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BRANTFORD, ONT., DECEMBER, 1901.

WHOLE No
442.

A MOTHER'S LOVE.

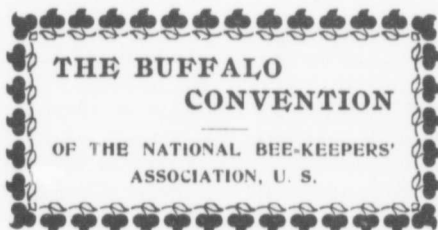
When a boy is far away from home,
What pleases him the most?
Why, it's when a letter comes to him
From mother thro' the post!
No matter if the silver hairs
Appear upon his head,
He's still his mother's boy as when
His hair was carrot red!

Thirty years have left their marks
And seared his careworn face,
His mother's eye he's yet a lad
Without Time's tell-tale trace!
His letter thus begins: "Dear boy;"
It sets his heart athrill
To think that mother knows him as
A little shaver still!

His mother's dream is as a charm
The sesame of youth!
He feels that age has naught to do
With Love or Life or Truth
No'er he gets a letter from
His mother far away,
He sees naught but the guileless
Child,
And the man grown gray.

—SEL.

is the breath of vernal shower,
His collected treasures sweet,
His music's melting fall, but sweet-
est
His small voice of gratitude.



(Condensed from the American Bee Journal.)

The National Bee-Keepers' Convention met in the lecture room of the Buffalo Society of Natural Sciences on Sept. 10th. President E. R. Root called the meeting to order at 7.30 p. m. Rev. E. T. Abbott, offered prayer. Mayor Diehl, of Buffalo, was then introduced to the Convention and delivered an address of welcome which was suitably responded to by Rev. E. T. Abbott. On the motion of Dr. A. B. Mason, seconded by Mr. Abbott, it was carried that the members of the Ontario Bee-keepers' Association be given the privilege of the floor, to participate in all discussions and to answer questions and to feel perfectly at home. Mr. John Newton, President of the Ontario Association, replied thanking the Convention for the privilege.

Pres. Root—We have no set program. We are trying the experiment of having just a question box, and it possibly may be a failure, but we have some men here who, we know, if they have a mind to, can make it a

grand success. A good supply of questions has been handed to the secretary, Dr. Mason, and as we have no committee on question-box, he will read the first one.

Dr. C. C. Miller, of Illinois—I think it would be well to mention in connection with this matter that any member is entirely at liberty to hand in any question that he wants.

AN APIARY OF CROSS BEES.

Dr. Mason then read the first question, "What is to be done with an apiary of cross bees?"

Dr. Miller—I overheard a lady right here saying, "Kill them." If I had an entire apiary of cross bees, I should want, first, to introduce some new blood of a kind that would be more gentle. This, however, is what will come in the experience of any bee-keeper who has any number of colonies; he will find after a time that he will go out some day and there will be a lot of cross bees after him, and if he takes pains enough to watch closely he will find that all those cross bees come from one or two colonies, and then all he needs to do is to kill one queen and introduce another queen; and a curious thing is that a change in the disposition of the bees has seemed to be much more rapid than the change in the blood of the bees; that is, if I find one such cross colony and kill the queen and introduce another, within two weeks' time, although there would be no change yet in the bees that is the same bees would be there, there would be a very decided change in their deportment, and although it seems rather unreasonable to suppose such a thing to be the case, it looks to me as if the simple presence of the queen had something to do with the disposition of the bees.

Pres. Root—Sometimes the cause suggests the remedy. Sometimes

bees are very cross in an apiary under certain kinds of management. Speaking about cross bees, it seemed to me that the crossiest bees I ever saw were the bees in southern California. It seemed to me that they were trained to be cross; I could not get anywhere near the apiaries without protection, and sometimes if I was half a mile away they would come out to meet me. I fell to wondering why they were so cross. The great majority of bee-keepers there produce extracted honey. Their hives are any old box, and they leave one or two inches of space between the extracting and the brood frames. When they separate the upper story from the lower one and get ready to extract they break all this comb, and it irritates the bees. The bees are what we would call a very good grade of hybrids, and they are not naturally very cross bees, but tearing the combs to pieces is apt to irritate them more or less.

N. A. Kluck, of Illinois—I have had a little experience with cross bees. In working around them should they get cross, thoroughly smoke them and then kick the hives. I whip my bees when they are cross and smoke them till they don't know anything.

W. L. Cogshall, of New York—would not give them that treatment. I may kick the hives, but the bees are subdued before I kick the hives. I had a boy take off 80 top stories last Tuesday, and after the bees were subdued—you may have a wrong impression about the kicking—when the bees are subdued, they are just peaceable as can be, and kicking them doesn't affect them; to kick off the top story wouldn't hurt anything.

Pres. Root—I have noticed that cutting down a bee tree, as soon as the tree falls the bees are apt to be very cross, but when one takes

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axe and begins to chop away at the tree the bees seem to be demoralized. Severe smoking is liable to induce robbing.

SPRING DWINDLING AND THE REMEDY.

"Is spring dwindling a disease? If so, what is the remedy?"

W. Z. Hutchinson, of Michigan—My idea of spring dwindling is imperfect wintering. They need to have good food. Good food is the pivot of successful wintering. If you have good food and protect the bees you will not have spring dwindling. I think spring dwindling is the result of poor wintering. I would not call it a disease, unless an overloading of the system from confinement constitutes a disease.

Mr. Abbott—Doesn't a cold spring have something to do with it?

Mr. Hutchinson—I think it would have something to do with it.

Mr. Abbott—I would like to suggest that spring dwindling is frequently the result of foolish feeding.

I have known a great many people kill off their bees with feeding. Like the average farm bee-keeper he is just as likely to cause spring dwindling by feeding his bees to do them any good, if he feeds them late in the fall. A great many

bees are provoked to fly out in the spring by foolish feeding, when, if they were left alone, and not fed at all, would not break the cluster, and the result is they wear themselves out before it is time for the queen to lay any eggs. Some people wonder

why it is, and say they followed the books, but the man who isn't depending to use brains in connection with bee-books would be better off without them, especially when it comes to feeding. Farmers come to

and say, "I thought my bees were quite short, and I fixed them up with syrup and put it under the hive,

and I have been feeding them for a long time," when the mercury was standing down below freezing all the time, and a man who feeds bees when the mercury is in that condition is simply producing spring dwindling; and if you should define disease as an abnormal condition, I should say it was a disease.

