The Canadian Bee Journal

Devoted to the Interests of Bee-Keepers

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¶ There were in the same country shepherds abiding in the field, keeping watch over their flock by night: and lo, the angel of the Lord came upon them, and the glory of the Lord shone round about them; and they were sore afraid. And the angel said unto them: "Fear not: for, behold, I bring you good tidings of great joy, which shall be to all the people. For unto you is born this day, in the city of David, a Saviour, which is Christ the Lord. And this shall be a sign unto you: Ye shall find the babe wrapped in swaddling clothes, lying in a manger!"

¶ And suddenly there was with the angel a multitude of the heavenly host praising God, and saying: "Glory to God in the highest, and on earth peace, good will toward men!"

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The Canadian Bee Journal

Devoted to the Interests of Bee-Keepers

JAS. J. HURLEY, Editor

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The Canadian Bee Journal

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The Canadian Bee Journal

PUBLISHED MONTHLY

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

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Once more the joyous Christmas season approaches like Halley's comet. What a grand thing it is that, in a world of selfishness, contention and struggle, there is one season during which we are expected to cast aside care and self, and make cheerful our brother. Let us do it with all our hearts. We will be a long time dead. The use we make of the Saviour's glad spirit of "good will to men," will count most during that long and eventful time. To each and all of our readers, who have been so patient with our shortcomings during the past year, we extend our most hearty Christmas greetings and best wishes.

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We have received a letter from one of our oldest readers—a gentleman 72 years, and of 28 years experience with the bees. It is from Mr. G. Guyer, of Port Elgin, in a very chatty and interesting way he tells of his early experiences, and at some length explains the methods he has pursued. The methods no doubt were the best available during his time and circumstances, with results moderately successful. He had foul brood three times, and each time overcame it. He writes for the purpose of expressing his appreciation of the work done by the O.B.K.A. and the provincial government, in sending out the inspector to render assistance to needy bee-keepers. He also expresses the wish that any bee-keepers who may be in his neighborhood—be they inspectors or others—will call upon him, they will receive a right, royal welcome. Mr. Guyers' good old heart seems to be beating right after the lapse of 72 years. We hope it will long continue so.

We would like to draw particular attention to Mr. F. P. Adams' article in this issue regarding full frames of honey in the hives in the spring, when the bees have nicely started brood rearing. It is a great mistake to conclude that because these well-filled combs are there that all is well. It is a well known fact that the bees will not make the liberal use of these stores that they might or should. If honey is not coming in freely these combs should be uncapped so as to force the bees to take care of the drip and clean them up. This will stimulate the feeding of the larva. A good plan also is to take one of these combs, after uncapping it, and place it on top of the hive over the brood nest. It stimulates the bees as well as feeding and empties the comb without the bother of extracting. At the same time give the queen plenty of room to lay. If honey is coming in and there still remains some outside combs full of honey, it will do no harm to remove them altogether. This honey is fit only to be turned into bees. Make this your chief object in the spring. We trust this will not be forgotten when next spring opens up.

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Dr. Miller relates that when shaking his bees on foundation for the purpose of curing disease, many of them took flight and left, bag and baggage. He rejoices, however, that they did not take the frames of foundation with them! What a cheerful Christmas an old philosopher like that can make for those around about him. May he yet have many happy returns.

Mr. Holtermann (Gleanings, page 726) says:

"I do not want to close this brief report without saying that Thursday regular programme was broken into by Mr. M. B. Holmes, Athens, Ont., asking the president to call upon some one to produce Mr. Wm. McEvoy.

After a little search, the object of interest was produced, when he was presented with a purse and address "on behalf of bee-keepers generally, and members of the Ontario Association in particular," in view of the fact that he had been the originator of the method of treating foul brood now generally recognized as the best in the world. The address stated that Canadians are proud that McEvoy had done this. The Germans have invented almost every thing that has developed modern apiculture; the United States has very largely improved upon these inventions; but a Canadian has discovered how to grapple with this scourge."

Yes, the Germans have done much, but McEvoy—he's Irish. Hurrah for Ireland. I. B. J. please copy.

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Dr. Miller, writing of his experience with European foul brood in Gleanings, page 728, says:

"As to disinfecting hives, we know that, in thousands of cases, hives without disinfection have been satisfactorily used, and it is entirely possible that in the cases reported adversely the disease may have occurred from other causes. At any rate the proportion of failures seems to be so few that I'd rather take the chances of treating them over again than to disinfect all the hives."

Will our good friend, Macdonald, of the B. B. J, please paste this in his bonnet. As for friend Root, he might paste it over his right eye, and to anxious enquirers he might explain that it was a black eye delivered off Dr. Miller's bat.

What a windfall that was for Mr. Byer. All the paraphernalia connected with scientific queen rearing imported from Borodino (duty free?) was left to him, after Mr. P. I. Clark got through with his demonstration on queen rearing. Our columns will be open at usual church rates next summer to receive Mr. Byers' learned disquisitions on up-to-date queen rearing. We have got you in a tight place now, friend B. You have no excuse, but plunge into the work. You have our best wishes, and we hope that you will succeed in producing the illustrious queen with all the virtues and good "straines" that Mr. Sibbald spoke about as being necessary for successful bee-keeping.

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Dr. Miller, Gleanings, page 724: "I hope that Hurley-Root controversy will not close till we **know** something about that winter nest. I suspect each is right from his own standpoint."

Editor Root: "We were, of course, speaking from the standpoint of the one who is wintering bees **outdoors,** as that is the plan we use almost entirely. Possibly Mr. Hurley was speaking from the standpoint of one who winters **indoors.** But whether bees are wintered outdoors or indoors, they will make a winter nest if the feed be given **early** enough; but, of course, if they are put immediately into the cellar, late feeding and the consequent splitting-up of the cluster by slabs of stores would not necessarily be particularly harmful; but we would prefer to have winter nests, even for cellared bees. There is a period in the fall, before bees are put indoors, when they will have many cold and chilly days. It is during this time that the colony will suffer somewhat if its cluster is divided up by solid slabs of syrup."

No. We winter outdoors, and it was outdoor wintering we had specially in mind. It was your idea of specially made

"winter nest" that troubled us. You have argued the matter so well, however, that you have almost convinced us. We remain, nevertheless, a little sceptical, Friend Balmer, bless him, comes to our aid in this issue with something that looks like good argument.

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Mr. N. E. France advises us that chairman Taylor of Michigan, has announced the following officers elected for the National Association:

President—George W. York, Chicago, Ill.

Vice-president—W. D. Wright, Altamont, N. Y.

Secretary—Louis Scholl, New Braunfels, Texas.

Manager—N. E. France, Platteville, Wis.

Directors—J. E. Crane, Middlebury, Vt.; E. F. Atwater, Meridian, Idaho; R. A. Morgan, Vermillion, S. Dakota.

In the ballot it was close between candidates for secretary, Morley Pettit and Louis Scholl

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It is to be hoped that the National Bee-Keepers Association will accept the hearty invitation extended by the Ontario B. K. A. at its recent meeting and hold its next convention in Canada. We'll house them in sections (of our hotels) and feed them on bee-wisdom.

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We are indebted to Mr. D. Meuser, of Elwood for three copies of old Canadian Bee Journals, when Mr. D. A. Jones was editor. They have proved very interesting reading.

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Mr. Byer has been kind enough to write us in reference to honey pails. We regret very much that we cannot get it in this issue owing to lateness of arrival. The forms were all closed before this letter reached us. It will appear, however in January. We were anxious to get the C.B.J. out this month by the 15th.

THAT WINTER NEST.

J. E. Hand.

Editor Root's statement with reference to the winter nest and your comments as published in the C. B. J., Page 358, would seem to indicate that the wintering problem is not yet solved, at least to the satisfaction of all. When editor's disagree, who shall decide. Surely not I. However, since this touches upon a matter of vital importance in the successful wintering of bees and since you ask for the opinion of others, I will endeavor to outline my views based upon an experience of 30 years of outdoor wintering in the northern States.

If Mr. Root means that bees as a rule remove the honey from the centre of a winter cluster and store it in another place for the purpose of forming a winter nest with empty cells then I don't agree with him. Right the reverse is true in my location.

That bees do crawl into empty cells when such are to be found in the centre of a sphericial winter cluster can be proven by an examination of the central combs of the winter nest during cold weather. While under ordinary circumstances such a condition is far preferable to one that would compel the bees to cluster upon solid combs of capped honey, yet there are other things to be considered in forming a winter nest, besides empty cells.

