman of the B.B.K.A., summed up the discussion and said, "that both sides were right, because there was honey-dew produced by exudation of the leaves. You will always find a strong flow of honey-dew after hot and dry days, followed by hot and damp nights. If the night is dry, you do not get honey-dew. There are two causes which produce honey-dew. First, insects, which attack the leaves, and digest only part of the liquid they suck up, discharging the greater part in sticky drops, which we all know. Then, in the absence of insects, there was the exudation of the leaves. The exudation forms in small drops on the under-side of the leaves, and drops from one leaf to another. This has been verified by experiment, and anyone can test the experiment. If you take a branch of a tree and put it in water, allowing the leaves to be in an atmosphere saturated with moisture, after carefully examining the leaves to see if they were free from insects, you will find in time the drops of honey-dew form on these leaves. There are certain trees which produce it much more readily than others, as, for instance, the ash. He had intended to bring some ash leaves, with him to show them that night with the honey-dew crystallized on them. The two honey-dews differed in many respects; that produced by the leaves being formed at night—just the reverse to the other; that produced by the insects being formed during the day, and the hotter the weather the more it was produced, the greatest production being in the middle of the day; that was because the aphides were feeding during the day. During the night they do not feed on the leaves, so that the production

ceases. On the other hand, the leaves exude honey-dew during the night, when the atmosphere is moist. There was also a distinction in their composition. We all know that flower nectar is composed of saccharose and glucose, but the composition of honey-dew produced by insects contains a large quantity of dextrine, gums, and other sugars, such as mannite. Mannite is abundant in the ash, and is found in white scales on the leaves. Now, the honey-dew that is produced by the exudation of the leaves is identical with the nectar that is collected from the flowers. We know that the polariscope helps us very much in discovering these things. All flower-honey polarises to the left, and honey-dew, on the other hand, polarises to the right, like glucose, and it was supposed at one time that all honey that did not polarise to the left was adulterated. It is now known that some of this honey that polarises to the right is not adulterated at all, but is due to honey-dew. There is another important matter. The exudation of the leaves also polarises to the right, and we have to find out how to differentiate the one from the other, and devise a method of diagnosing it. He had demonstrated some years ago that insect honey-dew polarised to the right; but as the honey-dew produced by the exudation of the leaves polarised to the right, also, after dialysing it for twenty-four hours, according to Dr. Haenle's method, it would go back to zero, whereas the other would not do so. It therefore, showed that there was a difference between the insect honey-dew and the exudation of the leaves. This was a very important point to bear in mind. In some districts in France bee-keepers value this honey-dew so much that they take their bees to those parts where the honey-dew is prevalent. When he (Mr. Cowan) stayed at Hohwald, in the Vosges mountains, he investigated the matter carefully. He examined the fir trees that were being cut down which were visited by the bees. He had also brought over and ex-

hibited some of the conifer honey to the members of the Association. That honey was a long time in granulating. He showed that it polarised to the right something like 40 deg., but on dialysing it went back to zero. That was the only honey-dew that goes back to zero—the honey that exudes from the leaves.”—*British Bee Journal*.

HONEY IN PATS.

The block method of marketing honey is being largely adopted in the south, and is proving highly profitable. Large blocks of honey are cut down to the required size—a half pound—by wires running in grooves in a special cutting box. The small blocks are wrapped neatly in thin parchment paper—in some cases in caramel paper—and then in a thicker quality of parchment paper. These neat blocks, resembling nothing so much as a pat of butter, are retailed in the south at 4d. each, and as the grower is realizing 5½d. a pound a good margin of profit is left the grocer. The method is very popular with the trade, as honey so wrapped is cleanly to handle and makes an attractive sale line.

One peculiar fact about this style of marketing is that it is only South Island honey which sets hard enough for the purpose, and it is unlikely that it can be marketed further north than the Wellington province, as a muggy climate rapidly brings about deterioration of the block honey. It certainly forms the most attractive style of marketing honey yet devised.

The system was initiated in the south by Mr. J. Allan, president of the Southland Bee-Keepers' Association, and since then Southland bee-keepers have rapidly adopted the idea. Now bee-keepers as far north as Banks' Peninsula, which is declared to be as good as Southland for bees, are putting up honey in this form.—*New Zealand Times*.

DISINFECTION OF HIVES.

The American Bee Journal, commenting on some of D. M. Macdonald's recent remarks, says:

* * * “But if every colony in the apiary should become infected, it will be no proof that the fault lay in not disinfecting the hives. Indeed, it may not be easy, if at all possible, to tell anything about it. In default of anything better, however, one may be allowed to fall back upon the testimony of the many experienced foul-brood inspectors of this country who claim that thousands of hives not disinfected have been used with no bad results. If any considerable number of these inspectors are strongly impressed with the idea that disinfection of hives is necessary, they are certainly not making any great noise in making that belief known.”

Is there any positive proof that foul brood was ever conveyed by a hive that had contained a diseased colony? Please remember that the occurrence of foul brood in such a hive is not satisfactory proof that the hive was the disease-carrier unless all other sources of infection are entirely eliminated. It is not denied that the disease has arisen in foul-broody hives that have not been disinfected, but it is equally true that it has arisen or returned in hives that have been disinfected. Neither is it denied that it is in an entirely safe thing to disinfect hives, but the likelihood is that until there is positive proof that a reasonable percentage of foul broody hives will carry the disease, a good many will continue to believe that disinfecting hives does not pay.”

On the same subject, a correspondent from New Zealand says: “I have taken great interest in the discussion about disinfection, and must compliment you on the stand you have taken. * * * I, myself, have never practiced it, and I find foul brood being cured all right. In some districts here where foul brood used to be bad, but is completely eradicated now, the bee-keepers have always used the McEvoy plan without disinfection.”