Pres. Root—As I understand Mr. Abbott, feeding in the spring has a tendency to cause the bees to fly out, and they become chilled and do not get back.

Mr. Abbott—Not only that, but the over-activity of the bee exhausts its vitality.

Mr. Hutchinson—Mr. McEvoy, in Canada, has very good success in wintering his bees, and he crowds them down on five or six combs of solid honey, and does that so that they can not breed towards spring, and if those combs are not full of honey he feeds them till they are full, and will not take any more food. He feeds that in the fall.

Dr. Miller—I confess, to begin with, that I do not know what is the cause of spring dwindling. It is a matter of exceeding consequence sometimes to all of us, and I would like very much if we could get at what is the cause of it. In the first place, I think we all would be very likely to agree that it is not a disease. It is a condition. Not such a condition as would be called a disease, however, and the facts that have been stated are all in the line with the observation of anyone who takes pains to make any observation about it at all. It would be worth something to us if we could get down to find out what is the condition that is produced. Now, it may be true, for instance, that food of a certain kind brings about that condition, but what is that condition? Will feeding and making them fly out at inopportune

tune times make spring dwindling? And is that all there is of spring dwindling? Is it simply the fact that a number of bees have flown out and become lost? That is not spring dwindling according to my observation. It is something more than that. I don't know that I know what that condition is, but I will say this much about it, that when you find spring dwindling I think you will almost always find that the number of bees present in the hive compared with the amount of brood is always small. Now, I would like to know, as a matter of fact, whether the observation of my friends here agrees with that. Is that the common thing? It has appeared to me to be the case that, whenever I had a case of spring dwindling, there were too few bees in the hive to take care of the brood that was there. Now, if that is a common thing, I would like to know it.

H. L. Case, of New York—A few years ago, in the latter part of April and forepart of May, I lost 80 colonies of bees by what I called spring dwindling. The fall before, my bees gathered a large quantity of honey-dew, and the winter was a severe one; it kept them in the hives perhaps four months without giving them a flight. Now, I believe the reason I had spring dwindling that winter, or that spring, was on account of improper food, and the conditions were improper for their prosperity; if they had had one or two good flights in the autumn, so that they could fly right out on a warm day, and have a good flight, I think it would have been better. I saved only 20 small colonies, and after the first good day that we had when the bees could fly out I didn't lose any more bees to speak of. Now, I agree with Mr. Hutchinson, that improper feeding and the conditions through winter,

confining them to their hive and they, consuming too much food, made them lazy, and they could not get out to relieve themselves, and the result was that I lost the 80 colonies.

Pres. Root—It is very evident that there are a good many causes that induce spring dwindling.

Mr. Kluck—Would the gentleman state the time when the bees gathered that honey-dew?

Mr. Case—It was the forepart of September. I went bee-hunting at the time. I spend some time in the fall hunting wild bees, and there was so much honey-dew on the forest leaves in my section that they would pay no attention to honey. I could not get a bee to return to the box and you could go into the forest and it would seem as if there was a swarm of bees, and they filled their hives full, from 25 to 30 pounds of that honey dew in the course of, as I remember, five or six days, and they sealed it nicely, but I couldn't get much, and let it go, with the result that I have stated.

Pres. Root—How many have had experience with spring dwindling?

Dr. Miller—Now I wish, Mr. President, you would ask how many have had cases of spring dwindling in which little or no brood was present in the hive.

Pres. Root—If I understand the Doctor, he finds a condition which sometimes find in our apiary along March, when the bees evidently show that their numbers are small, and that they must have some brood to keep up the animal heat, and the queen lays a little more than they can take care of, and they spread out and die on the outer edges. I have seen the bees spread out on the batch of brood that they would all die.

Dr. Miller—Further than that

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and have had a number of cases where
 brood, there were too few bees, and they
 could have tried to cover the brood, and
 and have apparently had a consultation
 e. So and decided it was too much for
 them, and then all swarmed out.

that J. S. Callbreath, of New York—I
 that had a colony very strong with bees.
 I sent for a good queen and introduc-
 ed her the next spring. I happened
 to be there so that I could watch, and
 I looked in occasionally. I noticed,
 with that colony, that had so many
 old bees in the field, it began rearing
 brood much earlier than any of the
 others, and in a little while they were
 ahead. It was a condition of exhaust-
 ed vitality, as you have just said.
 They get in a hurry about rearing
 brood to see if they could not pos-
 sibly save the colony.

was Pres. Root—The remedy, it would
 ed the seem, would be implied from the dis-
 sion of sion. It would be protection, pro-
 of, as per feeding, food given at the right
 id the time; and those are conditions that we
 in't do an very well meet.

result Dr. Miller—If there is anything
 ve ha like correctness in my diagnosis,
 ling? then one thing in the remedy would be
 [r. Pre have a large quantity of young
 ny ha bees in the fall, and anything that
 (ling would tend to that—but I confess
 ; prese that I do not know whether my diag-
 nosis is right.

and the Pres. Root—Proper feeding, proper
 which protection, food properly given—and
 along when I say protection I mean in
 ently s double-walled hives or indoors, a pro-
 nall, a nter indoor repository with sufficient
 brood ventilation. All these things may
 and help to offset unusual conditions that
 ore the can not control in the way of
 and the weather, and the cause suggests the
 the remedy.

e bees J. S. Barb, of Ohio—I had expet-
 brood ence in spring dwindling, and I find
 an that double-walled hives are not very
 much better than single ones. As a
 general thing you will have a lot of

old bees to start with in the fall, and
 that condition prevents them from
 rearing brood in the spring.

Pres. Root—I have noticed that the
 colonies were liable not to get in con-
 dition without protection. Last win-
 ter, by oversight, we left out 10
 small colonies without double walls,
 and nearly every one of them got
 down to a handful. Those that were
 right alongside of them in double
 walls got through all right. It depends
 upon what we understand by disease.
 If we take Mr. Abbott's definition of
 abnormal condition, then it is a
 disease.

Pres. Root—Let us have a show of
 hands. How many think spring
 dwindling is a disease? Now, how
 many think it is not? Evidently the
 convention doesn't think it is a dis-
 ease.

DISINFECTING FOUL-BROODY HIVES.

"Is it best to disinfect foul-broody
 hives?"