To attempt to winter bees on solid combs of capped honey in the same position in which they were left by the bees with only narrow passage-ways between the combs would mean to court disaster; however, with proper attention to the correct spacing of combs for a winter cluster, I will take my chances on solid combs of capped honey. Perhaps some will say, "Oh, well, wide spacing of combs was advocated more than twenty years ago, and the practice has been abandoned long ago." To such I say, bet-

ter try it again, and space a great deal wider than you did before. While the mere matter of a quarter inch from centre to centre can make but little difference, yet it is a move in the right direction.

I am not fully prepared to say just how far wide-spacing can be carried on successfully. Perhaps this is a matter that should be governed by latitude; however, I have had good results from a spacing of two inches from centre to centre, and for solid combs of honey I would not space less than one and three-quarters; while if the central combs are not full of honey, nine frames in a ten-frame hive will give good results. The central combs should be spaced wider than the outside ones.

The most successful wintering of bees that has come under my observation, was a colony that wintered on three Langstroth frames, solid full of honey in the centre of a ten-frame hive, with a space of two inches between the combs. What surprised me the most about this colony was the small amount of honey they consumed, and the wonderful vitality of the bees in the spring. Bad weather seemed to have no effect upon them and they quickly built up into a rousing colony, while other colonies in the same yard that were stronger in the fall with closely spaced combs, dwindled to a mere handful of bees. The reason for this difference is easily accounted for. In the former case the bees were clustered together in two solid balls, one on each side of the central comb enabling them to circulate outward and inward, and thus keep up a natural heat with very little consumption of stores. In the latter case, while the bees attempted to cluster in a solid ball, the ball was cut up into thin slices of bees, separated by solid walls of honey with no chance to circulate inward and outward through the centre of the cluster, therefore, they were compelled to consume immense quantities of heat producing pollen, and crawl into the cells in order to keep up an unnatural heat, a condition that is often followed by a long train of evils, such as distended abdomens, dysentery, and spring dwindling.

When bees are allowed to build combs as nature has taught them, they usually provide for the above mentioned contingency. But with the advent of moveable frames having deep combs and close spacing with no means of communication through the centre of the winter cluster horizontally, came disaster and death to the bees. Thus thousands of colonies perish during the severe winters, all because beekeepers do not think the instincts of bees worth considering.

It is hardly necessary to add that the sectional hive is the only one that is constructed with an eye to the natural requirements of bees in this respect.

Birmingham, O.

[This very ably expresses our idea upon this question, when we first drew Mr. Root's attention to it. That bees wintered successfully on full combs of honey we knew; while the nest idea was entirely new to us, Mr. Hand's idea of spacing overcomes the objections to the "cold slabs of honey." We are much indebted to Mr. Hand for the article, and trust we may hear from him again.—Ed.]

MEETING OF QUEBEC BEE-KEEPERS' ASSOCIATION.

Harry W. Jones.

The second annual meeting of the Quebec Bee-Keepers' Association was held at Montreal in Rieudeau's Hotel on the 10th of November.

Mr. M. C. Peloquin, the president, called the meeting to order about 10 o'clock with about forty-five members present. In his opening address Mr. Peloquin welcomed those present and gave a short account of the work the association had accomplished in the last year.

The first item after confirming the minutes of the last meeting was the selection of officers for the ensuing year, which resulted in last year's executive being restored to office: President, Mr. M. C. Peloquin; Vice-president, Mr. F. W. Jones; secretary-treasurer, Mr. F. H. Comiré and directors, Messrs. Eug. Goudron, N. Legris, M. M. Dufault, J. C. Camirand, Senator Legris, J. B. Edwards, Elz. Girard, M. Prudhomme, I. Lapointe, O. Fontaine and A. L. Beaudette.

A short time before the close of the morning session the Hon. Mr. Jeremie Decaire, Provincial Minister of Agriculture entered the hall. He was presented to the members, and asked to be permitted to speak a few words to the assembled bee-keepers. Permission being given, he spoke for a few minutes, promising the bee-keepers his aid in what they undertook in the interests of this important branch of agriculture, concluding his remarks by advising that they work in harmony and altogether. Shortly afterwards the meeting adjourned until 2 in the afternoon.

Afternoon Session.

Mr. Decaire had intimated that he would be pleased to meet a committee from the association in regard to amending the Foul Brood laws, governing apicultural conditions in the Province of Quebec. With this end in view, Messrs. J. A. Camirand, secretary of the Provincial Council of Agriculture, the President and Vive-President of the Association and Director Hector Beland and J. O. Levac, with F. H. Comire, as secretary, were directed to draft a set of Foul Brood laws, modelled after those of Ontario, for the Minister's consideration. After this a short space of time was taken up with suggestions to the committee on matters to be brought to the attention of the Minister.

Foul Brood, as is usual at most conventions, came in for a short discussion, which took the nature of a debate, during which the older bee-keepers and those who had had experience with the disease compared notes and experiences on the malady, with the object in view of pointing out to the unexperienced members present "What not to do" regarding the disease. This method of talking over the subject generally, in the way they did, proved most interesting and brought out many ideas and practices which might possibly have been passed over had the subject been dealt with by an address.

The meeting broke up in the latter part of the afternoon to permit a number of the members who were leaving town that night to make connections.

Among the prominent bee-keepers of the province present were noticed Messrs. W. A. Oswald, one of the provincial lecturers on agriculture; F. J. Sylvestre, John C. Moynan, J. F. Prud'homme, Dr. A. O. Comiré, A. L. Beaudin, M. Paquin, Uld. Legris, Jos. Goudron and others.

The association has already a creditable record of things accomplished, and all things point towards a bright and prosperous future for the society. The membership list, which is constantly growing, numbers now about one hundred and is composed of the most enthusiastic and up-to-date bee-keepers of the province. They are united and work with the single aim of advancing the interests of apiculture in the provinve to the best of their ability.

MONTREAL PRICES ON HONEY, NOV. 24.

Comb—White clover honey, 14c.; dark quality, 11½ to 12½c.

White extracted, 10 to 10½c.; buckwheat, 6 to 6½c.

These prices are quoted from the commission dealers standpoint, as they are quite conservative.

SEALED STORES FOR SPRING.

(F. P. Adams).

There is some difference of opinion as to the quantity of honey a colony of bees should have in the spring in order to build up successfully.

The late E. W. Alexander stated that he would prefer to have the brood chamber nearly empty when the first fresh honey came in, while many good beekeepers think that it is a sign of prosperity if there are several combs of sealed stores in the hives when brood rearing commences.

There is no doubt that this capped honey helps out in feeding the brood, but its presence in the hives at this time is a serious detriment to the growth of the colony. I have frequently seen a good queen greatly hampered in her egg-laying by the presence of capped honey at the tops of the frames and in the frames at the outside of the hive, and it is quite possible to have the frames in the hives so filled with honey in the spring that there is no chance of a colony geting in good shape for the harvest.

This condition is often brought about by a late fall flow or by heavy feeding to a colony on its full set of brood combs.

Any ordinary coloy will winter well on six Langstroth combs, well filled with honey or sugar syrup, and by contracting down to this number and filling them up well, the honey or sprup is in the best shape possible to be used by the bees.

When brood rearing is well advanced in the spring the empty spaces can be filled out with empty combs and the queen given a better chance to go ahead with her egg-laying.

I would much prefer empty combs on the outside of the brood nest in the spring with a good feeder on the hive, to several solid slabs of honey in the broodnest.

Bees will not use up sealed stores for brood-rearing to any extent, and the presence of this surplus honey in the hives is no indication of prosperity. It is rather the reverse.

The finest combs of brood that I ever saw were in empty frames given to fill out. In them the queen could lay unhampered by honey and they were filled right out with brood all nearly of the same age. Such a condition is not possible in combs that are partly filled with honey when the queen commences to lay in them.

Few people realize how a good strong colony of bees will boom ahead under the stimulus of regular feeding in the spring, and at this time sugar syrup regularly fed is of ten times the value of capped honey to the bees.

LAY-WORKERS

A Few Good Pointers

J. Balmer.

On page 385, October issue, you ask for opinions regarding the state a hive should be in at the beginning of winter. It is not necessary for me to say much, as I concur with what you have said.

If I remember right it is about two years ago that I wrote the C.B.J. stating that I was not afraid of my bees clustering on emby combs, because they will not do it unless they cannot help it through want. I stated that I had been rather late in commencing to feed up for winter, and on opening the hives I found every colony had removed all the honey from the outside of each outside frame and a large part from the opposite side, and filled up the centre combs or brood nest.

I am quite satisfied that if bees are not fed when the last brood hatches, so they can fill up their brood nest to cluster on, they will uncap honey and fill it up from outside sources. That evidently is their

last duty; then how can it be their nature to cluster on empty combs?

