

# THE CANADIAN BEE JOURNAL

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Devoted to the Interests of Bee-keepers

JAS. J. HURLEY, Editor

Published monthly by  
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Brantford, Ont.

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# The Canadian Bee Journal

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Vol. 20, No. 11.

## Notes a

Canadian Nation

On another publication of communication and commenting advice of the executive of the International Exhibition of Apiculture and Beekeeping. A copy has been sent to whose reply we publication in this

Mr. Laing's strikingly the point discussed in the present schedule a far too expensive Canadian bee-keeping classes, ranging from 50 weight of honey, 144 lbs. per class, presumably arranged the smaller bee-keepers of 20 and 24 lbs.

Things are arranged elsewhere. Experience representative displays be obtained when they very much lowered would appeal to a number of bee-keepers and twenty-four, and effective as a test of

We have recently a portion of a honey which in one class

November, 1912

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# The Canadian Bee Journal

PUBLISHED MONTHLY

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

Vol. 20, No. 11.

NOVEMBER, 1912

Whole No. 573

## Notes and Comments

### Canadian National Exhibition.

On another page we print a lengthy communication from Mr. Arthur Laing, commenting adversely upon the action of the executive of the Canadian National Exhibition in the matter of the apicultural section of the Toronto Exhibition. A copy of Mr. Laing's article has been sent to the Manager, Dr. Orr, whose reply we hope to receive for publication in this issue.

Mr. Laing's article illustrates most strikingly the point we have previously discussed in these columns, viz., that the present schedule makes exhibiting a far too expensive luxury for the average Canadian bee-keeper. Of the thirteen honey classes, nine require exhibits ranging from 50 lbs. to 200 lbs. in weight of honey, with an average of 144 lbs. per class. The other classes, presumably arranged for the benefit of the smaller bee-keeper, call for exhibits of 20 and 24 lbs. each.

Things are arranged much better elsewhere. Experience proves that representative displays of honey can only be obtained when the weight limits are very much lowered. A 10-lb. limit would appeal to a very much larger number of bee-keepers than the twenty and twenty-four, and would be quite as effective as a test of quality.

We have recently seen a photograph of a portion of a honey exhibition in which in one class alone there were

seventy-eight exhibits. Time has shown that the present schedule possesses attractions neither for the professional exhibitor nor for the average bee-keeper. There was one exhibitor this year. In past years there have been as many as four! Surely it is about time that a change should be made. Either the apicultural section should be dropped from the C.N.E. program, or a radical change made in the schedule.

### Two Doctors and Improvement.

Doctors Bonney and Miller are not quite in agreement upon "Improvement," and in an open letter, Dr. Miller takes his colleague to task in a most friendly and agreeable manner for the latter's many inconsistent statements in dealing with the subject. We have seen no more convincing statement of the case on behalf of improvement than Dr. Miller's letter to Dr. Bonney.

We quote the following:

I think that the beginner will fairly infer from what you say that the habit of industry cannot be developed in the bee. And from that it will be only a short step for him to say, "All bees are alike in industry, and under the same circumstances one bee will gather as much as another." Yet I think you would tell him that under the same circumstances some bees will store more than others.

You say you believe management has more to do with surplus honey crops than the breed or color of bees. Well, suppose it has, does that not still leave it possible that the kind of bees is a very important matter? Some of my colonies store twice as much as others, the management being practically the same. In such a case don't you think that the

kind of bees has more to do with surplus honey crops than the management?

You ask what has been done toward permanent improvement, and refer to the opinion of professional beekeepers. I suppose you would call me a professional bee-keeper; at any rate, I keep bees for the honey I can get from them. I am ready to take my "affydavy" that my bees are improved to such a degree that year after year I get from them crops of honey such as I cannot get from the best stock I can buy. Also I have improved (?) their viciousness to such a degree that they are holy terrors!

Your closing quotation concerning the bee is "that little change has taken place in her characteristics in 3 or 4 million years." That's a clincher. Only it happens not to be true. Good authorities sometimes say foolish things. If little difference had taken place there would be little difference in bees, and any practical beekeeper knows there is a big difference in bees, in other things as well as in color.

Dr. Bonney admitted in his article upon which Dr. Miller has been passing comment that there was no work in all apiculture that paid so well as "weeding out poor stock." Says the Medina doctor:

Let's shake on that. It's only another way of saying that nothing else pays so well as "improving" your stock. For you hardly brimstone your poor stock to get them out of the way. You weed them out by requeening with better stock. What is that but improvement?

#### Those "Stingless" Bees.

Everybody's talking about them. (By the by, we learn from the *American Bee Journal* that something yet more amazing has been produced, to wit: "illuminated bees," obtained by crossing the ordinary bee with lightning bugs!) Dr. Miller apparently has none of the "stingless" variety, for in the notes just quoted he tells us how he has increased the viciousness of his bees until, in his very expressive phrase, "they are holy terrors." Mendelism tells us the why and the wherefore of this reversion to ancestral type—and

we may, we suppose, take it for granted that viciousness resulting from the crossing of two different races is an example of reversion. May we ask Dr. Miller whether it would not be worth his while to raise his queens from a colony in which the viciousness does not exist in such a great degree? For our own part, we should say that it is much easier to preserve the quiet temperament of a race of bees than to endeavor to regain it after it has once been lost.