Jacob Habe

The Bees and the Flower One Plant in Each

In No. 9 of the periodical “Natur,” Dr. Enoch Zander has an interesting article about “Bees.” By microscopical examination he shows how bees do not carry pollen from different flowers in the cells in the combs, but of pollen from different cells, but the load of a bee gathered from one kind of this peculiarity we can see for the plant life. If they gather pollen from various flowers, if they would fly from blossom to the dandelion load, their work would not be fertilization of either plant. It is known by examination of a single cell at one trip they only gather the same kind, and therefore it is not for them to perform their duty. What makes the bee do so, say, but it must be so. If it were otherwise, how poor would be the only a part of the plants that are fertilized. But our belief is that the first flower on their mind is to harvest only from the same time.—*Bienen Centralblatt*.

In the northern part of Germany, a hundred thousand colonies every year moved to the heather in Lueneburg. A statement of the K. Railroad of Hanover, during the night of last year, 250,000 colonies were transported on special trains, and on the night of July 30-31, 1909, 12 trains passed along the station of Lueneburg, estimated that the Lueneburg heather pastured about a half a million of bees last year.—*Bienen Centralblatt*.

N OF HIVES.

Journal, commenting
Macdonald's recent re-

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FROM GERMAN JOURNALS.

Jacob Haberer.

The Bees and the Flowers—Pollen from
One Plant in Each Load.

In No. 9 of the periodical "Ausder Natur," Dr. Enoch Zander wrote an interesting article about "Bees and Flowers." By microscopical examination he shows how bees do not carelessly gather pollen from different flowers. It is true in the cells in the combs we find all kinds of pollen from different flowers in one cell, but the load of a bee is always only gathered from one kind of flower. From this peculiarity we can see the providence for the plant life. If the bees would gather pollen from various kinds of flowers, if they would fly from the apple blossom to the dandelion for the same load, their work would not benefit the fertilization of either plant. But we know by examination of single loads that at one trip they only gather from the same kind, and therefore it is possible for them to perform their duty as fertilizers. What makes the bee do so? We can not say, but it must be so. If it were otherwise, how poor would the world look, as only a part of the plants are self-fertilizers. But our belief is that the scent of the first flower on their trip will lead them to harvest only from that variety at the same time.—Bienenwirtschaftliches Centralblatt.

In the northern part of Germany many hundred thousand colonies of bees are every year moved to the large tracts of heather in Lueneburg. According to the statement of the K. Railroad Director of Hanover, during the night of July 7-8 last year, 250,000 colonies were transported on special trains, and during the night of July 30-31, 120,000 colonies passed along the station of Uelzen. It is estimated that the Lueneburger heathers pastured about a half a million colonies of bees last year.—Bienenwirt. Centralblatt.

Dry Sugar Feeding.

Carl F. Schulz, Harburg-Lanenbrush.

Having heard from another party trying to feed dry sugar to the bees without success, he started with it in a rainy season during the failure of the basswood bloom in 1907. A platter was filled with fine dry sugar. A first a little cold water was poured on it. They soon took up the sugar, except the weaker colonies. I feed dry sugar daily to the prime swarms and they make splendid progress; since then he has always fed dry sugar. He says: "If I feed liquid sugar they fly during the day time as if a whip was behind them, but if they get the sugar dry they use up the sugar and keep quiet. Sugar boiling is an unnecessary thing during summer time. A trial should be made at every bee stand.—Bienenwirt. Centralblatt.

My bees are so foolish that they carry the sugar out after having used some of the dampest, but a very fine pulverized sugar might work. Our granulated is too coarse. J. H.

HONEY INCOME CONSIDERABLE.

Indexed

F. Dundas Todd Is Studying Possibilities
—Disaster in Cowichan Apiaries Re-
sulting from Consumption of
Honey Dew.

"I have estimated that the gross income of the province from honey produced is in the neighborhood of \$100,000, or something like fifty cents a head for the whole population. This is based on calculations which have, so far as my personal investigations have been conducted, so far proved correct." This is what F. Dundas Todd, the provincial government bee expert, stated in conversation yesterday. Mr. Todd has been lecturing on bees at different points on Vancouver Island, and also on the smaller islands adjoining and has found the people intensely interested. Many of them are anxious for him to return and give practical demonstrations in the day time.

Mr. Todd keeps bees himself, and since he has been living in Victoria has found out many things of interest about the local conditions. He is still engaged in the work, and after he has visited the whole of the province and conducted more experiments he hopes to be in a position to give reliable information in regard to what can be done here in the way of keeping bees for profit.

During his visit to Duncan, Mr. Todd found that disaster had overtaken the bee colonies last year. The season was a barren one so far as honey was concerned, all through the western part of North America, Vancouver Island suffered along with the rest, but the beekeepers who thoroughly understood the business were able to avert disaster. At Cowichan, however, the people did not know, and the result was that out of 77 colonies kept in the neighborhood only three are left. There are nothing but empty hives, where a little knowledge would have kept the bees alive and they would now have been ready to commence the season's work.

The cause of the disaster was the efforts of the bees to make up for the lack of honey. When they found that the necessities of the flowers were dry they set about gathering the honeydew secreted by the aphids. This was stored away in the combs, and when consumed during the winter brought on an attack of dysentery which resulted disastrously. Had the keepers known they would have taken out the combs containing the honeydew and fed pure sugar syrup in its place, giving the bees back the honeydew in the spring when they were able to exercise and not suffer ill effects from its consumption. The loss from dysentery in the Duncan district last year Mr. Todd estimates at \$1,240. The loss will not only be to the keepers of bees but will have a bad effect on the fruit crop, as there will be no bees to pollenize the flowers. This is the first time in the history of bee-keeping at Duncan when this has happened.

It has been generally thought that the honey gathered in this district was taken from the clover blossoms. This Mr. Todd has proved is only partly correct for the greater part of the honey is taken from the flower of the snowberry, which is very common here. The honey obtained in this way is of very good quality. At Pender Island, however, Mr. Todd found very good quality clover honey.

Mr. Todd leaves next week on a lecturing tour through the Mainland districts.—Victoria Times.

Mr. E. F. Robinson, of Victoria, B. C., comments on the above as follows:

Sir,—I notice a statement in the Times of the 5th inst., made by Mr. Todd, who is posing as an authority on bee culture, that the gross income from honey production in B. C. is in the neighborhood of \$100,000 per annum. Such statements instead of furthering the good intentions of the government to foster the bee industry in B. C. are detrimental in the extreme. They induce many people to go into bee-keeping with expectations quite beyond possibilities, bringing disappointment and failure to themselves and discredit to the Department of Agriculture.

