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THE CANADIAN BEE JOURNAL

"The Greatest Possible Good to the Greatest Possible Number."

VOL. VIII, No. 13. BEETON, ONT, OCT. 1, 1892. WHOLE No. 321

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GENERAL.

FOR THE CANADIAN BEE JOURNAL.

Well Ripened Honey.

IF we, as contributors to the press, or as members of an organization and of society, will be truly useful, we must not hesitate to point out what we consider to be wrong and injurious. It may often be an unpleasant task; but it is nevertheless our duty to do this. We should be careful first, however, to be right, and next that we do it in a spirit of kindness and for the general good. Self-interest, our own peculiar views and training may blind us, but we shall still deserve the respect of our fellowmen by so doing. I would like to point out kindly to Mr. W. F. Clarke that in the article on extracted honey written by him for the Montreal *Witness*, and republished in the CANADIAN BEE JOURNAL, he has done the producers of extracted honey and bee-keepers generally an injury. Any one who has been about the country and at exhibitions as much as I have, cannot have failed to observe that the idea is far too prevalent that extracted honey is largely adulterated. I am speaking of Canada now, not because I do not like my United States brethren, and not because I consider the bee-keepers of that country less honest; but because I wish to speak of our own country, the country in which I am in a position, as the result of my experience, to speak with some authority. I state, after quiet reflection, that I have yet to find a clear case of honey adulteration either on the part of bee-keepers or of those marketing honey. People who are not bee-keepers, and who are ignorant of the subject, have for years taken it for granted that much honey is adulterated. For any one to state in the press that the pure extracted honey covers honey adulterated with glucose, and that "extracted honey largely consisting of glucose, a cheap and inferior sweet, is also an imposition on the public," and to speak of it in terms of disgust as a "conglomeration of old comb, dead brood and miscellaneous refuse from the hive," etc., is unjust, and, even if it were true, injudicious. It might, perhaps, be excusable, if true, in a bee journal, but not in such a paper as the Montreal *Witness*, a publication not read by bee-keepers alone, but by thousands upon thousands of consumers of honey. But the statement is not correct; it is misleading. The bulk of the circulation of the Montreal *Witness* is in Canada; and here we have no reason to fear that when we purchase honey it is likely to be impure or unclean. That it is too often unripe I admit; but even the discussion of this question would be best confined to bee-journals. We can in our articles to beginners in other periodicals point out the necessity of having honey well ripened, and leave it at that. I hope Mr. Clarke will kindly correct this matter in the *Witness*, and at least point out that there are some who take exception to the statement.

R. F. HOLTERMANN.

FOR THE CANADIAN BEE JOURNAL.

Hints on Wintering Bees.

WINTERING bees, in common parlance, means I suppose the bringing of them through alive from one working season to the commencement of another—say, from 15th November to 15th April.

In order to winter successfully three conditions are at least necessary: A strong colony, with a good queen, an abundance of wholesome food, conveniently situated, and a properly shaped hive, well protected. Early swarms are usually strong, and have plenty of good stores in the best possible condition if the hive is of the right shape; but they occasionally contain old queens which play out in winter.

Second swarms contain young queens, but generally lack stores and bees. Old colonies sometimes almost swarm themselves to death, and sometimes they carry most of the honey into the super; then, if fed, they don't place the food in the most accessible position for winter, neither do they ripen and seal it as well. Those drawbacks, however, probably come under another head. So to winter successfully, we will presume that the colonies are strong, and on as many frames as they cover nicely with sealed stores of from one to two-thirds of their depth. For a strong solony the best shaped frame would be about one foot square and eight of them in a line, so as to allow the bees to cluster in the shape of a sphere as nearly as possible.

Twenty pounds of honey is usually sufficient, but twenty-five or thirty is safer, and if not consumed is a good backing in the spring to encourage breeding if the winter is long and the spring late and cold.

Have two or three combs at the sides of the hive sealed to the bottom, and if you leave any buckwheat honey in the hive let it be those heavy side combs. Then in looking over the hives, say, about first of April, you have only to refer to those side combs to discover whether or not your colony is provided for spring breeding.

In wintering out-doors have at least six inches of dry sawdust on all sides (unless the hives touch each other), and on top a sawdust cushion six inches thick—more laid loose on top of cushion won't hurt; but don't put a board on your bee quilt (I should think three inches of sawdust as good as a foot of chaff or leaves, and mice don't work in it.)

Every time it snows bank up the hive to the middle, or to the top, for that matter, but don't pack the snow above the fly hole with your feet if the snow is soft. Our cold snaps usually follow a fall of snow. Have your outside entrance about one quarter inch wide by two inches deep, and made of tin if mice are plenty in your yard, and see that these entrances don't get clogged with dead bees in March or April.

In cellar wintering, place them not less than two feet from the ground; and if there is much tramping overhead, the upright sticks which hold the shelves should not be nailed to the joist, but pass up through holes in boards nailed across the joist, and padded with cloth. If the hives are placed three deep leave six feet of space between the rows; if four deep, eight feet, etc., as in warm winters cellars often prove too small for good ventilation. Keep your cellar dark. It should have a drain and a draught pipe up the chimney to be opened during warm spells, or when the cellar gets above forty-five degrees. If the temperature goes below forty, have some way of heating it up. If the chimney is high, a pipe from the stove through the floor of the cellar and along the bottom to the farther side and then up the chimney would probably be the most convenient.

Have the combs two or three inches above the bottom board to afford room for dead bees, but don't go down to scrape them out more than once or twice during the winter, as the disturbance seems to injure them. If mice abound, have the sticks on which the shelves rest boarded around so that they cannot get up, and keep several traps and a cat or two and some poison also for them, poor things! Have a thermometer hung up through a two inch hole in the floor in some convenient place. For frost proof rooms and bee houses above ground, about the same conditions will apply. Be careful in putting the bees in—not to jar or dump them. If bees must be moved, let it be at the close of the sleighing season rather than the beginning, as bees are breeding then, and a little activity don't hurt them so much.

When one or two heavy combs are placed in for feed, access should be made to them by punching holes through the centre of the adjacent combs.

When a division board is needed, a comb well built out with two sticks to fill out answers very well, leaving frames with starters to fill out the hive.

Don't place the hive in an apartment where water freezes, such as the loft of a wood shed, or hay mow, with perhaps a few old duds and a quantity of chaff about it.

And especially, don't place the hive over the cook stove in the kitchen loft, where the temperature varies from zero to seventy or eighty above it, or in a barn cellar where cattle or turnips are kept, or in a cellar that moulds badly.

Don't stop the bees in even if a few hundred do fly out and perish on the snow.

R. F. WHITESIDE.

Little Britain, Ont., Sept. 1892.

For The Canadian Bee Journal.

Out door Wintering.

WITH every year's experience I am more in favor of out-door as compared with cellar wintering. My bees in house always seem very contented until about March, and then they begin to long to stretch their wings in the sunshine and breathe the fresh air.

Even in the hardest winters there is generally a day or two in February or March, warm enough for those packed out of doors to have a flight which satisfies them, so that they will remain quiet for a few weeks longer. And this is one great advantage they have over those in the cellar.

My principal objection to out-door wintering used to be the trouble of unpacking in the spring, and packing again in the fall; but now, except those I put in clamps, I leave the packing around them just as it is in the winter, and I have had quite as good, if not better returns, from those so treated as from the unpacked hives. The surplus boxes are put on and tied up the same as on the other hives, and the cover of the case makes a roof over them and protects them from the sun and rain. My yard however is very well shaded, no part of it gets the sun during the whole day which I can appreciate as well as the bees when the weather is as warm as it has been this summer. It is also very well protected from the cold winds in winter.