Apropos of Dr. Bonney's contention that no change has taken place in the character of the bee, we should like to remind him that the same may have been said at some time or other in reference to all of the various forms of life that have been modified in recent times. The modern sweet pea, in all its beautiful colors and forms, has been obtained from, we believe, a small, common wild variety, found in the southern portions of Europe. A chance break from the normal, due, we learn, to the accidental dropping of a simple character, results in a succession of new varieties. The difficulty in recognizing a "sport" is, in the case of the bee, the main obstacle to obtaining a greatly improved insect. Yet, as Dr. Miller points out, much improvement has been effected, and that during one person's lifetime.

#### Hardy Bees.

The strongest colony we have seen this fall is one that wintered last season without any sort of protection whatever. For a few days in the spring it stood two storeys deep in water. This colony, together with another one, had been neglected since the previous honey flow, and the two were left with two supers of honey on. In spite of the severe winter, absence of protection and the flood, these two colonies must have come through in tip-top shape,

for when we ago the hives honey. The w one that has bee-keeper.

#### Fall Breeding.

So far we ha approach of wi ally large patch even at this la to late feeding into winter qu good shape, an such excellent e a bumper crop

#### Stores For Winte

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#### CANADIAN N/ BII

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for when we saw them a few weeks ago the hives were full of bees and honey. The wintering question is truly one that has many surprises for the bee-keeper.

#### Fall Breeding.

So far we have scarcely noticed the approach of winter. There are unusually large patches of brood in the hives, even at this late date, due, doubtless, to late feeding. The bees are going into winter quarters in exceptionally good shape, and with the clover in such excellent condition, we anticipate a bumper crop next year.

#### Stores For Wintering.

We believe that one of the most important factors in successful wintering is having *good stores*. Friend McEvoy, who is as successful along this line as any man we know, does not believe in that brood-nest arrangement, but likes the bees to winter upon solid combs—of *sugar syrup*. He feeds, and feeds, and FEEDS! Some of the fall honey we get in certain districts is of such a nature that it proves too great a tax upon the digestive organs of the bee, and feeding with sugar syrup should be resorted to.

### CANADIAN NATIONAL EXHIBITION

BY ARTHUR LAING.

It was with great interest that I read the Editor's article *re* Canadian National and the honey exhibit in your September issue, and as my name was mentioned, and as I have been an exhibitor at this Exhibition for nine years, I can doubtless throw some light on the situation for any of your readers who are interested.

Let me say boldly to start with that during the years I have been exhibiting

the honey exhibitors have never been treated cordially, but merely with toleration, and occasionally, just to add spice to our experience, an exhibitor would be abused and insulted by the management.

Furthermore, we are never left longer than about two or three years in any one building. During my nine years of exhibiting we were first in what was called the "Little World Building," then up next to the Grand Trunk Railway, where the tables shook every time a train went by, and we were constantly in great danger of having our exhibit shaken down or the building burned over our heads from the flying sparks, and also where the windows were so filthy from birds roosting on them that the place was hardly fit for a respectable stable. Of course, we were expected to clean up this mess. Does some innocent say, "Surely the management would see that a matter of this kind was attended to if it were brought to their notice?" Let me say that anything you get at Toronto Fair must be paid for in good hard cash—and lots of it.

From this building we were moved into the Horticultural Building—a splendid place for our exhibit—but we were not suffered to remain long there, for we were turned out in about two years and sent to the Dairy Building. From there, this year, we wandered back to the Horticultural Building, and where the Honey Exhibit will be sent next I don't know, unless it's through the gate! Besides the foregoing, they used to be in the old Dairy and Apiary Building, also under the grandstand, and one year even out in a tent, where the exhibitors had to help hold the tent up when the wind blew hard to prevent its blowing down and smashing everything. You can readily understand that this wandering from place to place caused us the loss of many sales of honey, as our customers could

never tell where to find us, and that, further, it necessitated the building of new counters to sell from nearly every year, as they were often torn down after the Fair was over, even if we weren't moved the next year.

Referring to your quotation from the *Globe*, the writer says: "Talking with Mr. George Laing, I learned that there are generally but one or two exhibitors entered in the apiary department." Now, I do not know whether Mr. Laing made this statement or not, but I do know that it is absolutely false, and that in the ten years previous to this season there were four or more exhibitors each year, although once there were only three. Corroboration of my statements may be obtained by writing Mr. David Anguish, Lambeth, and Mr. E. Grainger, Deer Park, Toronto, who have been exhibiting with me during the most of the past ten years.

The *Globe* correspondent, continuing, says: "This year two others entered, Mr. Arthur Laing of Lynn Valley and Mr. D. Anguish of Lambeth; but when they received word that they would not be allowed to sell, they backed out of the contest." Now, the correspondent would have come much nearer the truth if he had said plainly that two old exhibitors had been kicked out by the ridiculous action of the management.

