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CANADIAN BEE JOURNAL

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NEW SERIES
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BRANTFORD, ONT., FEB., 1895.

WHOLE NO.
360.

Up to the present all experiments in winning have been conducted with greater or less difficulty. The results have also been unreliable and unsatisfactory, and they can only begin to be of value as they are repeated again and again. The reason is simple enough. Where we begin to deal with living things, there are so many conditions which begin to enter in, that only the greatest care can bring out anything of value. Take an experiment with breeds of cattle as to beef, milk or butter, would an experiment be of any value in which the first five cows within reach were taken up and compared. Certainly not. The individual the age and constitution would have a greater influence than the breed. So with bees, not the number of bees or even the age with the queen but the vitality of the bees should be considered. We should of course separate the powers of the queen and the honey gathering qualities, hence the great difficulty in determining the actual benefits to be derived from a certain system. We have however unbounded faith in proper experimental work. No doubt as the work is new, there will be mistakes made as others have made them in experimenting in other lines. But by going on, having friendly criticism and the co-operation of the most thinking and experienced men we may hope to raise a structure in the future to which intelligent men will look for information of value. The questions of absorbants as opposed to sealed covers has received a good deal of attention, but after

all have we got at the root of the matter? may sealed covers not be best under certain conditions and absorbants best under others? Yet one or other be always best under the best conditions? How would this answer: A sealed cover is not best when the moisture is liable to condense on the under side of the quilt and moisture to a greater or less extent drop on the bees. We know that the warmer the atmosphere the more moisture it can contain; that when it strikes a cool surface it condenses and this is just what is likely to take place when there is a quilt or thin honey board without packing. The air passes in at the entrance and as it approaches and passes through the cluster takes moisture from it; continuing to rise it strikes the ceiling of the home of the bees, if there it finds a cool surface the temperature lowers and the moisture can no longer be held in solution and it condenses, just as it does on a window pane when it strikes the cool surface of the glass. But if there be plenty packing above to keep the surface warm it passes on and down, no moisture falling on the cluster. In such a case the temperature of the hive is likely to be higher with less effort on the part of the cluster and the advantage is the vitality of the bee is husbanded and the higher temperature in the hive as compared with the atmosphere outside is likely to give better ventilation, and the atmosphere outside is not absorbed but expelled either at a portion of the entrance, or we think better still when in the cellar, at the back, the hive being raised three eight inches from the bottom board. Now how about absorbants? We do

not think the absorbants will act very well unless of such a thickness that the lower part of the quilt is kept warm through covering above, and yet the covering is not heavy enough to prevent a current of air, carrying with it the moisture, slowly passing through the absorbant material. Now what condition have we? We have the moisture passing into the absorbants and as it approaches the outer edge, cooled by contact with outside air and condenses. The more that it condenses the more the packing becomes wet and a conductor of either heat or cold, and the more dangerous to the bees, and the greater the response of the temperature of the hive to outside changes. If the heat from the hive dries out the packing, more heat must be generated by the bees and more of their vitality consumed, wouldnot reason incline us not to favor absorbants, but sealed covers kept warm by upward packing. There are probably many covers supposed to be air tight but not really so. On the other hand may some be packed to a great depth with close material not be almost non-absorbant and practically sealed. To study this question we should get at the *root* of conditions, does the above not give some light in this direction.

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Questions often arise in the mind of a beginner in bee-keeping. A leading one is:

Shall I take a Bee Journal
A Bee-Book or a bee-book to begin the
Bee-Paper. study. This is our fourth

year at Farmers Institute meetings and we always say get a book by all means and more do not attempt to begin bee-keeping without a book, it will be of use to you in many ways. A good practical Bee Journal is also of use, in fact you should not attempt to keep bees without it, many a dollar should be gained per annum for the price of the subscription. Every man who wishes to advance and will study the business should take a bee paper. The kind who do not wish to keep bees in the best way better stay out of it. Their doom is generally sealed before they begin.

**

When we opened the first number for 1867 of the American Bee Journal, we were very pleasantly surprised. It is The A. B. J. in entirely new and pleasing form, in fact entirely remodelled. The first page contains two excellent engravings of Chas. Dadant and C. P. Dadant, father and son, also an article upon "The Production of Extracted honey" by Chas. Dadant, the editorial "We" or something else appears to be popular. "We" shall probably stick to it, *the we*, for some time to give brother York encouragement. We hope brother York will be able to say I, I, to this.

**

In the last number of Gleanings in Bee Culture we find a very true engraving of

John T. Calvert, the

John T. Calvert Secretary-Treasurer of the A. I. Root

Co., Medina, Ohio. Mr. Calvert is a Canadian and in a whisper to our Canadian friends we would say, as pleasant and nice as they are on the *other side* friend Calvert compares very favorably with those to be found in the land of his adoption.

**

The 18th annual report of the National Bee-Keepers Union is to hand. There is no doubt that bee-

National Bee-keepers throughout Keepers Union. the world owe a great deal to the Union and its energetic manager Thomas G. Newman, 147 South Western Avenue, Chicago, Ill. It will be remembered that some time ago enquires were made in regard to Canadian members. Mr. Newman writes in reply as follows:

CANADIAN MEMBERS.

Inquiries from Canada have come to hand asking whether the Union would defend its members in that Dominion, the same as if they resided in the United States. Some of these also requested that the reply be incorporated in my next Annual Report. It is, therefore, given a place here. The answer is plain and explicit—the National Bee-Keepers' Union knows no dividing lines of States, Provinces or Territories—

"No pent up Utica contracts our power,
The whole unbounded Continent is ours."

The Union defends its members from the assaults of the enemies of the pursuit—no matter where they may happen to reside—if upon investigation, their lawful rights and privileges are found to be unjustly assailed.

The objects of the Union are well known. To defend bee-keepers against persecutions, this it has ably done in the past. The editor of the CANADIAN BEE JOURNAL has been a member for years. Remember you must join the Union before any indication of trouble breaks out or it need not protect you.

When at the St. Joseph Convention we received in a private conversation some pointers upon color in

Color in Wax. wax. One of the members present, un-

fortunately we have forgotten the name, stated: "If you have dark wax and wish to improve the color you can do so by melting the wax and then adding to it a comb having an abundance of bright pollen. The idea is that the pollen has coloring matter and colors the wax." This information may be of use to those having dark wax, at the same time we would urge our readers to render wax in such a way that it will not require the addition of pollen.

The discussion is growing very warm over the five banded bee question and the indications thus far are

Five Banded Bees. that their reputation is on the wane. We are as

anxious as any one to have bees which will give large yields of honey, which are easily handled and which have beauty. No person in a normal frame

of mind will object to the beautiful about him. We enjoy pleasant scenery, a pleasant and beautiful home, live stock of all kinds which are an ornament to the farm. We even enjoy looking at handsome men and beautiful women irrespective of our own sex. This power of appreciating what pleases in various degrees and cultivated in various degrees, yet were we to surround ourselves with stock upon the farm ornamental and not useful, were we to engage

a man or a maid to perform our work simply on account of their looks, it would be better for us to give up business or for our friends to lock us up in a lunatic asylum. We think it would be well for bee-keepers to examine themselves and see what leads them to be favorably impressed with the "five banded Italian bees." Is it not their beauty, should they not rather regard that as very secondary and look for the primary requisites before launching out in eulogies. We have tried various five banded queens from what were supposed to be leading breeders of these bees. They have thus far done nothing remarkable in the direction of good works whatever they may do during the coming season. Thus far we have not found them particularly good for building up, rather to the contrary. Next, although they showed no marked trait when in a normal condition, we have found the workers in two instances, being every instance in our case, very irritable when in that condition. We remember a queen secured from a lady in the south in the fall of 1893, a good big price was paid for the queen and also a second purchased although going into winter quarters strong in bees it was in poor condition in spring and was on only three frames when the next poorest were on eight. After a great deal of trouble and the refusal on our part to add another \$5 to the returned queen and get a "first-class" we had the offer to give us a \$5 queen half the price of the first, this we accepted and the queen came to hand with the admonition that for \$5 the progeny would not be all five banded. They cannot therefore be considered a very fixed strain of bees.