Thomas S. Gill has been having some trouble with Lay-Workers, page 407, Nov. As the writer has been through the mill more than once, I can well remember the trouble I had with the first one; very much like Mr. Gill, I lost it instead of curing it. There is always one thing that I bear in mind when I have any uniting to do: It is that a bee is a visitor in its neighbor's house, but mistress in her own. If a bee goes into another hive it is a visiting robber, and is treated as such; if a lot of bees are shook in front of another hive, they are friendly visitors and are treated as such, with the exception of any undesirables such as queens or lay-workers.

There is no fighting or balling of queens because they are visitors in a neighbor's house, but they soon accept their new home, and as soon as they commence to work they become mistresses. If we take a colony of Black Bees and a colony of Italian Bees, side by side, and shake the Black bees in front of the Italian, the bees will be accepted and the Black queen killed as soon as she comes in contact with those Italian bees; shake the Italian bees in front of the Black ones, and the Italian queen will be killed.

Mr. Gill says he tried a young laying queen between two combs. Now had he taken that queen with about three frames of bees and brood, (the bees and brood could be taken from any strong colony) and placed them in a hive by themselves along side of the lay-worker for about two days, then shook the lay-workers off in front, those bees belonging to that queen would soon have culled out those lay-workers. If I have no weak colony to shake any lay-workers into, I go to the strongest colony, make a nuclei with the queen and three frames of bees and brood, and treat as above.

WHAT I DON'T KNOW.

(By F. Dandas Todd).

The Editor invites me to write a short article telling some things I know about beekeeping. He reminds me of a story told of the late Prof. Rutherford of the Edinburgh Medical School, a man possessed of a fiercely sarcastic tongue. A poor medical student was up before him for an oral examination, but was unable to answer a single question. At last the professor inquired, "Have you a visiting card with you?" Here was a question the student could answer, so he brightened up as he replied in the affirmative, at the same time handing out a little slip of white cardboard, 1 x 3 inches in size, bearing his name on one side. The professor glanced at the name, then turning the card face down on the table pushed it towards the student remarking, "Kindly oblige me by writing on the back of this card all you know about physiology."

When it comes down to the practical management and control of bees I often feel I could tell all I really know on the back of a visiting card. I believe a lot, mind you, but just as soon as it gets down to the brass tacks of exact knowledge—well, as some of the Scotch readers would say, "I hae my doots."

Here is the trouble. Instinct is an almost infallible guide, but reason is a low down trickster. For millions of generations a weeding-out process has been going on with all forms of life, and only those that did the right thing at a critical moment managed to live and have posterity. Those who did the wrong thing or were foolish, ceased to exist, being converted into solid nourishment for some other organism that happened to need a square meal about that time. All the wise things our ancestors ever did are reflected in our instincts, their foolish ones nearly all died with them. What a comfort this thought must be to most of us.

Bees and men have both instinct and reason. O yes, I know men say only men have reason. I will go so far as to admit that man is a rational animal who rarely ever reasons, and no worse than that would I say about bees. When men and bees trust to their instincts I for one feel they are pretty nearly doing the right thing, but when they begin to use their reason, then they are making voyages into new regions with all the risks that may befall the explorer.

Here is the way it is. You turn a lot of cattle loose in a large field and by instinct they will develop a routine that is invariable. You turn a lot of men or bees loose and goodness knows what will happen. Instinct preserves the one, reason gives to the other two the chance for a lot of new excitement and they get it.

Just think of the complication when two rational but unreasoning organisms of different types meet together in the shape of owner and slave. The boss cannot whip the slaves into line, because they will at once launch their bolts and die, and there is no profit in dead bees. So he tries to circumvent the little demons, and to do this he must study their habits. With calendar and clock, with thermometer and foot rule, with pint pitcher and pound weight, he keeps tab on them, and behold just as the investigations appear complete, the bees do something entirely different and both the hive and the records suddenly cease.

Wise men make mistakes, only fools repeat them. Instinctive animals rarely make mistakes, rational animals make them all the time. There is the trouble with bees—and men. You never know. Here is the secret of Dr. Miller's wisdom and cheerful disposition. He is just old enough to say encouragingly, "I don't know," and secretly we admire him. I am really trying to get up enough courage to confess as much ignorance as he does. Some day I may succeed.

What do I know about bees? Let me see. Once I knew that bees fly freely at 48°, and a little at 45°, but I have seen them flying in Chicago in January with the thermometer at 38°. I once knew drones were killed off before the beginning of winter, but I saw a few fly along with the bees at the same date. Furthermore I saw a poor solitary individual chased out into a cruel world on Oct. 29 this year in Victoria, B. C., and that too from a hive that had no drones in summer. I thought I knew that 25 pounds of stores would carry a colony over the winter in this part of the world, but 21 hives that had that amount of stores in September, 1908, were almost all empty, many of them dead, by Jan. 15, 1909. What was the cause of the trouble? I don't know, but I am guessing. Once I thought I knew when a colony of bees was dead, but now I don't. In February I put a dead colony, dead from starvation on top of another hive, and that colony is alive to-day in good shape, headed by its old queen. Once I knew—but my courage is oozing fast, this Dr. Miller gait is too much for me.

Here is something I do know, at least I knew it this year, but perhaps may not know it in a few months hence. After much experiment trying to feed starving colonies on summer stands in January, February and March, I learned that bees will not go down for syrup, no matter what its temperature, unless the thermometer stands at 50° at least. There, that looks like a definite statement, but remember, like modern Scotch ministers I am permited mental reservations.

I DON'T KNOW (put these three words in caps, Mr. Editor) how to give pollen to bees, however much they may need it, unless they can fly outside. For six weeks after willows started to bloom the bees could not fly as the weather was too cold, yet they were starving for pollen. Recently working, through my bee books, and I have many, for the 'steenth

time, I hit upon something that looks promising. "The book of Bee-keeping," is a Chicago reprint from plates of what is apparently an edition originally published in England. At the end of a paragraph on spring feeding I find this sentence. "Flour candy can be given with advantage at this season of the year." The only interpretation to me is this; artificial pollen in the form of flour—wheat, rye, peas—can be given, provided it is mixed in with the syrup of which the candy is made. I discovered this sentence when it was too late to try, but it seems strange that no American writer has aught to say about the idea. On the other hand, generally speaking, on this continent when winter is past, bees can fly freely as the temperature is usually high enough. But in Britain and here on Vancouver Island there may be weeks in the spring when the thermometer hovers between 35° and 45°, warm enough for willows to bloom, but not warm enough for bees to fly. In fact, it is a very happy example of that much abused word "locality."

Recently in re-reading Mrs. Comstock's "How to Keep Bees" on Page 142 I found this: "The unbolted rye-flour, or even oatmeal, or whole wheat flour may be used by the bees as a substitute with perfect success. The meal may be mixed with the candy if it is desirable." So we see at least one American writer recomends the same practice, and that too in language about which there can be no doubt. Perhaps some reader who has tried giving flour in this way will be good enough to relate his experience. The idea may not look important to the bee-keeper of Ontario, but if the plan is feasible I could have probably saved one-third of my apiary last spring had I observed these sentences. I was simply aching for some such scheme, but the items were not indexed, hence I missed them. Here you have the reason why I am always re-reading my books, just to catch a stray sentence that bears on some problem that bothers me. Just think how mean a bee-keeper feels when he sees colonies strong in bees rapidly running down to extinction for want of pollen, while he is utterly unable to supply their want artificially.

Now I have told one thing about bees I think I know, and another thing that is worth knowing if true. If all the readers of this journal would tell the rest of us the one thing they learned about bees the past season, this paper would be the most interesting on earth.

Victoria, B. C., Nov. 17, 1909.

AN EXPERIENCE WITH FOUL BROOD.

Disinfection of Hives Not Necessary.

By Leon C. Wheeler.

Editor Hurley: I have been reading with much interest the discussion in your Journal regarding the treatment of foul brood, and most especially those in regard to the disinfecting or charring or burning out of the hives, which have contained infected colonies. Now, as I have treated some forty or fifty colonies this summer for that disease, and have done quite a lot of experimenting along several different lines of treatment, perhaps my experience might be of some value.

I found on inspection of the Paris outyard this spring, (I had taken this yard to work on shares the winter before), that it was badly infected with foul brood; some thirty colonies showing the disease at that time and 12 or 15 developing it later on, as they enlarged their brood nest. My father-in-law, who was the owner of the bees, decided to attempt some experiments, and agreed to help with the work.