The facts are as follows: Months before the date of the Fair—Feb. 1st, 1912, to be exact—an application form for space was sent me by Dr. Orr, requesting me, if I intended to exhibit, to fill it in and return it to him. I did so. Besides this, with other old exhibitors, I received the prize list for this year, which gave the usual instructions in reference to exhibitors selling honey, so that I had every reason to believe that there would be no change whatever in the handling of the honey exhibit, and so made every preparation for the Exhibition as usual. I sent in

my entry money and ordered 600 honey pails and 2,700 glass jars. My car was ordered and on the siding ready to load, and every box but one packed and addressed, when, like a bolt from the blue, came this letter from the managers prohibiting the selling of honey. With the other exhibitors, I have done my best to put up an attractive display, and this is the thanks we get—to be kicked out without apparently a second thought being given to the matter. I had about \$125 worth of fancy glass and honey carried over from last year, and I immediately 'phoned the managers to see whether there was any possibility of their reconsidering their action. They replied in the negative, and, thinking it was my only chance, I asked them if they would accept \$50 and allow me the privilege of selling, so that I might get rid, if possible, of this expensive glass. Still I was refused, and yet, to my amazement, they allowed another to sell for the fee of \$5.00, and are not decent enough to return my entry money and express regret for the great expense and trouble they put me to.

Mr. Anguish and I could, of course, have gone on and exhibited for prizes, but had we done so there would have been only from about \$75 to \$100 of prize money for each exhibitor, and though this amount may seem quite an item to the inexperienced, let me warn all that it will not pay one's expenses, to say nothing of compensation for the weeks of labor in preparing, putting up and removing a creditable exhibit such as is necessary to win any prize money to speak of at Toronto.

Now let me give your readers a very reliable list of expenses that a honey exhibitor at Toronto from outside the city will have to pay. First, there will be about \$10 for freight and cartage, and about \$8 railway fare for two people. Then about \$20 for room rent for three weeks and a half; \$2 for tickets

of admission plate and w... and pails; \$... back the cro... about \$15 fo... total of \$17... glass is carri... the expense w... but there is a... age and new... if one is to be... so that the... close to \$100, s... petitors, a gre... likely to win... then, in view... ducement for a... hibit at Toron... prizes?

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#### HORIZONTAL-CC SECURING

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of admission to the grounds; \$100 for  
plate and window glass and glass jars  
and pails; \$10 for front rails to keep  
back the crowd, and decorations; also  
about \$15 for board. This makes a  
total of \$175. Of course, when this  
glass is carried over to the second year  
the expense would be cut down greatly,  
but there is always considerable break-  
age and new material has to be added  
if one is to be a successful prize-winner,  
so that the actual expenses will run  
close to \$100, and with four or five com-  
petitors, a green exhibitor would not be  
likely to win more than \$50. Where,  
then, in view of these facts, is the in-  
ducement for any one to put up an ex-  
hibit at Toronto for their wonderful  
prizes?

Now let me say that, from dear ex-  
perience, I know that the exhibitor who  
prepares and puts up a really fine ex-  
hibit of honey earns from \$200 to \$300,  
which would mean that if he is not to  
be allowed to sell honey, his prize  
money must amount to \$300 or \$400 in  
order that he may have a reasonable  
compensation for his difficult task after  
his expenses are paid. Now, if the  
management of the Exhibition want to  
cut out the selling of honey, and yet  
are desirous of a creditable honey ex-  
hibit, let them multiply their prize list  
by ten, and they will possibly accom-  
plish the desired result.

Now, in conclusion, lest some might  
misunderstand my motive in writing  
this article, and think that my object  
was the hope of personal gain, let me  
say that I never again expect to be an  
exhibitor at the Toronto Exhibition.

#### HORIZONTAL-COMB METHOD OF SECURING QUEEN CELLS

In our August issue we were able,  
through the courtesy of the Editor of  
*Gleanings*, to reproduce a very valuable  
article on the horizontal-comb method  
of securing queen-cells. This method

has come to stay. As described in the  
C.B.J., Oscar Dines' device perfects the  
method, and does away with the make-  
shift manner of laying the prepared  
comb on top of the colony.

Mr. Hopkins contributes some further  
valuable notes on this subject to our  
esteemed contemporary, which we take  
the liberty of reproducing in extenso.

Mr. Hopkins' experience bears out  
that of Mr. Dines' in nearly every  
particular. It has been objected that  
a single colony cannot rear a large  
number of queens at a time, but Mr.  
Hopkins states that a *strong* colony,  
with large numbers of nurse bees, will  
rear 60 or 80 cells at a time, and these  
will be found to contain lots of un-  
consumed jelly after the queens have  
emerged.

"Under the conditions mentioned, in  
"the proper season for queen-rearing,  
"there will be a larger number of fine  
"cells built in a natural manner by this  
"plan than by any other I know of."

In Mr. Hopkins' opinion, the graft-  
ing system, taken generally, is respon-  
sible for more worthless queens than  
it is possible to calculate. The great  
importance, therefore, of a system from  
which such a delicate operation as  
grafting is eliminated cannot be over-  
estimated, and the unstinted thanks of  
bee-keepers generally are due to Messrs.  
Dines and Hopkins for the details that  
they have furnished, which enable even  
the novice to raise their own queens in  
quantity.

The following is Mr. Hopkins' recent  
article referred to above:

Referring to my letter published Aug.  
1, and also to the footnote, I  
wish to say that, if illustrations 1 and  
3 had been printed the other way up,  
as the photo prints were marked, they  
would have looked much better. As  
the cells are foreshortened in the photo,  
they look much smaller than they really  
were.