Last year the Ontario Agricultural and Experimental Union took in hand to make tests with these five banded Southern queens. Five queens of the leather colored Italian strain were also supplied, in all 25. The queens were supplied between July and October 2nd and they are to be tested for gentleness, longevity, honey gathering qualities etc., etc. Thus far every one having the leather colored Italian and the five banded Italian without soliciting this

fall a reply in this direction, mention the superiority of the leather colored queen as to prolific qualities. Four of the five banded queens have already been superseded which does not speak well for their longevity, several were also lost in introduction. We notice that the Vermont State Bee-Keepers are at their coming Convention to discuss, if it is advisable in view of the prevalence of bee-paralysis in the South to purchase queens from there. If those wide awake Vermont bee-keepers begin to doubt the wisdom of such purchases the rest of us may well hesitate. Do not let us add another disease to battle with.

* * *

On Friday February 1st, Mr. Jacob Alpaugh, formerly of St. Thomas, now of Galt, Ontario, leaves
A long Trip. by Canadian Pacific Railway for California.

His journey will be via Toronto, Winnipeg, Calgary and Vancouver from thence down the Pacific to Los Angles stopping at Seattle, San Francisco and other points. We shall watch Mr. Alpaugh's movements with interest, he is well known in Canada as one of our most advanced, brightest and best bee-keepers. He is pushing and energetic and his many friends will wish him a profitable and pleasant journey.

A Suggestion.

GALT, Jan. 1, 1895.

FRIEND HOLTERMANN.—Are not the initial letters "C. O. F." occurring twice in C. A. Slater & Co's. letter on page 25 of this month's C. B. J., also on line 10, first column of page 413, a misprint? I may be wrong; but I cannot make out the meaning of the initials, and have the fancy that they should read C. I. F., abbreviating a very common business expression applicable across the ocean, viz.: "Cost. Insurance and Freight," meaning that the goods are sold these three items paid. Wishing you and the journal a prosperous New Year.

I am yours faithfully,

R. W. McDonnell.

QUEEN-REARING.

The Result of Three Years' Experimental Work.

[Continued.]

[2077.] Many people have written on this subject of queen-rearing, but their plans are either those of the gentlemen already named, or some modification thereof, or they were troublesome and unsatisfactory. I have tried them all exhaustively, and under all conditions, and for experimental purposes have raised queens only to destroy many of them at different stages of their growth, to see practically what they were made of, and to set at rest some point on which I desired to satisfy myself.

Henry Alley, now over thirty years ago, was the first to point out that the then methods of raising queens were not satisfactory, and gave the bee world a new system of doing so by cutting worker cells containing eggs and very young larvae, and giving same to queenless stocks having no unsealed brood to raise queens from. This was a marked step in advance, quickly followed by others on the same lines, and after careful experiment, I am bound to say good queens can be raised by his method. Dr. C. C. Miller was, I believe, the first to suggest the transference of eggs and larvae to naturally built embryo queen cells, but it was reserved to Mr. Doolittle to perfect the method which was proved, in the hands of others as well as mine, to be most satisfactory, and to produce the finest results. It is his method—with some slight modifications of my own—that I propose to lay before your readers. No doubt it entails a lot of work, and requires an amount of care which, to some minds, may seem unnecessary with no small an object in view as the raising of a queen-bee, but when we consider what may be the result of working out a plan by which a superior race of so useful an insect as the honey bee may be obtained, it is, to my mind, worth twenty times the trouble and care required. It must also be borne in mind that once the routine of the work is learnt, and the requirements fully grasped, it comes as easy to carry out the necessary manipulation as the ordinary handling of a bar-frame hive. If the eyesight be good and the fingers deft, the task becomes easy, and to me, all-absorbing. It is certain that when our advancing bee-keepers have tested the qualities of the queens raised by scientific

methods, they will abandon rule of thumb queens thenceforth.

In carrying out the work about to be described, I have largely had to take into account the difference in the climate of this country and of America, and the uncertain character of the weather here during the swarming season, which, as we know to our cost, is often very bad. The difference must also be noted in the date of harvesting here and there, besides the length of the honeyflow, &c. In this way we must watch for the time when the bees first evince a desire to supersede their queen and, above all things, to be ready to take full advantage of this desire at once, for should the weather suddenly change for the worse, and the honey-flow stop, steps must be taken to preserve queens in process of being raised, by giving the bees an equivalent to the bountiful supply they were enjoying, or our beautiful queen-cells, queens, and all, nothing but a bare stick will be left.

In beginning the practical work of queen-raising, the first necessary is a full colony of bees, with super on over excluder zinc, and having a laying queen below, bees working hard in super, honey coming in fast, and drones on the wing. These conditions fulfilled, all is ready for a start by preparing your frame, to which the artificial cups are fixed beforehand. If the supers used are shallow-frame ones, a shallow frame is prepared; if the standard size is adopted, use a standard frame of comb free from brood; or a frame of foundation may be used, though I prefer a built-out comb with a little honey in it. Cut the comb in half horizontally, remove the lower half, then take an ordinary top bar of a frame and cut it so as to fit between the side bars of the frame, close up to the underside of the cut comb. Fix it in its place with a $\frac{1}{2}$ in. brad at each end, then take the portion of comb removed and cut a piece out of the centre along the now top edge 7 in. long and $1\frac{1}{2}$ in. deep; fix the half comb so cut back under the inserted bar, so as to leave room in the centre for the cells to be built down; or, if preferred, the original comb may be cut so that the bar is made to fit in, and the cells extended downwards. Mr. Doolittle prefers the latter plan, but using as I do the shallow frame. I prefer the fixed centre bar, with an easily removable bottom bar.

The next operation is to prepare the wax cups. Here again I have slightly departed from the Doolittle plan, because I have succeeded better by so doing. Take a few ounces of pure beeswax that has never been overheated; place same in a small but deep tin vessel (a small milk can will do if

clean), add two ounces of distilled water and a pinch of salt; heat slowly until the wax is all melted, but keep the temperature as low as possible. It will, however, be necessary to have your "dippers" ready beforehand. And now comes the question of size. This caused me considerable delay, and only after careful observation did I find that the bees were not so particular on this point as myself, provided the cells were not made too large nor too small. By careful measurement I found that the interior of natural embryo queen-cells were very nearly the same size as ordinary drone-cells (new), but they must not be much larger; if they are the bees will build a division in the centre and spoil them by making two of one. On the other hand, if the cells are made much smaller they will remove them altogether. But some of your readers will probably say, "Bees transform ordinary worker-cells into queen-cells." True, but if you watched the process you would find that long before the grub is inconvenienced by the smallness of the cell the bees have enlarged the mouth thereof and extended the same so as to make a three-part formed queen-cell of it at the top of what remains of the working cell. By watching still more closely we find that the young grub is completely floated out of the worker-cell and its fast growing little form soon fills the royal compartment, the upper part of the chamber (*i. e.*, the worker-cell portion) becoming the store-house for the abundant food supplied at this stage. What is required, therefore, is a small rounded stick made to fit nicely into an ordinary drone-cell. Having prepared such a stick, take a sharp knife and so cut the dipping end that the base of the cell when formed is what is known as a natural base; three upward cuts on the end of the "dipper" will do this. It may be another fancy of mine, perhaps, but I find in using cups made on cell-formers so cut that the royal food when placed therein with the young grub on top is held much better in position than if the cell is flat-bottomed; for should the weather be warm and consequently a very high temperature within the hive when the cells are given, the food liquifies, and the weight of the larva causes it to slip from its position in sliding down the side of the cell. When this happens, it is promptly removed by the bees for such a state of affairs never comes about in nature. It is best to make two or three "dippers" at first; by doing so much time is saved in not having to wait while the wax on one dipper sets, but going on with another two while the first is cooling, and so on alternately. Now place the dipping ends of your "formers" or dippers in a little salt and water, that they may get

thoroughly wet; this helps to facilitate removal of the artificial queen-cells when made.