Dr. Mason—Yes, it is just as im-
 portant to disinfect a hive as it is to
 disinfect foul honey."

Wm. McEvoy, of Ontario—Why
 not burn it up?

Dr. Mason—It doesn't pay. It is
 cheaper to disinfect it. Understand
 me, the question is, a "foul-broody
 hive."

Pres. Root—The question as I
 understand it implies a diseased hive
 in which there have been bees that
 have had foul brood, that naturally
 was the intention of the question.

Dr. Miller—Whatever the intention
 may have been, I think that Dr.
 Mason raises a good point there, and
 there is a prior question to be
 answered. When a colony of foul-
 broody bees has been in a hive, is
 that hive always a foul-broody hive?
 that is the point he wants raised.

Pres. Root—is a hive that has con-
 tained bees that have had the foul-

brood disease necessarily a foul-broody hive?

Dr. Mason—I can answer that just as easily by saying no.

Mr. Kluck—According to Mr. France, the foul brood inspector of Wisconsin, he claims that a foul-broody bee in a hive would make it necessary to disinfect that hive. He gave us to understand in our bee-convention of northern Illinois that that was so.

Mr. McEvoy—It is not possible. Understand, I have thousands of experience in the test cases for pretty nearly 25 years, and I have never had a single old hive disinfected in any way.

Mr. Abbott—Wouldn't it be a good idea if we brought out exactly what foul brood is, and what is the nature of the disease, and where it manifests itself? If it is a germ, under what condition is that germ developed? That is, where do they locate? We know that the germ of tuberculosis locates itself in some of the glands of the human body. Now, let us get an answer from Mr. McEvoy or someone else that has had experience with brood. I never had any experience but once. I know from scientific investigation that it is a germ. Now, where is that germ developed? Let these people who do not understand the theory of foul brood see why it should not get into the hive.

Mr. McEvoy—This man has asked one of the most important questions that I have ever heard put in my life. Honey, to become diseased, must first be stored in the stain-marked cells, that is, a cell where the foul matter has dried down, or where the bees are making room for more honey, when they move the honey from an unfilled cell to cells not finished, but when honey is gathered from the fields and stored side by side with these stain-marked cells, the honey in the next

cell is sound. It is the only possible way to spread it. Now, take combs from a diseased colony, I don't care how badly it may be affected, if the honey is stored in new combs that have never had brood in, and extracted, and the combs given back to the bees when they are clean, these combs can be used in any hive in the world and not give disease.

Mr. Abbott—Now, then, germs appear in two conditions, the active or germ condition, and the sporadic condition. A germ, when it is active can be destroyed—I might say in the egg condition. Now, is the germ of foul brood in the egg condition in this dry cell, or is it in the sporadic condition and carried out with the honey and developed with the honey that is put into this cell when it is in that condition? Is it practically a germ dormant in that cell and cannot carry or communicate itself to another cell, and can only be imparted to another cell by honey being put on to it, and such a condition created as will hatch the egg and thus spread it out?

Mr. McEvoy—Or that honey moves to another cell and spoil it. As far as I ever went, I know that the honey falling from these cells will give the disease.

Mr. Abbott—Now, then, if the spore, as the scientific men would call it, is placed in another cell, evidently it will develop. If the spore was lodged on the side of the hive, there would not be any possible condition by which that spore would develop on the side of the hive. If you would, why, then, you would have to change your answer?

Sidney S. Sleeper, of New York—Now, are these germs vegetable or animal? In speaking of spores, that would indicate that they were vegetable germs; in speaking of eggs, that would indicate that they were animal

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Mr. Abbott—I simply wish to say that I used the the word egg so that those people who haven't spent 25 years studying science will know what I mean.

O. L. Hershiser, of New York—Can this dried matter move itself? What I mean is, that when the bees are moved from diseased cells, then does honey is diseasing the other? but as far as it going out from these cells through the hive to enter other cells, I do not think it is possible.

Dr. Mason—What do you mean by its going out?

Mr. Hershiser—What I mean is, that it would sort of rise and go through the colony.

Pres. Root—What he means is whether the disease would pass through the hive from one cell to another.

Mr. McEvoy—It does not do that.

Dr. Mason—I don't believe it does.

Dr. Miller—I want to confess that the President at one time straightened me out on that. I had gotten it into my head that these things were animals, and that they were eggs.

Mr. Abbott—Germs are animals, sometimes.

Dr. Mason—Are foul-brood germs animals?

Mr. Abbott—I don't think anybody in the house knows.

Dr. Miller—I think if we talk of them as seeds there will be less danger of misapprehension. Suppose spores had gotten upon the sides of the hive. Now, if those spores were in connection with honey, and bees would take that honey, then they might get the disease from that, but I can't conceive of it in any other way. If there are spores there on the sides of the hive, the bees are going to take them up in any way. I understand Mr. McEvoy to hold that view, and it seems to me

that that ought to make it pretty clear; and I confess to you that I never saw it as clearly as I do tonight. It makes me see more clearly than I ever did before, why he insists upon it in opposition to the views of a great many practical men, that it is not necessary to cleanse the hive, because if the spores are there—if the bacilli are there—they are going to die, aren't they, Mr. Benton?

Continued next issue.

FOUL BROOD.

Bacteria and Their Relation to Disease.

Foul brood is a specific infectious disease of bees caused by bacteria. The young bees in the larvæ state are the first to show the signs or symptoms of it; but the mature bees are also affected, and at times the disease is so virulent that it destroys the whole colony and all the colonies in the apiary, in a very short time. In some cases, however, colonies affected with the disease have been known to come round all right again, and we have it on good authority that the use of disinfectants in the hive, and remedies, of the germicide class, fed in syrup to the bees or sprayed over their combs, and the interior of the hive, have cured diseased colonies, but only when the bees were numerically strong and the season was favorable. This treatment, however, is uncertain, as the conditions requisite for its success are nearly always wanting. The bees, when their colonies are favorably situated, can resist the disease to a great extent, and the stronger the colony the greater is the resistance. In the treatment of infections diseases in man and animals; and in experiments made by inoculating animals with parasitic bacteria, the

only way yet found to save the animal is by strengthening and increasing the resistance of the host, so that the parasite and its poison may be unable to prevail against it. The eagerly sought-for germicide capable of destroying the parasite without injury to the host has not been discovered, nor is it likely to be.