#### Preparing the Combs for Cells.

In the copy I sent I wrote, "I prefer  
a last-season's-built comb that has not

been bred in." The word "not" was left out when the article was printed, making me say the opposite. By all means use a bright clean comb that has not been used for breeding purposes. You will note that I say, "save every fourth row of cells, and scrape out the intermediate three rows, though the comb in Fig. 1 shows only two intermediate rows scraped out. The illustration shows the comb used in the first trial, which resulted in the jumbled lot of cells shown in Fig. 2. Further experiments convinced me that it would be better to scrape out three rows.

#### Kill All Eggs in the Intermediate Rows.

After cutting down to the midrib beside each fourth row, the intermediate rows scrape out very easily by using the point of a wide bradawl; but most of the eggs are left behind; and unless these are all killed the bees are as likely to build cells over them as over those in the rows, and make a jumble of cells. A small stiff brush, if run along, will kill them. I prefer a splint dipped in wax for killing eggs in cells, rather than a phosphorus match, as I think the phosphorus does harm.

#### Dequeening the Colony for Cell-building

I notice Mr. F. Greiner says, *American Bee Journal* for June, p. 176, "Mr. Dines dequeens about six or seven days before he gives the prepared comb." Our plan, which works all right, requires two for the work. One dequeens the colony chosen by making a nucleus colony with the queen, two frames of brood, bees, and a frame of food. The rest of the unsealed brood without bees is put into the upper storey of a strong colony. The other, in the meantime, is preparing the comb; and when ready it is put at once into the hive for queen-cell building, so that the colony is not queenless for longer than half an hour, and in less than 12 hours the queen-cells are well under way.

#### Returning Queen and Brood

Unless we wish to retain the queen in the nucleus colony we return her and the brood to the hive on the fourth or fifth day, usually on the fourth, after she was taken from the hive. She, of course, is placed in the brood-chamber with a queen-excluder over the frames, and the cells above, where they mature. There is practically no loss of time, as the queen can lay in the nucleus hive if

given an empty comb, and need only be out of the hive for four days.

#### Comments on the Footnote

The statement is made that, when more than two dozen cells are raised in one colony, the queens are likely to be short-lived. I say yes, most certainly, if they are raised in small colonies with few nurse bees; but as we raise them in extra strong two-storey colonies in the height of the season, with numberless nurse bees, then there will be 60 or 80 cells containing lots of unconsumed jelly after the queens have emerged, and these queens will be healthy and long-lived. Why should they not be? The bees are not unnaturally forced to build cells beyond their inclination by this method; but it is optional with them. Under the conditions mentioned, in the proper season for queen-rearing, there will be a larger number of fine cells built in a natural manner by this plan than by any other I know of.

You say it may be advantageous for beginners and honey-producers who haven't time to learn the intricacies of grafting. I really don't see that there are any difficulties in grafting that cannot be overcome in a very short time. There is certainly more trouble without any gain that I can see, unless you count economy in the number of bees used in raising cells a gain. In my opinion, the grafting system, taken generally, is responsible for more worthless queens than it is possible to calculate. It is possible, no doubt, for as careful a breeder as Doolittle to get the best out of the system; but how many Doolittles are there? Where good eggs are provided, and the cells built over them by the bees in a natural manner in the proper season, one cannot fail to get good queens with a minimum of handling and risk.

Auckland, New Zealand.

#### HOW TO SECURE A HONEY HARVEST WITHOUT SWARMING

BY H. HARLEY SELWYN.

I wish you had passed comment on Mr. A. C. Allen's article entitled "How to Secure a Honey Harvest Without Swarming," as published in your Aug-

ust issue. After I have gone a month any so overcome the peals forcibly have already similar lines to Allen's "plan hold back sw only for a t them far enou Instead of empty frames moved up only



SOME MEME

in that way giving twelve frames, which is enough for the young of the swarms which are coming forth. I wish Mr. Allen's plan were in the near future in my opinion as to effecting a nucleus colony to be built up of brood at once from which the queen-cells are excluded. Another plan is to use an eight-frame hive, and have the queen controlled swarming i

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**the Footnote**

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**HONEY HAR-  
SWARMING**

SELWYN.

ed comment on  
entitled "How  
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d in your Aug-

ust issue. After the siege of swarming  
I have gone through during the past  
month any scheme which might help  
overcome the swarming tendency ap-  
peals forcibly to me, and besides I  
have already worked along somewhat  
similar lines to those suggested in Mr.  
Allen's "plan" and found them to  
hold back swarming for a time, but  
only for a time, as I did not carry  
them far enough.

Instead of giving the queen eight  
empty frames below the excluder, I  
moved up only four frames of brood,

hive successfully? The great trouble  
with this small hive, in my experience,  
is that it is too small when you come to  
shut the bees down for the winter.  
After a vigorous young queen has been  
laying her full capacity for four or  
five weeks, it is hardly possible to ex-  
pect to be able to get the resulting  
bees into one eight-frame body when  
it took sixteen frames to hold the brood  
alone, and if you do get all the bees  
shut down there is precious little room  
for the thirty or forty pounds of stores  
necessary for winter.



**SOME MEMBERS OF THE TORONTO BEE-KEEPERS' ASSOCIATION**

in that way giving her the capacity of  
twelve frames, which evidently was not  
enough for the young queens, consider-  
ing the swarms which have since come  
forth. I wish Mr. Allen would at some  
time in the near future also give his  
opinion as to effect of the queen-cells  
bound to be built and matured in the  
super of brood at the top of the hive  
from which the queen has been ex-  
cluded. Another question: Does Mr.  
Allen use an eight-frame or a ten-  
frame hive, and has his method con-  
trolled swarming in the eight-frame

In my opinion, applying Mr. Allen's  
plan to colonies in ten-frame hives  
would give good results, but after this  
season's experience with swarms (of  
course, it has been an abnormal season)  
I am a little doubtful of its checking  
swarming in an eight-frame hive. At  
any rate, let us hope Mr. Allen will  
favor us with a few more details in  
the near future.