A few facts may help to show the utter unsoundness of Mr. Todd's statements:

The Ontario Bee-Keepers' Association (of which I have been a member) collect information from their members each year for years, as to the number of colonies kept, and yield of honey, so as to test the price for the season.

In 1909 the yield from 15,000 colonies was 885,000 lbs., or an average of 59 lbs. per hive, an increase of one pound per hive over 1908. This at 11 cents per pound, the wholesale price in Ontario, amounts to \$97,350.

Ontario is a good country for bee-keeping, the average yield per hive is high, yet falls short of Mr. Todd's figures for British Columbia, and where in B. C., I may ask Mr. Todd, can he find 15,000 colonies of bees, especially as his experience, previous to the last two weeks, has

been confined to Victoria all for two years only.

During my seventeen years in Victoria I have become acquainted with most of the honey producers. I am sure I am well within the mark when there are not over 400 colonies on Vancouver Island. The best locations, in a fair season, will produce about 35 lbs. per colony. The price per pound wholesale, would be about \$2,100. On these figures Mr. Todd base his estimate. I know nothing of the main reason not having visited the B. C.

Mr. Todd tells us that in the winter losses were 74 colonies, three colonies of bees only in that district, which loss is due to the bees storing honey during the winter of 1908-9, the cause down to a dearth of

When an expert is in doubt of everyday questions, what can the inexperienced?

As honey dew (secretions of insects) is with us more abundant, according to Mr. Todd's statements, almost impossible to keep bees on Vancouver Island because of

Mr. Todd need not despair, as his practical experience shows. He writes over his own signature "I know of practical bee-keeping," and he is to be commended for his open candor.

Successful bee-keeping requires study, years of practical experience and a natural aptitude to the work. With these qualifications it can be one of the most interesting and profitable branches of rural occupation.

E. F. ROBINSON

Victoria, B. C.

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next week on a lecture through the Mainland district Times.

Robinson, of Victoria, B. C., writes above as follows:

In a statement in the Times made by Mr. Todd, who is an authority on bee culture, the income from honey production is in the neighborhood of \$100,000 per annum. Such statements regarding the good intentions of the government to foster the bee industry are detrimental in the long run, as they induce many people to go into the business with expectations quite out of proportion to the realities, bringing disappointment to themselves and discrediting the Department of Agriculture. It may help to show the utter truth in Mr. Todd's statements:

The Bee-Keepers' Association (I have been a member) collect statistics from their members each year as to the number of colonies, the yield of honey, so as to compare the yield from 15,000 colonies in 1908, or an average of 59 lbs. per colony, with the increase of one pound per colony in 1909. This at 11 cents per pound wholesale price in Ontario, amounts to \$7,350.

Such a good country for bee-keeping, the yield per hive is high. In view of Mr. Todd's figures for the Mainland, and where in B. C., I can find 15,000 colonies, especially as his experience in the last two weeks, has

been confined to Victoria alone, and that for two years only.

During my seventeen years residence in Victoria I have become acquainted with most of the honey producers, and am sure I am well within the truth, that there are not over 400 colonies of bees on Vancouver Island. The yield in good locations, in a fair season, has averaged about 35 lbs. per colony. This at 15 cents per pound wholesale, would bring the producers \$2,100. On these figures only can Mr. Todd base his estimates, as he knows nothing of the mainland production not having visited that section of B. C.

Mr. Todd tells us that in Cowichan the winter losses were 74 colonies out of 77, three colonies of bees only remaining in that district, which loss he attributes to the bees storing honey dew. His own losses in Victoria were 50 to 75 per cent. during the winter of 1908-9, and he puts the cause down to a dearth of pollen.

When an expert is in doubt on common everyday questions, what can he teach the inexperienced?

As honey dew (secretions of plants and insects) is with us most years, it would be, according to Mr. Todd's teachings, almost impossible to keep bees on Vancouver Island because of winter losses.

Mr. Todd need not despair, success will come as his practical experience increases, for he writes over his own signature "that all he knows of practical bee-keeping should be written on the back of a visiting card," and he is to be commended for his open candor.

Successful bee-keeping requires deep study, years of practical application and a natural aptitude to the business. With these qualifications it can be made one of the most interesting and profitable branches of rural occupation.

E. F. ROBINSON.

Victoria, B. C.

THE CONTROL OF SWARMING.

Indexed Purpose of Co-operative Experiments.

Morley Pettit, Provincial Apiarist.

There is nothing on the farm which requires so little care in proportion to the returns as the bees. This is why they are so often kept at a loss; because the care they need is so small that it is utterly neglected. They require only a little attention; but what they do require they must have.

It is to call attention to this bit of work and to help fit it into its proper place among the other farm duties, that these co-operative experiments are being undertaken. They are called experiments, but the method of management described is one which has been proven a success.

It is farthest from the purpose of this work to induce people to start bee-keeping without carefully counting the cost. There are already over six thousand beekeepers in Ontario. What is needed is not more beekeepers, but better bee-keeping. Besides giving bees their proper place on farms where they already exist, it is hoped that the specialist will be helped to organize his work so as to enable him to keep more bees and also get better average returns.

Business Methods Needed.

The management of an apiary for honey must be approached in the same business-like manner as the management of a dairy herd for milk. There is no more "luck" or "chance" in the one than in the other. Scientific principles govern both. Failure in either is due to some definite cause, which must be discovered and mastered before success can be obtained.

One first principle in handling any live stock is to be master of the situation. One cannot get full value from a horse until it is completely under control. It is the same with bees. To be a successful beekeeper one must be a bee-master; not in any cruel sense, any more than with a horse. To manage a horse one must

know a horse from A to Z. To manage bees one must study their habits and disposition, and learn as far as possible why and how they do things. This takes time, but it is well spent.

Difficulties.