Our first experiment was made on five colonies strong in bees, but showing unmistakeable evidence of the disease. As soon as the dandelion flow commenced (this is a very light flow here and rarely

yields any surplus), these colonies were shaken on full sheet foundation, leaving bees enough to take care of the brood, which was placed over a bee-escape on top of the hive containing the bees and foundation; this, in hope that the young bees as they hatched out would gradually work down through the escape and swell the force below. In this we were doomed to disappointment, for in no instance did they get below, but simply plugged the escape with dead bees and brood, etc. We tried this same method later on in the summer, but the bees only did the same thing, clogging the entrance and not attempting to join the force below.

The bees below were given their freedom from the first, our idea being that the flow being so light, they would not be able to gather enough to store any in the cells for some time, or until their honey sacs were emptied of the infected honey. In this we were entirely successful as these colonies soon built up and made a good record in honey gathering, being entirely cured of the disease.

I might mention that as soon as there came a bad spell of weather temporarily closing the honey flow, these colonies were given from one to three sections each of clean honey we had on hand, to carry them through until they could gather from the fields again. We were careful in doing this not to disturb the bees in the upper hive any more than we could help for fear of their filling up on infected honey and carrying it below and reinfecting that colony

Those bees on the escapes were a white elephant on our hands for we dare not shake them below for fear of transmitting the disease, and if we shook them elsewhere we feared they would either fly back to their old stand, or scatter among other hives. However, we finally shook them into a couple of hives, three in one and two in the other, doing the shaking in the evening after bees had stopped flying. We had no bad results from this so far as we could discover, nor any good, for these colonies failed to amount to anything, and I believe were both taken up in the fall.

A few colonies which contained only a few cells on a single frame which showed the disease, we did not treat at first, but simply removed the frame which contained the diseased cells, and watched results. This was done, not so much in the hopes of getting rid of the disease, as to simply hindering its spread as much as possible, until the beginning of the clover flow, when we expected to shake them. My father-in-law, I believe, entertained some hopes that some of them might be cured of the disease without further treatment, but he was disappointed for everyone of these colonies developed the disease again in a short time, nor could we discover any improvement in these colonies over those not so treated. Just before the main honey flow, or rather in the beginning of the flow and before it was on in full force, we treated the balance of the colonies effected at that time. These were shaken on foundation, some of them on inch starts, and some of them on full sheets. Part of them were given their freedom at once and others were left fastened in for two or three days.

As to the full sheets or starts, we found no difficulty, except that those on full sheets built up much the fastest.

But as to those which were allowed their freedom at once, and those which were fastened in a couple of days, there was a vast difference.

Every case treated at this time, with the various methods were successful, with the exception of one, in so far as the destruction of the disease was concerned. This one was confined to the hive, but the next day were discovered passing out and in of a crevice in the hive. They were stopped in that night and left a couple of days and given their freedom, at the same time giving them a comb of supposedly clean honey. As soon as the

brood began to hatch we discovered the disease again, and I have since thought that frame of honey was what carried the infection.

We shook them again and the first brood again showed the disease, so we finally sulphured them.

As I said before, every other case was a success, as far as curing the disease was concerned, but as to getting good strong working colonies, not so.

Those given their freedom from the beginning built up rapidly and within the week most of them were in the supers, and some of them were among my best colonies for the season.

Those confined in the hive gave altogether different results, however. After two days confinement, these were examined and most of them found in a starving condition. Some of them were released immediately and the rest of them left until the next or third day from shaking. Three or four of these were lost entirely and the rest were so weak we never realized anything from them this season, although most of them built up in condition for the winter.

Whenever we found the hive fairly clean, we put the foundation back in the same hive without disinfection, and had no trouble from any of them.

The colony mentioned which became reinfected was in a clean hive, as the old one was too badly daubed to use again.

Hives dirty from colonies having dysentery, etc., or daubed with honey were not used but were scraped clean over a fire and put through a strong solution of carbolic acid water and laid away for a year or two.

The brood from these colonies was sorted and those frames containing a large percentage of live brood were placed in hive bodies and tiered up on a new stand two deep, one of these stacks taking the good brood of from three to five colonies.

These stacks of brood made roaring colonies, when shaken at the end of three weeks, and the way they stored honey the balance of the season was a caution.

Some of those colonies which showed no signs of the disease in the spring developed it later on. In almost every instance the first appearance being in a frame, which had just come into use for brood rearing, which seemed to indicate that infection had been in the hive all the time, but had been covered up in that frame of honey until that frame came into use again.

These colonies were treated as we did those earlier in the season, and, again we found that those bees which were fastened in the hive were rapidly falling off the combs at the end of a couple of days, and those remaining on the combs were weak and trembling.

Some of these were confined by means of a block of wood and others with wire screen, but this seemed to make no difference in results. At the end of the second day in most cases we found about half the bees dead on the bottom board.

Those allowed their freedom were again found to be doing fine and although they reared brood about eight weeks after this no symptoms of the disease reappeared.

Our experience this summer would seem to indicate: First, that it is an unnecessary waste of time to disinfect or to char. hive bodies from diseased colonies, unless they are daubed with honey or are otherwise daubed or filthy. We did not deem it wise to use a hive in that condition. Second, that it is worse than useless to confine them to their hive for a single day or to give them a second shaking on the third or any other day. We do believe, however that the shaking should be done before the flow is on in full force, however, although none of our colonies so treated later in the season developed the disease again. Third, that no gain is made by removing any part of the brood of a diseased colony without the removal of the whole. Fourth,

that so far as our experience goes, at least, the plan of putting the brood above an escape is a complete failure, as far as their going below is concerned. Fifth, that the plan of stacking brood, as described, is a howling success.

I am aware that some of the ideas advanced here are rank heresy in the eyes of some of our best bee-keepers, and that in the submitting of this article I shall bring down upon my devoted head the wrath and displeasure of these said bee-keepers, nevertheless, the fact remains, and, although in some cases it might not turn out so well as it did with us, and, perhaps, the other treatment might get better results than we attained, yet, I believe that what one gains in honey will more than offset any loss occasioned by the occasional colony on which the treatment does not prove a success, even though that colony had to be sulphured in the end.

WINTERING.

John Fixter

I was much pleased to read the article on wintering bees by Mr. R. B. Ross. I have tried most of the experiments he mentioned, and have come to the same conclusion, that bees winter better in the cellar or under ground when properly ventilated, and with all tight covering removed, than if wintered on the summer stands, in sheds, or any way above ground where the temperature is not regulated or cannot be regulated.

Mr. Grant's plan of removing propollis, quilts and wooden covers, is, I think, one of the secrets of successful wintering. I still go one further. After the cover and quilt is removed, I take a full frame of well-sealed honey, place it directly on top of the brood frames, having put a few small sticks across the frame for bee spaces; the sacking is then put over the frame. I put honey on top of all colonies, even when I know they have plenty of stores below. My returns for the past three years is over 100 sections per colony, and have not lost one colony through wintering. This winter I am trying some without the honey on top, but all with sack covering. I would strongly urge beekeepers in districts where the temperature goes down to 10 below zero to winter in the cellar, remove the wooden covers and replace with sacking. If you have a few combs of well-sealed honey, put one on each colony; the bees will more than pay for it next season.

[We are very glad to hear from you Mr. Fixter, and thank you very much for the above. We heartily concur with you in placing the frame on top. It is a splendid plan. Some make it a practice to put it on in early spring. Your idea is the best, however, as it avoids early spring disturbance.—Ed.]

WHAT IS MR. M'KINNELL'S TROUBLE ?

I am just a beginner in beekeeping and as most beginners am after information. I started with one colony last spring and now have four. Three of them are very strong and one fairly weak. They have lots of stores and everything seems O. K. Two weeks ago I put them in the cellar—the only one I have. Besides the bees there are a few barrels of apples and 200 bushels of potatoes. The cellar is stoned up and has cemented sides and walls. I have a current of fresh air passing through and keep the temperature steady at 42 degrees. Now in one of the strong hives the bees are on the comb and quiet. The other three, the most of the bees are on the top of the frames in large clusters, and are very restless. If I remove the top for an instant several will fly out and the others start moving around. I got the bees from Messrs. Ham & Nott, of your town. I have the openings to the hives about two-thirds of entire width open and all alike. We have no apiarists in the neighborhood with the exception of a few Galicians and they **winter** theirs differently. If you can give me any suggestions I would be glad, as I am very interested in them and want to make them a success. I have Messrs. Root's A B C-X Y Z Book, but cannot find anything about it, and the three colonies mentioned do not seem right to me. I might mention that I am forty miles north of Winnipeg, in a scrub country. We have tremendous lot of wild flowers and fruits, and clover, both white and red do very well. I took 95 lbs of honey from the one hive I started with and got three swarms besides and nearly every frame is full of honey, with the exception of the weak one mentioned. Our temperature goes down to 40 degrees below zero, but it is very dry. I have enclosed a dollar for your answer and hope you will benefit me by your experience.