The man who talks too much of his  
honesty is likely to create an opposite  
opinion of himself.

## EUROPEAN FOUL BROOD EXPERIENCES

BY WM. O'CONNOR.

In the spring of 1911 I had sixty-four colonies when set out of winter quarters. They were in fine shape and for a time built up fast. But after a while I noticed they were going behind, so I examined a few of them and found something wrong. These colonies appeared to be diseased, and a few days after Mr. Scott, the inspector for this district, examined them and pronounced the disease to be European Foul Brood. I reduced them to twenty-six by uniting, took away all combs, gave them all new hives and frames, put them on starters for four days, then changed again on to foundation and Italianized. They built up fast, and I got a nice lot of sections from them. Two colonies swarmed, making twenty-eight. One died during the winter, leaving twenty-seven, which I now have. They all have the disease again, but only very slightly, as they are very strong and seem to be doing well, considering the cold, wet spring, which was the worst I remember since I kept bees.

I will have to treat them all again this spring, which is very discouraging. I took the greatest of pains last spring, and put everything out of reach of the bees, immediately removed the comb from the hives, melted them, and buried all refuse and washings. If I have to do the same every spring, I don't think I will keep bees very long.

The Northumberland Bee-keepers' Association held a demonstration on June 5th at Mr. A. W. Fries', conducted by Mr. Millen. It was a great success, and we had a very nice gathering, but the reports from far and near contained news of nothing but Foul Brood—everybody seemed to have it.

### Sliding Doors for Entrances

I have used for a number of years a

contrivance for closing the entrance to the hives, and will endeavor to explain it. Those that have seen it are well pleased with it. I get a strip of galvanized iron  $1\frac{1}{2}$  inches wide and the length of the width of the hive. This is tacked on the hive, the lower edge coming just to the top of the entrance. Then get two pieces 1 inch wide, each piece a little longer than half the width of the hive. They are shoved inside of the strip on the hive, which holds them in place. The entrance can be removed or widened instantly with this device.

I make the inch strip a little longer than the width of the hive, and bend one end over a little, which forms a sort of handle for manipulating the sliding entrances.

Campbellford, Ont.

### O.B.K.A. CONVENTION

The Editor, C.B.J.:

I am sending you a copy of the programme of our annual provincial convention, which will be held in Toronto, Nov. 13th, 14th and 15th.

I would like to call the attention of your readers to some of the leading features. On the first afternoon the address and reply of the President and two Vice-Presidents will be more than a matter of form, as all three are live officers, successful bee-keepers and capable of seeing all around and through the needs and aims of the Association. Mr. Tyrrell is exceptionally well qualified to give advice on selling honey, as he has made a success of getting his product direct to the consumer at prices away above what others were getting, and he is an excellent speaker. Mr. Krouse says he cannot make a speech, but just ask him questions, and he will be right in his element. His success in getting crops of honey is well known to Wellington county bee-keepers. I hope you will be able to get to Toronto in time for this first afternoon session.

and stay right Friday.

The Wednesday should be paid we are to meet which time, such as able Growers, for of the Institute charge, and mass meeting the University

The discussion the Foul Brood important. Et spreading very where it is not keepers must fall or the business those counties over the whole of the session is special value to the increasing their out-apiaries, or ready. I need Sibbald and Mr. eminently successful Mr. Enos Farr h truck this season cess for out-apiaries, tario bee-keepers same, we hope to present and add to valuable discussion

Messrs. Dunn, I ton have not appeared previously, but I Mr. Dunn is a b speaker, Mr. Hark stitute speaker an ably successful wi County, and Mr. 1 our rising young n on the farm. Mr. 2 the first of the dist to take a live inte It was on his initia tutes were first und County a year or tw

ing the entrance to endeavor to explain. As seen it are well get a strip of gal-ches wide and the of the hive. This ve, the lower edge op of the entrance. 1 inch wide, each han half the width re shoved inside of , which holds them ce can be removed with this device. trip a little longer he hive, and bend which forms a sort ating the sliding

#### CONVENTION

A copy of the provincial conference held in Toronto, 15th. I call the attention of you to the fact that the first afternoon of the convention will be more than all three are live bee-keepers and cap-ound and through f the Association. onally well quali-selling honey, as ss of getting his onsumer at prices ers were getting. nt speaker. Mr. t make a speech. tions, and he will t. His success in is well known to y-keepers. I hope get to Toronto in afternoon session.

and stay right with us until noon on Friday.

The Wednesday evening session should be particularly interesting, as we are to meet with the other Associations which meet in Toronto at that time, such as the Fruit Growers, Vegetable Growers, etc. Mr. Putnam, Director of the Institutes Branch, has this in charge, and is arranging for a large mass meeting in Convocation Hall of the University.