Having everything in readiness for this operation, we commence making our cells by dipping each "former" alternately in the heated wax, making the first dip the deepest. I dip mine five-eights of an inch the first time, and a little less every time afterwards. The dipping continues until the wax-cell and dipper together very much resemble a large fusee-match. The cell cups are then set to cool, when they can be removed with a little care. I have experimented with cells made deeper, and with others not so deep, as mentioned above, but find the depth stated to be the best.—HENRY W. BRICE, Thornton Heath, Surrey, in The British Bee Journal.

Report of Perth County Bee Association.

The County of Perth Bee-Keepers' Association met in the Orange Hall on Thursday Dec 6th. President F. A. Gemmill in the chair. After the reading of the minutes and a little unfinished business, the election of officers took place, with the following result: President, F. A. Gemmell; Vice-President, John Baxter; Sec.-Treas. John Myers; Auditors, Wm. Aiken and J. Whetstone. Mr. A. G. Willows read a paper on preparing bees for winter, a copy of which will be given in C. B. J.: there were some very valuable points brought out in this paper. The President also read a paper on the production of Comb Honey, which will also be given in C. B. J. The Question Box was then opened, and some lively discussions took place on several topics. There was a fairly good attendance and a thread of good nature seemed to run through all present. A goodly number of ladies were in attendance. Everyone present seemed to enjoy themselves, and expressed themselves as well pleased with the meeting. The Association then adjourned to meet in St. Marys some time in May. Upon motion the members of the Association took the CANADIAN BEE JOURNAL for the coming year as a premium.

JOHN MYERS, SEC.-TREAS.
STRATFORD, Dec. 8, 1894.

Part of the Experimental Union Report.

Mr. R. Holtermann,
Director Apiarian Committee Ontario Agricultural and Experimental Union, Brantford, Ont.—

Dear Sir,—In reply to yours, concerning Queens sent by Experimental Union, I beg to report as follows: 'The first two (2), viz., a manum leather colored queen, and a five banded Queen received safely and in apparent good condition. Both were successfully introduced, and in due time commenced laying. I accordingly raised a batch of young Queen's from each by giving eggs to Queenless colonies, properly prepared for the purpose. The majority of the young queens became fertilized, and after they had commenced egg depositing, were introduced to full colonies. The manum Queen appears to be a good prolific mother, but I cannot as yet state what the progeny may do in regard to producing a good cwt. of honey, as compared with the workers of other colonies, for the reason that the flow of nectar ceased in this locality, shortly after receiving the Queens referred to.'

About a month after their arrival, I had occasion to look into the hive containing the five banded Queen, and found to my astonishment, that for reasons best known to the colony, the old Queen was *non est* in other words she had disappeared, and a newly hatched cell, or either the Queen from such, was in possession of the hive, indicating that the bees had superseded the old Queen. From a close diagnosis of the case, I concluded the bees had voluntarily and with as one might say, due consideration for their own welfare done so. Whether or not there is any truth in the statement, that this class of Queens, are more liable to become deposed, than the other kinds, I am unable at present to say, but in order that I might have an opportunity of testing the matter, I wrote Mr. Holtermann the facts of the case, and he again forwarded me another, which was received in the same apparent good order, as the first one, and which was also successfully introduced to another colony of hybrids, and which I shall watch carefully as to results etc.

In conclusion I may state, that I shall note particularly the working qualities of the progeny, from the young Queens raised as also the Queens sent by the Union, and trust I may be able to give your Association a full report after giving them a year's trial. Those colonies as also all the others I have 102 in number well prepared in good time, with a sufficiency of proper stores and properly packed in single clamps, so that all will have the same advantages etc. Trusting this report may suffice for the time being. I remain,

Yours truly
F. A. GEMMILL
Ass't Foul Brood Inspector of Ontario.

FEEDING SIMPLIFIED.

A BIG IMPROVEMENT—ONE THAT PROMISES TO SAVE BEE-KEEPERS MUCH; A VALUABLE ARTICLE.

(By Dr. C. C. Miller, from Gleanings in Bee Culture.)

I've been having lots of fun trying different ways of feeding. It seemed that, to do all the feeding I should want to do this year the percolator I had would make too slow work. Yet after trying it, and finding how little work it was, I was loath to go back to the old plan of boiling syrup. I might make additional percolators, or a larger percolator; but while I was about it I thought I might as well try to have a plan by which the percolating would be done on the hives. If I could just carry the dry sugar to a hive, also the water, it would save a good deal of work, as well as annoyance from robbers. Especially would this be desirable with the out-apairies, for only the sugar would have to be taken there, the water being readily at hand.

Another point of advantage would be that, to each colony, I could more easily give just the amount I thought desirable; for with syrup it isn't so easy. You may have a measure that is exact; but with the dripping stuff there is likely to be some variation in the strength of the syrup. But the dry sugar is uniform in strength, and easily measured to a quarter of a pound. Before trying the thing on any large scale I tried small quantities; and in this I think I struck on what might be very satisfactory for those who want to practice.

STIMULATIVE FEEDING

First, I tried letting the bees directly on the sugar. In England a damp quality of sugar is used, and what is called dry feeding is much practiced. I thought I would vary that by taking granulated sugar and wetting it. I nailed a bottom on a T super and made an inch hole in the bottom for the bees to come up through. Remember, this was hot weather in August, and it took no baiting to get the bees to come up. In the super I set a saucer, poured granulated sugar into it, then poured on water. The bees promptly went to work at it, worked out all the moisture, and left the greater part as dry sugar. Of course by pouring on more water more feed would be taken; and I can easily see that, for stimulative feeding, where fresh feed must be given or every other day, here was an excellent plan. Just put into a super prepared as I have mentioned, or into any box on

top of the hive, a tin dish containing 5 lbs of sugar. Pour water on, but not enough to have any standing on top. Next day it will be worked dry, and you will put on a little more water. The less water put on of course the slower the feeding will be. You will see that this stimulative feeding will be simply giving a little water each day.

I tried putting on more water at first, so as to have it wet enough for the bees to carry it all down without any second filling but I failed. To have enough water on to dissolve all the sugar, I left the water standing on the top with so little sweet in it that the bees didn't care for it, and with the chance of drowning if they did not work on it. Then I thought I would try

PERCOLATING ON THE HIVE.

First, on a small scale. I took a tumbler filled it half full or more with water, then filled it up with granulated sugar. I laid over the tumbler a piece of flannel large enough to completely cover it, and over this I placed a saucer upside down. Then taking hold of the saucer with one hand, and the tumbler in the other, I quickly reversed the whole business. I put this into the super over the hive that I have already mentioned, and in about 48 hours it was empty. This would also do well for stimulating, and I'm not sure but it would be well to have the tumbler two-third full of water before filling up with sugar. No unusual machinery is needed; cups and saucers always on hand, and any cloth, cotton or woolen, will answer. Several tumblers can be used on a hive at a time, or a fruit-can or other larger vessel can be used, in the case of feeding up for winter.

I tried a jelly-tumbler with a tin cover. The bees couldn't get anything out of it. Then I bent the cover open a trifle at one spot so the bees could get a very little, and it took about two weeks for them to empty. So the matter can be gauged for fast or slow feeding.

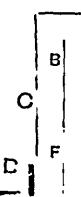
Then I studied on a plan for something larger. A percolator like the one I had been using, only larger, could be arranged to operate on the hive; but to have a number of these would make troublesome storing, to say nothing of the expense. Would a percolator work if it were shallow instead of deep? Was it necessary to have a thickness of several inches of cotton for the syrup to percolate through? The working of the tumblers seemed to show that it was not; and, really, all that I could see to be necessary was for the syrup to be allowed to come through slowly and at the bottom. A little crack in the board would be all right if small enough. It must be at the

bottom, for if at the top only water would come through.

I could easily try the thing with a Miller feeder. I took one of the original pattern stuffed cotton rags under the board where the syrup passes through, put a mixture of hot resin and beeswax in the corners so nothing could get through except at the bottom, put it on a hive, poured in sugar then water, at the rate of five quarts of sugar to four quarts of water, and found it "all my fancy painted it."

Having a goodly number of Miller feeders, I didn't need to get up any other feeder; but with what experience I had I felt I wanted to make at least one feeder such as I would now make if I had none. I made one a little simpler than either the original Miller feeder or the one with Warr's improvement, but on the same principle. The old Miller feeder had two feeding-places for the bees, one on each side; the new one has two feeding-places in the middle. The percolating feeder has one feeding-place, and that is at one end. This allows by having the hive tip a trifle, a full supply at the feeding-place just as long as any feed is left and I find one end gives room for the bees without crowding.