Experiments in Apiculture are of necessity far more complicated than in almost any other line of agriculture, because there are so many variable factors to be considered. This work has not to my knowledge been taken up in this way before. It is a very valuable field, and whether it is considered worth continuing will depend largely on the care and earnestness with which the experimenters conduct the work. If all the conditions laid down in the instructions cannot be fulfilled by the experimenter, he should get them as nearly as possible and state definitely in his report just where he was unable to have things according to direction. He should read the instructions carefully several times until perfectly familiar with them before going at the work, then nail them to the wall of the work room for frequent reference.

Equipment.

To get value from this work it will be necessary to conduct it in a business-like way, and make a little initial outlay for necessary equipment. While it is possible to handle bees in a limited way without tools or protection, most successful apiarists find that three things are indispensable,—First, a good smoker, one which will hold ever in readiness a volume of smoke, not to be used cruelly, but to control the bees of a colony under all circumstances. The majority of the smokers now in use in small apiaries should have been in the museum years ago. Second, a good veil, held out from the face by the rim of a hat, and drawn close around shoulders and chest so no bee can get near the face. The material must be black, light weight and strong, without dots or figures to interfere with the sight. Third, a hive-tool, the commercial hive

tools are good, or a screw-driver and a wall-scraper used by paper-hangers will answer. A quantity of wired frames and full sheets of medium brood foundation will also be needed.

System.

To control swarming one must inspect the bees often, so as to know their condition all the time. This requires system. One day of the week should be set aside for the apiary, not necessarily the whole day if there are only a few hives. Weather or other conditions may cause the apiary work to be postponed till the next day; but next week the regular day should be resumed. System goes a long way towards success in anything. Of course the bees should be visited and studied as much as possible, but one particular day of the week should be the day for regular apiary work.

The Spring Cleaning.

Let us suppose that Monday is "Apiary Day." On the first fine Monday in April or May, when a little honey is coming in, the hives should be overhauled, and their insides, as well as the frames of combs and queen-excluders, scraped clean of superfluous wax. This can be done by transferring the combs and bees of each hive in succession into a clean hive. In this operation care should be taken to expose brood as little as possible to hot sun, cold wind or robbers, and to keep the combs in exactly the same order. It will be possible at this time to choose the colonies for the Experimental group.

Choosing Experimental Group.

Choose an even number of colonies for the experiment, preferably not less than ten nor more than twenty. They should be as nearly uniform as possible in every way;

They should all have the same quantity of bees, brood and honey. They should all have the same race of bees.

The queens should all be of the same age. The hives should all be the same

make. They should have a queen-excluder between the brood and the super.

There should be the same proportion of drone to worker comb chambers, and it should be the same in all.

There should be the same proportion of drawn combs to foundation in all.

The hive entrances, during the first few months, should be small, so the bees are not crowded into the entrance. Watch this carefully. An entrance too large will invite robbers, while one that is too small will induce swarming.

Bottomboards should be the same in all hives, so the entrance can be enlarged when necessary.

The hives, if painted, should be about the same color, and should be placed in the same direction and have the same exposure to wind, sun and rain.

The hives should be under the same shade, which will be the same for all from the sun from 10 a.m. to 4 p.m.

Neatness should be observed in all apiary arrangements.

Group Division.

Divide the Experimental colonies into two equal lots. Mark the colonies of one lot and B of the other lot. Uniformity of results will be obtained amongst individual colonies by making them all have in each the same quantity of bees, brood and honey, and strong colonies, of the same age, etc. Clip all the queens.

Now throughout the whole of the experiment, at the end of July, manage lot B just as you would manage lot A. If you manage the whole apiary if you have no other co-operative experiments. Any change in your management will spoil the experiment, so give a fair comparison between the two lots of managing and ours. Lot A are to be managed according to the instructions given below.

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Bottomboards should all be loose from
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The hives, if painted, should all be
about the same color, should face the
same direction and have the same expos-
ure to wind, sun and rain.

The hives should be under fruit trees
or other shade, which will protect them
from the sun from 10 a.m. to 4 p.m.

Neatness should be observed in all
apiary arrangements.

Group Divided.

Divide the Experimental Group into
two equal lots. Mark a large A on the
hives of one lot and B on the hives of
the other lot. Uniformity that could not
be obtained amongst individual hives can
be secured by making the lots uniform,
having in each the same number of weak
and strong colonies, old and young
queens, etc. Clip all the queens of lot A.

Now throughout the whole season till
the end of July, manage the colonies of
lot B just as you would have managed
the whole apiary if you had not heard of
co-operative experiments in apiculture.
Any change in your management of them
will spoil the experiment, as it will not
give a fair comparison between your way
of managing and ours. The colonies of
Lot A are to be managed according to in-
structions given below.

The Weekly Examination.

Let us still suppose that Monday is
"Apiary Day." Every Monday after the
beginning of fruit-bloom each colony of
Lot A is examined to note the progress
of its development and give necessary
treatment. At each visit some of the old
honey is uncapped and placed next the
brood. Regulate the uncapping so as to
have all the old honey used in brood
rearing by the opening of clover bloom in
June.

Do not transfer combs from one hive to
another unless necessary to feed a needy
colony, and then not unless you are per-
fectly sure you have no foul brood.

If short of stores, colonies can be fed
as follows: Make syrup of granulated
sugar and water in equal proportions, fill
the cells of empty combs with this and
hang them in the brood chamber. This
should be done towards evening.

As soon as a brood chamber is full of
bees put on an extracting super. Do not
wait for the bees to whiten the combs,
as many text books recommend, by that
time the bees have probably decided to
swarm, and cure is far more difficult than
prevention. All strong colonies should
have supers in fruit-bloom. Better put
on supers too early than too late. This
is very important.

When clover comes in bloom every ves-
tige of dark honey must be removed from
the hives. This is one of the most im-
portant things in the production of white
honey. Not one speck of dark honey
must be left in the hive anywhere.

Causes vs. Preparations.

There are two things one must learn in
order to control natural swarming:

1. The conditions which usually cause
it. These must be learned so that when
one sees them one will know that the
bees are almost sure to get the swarming
impulse soon if they have not got it al-
ready. When found they must be re-
moved as far as practicable.

