

The
Canadian Bee Journal

Devoted to the Interests of Bee-Keepers

Vol. 16, No. 12. **December 1908** \$1.00 Per Annum

Christmas Greetings



BEE YARD OF J. W. CLARK, CAINSVILLE, ONT.
Yard Protected by Evergreens on Two Sides

PUBLISHED BY
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BRANTFORD, CANADA

That Pile of Old Combs

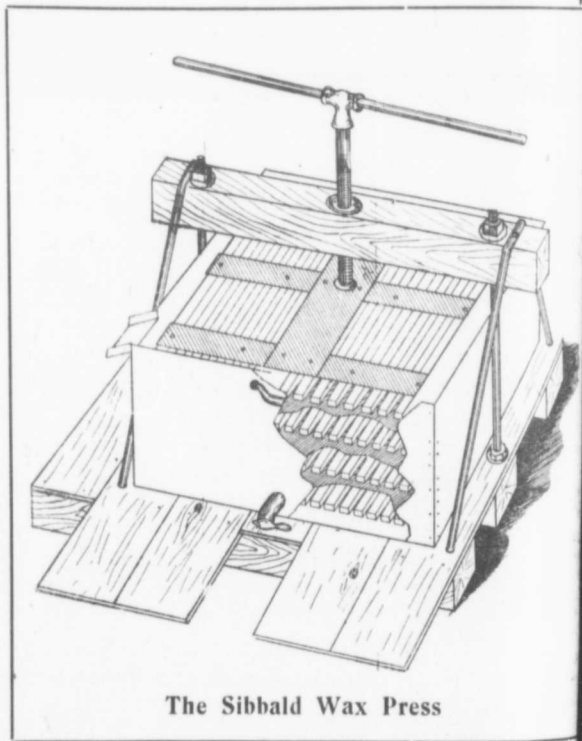
THE Honey Season over, and the bees snugly packed away for the Winter, the Bee-keeper will be able to turn his attention to the accumulation of old and broken combs in the honey house and other places. To the careful Apiarist this accumulation represents so much extra cash over and above his honey crop, and will be treated accordingly. He uses a Wax Press, of course—the latest and best.

The old systems of boiling and steaming did not extract much more than half the wax the comb contained, the steam press was better but still there was sufficient left in the refuse to make it excellent but expensive fire kindling. The latest and best is that of pressing under water, which separates and washes out the wax, practically removing every particle of the valuable.

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The Canadian Bee Journal

Devoted to the Interests of Bee-Keepers

JAS. J. HURLEY, Editor

Published monthly by

The HURLEY PRINTING CO.,
Brantford, Ont.

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Bee-keepers desiring the services of the inspector of apiaries should address their requests to Hon. Nelson Monteith, Minister of Agriculture, Toronto, giving nearest railway station and distance of apiary from station.

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

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Vol. 16, No. 12

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The Canadian Bee Journal

PUBLISHED MONTHLY

Vol. 16, No. 12.

DECEMBER, 1908

Whole No 526

Christmas, with all its joyous festivities, is again upon us. We have endeavored to commemorate it by giving you a Christmas Journal "greater than has been." To one and all of our readers we extend the compliments of the season, and trust that this Christmas may equal or surpass in cheer and abundance any that have passed. We believe, on the whole, that this must be true, as the world is steadily making for moral improvement and righteousness. The great Laymen's Missionary Movement and the temperance and moral reform wave are indicative of a higher moral standard. Some homes may be made desolate by an absent one, but it is not fitting that we should make Christmas sad on this account. We must submit to the will of an over-ruling Providence, who doeth all things well, whose will and whose purposes are inscrutable to man. This world would indeed be a sad one if we mourned over our difficulties and losses. At this season of the year let us rather think of the things we have to be thankful for, and endeavor to make this, for all about us, a merry Christmas and a happy New Year.

* * *

The death occurred on December 5th of Mr. B. Davidson, Uxbridge. The C.B.J. extends sympathy to the bereaved family.

* * *

We extend congratulations to our new officers of the O.B.K.A., and particularly to our new President, Mr. Couse. He has received a well-merited reward for his services through many years as Secretary. That he will preside over the Association with ability and fairness goes without saying. The watch presented to him was a well-merited gift. Long may he be spared to use it.

The meeting of the Ontario Bee-keepers' Association was a great success. It was well attended and was sustained by a lively interest throughout. Mr. McGill's paper was a very valuable and interesting one, as were also all the other papers. In this issue we are presenting many of the papers and reports, and have no doubt they will be read with much interest.

* * *

The Brant Bee-keepers' Association will hold a convention on or about the last week in January, 1909. Definite date will be announced in the January C.B.J. A special effort is being made to make this an interesting and profitable convention. We trust that as many of our readers who can possibly make it convenient will attend. Mr. Craig, the Secretary, and Mr. Bayless, the President, assure us that a splendid program will be presented.

* * *

Mr. J. W. Clarke, of Cainsville, who combines bee-keeping with a large poultry business, left the first of December for Pennsylvania State College, where he will be engaged on the teaching staff as expert in poultry. Mr. Clarke occupies an eminent position as a poultry-man, and we congratulate the College on securing his services. On the first page of this number we show a view of Mr. Clarke's apiary. Mr. Clarke's specialty in poultry is Buff Orpingtons, on which he has won many prizes.

* * *

Mr. E. D. Townsend, in Gleanings, says: "The size of a hive is much more important than the shape. A well-shaped hive is important only because it is more convenient for the apiarist. In outyards every hive should be the same, for a variety of sizes and shapes is an abomina-

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tion. I have had experience with different sizes, but every one of my extracted-honey colonies is now in a ten-frame, factory-made, dovetailed hive, and every super is the same as the lower story or body, so that all are interchangeable. I use ten Hoffman frames in the bodies, and eight loose hanging frames in the upper story, the eight frames in the ten-frame super making $1\frac{3}{4}$ " spacing, so that all combs are bulged." The above bears somewhat upon the enquiries of Beginner, whose questions are answered in another column. Putting eight frames in the supers with $1\frac{3}{4}$ " spacing would produce "fat" combs. These are the kind of combs that must be secured in order to successfully work the Bayless uncapping machine. * * *

We would like to call special attention to that part of Mr. McEvoy's report dealing with the curing of foul brood in the fall by giving the bees full frames of capped honey. This is a very simple and easy method, and is most effective. The diseased honey taken from the old hive remains in their honey sacs until entirely consumed, owing to their having no place in which to deposit. Thus you have a clean outfit with very little labor. Of course, these full combs (or frames) must be secured in the summer from healthy colonies, or by feeding sugar syrup early in the fall. Where an apiary is found during the summer to have a few diseased colonies, a little planning with this object in view will be found to involve little labor, and be most economical and effective. * * *

Canadian Foul Brood.—Mr. Byer gives rather a melancholy picture of the devastation worked by what he calls black brood. "One yard of 110 colonies was reduced in a few months to twenty-three, another of 160 ran down to twenty-one, while a third of seventy-five went down to six. The men owning these apiaries were all first-rate bee-keepers." Some confusion seem to prevail still about the nomenclature of this disease, because the

writer says, "We do dread this black brood, while we have no terror of the other type." Our Editors in last issue (page 460) characterise it as "the milder form of disease known as black brood," which is exactly my own idea.—D.M.M., in British Bee Journal.

CONVENTION NOTES

[By the Editor.]

That was a good story told by Mr. Couse. "There's a man at the bees and the sow is in the potatoes."

* * *

Adopting Mr. McGill's suggestion, the O.B.K.A. has now an "ex-cathedra" definition of what pure honey is.

* * *

The diners at the Albion had their eye on the two or three foul brood inspectors present to see how they helped themselves to toothpicks!

* * *

Mr. Wm. Bayless was there with his new uncapping machine. It was much admired by all who saw it. What Mr. Bayless said in describing it will appear later.

* * *

Mr. D. Nolan is an advocate of the use of power in extracting. He would as soon go back to the non-reversible extractor as to the hand extractor. A one-horse gasoline engine can be procured at a cost of about \$65. He strongly recommends the aid of this power.

* * *

Mr. S. D. House, Camillus, N.Y., and Mr. B. G. Clark, Borodino, N.Y., were in attendance at the O.B.K.A. convention at Toronto. Both gentlemen are well-known bee-keepers in the United States. Mr. House gave a very interesting talk on foul brood and black brood. He is always a welcome guest at the Ontario. Mr. A. C. Miller, of Providence, R.I., was also present, and gave three valuable addresses. Mr. O. L. Hershiser, of Buffalo, was also with us again. We regretted his absence, but we were glad to see him, however, as one of ourselves.

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From the report of the convention appearing in the Farmer's Advocate of Nov. 19 we clip the following: "The uncapping machine is recommended by those who have tried it as being not only a saving of time, but a means of keeping combs perfectly straight." There is no mention of Mr. Bayless' name, who is the inventor of this new article. Singular, isn't it? * * *

Mr. Hershiser's paper on "Measures to Prevent Swarming" is a good one, and will be found in another column in this issue. He believes in young and vigorous queens, not only for crop-gathering, but also as a measure to prevent swarming. Regarding the two-queen plan he says: "I believe, it has been claimed that a swarm will not issue from a hive containing two or more queens, but I believe many bee-keepers will agree with me that we need first to know how—with precision and little labor and expense—we may be able to supply and have our colonies accept two or more queens before we will be able to determine whether this plan is successful when extensively applied." Just so. We need to know a lot more than we do know; and we venture the opinion that very little is known—and that little impracticable—regarding this plural queen plan.

* * *

The resolution adopted making ineligible for office those who have held the office of Director for the period of five years was, in our humble opinion, a mistake. Every member ought to be, and is, eligible for office who is duly nominated and elected thereto. The members ought to be—and are, notwithstanding this resolution, as we believe it to be not worth the paper it is written upon—free to make any selection for officers they see fit. No public gathering of the kind can disfranchise itself nor disqualify any member for office. The resolution went through without discussion, because many of the members, while recognizing its object, thought it better to treat it with silence and preserve the peace

of the Association; but we think when the members fully realize the mistake they made it will not long stand upon record. Any member insisting upon his rights could easily make the resolution a nullity. Imagine our losing the services of a man like Mr. Couse, and putting the ban upon him because he acted as Secretary or Director for five years! And what about Mr. Hodgetts? Will he get his walking ticket at the end of five years? Imagine the Provincial Legislature passing a resolution that Cabinet Ministers will only be eligible for Cabinet positions for five years! It is a pity that this resolution was not moved by he who conceived it, instead of an innocent party, who perhaps was unconscious of the hidden purpose of official assassination by its designer. Let our officers be elected according to their value, ability and capacity for service to the Association, and let it be open and above-board.

* * *

Black brood, or "European foul brood," came in for a considerable degree of discussion. This is what Mr. Byer found in Eastern Ontario. It appears that it is first found in queen bee's cells after being capped and are overdue to hatch, in which case the queen is always found dead. It is similarly found in drone brood. The worker brood is restless and apparently in pain, and after the eighth day a brownish spot appears about the centre. It soon dies and settles down to the bottom of the cell in a foul mass. If the larva lives to be capped, we have the symptoms of American foul brood, without the ropiness or the odor. It appears similar to pickled brood, except that in the latter the skin of the dead larva stands up as a dry shell. Mr. House says that when this disease appears it is a good plan to replace all black queens by Italians. The Italians seem to be better able to combat and overcome the disease. If discovered before honey flow the McEvoy treatment will remove it. It is said to be very rapid in its destructive course.

Now We'll be Good

MR. HOLTERMANN ISSUES WRIT FOR LIBEL

TAKE NOTICE that I complain of certain statements published of or concerning me in the issue Volume 16, Number 11, of The Canadian Bee Journal for the month of November, 1908, and published on or about the 10th day of November, 1908, on pages 406 and 407, as being libellous:



R. F. HOLTERMANN

(a) "In the Farmers' Advocate of Oct. 29th appears a report of the National Convention, recently held at Detroit. The Advocate has no doubt received the report in good faith and paid well for it. In its reference to the discussion of foul brood the name of Wm. McEvoy is entirely omitted. Mr. McEvoy is a Canadian, whose home is in Woodburn, Ont., and is the most prominent man on the continent of America in the matter of foul brood. In the discussion that took place his statement was of the utmost importance, and was so regarded by the convention, as was evidenced by the magnificent reception he received. He is recognized as one of the greatest living authorities on foul brood, for which distinction Canadian bee-keepers are justly proud. Yet in the report above referred to his name does not appear, while that of Mr. Holtermann is mentioned several times. If one takes upon oneself the self-imposed task of reporting meetings of such importance for the money there is in it, one ought to be honorable and big enough to suppress one's envy and jealousy, and render an honest report. The Advocate paid for it, and was entitled to an honest report. Such unfair conduct always defeats its purpose. The absence of Mr. McEvoy's name made him more conspicuous than if it had appeared, and, furthermore, this protest would not have been called forth. With this hint, we feel assured that the Advocate will insist on 'honest goods' hereafter."