In unpacking my clamps this spring I noticed the difference between saw dust and cork shavings as a packing. Though the clamps were made of tongued and grooved lumber and well painted, at the bottom I found a good deal of the sawdust was very wet, while the cork shavings, with the same chance to be wet, were perfectly dry. I have given forest leaves a good trial as a packing and to fill the cushions to put over tops of hives, and they answer admirably; but it is a good deal of trouble to collect a quantity even where the woods are conveniently near.

I have found that the great points for successful wintering both out of doors and in the cellar or bee house are:—Keeping the heat generated by the bees in the hive, allowing the moisture to escape, and allowing them to have good thick well-ripened honey. To secure the first I leave the summer quilt on over the frames merely turning back a couple of inches at the back of the hive to allow the moisture from the breath of the bees to escape; then putting a quilt made of a good thickness of wool tacked into canvas under the cushion filled with sawdust, or cork, or leaves, which cushion should be at least six inches thick, To secure the second point, I never extract except from the top storey, and then only when the honey is all capped over, as I think this not only gives me a superior quality of honey, but while the bees are capping the surplus honey, and being crowded for room to store in, they will fill up the frames in brood chamber as much as possible. As in my locality I cannot depend on fall bloom for honey, I like to have my hives well filled in the summer. Instead of feeding, if any should be short of stores, I take frames of sealed honey from the top storey to supply the deficiency.

If it will not make my letter too long, I may as well take this opportunity of suggesting to any one who wishes to get small basswood trees to plant that an easier way than raising them from the seed themselves is to go to any woods where basswood grows, and they will find any number of tiny seedlings which they can take up with a garden trowel, and transfer them to nursery beds where they will grow rapidly. It is easy to find them before they shed their leaves. I have transplanted them in this way at any time in the summer, and by giving them shade and water they never fade a leaf.

This morning I had occasion to go to the woods for some leaf mould for my house plants, and within a radius of a few feet I found a dozen little trees, and could have found any number if I had taken time to look for them.

Henrietta F. Buller.

Campbellford, Sept. 1892.

We are indeed pleased to hear from Miss Buller and trust she will favor the readers of the C. B. J. more frequently. We have a number of lady bee-keepers in Canada from whom we would like to hear.

For The Canadian Bee Journal.

Wintering Bees.

MR. EDITOR,—The wintering of bees is a subject of much importance to every bee-keeper. Much has been written upon it, and the topic will probably never be exhausted. The Lambton bee-keepers have met twice a year now for six or eight years, and I do not know that a single meeting has taken place without this subject being brought forward. Something would be referred to in connection with the wintering of bees, and before the members were aware of it they would be launched into a discussion of the whole subject.

Every one has his own way of wintering, and it is quite likely that there are no two or more who winter exactly alike. I know nothing about cellar wintering, having never yet wintered a

colony in doors. Experience has taught me that the less fiddling and fooling the bee-keeper has with his bees late in the fall and early in the spring the better it will be for both him and the bees. As soon as the first frost comes, remove the supers, and examine every colony. Give those that are short of stores plenty of good sealed honey in exchange for the empty combs. It is better for them to have more than sufficient to carry them through the winter and spring than not quite enough. If any are found that are not very strong, double them up; by so doing you may bring one colony through the winter, whilst if they are left separate you are liable to have only empty hives and comb in the spring. Those that are found to be queenless should be put with colonies that need to be doubled up, care being taken that the fertile queen be not destroyed. When you have advanced so far, instead of putting a half storey on, with chaff over the frames, put your propolis cloths on, and the thicker they are with propolis the better; now place your covers on over the cloths and on the single storeys, and allow the bees to propolis them down so tight that no heat can escape, nor any cold enter. When packing is placed over the frames it absorbs dampness and very often becomes mouldy and causes the combs to mould. Is it reasonable to suppose that a human being, with nothing about him, could live in a house during the winter, with the heat all escaping through the second or third storey, and a heap of mouldy wet straw hanging over his head?

Boxes that are used for shipping teas are very good for packing bees in, and can generally be purchased quite cheaply. Place them where wanted, but raise them some four or five inches from the ground, and put some chaff in the bottoms. If you can get oat hulls they are beter. Cover the top of the hives with chaff as well as the sides and bottom, putting some poisoned bread on them to kill the mice. Cover the case tight, and leave them alone until spring. If the case is large enough to contain two tiers of hives, all the better, for there will be so much more heat saved where it is needed. It matters not whether they face the north or the south; those facing the north may not fly so much, but they will winter quite as well if not better.

The first warm day that comes in spring carefully examine them in the heat of the day. Do not give the box or hive any quick jar to cause them to rise themselves, for they may not again have a fly for some time. A glance down into the combs is generally sufficient to tell whether or not they have plenty of stores; if lacking, gently remove a frame or two near the end of the hive, and replace with other frames filled with honey which has been reserved from the previous year. Be satisfied they are all right for a month or so; then, if the spring is backward, go through the same process again. When the 10th of April comes, and they begin to bring in pollen, you may consider them as out of danger, provided you keep the hives closed until the honey flow comes.

Yours, etc.,

J. R. KITCHIN.

Weidmann, Ont. Sept. 1892.

Foundation and Foul Brood.

MR. ALLEN PRINGLE, ex-President of the Ontario Bee-keepers' Association, writes us as follows:—

SIRS,—In the B. B. J. of September 10th, 1891, a correspondent asks (766, p. 406): "Has this question been ever definitely answered: Does the melting temperature of wax, or what other temperature, with certainty destroy the microbes or bacilli of foul brood?"

In your issue of December 3rd, 1891, the Editors say, in a footnote to a letter from Mr. Corneil (863, p. 556): "We do not see that it would be impossible to test the matter" (that is as to whether foundation made from contaminated comb contains living spores of *Bacillus alvei*), "as a bacteriologist ought to be able to separate the spores from foundation; and if they are still alive, he should have no difficulty in cultivating them. . . . There are solvents of wax that hrve no effect on the vitality of spores. We hope that Mr. Corneil's surmise of sheets of foundation containing millions of live spores will not prove to be correct, and we hope that the matter will be tested."

This subject was discussed at the annual meeting of the Ontario Bee-keepers' Association, in January, 1891, and was deemed of sufficient importance to warrant action by the Society to have the above point determined and settled, if possible. The writer, as President of the Society, was accordingly instructed by the meeting to communicate with certain scientists in Canada occupying official positions, to induce them, if possible, to undertake the necessary experiments to determine whether the degree of heat required to melt wax was sufficient to destroy the vitality of the spores of *Bacillus alvei*, and, if not, what degree of heat is necessary to destroy them.

Professor Ramsey Wright, who occupies the Chair of Biology in the University of Toronto, has consented to make the experiments and settle this important question on behalf of the Ontario Bee-keepers' Association. Professor Wright commences the experiments this spring as soon as we are able to supply him with the necessary

foul-brood material, etc., and I shall be pleased to communicate the results to the B. B. J. in due course.

In the article quoted from above (B. B. J., September 10th, 776, p. 406), the writer, "W.," makes a statement strongly confirmatory of our Canadian system of treating foul brood. He says: "I have had a long and melancholy experience with this pest, and in my case mere feeding with disinfectants (salicylic acid, phenol, formic acid, or Napthol Beta) has proved useless. But, early in my troubles, I found that swarms from infected stocks, if put on sheets of foundation in fresh hives, remained comparatively free from all trace of infection, especially if the new hive was, as far as practicable, saturated with some disinfectant." To the foregoing I wish to call the special attention of those correspondents of the *Journal* who some months ago felt called upon to manifest such impatience, if not discourtesy, because I felt it my duty to press somewhat strongly upon British bee-keepers who where afflicted with that pest, foul brood, in their apiaries the wisdom and propriety of trying our method of cure, and the folly of refusing to try it simply because it was in conflict with certain of their preconceived theories or opinions on the subject. Besides the home evidence quoted above, I also saw in the *Journal* since that time another strong case in evidence for our method of treatment, but I cannot now turn it up to give particulars. Let the reader note the two prominent facts in "W.'s" experience, which, he says, was "long and melancholy." The first fact was that the drugs "proved useless," and the second fact was that, early in his troubles, he "found that swarms from infected stocks, if put on sheets of foundation in fresh hives, remained comparatively free from all trace of infection, especially if the new hive was as far as practicable, saturated with some disinfectant."