2. The preparations a colony generally makes before it swarms. When these are known in every stage, the apiarist must know, at whatever stage he finds them in a hive, what to do to stop them, and keep the colony from swarming.

There must be no confusion between preparations for swarming and causes of swarming. Preparations are not causes. To hinder preparations without removing causes is useless. To remove causes after preparations are well under way is not nearly so satisfactory as to prevent the causes even before they occur. A division of the working force of the hive can be prevented by keeping all hands contented and at work; but a colony once determined to swarm will carry out the program in spite of all but the most radical measures.

Some causes of swarming are as follows:

(a) The super is crowded with honey, there is still plenty of nectar in the flowers; but the bees have no comb space in which to store it.

(b) The colony has a queen with great egg-laying powers; but the brood-chamber is too small for her, or has become crowded with honey and pollen. She has an egg or larva in every cell and young bees are not hatching rapidly enough to give her room to lay. The constant inflow of honey from the fields stimulates her to lay, yet she must be idle or seek a new home with a wider field of usefulness.

(c) The secretion of nectar in the flowers is continuous but slow. The queen is constantly stimulated by the incoming sweet to lay, while the demands of the harvest are so light that the workers live much longer than is usual in a heavy harvest. The hive becomes over-populated and crowded.

(d) The hive is poorly ventilated or sits in the hot sun.

(e) Bees often swarm when they are superseding an old queen.

The preparations for swarming are as follows, and in the order named:

- (a) Drone brood started.
- (b) Queen-cell cups built along the lower edges of the combs, or in other convenient places in the brood-chamber.
- (c) Eggs in some of the cell-cups.
- (d) Larvæ in the cell-cups.
- (e) Capped queen-cells.

The swarm comes almost immediately after that.

Queen-cells do not cause swarming. They are a part of the swarming operation. Simply cutting them out after they are built does not remove the cause, and seldom does more than delay the swarm for a few days. In the meantime it makes the bees discontented and seriously checks honey-gathering. The successful prevention of swarming, then, is not cutting out queen-cells, as many suppose.

Give the Queen Room.

When cell-cups appear in any hive it is time to start giving the queen more room. Remove a comb from the outside of the brood-chamber, and put a frame of wired foundation in the centre of the brood-nest. If the colony is quite strong it may be given two such frames. If any cell-cups have eggs, destroy all such and give three frames of foundation. To miss destroying even one may mean failure. Every frame of brood must be examined carefully. In every case alternate frames of foundation without brood.

In removing combs from the brood-chamber follow this order, first empty combs and combs of honey till they are all cut out, then sealed brood. If the empties are clean and the honey white, place them in the extracting supers of the same hive (if they will fit) also the brood unless it is needed for making increase or building up weak colonies.

The essentials for swarm-control are ample room for brood and honey, given in time, good ventilation and shade. An ounce of prevention is worth a ton of cure.

Enlarge the Entrance

As the strength of the colony increases, about June first, when a queen should be given an entrance of the width of the hive and a quarter deep. At the opening of bloom every colony should be half full and before it is half full another placed between it and the chamber. Adopt some system of ventilation.

Plenty Super Room

Years of experience with localities gives an idea of yield per colony to expect. Get super room to that capacity almost at the start. That the extra strong ones are all crowded. It will not hurt ones to have more room. Remember the essential shade, ventilation.

Queen Cells

Now in spite of all well experienced care, hives will be found with queen-cells. The conditions under which cell-cups appear are:

1. Under swarming impeding.
2. When the queen is fast superseded.
3. When the queen has disappeared.

1. For Swarming

Number one is natural and easy to detect. Cells in convenient places, lower edges of combs, and the likelihood to swarm is acquired. In the final remedy is to remove the combs of brood but the least brood, and give fresh foundation. This gives the natural swarm and will undo the desire. The brood can be weaker colonies of Lot A or young nuclei according to instructions below.

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Enlarge the Entrance.

As the strength of the colony increases enlarge the entrance gradually, until about June first, when all except weaklings should be given an entrance the full width of the hive and an inch and a quarter deep. At the opening of clover bloom every colony should have a super, and before it is half filled with honey another placed between it and the brood-chamber. Adopt some system of upward ventilation.

Plenty Super Room.

Years of experience with one's bees and locality gives an idea of what average yield per colony to expect. It is well to get super room to that capacity on each hive almost at the start. Then watch that the extra strong ones do not get at all crowded. It will not hurt for weaker ones to have more room than they will use. Remember the essentials—room, shade, ventilation.

Queen Cells.

Now in spite of all watchfulness and experienced care, hives will frequently be found with queen-cells. There are three conditions under which 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 of Lot A or used for making nuclei according to instructions given below.

2. For Supersedure.

Number two is also deliberate, and it is not easy to say positively that a colony has built cells for the purpose of supersedure and not from swarming impulse. The scarcity and irregularity of brood and eggs is of course a good indication of supersedure. 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 supersedure, 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 supersedure, produce the best of queens. Spare cells can be saved by giving them to newly made nuclei.

For Re-Queening.

Queens sometimes die suddenly from various causes. Then cells are built hastily on the sides of the combs wherever eggs or very young larvæ are found. These cells are always easily distinguished and is proven by an entire absence of eggs and this sudden queenlessness is proven by an entire absence of eggs and young larvæ. 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 nuclei having a 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 increase is desired.

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 queen 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 the queen or cell, and carry this hive to its own stand wherever desired. Nuclei should be made as early as possible and not as a month later than the middle of July. The safest way to introduce a new queen is to a nucleus, and the safest way to requeen a strong colony is to unite with a nucleus.

Last Words.

A limited number of photographs of Experimental Groups can be used in publishing results. Any that are sent should have name and address of sender written on the back for identification.

It must be remembered that for this experiment all these operations are to be performed only on the colonies of Lot A. If the management of the colonies of Lot B is changed one iota from the old method it will not be possible to make a fair comparison of results.

This method with slight variations could be applied to Comb Honey Production but experiments in that line will be deferred for a year.