It probably would interest some of the readers of the Journal to know something about the bacteria, and their relation to disease. The subject is an immense one to deal with in the columns of the Irish Bee Journal, still I think that room may be found for a short resume of the most important fact known, leaving out, of course, many important details.

Bacteria are small vegetable organisms, many of them motile. They are plants, not animals as Leuwenhock, who first saw them through lenses he made himself, imagined, two hundred years ago. Some of them are cells in appearance, and others appear to be solid bodies of different shapes; but round, thread-like, and short, straight or curved rods, are mostly the shapes in which we find them.

The bacillus alevi, which interests the bee-keeper, is of medium size, rod-like in shape, and four times longer than it is broad, and it would take one hundred and twenty-eight billions of them to equal a worker bee in size. If we placed a bacillus and a bee along side of each other, and wanted to place a body alongside of the bee as much larger than the bee, as the bee is larger than the bacillus, we should have to place a house two hundred feet long, one hundred feet wide, and over fifty-seven and a half feet high; and if we wished to go on and keep up the proportion we should require one hundred and twenty-eight billion houses

for the next body.

There are bacteria beyond the reach of the microscope; we have evidence of their existence, and power to cause fatal disease in animals and man, but we cannot see them. The bacteria live in water but to one of them a drop is an ocean. They grow on moist surfaces if they can get organic matter to feed upon; they can stand very low and very high temperatures, and fever in disease, no doubt, has for its object to check the growth of the hostile bacteria. They grow and multiply with wonderful rapidity. They divide by budding, or transversely across their length every hour, and if one bacterium could keep up this division for three days it would convert over seven thousand tons of organic matter into bacteria. They form under certain conditions, spore or seed-like bodies which can withstand boiling water for one or two hours. They can live and grow in the air, and without air, but they cannot grow without moisture. In Western Texas, in America, Mr. Jennie Atchley, a noted bee-keeper and queen raiser, says, that owing to the dryness of the climate foul brood is unknown, and it also said that its consumption is unknown among the inhabitants who permanently reside there; even fresh meat will not putrefy, and can be dried in the sun. The bee-keeper in Ireland has much to contend against in a climate just the opposite.

The bacteria cannot grow and multiply without food material—organic matter—which they change into many and strange compounds, which Mr. Sims Woodhead calls products. Bacteria and their products, page 10. They are specialized to the production of these products,—one class of bacteria to the process of changing starch or sugar to alcohol, and

other class to vinegar, step further organic matter fit for new life. Life comes from the work of these bacteria. They are useful because they cause fermentation in beer and in making cheese. They prevent decay that we see in the wind-blowing through the dam; they are of the food of the fish and live. They do all that is done by the natural agencies of the world. In the brewing of beer and in the making of organic matter, they are the last word. Only a few bacteria grow in the air, and cause disease. The bacteria cause parasitism in plants. They are dried, as in the case of certain plants, for life. They are saprophytic in the soil. The parasites are difficult to see in the structure of the plant; they are of the same kind as the bacteria. When they are dried in the soil, they are in the ground. They are specialized to the production of these products,—one class of bacteria to the process of changing starch or sugar to alcohol, and

other class carry the process on to vinegar, and another class carry a step further, until they leave the organic matter as inorganic in a form fit for new growth.

Life could not continue without the work of the bacteria, and they are useful in many ways. They cause fermentation, giving us wines, beer and vinegar; they assist us in making bread, butter and cheese; they prepare the foods for the seeds that we sow and the seeds sown by the wind; and for all the plants that grow; they rot the flax we put into the dam; they assist in the digestion of the food we eat, and all who eat and live. They help to build up and they do all the tearing down, except what is done by fire and other chemical agencies. They are at the beginning of life, beyond our reach, and in their work of decomposing organic matter, if not the fittest, they are the last to survive.

Only a few of the known species of bacteria plant themselves, and grow in the tissues of living animals and cause disease. This parasitism of the bacteria is analagous to the parasitism in the higher and larger plants. The parasitic habit is acquired, as the carnivorous habits in certain plants has been, in the struggle for life. The bacteria are nearly all saprophytic, that is, they grow wholly in dead organic matter.

The parasitic bacteria have great difficulty in starting growth in living tissue; the living tissue cells prevent their intrusion, and the bacteria are obliged to secrete a poison to aid them in their efforts.

When the bacteria get the upper hand in the local contest they commence growing, and producing poison in large quantity; disease then sets in and a general struggle takes place. This struggle may last but an hour or even less, as happens in some

acute infectious diseases when very virulent, or it may last a month, when the patient always has the advantage from the animal cells becoming acclimated to withstand more poison than the vegetable cells of the bacteria. The bacteria are vulnerable to their own poison as to their products when these reach a certain strength. In chronic diseases the struggle may last one, ten or twenty years, but however long or short the struggle may be, when the bacteria go under they get defeated by setting up a stronger resistance to their poison than they possess. It is impossible, therefore, for another attack to occur for a length of time, and in the vast majority of cases the immunity the bacteria have established to the special disease caused by them in man or animals lasts for life.—A. W. Smyth in M. D., The Irish Bee Journal.

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Editor, W. J. Craig.

DECEMBER, 1901.

EDITORIAL NOTES.

Editor W. Z. Hutchinson of the Review says: "W. L. Cogshall writes me that he will commence the winter with 1517 colonies in New York, 200 in Mexico and 300 in Cuba. He thinks that if he had possessed his present knowledge of bee-keeping, some 15 or 20 years ago he might now have been the possessor of 5,000 colonies. He did not realize the capabilities for 'expansion' in both himself and the business." We regret to learn that friend W. L. has been in poor health lately and under the doctor's care.

A very pleasant event took place at the home of the "Bee-Keepers' Review", Flint, Mich., on Oct. 16, when Editor Hutchinson's twin daughters Miss Nora and Miss Cora were united in marriage to Mr. A. G. Hartshorn and Mr. E. F. Hanneman. Miss Nora, now Mrs. Hartshorn, was Editor "Hutchinson's right-hand maiden" and compositor, while Miss Cora (Mrs. Hanneman) assisted in the duties of the home. The Review

gives a picture of the group of which we are sure father Hutchinson has good reason to be proud. We tender our heartiest congratulations to our friend Hutchinson on the addition of the "twin boys", and our best wishes for the future of the young people.