Now, what do these facts mean? They mean a great deal; and over here they have been multiplied indefinitely. If the queen is diseased, and the workers are diseased with the germs of foul brood, communicable by them, how is the mere putting of the diseased queen and bees on "foundation" going to prevent the disease breaking out as soon as they begin to rear brood in the new comb? On this hypothesis, the fact given by "W.," and the thousand we have to add to it, are inexplicable. On the other theory, that the honey is the chief medium of communicating the disease, the thousand and one facts are explicable and intelligible.

The treatment practised with such success in this province, by the official Foul brood Inspectors and others who have occasion to treat the disease, is predicated on the theory, whether right or wrong, that it is chiefly through the medium of the honey that the disease is spread. We do not say that queens and workers may not be constitutionally diseased or tainted with the germs. We do not impeach the scientist or discredit the microscope. We simply say that, so far as we know—so far as we are cognisant of the facts—neither queens nor workers communicate the disease; while we do know, and have verified in thousands of cases, that through the medium of the honey the disease is communicated and spread. And while we do not assert that the disease has never been cured by medicating the bees, we do assert that it has been cured thousands of times without drug medication of any kind, and without medicating the bees in any way save to relieve them of the contaminated honey their sacs may contain.

Why were "W.'s" infected swarms from diseased colonies cured by merely putting them into clean hives on comb foundation? Simply because they used up the whole of the infected honey they carried with them in making wax and drawing out the foundation, instead of giving it to young brood. If "W." or anybody else wishes to prove this to his own satisfaction, let him take the infected swarm from a diseased colony, and, instead of putting it on foundation, put it on empty combs, which he knows to be perfectly clean and free from the foul-brood taint, and then note the result. The honey carried away by the swarm, instead of being used up in building comb, will be stored in the empty comb and used in rearing the brood, which will prove to be diseased. Considering the importance of the issue, the trouble of such a test is trifling, and I would ask the opponents of the plan of cure we are advocating (and which we know to be efficacious) to put the matter to a practical test, and do it fairly.

And since "W." has gone so far, and been successful in curing his new swarms, he can go further, and cure the old diseased stocks. Should he unfortunately have occasion to deal with the pest the present season, I would urge him to prove this matter for himself, and report results, which I venture to predict will be exceedingly gratifying to him.—ALLEN PRINGLE, *Selby, Ontario, in British Bee Journal.*

For THE CANADIAN BEE JOURNAL.

An Uncalled for Criticism in "A. B. J."

WE wish the editors of the *American Bee Journal* to understand that we are not in the habit of "cabbaging," as they euphoniously term it, matter from other peri

odicals without giving credit to the source from which it emanates. It is possible that we or some member of our staff, our proof reader or compositors, may unintentionally make an omission or an error that may involve the possibility of such a charge; but it is the exception which establishes the value of our general rule.

Let us look at the facts in this case, and see how far we have erred from the path of journalistic courtesy. We took from one of our cotemporaries a paper which was in no sense an editorial article of the journal from which we copied it; but simply a contribution to its columns, with the name of the author attached. We republished the article, with the author's name in full, thus giving due credit to the source from which it emanated. By some accident, the name of the journal to which it was contributed was accidentally but not intentionally omitted. It will therefore be seen that having given full credit to the author tor his work, we have not in any way subjected ourselves to the rather strained imputation of our cotemporary, and that his statement that we "copied the whole article from the *Review uithout giving any credit whaeever*," is simply an untruth. If it was our desire, or if it were necesaary on our part, to "cabbage the whole thing bodily," all we had to do was just as feloniously to omit the name of the author of the paper as we innocently omittted the name of the journal to which it was contributed. Not having done that, the second charge is just as valueless as the first.

It appears to us that our United States exchanges have a very singular idea of the distinction that exists between *meum* and *tuum*; and that having lost sight of the peculiar rights and immunities of professional journalism, they have also grown to be somewhat regardless of the privileges and prerogatives of their cotemporaries, and so the real relations of the professional journalist with the mere mechanism or the medium in which his views or opinions may be elaborated, have become somewhat confused. Whilst it may be correct enough to admit that matter or contributions which a journal may have purchased are esssntially its own until they become public property by their publication, but without the protection of copyright, it is equally admissible that so long as the authorship is recognized, they may be safely transferred to other journals upon their merits, and without necessary recognition of the medium through which their publication is effected. It is the thought conveyed and not the instrument of its conveyance that is valuable; and the putting it in any other way is a paradoxical absurdity.

Nevertheless, and in order to convince our cotemporary that no such principle—or rather lack of principle—affected us in relation to the article in question, we willingly admit that the *Review* is entitled to credit for it. We very cordially therefore make the *amende*, in the hope that our cotemporary will also admit, what we now reassert, that the omission was entirely unintentional and merely an accident which we quite regret. We may go a point further, in fact, and admit that the *Review* is recognized, from the character of its contributed and other articles, as a very high authority on the subject of bee-keeping. Having thus acknowledged without solicitation from that journal this conviction of its merits, we think it can easily understand that it was scarcely worth while for us intentionally to do less in regard to the article in question.

If we were possessed of an undesirable tendency to fault-finding in our columns to the exclusion of valuable bee literature, we could fill them with plenty of matter which we know is not appreciated by intelligent bee-keepers.—[ASST. ED.]

Unconscious Service.

"The Bee"—she sighed—"that haunts the clover."
Has Nature's errand to fulfil:
The bird that skims the azure over,
Bears living seeds within his bill:

"Without a pause his flight pursuing,
He drops them on a barren strand;
And turns, unconscious of the doing,
The waste into a pasture-land.

"I, craving service—willing, choosing
To fling broad-cast some golden grain,—
Can only sit in silent musing,
And weave my litanies of pain."

I, making answer, softly kissed her:
"All Nature's realm of bees and birds,—
What is such ministry, my sister,
Compared with your enchanted words?

"The seed your weakened hand is sowing,
May ripen to a harvest broad,
Which yet may help, without your knowing,
To fill the granaries of God!"

—LIPPINCOTT'S.

FOR THE CANADIAN BEE JOURNAL.

New Beekeeping Patents.

THE following is a list of patents connected with the beekeeping industry, which have recently been entered at the United States' Patent office, Washington, D.C.:—

Beehive, to J. Conser, Sedalia, Mo.

Can or jar, to J. Barnhart, Marshfield, Pa.

Wax mould. to J. Eckert, Dayton, O.

Bung, to Anthony & Savage, Oakland, Cal.

Bung, to J. Baemule, Milwaukee, Wis.

Bee catcher, to W. McAdams, Brooklyn, N.Y.

Jar for honey, etc., to A. Weissenthanner, Paris, France.

Jar filler and holder, to I. M. & I. M. Fisher, Burrows, Mo.

Packing case, to G. Banker, Brooklyn, N.Y.

Can stopper, to W. H. Payne, Philadelphia, Pa.

Can washer, to C. H. Southard, Preston, N.Y.

Crate, to. M. C. Burkhead, Meeting Creek, Ky.

For THE CANADIAN BEE JOURNAL.

How I Winter Bees.

DEAR SIR.—As I have a few moments to spare, I will give you my opinion as to the best mode of wintering bees.