WM. C. M'KINNELL.

[We are glad to hear from you Mr. McKinnell, and will be only too pleased at any time to help you with such suggestions as we are able to give. Thanks for your one dollar. We cannot accept it, however, for any information that we may be able to give you, as we believe it our duty always to help our subscribers as far as we can. We have, therefore advanced your subscription to the end of 1910.

As to the difficulty you are experiencing, it is difficult to state with any certainty. We are of the opinion, however, that your colonies are weak, and have but few bees, and are therefore, clustering in a bunch on top of the frames in order to get close to the cover, where the point of greatest heat would be. You did exceedingly well from your parent colony, but you made a mistake in allowing so many swarms. One or two of these swarms would naturally (in our opinion) be very weak, as we cannot believe that your northern situation would permit one colony to produce such an increase with sufficient strength in bees to go through the winter. One swarm would have been all right; the second could have been tolerated, but the third was inexcusable.

Under present circumstances, however, we would advise that you reduce those weak colonies down to three frames or not more than four at the most, and fill up the side of the hive with a cushion filled with shavings or chaff. The idea of this is to reduce the "house" room so that there will not be so much air space to heat up. The fewer the bees the less will be the natural heat—hence a smaller place must be given them. Keep your cellar about 45 degrees. We would not advise letting it drop lower if possible. The roots in your cellar will do

no harm, provided you do not disturb the bees; but be sure that you keep them dark. If they are not partitioned off, take an old horse blanket or quilt and hang it up in front of the hives so that the light (day-light or lantern light) may be kept from them. This is very important. Keep an eye on your cellar for dampness. This must be avoided at all costs. Beyond this we do not know of any assistance we can give you. If any of our readers think we have overlooked anything we would be glad to hear from them for our January issue. Now, Mr. McKinnell, let us hear from you in the spring, and tell us what success you have had in bringing these bees through. We can assure you that if you are successful in bringing all out next spring, your first year's operations will be entitled to be described as most extraordinarily successful. Ninety-five pounds of honey and three increase is something better than we can do ourselves.—Ed.]

WILLIAM R. HOWARD, M. D.

Endorsed the McEvoy Method for the Cure of Foul Brood.

For the benefit of our British readers we give below the conclusions of Wm. R. Howard, M. D., after an exhaustive investigation into the nature and treatment of foul brood .With this the controversy ends, so far as we are concerned. Our only object—which we think we have attained—was to establish the fact that it was due to a Canadian bee-keeper that this simple and effective remedy was discovered.

The following is taken from Dr. Howard's book, published by George W. York & Co., Chicago, Ill., 1894.

After giving the results of his experiments, Dr. Howard concludes as follows:

"In conclusion, let me say that the publications of Mr. Wm. McEvoy, Foul Brood Inspector of Ontario, instigated this research. In correspondence with Mrs. Jennie Atchley, of Beeville, Texas, on the subject, I agreed to investigate it as thoroughly as possible, hoping to throw some new light on this vexed question. In the light of all that has been written, by Cheshire, McLain, and others on the one hand, and McEvoy on the other, it was evident that if McEvoy was right the others were wrong, and vice versa. My impression was that McEvoy was wrong, and after reading Cheshire, McLain and others, I reached the conclusion that, from a scientific standpoint, they too, were in error in many of their observations and deductions. In the treatment it seemed plausible that if the latter were right, in that the spores floated in the atmosphere, there could be no cure by any method. If McEvoy were right, then there were two points to investigate—are the spores thrown off into the surrounding air? and if so, how long do they retain their vitality under such circumstances? An answer to these two questions would certainly throw new light upon the subject. That thousands of practical bee-keepers believed that both honey and pollen in infected colonies contained the infectious germ, I knew, **but of this I was not now certain**; so after obtaining suitable material to commence work, I determined to carry on my investigations independently, and let the results prove whatever they would, acting solely without interest in anyone's pet theories. I have finished my work, and, in a manner satisfactory to myself, so far as I have gone; but I earnestly regret, that for want of proper material, I am unable to verify the experiments of Cheshire, McLain and others, in regard to the presence of the bacillus in the blood of the adult bee, in the undeveloped eggs in the ovaries of the queen, and in the spermatozoa of the drones. In my criticisms of each of these gentlemen I have intended to be impartial, regarding each one as honest, capable, and deserving much credit for original methods; and where we have disagreed it is purely on scientific grounds, without any feeling of personal prejudice whatever.

I regard the use of any and all drugs in the treatment of foul brood as a useless waste of time and material, wholly ineffectual, inviting ruin and total loss of bees. Any method which has not for its object the entire removal of all infectious material beyond the reach of both bees and brood will prove detrimental and

destructive, and surely encourage the recurrence of the disease. The reader is referred to the criticisms in the following reviews for further discussion of the methods of treatment.

Treatment.

Mr. McEvoy, of Woodburn, Ontario, Foul Brood Inspector of the Province, has attracted much attention of late in the bee periodicals, by the publication of his methods of treatment of foul brood, and a few remarks on his methods and conclusions will be of extreme interest to all; and as it was his published methods that incited these investigations, he is as much entitled to criticism as other writers.

In the honey season he removes the foul combs **in the evening,** and puts in frames with comb foundation starters; at the end of four days the bees have drawn out the starters and stored most of the diseased honey taken with them from the old combs; on the fourth evening he removes these starters and gives full sheets of comb foundation, and by the time the full sheets of comb foundation are drawn out, all the diseased honey is consumed in comb-building. These starters and contents are either melted at a high temperature or burned, as they contain infected honey. The frames and combs containing the rotten brood which were at first removed are burned, thus totally destroying all infectious material to begin with. The hives are not boiled or disinfected, but used at once, the disease being treated, leaving the bees all the time in their own hive.

On November 23rd, 1893, I wrote to Mr. McEvoy, asking him the following important questions, which were answered in a letter dated November 30th, 1893:

1—Have you ever known unsealed brood to die of foul brood?

Ans.—Yes, in all and every case where once fairly started more brood dies of foul brood at the ages of 6, 7, 8 and 9 days than at any other age.

2—Have you ever known it to destroy the perfect bees, that is, does it shorten their lives to have the infection to deal with?

Ans.—**Never, no never.** I have united as many as five colonies rotten with foul brood, in order to get bees enough to make a fair swarm to start a cure; I have much of this work done every summer; when I find only a small lot of old bees left in very rotten colonies, I cure them, and when the colonies get in grand order, with nice, new white combs, the old bees last as well and work with as much energy and earnestness as any healthy colony that had never had the infection to deal with.

3—In hives which have foul brood colonies, is there usually a bottom board nailed on?

Ans.—The hives in many whole apiaries have the bottom boards nailed on.

4—If you had a hive that had the bottom board nailed on, and it was stained with foul brood, would you remove the board or have it cleansed before putting a healthy colony into it?

Ans.—If any of the foul broody combs were to get broken down so as to leave a lot of honey on the bottom boards, I would clean the bottom boards; but in no other case would I do anything to the empty hives or botom boards.

These are the conclusions which Mr. McEvoy has arrived at after several years' experience, and the treatment of over 3,500 infected colonies in the Province of Ontario.

From my experience with bacillus alvei, its nature and growth, it would seem clear that Mr. McEvoy's method, though simple and plain, would prove sufficient, for it has been noted that any method which removes the foul brod bocillus from the reach of bees and brood will cure the disease. His plan has for its aims, first, to remove all foul combs with their contents from the bees, and destroy them by fire; secondly, to cleanse from the bees all the honey taken with them, which contains the infectious germs before any brood-rearing is commenced. The labor of these first four days taken away, generally removes most of the infected honey, when full sheets of comb foundation are given, and worked out, the infected honey is consumed in comb- building; brood-rearing is commenced in new, clean combs, and a healthy colony results. The work of handling the infected colonies is done **in the evening,** in order that no robbing may result, to carry the infection to other colonies.

In regard to disinfecting hives, it has been seen that most investigators claim that it is useless. My reasons for believing it useless are, first, because I have failed to induce bacillus alvei to throw off spores into the surrounding atmosphere; which, if it be true that they do not, then there are no spores lurking in the hive to infect a healthy colony or reinfect the one being treated; second, because the spores exposed to atmospheric

air do not retain their vitality for a sufficient length of time to reinfect a colony treated by a method which delays brood-rearing more than four days after all infection has been effectually removed.

Thus it will be seen that though McEvoy's method of treatment, which at first was so unpopular, and seemed so far from being correct, has, much to my surprise (and, need I say, disappointment?) been shown to be the only rational method laid down among all the writers on this subject."