The "Irish Bee Journal" is a new bright, practical publication on bee-keeping that we have recently been favored with in exchange, from Ireland. Its style is very much like its elder sister across the channel (The British Bee Journal). We congratulate Editor Digges, and wish the "Irish Journal" success, to the advancement and success of bee-keeping in the Emerald Isle, where the editor of the C. B. J. spent some of the happiest days of his life in a cosy nook among the Ulster Hills where the heather bloomed, and the bees hummed and the birds sang as they never seem to in any other part of the world.

Dr. C. C. Miller maintains in "Gleanings in Bee Culture," by recent experiments which he has conducted that in raising queens, bees if given their choice will not use larvæ that is too old. The doctor has held this opinion in the face of what is generally received for some time, and believes that he has now conclusive evidence, he winds up his article on Gleanings as follows:

"A queenless colony will rarely, ever, prefer larvæ too old for good queens. None of the most improved methods of modern times will pro-

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duce queens a whit better than those the bees will rear in a colony, you have made queenless, so long as they have young enough larvæ to select from. After the larvæ have become too old they may still start cells, and these will produce poor queens. If you give to a nucleus or a colony two

or three good looking cells, there is small chance of a poor queen. Or you may give to the queenless colony a fresh frame of brood and eggs five or six days after being made queenless, and then you need have no fear of poor cells on any of the previous frames."



Canadian Honey Exhibit at the Pan-American.

"We received the Gold Medal award for the collective exhibit and each individual exhibitor will receive a diploma." So wrote Mr. John Newton, President of the Ontario Bee-Keepers Association, on his return from the Pan-American after winding up satisfactorily the business connection with the Ontario honey exhibit. Well done Ontario! We are with pleasure the following correspondence by F. W. L. Sladen

in the "British Bee Journal" in this connection.

Their (The Ontario Bee-Keepers Association) display was really magnificent.

It consisted of the produce of about twenty-three exhibitors from different parts of the Province, and of one from the Province of Quebec. A large quantity of the honey was in glass jars of various sizes. All the comb-honey was in shipping cases, as in the New York exhibit, but little towers of sections, and extracted

honey in fancy packages, were erected in the British style, with thick slabs of glass between each storey, and the honey being of fine quality, and well put up throughout, the effect was specially pleasing. Here and there the exhibit was embellished with cakes of beeswax cast in fancy shapes. Some of the extracted honey was granulated, but most of it was clarified and looked very well. Mr. John Newton, of Thamesford, Ont., President of the Ontario Bee-keepers' Association, was in charge of the exhibit, and gave me a great deal of interesting information about Canadian bee-keeping, much of which, I regret, I have no room or time to repeat here. I was surprised to find that nearly all the sections in the Ontario exhibit were made of four pieces, and therefore dovetailed at all four corners. By what I have seen I should say that no bee-keepers in the world know how to produce a better-looking finished section than the Ontario men.

Bees Make the Orchard Profitable.

A. C. Attwood, of Vanneck, has thirteen acres in orchard, but quite a number of his trees are just coming into bearing. In the district in which Mr. Atwood lives very few orchards have any apples worth speaking of this year, while Mr. Atwood himself has sold \$1,100 worth. When he was asked how he accounted for having all these apples he pointed to thirty hives of bees and said: "The explanation is there. Whenever there was the least streak of sunshine last spring these bees were at work in the bloom of my orchard, and it is to that fact I attribute the fertilization of the trees and consequent crop. I do not keep the bees for honey, but for the benefit they confer in helping my orchard.—The Sun.

Reviews of Foreign Bee-Papers

By R. Hamlyn-Harris, F.R.M.S., F.Z.S., F.E.S.

BEE-KEEPING IN THE TRANSVAAL.—A correspondent of the "Deutsche Imker aus Bohmen" gives the following interesting information:—The indigenous Kaffir tribes who use honey as food, as medicine, and in their religious rites have cultivated bees for a very long time, as also have the European colonists. The pure Italian bee prospers in this part of Africa and is said to be free from the diseases prevalent among other varieties, which diseases are reported to proceed from the English colony of Natal and to be caused by the use of syrup made from cane sugar.

The climate of the Transvaal is very favorable to bees. The winter months are June, July, and August, during which time there are short but sharp frosts; during the other nine months the country is covered with flowering trees and plants, chiefly acacias and rhododendrons, which yield honey in abundance. The first and principal harvest is from the acacias and orange flowers. Unfortunately the eucalyptus blooms almost at the same time, and its peculiar flavor often deteriorates from the goodness of the otherwise excellent honey of the first gathering. Immediately after the spring harvest comes the swarming time, which demands the greatest vigilance on the part of the bee-keeper. Generally it suffices to remove the queen cells to prevent swarming; sometimes it is needful to weaken the colony by moving bees or sealed brood. Swarming be allowed it interferes with the second harvest, which follows immediately, as the bees occupied with preparations for swarming lose much of their activity.

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The peach and European fruit trees furnish the second harvest. This honey has no aroma; but that of the third gathering, on the contrary, yielded by late flowering heaths and other woody plants, has a very decided aroma. The Italian colonies, treated with varying consideration by the Boers, produce annually from 60 lbs. to 80 lbs. of honey. Under experienced and careful management they would easily yield 100 lbs. per hive.

During winter the bees often suffer from the attacks of a very small and very beautiful bird of the finch tribe, which catches them singly as they leave the hive.

When melting combs for wax, the solar wax-extractor is invariably used; with considerable success.

The wild bees which nest in hollow trees and sometimes in the ground, produce but little honey. This is supposed to be caused by their very short tongue. The cross of this bee with the Cyprian results in a very ill-tempered variety. Crossing the bees with the view of securing a variety with a longer tongue has become a kind of mania, especially in Cape Colony, where in offering bees for sale, the length in millimetre, is given their tongue. European traders have sought to take advantage of the great consumption of honey in Africa, and we see quantities of "Swiss honey," and other artificial products on the market. The Transvaal and Orange Free State Governments have, however, prohibited under severe penalties the sale of anything not the natural product of the bee under the name of honey. Syrups may be sold so long as they are not called honey.

"L'apiculture," (Italy).—A girl in Switzerland suffering from poverty of food could get no relief through

medicine; at last she tried a honey cure, which restored her to permanent health in rather more than a month. The treatment was as follows: Morning and evening honey dissolved in hot milk; honey water ad libitum. Honey taken during the day in all about 2 lbs. each week.