The first item of importance which leads to successful wintering is the early preparation of your bees, which should not be later than the 15th of September. See that your bees have not less than twenty pounds of good honey, and a young queen should be preferred. I have no doubt that the spreading of the combs is also a step in the right direction As cold weather approaches (say, about the 20th of October), there should be some porous material placed above the frames to absorb moisture, with the lid raised to let the moisture escape. I use a rim made for the purpose, two inches high, with a porous cloth tacked to the bottom, the rim being filled in with very fine sawdust; wheat-chaft, or cork-dust will also give good results. Then the cover is raised four inches all around. Of course, all through the fall months the entrances should be kept the right size, varying from half an inch to two inches, according to the strength of the colony.

Now, as winter approaches, the bees should be placed in a good cellar, or some frost poof building where the temperature can be kept at forty-five degrees. A dry cellar will winter bees successfully at a somewhat lower temperature, but a damp cellar should not go below forty-five degrees. Before hard frost sets in and you think your bees have had their flight (in my locality, about the 15th) prepare the winter quarters for your bees. If in a cellar, place them as high in the cellar as you can, putting the strongest colonies in the bottom rows, and the weakest on the top rows. If your cellar is to be well filled with bees, there should be some special underground ventilation provided, such as a six inch pipe, two feet below the frost line, and entering the cellar from below. Then there should be another six inch pipe, commencing within two inches of the ground, and leading upward to connect with a chimney, so causing the foul air to be removed, and creating a current through the under-ground pipe, which will be quite warm, when entering the cellar. If you intend placing only a few colonies in the cellar, special ventilation is needed. Before the bees are placed in position there should be a rim two and a half inches high placed under each hive between the bottom of the hive and the bottom board, and the entrance left wide open. Now the bees may be carried carefully into the cellar and placed in rows, and remove the lids or covers. When you have one row completed lay inch strips on the hives to raise the next row from the lower, and allow the moisture to pass off freely. Now keep the temperature right, and good results may be expected. Yours truly,

WARRINGTON SCOTT.

Wooler, September, 1892.

FOR THE CANADIAN BEE JOURNAL.

Wintering Bees.

DEAR JOURNAL.—In order to give you the system I adopt in wintering my bees, I shall first describe to you the hive I use.

I winter entirely upon the summer stands, in a double-walled chaff hive. The inside hive or brood chamber is 12 x 12 and two feet long. This box is made out of three quarter inch pine lumber. The entrance to this hive is cut out of the bottom board, which is nailed solidly to the bottom of the hive. The hive rests at the back on an inch strip placed on the top of the chaff box; at the front it rests on the entrance or alighting board, which is a pine plank, and projects four (4) inches past the front of the chaff hive, This board also forms part of the cover of the chaff box, the rest of the boards in the chaff box cover are one inch lumber. Thus there is an air space of one inch between the cover of the chaff box and the bottom of the brood chamber.

In the entrance board in front of the entrance to the brood chamber there is a hole 2 x 1 inches square, as a dead bee escape, This hole is left open in winter, but closed in summer, The chaff box is three inches deep, resting on two 2 x 4 inch scantling which serves as a stand.

The outside board or chaff hive is made of six inch blocking, placed perpendicularly, and projects over the chaff box; this box is lined with hemlock lumber placed horizontally, and

laps alternately at the corners. Between these boards I put felt or tarred paper. The box is made large enough to leave room for three inches of chaff all around.

On the outside of the chaff hive there is a strip three inches wide, nailed three-quarters of an inch from the top as a support for the roof. The gable end is seven inches high in the centre, beveled in such a manner that three twelve inch boards complete the roof; these boards project three inches over the gables, and are covered with zinc. In the gable ends there is a heart-shaped hole made for ventilation; this hole is covered with a screen on the inner side, and a circular piece of zinc on the outer side. The entrance to the outside hive is four by one quarter inches, and is connected to the brood chamber by a small block placed between the two hives with the entrance cut in it. All the hives are made out of well-seasoned pine and painted white, which I think is recommended by the most experienced beekeepers.

In regard to my method for wintering, I must say that in order to winter bees successfully we must have them in a healthy condition; and to have this we must give our bees proper attention during the honey harvest. When I commence the season I see that each colony has a good laying queen, that is, one that will occupy all the combs and keep the colony strong. When the swarming season starts I see that each old colony receives a laying queen within a limited period of time.

I stop extracting early, so that they will be able to gather abundance of winter stores.

Early in September I see that each colony has still got its mother bee and plenty of bees with her. If I find the colony weak or queenless, I supply the want by putting two such hives together. The next thing is to see that all colonies have thirty pounds of well sealed stores. If I find them wanting in stores, and I have it in combs, I supply their wants in this way; but if not, I feed syrup made from granulated sugar. Before doing so I always remove all combs containing pollen, and also the combs I usually extract from, leaving them ten combs in the hive to winter on. After this work is completed I allow the bees to have a rest until the end of October, when I pack them with chaff and put on the cushion, making things snug for cold weather.

When the cold weather sets in I close the entrance and open the dead bee escape; then I take board and place it at an approach to the entrance and fasten this board by nailing two other boards, one at each side of the hive to it, this forms an air space about two feet by six inches, and keeps the cold wind off the dead bee escape,

This is all the attention they require until the following April, when I go through them again, removing all the empty combs that the bees do not require, and seeing that each colony has a queen, plenty of bees, and all the honey they need until the flowers bloom.

A few words in conclusion in regard to this hive as being superior to any other hive in use, which is constructed for out-door wintering.

1st. The double wall and tarred paper preserve the heat and keeps an even temperature in the hive; then when there is a keen frost after a thaw, the bees will not feel the difference.

2nd. The entrance will never be blocked in winter with dead bees, as they can escape at the dead bee hole.

3rd. No rain can penetrate through the hive and chill the bees, as it is covered with zinc.

4th No two boards are nailed together so as to draw the dampness.

5th. The outside boards project over the chaff box, and no rain or frost can affect the bees from below.

6th. Suppose the bees should be covered for several months they would not smother, as they have sufficient air from the air space below the hive.

7th. The bees are covered with a canvas, and there is a large cushion placed on the top which is clean and handy in the spring when you wish to examine your bees.

8th. No dampness will accumulate in the hive as it can escape through the ventilating holes.

Yours truly,

MARTIN RICHMOND.

Bligh, Ont., September, 1892.

Honey Analyses and Adult ration.

THOSE FIFTY SAMPLES SUBMITTED BY PROF. A. J. COOK ANALYZED BY LEADING CHEMISTS. GLUCOSE EASILY DETECTED; SUGAR SYRUP MIXTURES NOT SO EASILY RECOGNIZED.

I HAVE preliminary reports from each of the three able chemists who have kindly consented to aid us in the important work of honey adulteration, and arriving at some standard which shall enable us to determine when honey is pure. I can as yet give only a preliminary report; but I can give enough to show that the work is important; and as I am being pressed for a report I send the following:

I sent over 50 samples to be analyzed. I sent samples of honey from various sources, some

gathered very rapidly, some slowly, some gathered from honey-dew, some made by mixing honey with one-third or one-fourth glucose; some which the bees stored from pure cane syrup very rapidly—23 lbs. in one night—and extracted the next moruing, and the same extracted after it was capped over. These were all sent by number, so that I alone knew just the source of each.

Each chemist detected the honey that was adulterated with glucose, and placed with this a sample of plant-louse honey. Thus, as glucose will be the common adulterant we may feel that this is practically satisfactory. If from 50 samples taken from very varied sources, only one (and that honey-dewy, that never could be sold as honey) was found which could not be distinguished from glucose, we see the chemists can detect this most common adulterant, and enable us to prevent the worst form of adulteration. It is interesting to note that Prof. Wiley—See Bulletin No. 13, p. 798—speaks of pine-tree honey (this is undoubtedly honey-dew) which was like honey adulterated with glucose. The honey-dew which I sent was not from pine-tree aphis, however. I also sent two other samples of honey dew—one from oak-galls, and the other from larch aphis, which were pleasant to the taste, and pronounced by the chemists as genuine honey.