H



Those who are familiar with the Miller feeder will need no further description. Others may understand it from the diagram showing a transverse section of the one end of the feeder, the only end where any feeding is done. Take a T super or a box that will nicely fit over the hive, with a bottom $\frac{3}{8}$ inch short, leaving the passageway E for the bees to get up through $\frac{3}{8}$ inch from the end A of the super put in another wall, B, extending to within $\frac{3}{8}$ inch of the cover H, and fitting tight at the bottom. A third wall, C, with a $\frac{3}{8}$ space between it and B, comes clear to the top and down to the bottom; but in putting it in, two thicknesses of flannel are put under it, or between it and the bottom G.

When the feeder is put on the hive, the mixture of sugar and water is put into the main compartment; it soaks through the cloth at the point D into the small compartment F, where the bees get at it, coming up from the hive through the opening at E.

On the very night after I had finished making this feeder I had a visit from the junior editor of *Gleanings*. In the morning we went out and put it on the hive. I carried the sugar, and he carried the water and a quart cup. I put in 10 lbs of sugar,

and said to him, "Now put in four quarts of water."

"Why not put in five quarts?" said he "H. R. Broadman has come to the belief that it is better to use equal parts of sugar and water in feeding."

"All right," said I, "Five quarts it is. H. R. Boardman is a pretty solid sort of man to follow. Very likely he is right."

I had thought I was pretty radical to use, for every 5 lbs. of sugar, 4 lbs. of water instead of two, the orthodox quantity; but it seems to work all right with equal quantities, and, as Doolittle would say, its more according to nature, for nectar is pretty thin stuff.

I was anxious to have that feeder show off in good shape while Earnest was here; but the bees didn't touch the feed till I baited them in. Then they worked it in good shape, and in about 48 hours it was dry. I wish I had 40 like it. But I'll stuff m rags and make the old Miller feeders do.

Marengo, Ill.

In my opinion, Dr. Miller has made what promises to be one of the most important improvements, in the way of feeding, that has been made for many a year. Of course, the idea of using dry sugar and pouring just simply water on it, to make bee feed, is old. Years and years ago, the senior editor of this journal experimented a good deal, but he did not succeed in attaining satisfactory results. In all his experiments the sweetened water would be taken by bees, leaving the dry sugar to stick to the feeder. In order to get the bees to take up all the sugar, it required constant moistening with water. This took so much time and bother that he concluded it was better to pour boiling water on the sugar and make an actual syrup, the same to be poured into the feeders from a syrup can. But Dr. Miller has taken a long step in advance, in what apparently is a success. That being the case, all he has to do is to carry the dry sugar and a pail of water; pour an equal quantity of each into the feeder, close the hive and the work is done. You will observe he has simply the percolator idea to the feeder; and herein lies the success of the plan.

We have been trying the plan outlined above by Dr. Miller, and so far we are pleased with it.

Although I saw the plan working successfully at Marengo on my recent bicycle trip, when I got home one of the first things I asked our apiarist to do was to try this new way of feeding. I was in such a hurry that I could not wait to get common flannel but asked him to go to the book-binding room and get some common cheese-cloth

and poke it under the inside partition of the ordinary Miller feeder, as we make and use it.' That you may understand a little better, I herewith show a cross-section of the feeder in question. The cloth was crammed



in under the boards B, right where the arrows are coming out into the larger compartment; and it was crammed in tight enough so as to make the syrup percolate through it in order to get into those narrow passage ways under A on either side. Well, what was the result? "All that my fancy painted it," in the language of Dr. Miller, where the cloth stuffing was properly put in tight enough, some of the water escaped before it had incorporated very much sugar; but in all other cases the bees used up all the sugar syrup.

I forgot to tell you that we put into the feeders equal parts of sugar and water, and of course, the syrup, as the bees got it, was thinner than they ordinarily get it—more like the nectar from the field.

As Mr. Boardman says in another column this syrup will never granulate, because bees ripen it; and right here I ought to credit Mr. Broadman with the idea of making the syrup of sugar and water, half and half. The fact that Dr. Miller was leaning the same way, only shows that great minds sometimes run in the same channel.

Without percolation, the water would not have time to take up the sugar sufficiently before the bees have it taken down into the brood nest. Well, when there is not enough water to take up the sugar, the latter simply dries, because the bees will take away the former in very short order. The cloth seems to prevent the water from escaping before it has had time enough to take up all the sugar; now, then, by putting in an excessive amount of water—that is, perhaps twice as much as is necessary for actual saturation, the sugar is more apt to dissolve, and, when dissolved, to percolate slowly through the cloth.

I had intended to prepare some illustrations; but the matter seems to be so very important that it ought to be given to our readers at once for what is worth, and after all I think they will be able to catch on to the idea.

Perhaps the majority have not already in use the Miller feeder. Well, as Dr. Miller intimates above, you can secure the results by the use of a tumbler, a piece of cloth and a saucer. But suppose you desire to feed faster, you have plenty of upper stories that you can put on the hives. The same

plan, perhaps, can be secured by using a gallon crock inverted over a piece of flannel, the whole set on a plate or large tin pan.

Later.—Since writing the foregoing we tried three one gallon crock feeders, inverted over several thicknesses of cheese-cloth on plates. So far as I can judge, the experiment seems to be a success; but instead of using flannel we used on one plate four thicknesses of cheese-cloth, on another six and on another eight. The last mentioned seems to give the best results. In each crock was, of course, put an equal quantity of sugar and water by measure; and in 48 hours, when they were examined, the syrup was all taken out of two of them, and in the third a little yet remained. In what is regularly the bottom of the crocks was a slight residue of sugar still clinging. The water had probably settled away from it. This would make no trouble, because the crocks can be used on other colonies, or the same and if more feed is required, putting in more sugar and water as before. The slight residue of sugar still in the crock would make no trouble with a fresh supply. I hope others will try this experiment and report results. In the meantime we shall continue the experiments of a larger scale.

This plan of feeding by percolator feeders is a little slower—That is, it takes the bees about twice as long to get the same amount of feed as by the old plan, when syrup is given to them; but this is rather an advantage; the syrup, being thinner in the first place, is taken down more slowly, and will be ripened better.—Ed. Gleanings.]

Correction.

Re article page 400, 401 and 402, December issue. Instead of "unreasonable" in the 11th line from the end, it should be "reasonable" which entirely reverses the meaning.

G. A. DEADMAN.
Brussels, Ont., Dec. 26th, 1894.

I must say I think your paper is one of the leading "Bee Journals," and right "up to date." The best paper for all Canadian Bee-keepers.

GEO. J. VANDEBORD.
Weston, Ont., Jan. 8, 1895.

When I began reading the C. B. J., which is now more than a year ago, I was much pleased with the practical common sense which it contained, and so with each succeeding issue it is becoming more and more useful to the bee-keeper.

M. C. BEAUPRE, Forestville.

Out-Door Wintering With Least Labor.

(Written for C. B. J., by Will Ellis.)

As the winter approaches and the long evenings are here, the apiarist has more time for thinking and studying his plans for the future, and putting them into practical shape. Just now I am trying to solve the problem as to the best, cheapest and lightest arrangement for out-door wintering with the least labor.

I have always wintered in summer stands, packed in separate boxes, but I am getting tired of packing every fall and unpacking from fifty to 100 colonies. Chaff hives I do not consider practical, and I believe they are not popular. The cases I now use cost me about 50 cents each, finished and painted, giving four inches of packing. I notice the chaff hives are being made out of $\frac{3}{4}$ inch lumber, 2 inch packing with paper between walls, this may answer very nicely but without the paper it would not answer as the hive must be sufficiently protected during a long spell of cold weather to allow the bees to move from comb to comb. I have had a number of people come to me telling me their bees died and the hives were full of honey, being simply starved a care of stores "so near and yet so far." I once wintered a few colonies with over a foot of packing and they came through the best of any I ever wintered. I propose to make some wintering boxes, out of cheap stuff 2 feet I do not think would be too deep the inside can be made out of any thin stuff but I think the outside would be better made out of any old lumber, papered and shingled over. In the fall the bees can simply be lifted out of the single walled hives and set into these winter cases and vice versa in the spring; usually here about 15th of May. This simply does away with packing and unpacking in spring and fall. Bees cannot be kept to warm on their summer stands in winter, many bee-keepers winter in clamps but there is the same work spring and fall as with the separate cases or shells, and persons who want to work can always find plenty to do without performing any unnecessary labor. Now readers if you have any objections to offer let us have them, let us know what you have done, what you wish you had done and propose to do. I propose making mine so that when I am through with them that they can be made into kindling wood and I be nothing much out of pocket I am wintering 73 colonies.