"Le Rucher Belge" (Belgium).—It has been suggested that the larger producers of honey should co-operate and form an association for the special purpose of extending the sale of honey to the public without the assistance of the middleman. The association would keep a register of the names of honey producers, and would thus be able to afford the buying public all information on the subject, thus bringing buyer and seller together. Through advertising, some good might, no doubt, result.

"L'Apiculture," (France).—Independently of the common bee, there are several other varieties more or less valuable. The Italian bee is distinguished from the common bee by two yellow rings, and the hairs which form a slight down are yellowish, especially when young; she is somewhat larger than the black bee, her scent is more delicate, and her buzz is gentler. These bees defend their hives better than the others, and never permit a strange bee to enter. They are gentle and easy to handle, and generally winter successfully. They raise more brood than the ordinary black bee, but for that reason they consume much more food in the spring. This race crossed with other varieties is not so gentle as the pure Italian, but these workers are very active and robust.

Then there is the Cypriot bee, somewhat more yellow than the Italian, the queens smaller, but very prolific. They are very industrious, but not good tempered, and they slaughter bees of other races unmer-

cifully and rapidly. The Syrian is also a yellow variety, with stripes of the same color, and ashen-grey down. A little smaller than the Italian bee, but vigorous and excellent workers. They winter very well, still there are days when they will not work, and what is worse, they are great robbers.

Cypriot and Syrian bees raise a great number of queens at swarming time, sometimes thirty or forty young queens in one hive.

The Carniolian, from Austria, is a larger bee of an ashy-white color, very gentle, and little susceptible to cold; they do well in cool countries, but in France they swarm too freely, and are better when crossed with the Italian.

The Palestine bee greatly resembles the Syrian, is perhaps yellower, and of small size. The queens are very small; the workers are wonderfully active in summer, but, ill-tempered and thieving. They winter but badly in our climates, as it is never very cold in their native haunts.

Of all bees the Algerian race of Kabylene bees are the most detestable. They are as black as coal, so much as to be ugly, and if anyone touches their hives, even with plenty of smoke and with veil and gloves, they are sure to be stung. They not only attack the operator, but also anyone who may happen to be in the neighborhood. They are robbers in the highest degree, and, like the Palestinian bees, they winter very ill.

The grey Caucasian bee is difficult to procure, and very expensive, so it has not been very closely examined.

The Corsican bee is yellow, like the Italian, others grey, like our own, but paler in color; they are not so gentle as the Italians. Like all queen bees from warm latitudes, these bees begin to lay too early in the year.

—British Bee Journal.

Questions and Answers

[Questions to be answered in these columns should be sent to us not later than the 15th of each month in order to insure their answer appearing in the following issue. We wish to make this department as useful to our readers as possible and a reliable source of information. For the present at least the replies will be procured from various sources.]

Hives with or without Covers for Cellar Wintering?

I have not had very much experience in bee-keeping and would like to know how I should keep them in winter; other years I have taken both the top and bottom boards off the hives and have had very good results, but some say I do wrong. Now will you tell me if I should take off both boards or which?

A LADY BEE-KEEPER.

In answer to the above question I would say that I raise the hive one inch from the bottom board but do not remove the cover. I am aware that it is a common practice to take off the covers when there is a cloth or some kind of packing over the frames: for all this I would advise the questioner to follow the practice she has found successful in the past. I use flat covers; would not object to their removal if cellar was warm and dry, but if cold I would rather have them on.

A. D. ALLEN.

Marlbank, Ont.

China can be mended with water glass and powdered asbestos. Mix the asbestos with the water glass until it forms a thick cream. Cover the broken edges with this and press together, fastening firmly. The article should stand several days to allow the cement to harden.

RE-LIQUEFYING HONEY

HOW TO PREVENT GRANULATION.

The bottling of extracted honey for the wholesale and retail trade to supply a market which calls for and wants only extracted honey must necessarily be undertaken on a large scale, and one somewhat larger than most bee-keepers have been accustomed to battle with. Cincinnati, as many know, is a market for extracted honey from the small ten-cent bottle to the 500 lb. barrel shipped in by the carload, and bought by the manufacturer who uses a large quantity of the darker and inferior grades. Then comes the grocery trade, each store with its large or small display of various-sized bottles containing extracted honey of the best looks and the best flavor—the very cream of the bee-keepers' labor. This trade, although not as large as that of the manufacturer, is nevertheless a very important and delicate one; for, if the honey is granulated, it is looked upon with suspicion. A barrel containing glass jars filled with liquid honey, and one just below it with granulated honey of the same quality, the latter will stand untouched while the former is often sold at a price over.

This state of affairs has set Mr. C. W. Weber, a Cincinnati honey-merchant, to thinking; for to be continually replacing honey which granulates so quickly during cold weather, was a task almost impossible and not at all profitable. Mr. Weber follows a plan of putting up honey which he calls the new way of liquefying and bottling honey, which

is not only a success so far, after the most severe tests, but also allows the work to be done rapidly and to perfection. Through the kindness of Mr. W., who explained everything in detail, and allowed me to take several photographs, I will try to impart some of this interesting knowledge to bee-keepers.

This new (?) method is to some extent based on the same principle which our mothers and grandmothers have been practicing for years, and is now still in use, and probably will be through the present century and the next. We know how much care is taken at home, during preserving time, to have all jars and cans containing the preserved fruit very hot just before they are sealed airtight. Fruit put up in this way will keep for years, and the syrup will never show the slightest trace of granulation. Now, we may ask, why should not this method preserve honey in liquid form? Well as a matter of fact it does it in this case just as in the first. This is the foundation upon which Mr. W. bottles honey; and as most of the honey which comes to him is already granulated, his method must be worked on the wholesale plan; for, instead of working with quarts or gallons, he had to consider barrels at a time.

For this purpose a large tank was constructed, which holds one barrel of granulated honey at a time. This tank is an ingenious affair; in fact it is really two tanks in one. The inside, or honey-chamber, is surround-

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ed by an outer tank made of copper, with a 3 inch space between the two for the water. This surrounding water is heated by a gas-stove of special design, which also acts as a support for the tank. The height of the water within the tank is registered outside at all times, and the amount can be increased by turning, on the water connection which is on the opposite side. Should the water supply become too great, a turn or two on a small wheel at the bottom of the tank on the left-hand side allows the water to escape into a drain, and it is thus carried away.