(b) "We notice a report of the Detroit convention in the Montreal Family Herald and Weekly Star. The prominence given therein to our distinguished friend, Mr. Holtermann, would lead one to believe that he certainly was 'It' at the convention. If these reports 'at good prices' were as 'square' as Mr. Holtermann's 'square hive, they would square better with the facts.'"

Meaning thereby that I made unfair, untruthful and dishonest reports of the proceedings of the said convention.



YE NAUGHTY EDITOR

Dec. 1908

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To James J.
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AND FURTHER TAKE NOTICE that this notice is given to you pursuant to The Act respecting Actions of Libel and Slander, R.S.O., Chapter 68, Section 6.

Dated at Brantford this 21st day of November, 1908.

R. F. HOLTERMANN.

Of 77 Brock St., in the City of Brantford, in the County of Brant, Apiarist.

To James J. Hurley, and to The Hurley Printing Co., Brantford, Ont., publishers of The Canadian Bee Journal, Newspaper.

The correspondence, or reports, contained in the papers above named were unsigned. Mr. Holtermann's action is practically an admission that the reports were written by him. We thought the criticism fair. It was our opinion that a report of the foul brood discussion at the Detroit convention that contains no mention of Mr. McEvoy's name would be like a report of "Hamlet" with all reference to Hamlet left out. The C.B.J. is published in the interests of the beekeepers of Canada, keeping particularly in view the interests of the Ontario Beekeepers' Association. The maintenance of this Association is what secures to us the aid and assistance of the Ontario Government in promoting the bee industry, and particularly its active and powerful assistance in combating foul brood. Any action or writing that may cast reflection upon one or any of its foul brood inspectors did seem to us to be a weakening of our position and a legitimate subject for criticism. We desire to be

perfectly fair in our criticisms, and do not wish to do any injustice to Mr. Holtermann or any one else. When making the criticisms complained of we were actuated by no malice towards Mr. Holtermann, or whoever the writer of the reports may have been. We wish to be as "square" to Mr. Holtermann, and all other men, as his square hive is square. We felt that a slight was put upon the man to whom we are indebted for the method of curing foul brood, and only sought to put him right. If we have unintentionally done Mr. Holtermann any injustice, we are sorry for it. We only wished to see that Mr. McEvoy got what we thought was justice.

We await the outcome with resignation.

James J. Hurley

Ed. C.B.J.

HOW TO PREVENT CONSUMPTION

[Published by the Canadian Association for the Prevention of Consumption.]

General Precautions to be Observed:

Live as much as possible in the open air.

All rooms occupied by consumptive persons should be as well lighted and ventilated as possible. Fresh air, light and sunshine are most important preventives of consumption. It is not safe for a healthy person to share a bedroom with a consumptive.

No chimney should ever be blocked up, and windows should be kept open.

Cleanliness and good sanitary surroundings are important, both for the prevention and for the cure of consumption.

Wet dusters must be used to wipe up the dust on the floor, furniture, woodwork, etc., and must afterwards be boiled. Tea leaves used on the floor should afterwards be burnt. Do not chase dust about or stir it up.

Milk, especially that used for children and invalids, should be boiled or sterilized. Meat should be well cooked.

A room which has been occupied by a consumptive should not be used again until it has been thoroughly cleansed. In the event of a death from consumption, advice may be sought from the local sanitary authority.

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HEALTHY EDITOR

HONEY—PURE AND ADULTERATED

An Address Prepared for the Annual Convention of the Bee-keepers' Association of Ontario

By A. MCGILL, Chief Analyst,
Inland Revenue Dept., Ottawa.

Mr. President and Gentlemen: We have in connection with our work at Ottawa on five different occasions collected samples of honey throughout the length and breadth of the Dominion, and the results of our work upon these samples have been published in bulletin form, and I have brought with me a number of copies of each of the bulletins reporting the collections. The first collection was made in 1897 and is reported in bulletin No. 47. The next collection was made in 1903 and is reported in bulletin No. 90.

Mr. Chairman and Gentlemen, it would be a very easy and satisfactory thing to speak in general terms of honey and the character of honey—its history, how it is used, and so on; but this morning I am going to try to act rather as a schoolmaster, if I may be permitted to do so. I wish to take up the subject in a serious fashion, and while I shall attempt to discard as far as possible all technical terms in the course of this address, because I hold it is not fair to expect people who do not make a specialty of chemical work to be able to follow chemical nomenclature and methods, yet there are two or three words that will insist upon being used, and just at the beginning I shall ask you to be kind enough to fix in your minds two or three terms. Take the term "flour." You have corn flour and buckwheat flour, as well as wheat flour. I want you to learn to think of the word "sugar" in the same way. When you buy a dollar's worth of sugar you imagine a particular kind of sugar. You must not imagine that this is the only kind of sugar. What you call sugar I will call cane sugar—I mean the kind we buy in the grocery shops and use in our tea. Chemists call it sucrose. The sugar that is in honey is not cane sugar; at least,

not the main sugar. A well-made honey by healthy bees very seldom contains more than two per cent. of cane sugar. The sweetness of honey is due to a different kind of sugar altogether; it is really due to two kinds, dextrose and levulose. Often they are put together and spoken of as if they were one sugar; often we speak of this as invert sugar. What we mean by this is a mixture of dextrose and levulose. If you will kindly keep in mind the terms "cane sugar"—the sugar we use on our tables—and "dextrose" and "levulose"—as the names of the sugars in honey—and remember that these sugars are often spoken of as "invert sugar," you will be in a position to follow me. They are spoken of as invert sugar for this reason, that cane sugar can be turned into dextrose and levulose, and to turn it into it is called inverting it. To turn the common sugar we buy in the shops into the sugars we find in honey is termed "inversion," and when we do vice versa we call it invert sugar. I want to preface the address with these remarks because I can find no terms to replace those words.

The first thing necessary to a clear and useful discussion of any question is that we should know what we are talking about. In the present case, we must make up our minds as to what honey is. Perhaps you will allow me to illustrate at once the exact definition, and the importance of such definition by reference to another article of food.

Milk is universally recognized as a product of the cow's udder. We may imitate milk, by incorporating more or less successfully, the fat, milksugar, albumen, casein and water with traces of salts; but without the agency of the cow our best attempts will be denied recognition as more than imitations of milk. But we have still to decide whether the actual product of the cow's udder is necessarily milk. So far as Toronto is concerned, even this will not be recognized a **legal milk** if it fall below 3.0 per cent. in fat. Many cows yield a fluid

Dec. 1908

containing less than 2.0 per cent. of fat, hence these cows are at least do not produce a product containing less than 2.0 per cent. of fat milk; but suppose I deprive it of its fat, the product milk? The fat in your milk and if my diluted milk produced the same standard 9.0 per cent. fat, would it be recognized as milk? As I exercise precaution in the dilution of water in the milk, and even should the solids below 9.0 per cent. of such quantity of water up to the legal limit, would the legal produce legal milk? The effect dilution of water in the production of a legal standard for legal milk is the chemical composition of the milk which stands the test of the legal definition of milk. That milk is the product of the cow's udder, and I think we need not further discuss the definition of milk, but they are not genuine milk. I need not further discuss the definition of milk, and have no objection to give us a case of honey. Judicial to the production of honey is essential to the production of honey, and I think we need not even should the definition of honey be something else. This does not assume that the honey would be the product of the cow's udder, but would the honey be called honey? But again, we have no objection to be yielded by the

containing less than 3.0 per cent of fat; hence these cows do not give milk, or at least do not give legal milk, within the municipality of Toronto. Other cows give a product containing as much as 5 or 6 per cent. of fat. Of course, this is legal milk; but suppose I take this milk and deprive it of from 1.5 to 2.5 of fat, is the product milk? You have other constants than fat in your legal definition of milk, and if my dilution with water has reduced the non-fatty solids below the standard 9.0 per cent., the result will not be recognized as legal milk; but as long as I exercise proper judgment in the addition of water, the resultant liquid will be milk in the legal sense of that term, and even should I reduce the non-fat solids below 9.0 per cent., may I not add such quantity of these as shall bring them up to the legal minimum and thus produce legal milk? Finally, may I not effect dilution of a milk rich in fat by addition of fully skimmed milk, and thus produce a legal milk? So far as the standards for legal milk are based upon the chemical composition of milk, the supposed treatments yield an article which stands the test for legal milk, and we must recognize it as such. But, if the definition of milk involves the condition that milk is the unaltered and unchanged product of the cow's udder, these manufactured milks cannot be regarded as genuine milk. They may be as good as milk, but they are not milk.

I need not further discuss the case of milk, and have dwelt so far upon it in order to give us a sort of analogue of the case of honey. Just as the cow is essential to the production of milk, so is the bee essential to the production of honey, and I think we may decide at once that even should the chemist be able to manufacture something as good as honey (and this does not assume that he can do so), yet would the resultant, lacking the agency of the bee, not be entitled to be called honey?

But again, we have seen that not everything yielded by the udder of the cow is

entitled to be called milk in the legal acceptance of the term. Must we recognize everything that passes through the honey-stomach of the bee and filled by that insect into the comb as honey? Unfortunately, we have in Canada no legal definition of honey such as to enable us to describe the article inclusively and exclusively. Sec. 30 of the Adulteration Act, R.S., 1906, forbids the feeding of bees with sugar, glucose, or any sweet substance "other than such as bees gather from natural sources, with the intent that the same shall be used by the bees in making honey."

This is the only point upon which we have any legal statement in the matter of honey. Section 30 of the Act further forbids the manufacture or sale of any "imitation honey, or sugar honey so-called, or other substitutes for honey" in Canada. But I shall consider this point later. You will see that it is assumed throughout that we know what honey is, and we wish now to keep your attention upon the single point, "What is honey?"

The law goes no further than to say that honey must be made by bees, and must be made by them from "natural sources." You will note that it is forbidden to supply bees with any other raw material for the making of honey than "such as bees gather from natural sources." When a field of clover or of buckwheat is sown by a bee-keeper with intent to pasture his bees upon it, he is evidently supplying them with a legitimate material for honey production. No one will deny that from the nectar of clover blossoms the bee is capable of making typical honey. Now the nectar of clover flowers has been carefully analyzed and found to consist essentially of about 0.5 per cent. of mineral matters, 85 per cent. of water, minute traces of aromatic substances, and sugars. The sugars constitute about 14 to 15 per cent. of the whole, and consist of cane sugar and reducing sugars (dextrose and levulose), in the ratio of about 1 to 3; that is, nearly one-fourth of the sugar in clover nectar

is cane sugar, the same kind of sugar that we use at the table. If this be taken as the true composition of nectar, and it is correct so far as chemistry can ascertain, then it should be perfectly easy to manufacture a nectar in imitation of clover flower nectar. At least, the problem is a simple one so far as the sugars, water and mineral matters are concerned. The aromatic substances are present in such minute quantity as to elude the attempts of the analyst to separate and exactly define or describe them. May they be regarded as of little importance, or of such slight importance that somewhat similar flavors such as the chemist can produce may be substituted for them? If this be granted, then we should be able to place before our bees an artificial nectar, quite similar, so far as chemical methods can detect, to naturally occurring nectar, and therefore "such as bees gather from natural sources," and perfectly fulfilling the terms of Sec. 30 of the Adulteration Act.

Now I am not to be taken as advising such a violation of the evident intent and spirit of the Act, while meeting its verbal requirements, as would be involved in the supplying bees with artificial nectar. The moral of my argument is this: We should have such a positive definition of honey as shall clearly exclude an article made by bees from any other than the actual nectar of flowers. It is not enough to say what honey is not; we must seek to define it positively. This requires a statement to the effect that honey must be made by bees from the nectar of flowers, and it seems to me that we have already arrived at two positive statements which must enter into our definitions, viz.:

1. Honey made by bees.
2. Honey is made by bees from the nectar of flowers.

Careful observation has proved that bees obtain material for honey-making from other sources than floral nectar. Many plant juices contain sugar in solution. This is particularly true of sorghum, sugar cane, Indian corn, maple sap,

etc. These plants, when wounded or broken, exude a sweet juice, which is eagerly sought by the bees. Perhaps more important is the so-called **honey-dew**, a sweet liquid exuded by the leaves of many plants, particularly such as are affected by aphides, or plant-lice. The maple, poplar, birch, mountain ash, and some plants of the cress family, are specially noted as producing honey-dew. Cone-bearing trees provide, in some cases, a raw material for honey-making quite different from ordinary nectar, and the resultant honey often has a strong dextrorotation, whereas ordinary honey is always levo-rotatory. It is apparent that such natural materials as are referred to must be included in our definition of honey, and our second term may now read: "Honey is made by bees from the nectar and saccharine exudations of plants."