DO BEES MAKE A WINTER NEST? WHY WE SHOULD FEED EARLY.

In our issue for Oct. 1, page 588, we stated that the purpose of early feeding is to give the bees a chance to "invert" the syrup to some extent, and at the same time to make a "winter nest"; that if the bees are fed late, instead of having this nest surrounded by sealed stores, the cluster will be formed upon slabs of honey (probably unsealed) aproximately an inch thick, which slabs would divide the cluster up into so many vertical separate and distinct clusters of bees—a condition that is not in accordance with nature.

In his comment on this, the editor of the Canadian Bee Journal considers this rather a new doctrine, differing much from the opinion he had hitherto held. Then he adds, "Does Mr. Root know that this is a matter of fact, or is it only theory?" For our brother editor's benefit we may state that our conclusion was arrived at through a series of observations covering some twenty-five years. We have repeatedly opened up the brood-nests of our outdoor wintered colonies during different months of the year, more especially during the last days of feeding, and at the approach of cold weather. We have observed time and again, when bees are fed **early enough**, say the last of September, they will form a winter nest of empty cells, said nest surrounded by sealed stores. If this nest be opened during mid-winter, individual bees will be found crowded down into the bottoms of the cells, the evident purpose of which is to make the cluster of bees one homogeneous mass, separated only by paper-like midribs of the combs and the cell walls. Place a thin division-board between two clusters of bees, and almost invariably you will find a hemisphere of bees on each side, showing how the two lots of bees seek to get the advantage of mutual heat.

If, on the other hand, bees are fed late, the cluster will be formed, but it will be divided up by a series of vertical slabs of stores, approximately one inch thick. As the winter progresses, the stores will be eaten out and the winter nest will be formed.

No one would deny that bees can winter when placed upon combs filled with solid with honey or sugar syrup. We have wintered them that way hundreds of times; but that does not argue that such a condition is ideal. Experience in our case shows that such late-fed bees are handicapped during the fore part of the winter, or until they can form that nest. This consists of a circle of empty cells in each comb, generally toward the front in a Langstroth hive. As the stores are consumed, the cluster works upward, and then gradually backward, always keeping as close as possible to the stores. During the fore part of the winter we shall find this winter nest toward the front of the hive, directly over the entrance. Why this is so, we do not know. During the later part of the winter we find it towards the back.

Of course, there are many exceptions to all these cases. We are only stating what we have observed here at Medina and at other yards where we have had the privilege of making an examination during mid-winter.

We join with Editor Hurley in the statement that "a frank discussion of the matter can do no harm." And then he generously adds, "If Mr. Root is right we shall be glad to find that we are in error." In the same way, if discussion shows that we are wrong, we shall be equally frank to admit it to Mr. Hurley. The matter is of some importance; because if bees do not form this winter nest, or do not need it, rather, then we can feed as late as we like.

On the side of theory it would seem clear that a cluster that is practically a homogeneous mass will winter better than one that is divided up by vertical divisions an inch apart. Besides, honey is a conductor of heat and cold. If the division is made up of sealed honey or sealed syrup these divided clusters necessarily have to keep the honey practically at a temperature of their own bodies. This would necessarily mean a large consumption of stores in order to keep up body heat. Overfeeding in winter is apt to in-

duce dysentery; and, while it may not kill the colony, it will so weaken it that it is practically good for nothing for the next summer's flow.

[Our thanks is due to Gleanings for the above. Its worthy editor has discussed the matter ably. Both the "facts" and the "theory" are well presented, and we must confess that he has convinced us that he is correct. Thus we grow!—Ed.]

THE YOUTH'S COMPANION CALENDAR FOR 1910.

The publishers of The Youth's Companion will, as always at this season, present to every subscriber, whose subscription $1.75) is paid for 1910 a beautiful Calendar for the new year. The picture panel which suggests the title, "Venetian," for the calendar was painted by the famous marine artist, Thomas Moran, His Venetian scene, reproduced in the Calendar by thirteen-color lithography, will be found well worth preserving, long after 1910 is gone by.

TO EMPLOYER OF LABOR.

The great success of the Free Employment Bureau, for men, and the Women's Work Bureau, during the past ten months, has encouraged the Associated Charities of Toronto to continue their efforts. They have secured enlarged premises where the work will be much more efficiently carried on. Both bureaus now being under the one management, and in the same building. We owe it to the large number of men and women who say, "It's work, not charity, we want," to see that such is provided for them through this channel, which is entirely free to both employer and employee.

Another feature added to our endeavors is to try and secure light employment for the "aged" and "physically defective" class, who deserve the sympathy of all who can give such work as can be performed as efficiently as the young and strong. These must live, and should have a chance to maintain themselves.

Will all who require help of any kind, skilled or unskilled, men or women, communicate directly with these Bureaus, Toronto Free Employment Bureau (for men), southwest corner of Queen and Jarvis Streets, and the Women's Work Bureau, in the same building? An earnest effort will be made to secure just the help you need, and as promptly as possible.

THE PREPARATION OF BEES FOR WINTER.

H. A. Surface, M.S., Economic Zoologist, Pennsylvania. Vol. VII., No. 4.

Our correspondence shows that in this State two of the common causes of losses of bees are winter-killing or dying during the winter, and absconding and leaving at the time of swarming in the spring. These can both be overcome without difficulty and without expense, with increased profits from the proper handling of bees.

Winter-killing or the death of bees due to winter, may be due to one of several causes. Among these are the following:

1. Bee Diseases.

If the trouble be diseases of the brood, such as American foul brood or European foul brood, it is necessary for the beekeeper to know this and give the bees proper treatment, in accordance with the nature of the disease. We are undertaking an investigation of bee diseases of Pennsylvania, with a view to showing where they occur and how to prevent their serious ravages. All persons suspecting the presence of bee diseases in their apiaries should at once send to Dr. E. F. Phillips, Washington, D. C., for mailing boxes and franks, and should

mail him a small piece of comb (two inches square), containing the diseased brood. The brood or young bees may die from other causes than foul brood, but the bee-keeper may well be suspicious of this disease in his hives if he sees dead brood scattered in unsealed cells. By knowing the disease and what to do for it, he will be able to overcome it. Directions for treatment will be sent free from this office or from the office of Dr. E. F. Phillips, in charge of Apiculture, Bureau of Entomology, U. S. Department of Agriculture, Washington, D.C.

If bee diseases be present in the hive or colony, it is important to treat them in such way as to remove the disease before the bees become quiet for the winter The earlier such treatment be given in the fall, the better will be the results. Diseased colonies gradually decline and fail to produce enough young bees to keep the colony strong, and are, of course, most liable to die out entirely during the critical period of the winter season. Where the loss of bees is from this cause, it is easy to determine it by submitting samples of the brood in the comb as directed above, and then giving proper treatment, as will be described in printed instructions sent to those desiring them.

2. Queenlessness.

Bees may die during the winter time for the reason that they are queenless, and may have been so for some time, and practically all the bees in the colony are old bees, which would most naturally be likely to die at this time. While it is not true that a queenless colony always dies during the winter time, it is true that one without a queen, however, strong it may be, at some time in the summer or fall, is much more liable to die from some one cause or another, than is one which is queen right. All bee-keepers well know how ready the bees are to learn when a colony is queenless and rob it of its stores, especially at a time when supplies from blossoms become scarce, and thus by robbing it, cause its destruction in starvation to death. Every hive should be examined at this time of year to be sure that it contains a good vigorous queen, and if not, it should be requeened immediately by a new young queen, such as can be purchased for not over one dollar from the many queen breeders advertising in the reliable bee journals.

3. Not Enough Young Queens.

The Golden Rule for the bee-keeper should be, "Keep all colonies strong." This can be done only by continuing the rearing of brood of young bees during most of the year. Those colonies that live in a region where there is no flow of nectar during the late summer and fall are liable to go into winter strong in old bees, if any, but deficient in young bees. These will not winter nearly as well as those which have many young bees at the end of fall. It is the young bees which are more liable to live and remain vigorous during the winter time, and which come forth in the spring able to build up the colony and make it produce early and abundant stores.

In localities where there is a fair fall flow of nectar from asters, goldenrod, yellow flowers or lindens, and especially from buckwheat or some other nectar-yielding plant, the colonies build up strongly by rearing considerable brood in the fall, and also lay in sufficient amount of stores for the winter, and thus go into winter in an ideal condition in regard to the abundance of young bees and stores. In such localities fall feeding is not necessary neither for the purpose of rearing brood, nor for that of supplying winter stores. However, in many regions there is but little fall flow of nectar, and consequently brood rearing has practically ceased before this time, and colonies will be obliged to go into winter with the greater number of their bees at an advanced age rather than young. These

are not in good condition for successful wintering, and especially for the best returns in the way of strongest honey yield next spring. To procure young bees in the hive at this time of year, in a region where there is no natural nectar flow, it is necessary to feed slowly but regularly, in a manner known as "Stimulative Feeding."