When the honey has been recon-verted into the liquid state, and the register on the tank shows that the proper temperature (180 deg.) has been reached, or has been so for at least five or ten minutes, one of the assistants allows a quantity of the hot honey to run into a very large coffee pot, which is found to be an excellent article for the purpose on account of the large lip, which makes pouring without spilling an easy thing. He then proceeds to fill the empty glass jars ready at hand. Another assistant, supplied with corks and a mallet, takes the bottles as fast as they are filled, and hammers a cork into each. This method of inserting corks seems rather strange: for, to see him rain heavy blows upon the mouth of each bottle, makes one believe he possesses a wonderful amount of skill to hit the cork every time without breaking the bottle, but upon investigation the secret is found to be in the mallet, which is made of solid rubber; and any amount of hammering on the bottle would not break it. This mallet does its work well, for it puts the cork in squarely and rapidly, and has never been known to break a bottle. The corked bottle is then passed to Mr. W., who dips the same

in a preparation of melted rosin and beeswax, which gives the bottle a perfectly air-tight seal, and also a nice yellow cap, which is in perfect color-harmony with the light yellow honey, and last, but not least, this "cap" is cheap.

The bottles then pass to another assistant, who arranges them near a large block of ice in order that the caps will harden quickly, thereby preventing air-bubbles from working through the cap, which would leave a weak place in the corking and finally allow air to enter.

This part of the work is not yet perfected, as Mr. W. intends to have a track built, upon which a small carriage—constructed so as to hold about one dozen bottles in an inverted condition—will travel, and this carriage is to carry and hold the bottles over a tray of crushed ice. After the caps are hardened, the bottles are placed on shelves, and and afterward properly labelled ready for the traders, with a guarantee as to the purity of the contents and an assurance that no granulation will take place in the future.

The rapidity with which the work is done is really astonishing. Three experienced helpers can in three hours fill and seal 1,200 bottles. The success of this method may be seen from the fact that some honey put last summer had been kept on since bottling, and after passing through the present winter, is just as clear as it was the day it was put and not a single crate of granulated honey had to be replaced this winter. The whole operation described above of bottling honey is done right in Mr. W.'s large, roomy store, where customers and visitors are always welcome to witness the proceedings from beginning to end. This method takes advantage of, and when you see a barrel of granulated honey

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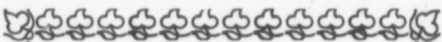
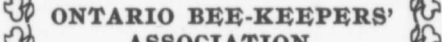
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transferred to the tank, and then, in a short time, extracted therefrom in the form of a thick golden liquid, and after following it through the various operations until the sealed bottle stands ready to receive the label, little doubt remains in their mind as to the purity of the article, and many leave with the proverb that "all pure honey granulates," badly exploded, for they have just learned that "all pure honey will not granulate", which may now be called the twentieth-century revision of what has heretofore been pumped into the ears of the public as a true test for pure honey.

"Now, instead of trying to teach people to accept something they do not want, why not spend less time, do less talking and make more money by giving them what they do want, for "a man convinced against his will is of the same opinion still"; and if he asks for extracted liquid honey, and you talk him into buying a bottle of granulated honey, nine times out of ten he will hesitate the next time, and generally go where he knows he can get what he wants.

A tank like the one described costs about \$100; but this price depends a great deal on the pocket-book; for that sum includes a tank made of the best material, the gas stove, and the rest of separate hydraulic connection. In fact, this price could be reduced nearly half, and still do the same work, but, of course, not so rapidly or conveniently. Probably in a few years, when the good points are known, a tank will be placed on the market for less than half the price, and it may become almost as great a necessity, if not as great, as the wax honey extractor is to many beekeepers to-day.

—J. R. Schmidt, in Gleanings.


ONTARIO BEE-KEEPERS' ASSOCIATION.


 Programme of the Annual Convention

To be held at Woodstock, Ont., on Tuesday, Wednesday and Thursday, December 3rd, 4th and 5th.

Tuesday 2 p. m. The meeting will be called to order and the minutes of the previous meeting read.

2.30 p.m. President's address. Mr. J. D. Evans, Islington, will open the discussion.

3.30 p.m. Question Drawer. Mr. J. B. Hall, Woodstock, in charge.

4.30 p.m. Paper by Mr. H. G. Sibbald, Claude, on "The Management of Out Apiaries and Prevention of Swarming". The discussion on his paper will be opened by Mr. J. Alpaugh, Galt.

7.30 p. m. Paper on "Exhibitions of Honey" by Mr. R. H. Smith, St. Thomas. Mr. A. E. Hoshal, Beamsville, to open the discussion.

8.30 p.m. Question Drawer. In charge of Mr. John Newton, Thamesford.

Wednesday 9 a.m. Address by Professor Shutt, of the Experimental Farm, Ottawa, on experiments he has made with uncapped, partially capped and fully capped honey to find the percentage of water in each. Mr. J. K. Darling, Almonte, to open the discussion on the Professor's address.

10 a.m. Question Drawer. In charge of Mr. W. J. Brown, Chard.

11 a. m. Official Reports.

2 p m. Paper by Mr. John Fixter, of the Experimental Farm, Ottawa, on experiments he has conducted.

Mr. D. W. Heise, Bethesda, will open the discussion on Mr. Fixter's paper.

3 p. m. Election of officers.

4.30 p. m. Question Drawer in charge of Mr. F. J. Miller, London.

7.30 p. m. "How One Man Alone Manage 1 500 Colonies for Comb Honey in Out Apiaries." Paper by Mr. W. Z. Hutchinson, Flint, Mich.

Mr. F. A. Gemmell, Stratford, will open the discussion, on this paper.

9 p. m. Banquet and Social Programme at the Royal Hotel.

Thursday, 9 a. m. Unfinished business.

Question Drawer.

Adjournment.

The meetings will be held in the City Hall. Arrangements have been made at the Royal Hotel for accommodation at one dollar per day for delegates and others attending the Convention.

Single railroad tickets to Woodstock should be purchased by each person and a standard convention certificate received from the agent. Special return rates will be secured provided a sufficient number of certificate holders are present.

WM. COUSE, Sec'y,
Streetsville, Ont.