If anyone knows a better way to control swarming than the one outlined

above, or if it looks like too much work, please reserve judgment until you give it a fair trial and afterwards give us the benefit of your candid opinion.

Be sure to have necessary appliances and supplies on hand before the season opens. Always be a little ahead of time with all apiary work.

Examine the bees carefully and study their habits from week to week. After a few years' experience you may be able to prevent swarming and get a good honey crop and leave the bees in the best condition for winter without examining them weekly. But the best training for this is the weekly examination.

Kindly answer to the best of your ability all the questions asked in the enclosed report blank and mail it immediately after harvest to Morley Pettit, Provincial Apiarist, Agricultural College, Guelph, Ont.

OBSERVING CHALMER'S OBSERVATIONS.

Indexed

Orel Hershiser.

Writing in Canadian Bee Journal for April, page 104, Mr. Chalmers testifies in his own behalf, that he has recently "wakened up" and is "completely aroused from his slumbers." But marked symptoms of dreaming are noticeable as he proceeds with his observations, and as this condition of the mind frequently accompanies sleep, it would seem to require the testimony of other and disinterested witnesses to establish a prima facie case of complete awakening. However, it may be only in the seeming and hence a few counter observations.

Mr. Chalmers' wax extracting outfit being adapted to both the hot water and the steam or cold press processes, and his preferring to use it in the latter capacity, is, to me, an indication that he has not gone far enough with his investigations. If he will make some further experiments I should expect him to be convinced that

when the pressure is released, gum that is immersed in it will absorb the water in and the hotter the slumgum will it absorb the water. I find that when pressure is applied to the hot water as it is expressed with it and if the process is repeated, at short intervals will be washed out within it. Hot slumgum is sponge-like in relation to water. If you sponge and saturate it with coloring matter and submit to pressure you cannot possibly get the color. Saturate it with press again and you will get the coloring matter, and repeat the operation several times wash the sponge clean of it. This is just what happens to slumgum in the hot-water press, with insuring. We wash the wax out within fractional limits only in capillary attraction in the capillary "in Mr. H's eye" elsewhere, the above is just of slumgum.

Attention may properly be fact that many careful experimenters besides Mr. Chalmers have expressed themselves in favor of the hot-water process. From writings and translations of Greiner, I gather that the hot water process is preferred or other in preference. We find in the Chicago paper at the Chicago Convention which Mr. Chalmers refers to, the process was in very limited use in the United States and Canada, and was made of it was usual form. Since then there has been a considerable change and now the hot-water press is the first in the list of processes described in nearly all the bee-keepers' supplies and is preferred by many of the most prominent bee-keepers. If Mr. C. is fully aware of this, he should call to mind a prominent Canadian manufacturer of bee-keepers' supplies.

ts like too much work, ment until you give it afterwards give us the did opinion. e necessary appliances and before the season e a little ahead of time ork.

es carefully and study week to week. After a nce you may be able to and get a good honey e bees in the best con- without examining them best training for this is nation.

to the best of your abil- ns asked in the enclosed d mail it immediately Morley Pettit, Provin- Agricultural College.

NG CHALMER'S RVATIONS.

l Hershiser.

Canadian Bee Journal for Mr. Chalmers testifies in , that he has recently nd is "completely aroused ers." But marked symp- ng are noticeable as he his observations, and as f the mind frequently ac- , it would seem to require of other and disinterested ablish a prima facie case akening. However, it may seeming and hence a few tions.

wax extracting outfit be- both the hot water and ld press processes, and his e it in the latter capacity, ndication that he has not h with his investigations e some further experiments t him to be convinced that

when the pressure is released from slum- gum that is immersed in hot water, that it will absorb the water in large amount, and the hotter the slumgum the more rap- idly will it absorb the water. He will also find that when pressure is again applied the hot water as it is expelled, takes out wax with it and if the process is several times repeated, at short intervals the wax will be washed out within fractional lim- it. Hot slumgum is sponge-like in its re- lations to water. If you will take a sponge and saturate it with a washable coloring matter and submit it to great pressure you cannot possibly expell all the color. Saturate it with water and press again and you will get out more of the coloring matter, and if you will re- peat the operation several times you will wash the sponge clean of the color. This is just what happens to slum-gum in the hot-water press, with intermittent pres- sure. We wash the wax out and finally within fractional limits only water is held in cappelary attraction in the slumgum. Whether "in Mr. H's eye" or his mind or elsewhere, the above is just the nature of slumgum.

Attention may properly be called to the fact that many careful experimentors be- sides Mr. Chalmers have expressed them- selves in favor of the hot water process. From writings and translations by Friede- man Greiner, I gather that the Germans use the hot water process in some form or other in preference. When I read the paper at the Chicago convention, to which Mr. Chalmers refers, the hot water process was in very limited use in the United States and Canada, and what use was made of it was usually in a crude form. Since then there has been consid- erable change and now the hot water press is the first in the list of wax presses described in nearly all the catalogues of bee-keepers' supplies and it is endorsed by many of the most prominent bee-keep- ers. If Mr. C. is fully awakened he may call to mind a prominent Canadian manu- facturer of bee-keepers' supplies, who

lists only a hot water press, the only other listed being the solar, which is not a press.

Is it possible that all these experiment- ors and manufacturers have arrived at eroneous conclusions? Or did Mr. Chal- mers fall into a Rip-Van-Winkle sleep, and has, per testimony, recently awak- ened and has not as yet connected up the distant past with the present.

I have rendered considerable wax and never once have I had it to boil over. Right here it may be observed that there are two kinds of hot water presses, one to use over the fire, the other to use sep- arate from the heating arrangement.

Best results are obtained by cooling wax in a deep vessel; that is so self-evi- dent that Mr. Chalmers' exception is a surprise to me. Suppose 35 to 40 lbs of wax is set to cool in a deep vessel. You have but one cake to clean at the bottom, while if the cakes weigh five pounds each you have seven or eight cakes to attend to. If you are going to make small cakes, by all means allow the wax to stand in a deep vessel to cool slowly un- til nearing the congealing point, when it may be dipped carefully into the smaller containers and only the last five or ten pounds will need to be cleaned at all, the other cakes being free of sediment. Who besides Mr. Chalmers has found that wax would not free itself from tin? I have not found that to be a fact, and never have the least difficulty in turning the cakes from the tin containers as soon as con- gealed through. The tin must be clean and bright, and if old and the surface has lost its gloss, a rinsing with hot water just before using will keep the wax from sticking.