The honey which was simply cane sugar rapidly stored—and, of course, as we know partially digested by the bees—was pronounced adulterated with cane sugar. But with these were included samples of the finest honey I ever saw—one from basswood, one from white clover, very fine, and one from horsemint, all of which I secured because they were gathered very rapidly. Thus we see the chemists can not surely detect adulteration with cane sugar, if the bees are required to digest or invert the sucrose. If the chemist puts the best quality of white clover and linden honey with honey stored from pure cane syrup, it stands to reason that we could feed our bees a syrup made of, say, one-third honey and two-thirds cane syrup, and the chemists could not detect it; nor could the consumer. I had each member of my class of forty in entomology taste of the honey from the cane syrup. All pronounced it fine, and not one suspected, even when asked, that it was any thing but genuine honey procured from the ordinary source, and normal in every way.

Thus we have proof of what I have long believed, that our best honey, if gathered rapidly, can not be told from honey stored from pure cane sugar syrup.

Three samples, one white clover, one goldenrod, and one white sage, all fine and rapidly stored, are regarded as suspicious, as they deport themselves as do honeys with an abnormal amount of invert sugar. Three other samples, one smartweed, one black mangrove, and one horsemint, all peculiar in that they were very rapidly gathered, act as pure invert sugar; that secured by artifically reducing cane sugar. Thus six samples, all certainly genuine, and very excellent, would be pronounced as suspicious, though possibly not condemned as impure.

CONCLUSIONS.

1. We see, then, that the chemist can detect honey adulterated with commercial glucose from all genuine honey, except some from honey-dew, which is so rank that it would never go on to the market.

2. The chemist can not tell honey—even the very best—from that secured by feeding a syrup made of pure cane sugar.

3. Honey that is very rapidly gathered deports itself just as does that secured by feeding pure cane syrup; and so, if it be desirable to detect such adulteration, the chemist must revise his methods, as he is not as yet able to do so.

4. Cane-sugar syrup fed to bees is inverted, and, when stored, is so like our best honey that chemical methods can not detect it.

5. Cane sugar syrup, unless fed to bees, could be easily told. The bees, by digesting the syrup, change it as they do the nectar which they gather from flowers, which is also cane sugar.

6. We know that honey is largely adulterated; but almost always, if not always, by feeding glucose. This can be detected. Thus we can successfully fight this evil. Prof. Wiley will help us. Let us declare the battle on.

7. I urged at the Detroit convention, in 1890, that the Bee-keepers' Union wage this warfare. It has done grand service. It can do this work. As a member and officer, I vote that it assume this added responsibility, and win yet grander laurels. Why not? It can crush the evil.

8. Bee-keepers do not adulterate. Dealers—wholesale dealers—do this. If bee-keeping dealers have done it, they, with all of their kin, should be exposed and punished. If we will we can down the enemy. *I vote aye.*

Ag'l College, Mich., Sept. 3. A. J. Cook.

Gleanings comments on this article as follows:—[The result of the above analyses are indeed most valuable. If it is indeed true, that glucose adulteration can be readily detected, it is a grim fact that will make evil-doers tremble; for the courts of the various States will accept the evidence of competent chemists in regard to adul-

terations, we believe; and all any one has to do is to have certain samples of doubtful honeys analyzed by proper chemists, and submit the results to the Bee-keepers' Union, or such a union as will take cognizance of such cases. Glucose of the best quality can be bought in carload lots for about 2½ cts. per lb.; granulated sugar, for not less than 5 cts. Practically, then, glucose is the only article that can be used as an adulterant, *at a profit*. Sugar may possibly be used, but we doubt it.

Samples Nos. 104, 110, 126, 127, 149 (see Bulletin No. 13 of the Department of Agriculture), bearing the label of Chas. F. Muth & Son, were pronounced adulterated with glucose. We knew that the Muths would not adulterate. One of three things *must* be true; viz. (1): They have unwittingly bought honey from parties who adulterated; (2) Their labels have been counterfeited; (3) or the chemists may not always be able to detect glucose adulterations. We incline toward the probability of (1) and (2), that Muth & Son have, as innocent parties, been imposed upon. In view of the possibility of (3) being true, we should like to see the experiment of Prof. Cook's tried once more by three other chemists, and the results compared again. If necessary we will foot the bill, providing State or national funds can not be secured for the purpose. By the way, who bears the expense in the present instance?

The above rescript of the analyses of Prof. Wiley has just been received by us contemporaneously, as we understand it, with its receipt by the proprietor of *Gleanings*, whose remarks upon the subject we entirely endorse.

The Successful Wintering of Bees Results from the Proper Combination of Different Conditions.

HIBERNATION of bees is a question that was much discussed a few years ago in the bee journals. Some claimed that we could not winter bees without it, and others argued that the theory of hibernation was the result of a vivid imagination. If the word was taken to mean an absolutely torpid state and nothing less, as death cannot mean less than complete absence of life, then we know that bees cannot remain in this latter state more than a day or two and remain alive. However, I take it that hibernation, as a word much used, really means that torpor or languor that comes upon very many animals upon the approach of winter, and is only dissipated by the natural fulfilment of this demand of nature, just as we cannot live without sleep. Some have claimed that bees were not intended by the Creator to endure the winters of temperate climates, but are natives of warm countries, and that, therefore, we are abusing nature to attempt to winter bees, and must always expect loss. Now I believe that bees were as much intended to live in cold countries as the other myriads of hibernating insects. Even in California, Cuba or the hot climates about the Mediterranean and wherever bees are found, it is noticed that, at a certain season annually, they almost or quite cease brood rearing and readily enter that state of torpor provided by nature, called hibernation. The honey season in Cuba comes in February and March, so that special skill in management is needed to overcome the tendency to hibernation at this season, and induce the bees to breed for the harvest. Now the larger animals, being hardier, are able to hibernate under adverse conditions. The woodchuck, that winters so snugly in his nest underground, might perhaps winter in a snow bank, yet all animals that pass the winter in a state of quiet, must feel the injury from other than natural conditions. The principle of hibernation is found among all the orders of the animal kingdom, being very common among the insects, and less met with among the higher vertebrates. Now, since we find this hibernating instinct such a very common thing, and that among our bees it is simply an answer to the demands of nature, to the inexperienced it must seem like a very simple matter to supply them with proper conditions to winter them in health. But to those of most experience it is an ever difficult problem.

Mr. G. R. Pierce, of Blairstown, Iowa, recently issued a little book upon "The Winter Problem." It is very well written; most of the statements therein made seem to me to be scientifically accurate and the general theory correct. The book is, however, remarkably narrow in its view of the causes of winter loss. For example, the claim is made that upward ventilation of the hive is very detrimental, and that the bees only live in spite of their abuse in this manner by their keeper. He also belittles the effect of honey dew and poor stores, which I think is wrong. The evident object of the book is to prove that the only true way to winter bees, whether in the cellar or out of doors, is to leave the covers well sealed down, and to protect upon the sides or top with double walls, paper, or chaff, etc. I am willing to grant that bees can be well wintered in this manner, but so they can as well in many other ways. His narrowness in this conclusion is to be attributed directly to the falsity of the premise. This is

that whenever the cluster touches the side or top of the hive so much heat is conducted away through unprotected or porous walls, that disease or starvation, from the inability of the cluster to change its position, is the result. The condensation of moisture about the cluster, causing molding and souring of combs and honey, are rightly considered as elements. But bees winter well when these conditions are violated and die when they are observed.

I will relate some of the circumstances under which I have found bees wintering well, to show how the most varied conditions do produce apparently equally good results, or dismal failures. My own bees are wintered out of doors in chaff hives. I have, however, sometimes been compelled to winter some colonies in the cellar. I have never lost bees extensively. During the winter of 1888-9 I lost about thirty-five colonies as the result of their gathering quantities of honey dew the previous fall. At my home apiary the past winter a loss is reported to me of three colonies out of 100, wintered in chaff hives with absorbing cushions or better, porous coverings. During the winter just spoken of, when I lost by the effects of honey dew, one of my neighbor beekeepers who winters in a cellar that never before or since has failed, lost all but five of sixty colonies. This proves to me that it was the poor stores and not the method of wintering that killed the bees.