The discussion Thursday morning of the Foul Brood situation is particularly important. European Foul Brood is spreading very rapidly in districts where it is now located, and the bee-keepers must face the situation squarely or the business will be ruined in those counties and the disease spread over the whole Province. The balance of the session is intended to be of special value to those who are thinking of increasing their business and starting out-apiaries, or who have done so already. I need not tell you that Mr. Sibbald and Mr. Byer have both been eminently successful in this line, and Mr. Enos Farr has been using a motor truck this season with remarkable success for out-apiary work. As other Ontario bee-keepers have been doing the same, we hope that they will also be present and add their experience to this valuable discussion.

Messrs. Dunn, Harkness and Houghton have not appeared on our program previously, but I can assure you that Mr. Dunn is a brilliant, entertaining speaker, Mr. Harkness is a regular Institute speaker and has been remarkably successful with bees in Dundas County, and Mr. Houghton is one of our rising young men in keeping bees on the farm. Mr. McIntosh was one of the first of the district representatives to take a live interest in bee-keeping. It was on his initiative that Bee Institutes were first undertaken in Hastings County a year or two ago and a County

Association organized there with Mr. McIntosh as Secretary. I don't think that Mr. J. W. Clark, the well-known poultry expert, needs to be introduced, as he has spoken at Farmers' Institutes all over Ontario.

You will be pleased to know that the Minister of Agriculture will be with us on Thursday afternoon. We had the pleasure of an interesting talk from the late Deputy Minister, Mr. James, last year, and this year the Hon. Mr. Duff has consented to meet with us and give us an address.

At the Friday morning session there is always a certain amount of unfinished business to be disposed of, and in addition to this we have two speakers. Mr. Tyrrell will present the problems confronting the National Association, as seen by the Secretary, and Mr. F. W. L. Sladen, the new Assistant in Apiculture at the Experimental Farm, Ottawa, will speak on the subject of bee-breeding. This most important subject should be well handled by Mr. Sladen, as he has devoted a great deal of study to the raising of queens and the development of an improved race of bees.

I think I can safely say the attendance at this convention last year was the largest the Association had ever seen. Some members present thought there was too much Foul Brood and Co-operation on the program, so we have got back more to questions of management—with this difference, however, that the interests of advanced bee-keepers will be considered more than formerly, on the ground that elementary instruction is given in the county convention, the bee institute and the College Short Course.

Hoping to meet large numbers of the readers of the C.B.J. at this convention, I am,

Yours very truly,

MORLEY PETTIT.

### PROGRAM OF THE O.B.K.A CONVENTION

Wednesday Afternoon, Nov. 13th  
2 p.m.

- MINUTES—P. W. Hodgetts, Toronto, Secretary.  
 PRESIDENT'S ADDRESS—Denis Nolan, Newton Robinson, Ont.  
 REPLY—J. L. Byer, Mount Joy, Ont., 1st Vice-President.  
 DISCUSSION—Opened by Miss Ethel Robinson, Ilderton, Ont., 2nd Vice-President.  
 IMPROVED METHODS OF SELLING HONEY—E. B. Tyrrell, Detroit, Mich., Secretary National Bee-keepers' Association.  
 QUESTION DRAWER—F. W. Krouse, Guelph, Ont.

Wednesday Evening  
8 p.m.

Joint Sessions of all Associations in University Convocation Hall.

Thursday Morning, Nov. 14th  
9.30 a.m.

- THE FOUL BROOD SITUATION IN ONTARIO—Morley Pettit, Provincial Apiarist, Guelph, Ont.  
 MANAGEMENT OF OUT-APIARIES—  
 (a) With complete outfit at each yard, using automobile or horse for transportation—H. G. Sibbald, Toronto, Ont.  
 (b) Management at long range—J. L. Byer, Mount Joy, Ont.  
 (c) Moving outfit on motor truck—Enos Farr, Low Banks, Ont.  
 (d) From one centre, with stationary machinery and motor truck to haul supers home—Discussion, general.

Thursday Afternoon  
2 p.m.

- PREPARING BEES FOR WINTER—J. E. Dunn, Ridgeway, Ont.  
 WINTER AND SPRING MANAGEMENT—R. E. L. Harkness, Irena, Ont.  
 QUESTION DRAWER—John Newton, Thamesford, Ont.  
 ADDRESS—Hon. J. S. Duff, Minister of Agriculture, Toronto.  
 ELECTION OF OFFICERS.  
 REPORTS—Directors, Treasurer, Honey Crop Committee, Representatives to Exhibitions.

Thursday Evening  
8 p.m.

- BEES, POULTRY AND FRUIT—J. W. Clark, Cainsville, Ont.  
 DISCUSSION—By R. G. Houghton, Bond Head, Ont.  
 THE DISTRICT REPRESENTATIVE AND HOW HE CAN HELP THE BEE-KEEPER—A. D. McIntosh, B.S.A., Stirling, Ont.

Friday Morning  
9.30 a.m.

- PROBLEMS CONFRONTING THE NATIONAL—E. B. Tyrrell.  
 BEE BREEDING—F. W. L. Sladen, Assistant in Apiculture, Experimental Farm, Ottawa, Canada.  
 UNFINISHED BUSINESS.

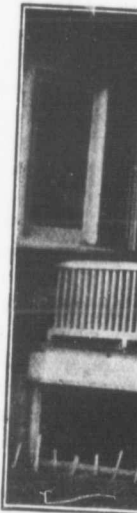
### PROLIFIC QUEENS AND SWARMING

BY H. HARLEY SELWYN.