Mr. Morley Pettit has used wooden candy pails with good results, thinly coat- ing the inside surface with honey before using. The wood prevents rapid radia- tion of heat and gives the sediment more time to collect at the bottom.

I will concede that Mr. Chalmers pro- duces good wax by his process and with

his materials, without the corroboration of Mr. John Newton or Mr. G. A. Deadman. These gentlemen are certainly good authorities on wax, but the question of the quality of Mr. Chalmers' wax is not at issue. It would, indeed, be surprising if a man of his experience could not produce good wax with good materials, or any other apiarist who uses the steam process.

Who said yellow wax of best quality could not be produced from slumgum? Not the writer. Slumgum that has not undergone decomposition certainly will produce as good wax as would the combs from which it was obtained, provided it has been uninjured in the first extracting. Between dry uninjured slumgum and complete decomposition there is all grades of decreasing quality. The writer has extracted some very unpromising lots with highly satisfactory results. One must be pleased when he gets more than he expects, though not as much or as good as might be obtained from better materials.

But if with acids properly used such wax is saleable at ruling market prices, then, as it seems to me, it would be unwise not to use it. But Mr. Chalmers evidently does not have occasion to handle this product of the apiary as I have done, and, perhaps, would have thrown away as worthless that which has yielded me a fair profit. I will say to Mr. C. that from any old comb or slumgum that I extract I will produce as good wax as he can produce, and if it needs cleansing with acid or otherwise and he does not do so, I will be ahead in dollars and cents.

Mr. Chalmers, that "scum or froth" you "blow to the side" of the crock, I skim off. You know that one of my deep cakes of six to eight times the amount of wax that you have in your little ones would have a greater amount of froth or scum and I skim it off. Your wax "be blowed" or the surface scraped if you

wish it, but I can do the trick quicker and easier by skimming and "save my breath to cool my broth."

I do not re-melt my wax and I have very little trouble with the spongy condition on the bottom of which Mr. C. and others complain. The wax being extracted at the rate of from 30 to 60 lbs. to each run of the press, there is sufficient wax each time for one or two large cakes, all melted when the pressing is finished and there is no need of going over the work a second time.

One more point, Mr. Chalmers wishes us to remember that he admits that there is still wax left after his process, so much so that the slumgum makes fairly good fuel, etc.. If every last particle of wax was removed from the slumgum, it is my belief that when dry it would make good fuel. Parties who were interested in knowing if the process and device I use did clean work, subjected a quantity of slumgum from my press to a severe test, and found but five-eighths of one per cent. of wax in it, and yet such slumgum burns with a fierce heat when dry. A quart of dry pulverized slumgum is frequently called for at my home to finish the baking of bread, pie or cookies. Try sprinkling it over the fire if it should happen to be slow, and see how quickly the oven will respond and how brightly will beam the smiles of the good wife as she brings forth the goodies done to just the right turn.

OREL HERSHISER.

Kenmore, N.Y., April 25, 1910.

VICTORIA CO. B. K. A.

The annual meeting of the Victoria County Bee-keepers' Association will be held in the Public Library Building, Lindsay, Ontario, on May 24th, commencing at 10.30 a.m. Mr. Pettit, Professor of Apiculture, O.A.C., will be present; also J. L. Byer, Mt. Joy, Foul Brood Inspector, and others will take part. We look for a good attendance at this meeting. A. H. Noble, Sec. Jas. Storer, Pres.

THE HONEY YIELD INDEXED AMERIC

Two hundred thousand or a quantity which, if combs, and these placed wisely, would reach twice as many—are produced annually to the south of the United States, according to Mr. Russell Ward, who is responsible for the International Bureau of Apiculture, the demand for honey is great that bee-keeping is receiving considerable attention in Latin America. Mexico bees were known to the south of Cortez, as is attested by the discovery among prehistoric remains in hermetically sealed jars of honey in an excellent condition. Mr. Millward mentions a stinging variety of bee from the South and Central America, many of the others have been introduced from Europe and Palestine.

There was no honey produced in Plymouth when it was first settled there in 1620; subsequently imported for their requirements. In Massachusetts, where apiculture has been first systematically introduced, John Eales, was employed by the settlers how to make hives for bees. This was in 1644, and since that time bee-culture has spread widely that to-day the United States produces about 700,000 or 1 in every 120 of the annual yield is of the order of 1,000,000 in honey and 100,000 in beeswax. But beyond the United States imports every year about 100,000 pounds of honey and 10,000 of beeswax, and all but this comes from Cuba, Mexico, and the Dominican Republic. Mr. Millward gives interesting data concerning the various countries of Central America:

In the Argentine Republic, 100,000 pounds of honey are imported, mainly from Chile, but 10,000 are exported to France and Germany. It is used in the manufacture of crackers.

Brazil has a variety of honey which is of such good quality

do the trick quicker ming and "save my roth."

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April 25, 1910.

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THE HONEY YIELD OF LATIN AMERICA.

Indexed

Two hundred thousand tons of honey,— or a quantity which, if put in standard combs, and these placed side by side, endwise, would reach twice around the earth,—are produced annually in the countries to the south of the United States. According to Mr. Russell Hastings Millward, who is responsible for the statement in the February Bulletin of the International Bureau of American Republics, the demand for honey has become so great that bee-keeping is receiving considerable attention in Latin America. In Mexico bees were known long before the days of Cortez, as is attested by the discovery among prehistoric Aztec ruins of honey in an excellent state of preservation in hermetically sealed vessels; and Mr. Millward mentions a fact,—that the stingless variety of bee is a native of South and Central America, as well as of Mexico, many of the other kind having been introduced from Europe, China, Japan and Palestine.