ST DAVIDS.

[Please let us have suggestions along the above practical line, do not think some one else is sure to take up the subject, take it up yourself.—Ed.]

Something New.

DRONES FROM FERTILE WORKERS.

(W. C. Wells.)

I see in the American Bee Journal of Dec. 6th, page 719, that Mr. John McArthur has been experimenting with drones from laying workers, and seems to think it a success. Now I know that the contrary is the case. I reasoned that if all the drones from pure Italian queens are all pure Italian drones, even if she was mated with a black drone (the drone eggs not being unpregnated) why are not the drones from a virgin queen just as good as any. Well, I raised two nice Italian queens late in the fall, and as soon as hatched I clipped their wings so they could not possibly get mated. Well before I put them in winter quarters they commenced to lay. I put plenty of drone comb in the hives, thinking I would have lots of pure Italian drones in the spring. Spring came and I certainly had lots of drones from the egg to full-sized drones. As soon as I set the hives on their summer stands the bees commenced to kill off the drones, so I killed the queens and the bees stopped killing the drones. I soon had as fine a lot of Italian drones as need be. Next I raised a lot of queens from my best Italian mother. They, the drones, flew out with my nice virgin queens for nearly three weeks, and the queens did not get fertilized until the natural drones commenced to fly. The queens mated with black drones and the progeny was all hybrid. I had at that time over one hundred hives of black bees and only a few Italian queens, so I concluded that the impregnation of the queen had no effect on the drone eggs was not correct. I never thought of trying drones from laying workers and I do not think I ever will.

PHILLIPSTON, Ont.

[Unless to take it with a grain of salt, it would perhaps be well to take the majority of what McArthur says as a joke.—Ed.]

Experiments in Wintering.

Written for the C. B. J. by C. W. Post.

During the winter of 1893-4 I wintered my bees consisting of nearly 400 colonies in two different ways. I was led to experiment as described below by reading the friendly discussions of Dr. Miller and Mr S. T. Pettit in the CANADIAN BEE JOURNAL. I have been led to believe for the last fifteen years that bees would winter better by having an air chamber below the brood nest. So last winter I decided to try the experi-

ment and prepared 150 colonies with 2 inch rims under the brood chambers fastened by VanDusen clamps that hold the bottom boards in place, in other respects they were all prepared in the same way. About the middle of September they were all run over the scales and all that weighed less than 70 lbs with sun cap removed were fed up to that weight. At the same time the rims were placed under the hives. The front end of rims are made out of 1 inch square stuff thus giving them one inch ventilators in addition to $\frac{1}{8}$ inch the regular entrance of the hives. Between the 15th and 20th November, they were all placed in the cellar. Those with rims were carried in first and placed in double tiers with back ends together and bottom boards left on. Those without rims have an inch hole in the center of back ends covered inside with wire cloth 8 meshes to the inch with a tin slide outside to open or close at will. They were also placed in double rows back ends loosely filled with wool and the front ends of hives raised from the bottom boards on $\frac{1}{2}$ inch blocks. They were all placed with front ends 2 inches lower than back ends and all piled 5 tiers high and 3 feet between each double tier with a passage left at the side of cellar to have access to any part of it.

The cellar is 20ftx34ftx7ft deep with 25 inch walls. The side and bottom plastered with Portland cement and absolutely frost and mouse proof and ventilated to keep the temperature about 45° . About the middle of February I noticed that there were more bees leaving the hives without rims and it grew worse as it came nearer spring.

I placed 6 colonies on summer stands on March 6 and the balance were carried from the cellar between the 19th of March and 9th of April.

Now if I am capable of judging I must admit that those wintered with rims under them were decidedly the best lot. They were ahead in the spring and they kept ahead throughout the season.

I ran all for extracted honey. There was very little swarming until after the middle of August when all were closed down to fill in winter stores, then 29 out of 30 swarms were from hives wintered with rims while the others at the same carried in double the amount of honey per colony. I am wintering the same number this winter with rims, but my wintering conditions are far more favorable this winter than last, having abundant cellar room for 600 colonies I can keep the temperature under perfect control.

I will give in a future article a description of my cellar in my new location and

report some experiments in wintering this present winter.

Trenton. Dec. 20th, 1891.

Early Preparation of Bees for Winter.

(Read before the Perth Bee Keepers' Association,
by A. G. Willows.)

The great importance of having bees prepared early for winter all will admit. The preparation I mean is getting the brood nest in proper shape and supplying the winter stores. This work should be attended to as soon as possible after the close of the white-honey flow which, I believe, generally through Ontario, closes with basswood unless Canada thistles should continue to yield a surplus, which has occurred only once in my experience in bee-keeping.

Those bee-keepers who are fortunate enough to reside in a locality where there is a fall-flow sufficient for winter stores will have little to do more than to keep off the surplus arrangements until the amount required is placed in the combs to be left for winter. But those not thus favourably situated and who, like myself, prefer to winter on combs saved from the first flow, should have them in place during August or, at latest, the first week in September, particularly if the honey is not all capped over. Another object in having the combs in place thus early is that it may not be necessary to disturb the bees by exchanging combs later in the season after they have settled down for their winter rest.

In the spring when the lower story is filled with brood and honey, and the bees begin to need more room, I take out those combs having most honey and place them in an upper story, filling out both upper and lower stories with empty combs. These combs containing brood will start the bees at work above. Then, later, when clover begins to bloom, these are raised up and the surplus cases placed beneath them. As soon as the bees are well at work in the surplus cases and all the brood has hatched out these combs are taken off.

It will be more necessary to have them off early if sections are placed beneath them or the dark wax from them will be used in the sections, thus spoiling their appearance.

These combs are the ones I wish to use for winter, and for the reason just given it will be seen that they may contain considerable unsealed honey.

The chief obstacles in the way of putting the combs of honey in the hives during August will be the large amount of brood

they contain at this time and the trouble from robbing.

The plan I followed the past season and which I found to work well is as follows: Find the queen, take the comb she is on and place in an upper story with any other combs from the brood nest you may wish to leave for winter. Put on a queen excluder and the story with the queen above it. Then in the evening put in the combs of honey required. The combs of brood below are to be left until all the brood is hatched out when they are to be taken away and the story above put down on the bottom board.

Of course in following this plan the different stories must be alike and interchangable. The way I overcame the robbing difficulty was to fix up one or more at a time, according to the time required for each, and then leave them for a time—half an hour or more as might be required—then if no robbers were to be seen trying to enter the hives last done, do one or two more. In this way I could go over quite a number in a day and have no trouble from robbing.

CARLINGFORD, Dec. 6, 1894.

Factory Burned.

Fire was discovered in the bee supply factory, better known as the D. A. Jones' factory, on Sunday morning Dec. 30, about three o'clock. The building was a large frame structure and contained a number of valuable machines. It was considered one of the best equipped factories of its kind in Canada. The building was owned by Dr. Cheffy who had a chopping mill in connection with it as well. Shortly after the alarm was given, the fire brigade was on hand and two streams of water were turned on the flames but they had gained such headway it was found impossible to save the structure and attention was turned to the surrounding buildings. Although the chopping mill, engine house and dry kiln were within a few feet of the burning building, the brigade succeeded in saving them as well as the Methodist church shed which was several times on fire. As soon as the surrounding buildings were out of danger the water was turned on the factory and part of the frame still stands. The building was insured in the British American and Phoenix of Brooklyn Insurance Companies for \$2,000, but Dr. Cheffy will be a heavy loser notwithstanding the insurance. The firemen deserve credit for the manner in which they worked, and had it not been for the abundant

supply of water, it would certainly have been impossible to prevent the surrounding buildings from being destroyed.—Beetooworld, Jan. 10.