Eleven swarms on the 25th of August and more or less every day previous during the same month. A strange report to make, but nevertheless true, and what is the cause of it? Queens too good, hives too small, season rear end foremost, or what? Has any one else experienced the same trouble? I should think it would go hard with the man who has large out-yards. So far as I am concerned, I am willing to wager there wouldn't be an old queen in the place now if I hadn't been on the spot every minute of the day and kept shovelling—absolutely shovelling!—back bees by the bushel. I just wish I had had a camera to snap a few of the brown bears that some days confronted me on arriving at the yard after a hurried lunch! It often made me think that the men who claim the queens of nowadays excel those of former years are not far wrong. Why, eight frames (Langstroth) are apparently simply nothing for a queen to fill, and in quick order, too, and not only eight, but twelve and more, for half the brood in the original hive went above the queen-excluder when clover bloom started.

November, 1912

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November, 1912

Evening

m. FRUIT—J. W. Clark, G. Houghton, Bond

SENTATIVE AND HOW THE BEE-KEEPER—A. S.A., Stirling, Ont.

Morning

a.m. NG THE NATIONAL—

L. Sladen, Assistant, Experimental Canada.

That's what makes me think even apiarists with twelve-frame hives would have lost many swarms. Certainly, if last fall prohibited brood-rearing, this fall favored to the utmost; 150 strong vigorous Italian colonies in one yard, and all gaining heavily on the golden-rod and aster. Copious rains have advanced their growth, and the heat has secreted the nectar in abundance. But to revert to the swarming fever. Is there any remedy under such conditions as above stated? If so, I would be glad, indeed, to know. Not only were

and once they got the notion to swarm, half-a-dozen empty supers wouldn't hold them. There are many bee trees in this vicinity now that never existed before, and mighty fine Italians, too, headed with the best queens I raised this season. Generally, when a young queen is introduced in August, swarming is over and done with, but for some unknown reason every single one of them came out and led away the bees. This I discovered mostly after they had flown. Of course, a queen given some days after the removal of the queen to

QUEENS AND SWARMING

BY SELWYN.

the 25th of August very day previous th. A strange nevertheless true, and of it? Queens too, season rear end. Has any one else trouble? I should ard with the man ards. So far as I willing to wager 1 old queen in the t been on the spot ie day and kept ly shovelling!— hel. I just wish I snap a few of the ie days confronted ; yard after a hur- n made me think aim the queens of e of former years. Why, eight frames arently simply no- fill, and in quick only eight, but half the brood in t above the queen- er bloom started.



SOME TORONTO BEE-KEEPERS

first swarms cast, but second and third if the bees got half a chance. The fact that only one cell was left the parent hive to provide a virgin seemed to make no difference. As soon as she hatched, out they came, regardless of what became of the remaining brood. Evidently no hard-and-fast rules can ever be applied to bees, so great are their vagaries. Following, rather naturally, last season's program, I concluded after clover flow the queens would knock off laying to a great extent, but they appear to have done just the reverse,

be replaced means queen-cells raised in the interim, but all the queens introduced went into the hives at the minute of taking out the old original. Yet they built cells by the dozen. I don't understand yet what was the trouble, and probably never will, but swarm they did, and continue to do so daily.

Kirk's Ferry, Que.

It is poor policy to equip yourself for business and then fail to tell the public about it—advertise.

## A PLEA FOR THE BEE STING

BY "SCOTTIE"

A stingless bee! Stingless, good worker, disease resisting, non-swarmer, live-for-ever, etc., etc. These last are such minor qualifications that Mr. Burrows deferred mentioning them. We have surely reached the acme of perfection, now, when we have all the desirable qualities centred in one little bee. (If we could only develop as perfect a man!)

Who sent in the order for a stingless bee? None of our present beekeepers—and the would-be beekeeper whose only objection is that awful sting had better stick to his old trade.

Shame, shame on the man who would strive to deprive a bee of its only mode of defence and seek to turn it into a helpless defenceless little worker to be abused and buffeted about at the will of man! What encouragement or inducement would it have for gathering that golden nectar had it no means whereby to defend its garnered treasure? Soon, as well have a cage of flies. Bees are reasonable. Meet them half way as you would a man and see how seldom they refuse the treaty of peace.

Moreover, it is one of our fiery Cyprian drones which is claimed to have been wheedled into partnership in this new species of bee. I imagine a descendant of Cyprian renouncing his birthright—the absolute, unreserved right to sting whenever, wherever and whoever possible!

Mr. Burrows would spend his time more profitably, with more credit to himself and greater benefit to beedom if he produced us an "honest" rather than a stingless bee.

Let the bee have its sting, it is the very essence of beekeeping, and enjoy the stinging as the most desirable "sting" man ever gets.

## THE BEHAVIOR OF THE BEE

BY E. F. PHILIPPS, PH. D.

I am a little fearful that the subject which has been announced for me to-night may have frightened those who are not here, but I would like in the first place to explain the use of the word "behavior" as it has been used in connection with what I shall have to say to-night. It is a word which is not commonly used in bee literature, and I am using it because I am not entirely satisfied with the word which we ordinarily use. We commonly speak of the habits of the honey bee. By that term we mean the sum total of its activities under normal and abnormal conditions. However, as I shall try to point out, there are certain reasons why we should not use the word "habit." The word habit, as you know, is used to designate those activities which we go through and which we execute as a result of past experience. That is, we have habits. The bee does more than merely have habits, although there are certain things which it does habitually even more than we do; and since the word has a double meaning, it is better to use the word behavior, which covers all the activities of the bee under normal and abnormal conditions.