There are two general purposes of feeding bees; one is to give them enough food for stores to be sure to let them go well fed and warmed through the winter and into the spring, and the other is to induce them to rear young bees. The former method of feeding for stores may be successfully accomplished by giving each colony at one time all the syrup or food that it may need to make up its entire needed quantity of supplies; but, in the second method (Stimulative Feeding), it is necessary to feed but little at a time and slowly, in order to produce artificially those conditions which come from natural nectar flow. Thus the feeding for brood-rearing should begin rather early in the fall or not later than some time in the month of September, and should be continued by feeding a small quantity, such as one-half pint or a pint, of thin or diluted sugar syrup, regularly each evening. It must be remembered that nectar, as taken from the blossoms is three-fourths water, and this is evaported by the bees until it is not quite one-quarter water, when with proper ripening it is honey.

In feeding to stimulate brood-rearing, it is by all means best to dilute the syrup, so that it is much thinner than when feeding for stores. The best possible food for brood-rearing can be made by measuring one part sugar and dissolving this in three parts of water. When not warmer than 100 deg. Fahr., or about blood temperature, and in the evening, put it into feeders, and either place these in the hives or immediately in front of the hives, so that the bees can procure it and take it to their empty combs during the night.

Of course, we take it for granted that every person trying to keep bees in a successful manner has them in moveable frame hives of some kind. It is almost useless to attempt to tell anyone how to keep bees by modern methods, when he persists in suing old-fashioned box hives. Under such conditions modern bee culture is as fully out of the question as would be modern corn culture, if the grower should persist in planting his crop by sowing it broadcast.

There are many kinds of feeders, but the main purpose is to give to the bees, in small quantities (not over one pint), a diluted syrup, using white granulated sugar, one part, and water, two or three parts, giving this food in the evening when it is so late that it will not start robbing by other colonies, and being sure it is taken up before next morning. Sometimes, to keep the chilly winds from the hive, especially when the food is presented in the entrance, it is important to cover the entire hive, and, of course, the food, with a blanket or some other cover that will keep off the wind and retain the heat, and permit the bees to work at the entrance of the hive.

One good and simple method of feeding is to pour the syrup into a frame containing empty comb. Lay the comb flat down in a large pan, and pour each side full, pouring it from a height and turning the comb over when one side is filled. Then hang the comb in the hive and the bees will clean it up at once. Shallow box feeders, or even pie tins, can be used, if on the liquid there be placed a number of straws or sticks to give the bees a foot-hold while they are feeding, and keep them from drowning. Several kinds of devices or feeding receptacles are made by makers of bee-keepers' supplies, but anything by which the apiarist can con-

veniently give the bees the amount of food desired, in such a way, that they will take it readily, and robbing will not start, will serve all the requirements of the case.

Stimulative Feeding should be kept up for at least from four to six weeks. The feeding should be done each evening, in order to obtain the best results. One-half pint is given to the bees each evening, and is better than one pint every other evening., and far better than a quart every third or fourth evening. The amount to feed at a time depends upon the size of the colony, their need of supplies and their readiness to take up the food. A large colony will take more than a smaller one, but if they be properly protected from chilling winds, even a small colony should be able to take up as much as a pint during each night.

If the bees should not readily take the pure sugar syrup a little old honey can be added to induce them to take it more readily. Old dark or strong honey will do very well for this purpose, although soured or spoiled honey should be always avoided. In fact in answering the now oft-repeated question as to what should be done with the unusual amount of honey dew which the bees have gathered this summer, we would say that it can be used very successfully in stimulative feeding, both in fall and spring, although it cannot be used for winter stores or winter feeding, where the bees will not have an opportunity to fly. at least once every three or four weeks.

Honey Dew.

Honey dew is not honey, although an unusual amount of it has been gathered this year and has been capped or sealed with nice white comb. Upon opening such comb, however, the dark, muddy honey dew is to be seen, and on tasting this it is found to be very inferior in flavor to even poor nectar honey. It cannot legally be sold for honey, and if put on the market it must be marked "honey dew honey." Even if good honey is contained with more than twenty per cent. of this honey dew honey, the producer or seller is liable to a penalty under the Pure Food Laws against adulteration.. However, for the purpose of stimulating feeding, which, of course, is then at a time when the bees have full opportunity for flight, honey dew can be mixed with sugar honey, perhaps to the extent of fifty per cent. or one-half. Whether it would serve entirely for stimulative feeding is a question to be answered only by experimentation, which is recommended. It is our opinion that if the bees have plenty of opportunity for flight, the honey dew honey will have no serious effect, but that it may prove quite injurious if they are obliged to feed upon this during the entire winter time, when they can not escape from the hives for cleansing flight.

4. Weak Colonies.

Bees often die during the winter time simply because they were weak or but few in number in a colony in the fall or when they went into winter quarters. It is not true that a bee becomes dormant and cold like most insects, which can be frozen and thawed again without injury. Honey bees cluster closely in the hive and generate heat by the consumption and utilization of the honey or food in the hive. The bees are the stoves for using the honey as fuel to make heat. If there be no stoves, or if there be an insufficient number of stoves in the house, it can not be heated, even with a vast amount of fuel present. In the same way, if there be an insufficient number of bees present in a hive, it makes no difference how large the supply of winter food they may have, they can not generate enough heat to warm the hive properly and keep up the necessary temperature for their life during the winter time.

Colonies may be weakened through disease, through pests, such as moth or

mice, or through having been queenless for some time, or through their queen being old and a poor layer, or through having been divided in the process of nucleus—formation too late in the fall and not being properly fed and stimulated to cause them to become stronger. A weak colony, even though composed of young bees, has a poor opportunity to pass through the winter successfully, even with an abundance of stores. One of two things should be done. Either it should be united to some other weak colony, killing the poorer queen a few hours before making the union, or its space should be considerably contracted by division boards, in order that the bees will not be obliged to heat an unusually large amount of space in a large hive body which they can not fill.

5. Lack of Stores.

One of the most common causes of bees perishing during the winter time is the lack of sufficient amount of stores or food to carry them well through the winter and into the spring, when nectar in abundance can again be secured. The amount of suplies necessary in the hive body varies with the strength of the colony, but even for weak colonies it should not be less than thirty pounds of sealed honey or thick sugar syrup, and for strong colonies it should not be less than forty pounds. This does not include the weight of the bees and the hives, but refers to the amount of actual stores in the frames. It may be considered as including the weight of the frames, but not that of the hives. If the bee-keepers will now weigh their bees, they will find that comparatively few colonies come up to that standard of what they need for best results in wintering. Where they are wintered in cellars with a prolonged season of equable temperature, the required amount of food may be from ten to fifteen pounds less for each colony, but the trouble and expense of preparing them for cellars and moving may be more than the added cost of wintering them on their summer stands with proper food and protection.

When a colony is found to have an insufficient amount of food for the winter, this deficiency can be at once made up by feeding syrup made by dissolving white or granulated sugar in an equal bulk of water. Note that this is a thicker syrup than is recommended for stimulative feeding, but it is generally given later in the season, when the bees have less opportunity for evaporating the water which is present, and it is not for the purpose of stimulating honey flow, but is for the one purpose of giving stores in winter. It is not necessary to feed winter supplies as early in the fall as in feeding stimulatively for brood rearing, especially in consideration of the fact that the needed amount of syrup can be given in one or a few good feedings. In fact, it is not necessary in feeding for this purpose that the bees take up the syrup and carry it to the cells at once.

An empty frame of comb is excellent for feeding for wintering or winter stores. Make the syrup thick; lay the frame on its side in a shallow pan; pour the cool syrup in from a height, so that it is sure to fall with some force into the cells and enter them; turn over the frame or comb; pour the other side full, and stand this in the middle of the brood chamber. Treat two or three other frames in the same way, and give them to the bees, and they will be as happy and comfortable as kings. Another good method of feeding a quantity is to use the division board feeder, which is shaped just like a frame of comb, but consists of thin boards nailed over the outside of the frame and a hole in the top bar in such a way that the liquid can be poured through the hole into the space between the thin boards, where the comb would have been had it contained comb. That is called a "division board feeder," because it can be used both as a feeder and

as a division board to divide or contract the hive when it is desired to contract or narrow the space occupied by the bees. However, in the division board feeder there should be an abundance of large pieces of cork, or a sheet of cloth extending downward from the top bar to keep the bees from drowning, as they really will drown in this, especially when syrup is poured into the box when bees are feeding in it. Of course, in their feeding for winter supplies or to stimulate brood rearing it is always an easy method to put the food into some vessel and set it on top of the frames in an empty super, and cover this vessel with sticks, placing a cloth on this or over it to retain the heat while the bees come up to feed. However, on the surface of this liquid there should be large pieces of cork, straws or sticks to keep the bees from sinking into it and drowning.