Two Little Bootblacks.

The practice of one virtue prepares the way for learning another, and there are souls so ignorant that they can learn but one virtue at a time.

Jimmy Bender and Andy Blake were street boys. Nobody seemed responsible for them. Few knew their surnames, and fewer still how they came by them. There was nothing to distinguish them from other little "Arabs" except that they used to "run" together, for they made their living in partnership by ten cent "shines."

Jimmy was twelve years old, and Andy was seven. The older waif had apparently picked up the younger one somewhere, and patronized him.

The ideas and habits of two such homeless, schoolless, Sabbathless youngsters may be inferred from their only sources of education—daytime real life in the streets, and night-time sham life in the theatres.

One day some good angel directed a ticket of the Fresh Air Fund to Jimmy Bender. It promised him a two weeks' vacation on a farm, with unlimited milk, fruit, field pic-nics, and lots of liberty and fun.

Jimmy was delighted; but a second thought dampened his pleasure. There was no ticket for Andy. Could he divide with him?

He set his wits to work. It occurred to him that Andy could take the ticket and be Jimmy Bender in the country for a week and then say that he was the wrong boy after which the right boy would be sent to take his place; and so both would have their outing.

He told the plan to his mate. Andy demurred. He proposed that Jimmy should go the first week, and then pretend that he was not Jimmy Bender at all, but that the other boy really owned the ticket.

Neither of them had any clearer notion of the ninth commandment than the third, or any of the rest. Andy's plan finally prevailed.

The farmer and his wife, with whom Jimmy went to spend his holidays, made him heartily welcome, and told him they would do all they could to help him enjoy himself—but he must promise not to say any bad words nor tell a single wrong story.

Jimmy was staggered. What chance would there be now for poor Andy? The thought of his chum's disappointment wor-

ried him, and all the more when every day of country life and country fare brought him some new delight. It seemed quite too bad that his partner could have none of it.

The quiet habits and the simple piety of the farmer's family, and their kind way with him, were a revelation to Jimmy Bender—a revelation of *himself*, as well as of other things. Moral sense awoke in the untaught street-boy.

The thought came to him that if he could not tell a lie for Andy, he might tell the truth. All his new surroundings encouraged the idea, and after some hesitation he spoke of his little partner in the city, and confessed the scheme that had been agreed upon between them.

His good friends heard him with moistened eyes. Two neglected boys had at least been keeping the divine commandment to love one another and prefer one another. Was not God preparing the way for them to learn the rest?

Loving-kindness answered the question by sending for Andy at once. He was provided with a good home in the country not far from the house of the worthy farmer, with whom Jimmy continued to stay.

The Fresh Air Fund, that had given two poor lads their first taste of healthy enjoyment, had helped them also to their first lesson in a purer school of life.

No amiable and Christ-like charity like this ends, in every case, with the temporary good it professes to do. A short material relief may become the means of an eternal rescue.—*Youth's Companion*.

Toronto Industrial Exhibition as an Educator.

From personal observations and experiences while exhibiting and viewing the various exhibits at the Toronto Industrial, as well as other exhibitions of a like nature, I am impressed with the conviction that these institutions are not productive of the good they might be. It is my belief, and that of others, that if the suggestions or proposals I make be adopted, not only would these exhibitions be more educational in their nature but also the saying "it is the same thing over and over," would not so frequently be heard, and more will be inclined to "go again." Possibly this article may be more suitable for a daily or weekly paper than for the columns of the Canadian Bee Journal. I am constrained, however, to ask the assistance of The Canadian Bee Journal in bringing about the proposed improvement; particularly as bee-keepers are, or or should be, especially interested. I will point out the defect and then the proposed

remedy. Bee-keepers who have exhibited at Toronto, as well as many others who have not, must have noticed that their exhibits do not sufficiently explain themselves. Take the exhibits of honey for example. There may be, one column, pyramid or such like, of Linden honey, another of white clover, one of buckwheat another of granulated all belonging to one exhibitor. A visitor to the fair passes along and unless he stops to enquire, may be no wiser than before and may never know that the cream or white semi-solid substance in glass vessels is honey at all. Occasionally one will enquire what it is, but many will not. He may see both the Linden and clover, but unless he enquires or examines the tickets closely will probably never know but what they were one and the same. There were cakes and vinegar made with honey but I wonder how many visitors to the honey building know of it. A first prize ticket placed on a common place cake is to say the least misleading. A few asked me if that was the prize cake, otherwise they may have never known that it was only one of the many domestic uses of honey, or in which honey was a "component." The same trouble exists in many other departments. In going through the crystal palace where the ladies' work and such like is exhibited, and in the brief time that many can give to seeing the many pretty things displayed there, many come away not much wiser than before. In one instance I did with some difficulty read on an exhibitor's card on some needle-work. "Work done by a child under twelve years of age." This was the key to mystery, and what at first sight appeared to be only repetition of other exhibits, had an interest peculiarly its own. It is in the ladies' and children's department particularly that something should be done that will enable visitors to see without difficulty the names of the various exhibits. Now, I maintain, that in order to make these ever recurring exhibitions of increasing interest, and as they should be, instructive as well. I would urge upon the manager to have cards on which is printed in large letters what the exhibit is, a visitor's interest is at once awakened and his or her knowledge extended. Take, for example, the various exhibits of fruit. One may see a plate of large apples, peaches, plums or grapes as the case may be, but unless one knows their names there is really very little gained. If, however, the names of each were printed in large letters, one would be at once instructed and could spend it may be hours there very profitably. With the display there last year many may have noticed what might be considered a mottled collection of

fruits and what might also have been looked upon as an unnecessary repetition of some others of the same kind in other parts of the building. It would be interesting to know how many outside of the exhibitors and judges of fruit knew what this collection meant. If there had been prominently placed on this display a card printed in letters that all could read "Display of fruits grown in Canada," how much better it would have been. Where the prize is for the collection and not for the kind, the names of each need not be given, but the name of the collection only. Bee-keepers are anxious that it should be known that almost all prize honey will granulate. Now if in the exhibit of granulated honey there was suspended or placed a card in large letters 100 lbs granulated honey, it would stimulate enquiry as to what granulated honey is. It would be a benefit in almost every department of the exhibition. Why even in the carriage department, if the different exhibits of wheeled vehicles each had a plain printed card giving the name of each one, one would at least know the names given to the various kinds on exhibition. In the dairy department there was butter in one pound rolls or prints in one pattern, and the same another part of the building. Unless, however, you adjust your spectacles and examine the ticket closely, you may not know that one is dairy and the other creamery. The same printed cards could be used year after year but even though they were new every season, I believe it would more than repay the outlay, not only in increased attendance and interest, but be more educational as well. There seems to be a decreasing interest in the exhibits, and an increasing attendance at the "attractions in the ring." May we hope that if the latter be not decreased, there would be at least an increased interest in the former.

G. A. DEADMAN,

Please find enclosed one dollar for the Canadian Bee Journal which I could not dispense with.

THOS. HARRIGAN.

Doncaster, Ont.

I like the tone of your Journal, and it is improving. Bees have done no good here this year.

S. BOLTON.

McComb, Ohio, Nov. 19, 1891.

Herewith please find one dollar renewal to CANADIAN BEE JOURNAL. If the Journal keeps on this way you can put me down for a life member. The one little item of taking off comb honey is well worth a year's subscription. I began the season with six swarms and sold \$13 worth of honey besides having my increase.

J. BOUGHNER, Teeterville.

ANNUAL MEETING OF ONTARIO BEE KEEPERS' ASSOCIAION, STRATFORD, ONT.