* **Brant Bee-keepers Meet** *

The Brant Co. Bee-Keepers' Society met in the council chamber of the Court House, Brantford, on Saturday, Nov. 23.

Reports received from members preparatory to forwarding to Secretary of the Ontario Association showed a very satisfactory season. Messrs. C. Edmondson and J. H. Shaver were appointed delegates to the Association Convention to be held at Woodstock, and the following officers were elected for the current year: Pres, Alex. Taylor, Paris; Vice-Pres., C. Edmondson, Brantford; Sec.-Treas., W. J. Craig, Brantford.

After the business of the Society was transacted, a variety of subjects were profitably discussed, among them the question: "Is there any way of knowing whether a colony is queenless, late in the fall when no larvæ or eggs are present, without searching for the queen? C. Edmondson considered that if drones were present, and no apparent effort being made by the bees to get rid of them at that season, it is a pretty sure sign that the colony is queenless.

Mr. Shaver, while agreeing with Mr. Edmondson in this as a general rule, contended that it is by no means an infallible evidence, and reported of having a colony in his apiary which he had set aside as queenless on that account, but on further examination had found the queen alive and apparently well. The conclusion of the members in regard to this was that the queen must have been hatched late in the season and was yet unfertilized or that something was the matter with her. Mr. Shaver thought that the queen was "honey bound" as the combs in the brood chamber were literally "chucked full" of honey. W. Craig said he has often in the case of dark colonies been guided to a conclusion of queenlessness by the restlessness of the bees and the peculiar hum of despair which they make when in that condition.

Mr. Edmondson told of a rather peculiar thing in one of his early swarms; he noticed it dwindle, but on examining found eggs; being satisfied from this that it was not queenless he closed the hive and gave it more attention at that time; afterwards opening it he found it apparently the same condition, only fewer bees; the eggs were there before: in order to assure himself that he was not mistaken he closed the hive for a few days longer

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only to find it as he had left it; eggs in the same comb and in the same cells. The colony was queenless, but there were bees enough to care for the eggs and warmth enough to hatch them if there had been "any hatch to them."

Someone suggested that they must have been "nest eggs."

The chances of wintering a number of colonies successfully on the south side of a close high board fence, sheltered by a barn on the west side and a fence on the east, was discussed at some length. Mr. Shaver said that while he would not care to leave his bees in that condition, he thought they might come through all right if they were kept out from the fence a sufficient distance so the snow would not pile upon them.

Mr. W. Bayless reported a colony which he had forgotten in a fence corner, buried in a snow bank for over three months, the colony came out in first-class condition in the spring. Of course the snow was loose around the entrance, and it did not have an opportunity of freezing and stopping the entrance ventilation, this being a great danger of having the hives covered with snow. The question whether covers or covers and bottoms should be removed from hives entered in cellars was brought forward; the removal of the cover alone and the raising of the brood chamber and the bottom board was considered as generally sufficient. Mr. C. Anderson suggested that the taking of the one or both should depend on the temperature of the cellar; if it averaged about an average of 50 degrees he believed that the bees would winter better with the bottom cover both removed.

man's love is like his appetite— must be fed.

 † NOTES BY THE WAY. †
 (By Geo. E. Deadman, Brussels.)

(Continued from page 105.)

In last notes I stated that the handlers of railway freight almost invariably keep the addressed side up. There are exceptions to this, however, in the West,—notably when "mixed trains" carrying both freight and passengers arrive after dark and when by the dim light of lanterns the freight is unloaded; we can very readily understand that they are not long in doing it and that little attention is paid to "This side up" or anything else. On many of the roads there is but one train a day and some places every other, or every 3rd day. If you wish to "move on" you must accept things as you find them, and if you arrive at a place at midnight you must take a midnight train to go out on. I was on one of these "mixed" trains one day or a part of a day and a night. It was four hours late in starting and reached my destination about 3 o'clock in the morning. It so happened that some of the honey in crates was unloaded same hour. Trainmen like many others who work at unreasonable hours are somewhat times in the best of humor and even if they were they could hardly be expected to follow very carefully any directions that might be on the boxes, in fact it makes very little difference anytime unless in very bold type. I noticed once on some millinery boxes a large strip of paper on which was printed so as to be easily read the word "fragile" and in some respects it is better than "Caution" that is so generally put on comb honey cases:—both would be better, however. As I have already said

railroad men pay very little attention to any of these things—I had full directions on each crate as how to load on the car, etc. At Winnipeg I distributed the honey sending it to different places that I purposed going to and was anxious that the section honey should be properly loaded in the different cars that were being made up for each place:—here I was taught a lesson or two. I could not get those in charge to understand that there was a right and a wrong way of loading. One informed me that he “knew all about it, that they had kept bees at home, and melted up the combs and strained out the honey”. Another informed me that they “handle more valuable things than honey” and still another maintained that “it always goes through all right” never having any complaints. Most of us know that it is useless to make any complaints about section honey or in fact any kind of hone’y as it is carried at “owners’ risk”.

It has been advocated to pack it so the glass will show what it is and therefore more care will be exercised in handling. The only use I could see for this was to tempt them to break the glass and sample the honey. Handles put on crates are a decided advantage but how to get them loaded the right way so as to avoid the effects of shunting is a problem—a large shipment will probably go safer than a small one. The best plan is to see it loaded right at the start; find out where it will be transhipped or unloaded and write to the agent at these points giving the necessary information and requesting that he personally look after it. He will be quite willing as a rule to do this—it will be necessary to write a day ahead.

Few of us realize how much handling or changing there is from car to

car, or from car to drays before some shipments reach their destination. Our carload was made up at Owen Sound to go by “lake and rail” via C.P.R. One might suppose that the boat being there ready for loading that it should not entail much handling. We will start with the producer. It was first loaded on the dray that conveyed it to the station. It was next placed on the trucks and wheeled into a car. From this it was put on the trucks again and placed in the boat. At Fort William it was placed on trucks again and loaded in a car. At Winnipeg carload lots are left on the “siding” so if you wish to ship to different points it has to be loaded on a dray and unloaded at the station, then loaded in trucks again and put in the car. When car reaches its destination it is unloaded at the station there, from there to a dray and from this to the merchant. Fourteen times in all or seventeen times for that which reached Owen Sound by another line of railroad. Is any wonder that crates fall to pieces and comb honey is broken up with so much changing especially when handled by a class of men that you would not expect to be very gentle.
(to be continued.)

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