Among the mountains of eastern New York I once visited an apiary of box hives numbering thirty or forty colonies that were and had been for many years wintered on their summer stands without any protection whatever. They were in a gorge of the mountains where a breath of wind seldom penetrates, though the temperature goes very low.

At the residence of E. J. Cook, of Owosso, I saw some thirty colonies wintering in the house cellar in fine shape, with simply a thick cloth, as a covering, to retain the heat of the hive and cluster. At Mr. Geo. E. Hilton's home I saw bees in chaff hives wintering well, and they were clustered close against the porous quilt next the chaff. At Mr. Martin's apiary at Hartford, New York, I saw bees being wintered in the cellar with a three-inch rim underneath the frames above the bottom board. Here the bees were clustered beneath the bottom bars of the frames and hanging nearly to the bottom of this rim. At the apiary of Mr. Fritts, near Niles, Mich., I saw chaff hives perched on stakes eighteen inches above the ground with large brick as overhead packing. Mr. Fritts regarded snow as very injurious to the bees. On the other hand I have seen an apiary under fruit trees so buried in snow that only the topmost twigs of the trees were visible above the banks, and yet both these apiaries winter well, perhaps equally so.

At the college the bees have never wintered perfectly in the cellar under the new bee house, while the cellar under the old smaller building in a different soil, always wintered them well. I have cited all these various methods and conditions under which bees are wintered to prove that no one thing can be responsible for all winter losses, and that the obtaining of any one favorable condition will not ensure their safe wintering. We become somewhat familiar with the peculiar conditions and demands of our several localities and know that if these conditions are right our bees will winter. But let some of them be wanting and the spring may prove that we really do not know how to winter bees, because we do not know how other than familiar circumstances will affect them. Another cellar, the absence of the usual fall honey flow, or the gathering of honey dew, might perhaps cause conditions that would prove fatal. There are so many extraneous and varying conditions that affect their wintering that we avoid one danger but to be confronted by another

Many consider dysentery as one of the causes, or the principal cause, of loss. To me it is merely a symptom of disease, and thus it becomes an effect rather than a cause. The consumption of pollen may cause dysentery, but I am of the opinion that bees will not consume excessive amounts of pollen or become diseased from this consumption except when other more dangerous causes are at work. The pollen theory might seem true if we do not look deeper and find more reasonable explanations.

Let us next analyze separately some of these many influences, and then perhaps we may be able to state some of the conditions of environment under which we may place our bees with tolerable assurance that they will winter safely.

Our first reason is lack of stores or starvation. Although this is not the principal cause of winter loss, still I have placed it first, for the reason that it is expected in all climates and under all conditions. The amount of stores needed by a colony of bees to carry them through a Michigan winter varies greatly. They may winter well with a small amount, say ten pounds, and they may require very much more. My rule is to always give them an abundance, not less than twenty-five pounds, as the food is not wasted if a large amount is in store.

Another point to be considered in connection with stores is the quality. The effect of poor stores is not realized. Honey dew is often very injurious in its effects for the reason that we cannot avoid its presence, and it is frequently gathered in large quantities in the autumn with the other honey for winter stores. Some kinds will do no harm, while I have, on the other hand, known it to become granulated within two weeks after being gathered and before being sealed. This kind would be almost sure death to the colony wholly dependent upon it for its winter supply. The presence of such stuff may often be avoided by feeding heavily with honey or sugar syrup as soon as the bees begin to store it, so that no room will remain in the hive for it. Do not think that all kinds of honey dew are equally injurious. I should welcome that kind gathered during May, as it can do little

harm for winter, being all consumed in brood-rearing.

Too late feeding will produce the same effect as poor stores, as the bees have not time to properly ripen and seal the feed, and it sours or runs out of the combs. I like to feed as soon as possible after the 15th of September.

The lack of bees of proper age is much debated, though I think very few if any practice any artificial method of securing these desired young bees. Nature or instinct is nearly always correct upon this point.

Now we have two general methods of wintering bees, out of doors in chaff or double-walled hives, and in the cellar in single-walled hives.

There are some obstacles to be met with when wintering out of doors that are not encountered in cellar wintering, such as long confinement, severe and long continued cold weather, dampness, and sometimes smothering by snow, etc. The first two of these depend upon the weather and are beyond man's control. Dampness of the interior of the hive, combs or absorbing cushions, is very detrimental to the health of the bees. Its effect is graphically described by Mr. Pierce in the book mentioned. Much care should be exercised to see that all covers are perfectly snow and rain tight. Sometimes dampness thought to be caused by the bees comes from imperfect roofs. Green sawdust or partially dry forest leaves are sometimes used as a packing. This is a mistake, as the moisture does not dry from the packing so late in tha fall, and the material becomes wetter than at first.

Those wintering bees in the cellar find they are met by still other conditions not present to those whose bees are out of doors. Some of these are long confinement, unevenness of temperature or too low temperature, dampness or impure air. The long confinement will not be injurious if other conditions are favorable. Forty to forty-eight is the generally acknowledged correct temperature; a lower for a dry air and a higher for a damp. Dampness of the floor or the presence of water in the cellar is not necessarily any indication of the amount of moisture in the air. A wet and dry bulb thermometer will alone indicate this. A use of this simple apparatus might often enable us to explain the cause of loss where now it is largely guesswork.

Impure air is one of the obscure causes of loss. The importance of pure air is little realized since there is no method of determining the amount of impurity in the air except by chemical analysis. The sense of smell is only a very erratic guide at best, as many of the most common and poisonous gases are without smell. A good rule is to give the cellar as much ventilation as possible and keep it at nearly the right temperature. Hives individually as well as the cellar often get too little change of air. A large entrance that it is not possible to clog with dead bees, or the insertion of a rim giving space below the frames, or the omission of the bottom board entirely, are all good methods of supplying each colony with air as pure as that of the cellar. These two causes, dampness and impure air, are responsible for very much of the loss of bees in cellars, where other colonies of the same apiary winter well, and all are treated alike.

I will not compare the two methods of wintering most in vogue, as it is not the object of this paper to advance any pet theory, but I will say that I believe that bees can be and are wintered very nearly in perfect health by either method. As to which is the least liable to failure you are surely the best judges, for the method most successful with you is surely the best. Different cellars and the methods of packing upon the summer stands vary so greatly that it is ridiculous to presume to lay down any specific rules for bringing the bees to spring in a prosperous condition.

However, as I mentally review what I have written, the fancy comes to me to describe, before closing, as nearly as possible, the conditions and methods I would employ to secure perfect hibernation. First, I must see that each colony has thirty pounds or more of good, healthy honey or sugar syrup stored in the combs and well sealed. Then I desire a prolific young queen whose colony has reared a fair amount of young bees during September, which bees should be clustered compactly in a well formed brood nest. Now, if wintered in the cellar they should be placed therein about Nov. 10th to 20th. The cellar should be quite dry and by means of large ventilators or the porosity of the walls the air should be kept pure and sweet and uniformly at a temperature of about forty-five degrees.

If wintered on their summer stands they should be in chaff packed hives with good roofs that will exclude the rain and snow and admit air to keep the packing dry. Then I must *hope* for not too severe a winter, but one admitting of several opportunities for flights.

But with all these conditions apparently complied with we *may* fail because of our imperfect knowledge or the errors of our judgment.—J. H. LARRABEE in *Bee-keepers' Review.*

AGR. COLLEGE, Mich., May 11, 1892.

For THE CANADIAN BEE JOURNAL.

Wintering Bees.