The annual meeting of the Ontario Bee-keepers' Association began at the Stratford City Hall, 2 p.m., January 22nd, 1895. The meeting was very well attended and a sufficient number purchased railroad certificates to give those attending a railroad rate of one and a third fare return, or rather there was one short owing to several, in a mistake, purchasing return tickets, but owing to the exertions of F. A. Gemmill, an extra certificate was secured and all became entitled to the reduced rate. Amongst those present were:—A. Pickett, Nassagaway, Pres.; in the chair. Messrs. R. F. Holtermann, Vice-President, Brantford; Martin Emigh, Treas., Holbrook; Wm Couse, Sec'y. Streetsville; William McEvoy Foul Brood Inspector, Woodburn; Allan Pringle, Selby; John Fixter, Ottawa; W J Craig, Brantford; A. G. Willows, Carlingford; N D Cummers, Florence; E Dickinson jr., Ancaster; I. Walton Scarboro Junction; R. McKnight, Owen Sound; W. Z. Hutchinson, Flint, Mich.; S. T. Pettit; Belmont; J. K. Darling, Almonte; J. E. and Mrs. Frith, Princeton; Prof. Fletcher, Ottawa; D S Smith, St. Thomas; John Myers, F. A. Gemmill, Stratford; D. Chalmers, Poole; Wm. Goodyear, J. B. and Mrs. Hall, John Newton, Woodstock; A. E. Sherrington, Walkerton; Dr. Duncan, Embro; J. H. Shaver, C. Edmonson, Brantford; A. Tolton Walkerton; C A. Ouellette, Tilbury Centre; A. W. Brown, Chard; A. E. Hoshall, Beamsville. J. Pairie, Drumquin; F. A. Rose, Balmoral; M. B. Holmes, Athens; and Sam'l and Mrs. Smith, Listowel.

A directors' meeting took place at 9:30 a.m., at which the business of the year was wound up, and a resolution was passed regretting the death of the late S. Corneil. The convention began at 1 p.m. The president A. Pickett, Nassagaway, occupied the chair. After some business was transacted the question drawer was taken up as follows,—Are queens raised after the swarming season less liable to swarm the following season than those reared earlier?

No one present could answer it in a definite way. J. B. Hall, of Woodstock, thought it was hardly a fair question as put. If the queens were reared through superseding they would not be so liable to swarm as if reared under the swarming im-

pulse. The season of rearing the queen made no difference.

Allen Pringle, Selby, believed in heredity, but it did not establish itself for several generations.

Mr. Hall agreed with that; the non swarming strain was established through many generations.

Does the queen or worker bees determine the swarming impulse?

Mr. Hall—Instinct from the mother transmitted to the worker bees but a Caucasian queen and her progeny will be more liable to swarm than an Italian queen, and her progeny hence the queen is primarily responsible.

S. T. Pettit, Belmont, Ont.—Mr. Hall is largely right, the propensity is inherited from the queen but the worker bees make the racket.

What is the best hive?

The hive I use.

How much does it cost to produce a pound of honey?

No one present could give a definite answer.

M. B. Holmes, Athens, thought 4 to 4½ cents per lb.

Doctor Duncan, Embro.—Sometimes it costs next to nothing, at other times twice as much as you get for it.

R. F. Holtermann, Brantford—It was peculiar that there was no definite information about the subject. The impression had been too much that no time and experience were required to keep bees and there were instances when for a year or two individuals appeared to succeed in producing honey at little expense. Bee-keepers were however, awaking to the dignity of their calling. The difficulty in connection with estimating the cost of a pound of honey was great. Localities and seasons varied. What was required was to produce the best article for the least money.

S. M. Smith, Listowel, Ont.—It depends to a great extent on the experience of the individual. Those who applied themselves came out fairly well, those not experienced did not succeed in producing as cheaply.

The minutes of the last meeting were read and passed.

Some mistakes were pointed out in the annual report, and the matter settled by having the corrections embodied in the next annual report.

The president's address followed.

(TO BE CONTINUED.)

THE ELECTION OF OFFICERS.

Pres.. J. B. Hall, Woodstock.
Vice-Pres.. J. K. Darling, Almonte.
Sec'. Wm. Couse, Streetsville.
Treas., Martin Emigh, Holbrook.

DIRECTORS :

District No 1	W. J. Brown, Chard;
"	2 M. B. Holmes, Athens;
"	3 J. K. Darling, Almonte;
"	4 Allen Pringle, Selby;
"	5 J. Sparling, Bowmanville;
"	6 Wm Couse, Streetsville;
"	7 A. Tickett, Nassaweya;
"	8 F. A. Rose, Balmoral;
"	9 S. T. Pettit, Belmont;
"	10 A. Sherrington Walkerton;
"	11 F. A. Gemmell, Stratford;
"	12 W. A. Chrysler, Chatham;
"	13 N. G. Hughes, Barrie.

Foul Brood Inspector, Wm McEvoy,
Woodburn;

Ass't " " F. A. Gemmell,
Stratford;

Auditors { John Myers, Stratford;
R. H. Smith, St. Thomas.

Representative to Toronto Industrial—
R. H. Holtermann, Brantford.

Representative to Western Fair—
R. H. Smith, St. Thomas.

Brantford is the next place of meeting, and members of the Ontario Bee-keepers Association receive one year's subscription to the Canadian Bee Journal.

THE TWO QUEEN SYSTEM.

(From Geo. Wells, Aylesford, Nr. Maidstone, Kent, England.)

December, 1894.

The Editor of the Canadian Bee Journal:

Sir,—Although I have often had the opportunity to see your journal, I have never had the pleasure of seeing therein anything about the Two Queen System of Bee-keeping. This fact seems rather strange to me, more especially when I consider the amount of correspondence I have received from Canada upon the subject, but I firmly believe you would be doing your readers a lot of good if you were to persuade them to give the system a trial and by way of opening the subject I venture to send you my report for the year 1894, as it appeared in The British Bee Journal, trusting it may liven up the mind of some of your bee-keepers in Canada.

The report of my bee-doings for the year 1894 is, as usual, late, partly owing this time to want of time, and, for the rest, through delay in collecting particulars from the different apiaries in my own immediate neighborhood, as I consider that my report

would be of small value with the doings of my neighbors left out. In fact, comparison between the different methods of working bees in one and the same locality is in my mind the all-important question. Most of your readers are no doubt aware that 1894 has been about as bad a season for bees in Kent as the worst on record; that being so, they will not be surprised at my short crop this year. I do not complain, yet it is short in comparison with other years since I have adopted the two-queen system. It must not be supposed that all beekeepers in my own district have been converted into "Wellitess," as it is far from that; at the same time I have met with sufficient encouragement to make me continue to advocate my present plan of working bees. But, as I have so often said, it is of no use for persons to think that they can succeed with my plan by simply putting two queens into one hive and leave them to do just as they like afterwards. In that case they might almost as well stick to the old straw skeps. We have some in this district who will hear of nothing but the skep as a bee-hive; moreover, they declare that honey from skeps is stronger and better than that taken from frame hives. One beekeeper of my acquaintance bought two frame hives, which were prepared and stocked for him with swarms from his own skeps. These two hives were managed for their owner free of cost for several years. He was always very pleased with the beautiful lots of honey taken and handed over to him, and returned thanks for labor bestowed on the bees and hives (thanks being all that was expected or required), yet he would do nothing for these frame hives himself, but simply left them to manage themselves, and, of course, in time, they were beeless and empty. He now uses nothing but straw skeps, and I quite commend him for so doing, a skep being the only suitable hive for such beekeepers. But I am getting wide of the subject, so to return to my report.

In the spring of this year I resolved to have only eight double-queened stocks, instead of ten (of course I have no single stocks), as I began to fear that my neighborhood was rather overstocked with bees for so poor a district for honey. The weather also was bad during the fruit-blooming season, and I got but little from that source. The next thing we depend upon in rotation is Trefoil clover, of which there was a very fair lot grown this year, but it is mostly cut too soon for the bees to take full advantage of it, and as the weather continued unfavorable, very little was gathered from that. Then follows about twenty acres of Sainfoin, growing a mile or so from my apiary. But this, unfortun-

ately, is usually cut before it gets in full bloom, much to the regret of us beekeepers. Still, the bees worked well on it for three or four days. We have no white clover about, and I know of but a single lime tree located nearly half-a-mile away. After this there is very little forage from which surplus honey is to be got. I grow, however, some "Chapman honey-plant," *borage mellilotis* and *nepipteron maura*, to maintain a little bloom, and keep the bees in good breeding trim as long as desirable.