(Continued on Page 471)

THE YOUTH'S COMPANION FOR 1909

The amount of good reading given to subscribers to the Youth's Companion during the year is indicated by the following summary of contents for 1909:

Fifty star articles, contributed by men and women of wide distinction in public life, in literature, in science, in business, in a score of professions.

Two hundred and fifty capital stories, including six serial stories, humorous stories, stories of adventure, character, heroism.

One thousand up-to-date notes on current events, recent discoveries in the world of science and nature, important matters in politics and government.

Two thousand one-minute stories, inimitable domestic sketches, anecdotes, bits of humor and selected miscellany. The weekly health article, the weekly woman's article, timely editorials, etc.

A full announcement of the new volume will be sent with sample copies of the paper to any address on request. The new subscriber for 1909 living in Canada who at once sends \$2.00 will receive free all the remaining issues for 1908, including the double holiday numbers, also the Companion's new calendar for 1909, "In Grandmother's Garden," lithographed in thirteen colors.

The Youth's Companion, 144 Berkeley Street, Boston, Mass.

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HOW OUR GOVERNMENT AIDS

Before the Canadian Club in Toronto, on Monday, Nov. 16, Mr. C. C. James, Deputy Minister of Agriculture, delivered an address on "Agricultural Problems of Ontario." In pointing out that Ontario is the premier province of the Dominion, he declared it to be to the interest of all city dwellers to maintain it in that position. He said there were 175,000 farms in the province, with an investment of \$1,200,000,000 and an annual product of \$200,000,000. A ten per cent. increase on this would mean \$20,000,000 a year. He believed the increase possible, and even to the amount of 20 or 30 per cent., if the farmers would put into operation the best methods known. The farmer was now buying and selling for cash, and city business men were more than ever interested in him. As controlling the food products, and as a producer of surplus cash, the farmer also deserved the attention of city men. The moral effect or influence which the farmer has upon the country was another important point to note. The source of danger to a country was in the congested districts of the country. The development of a strong, healthy, contented rural community would be one of the important assets in the future of the nation.

It was a comparatively easy thing to add \$100 a year to the income of a farmer. In any district around a rural town with 200 farms adjacent this meant \$20,000 a year more to spend in it. The Government had nine agencies at work in the education and development of the farm. The head office looked after statistics, issued reports, did special work and represented generally. The agricultural and horticultural societies had been at work for 116 years, the longest established organizations outside the Legislature. The live stock branch directed cattle and poultry shows and looked after these interests. The Farmers' Institute work brought the latest word to the farmer about his business. The dairy

branch with forty odd instructors in cheese factories and creameries, also went into the homes of the farmers to improve dairy conditions there. The first branch had recently been active in the city and raised the standard of packing and marketing. The colonization bureau was occupied with bringing the right sort of immigrants to the farming communities and in supplying labor to the farmer. The Ontario Agricultural College at Guelph was well known, and the Veterinary College was the latest addition to the Government's work. A drainage department was in its infancy, having only been in existence for three or four years. A scheme for dealing with lands which were deforested and unfit for farming is being considered to buy back the lands from those who only eked out a miserable existence, and turn the lands back to the forest reserves.

If the improved seeds developed by the agricultural society were used by farmers all over the country, 25 per cent. increase would be quite possible. In ten years the live stock trade had increased from 30 to 60 millions. Mr. James suggested that if a prospectus were prepared of the farm industry of Ontario, showing the investment and present revenue, and estimating the possible increases, ten per cent. on live stock, ten per cent. in dairying, ten per cent. in fruit, ten per cent. in each department, doubling the revenue, it would attract attention.

"Put a prospectus of that sort beside the most glowing Cobalt prospectus ever seen, and which would you prefer?" (Applause).

That more had not been done was partly because of the want of the men, partly because of the want of money. The Government was giving all the assistance the revenue would permit. He could only hope the revenue would increase. The Northwest had drained Ontario of its young men. Everywhere the farmer was crying out that he was crippled and could not get his work done. The labor problem was acute.

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The indifferent farmer was a decided obstacle. The question was how to get his attention. The farmers' institutes had done a great deal, and the women's institutes were gradually inaugurating a revolution in the conditions of farm life. The result of opening of branch offices in the country towns, with live young men representing the Government departments, has been most encouraging, and if this new missionary movement could be started in thirty or forty centres, it would bring a solution of the problem to be met.

[From the above we can gather some idea of what must have been a brilliant and instructive address. The Government is seeking to do for bee-keepers, also, that which will promote the greater production of honey and the preservation of the bees from disease. If those having a few hives of bees, kept in any old way, would regard the visit of the inspector as that of a friend, instead of with fear and suspicion, our progress in the improvement of the bee-keeping industry would be greater. Our Provincial Government is certainly doing much for the betterment of the farmer.—Ed.]

Honey, or, more properly speaking, flower nectar, when first gathered by the bees is a double sugar or cane sugar. But while the busy bee is flying home from the fields she is at work completing in her honey-sac the change of this cane sugar into a single sugar—or grape sugar. The honey is then deposited in the cells in the hive and evaporated by currents of air driven through the hive by the buzzing of bees stationed at the entrance to the hive for that purpose, until it is well "ripened" to prevent souring. It is then sealed up and ready to be eaten as a very wholesome food not without medicinal qualities, for honey has a very soothing effect upon the throat. It will be seen that the first stage of digestion is completed, and when we eat honey we eat in so far a pre-digested food.

The Canadian Bee Journal provides the most useful and up-to-date information concerning the bee industry. Subscribe now. One dollar per year.

**O.B.K.A. FINANCIAL STATEMENT
1907-1908**

Receipts

Balance from last year.....	\$244 58
Dec. 30—By cash from Sec. Hodgetts	53 60
June 3—By cash from Sec. Hodgetts	18 00
June 12—By cash from Gov. grant..	450 00
July 7—By cash from Sec. Hodgetts	38 00
Nov. 10—By cash from Secretary for membership fees	25 50
Nov. 10—By cash from Secretary for entry fees	4 50
	\$844 18

Expenditure

Nov. 15—Paid M. D. Lawrie, caretaker of hall.....	\$ 3 00
Dec. 12—Paid S. D. House, expenses annual meeting	25 00
Dec. 12—Paid J. H. Dunlop, grant to Fruit, Flower and Honey Show	50 00
Dec. 12—Paid J. H. Thomson, services F. F. and Honey Show....	20 00
Dec. 12—Paid Paul E. Grainger, one-half dozen comb honey.....	1 75
Dec. 12—Paid Geo. Laing, 9 jars honey	1 25
Dec. 12—Paid Wm. Briggs, program annual meeting	6 50
Dec. 12—Paid Geo. Angus, for reporting annual meeting.....	75 00
Dec. 19—Paid J. H. Dunlop, honey prizes, F. F. and Honey Show..	38 13
Dec. 30—Paid Hurley Printing Co., for 95 subscriptions, C.B.J.	61 75
Jan. 22—Paid Hurley Printing Co., for 95 subscriptions, C.B.J.	6 50
April 2—Paid Hurley Printing Co., for 95 subscriptions, C.B.J.	44 85
April 2—Paid H. S. Sibbald, revising annual report, and honey.....	9 40
April 2—Paid H. G. Sibbald, revising heads	8 50
June 3—Paid M. B. Holmes, expenses Executive meeting	10 90
June 12—Paid Wm. Briggs, printing posters bills warning against spraying	4 25
July 4—Paid Hurley Printing Co., C.B.J. subscriptions	17 45
Aug. 27—Paid Hurley Printing Co., C.B.J. subscriptions	18 50
Oct. 6—Paid Wm. Briggs, printing..	22 00
Oct. 28—Paid Affiliated Societies grants	200 00
Nov. 4—Paid Industrial Exhibition, prize list	25 00
Nov. 12—Paid Sec. Haldimand B.K.A.	20 00
Nov. 12—Paid Wm. Couse, expenses Executive Committee	5 80
Nov. 12—Paid Wm. Briggs, printing	9 60
Nov. 12—Paid W. J. Craig, expenses Honey Crop Committee.....	3 00
Nov. 12—Paid W. A. Chrysler, expenses Executive Committee....	7 00
Nov. 12—Paid Treasurer's salary and postage	29 00
Nov. 12—Paid Directors' and Officers' expenses, annual meeting	108 70
Nov. 12—Paid Auditors	2 00
	\$826 44
Balance on hand	17 74

HONEY MARKET

The market is quiet, with prices unchanged. Combs, \$2 to \$2.75 per dozen; strained, 10c to 11c per pound.

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WE "WATC

Our genial Mr. Wm. Cou given a much number of yea indefatigable S The members, able services, Presidency, bu an address an The following M. B. Holmes

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WM. COUSE
President-elect, O.B.K.A.

WE "WATCHED" THE PRESIDENT

Our genial, newly-elected President, Mr. Wm. Couse, of Streetsville, has been given a much-merited recognition. For a number of years he has been the able and indefatigable Secretary of the Association. The members, in recognition of his valuable services, not only elected him to the Presidency, but also presented him with an address and a valuable gold watch. The following is the address, read by Mr. M. B. Holmes :

"To Wm. Couse, Esq. :

"Dear Sir,—We, your associates and co-workers in apicultural pursuits, would ask your indulgence for a moment, and ask you to kindly pardon us for detaining you while we speak to you on a matter which may seem to you of trifling or no importance, but which we think worthy of immediate consideration. As Secretary of the Ontario Bee-keepers' Association for a number of years you have been more or less in the limelight, and your excellent and sterling qualities have not been unnoticed by us; indeed, we for years have known of your worth and are proud to believe that your star will

continue in the ascendancy until lost in the splendor of the 'High Noon' of Life. Your keen foresight in matters pertaining to our industry, and your knowledge of detail in the working out of the same, have been of great value to our Association during all these years. Your cheery greeting is an unending inspiration; in fact, your 'Good morning!' seems actually to presage a 'real good day.' We have been watching you, and now that we have come to the parting of the ways, and you are no longer our secretary, we desire still to 'watch' you, and we beg your acceptance of this gold watch as a slight token of our appreciation and regard for you. We trust that with this timepiece pleasant memories will remain with you while the sand in Life's hour-glass slowly but surely spends itself, and that at the close you may in retrospect have the comforting assurance that—

"Those who strew the violets shall reap
 the corn,
 And, having reaped and garnered,
 bring the plow
 And work fresh furrows 'neath the shady
 morn,
 And plant the "Great Hereafter in the
 Now."

"Signed on behalf of the Association :

"M. B. HOLMES."

President-elect Couse made a very feeling and humorous reply, and promised the Association his best efforts in the future as in the past. He took his seat amidst a hurricane of applause.

O.A.C. INSTRUCTOR AT MASSACHUSETTS AGRICULTURAL MEETING

Greenfield, Mass., Dec. 2.—The forenoon session to-day of the State Board of Agriculture's annual winter meeting was given over to the consideration of bee-keeping. Among the speakers was Chas. Stewart, bee inspector of the New York Department of Agriculture. He discussed "Profitable Bee-keeping." The afternoon programme included an address by Prof. H. H. Dean, of the Ontario Agricultural College, Guelph, Ont. His subject was "The Cow and the Man, Twins of the Dairy Industry."



W. J. CRAIG
Vice-President-elect, O.B.K.A.

OFFICERS-ELECT, O.B.K.A.

President—Wm. Couse, Streetsville.
1st Vice-Pres.—W. J. Craig, Brantford.
2nd V.-Pres.—D. Nolan, Newton-Robinson.
Sec'y—P. W. Hodgetts, Department of
Agriculture, Parliament Bldg., Toronto.
Treasurer—Martin Emigh, Holbrook, Ont.
Auditor—J. H. Thomson, Britannia.

Directors

District

- No. 1—Alex. Dickson, Lancaster.
- No. 2—A. A. Ferrier, Renfrew.
- No. 3—A. McLaughlin, Cumberland.
- No. 4—R. Lowey, Cherry Valley.
- No. 5—Jas. Storer, Lindsay.
- No. 6—Wm. Couse, Streetsville.
- No. 7—J. M. Switzer, Orangeville.
- No. 8—Jas. Armstrong, Cheapside.
- No. 9—W. J. Craig, Brantford.
- No. 10—D. Chalmers, Poole.
- No. 11—W. Chrysler, Chatham.
- No. 12—D. Nolan, Newton-Robinson.
- O.A.C.—T. D. Jarvis, Guelph.