THE two essential features in the successful wintering of bees are a sufficiency of good stores and a proper temperature. Having the former, which should consist of a very good grade of honey or sugar syrup, and plenty of pollen also, the proper temperature may be secured by the following method of packing—a system that I have followed for the last seven years, and have not lost a colony yet; I therefore consider it a successful one.

I build a small shed about twelve feet long by three feet wide, two feet high in the rear, and three feet high in the front. Any light stuff one by two or two inches square will do for corner posts. I set this shed on two 2 x 4 hemlock scantlings set on their narrow edge and running lengthways of the shed, keeping the scantling under the front and back edges; then nail a floor on the scantlings, on the top of this floor lay a two by two strip, eight inches from the back, and another the same size, just the length of the hive bottom boards out from it—these are for the hives to rest on. The whole can be con-

structed out of a dozen twelve feet boards, twelve inches wide, and three 2 x 4 scantling, the whole going together without any waste. The bottom and end boards are cut three feet long, and the roof boards four feet long, taking three for the bottom, one for the ends, besides a piece for the gables, two for the back, five for the roof and roof batens, and one for the front at top, to support the roof. The roof boards I cleat together in four sections, for convenience in packing and getting at the hives. This makes a shed large enough to contain seven hives which are placed on the two by two strips, leaving a two inch space underneath the hives, an eight inch space at the back, and the end ones are to be kept about four inches from the ends, the space between the hives to be equally divided. In order to save stores in the body of the hive for winter use, I leave a surplus case containing more or less honey on each hive, until the latter part of November, when I remove it; then putting a couple of sticks across the frames for a bee passage, I place on the top a light box about four inches deep, and one-eighth of an inch shorter than the hive. This box has a burlap bottom tacked on to it, and filled with wheat chaff, pressed in close; over this chaff box I place a deep cover large enough to overlap the hive body, and resting on ledges about half an inch from the top. They are now ready for the packing. I use for the packing maple leaves, gathered just after they fall, when they are tough, and will last for several years if kept dry. I press the leaves in the two inch space under the hives, between, and at the back of them, just as tight and close as I can get them, filling up level to the top of the covers, when the job is done.

A slight improvement might be made by boarding up in front, and packing the front of the hive with leaves also; but I doubt if this would effect enough saving in stores to pay for the extra trouble. Bees packed in the foregoing manner cannot freeze in this latitude—they will stand a big seige of away-down-below-zero weather for several continuous days, and I believe weeks, in succession.

The leaves make a very impervious packing—no wind or cold can get through them. The shed or clamp should face the south. During a very cold snap of several days some ice will form inside on the front ends of the hives. This will do no harm—when the sun shines it will melt and run out the entrance, the front of the hives being a little lower than the back ends. The only ventilation given should be through the entrances; there will be enough at the top through the joints and crevices of the cover. The entrances should be closed to about four inches, and even to one inch in very severe weather. The entrances should be inspected every few days, and the dead bees removed with a bent wire to prevent them from choking up. The bees will rest very quietly during the first half of the winter, or until they have had their first flight, after which they will be inclined to fly very frequently on sunny days; but if the weather is frosty they will drop down and die. In order to avoid this loss, a wide board should be set up on its edge, across the front of the hives, to keep them shaded from the sun, in which case they will not fly out. When the weather is warm enough I drop the wide board, and let them fly as freely as they like. This induces breeding, with the result that I often have colonies in the spring, strong enough for surplus cases, as soon as they can get any honey. In the spring I take out the leaves down as far as the ledges of the hives that support the cover, so that I can get off the chaff boxes, and place on the surplus cases; the rest of the packing is left around them, thereby saving a great deal of labor each spring and fall.

W. H. KIRBY.

Oshawa, Sept. 28th, 1892.

FOR THE CANADIAN BEE JOURNAL.

Successful Bee Wintering.

DEAR SIR,—Please give me space for a few lines in your valuable journal on successful bee wintering.

1st. Be sure you have good queens in every hive, and at least seven pounds of bees.

2nd. Have twenty-five pounds of stores. If your combs are old and full of pollen or bee-bread allow them an extra five pounds, for many bee-keepers are deceived by the weight of old comb, and starve their bees. On this point all are agreed.

3rd. Select a dry, sheltered spot, and place upon it a bottom large enough to hold four hives; if square, place two south, one east and one west, (if on the Langstroth plan, place east and west); and always have the bottom, for six inches all around, larger than the outside of the hives, and leave a couple of inches between each hive. Have them raised a little from the ground, and put on two inches of chaff. Now set on such of your hives as have been examined and [illegible] four to six inches longer than the outside of the hives, leaving a fly-hole open for each hive and cover the runway so as to prevent litter from blocking the hive opening. Now for our packing: if of chaff, give six inches; if of sawdust, give four. Pack

tight till level with the top of the hive. Another important feature is to remove all old cloths, and place sticks across the top of the hive in such a manner as to enable the bees to get over the frames. Then lay on a piece of new or clean cotton, and put on about eight inches of packing, with a water-tight cover over the whole. If you are in a good locality you will clear ten dollars per hive next season.

Another good plan—a little more expensive at the start—but very nearly perfect, should not be omitted: Dig a trench two feet deep in a dry place, and wall it up with boards until twelve inches above the ground at the front, and a little higher at the back, and wide enough to take a bottom board across the top. Bank up all around, allowing half a square inch for each hive on the stand. The bees should be prepared as previously stated; but in the bottom board place an inch hole, inserting in each hive a cone-shaped wire screen to keep away any dead bees from closing it. Have your hives facing south. Leave an open space of four inches between each hive for the fly-hole as before, and pack to top of the hive. This system is somewhat different, as evaporation is provided for below. Raise the cover and lay on a few sticks, or better still, a frame with old cloth waxed to it, to prevent the cold air from passing into the hive.

All details should be carefully observed. I could add more were it not that I may be trenching too extensively on your space.

Yours, etc.,

FRED. L. CRAIG.

Muncey Ind. Institute,
September 7th, 1892.

EDITORIAL.

The "Harmony Apiary."

IN this issue we present our readers with a photo-engravure of Harmony Apiary, owned by Mr. Francis A. Gemmill, President of the Ontario Bee-keepers' Association. It will be observed from the engraving that he has all his hives numbered, and has also had placed on each of them the name of some one of our prominent bee-keepers. His solar wax extractor (one of which every bee-keeper should have) is represented in its proper place, with the tool-chest, cart, feeder, and other necessary utensils conveniently at hand. As to the *personnel* of the group, we think it will be difficult to do better than to give it in Mr. Gemmill's own words as furnished by him and already published in our issue of last month, and which we now reprint as follows:—

First figure to the right is Belle, who assists in the household and also in the honey-house when necessary. The second is my son (aged 16) who, on account of the way the sun was shining, looks more like a native of Africa than a blonde of Canada. The third is his mother; the fourth, my sister; the fifth, my mother; the sixth, my daughter (13), and the cow-boy, sitting in the chair, is the chap who, up to date, has done all the wiring of frames, but who now thinks he will take the Brantford friend's advice, and teach (they have not yet learned) some of the younger fry to at least assist him in future.

The Sherbrooke (Que.) Exhibition.

IT is difficult to say what has come over the representatives of the honey industry of the Province of Quebec, or how it is that so little attention should have been paid to that department by the Fair Commissioners. The honey production of Quebec is an important industry, and yet the following is the meagre reference made to the exhibit there in the report of the prize list as we find it in the Sherbrooke *Examiner*. There must be some gross neglect somewhere, or so absurd a reference as this would not have been made. Far better have kept it out of print altogether:

Honey in Comb.—R. P. & S. Small, Dunham, 1; Robert Mitchell, 2.

Honey Extracted.—Robert Mitchell, 1; R.P. & and S. Small, 2.

Beeswax, 10 lbs.—R. P. & S. Small, 1.

Come along now, Eastern friends, you can do better than this. Form a Q.B.K.A., and bring your influence to bear upon the directors so that they may offer some better inducements.