I cannot tell you what I have taken from my best nor my worst hive, not having kept a separate account of them, but there was not much choice, all yielding pretty even in quantity. I had two swarms, and by utilizing the queen cell, and making nuclei, I am well supplied with young queens. Not finding much demand for section honey, I work mostly for extracted, and from eight hives I took seventy-two 1-lb sections and 524 pounds of extracted honey, making a total of 596 pounds, together with twenty-four pounds of wax.

The above figures give an average of 7½ pounds of honey and just three pounds of bees-wax per hive (most of the honey is sold). My financial position, in account with the bees for this year (1894), is as under:

Seventy-two one-pound sections comb honey at 1½ each.....	£ 3 6 0
Five hundred and twenty-four lbs extracted honey at 8½c....	18 11 2
Twenty-four lbs bees-wax at 2c.	2 8 0
Total.....	24 5 2
Deduct expenditure during year	4 9 0
	£ 19 16 2

Showing the net profit to be a fraction over £2 9 6 per hive. I have also four strong nuclei with young queens, all of which I am wintering in one hive, with the thin, soft wood, perforated dummy between each lot. These may be useful in the spring, in case of the loss of queens during the winter months, which beekeepers are always subject to. I think Messrs. Editors, you will agree that I have done fairly well with my bees this year, taking all things into consideration. Anyway, it is a plain statement of my own bee doings for this year, and I have endeavored to make it perfectly accurate. I will now give you particulars of some of my neighbors' doings in bee-keeping:

The first, whom I will call No. 1 is a skeppist, and lives about a quarter of a mile from me, and that much nearer to the Sainfoin. In the spring he had four stocks and during the summer got six swarms.

At the end of the season he declared he would only feed three of his ten skeps, so I bumped the other seven for him, and he got about six pounds of honey from the lot—certainly less than one pound per skep. I gave the three skeps, which it was decided to keep, and which had five pounds of stores, ten pounds of soft candy pushed between their combs, as it was too late in the season to give syrup. The owner may get about two pounds of wax from the combs taken from the skeps which were bumped. I also found light cases of foul brood among his stocks.

No. 2 apiary is nearly close to No. 1. The owner had in the spring but one frame hive (no skep), and the bees being affected with foul brood, died out about Michaelmas time.

No. 3 apiary is about one mile away from me, and his bees are only separated from the twenty acres of sainfoin by the road. He is also a skeppist, and started the year with four skeps, from which he had five swarms. At the proper time I bumped five skeps for him, all healthy lots. I estimated his honey at seven pounds per skep. He has gone into winter quarters with four stocks.

No. 4 began with three frame hives, and during the season took twenty one-pound sections of comb honey (no extracted); had to feed thirty pounds of sugar, got two swarms, and has five stocks for winter.

No. 5. One frame hive (no skeps); no honey taken ; had one swarm ; fed ten pounds of sugar, and is wintering two stocks.

No. 6 began with one frame hive ; took twenty-one one-pound sections of honey ; no swarms, no feeding and no increase.

No. 7. One frame hive ; no honey taken ; one swarm ; fed thirty pounds sugar, and has two stocks for winter.

No. 8 began with two stocks in frame hives ; twenty-one one-pound sections taken ; no swarms; fed twenty pounds of sugar; no increase.

No. 9 apiary, spring count, six frame hives; took fifteen one-pound sections ; no swarms; no feeding; lost one stock through foul brood ; five stocks.

No. 10 had in the spring three frame hives ; twelve one pound sections taken ; some feeding required ; winters three stocks.

No. 11 began with two frame hives ; no honey taken; feeding required; no increase.

It will be seen that twelve skeps had been "taken up" for honey, and that they produced among them forty-one pounds, an average of nearly $3\frac{1}{2}$ pounds each, but ten pounds of sugar has been given to the skeps now in stock, an average of $1\frac{1}{2}$ pounds each. I have also dealt with twenty frame hives,

all single-queened stocks, from which eighty-nine pounds of surplus honey has been taken, being an average of nearly $1\frac{1}{2}$ pounds per hive. But ninety pounds of sugar had to be given as food for the bees, an average of $4\frac{1}{2}$ pounds per hive, or a trifle above the amount of honey taken. Much more food will also be required to keep them alive until the honey-flow commences next year.

There are several more apiaries near me, but the information obtainable is not very reliable, no account having been kept. But I have good reasons to believe that they have done no better than their neighbors. I am also sorry to say that in one of these apiaries—with four stocks in frame hives—the bees were drowned in the recent floods. There are also reasons to fear that many of the above are affected with foul brood. The above account of my neighbors' doings may be considered very brief, but it is sufficient for a comparison between the different ways of working bees, both in skeps and in frame hives, with but one queen in each of them, and those in frame hives with two queens in each hive. I have received many letters from beekeepers, in which they state that the difference between their single and their double queened stocks is greater than those shown here, though I have no authority to make them public. But if the writers would report direct to The Bee Journal, I, for one, should be very pleased to see it in print. I have purposely omitted names, etc., of owners of the apiaries enumerated above, but in case any of your readers would care to test the fairness or accuracy of the statements made, I will be very pleased to furnish names, etc., on being told the number of the case they would like to inquire into.

I must not omit to say that I have also had to give my bees 192 pounds of sugar to make them safe till spring, the cost of which is, of course, included in my year's expenditure. I think the above account gives another proof that a hive with two queens in it, if properly managed, will pay much better than either skeps or frame hives with but one queen in each.

Now, Mr. Editor, I will add no more at present, further than just to say that should the above short account of my bee doings cause a discussion in your Bee Journal, respecting the different methods of working bees. I shall be glad to advance anything as far as I have worked it out in practice.

With the season's best wishes to all beekeepers and hopes for a successful 1895,

G. WELLS.

Aylesford, Kent, Dec. 10, 1894.

FIRST STEPS IN... ...BEE-KEEPING.

KEEPING EVERLASTINGLY AT IT
BRINGS SUCCESS.

QUESTIONS SENT IN BEARING UPON FIRST STEPS
IN BEE-KEEPING WILL BE ANSWERED IN THIS
DEPARTMENT BY THE EDITOR.

A host of questions lie before me this month, all of which I believe have received a personal answer; here are some:

Question No. 1.—Who of the CANADIAN BEE JOURNAL family will give the best method of making honey vinegar on a large scale?

Will some of our readers kindly respond.

Question No. 2.—Where can I get from manufacturers jars or bottles for honey?

I believe the glass factories are supposed to do business only with wholesale men. The Diamond Glass Company, Hamilton, will give you particulars.

Question No. 3.—Can we hive a swarm in the super and replace it on the old hive with a queen excluding honey board, and after a time kill the old queen?

Not very well, there are serious drawbacks and objections. The swarm is almost sure to attempt to swarm next day, and if the old queen fails after several attempts to follow the swarm, my experience would incline me to believe the queen will in one way or another be destroyed. If the honey flow continues, the bees will then swarm when the first bees hatch from the queen cells in the hive. It is bad practice to return a swarm to the old stand and hive and allow it to remain there unless the conditions are very exceptional. Even should the bees remain contentedly in the hive the queen will begin depositing eggs in your extracting combs which should never be allowed, our extracted honey will never reach the highest attainable standard until we give up using anything but comb free from brood cocoons for store combs. Never hive your bees on the old stand in a new brood chamber.

Question No. 4.—Can we make a queen-excluder without metal?

Practically not. I have heard of putting saw cuts in thin boards to permit the bees to pass through and exclude the queen. This is, however, very difficult, the least variation making it worthless. You better buy a fairly thick perforated metal, this will keep its shape and be useful for a long time.

Is the self-hiver patented?
Not in Canada and I think not in the United States.

Once a subscriber, always a Subscriber. That's the record of the CANADIAN BEE JOURNAL. Don't subscribe unless you mean to stay, because you can't drop it.

Out here, in the wild and woolly West, we class sheep and cattle and horses as live stock, just as much as we do bees.—Patrick V. Collins, the Swede of Minneapolis.

Advertisements are an evidence of life, public spirit, hope and a disposition to do business.—Caro (Mich.) Advertiser.

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