Executive Committee—President Couse;
1st and 2nd Vice-Presidents and Secretary.
Honey Show Committee—President Couse,
Grainger, Sibbald and Secretary.
Revising Com.—H. G. Sibbald, Claude.
Honey Crop Committee—P. W. Hodgetts,
Toronto; Wm. Couse, Streetsville; H. G.
Sibbald, Claude; W. J. Craig, Brantford.

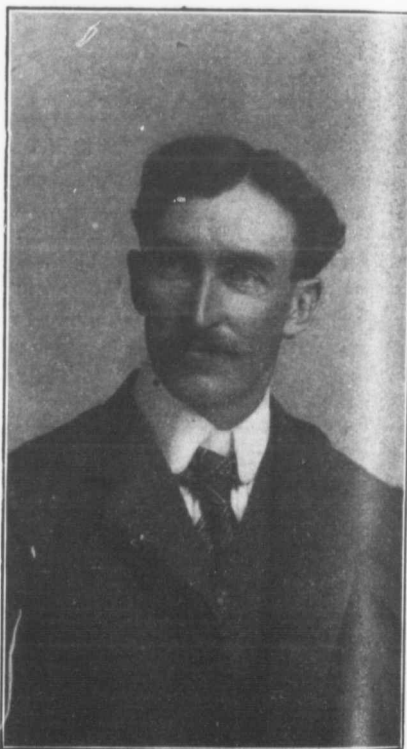
Transportation Committee—Wm. Couse,
Streetsville; J. D. Evans, Islington; P. W.
Hodgetts, Toronto.

Representatives—

Toronto Exhibition: J. D. Evans, Islington.
Ottawa Exhibition: W. J. Brown, L'Orignal.
London Exhibition: F. J. Miller, London.

Foul Brood Inspectors

Homer Burk (Highland Creek), Eastern
Counties.
W. A. Chrysler (Chatham), Counties of
Essex, Kent and Lambton.
John Newton (Thamesford), Counties of
Elgin and Middlesex.
D. Chalmers (Poole), Counties of Perth
and Huron.
Jas. Armstrong (Cheapside), Counties of
Norfolk, Oxford, Waterloo, Wellington.
Wm. McEvoy (Woodburn), Counties of Hal-
dmand, Welland, Brant, Lincoln,
Wentworth and Halton.
H. G. Sibbald (Claude), Counties of Bruce,
Grey, Simcoe, Dufferin, Peel, Muskoka.
J. L. Byer (Mt. Joy), Counties of York,
Ontario, Victoria and Durham.



D. NOLAN
Second Vice-President-elect, O.B.K.A.

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MEASURES TO PREVENT SWARMING

[Read by Orel L. Hershiser at O.B.K.A.]

The natural tendency to swarm during the main honey flow occasions more trouble and annoyance to the bee-keeper than all other apicultural duties combined during the season of honey production. Much has been thought and written on the subject of non-swarmering hives, non-swarmering strains of bees, swarmer hives and the like, the common aim being to diminish the work during swarmering time without diminishing the maximum amount of honey obtainable by the best management and, by reason of swarmer control, to enable the keeping of out-apiaries and thus greatly increase the honey output.

That out-apiaries may be successfully managed for extracted honey without troublesome swarmering many of us know, though I freely confess that I annually lose a few swarms. While greater vigilance might prevent the losing of any swarms, I aim to conduct my apicultural operations on such lines as will produce a maximum profit with a minimum expense, and for extracted honey production I am satisfied with the result. I fancy the majority of bee-keepers who run out-apiaries for extracted honey are also satisfied with their success.

With me the control of swarmering in the production of extracted honey is successfully accomplished by enlarging the brood chamber from time to time as needed by adding what I have found by experience will be not just enough, but an abundance, of room for the queen, and at the opening of the honey harvest, an abundance of room for the storage of the honey. At the near approach of the swarmering season, too much room is just enough. But with very prolific queens, and especially when a visit to the out-apiary has been delayed by rainy weather or for other reasons when the weather conditions are conducive to swarmering, it occasionally happens that a few colonies will become overcrowded, and

hence the loss of an occasional swarm. But inasmuch as the lost swarms represent a smaller sum than would be required to keep an attendant in charge, or to compensate for the upsetting of plans in order to reach the out-apiary on exact time, the lost swarms with me do not represent an actual loss of profits.

The control of swarmering in the production of comb honey in out-apiaries is quite a different proposition. This has proven to be a will-o'-the-wisp that many of us have been chasing with more or less fervor, but thus far it seems to have eluded our every effort to grasp it. Dequeening and breaking down queen cells eight days thereafter will certainly accomplish the desired end, but the compensation in comb honey produced over that of extracted honey is not enough to more than equal the expense of the additional labor. Going over all the colonies of an apiary that are at all likely to swarm during the next eight days, once in eight days, examining every brood comb for queen cells, is open to the same objection. In the arid regions of the West, where apiarian work may be planned with precision without interruption on account of rainy spells, this last-mentioned plan may be more economically and successfully followed than elsewhere where weather conditions interfere.

I believe it has been claimed that a swarm will not issue from a hive containing two or more queens, but I believe many bee-keepers will agree with me that we need first to know how, with precision and little labor and expense, we may be able to supply and have our colonies accept two or more queens before we will be able to determine whether this plan is successful when extensively applied.

Separating the brood combs by division racks, and allowing an abundance of room for clustering in spaces at the ends of the frames as well as between each two combs, is claimed to be a means of defeating swarmering. While we have not tried this means of preventing swarmering,

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we have no reason to doubt that it will succeed, if for no other reason, we would assume, that the breaking up and leaving the colony in what might be termed an abnormal condition might cause them to neglect swarming preparations that would naturally obtain with colonies in the normal conditions. However, if, as is claimed, more honey may be produced from a given number of bees—in other words, if it pays—there is no objection to the plan on the score of throwing a colony out of the normal state. The expense of making the change of hives would naturally suggest itself, but the logical conclusion on that point would naturally follow the determination of the query, "Will it pay in dollars and cents?" Before making a wholesale change of outfit the apiarist with hundreds and thousands of dollars invested in hives will naturally ask himself whether the extra help required to separate all the frames of brood of all his colonies in the spring, and assembling them again in the fall, would not be as much or more expense than would be required to keep an attendant in each yard during the swarming season, whose odd time while not hiving swarms could be profitably utilized in keeping up the work of the apiary he had in charge.

Right here it may be suggested that it is the belief of not a few extensive bee-keepers that more colonies may be profitably kept in the average location than has heretofore usually obtained. If this be true, and the bee-keeper with one or more out-apiaries could increase the number of his bees in each apiary, an attendant could be profitably employed constantly during swarming time.

There is one plan of swarm control that has heretofore been the subject of discussion in more or less of a desultory fashion, but which seems to me to merit exhausted experiment by every apiarist who is now making a specialty of bee-keeping, and especially the comb-honey producer, and here I refer to the plan of having a queen of the current season's

rearing introduced into every colony that is likely to swarm just prior to the swarming season. It seems to me that this plan is the most fruitful of possibilities of any that has been discussed, and that concerted experiments by many apiarists with this means to arrive at the desired end cannot but result in much good to the craft.

It is said that colonies with such queens will not swarm. While this theory may not be absolutely infallible, the fact that an apiarist of prominence has practised re-queening with queens of the current season's rearing for the very purpose of controlling swarming lends strong color to the belief in the success of the plan. Here we have, then, something that is practicable, something the success and profit of which depends not entirely on the single factor of swarm control, but which yields a profit by reason of the better service of the young queen than we might expect from the average queen a year old or older.

There is seldom, if ever, a season when an apiary of a half-score or more of colonies will not have at least one and often several of them, very strong during apple bloom. In fact, swarms are by no means uncommon during this period, and ordinarily good queens are produced without the extra devices and manipulations employed by the queen specialist. At comparatively trifling expense the apiarist can easily equip himself with such devices as will make it reasonably certain to breed queens with precision during the apple bloom period. If the season of bloom is unfavorable to honey production, resort may be had to stimulative feeding of the strong colonies selected for queen-rearing in order to bring and keep them in the best condition for the purpose. With queens reared thus early there is plenty of time to form nuclei and build up colonies in time for the main honey flow from clover and basswood, which is also the main swarming season. Does it not seem an easy matter to thus provide early in the season a

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young and vigorous queen for each colony at trifling expense? Is it not an easy matter to simply substitute a newly-made nucleus in place of each colony and transfer the latter to the former, thus building up the nucleus to a full colony practically at one operation? Is not this an easy plan of making all desired increase at the least expense, and at a time when the bee-keeper is not rushed, as is the case when swarming is in full progress at the height of the honey flow. It will be apparent to the practical apiarist that profitable use may be made of all old vigorous queens by keeping them in strong nuclei for the purpose merely of brood production with which we may from time to time replenish our honey-producing colonies, thus keeping them so strong as to insure a maximum crop of honey if the flowers secrete the nectar. None will doubt that these young vigorous queens will not more than pay for all the trouble and expense of their rearing in the additional strength and productivity of the colony.

Assuming that it is reasonably certain that a colony containing a queen of the current season's rearing will not cast a swarm, we have here a practical and effective plan of swarm control—one that requires no extra devices or special hives, one that requires only such work as is necessary in making artificial swarms, one in which the work may be done out of the busiest season, one in which a greatly-increased profit in honey production is at once to be expected, more than sufficient to compensate for all the extra trouble and labor in rearing the queen, and one in which the normal status of the colony is not essentially disturbed.

COMBATTING FOUL BROOD

[Read by D. Chalmers, Poole, Ont., at O.B.K.A.]

It is questionable if we apiarians are confronted more stubbornly by any subject at the present time than the effective combatting of foul brood. We are certainly greatly indebted to Mr. Wm.

McEvoy, of Woodburn, Ont., for devising and giving us a simple course of treatment whereby diseased colonies are easily rid of that dread malady, but back of that we have obstacles of no little magnitude, the greatest and almost the whole trouble being amongst those who keep but a few Fives, which in many cases might well be placarded, "No admittance—whether on business or not."

During my short experience as a foul brood inspector I encountered quite a number of hives containing immovable combs. If they had separate bottom-boards, the hive was up-ended and a chunk of comb containing brood cut therefrom, in a rude way, through the underside of the hive. You can readily understand that the disease might be present in the hive and yet not be detected by such a test. Then I have been confronted with colonies which could not be diagnosed without the hive being torn asunder, and they had to go uninspected. Those are the main obstacles inspectors meet with in their search.

As the Foul Brood Act now reads, inspectors have no power to order bees to be transferred (should the combs be immovable) unless "foul brood is known to exist in the apiary," and the question arises, "How is the inspector to know whether the disease exists or not when there is not a removable comb in the yard?" My impression is that this state of affairs can be remedied by the Hon. the Minister of Agriculture having the Foul Brood Act so amended as to compel all who keep bees to display to the inspector at least three combs of maturing brood, or all if requested, from every hive desired, and in the event of failing to do so, empower the inspector to destroy objectionable hives, together with their contents.

Another trouble which looms up before us in combatting foul brood is the "locality" question. "The inspector, whenever so directed by the Minister of Agriculture, is to visit without unnecessary delay any locality." Well, we all have our

several localities, but what about those beyond and between—localities in which some keep bees who are very ignorant of the art of bee-keeping, and who are not observant enough to detect bee diseases? They assuredly would never think of applying for an inspector, and consequently from them the disease will eventually work into our locality again. The question arises, "Could there not be some means instituted of locating every colony of bees in the Province, and have them inspected where deemed necessary by the inspectors?"

When foul brood is found in the apiary of many of those bee-keepers who think bees should look after themselves, the great trouble is to get them to grasp the instructions and act according to the plan directed, which would effect a cure if carefully carried out. It might truly be said of many of them, "They have ears but hear not, neither do they understand." To help us out of this trouble, would it not be well to employ Mr. Wm. McEvoy to write up the symptoms of foul brood, giving also his whole plan of treatment, together with cautionary advice regarding the disposal of combs containing the disease and the thorough scalding of the extractor, comb basket or baskets, as the case may be, and have such printed in pamphlet form, prefixed by a copy of the Foul Brood Act? Let us have one of these pamphlets placed in the hands of every person who keeps one or more colonies of bees in the Province of Ontario, and, to cover at least part of the cost, said pamphlets could be decorated by advertisements from supply dealers, queen breeders, etc.