Nothing pays the bee-keeper like sending the bees through the winter in fine condition. Supplies fed this fall may not all be taken up now, but if they are needed they will be there ready to prevent actual loss. If not needed they will not be lost, but will be preserved ready for future use, and, consequently, be only a means of insurance against want. It is far better to overfeed them, as there is really no loss from abundant feeding. It must be remembered, however, that it is illegal to feed sugar to bees and have them put this into combs and sell the substance as honey. The only use of sugar for feeding is to stimulate brood rearing or for supplies needed as food for wintering.

Pure granulated sugar syrup is fully as good for winter as the honey, and is really better than dark or poor honey, and it is far superior to the "honey dew honey." It is a matter of economy to remove the best nectar honey from the hive and sell it or use it for the table, and feed the bees sugar syrup honey in return. It is probable that for wintering the bees one could safely have twenty per cent. of the honey dew honey in their food, but when there is too much of this last-named substance the bees will need extra opportunities for flights.

6. Improper Protection o. ees for Winter.

If the hives be poor and loose or too large for the number of bees they contain, or if the walls be thin so that the heat will readily escape and the cold penetrate, or if the hives stand in exposed places, or foolishly be opened after the bees become quiet, or if from some other cause the bees be improperly protected from cold during the winter time, or even if not prepared for the winter in proper time and season, they are liable to suffer considerably, or all die, even though other conditions mentioned above may be favorable. We have seen bees starve to death in the midst of plenty during the winter time, because they became so cold that they could not move from one comb to another, or even from one cell to another. This is due to leaving them in a single-walled hive, unprotected by outer coverings, on their summer stands, and without proper provision for closing or protecting their entrances. If double walled hives be used, bees do not need to be put in a cellar. If, however, they be in single-walled hives, they should either be placed in a cellar during the winter, or around each hive there should be an outer box with a space of at least three or four inches from the hive, filled with chaff or leaves, or some other protecting substance, which will keep water and wind from the hives on all sides, including the bottom, as well as the top, and prevent the bees from suffering from sudden changes of temperature during the winter. Extreme warm spells are liable to be even more disastrous to the bees than extreme cold. The protection thus given, by making an extra wall of packing entirely around the hive on all sides, will help to preserve a

uniform temperature during the winter, and will keep them from overheating during a warm spell, and thus relieve them from the consequent necessity of attempting to fly forth for cleansing, and in many cases be lost by alighting upon some cold object and suffering from what is commonly known as "spring dwindling."

The successful Bee-Keeper will see that the hives are protected from wind and rain as well as from sun, and that the entrance of the hive is contracted to a space not over one-fourth inch in height and not over four or five inches wide, so that the bees will have all the ventilation needed, and also come and go during the fall, winter and early spring; but the mice will be kept out, and the interior of the hive will be kept warm. The hives must be inclined enough that water will run out of the entrance, if it should form in the interior of the hive from the moisture in the breath of the bees striking against the cold sides, and over the bees should be placed a chaff cushion, which may be an ordinary coffee sack or other cloth bag containing clover chaff, clean wheat hulls, fine dry leaves, or any other good plant material that will form effective cushion to absorb moisture and retain the heat of the hive. This can be placed in an empty super on a support known as Hill's Device, laid on the frames, for the purpose of supporting the cushion enough to let the bees pass over the top of the frames from one to another. Instead of Hill's Device long corn cobs will serve the purpose very well. It is important that the bees be given an opportunity to pass over frames from one to another, but under the cushion, and this must be provided by some support like corn cobs laid across the frames or Hill's Device, which is made for the purpose.

There is nothing lost in preparing the bees early for winter, and letting them have time and opportunity to seal down the cover so tightly that winds will not enter, and especially that this will not be blown off at a critical time during a wintry storm. Be sure that the hive is full of young bees and full of food and the keeper may then be sure that he has provided both fuel and stoves, and the necessary heat will be maintained. Where bees are wintered on summer stands, which is now proving to be the better method, with an opening so they can fly at will, there is an advantage in preparing them for the winter season and letting them then remain quiet. A board, a foot or more wide placed at an angle against the front of the hive, provides against snow blowing into the entrance and also can be used to keep out sunshine, and will be of considerable value.

Even corn fodder shocked around the hives will be of much more use than may be supposed, in case a person is not able to provide for single-walled hives with an outside covering and packing they should have for the average winter protection in Pennsylvania. If they are thus protected they may be left outdoors, and the sunshine can fall upon their outside cover without deleterious effect, but if the single walled hives be left in a warm corner and exposed where the sun can strike them, the bees will be called out prematurely, and start brood rearing at unseemly times, and may result in general disaster.

While bees require less constant intelligent care than any other form of live stock, they do demand a certain amount of reasonable attention from the owners, and if this be not given, it can not be expected that adequate returns, or even satisfactory compensation will follow.

Want and Exchange Column

Advertisements for this column will be received at the rate of 35 cents for 25 words, each additional word one cent. Payments strictly in advance, as the amounts are too small to permit of book-keeping. Write copy of ad. on a separate sheet from any other matter, and on one side of the paper only. Say plainly how many times ad. is to be inserted. Matter must reach us not later than the 23rd of each month.

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CHRISTMAS STAMP CAMPAIGN

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Available Beds in the Muskoka Free Hospital for Consumptives Increased Three-Fold as a Result of Last Year's Sale of Christmas Stamps. The Number Can Be Doubled This Year If Everyone Will Help.

STIMULATED by the success of a year ago the National Sanitarium Association have made large preparations for the sale of the Christmas Stamp of 1909-10, issued on behalf of the Muskoka Free Hospital for Consumptives.

Nearly $6,000.00 was netted from last year's sale, making it possible for the trustees to increase the available beds for needy patients from an average of fifty-five a year ago to one hundred and forty, the accommodation to-day.

The trustees are hopeful that they may bring the accommodation up to 300 beds as the outcome of this year's sale of this little one cent messenger of hope and healing.

The Christmas Stamp, as a means of fighting the dread white plague, had its origin in Denmark in 1904, the sale from which has financed a hospital for consumptives in that country. The idea was taken up by the Red Cross Society of the United States in 1907, and interest has grown each year,

A year ago a Christmas stamp of special design was put in circulation by the Muskoka Free Hospital for Consumptives with the success already indicated in this article.

The price of the individual stamp is only one cent, but what wonderful things can be accomplished by so tiny an instrument. There is no reason why everyone who writes a letter, addresses a postcard, mails a newspaper or parcel from this day out should not use one of these stamps.

The educational value of the stamp appearing on every piece of mail matter would be enormous. One can hardly figure up the material results. It would mean a routing of the enemy Tuberculosis that would bring hope and joy and gladness to thousands of homes and communities in all parts of Canada.

The stamp of 1909 is more beautiful than that of a year ago. The design is as shown in this article, but printed in red and green, and is of same size as the regular government postage stamp.

This Christmas stamp will not carry any kind of mail, but any kind of mail will carry it—and carry too the happy Season's Greetings from sender to receiver. The stamps will be done up in envelopes of ten, twenty-five, fifty and one hundred for ordinary selling, and large users will be supplied in quantities. The price for ten or for one thousand is a cent each.

The banks, departmental stores, drug stores, book and stationery stores and many other stores will sell them. Women's clubs, church organizations, bible classes and Sunday schools, public schools, and many other organizations and individuals will help this year as last year.

There would seem to be no reason why everybody everywhere may not help in forming an army of willing workers to sell these stamps all over the Dominion. The Muskoka Free Hospital for Consumptives is in the fullest sense a national institution caring for patients from every province in Canada.

The first issue of the stamp for this year is one million, and these will be put into circulation immediately, but there can hardly be any reason why the issue should not be increased many times over before Christmas.

The direction of the sale of Christmas Stamps is in the hands of Mr. J. S. Robertson, Sec.-Treasurer, National Sanitarium Association, 347 King Street, West, Toronto, who will give prompt reply to any enquiries regarding the stamp.

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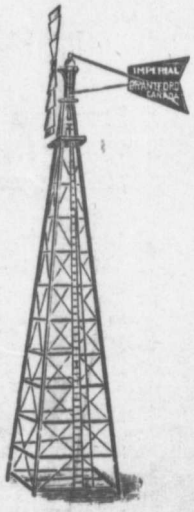

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