"Bind together your spare hours by the cord of some definite purpose; you know not how much you may accomplish. Gather up the fragments of your time that nothing may be lost."

* * *

We are anxious to make improvements in the JOURNAL. To do this we must have the earnest, hearty co-operation of subscribers and friends. Will you help?

* * *

Common writing ink may be removed from paper without injury to the print by oxalic acid and lime, carefully washing it in water before restoring it to the volume.

* * *

Our friends had better see that there is no honey-dew in the hives; if there is

HARMONY APIARY.

much, or in other words, more than the bees will consume before the cold weather comes on, better extract it and feed sugar syrup.

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Where bees are working on apple pomace about cider mills they had better be fed liberally at home, and kept from flying out, except late in the evening. About the time they usually quit working they ought to have a fly out. This will prevent them from storing too much cider in their combs.

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We are in receipt of a sample of pure milk-weed honey from Mr. A. W. Brown of Port Rowan. It is a very rare article in Ontario. Mr. Brown informs us that it was gathered on his queen-mating island, and that it is strictly pure. He has ten pounds of it for sale, and should any one wish to purchase it to exhibit at the Columbian Exposition, Mr. Brown would dispose of it for fifteen cents per pound.

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From the 21st to the 25th of the last month we had some very hot weather which had the effect of bringing honey into some of the late fall flowers. Some of the bees would consequently start out about daylight, so eager were they apparently to get there early. On the contrary, and in midsummer when clover and basswood is yielding, they frequently work very late; but, by five or six o'clock at this season of the year they seem to leave the flowers; as much as to say, "there is no honey for us there."

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A correspondent wishes to know if he can winter his drones, as he has hives with numbers in them yet, although the bees killed all the drones off in his other hives long ago. He is not likely to winter over any drones in the colonies that contained them should he put queens in immediately. It is an indication of queenlessness in northern localities. We have some wonderfully fine drones yet, but they are in queenless colonies, and kept for the purpose of mating with late queens. It is sometimes a good plan when one is surrounded by a number of apiaries to keep a large stock of drones late in queenless colonies and to have queens fertilized by them when there are no other drones in the locality. The plan ensures pure mating.

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Have you neglected to double up your weak colonies and prepare them for winter? If not done at once, they are sure to perish before spring.

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We are advised by Mr. M.B. Holmes that a Bee-Keepers' Convention will be held on the 8th October at the Town Hall, Athens, Ont. We hope the meeting will be fully attended by the bee-keepers of that neighborhood for an intelligent interchange of thought and advice in all matters relating to their favorite pursuit.

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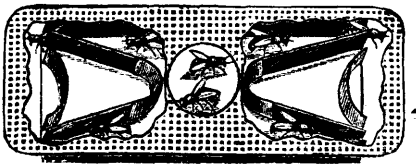
We observe that Mrs. Jennie Atchley is about to move her celebrated queen-breeding establishment from Floyd, Texas, to a point upon the eastern frontier of the State, which she designates as Beeville, Bee County, where she can rear queens all the year round. In her new location, which, as we understand, will be located upon the Mexican Gulf coast, she will have an opportunity of utilizing an island situated about eighteen miles from the mainland where she may experiment upon the production of drones from fertile workers and from unfertile queens. We hope to have much matter of value from her facile pen some of these days.

TO OUR AGENTS.

WE address these few lines to our agents to thank them for the interest they have taken in the C.B.J. during the past eight months, and for the energy which a few have already displayed in securing subscribers for us. Now that the fall fair season is here, we would like to secure a representative at each fair, one who will take subscriptions for the C. B. J., and to whom we will pay a liberal commission. We trust to receive a hearty response from all who attend these fairs. We will send sample copies free to any address our agents may send us. This will save them the trouble of carrying a large bundle of JOURNALS with them on the train, etc. All who wish to represent the C. B. J. at their own or neighboring fairs should commuicate with us at once, giving dates, post office addresses, and, where possible, the names of the secretaries of the fairs they may attend. Experience is not necessary; any bright young man or woman can make a nice little sum of money by representing us at their local fairs. We wish to secure at least 1500 new subscribers this fall; and to do this we ask the co-operation of all well wishers.

HASTINGS' LIGHTNING BEE ESCAPE



Send for sample of Hastings' "Lightning Bee Escape and you will be convinced that it is the best and most practical Escape yet produced. It will clear the supers in a short space of time (2 to 4 hrs.) and it is impossible for the bees to clog the passage as they cannot return. Each Escape guaranteed as represented. Price by mail, each, 20c.; $2.25 per doz. Full directions with each Escape. Write for discount. Electrotypes for dealers' catalogues furnished free.

TESTIMONIALS.

M. E. HASTINGS, ORISKANY, N. Y., March 7, 1892.

Dear Sir,—The Lightning Ventilated Bee Escapes which you sent to me last season worked well and all that you claimed for them. They do not clog, and clear the supers rapidly. In fact it is the best escape I have yet used. I cannot speak too highly of the Escape, and consider it a great boon to bee-keepers.

Respectfully Yours,

W. E. CLARK.

Dear Sir,— NEW YORK MILLS, N. Y., April 4, 1892

The Bee Escape invented by you is the best I have yet seen, freeing the sections most effectually in short order, and its construction being such as to make it impossible to get out of repair, it will therefore meet with the approval of all bee-keepers. Yours Respectfully,

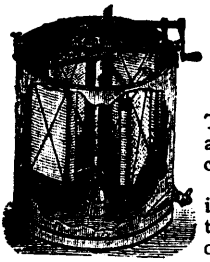
F. A. GLADWIN.

M. E. HASTINGS, UTICA, N. Y., October 21, 1892.

Dear Sir,—Your Lightning Bee Escape does away with the hard, disagreeable work attending the harvesting of honey, being very much easier than the old way. In my opinion it is the best Escape yet produced

Truly Yours,

B. E. FOSTER.

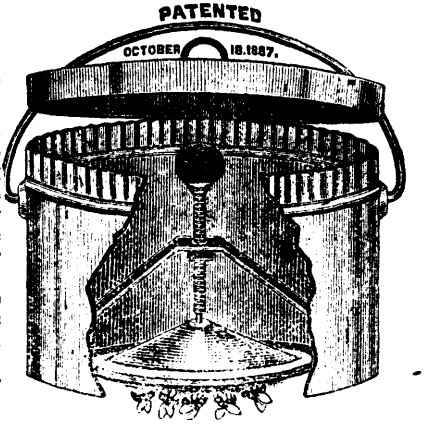


HASTINGS' POSITIVE REVERSIBLE EXTRACTOR

The above illustration shows a New Extractor now ready for the market. The principal features are that it is positive in the reversing of the baskets, as they all move at once without either the use of chains or reversing of the crank.

It is not necessary to turn the crank more than one way in extracting; but if desired it can be turned either way. It is pronounced by experts in extracting to be the most desirable Reversible Extractor yet produced. When ordering send a sample frame and price will be quoted on either 3, 4, 5 or 6 frame Extractors.

Hastings' Perfection Feeders.



These Feeders are now made with a capacity of two quarts, and the price is reduced to thirty cents each, or $3 per dozen, by express or freight. When ordered by mail add ten cents each for postage. These Feeders can be re-filled without moving the Feeder, or disturbing the bees. The letting down of food is regulated by a thumb screw. It is easy to regulate—either a quart or a spoonful can be given in a day or an hour, as may be required, and where it is most needed, over the cluster of bees. For rapid feeding two feeders may be placed over the bees at one time, not a drop of food can be lost, and the robber bees cannot get at it. Special rates to dealers. Write for prices. Supply dealers furnished at wholesale prices. An electrotype will be furnished free to dealers wishing to advertise Feeder in their catalogues.

M. E. HASTINGS,

Patentee and sole Manufacturer, New York Mills Oneida Co., N. Y.