Another plan suggests itself, which would undoubtedly be more effective in stamping out foul brood, and that would be to have a quarantine station in every township where colonies affected with the disease could be sent for treatment, and have such work done by a competent person, the cost of the work to be borne by the owner of the bees. Were this plan carried out, I hold it could be done at

the least cost to the Province and be the most effective means of overcoming this our enemy.

THE PRODUCTION OF EXTRACTED HONEY

"Quality and Quantity"

[Read by Alex. Dickson, Lancaster, at O.B.K.A.]

What is extracted honey? All bee-keepers know perfectly well the source of honey. Instinct has taught the busy bee how to build up its combs and in those combs to deposit the nectar it gleaned from the flowers. After the ripening process is over the bees cap over the combs, the honey being known as comb honey. To obtain extracted honey from this the cappings are removed and the combs placed in an extractor, where the honey is thrown out of the combs by means of centrifugal force. Our product now is extracted honey, for which there is a great demand in the market, the only or main thing being to produce the good article. If all present here at this Association were old hands at the business it would not even be necessary to write on such a subject as extracted honey, but, granting that some new beginners are present, I will direct my remarks to them particularly. In a plentiful year the apiarist finds no difficulty in producing a quantity, but he must not forget that it is quality that is needed on the market—the real product only will be accepted.

Every keeper of bees has his or her own way of working their colonies; and, by the way, locality has everything to do in this direction, for a method that might hold good in one place might not suit at all in another.

If you wish to produce a good crop next season, providing the season be a good one, you must commence the fall before, first, by seeing that all your old or slow-laying queens are replaced by young ones and, second, by watching carefully that your lower combs are not filled up with honey and crowding your

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queen too early. If these things are not attended to, what will be the consequence? Your colony will be put in winter quarters far short of the bees it should have, and when spring comes you will find that you have a lot of weak colonies. You say, "How am I to avoid this?" Quite simple. Remove the outside combs, which are full of honey, and replace with empties put in the centre. Your young queen is thus given a chance to do her best before the closing of the laying season, and you will find when the time for fall feeding comes that your colonies are flowing over with young bees. A colony should have at least twenty-five pounds of honey to winter on, so be sure to feed up all colonies having less.

The combs you have taken out to give the queen a chance to lay you will put away till feeding time, and then you can give them back as winter stores. One of the secrets to procure a large crop is to have good queens. My own experience for the past twenty-five years has been that the best results were obtained from a colony that was put out in the spring with a young queen of the previous summer. But remember all young queens are not a success. I know of some apiarists who make a practice of requeening every hive yearly, but I would not advise that, either, for I have had queens laying at the age of three years that could not be beat.

Now for the spring, when you put out your bees. I have always made a practice of putting them out at night, as it avoids mixing up the next day. But make sure to have a fine day. Help the bees to clean their bottom-boards by replacing with a clean board. In about a week see that all colonies have a laying queen; if not, double up. Make sure they are not short of stores; if they are, feed them. Build up your colonies for all you are worth till clover begins. Stimulate if necessary. Now your bees are in prime condition to roll in the honey. Put your combs on in good time, and don't let them get the swarming fever.

As the first set is filled, tier up, and as each store gets capped over, take off by means of the bee-escape. My plan of using the escape is to put it on in the afternoon, and in the morning you are ready to begin extracting. Don't allow your bees to get idle for want of room. Keep them at work. As for your extracting room, it should be bee-proof and everything about it clean and tidy. In my honey-room I use tanks to store away the honey, so that I can fill my tins at leisure. I am quite aware some won't have tanks at all, but fill the tins from the extractor. As for myself, I have no use for such nonsense. It is certainly a loss of time if you are extracting from 600 to 1,000 lbs. a day.

In putting up your honey for market, in whatever form it may be called for, make it as attractive as possible.

Much more might be said on the above subject, such as cleaning combs at end of season, preserving empties not in use, fall preparation, feeding and how to feed, and various other things, but time does not permit. In conclusion I might say that one cannot go by any "cast-iron rules," but a great deal in his own good judgment.

ALEX. DICKSON.

EXHIBITION RULES

I understand from the discussion which took place on Friday morning, the last day of the recent convention in Toronto, that there is some misunderstanding as to the reason certain changes were made in the prize list of the Canadian National Exhibition for the year 1908, principally the clause relating that all the honey shown must be the product of the exhibitor. As I was directly concerned in this matter I trust you will grant me space in your valuable journal to make my position clear to the bee-keepers, as I did not have an opportunity of explaining at the time of the discussion, being unable to be present at that meeting.

During the four years I have had the pleasure of representing the bee-keepers

on the Exhibition Board I have honestly tried to ascertain their views on this and other matters, and when giving my annual report have urged them to write me expressing their opinions, that I might bring them before the Board at the proper time. Of the small number who took enough interest to reply, nearly all favored the changes made. I have also discussed these changes with several prominent bee-keepers, and the general opinion has been in favor of these changes, for the following reasons:

1st.—The unseemly row ending in the protest and investigation at the 1907 Fruit, Flower and Honey Show, at which investigation it was clearly shown that the rule referred to was **not** lived up to. It is a fact, well known to most of the honey men who have had anything to do with the exhibition for the past ten years at least, that the rule has been avoided in one way or another.

2nd.—As there is no way of knowing or proving whether or not the rule is being lived up to, the majority thought it would be much better to cancel such rule entirely, thus placing all exhibitors on an equal footing.

3rd.—The Exhibition Management believe they get a better show if the exhibitor is not confined **strictly** to his own product; furthermore, when the matter was up for discussion by the board, Dr. Orr said that all he wished was to avoid the possibility of large dealers making an advertising scheme of it, and were not bee-keepers at all.

4th.—The best and largest exhibitions in the United States have done away with the rule referred to. Some of the best writers, such as Root, Hutchinson and others, have advocated the cancelling of the rule.

5th.—The Committee who arranged the 1908 prize list for the Fruit, Flower and Honey Show not only dropped the rule that all honey shown should be the product of bees belonging to the exhibitor, but also added another to the effect that two or more members of the same family

would not be allowed to make individual entries. **In this matter my opinion was not asked, nor was the matter discussed with me in any way.**

6th.—Out of four exhibitors at the 1907 exhibition, three asked to have the change made.

I have been showing honey for several years without a break, and have always shown comb honey not my own, but always entered in the name of the producer, with the full knowledge and consent of the exhibition officials and the other exhibitors. I have made no secret of the matter, and the records, if kept, will show by whom the honey was produced. It was not counted in the display by the judge, but it made a better showing, and no objection was made until the fall show of last year.

In conclusion, may say that I have no apology to offer for my actions during the time I have been on the exhibition board. I am prepared to give good and sufficient reasons for anything I have done. I have conscientiously tried to represent the best interests of all the exhibitors, irrespective of my own views and interests, and have on all occasions tried to serve them to the best of my ability. I am like the boy who said if he had done anything he ought to be sorry for he was willing to be forgiven. My relations with my fellow-exhibitors, with one single exception, have been most agreeable and satisfactory. I believe bitterness, envy, malice and strife are bad, and life is too short to indulge in them.

Trusting this may make all clear as far as I am concerned in this matter, and thanking you, Mr. Editor, for your space, I remain,

Yours in the interest of peace, goodwill and harmony.

E. GRAINGER.

A Lancashire firm asks for prices of best honey, strained and in comb, from Canadian exporters. Refer to No. 1,768, Department of Trade and Commerce.

PURE

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PURE HONEY STANDARD

At the close of his valuable address on "The Adulteration of Honey," A. McGill, Chief Analyst, Inland Revenue Department, Ottawa, suggested the following resolution for adoption by the Ontario Bee-keepers' Association, as definitely defining the standard for genuine honey. Some discussion took place as to whether the percentage of water should be 25% or 30%, but 25% was finally agreed upon. Also what should be the percentage of sucrose (cane sugar), 5% or 10%. This was finally decided by placing the figure at 8%. The resolution finally passed in the form as it appears below, and constitutes the standard of pure, genuine honey as recognized by the Ontario Bee-keepers' Association:

"Recognizing the importance of legal definition in the case of honey, this Association respectfully recommends the adoption of the following resolution as embodying the present state of our knowledge regarding Canadian honey:

"Honey is entirely the product of the work of the bees (*Apis mellifica*), operating upon the nectar of flowers and other saccharine exudations of plants, and contains not more than 25% of water, or more than 8% of sucrose (cane sugar), nor less than 60% of invert sugar. It does not give a blue color with iodine (absence of starch syrup), nor a red color with aniline acetate (absence of artificial invert sugar), nor a dark color with Leey's reagent (ammoniacal silver), nor a marked precipitate of dextrin on adding large excess of alcohol (absence of glucose syrup)."

DISTRIBUTION OF SEED GRAIN AND POTATOES

From the Central Experimental Farm, Ottawa, 1908-9

By instruction of the Hon. Minister of Agriculture, a distribution is being made this season of samples of superior sorts of grain and potatoes to Canadian farmers for the improvement of seed. The stock for distribution has been secured mainly from the Experimental Farms at Indian Head, Sask., and Brandon, Man. The samples consist of oats, spring

wheat, barley, peas, Indian corn (for ensilage only) and potatoes. The quantity of oats sent is 4 lbs., and of wheat or barley 5 lbs., sufficient in each case to sow one-twentieth of an acre. The samples of Indian corn, peas and potatoes weigh 3 lbs. each. A quantity of each of the following varieties has been secured for this distribution:

Oats.—Banner, Danish Island, Wide-Awake, White Giant, Thousand Dollar, Improved Ligowo, all white varieties.

Wheat.—Red varieties: Red Fife (beardless), Chelsea, Marquis, Stanley and Percy (early beardless), Preston, Huron and Pringle's Champlain (early bearded). White varieties: White Fife (beardless), Bobs (early beardless).

Barley.—Six-rowed: Mensury, Odessa and Mansfield. Two-rowed: Invincible and Canadian Thorpe.

Field Peas.—Arthur and Golden Vine.

Indian Corn (for ensilage).—Early sorts: Angel of Midnight, Compton's Early and Longfellow. Later varieties: Selected Leaming, Early Mastodon and White Cap Yellow Dent.

Potatoes.—Early varieties: Rochester Rose and Irish Cobbler. Medium to late varieties: Carman No. 1, Money Maker, Gold Coin and Dooley. The later varieties are, as a rule, more productive than the earlier kinds.

Only one sample can be sent to each applicant, hence if an individual receives a sample of oats he cannot also receive one of wheat, barley, peas, Indian corn or potatoes. Lists of names from one individual, or application for more than one sample for one household, cannot be entertained. The samples will be sent free of charge through the mail.

Applications should be addressed to the Director of Experimental Farms, Ottawa, and may be sent in any time from the 1st of December to the 15th of February, after which the lists will be closed, so that the samples asked for may be sent out in good time for sowing. Applicants should mention the variety they prefer, with a second sort as an alternative.

Applications will be filled in the order in which they are received, so long as the supply of seed lasts. Farmers are advised to apply early to avoid possible disappointment. Those applying for Indian corn or potatoes should bear in mind that the corn is not usually distributed until April, and that potatoes cannot be mailed until danger from frost in transit is over. No postage is required on mail matter addressed to the Central Experimental Farm, Ottawa.

WM. SAUNDERS,
Director of Experimental Farms.

A BEGINNER ENQUIRES

1. Is the 9-inch depth of section used in bottom storeys too deep for top storeys?

2. Would a 7-inch depth of section be better, or would it be better for both bottom and top storeys?

3. Is a square box better than the long box? What would you say the size should be—17" or 18" square?

4. Is a pure Cyprian colony a good class of bee for gathering honey?

5. Is a Carniolan colony better than the Cyprian bee?

BEGINNER.

1. I understand you to mean the body of the hive. No.

2. In the hands of an expert bee-keeper who could give these hives close attention, and put thereon the necessary amount of work, better results could be obtained. Both brood chambers and supers should be of same depth, so as to allow interchangeability of combs.

3. I think not. The question is, however, a disputed one. A hive 18 inches square would be a 12-frame hive. Our preference is for an eight or at most ten. I speak of inside measurement.

4. They are a very good honey-gathering bee, but are said to be very vicious.

5.—I think it is, but would advise Italians.

ED. C.B.J.

Another Answer to Above by an Ontario Bee-keeper

1. By "depth of section," I presume Beginner means depth of frames. The standard Langstroth frame is 17½x9½, so, judging from the fact that most users of the Langstroth frame use same depth extracting frames as in brood-nest, would say that that depth is none too deep. True, quite a number use half-depth extracting combs, but there are many features favoring the use of same depth combs all around. If I had to use shallower frames, I would choose a divisible hive—perhaps if I was starting over I would use them whether I had to or not.