There was no honey in the country round Plymouth when the Pilgrims landed there in 1620; and bees were subsequently imported from England for their requirements. At Newbury, Mass., where apiculture seems to have been first systematically practiced, one John Eales, was employed to teach the settlers how to make hives and to care for bees. This was in 1644, since which time bee-culture has spread so continuously and widely that to-day there are in the United States about 700,000 bee-keepers, or 1 in every 120 of the population, and the annual yield is of the value of \$20,000,000 in honey and of \$2,000,000 in beeswax. But beyond this the United States imports every year about 2,500,000 pounds of honey and 750,000 pounds of beeswax, and all but 5 per cent. of this comes from Cuba, Mexico, Haiti, Salvador, the Dominican Republic and Venezuela. Mr. Millward gives the following interesting data concerning bee-culture in the various countries of Central and South America:

In the Argentine Republic 100,000 pounds of honey are imported annually, mainly from Chile, but 10,000 pounds are exported to France and Germany, where it is used in the manufacture of fancy crackers.

Brazil has a variety of bees, and the honey is of such good quality that it has

been used mainly for medicinal purposes, in some districts the planters of vanilla are encouraged to keep bees in order that the female flowers may be fertilized. The production of honey is enormous, and the Brazilian Government is making a special effort to increase its output. The home demand is so great that only 60,000 lbs. are exported annually, mostly to Germany.

Bees were first introduced into Chile from Italy about forty-five years ago. To-day there are nearly 100,000 apiaries in actual operation there; and over 1,000,000 pounds of purified wax and 5,000,000 pounds of honey are exported, and brings top prices in the markets.

Italian bees have also been introduced into Cuba, where they thrive in the cane-fields. About 350,000 gallons of honey and 2,000,000 pounds of wax are produced annually.

In Mexico also wild honey is found in abundance, especially in the forests of the Algerroba tree, whose flowers last for a long time, and are a fertile source of nectar. Mexico exports annually about \$90,000 in strained honey, and imports about \$50,000 in comb honey, some of which comes from China. Of wild honey about 25,000 pounds are exported from the port of Tampico each year.

In Nicaragua the demand for honey is so great that considerable quantities have to be imported. Wild honey is found in great quantities, and is readily purchased by the native population throughout the island towns and villages.

In Paraguay honey is gathered by the natives for the wax which is used in the manufacture of candles.

The Indians of Peru gather wild honey, which finds a ready sale in the local markets. About 10,000 pounds of honey are imported annually from Great Britain, the United States, and Hong-Kong, on which a duty of 40 per cent. is charged in order to encourage home production. The stingless bee is highly domesticated and thrives on alfalfa.

Trade in beeswax has been followed extensively by natives of Latin America for many years. Comparatively few persons are aware of the extent to which this commodity is employed in the arts and trades. Mr. Millward enumerates some of its uses:

It is extensively employed in the manufacture of wax candles and tapers, varnishes, paints, polish for pianos, furni-

ture, carriages, floorings, various kinds of glazed and ornamental wall papers, and artificial flowers. Electrotypers adapt it to the forming of molds, and in the machinery trade it is used as a preventive against rust. Laundries are great consumers of wax, which is used as a polish in the finishing of starched articles. Combined with tallow it is used as a coating for canvas awnings, tents, sails, and cordage to prevent cracking or splitting and mildew. Electrical supply houses use it in winding the wire, and it serves the druggist as a basis for salves, as well as for use in making plasters, certain kinds of ointments and in some medicines. The Heburn Pure Food Law will cause it to supersede paraffin or ceresin in this respect, as also in the manufacture of candy. Beeswax is used by dentists in making impressions, and also by pattern-makers. As candles made from beeswax emit a permeating perfume and the deposit left after burning does not injure fabrics or pictures, their use in churches is much favored.

In many parts of Mexico, Mr. Millward tells us, the bees, which are of a stingless variety, are regarded by the natives as household pets, and are known by the endearing terms of "angelitos," or "little angels."

Children are found in the patios and gardens with candy in their hands, which they playfully share with the bees; and it has often been remarked by tourists how fearlessly and gently the apparently ferocious little insects are brushed aside if they become too greedy or annoying.

Nearly all American bees have a deadly enemy; this is the black ant. So persistent are the attacks of this ferocious little warrior that the bees have the greatest difficulty in defending their colonies and honey. In many districts, in order to prevent the depredations of the ants, the hives are raised from the ground and set in inclosures of water. An ant of a totally different character is found in Mexico. It gathers honey from wild flowers and plants and lives in underground chambers, and contributes to the sustenance of the colony in a most remarkable manner.

A certain number of these ants remain at home and are used as living store-houses. They are fed honey by the workers until they swell to about the size of a pea; and during the season when honey is not obtainable, they regulate their supplies, drop by drop, as food for the colony.

In the south of Brazil as well as in certain districts of Paraguay and Uruguay, where it is indigenous, there is a wasp which gathers honey. It is said to produce honey of an excellent quality, differing only slightly from that of the bee. This wasp produces no wax, the cells in which the honey is enclosed being of clay or mud.

The pure food laws having rendered almost impossible the marketing of adulterated honey, certain bee-keepers feed their bees with saccharine substances in order to increase the production of honey. It is considered by the trade generally that this should be considered palpable adulteration.—American Review of Reviews.

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2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against the adulteration of honey.

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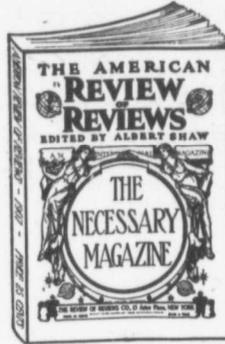
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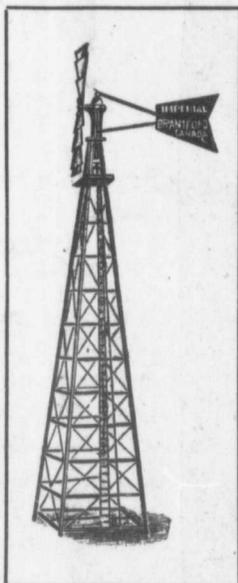
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