2. Some prefer a shallower hive than the Langstroth, and the Danzenbaker meets that demand. It is all a matter of opinion.

3. Any difference as to exact shape of hive is, in my estimation, purely theoretical—at least, I have had both styles of hives, and could see no difference in results.

4. Cyprians hold the record for honey-gathering, also for long stings and ability to use them quick and often. Leave "Cyps" alone as long as they leave you alone.

5. Carniolans are of a quiet temperament, their worst features being an inclination to swarm too much and, in some cases, to breed out of season. Their good points are gentleness, good winterers and ability to build up rapidly in the spring. They also cap their honey very white and make a beautiful article of comb honey. Personally, we are partial to the Carniolans, but there is no question but that the Italians are more generally in favor.

Honey Labels.—Place your order for Honey Labels, Letter Heads, Bill Heads, Envelopes, etc., with The Hurley Printing Co. Satisfaction guaranteed.

As you do the appointment season this year to take up an is, to make an result is, I c where I was s put in about days were s County. I vis the Counties c tario, and I with genuine f umberland Cou that I found b to what appea Mr. Anguish se not as much a that with us her of Wellbridge, a up what I have House thinks I strong enough. a very serious m Canada. Mr. Hc ordinary foul bro compared with k trying to exagger hand, I don't thi If that outbreak stamped out some will be sorry. Ln they hardly know

Inspector Wm.

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REPORTS ON FOUL BROOD

[Read by our Provincial Inspectors at O.B.K.A.]

Inspector Byer's Report

As you doubtless are aware, most of the appointments were made late in the season this year, and it was impossible to take up any regular line of work; that is, to make any thorough inspection. The result is, I only went on special calls where I was sent by the Department. I put in about twenty days; of that eight days were spent in Northumberland County. I visited some fifty apiaries in the Counties of York, Durham and Ontario, and I only found nine apiaries with genuine foul brood. Out in Northumberland County there were eight yards that I found black brood in. According to what appeared in the Bee Journal, Mr. Anguish seemed to think there was not as much as I said. I wish to say that with us here to-day is Mr. Chisholm, of Wellbridge, and I believe he will back up what I have said with emphasis. Mr. House thinks I have not made it quite strong enough. In black brood we have a very serious menace to the industry in Canada. Mr. House told me he regarded ordinary foul brood as simply nothing as compared with black brood. I am not trying to exaggerate, but, on the other hand, I don't think we should minimize. If that outbreak of black brood is not stamped out some of the would-be scoffers will be sorry. In Northumberland County they hardly know what to do with it.

Inspector Wm. McEvoy's Report

During the past season I inspected sixty-three apiaries, and several of these I inspected the second time. I found dead brood in every apiary, and in many apiaries I found a great deal of dead brood in every colony. I was astonished at the mistakes that were made and the reports that were sent to the papers. When will bee-keepers learn to tell the different kinds of dead brood in every shape and form from each other?

I did not find much of the real serpent (foul brood), but I found large quantities of starved brood. This class of dead brood was found in very many localities in the Provinces of Ontario, Quebec and Nova Scotia, and also in very many parts of the United States.

With so many apiaries in this condition, and the alarmists holding up death's head and the cross-bones," it frightened the bee-keepers, and caused many to worry a great deal over their bees, and then many samples of dead brood were mailed to me. I answered all these letters of enquiry very promptly and saved the most of the bee-keepers from any further worry.

There never was a time when things needed clearing up so much as now, but before going into this I will give some of my experiments and discoveries.

In 1875, when foul brood broke out in my apiary, I did not know what to do to get rid of the disease. I wrote to the best bee-keepers for advice, and all advised me to burn every hive of bees that I found the disease in. I did not want to destroy any colony if I could by any means save it, so I went in to do my best to cure if possible.

Everything that I did at first ended in failure. I then took all the combs out of several brood chambers and filled them with white combs that never had brood in, thinking that this might result in cure. All these would have ended in failure if I had not made one very important discovery, and that was the testing of the honey and finding it to be diseased. One colony that I had taken all the combs out of, and had given it a full set of dry white combs, became a little restless, and, thinking that something might have happened to the queen, I carefully spread the combs without disturbing the bees very much, so as to find the queen sooner. I found her all right, and I also found that the bees in the short space of time had stored a little honey in these white combs. I extracted what little honey I could get and fed it

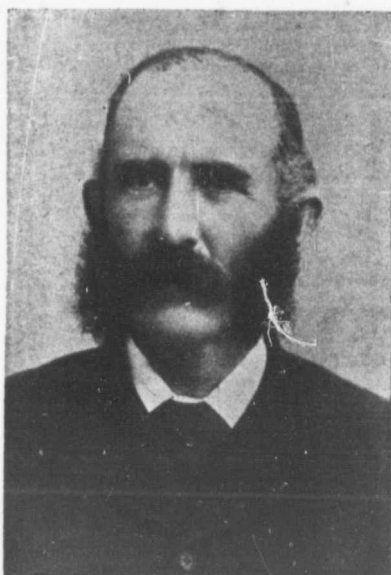
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WM. McEVOY
Woodburn, Ont.

to a sound colony, and gave it foul brood at once. This test proved to me beyond every shadow of doubt that the disease was in the honey as well as in the old combs. After that I went in for getting all the honey taken away from the bees after they were given the white combs, and along these lines I cured every case by the use of two sets of combs and the frequent use of the extractor. This was too much work, but it was the best plan that I had found then. It was plain to be seen that all the honey in foul brood colonies was not diseased, because if it was no brood would ever hatch that it was fed to.

I found honey stored in a cell which had a thin crust of foul brood left in it. I took a wire, ran it from front to rear across the comb and right over the diseased cell. I then ran a wire up and down the comb, and also over the same diseased cell. The wires being crossed over the diseased cell gave me a good mark on it. I then took a pin, and with the head of it lifted the honey out of the

bad cell and dropped a little of it on the brood in the cells along the lower wire, and soon after the brood in all these cells died of foul brood. I then took a clean pin and lifted honey out of several clean cells and fed brood under the upright wire, and failed to start the disease in any of these cells.

This test proved to me that the honey to become diseased must be first stored in cells where foul brood matter had dried down. When the bees began storing pretty fast I took the combs out of a number of diseased colonies and shook the bees back into the same hives, and then put in empty frames and left the bees to build their own combs. The bees soon made a little comb and then stored part of the honey they took with them from the diseased combs, and after that foul brood broke out again in the colonies that had been the worst with the disease. I took away the little combs made during the first four days and left the bees to build more combs. This made a sure cure in every case. I saved the brood that I took from the diseased colonies and tiered it up on the weakest, and when the most of it was hatched I treated these colonies. When the honey season was drawing to a close I found a few cells of foul brood in several colonies that were full of good brood. I worried a good deal over this, because I saw that it was going to be pretty late to get curing done by comb-building in the fall when the brood was all hatched, even if I could get suitable weather to feed sugar syrup while the bees were building combs. And on the other hand I also saw that if I destroyed all this brood, that I would have nothing left but the old bees to go into the fall and winter with, and that the most of these bees would "peter out" with old age before spring. I saw that I had to have all this brood hatched so as to get plenty of young bees to go into winter quarters with. I also saw that I had to get all these colonies cured before winter. Now how was this to be successfully done and have all colonies

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brought into spring in grand condition? After some more study, I thought of another plan, and that was to feed the sound colonies abundance of sugar syrup, and by so doing get the bees to fill and seal every cell in the outside combs right down to the bottom—a thing they did do. When this was done I took these outside combs out which were full of all-capped stores, and saved them until an evening in October when the brood was all hatched out of the combs in the diseased colonies. I then took the combs out of the diseased colonies, shook the bees off them and put in the sound combs of all capped stores, and, these not having any place in them for the bees to store the diseased honey which they took out of the old combs, the bees had to consume it. This made perfect cures in every case, and these colonies that were given the all-capped stores came into spring the best of any in my apiary. These methods of treatment which I cured all my colonies by in 1875 were all of my own working out. I never got any instructions from any one. My methods of curing diseased apiaries, which I have so often written up, are too well known to need repeating. Big crops of honey have followed my curing in all parts of the Province. I will here mention two of these. In 1888 I myself cured forty colonies for Mr. James Marshall, of Binbrook, that had foul brood, and in 1889 he took 8,000 pounds of extracted honey and increased to sixty-two colonies. In 1898 I cured an apiary for Mr. J. B. Hall, of Woodstock, and in that same summer he took an average of 140 sections of comb honey per colony, and left his bees abundance of honey to winter on. Before, and for several years after, I was appointed inspector, foul brood colonies were shipped in the most wholesale way into thirty-seven counties in our Province, and from these the disease spread to nearly all the apiaries in the localities it was shipped into. The people had to be taught how to cure, and I was in duty bound to give the bee-keepers

every possible chance to do so—and did. To Mr. Gemmill belongs the credit for saving the whole bee industry of Ontario, because, if he had not taken hold and got his Foul Brood Act passed when he did, the disease would have destroyed nearly every apiary in the thirty-seven counties which I found it in. The springs and foreparts of the summers of 1889, 1895, 1907 and 1908 have been followed by a lot of dead brood being found in many localities in Ontario, Quebec and Nova Scotia, and also in very many parts of the United States. This class of dead brood is the result of the seasons, kind of bees, and neglect of man. I was pleased to hear Mr. House, of New York, come out so strong in our convention in favor of the "yellow bees." I judge that Mr. Wright, who is one of the inspectors for New York, is also an advocate of Italians for keeping brood chambers clean and free from dead brood. I never found any race of bees that was as good as pure Italians to feed their brood. The following letter which I received shows the good work that Mr. Wright is doing in the black brood district in New York State. I intended to go fully into the classes of dead brood found in so many places, but it would take too much space here. I must leave it till another time.

WM. McEVOY.

Altamont, N.Y., Oct. 31, 1908.

"Wm. McEvoy, Woodburn, Ont. :

"My Dear Mr. McEvoy,—Yours of Oct. 26 was duly received.

"In reply will say that the case of 'European Foul Brood' (formerly 'black brood') which I mentioned to you as having been successfully treated was this: The party had an apiary of forty-four colonies badly affected. The bees were hybrids (a mixture of Italian and black races). They were shaken twice, the latter part of June or first of July. The last time on full sheets of foundation, and all Italianized soon afterward. (I forgot to mention that they were doubled down to twenty-two colonies at the time of shaking.) The season proved very poor in that locality, so that the

shaken colonies stored but little surplus, but filled up nicely for winter. This was in 1907. This spring the aforementioned colonies (twenty-two) came out in good condition, have been increased to forty-four colonies, and gave 2,500 pounds of comb honey, which is the largest yield I have heard of this year in York State. No disease has been discovered in this apiary this season.

"Also had another case this season treated in the same way, about June 1st. Apiary contained seventy colonies; about half were diseased, but owner concluded to make a clean sweep, and treated them all, reducing number of colonies to fifty. These have given fairly good results in surplus, and no recurrence of the disease. The honey yield in that section was light this season.

"Am sorry that there is any friction between the Canadian brethren, but I find that an inspector will sometimes incur the dislike—if not the hatred—of a certain bee-keeper, especially where it becomes necessary to resort to extreme measures. Nevertheless, duty, with us, must stand before friendship.

"Am very glad to have met you and so many other Canadians at Detroit, and hope to meet you all again.

"Very truly yours,

"W. D. WRIGHT."

Following the reading of the report Mr. McEvoy spoke as follows: This pickled brood that is spoken of is starved brood, but it will take some time to get bee-keepers to come to that. If they will Italianize every colony that they have got, and look closely after them from fruit bloom to the beginning of clover, or during any check caused by rain, storms or anything, they will be able to overcome this, because when the bees send up a certain quantity of brood if they do not get enough food to follow it up the brood will starve. You will find in some of them about the ninth day the brood is lying on its back, it is coiled up quite sharp, and that brood has got a skin on that has decayed from the inside, and you can lift that out. Foul brood goes to decay from the outside, this from the inside—two distinct things. Then some of that brood was capped over that did not get quite enough honey to last it

through, and it died, and then the cell was punctured and the bees find it punctured. The books are telling about punctured brood being dead brood, and they say, it has got foul brood sure. It is not foul brood. Some of the brood will cut the capping off, and it had not strength enough in the jaws to cut a clean, round cap. There is a difference in the kind of bees. It would never do for me to advocate Italians the way I do if I was a breeder, because they would say, "He has got queens."

Last spring and the spring before were two of the poorest springs we have had in many years for bees; they failed to get the supplies to follow up, and we had pickled brood, as they called it, here and there all through. That was starved brood. In a spring like this it takes about a pound to go around for each colony, and then you watch for the results a day or two after. I remember one time in the County of Huron a man had rendered all the year before for foul brood. Along early in June of that year he was in a great state of mind; after all his clean-up every hive in the yard had it, and they were all on foundation and wired. I looked at it, and there was not a single cell of foul brood, but an immense lot of this starved brood. The trouble was there was not enough honey coming in to keep pace with the immense brood they had to feed. I tell you, gentlemen, bee-keepers do not pay enough attention to the care of bees between fruit bloom and clover; at every little check in the weather it stops. Another thing, I never found anybody that ever went in for the pleasure of breeding from a choice breeder. You can get even the best of Italians, and some of them won't feed any too well, but you can pick some out that are extra. I got one or two from Mr. Dickenson, and I defy any one to beat them. In 1895, in May and June, for two weeks, there was just such another spread of dead brood all over the Province. This black brood, after all, is a pretty bad thing, but the letter from

Mr. Wright that it can be cured. I refer in those books turned to (Applause.)

[The remainder of the inspectors will be reported.]

AN ENQUIRY

We begin with some kind of a press, and we I think it would have these letters inserted in your As for me, directions. Find on foul brood on top for that from Mr. Ale colonies on the party on the fourth, how to intelligent men in your paper, thing for you to and have the list and Exchange of Last year you have a fancy tedious to overs the particulars y

[There are a culture. Unfortunately seems to think that might make some perhaps some of the sale might take a ever, recommend Culture, which w enquirer is of the we might call h work in French b. leux, of Spa, Belg lished a new book Editor of L'Abeille Professor of Apicul

Mr. Wright of New York State shows that it can be cured, and profitably cured. I read this to show you that even in those bad cases it can be cured and turned to good account afterwards. (Applause.)

[The remaining reports of foul brood inspectors will appear next month.—Ed.]

AN ENQUIRY FROM QUEBEC

We beginners are sometimes in need of some kind of literature in the bee business, and we don't know where to get it. I think it would be a good investment to have these leaflets or pamphlets advertised in your always welcome journal.

As for me, I would like to get some directions. First, from Mr. Wm. McEvoy on foul brood cure, as he is known to be on top for that important cure; second, from Mr. Alexander, on putting weak colonies on strong ones; third, from some party on the queen-rearing question; and fourth, how to prepare nuclei. If these intelligent men don't want to advertise in your paper, would it not be a good thing for you to keep these tracts to sell and have the list published in your Want and Exchange column?

Last year you improved your index. I have a fancy for a long one. It is so tedious to oversee 500 pages to find out the particulars you want to read over.

J.U.C.

[There are a number of books on bee culture. Unfortunately for us, no one seems to think that an ad. in the C.B.J. might make some sales in Canada. Perhaps some of those who have books for sale might take a hint. We would, however, recommend Root's A B C in Bee Culture, which we can supply. As our enquirer is of the French race in Quebec, we might call his attention to a new work in French by Monsieur Desire Halleux, of Spa, Belgium, who has just published a new book on bee culture. He is Editor of L'Abeille et sa Culture. He is Professor of Apiculture at the Huy School

of Agriculture. President of the Bee-keepers' Union of his section, and a counselor on bee-keeping to the Belgian Government. Price 50c, postage extra. We can procure this for J.U.C. if he would like to have it. Mr. McEvoy's cure is well known, and has often been explained in this Journal. We will republish it in January. Mr. Alexander is dead, but of his writings this winter. Mr. Adams, of Brantford, can answer questions 2, 3 and 4. We will endeavor to get something next month from him on these topics. We will give you as good an index of 1908 with our January number as we did last year.—Ed.]

INTERESTING GERMAN ITEMS

(Translated by Jacob Haberer)

Some Points From the Experience of an Old Beekeeper.

[Read at the Vienna Neustadt Convention by W. Günther, Thuringen]

In reading bee journals I often find opinions quite contrary to my long experience in bee-keeping. For instance, it is said that after four weeks a young queen will not be fertilized, and will become a drone-layer. In the spring, when bees want brood, this may be so, but in summer-time, in case of continuous unsuitable weather, I have observed that queens become fertile after six weeks. In 1886 I had many that were left unfertilized for two months, but when fine weather set in they all got fertilized and proved to be continuously good. This proved that such queens are not poor stock. I find that just this fall fertilized queens are of an excellent quality, as they don't raise much brood in the fall and will be very productive in the spring, also of full value for a few years. But queens mated early in spring are not much good with us. The reason likely is that at that time many of the drones are from drone-breeding colonies.

In journals and books we are always urged to winter only strong colonies, and that is right, but I would warn against

excess. Too strong colonies seldom give good returns. If colonies have increased their population unusually in the fall the breeding will mostly only be medium in the spring. The heavy breeding that should take place in the spring took place in full already, and a medium or even a little light swarm with a good queen mostly does better than such a giant colony. Requeening should take place in such cases.

Cold weather in winter is not so harmful to bees as is often supposed. Even a small cluster will endure a good deal of cold as long as they have good food at the right place. We do not need to speak about colonies freezing to death, but rather starving through not being able to follow the food. Years ago I always reduced the size of entrances, but of late years I do not contract them. I keep them as large in winter as in summer, and since that time I have very few dead bees, and seldom have to clean the entrances. At the first flight the bees will clean out the few dead ones without any harm.

With the idea of not packing bees before cold weather I cannot agree. If provided with all necessities, they will be packed nice and warm, even if the weather is fine. If possible, I want them packed in October or beginning of November, and this never gave bad results at our large bee-stands. The cluster room should never be too small, so they can extend in mild weather. Brood about Christmas I have never found, and this seems to me a false theory. Such only may be after very late feeding.—Pruht. Wegweiser.

Wien-Neustadt was the place of convention, Aug. 8th to 12th, where bee-keepers from Austria-Hungary and Germany gathered. So large was the attendance that not every bee-keeper could be supplied with a bed in the city of 30,000 inhabitants, and had to pass the night in any convenient place. (Either too many bee-keepers or too few beds.) There was

a large exhibition of bee supplies. Live bees were exhibited by many bee-keepers. Two lecturers were honored with premiums; each member had two votes, Drs. Sanger, Grace, and Alfonsus, Vienna, receiving them. The latter spoke on queen-rearing and gave the American (Root's) methods a good recommendation; Dr. Sanger on scientific judgment of honey; 0.7 to 2% protein is contained in honey. He showed new ways to ascertain the amount of protein, whereby pure honey may immediately be distinguished from the adulterated. This paper will appear later in print. A report of experiments in winter consumption showed it in unprotected single-wall hives to be 5.300 kg.; double-wall hives, a little less; cellar, 2.100 kg.; in a room, 2.070; in clamps, 2.050.—Rheinische Bienenzeitung.

In a report of 1907 the well-known bee-keeper, Kramer, says: "Since queens are subject to very close observation surprising habits may be noticed. Fertile queens, after having started to lay, will fly out and enjoy the sunshine on the alighting board.—S. Wegweiser.

In the Province Brandenburg, Germany, the bee-keeping industry is greatly assisted by the Agricultural Department. They arranged honey markets for October, November and December. Any member can send from 50 to 250 lbs. of honey there for each market. A small market fee has to be paid. They have standard, uniform packages and prices. They are:

½ lb. in glass, 80 marks (about 18c).
 1 lb. in glass, 1.50 marks (about 35c).
 2 lbs. in glass, 3.00 marks (70c).
 3 lbs. in glass, 4.20 marks (98c).
 5 lbs. in glass, 6.80 marks (\$1.58).
 9 lbs. in glass or tin pail, 11.75 marks (\$2.74).

Comb honey, per lb., 1.40 marks (32c).
 —Praht. Wegweiser.

Renew your subscription to the C.B.J., and help along the bee industry.

HONEY—PU

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HONEY—PURE AND ADULTERATED
(Continued from Page 452)

The next point to be investigated is this: "What does the bee do to the raw material in making this into honey?"

Perhaps the most notable change produced by the work of the bee is the concentration of the sugar solution on which it works. Nectars contain from 70 to 85 per cent. of water. Honey-dew from the pine contains about 55 per cent. of water. The average water-content of 138 samples of honey listed by König is 20.60 per cent. One hundred samples of genuine honeys exhibited at the St. Louis Exposition in 1903 were analyzed at Washington, and gave an average of 17.59 per cent. water, with a range of from 12.42 to 26.88 per cent. The average moisture-content of honey may safely be taken as about 20 per cent. If honey be taken from uncapped combs it may contain decidedly higher moisture, as has been pointed out by Mr. Shutt, of the Experimental Farms at Ottawa (1902 Rep., p. 163), and is apparently considered by the bees themselves as unripe. The definition of honey adopted by the Department of Agriculture at Washington fixes 25 per cent. as a maximum amount of water permissible in legal honey.

On looking over the record of our work upon honey, covering the last ten years, I find that 730 samples have been examined. These are reported as follows:

Bulletin	Date	Total Samples	Samples containing above 25% of Water
(about 18c).	47 1897	183	47
(about 35c).	90 1903	99	10
(70c).	122 1906	54	5
(98c).	145 1908	253	31
(\$1.58).	148 1908	141	19
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It will be seen that about 15 per cent. of all honeys examined contain above 25 per cent. of water. Many of these samples are adulterated, either by the intentional addition of water, or by the use of glucose or any other adulterant. But

there remains, when due allowance is made for such samples, a small percentage of genuine honeys, carrying more than 25 per cent. moisture.

I cannot therefore feel quite sure that in the light of present knowledge of Canadian honey it would be just to establish a standard of 25 per cent. water. Undoubtedly any samples showing more than 25 per cent. must be regarded as exceptional, but that is a different thing from condemning them as adulterated.

Very few samples are reported as containing more than 30 per cent. of water, and most of these are contained in the collections of 1897 and 1903. As noted in Bulletin 47, we had not then decided upon a fixed mode of working in water estimations, and the differing methods employed by different analysts introduced some uncertainty into a comparison of results. Bearing this in mind, I am of opinion that a limit of 30 per cent. of water may safely be fixed as a maximum amount permissible in genuine honey. If this be conceded, we are in a position to add a third term to our definition of honey.

Honey must be (1) made by bees (2) from the nectar and saccharine exudations of plants, (3) and must contain not more than 30 per cent. of water.

The second point of change brought about in the raw material of honey, by the operation of the bee, is the conversion of the cane sugar (i.e., ordinary sugar, as found in the sap of the sugar cane, the beet, the maple tree, and in floral nectar) into two other sugars known as dextrose and levulose. This change is easily brought about by laboratory methods, and we usually speak of the resultant mixture of dextrose and levulose as invert sugar. The process of making this change is known as inversion, and it may be induced by a great variety of treatments. A ferment (known as diastase) present in malted grain answers the purpose perfectly, and it is probable that a somewhat similar ferment (enzyme) present in the bee's economy is

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the agency by which the change is effected in honey-making. But the chemist effects the change (inversion) more rapidly and completely by the use of a dilute acid and heat. This I shall refer to later.

The extent to which the bee effects this change is well illustrated by the following example: Bonnier (*Scientific Am. Suppt.*, Aug. 10, 1907, p. 92) found the nectar of a leguminous plant to contain 57.2 per cent. of cane sugar and 42.8 per cent. of invert sugar. After the same nectar had been converted into honey by the bee it was found to contain only 8.2 per cent. of cane sugar—i.e., 85 per cent. of the cane sugar had been converted.

The invert sugar produced by chemical treatment from cane sugar is nearly the same substance as that produced by the bee. Hence the ease with which so-called sugar honey can be manufactured. Almost any acid may be used to effect the inversion of cane sugar. We generally use hydrochloric acid (muriatic) in the laboratory, but for various reasons tartaric acid is to be preferred in the commercial preparation of invert sugar. Herzfeld's method, which is largely employed in Germany in the preparation of invert sugar for the manufacture of artificial honey, is as follows:

One kilogram of sugar boiled with 300cc water and 1.1 grain tartaric acid, till the resultant solution turns golden yellow (about 30 to 45 minutes).

The sample I show you has been prepared in this way, and its examination by chemical methods finds it to conform in many respects to genuine honey. It contains 22.15 per cent. of water, 8.77 per cent. unchanged cane sugar and 73.34 per cent. of invert sugar. These amounts add to 104.26, showing the almost unavoidable error of about 4 per cent. inhering in the methods of analysis, and chiefly belonging to the determination of invert sugar.

From the considerations just mentioned it is evident that invert sugar is the chief component of honey, so far as weight is concerned. One hundred samples of honey

exhibited at St. Louis in 1903 were after analyzed at Washington, and the results are published in Bulletin No. 110 of the Bureau of Chemistry. These are representative of most of the States of the Union, and the following summaries for invert sugar are noteworthy and interesting:

37 samples Leguminosæ	honey av. 76.11
8 samples Composite	honey av. 74.84
4 samples Roseceæ	honey av. 73.15
6 samples Basswood	honey av. 75.14
2 samples Buckwheat	honey av. 76.85
99 samples various sources	honey av. 74.41

Very numerous analyses of European honeys confirm these averages for invert sugar, showing that honey contains an average of about 75 per cent. of invert sugar, with variations from 65 to 80 per cent.

Under certain not fully understood conditions bees fail to cause complete inversion of the cane sugar in their raw material. It is pretty well established that if the bees have access to molasses and cane sugar syrup the resultant honey will contain a higher percentage of unchanged cane sugar than when they obtain their raw material from flowers only. The average amount of the cane sugar found in the one hundred samples of American honeys already referred to was 1.9 per cent., and varied from none to 10.01 per cent. But Lippmann gives the analyses of a honey gathered by bees in the neighborhood of a sugar refinery, which contained 16.38 per cent. of cane sugar. The average for 138 samples of European honey listed by König is 1.6 per cent. cane sugar, with extremes of 0.00 to 12.91 per cent.

I think it is quite evident that we may now further amplify our definition of honey by mention of a minimum of invert sugar and a maximum of cane sugar. It could be only a very exceptional genuine honey which would show less than 65 per cent. of invert sugar, but to be on the safe side we may agree to place this minimum at 60 per cent. As to cane sugar, the legal definition fixed by the U. S. Congress in June, 1906, requires that cane

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sugar shall not exceed 8 per cent. This would certainly condemn some of the genuine honeys displayed at St. Louis, to say nothing of a few European honeys of guaranteed purity, which contained 12 per cent. cane sugar.

So far as the work of the laboratory of the Inland Revenue Department is concerned, no sample of Canadian honey of guaranteed purity has ever been found to contain as much as 10 per cent. of cane sugar. A few samples of probable purity have yielded 10.35 per cent. We have no assurance that these were not made by bees that had access to sugar syrup as honey-making material. I am quite convinced that no honest apiarian will suffer if 10 per cent. of cane sugar be legalized as a maximum permissible in honey. If my suggestions be admitted, our definition of honey will now read:

Honey must be (1) made by bees (2) from the nectar and saccharine exudation of plants, (3) and must contain not more than 30 per cent. of water, (4) nor more than 10 per cent. of cane sugar (sucrose), (5) nor less than 60 per cent. of invert sugar.

The legal definition of honey for the United States, already referred to, takes cognizance of the mineral matters contained in honey. These appear as the ash in analytical results. Legal definitions in Germany also take note of the ash content of honeys. I find, however, such conflicting evidence regarding the ash of certified honeys that I am not able to come to any conclusion in the matter. Honey known to be genuine has been found to yield only 0.05 per cent. of ash. The limit fixed for the United States is 0.25 per cent., or five times this amount. The German standard is 0.1 per cent. It is easily apparent that a honey exposed to dust might take up sufficient mineral matter as an impurity to enable it to pass as genuine so far as a minimum of ash is concerned. For the present, at least, I am unable to advise the connection of ash as a means of judging the genuineness of honey.

Formic acid is always present in genuine honey, and as this acid is not present in the nectar of flowers, or in the other natural juices of plants, it must be introduced by the agency of the bee, but how is unknown. The well-recognized preservative property of formic acid suggests that its introduction by the bee is intended to give keeping quality to the honey. Other acids are also present in honey, particularly malic acid, and the result is that all honey has an acid reaction. But the total acidity of fresh honey is very small. Expressed in terms of formic acid, it amounts to from three-hundredths of 1 per cent. to nearly one-quarter of 1 per cent. Its great variation in amount, and the intrinsic difficulties of determination of formic acid, make it impossible to utilize this component of honey as a practical means of judging its genuineness.

Finally, honey always contains pollen grains characteristic of the flowers which furnished the nectar. Work done upon the honeys exhibited at St. Louis showed the number of pollen grains per gramme to vary from about 200 to as many as 5,000. The largest numbers seem to be found in honeys from leguminosæ and from the basswood; but there appears to be no constancy in this regard, as certain leguminous honeys showed only a few hundreds of grains per gramme. The principal use of examination for pollen lies in the discovery of entire absence of pollen characteristic of artificial honey, or in the presence of large numbers of pollen grains of the grass family (gramminæ), suggesting that the hay-loft has been drawn upon to furnish them.

There remains to be mentioned those odiferous principles, or compound ethers, which give the flowers their fragrance and to the honey made from them its characteristic odors and taste. In quantity these are too minute to permit of estimation, or even their identification in practicable samples of honey. Yet they are the ingredients upon which the real value of honey depends. Honey is a food, having real and important value as such.

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And yet it is not upon the mere food value—i.e., nutritive value of honey—that its importance as a marketable product chiefly depends. It is upon the peculiar flavor and attractiveness to the palate that its real value is based. Honey is not exceptional in this regard. Wines, fruits, cheese, and many other fruit-stuffs, might be named which are like honey in this respect. Cheese commands from 10 cents to 50 cents or more per pound, not because of the higher-priced article possessing greater nutritive value than the cheaper, but because of certain qualities of flavor belonging to it. The highest-priced wines are frequently of no more nutritive value than the cheaper ones. Tea at 25c a pound is, so far as approximate composition is concerned, quite as good as that which commands \$3 or \$4 per pound.

A surrogate honey can easily be manufactured that, so far as nutriment is concerned, shall be equal to a true honey. But there is a difference. I have spoken of nutritive value being equal, but I must explain that this has regard only to the content of tissue-building or energy-producing material contained. There is another factor in nutrition to be considered, namely, digestibility. Now we know that the readiness with which digestion proceeds has some relation to the palatability of our food. Disgust produces a checking of those secretions upon which our ability

to digest what we eat depends. There is a real reason why gilt-edge butter is preferred to oleomargarine butter, which, so far as composition goes, should be just as valuable a food. A discriminating public is not only willing to pay higher prices for an article which appeals to the taste and is appetizing, but creates a specific demand for such an article as naturally compels its price to rise. This increased price causes the best varieties of all goods to go to purchasers who can afford high prices. Hence there will be always a market for lower-priced and inferior classes of food, not necessarily inferior in nutritive values, but less tempting to the palate, and perhaps for that reason less digestible by a person of cultured palate. But "hunger is a good sauce," and a hungry man finds that palatable which may be barely tolerated in the absence of a good appetite. I want to emphasize the fact that the higher price of honey, as contrasted with a well-made substitute for honey, is due to the appetizing character of the former, and not to its intrinsic value as a food.

Honey is a food, and a valuable one. But it has condimental value as well, and its distinctive character depends rather on the second than on the first consideration. This is a good reason for insisting that

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nothing shall be offered or sold as honey which is not truly honey. But I conceive that it is not a good reason for interfering with the manufacture and sale of artificial substitutes for honey, so long as these are wholesome food products, and are sold for what they really are.

Section 30 of the Adulteration Act contains these words: "No imitation of honey, or sugar honey so-called, or other substitute for honey, shall be manufactured or produced for sale, or sold or offered for sale, in Canada." This is the law, and it is clearly the duty of all of us to see that it is carried out. But I should like to have a considered opinion from the Association, as representing the honey industry in Ontario, upon the clause just quoted. No one will question the essential rightness of any enactment which requires that a thing shall be sold for what it really is. No imitation of honey, or substitute for honey, ought to come into unfair competition with honey. Ordinary cheese does not come into competition with Roquefort or Gorgonzola, and yet we do not prohibit its manufacture and sale as cheese; indeed, we recognize that this would be to put a valuable food article beyond the reach of the average buyer. Don't you think that it is rather hard upon the man of limited means to say to him, "You may not have access to any condimental substance resembling honey; if you don't buy or cannot buy the real article of honey, you are not permitted to buy something nearly as good." I leave this matter for your consideration.

It is evident, from what has been said, that honey in the comb can only be adulterated by making the bee itself a party to the fraud. This may be done by supplying the bee with sugar in solution. Molasses or syrups or glucose may be fed in this way. If cane sugar be used as a main supply, the honey produced will be found high in such sugar, as the bee does not seem to be able to effect a complete inversion of cane sugar when fed in a syrup. We have seen that small quantities of cane sugar remain in the honey, even

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when this is made from floral nectar; and when any considerable amount of honey dew is available to the bees, the cane sugar is decidedly increased. But even the honey of the Hawaiian Islands, which is notable for the large amount of honeydew used in its production, does not contain more than about 5 per cent. of cane sugar. A glance at the tabulated analyses of honeys in our own bulletins will show how seldom a sample of genuine honey contains 5 per cent. of cane sugar. It is quite certain that any honey containing above 10 per cent. of sucrose has been made by feeding sugar syrup to the bees.

Of course, the cane sugar may be inverted before being fed to the bees. This introduces a very little element into the analysis of the honey. Fortunately for the honest apiarian, the most practical way of making invert sugar from cane sugar is by methods involving the use of heat. The bee performs the process in inversion without heat, and in consequence of this fact there are slight differences be-

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tween invert sugar produced by the bee and invert sugar produced artificially. These slight differences, due to presence of by-products, afford the analyst a means of discriminating between these two kinds of invert sugar. Of this I shall speak later.

Glucose syrup is marked by a decided percentage of a gummy substance known as dextrin, or British gum, which enables it to be identified if used as a honey material, and apart from this fact it consists mainly of dextrose, while invert sugar consists of dextrose and levulose in equal amounts. Bees feed very unwillingly upon glucose, and cannot long survive an exclusive glucose diet.

The main adulteration of honey takes place in the honey separated from the comb, so-called strained honey. With strained honey it becomes possible to make additions directly. The most evident method of adulteration is the addition of water. It is for this reason that a maximum limit for water is needed in the legal definition. Under ordinary conditions of temperature, the bee finds honey workable with about 16 to 20 per cent. of water. We have seen that in certain cases a somewhat higher content may be present, but with much above 20 per cent. the honey does not keep well, being apt to ferment. It is safe to say that when water above 30 per cent. is found, this has been added for fraudulent purposes.

Other adulterations of honey are **gelatinized starch, glucose syrup, cane sugar syrup and invert sugar syrup**. The first-named, gelatinized starch, is only interesting as matter of history, being seldom or never employed at the present time. It is too unlike honey to be satisfactory for purposes of fraud, and too easily detected by simple chemical methods, as by the blue reaction of iodine. The lack of sweetness can be contemplated by addition of a very small quantity of saccharine. Glucose syrup is a cheap material, very closely resembles honey in appearance, has a certain degree of sweetness

(about half that of cane sugar syrup), and has, for these reasons, been very largely employed to adulterate strained honey. It is claimed that its use actually improves certain grades of honey, as by making lighter the color of the very dark honeys, and by reducing the too marked flavor of certain strong-flavored natural honeys—golden-rod, buckwheat, sumac, etc. Most natural honeys granulate on standing, and glucose prevents granulation.

The dextrin present in glucose syrup serves for its easy detection with iodine, and the small amounts of dextrin found in some honeys does not seriously interfere with the reaction, or it may be precipitated by alcohol, preferably methyl alcohol.

Quantative estimations of glucose syrup can only be made approximately exact, since the article as occurring in commerce is not of constant composition. The methods of working are too complex to admit of presentation here; and they involve the use of apparatus of very delicate construction. In certain products of starch inversion, known as grape sugar or commercial dextrose, the dextrins, on which we depend for the detection of commercial glucose syrup, may be quite absent. If a syrup of this character be used, the product will be strongly dextrorotatory, and when examined at a temperature (87° C.) at which levulose is optically inactive, the change in the reading will be less than if levulose had been present in such proportion as it should be in a genuine honey. By this lowering of the difference in the readings at 20° and 87° the presence of added dextrose is manifested.

(The balance of this paper will appear in our next issue.)

The value of honey imported into the United Kingdom in the month of September, 1908, was £1,781.—From a Return supplied to the Irish Bee Journal by the Statistical Office, H. M. Customs London.

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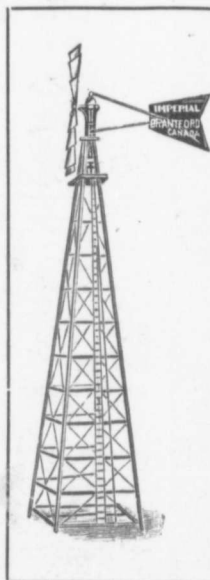
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