To address a company of bee-keepers and tell them bee stories may seem almost out of place. I must confess I did not choose the subject which is given to me to-night, and while I have on several occasions told bee stories or used the subject which is announced for me this evening, I have done it in a somewhat different way than I shall try to-night. If I were addressing an audience of people who did not know anything about bees, and who could not bring me to task for any slips I might make, I might have a very different tale to tell than I would dare give before a company of bee men. However, there are some things about bee behavior or bee activity

that it seems bear more in apology for this it is per attention to the ipulation and based on the that bees do u conditions. If bees it is true, so, that we fin the fundament do our work, a what the state must be to con talk with beeke about these swarm control a what not, and things. The be constant and co his bees, but I c that if we had the behavior of out manipulation beginner a found of the various things are at the form this opinion due to his past e has not always i own mind the s With that brief of the subject th I want to call to anything about That is the poin should have in th topic of this kind. that the poet exe monly call poetic to animals and pl times inanimate of passions, and am perhaps than mar That may be all have no criticism because it has a pl that we are not in from it. However,



## OF THE BEE

PFS, PH. D.

al that the subject unced for me to htened those who uld like in the first use of the word been used in con- shall have to say which is not com- erature, and I am not entirely satis- hich we ordinarily eak of the habits that term we mean tivities under nor- ditions. However, out, there are cer- should not use the ord habit, as you nate those activi- gh and which we f past experience. ts. The bee does e habits, although gs which it does than we do; and louble meaning, it rd behavior, which of the bee under conditions. ny of bee-keepers ries may seem al- must confess I did which is given to I have on several ries or used the nced for me this it in a somewhat shall try to-night. an audience of w anything about not bring me to ght make, I might tale to tell than ore a company of there are some or or bee activity

that it seems to me bee-keepers should bear more in mind, and as an excuse or apology for choosing such a subject as this it is perhaps only necessary to call attention to the fact that all of our manipulation and all of our bee work is based on the foundation of the things that bees do under normal and abnormal conditions. If we take the literature on bees it is true, and perhaps unfortunately so, that we find very little discussion of the fundamental principles on which we do our work, and I have often wondered what the state of mind of a beginner must be to come to a convention or to talk with beekeepers and hear them talk about these different manipulations, swarm control and honey production and what not, and not get the fundamental things. The beekeeper gets these from constant and continuous experience with his bees, but I cannot avoid the thought that if we had a simple statement of the behavior of the bees naturally without manipulation that it would give the beginner a foundation on which to judge of the various manipulations; and as things are at the present time he must form this opinion of the manipulations due to his past experience and perhaps has not always formulated well in his own mind the story of bee activity. With that brief apology for the choice of the subject there are several things I want to call to mind before saying anything about the bees themselves. That is the point of view which we should have in the consideration of a topic of this kind. Now, you all know that the poet exercises what we commonly call poetic license in attributing to animals and plants, and even sometimes inanimate objects, thoughts and passions, and ambitions even higher perhaps than man himself possesses. That may be all right for poetry. I have no criticism to make of poetry, because it has a place in human affairs that we are not in a position to remove from it. However, when we come to a

serious discussion of a thing which is a business proposition with us we must get away from all that idea, and we must carefully refrain from giving to bees human thoughts and human ideas. Bees are built on a plane totally different from ourselves, and it is quite fatal in the discussion of any subject of this kind to give them these ideals and ideas which we possess. Closely allied to what we may call the poetic attitude towards animals is that attitude too commonly found among the teachers of what is commonly known as nature studies. The bee is an ideal animal for use in the nature study of schools. However, I am very fearful that the stories that are sometimes given to the children in the graded schools are far from being a correct interpretation of bee activity. There are several difficulties which are constantly encountered in the study of bees, and this is true of the study of any of the lower animals. Discussing bees only, I may say that one of the primary difficulties is in actually making observations. Bees do so many things inside of the hive where they are hidden from view that we are unable in many cases to say what they actually do, and outside of the hive it is the same way. The things they do on the wing, the way they pack pollen on their legs, for instance, and various other things are extremely difficult to observe, because they are moving so rapidly and are so inaccessible it is often very difficult for us to make the observation itself. Another serious difficulty is due to a human characteristic. None of us are satisfied simply with making an observation. It is not enough for us to say that a bee will fly towards the window if liberated in a room, or any of the other things which bees do. We always feel called upon, and perhaps rightly so, to give a reason for anything which we observe; and it is in giving reasons that most of the errors in the discussions of bees are

found. Closely allied to what I said concerning the poetic interpretation of animal life is the third obstacle of the three main obstacles which are encountered in the observation of the behavior among the lower organisms, and that is the frequent failure of the observer to distinguish between what we call verifiable and unverifiable facts or principles. There are some things which can be proven. That is, a man will make a statement that the bee usually crawls up a pane of glass. That is a thing which can be verified by any observer by putting a bee under the same circumstances to see whether it does what has been claimed for it. That is a verifiable principle. However, there are certain things which cannot be proven, and therefore those are opinions which we have no right to entertain. Take an example. We find when the queen bee is on the comb during the egg-laying season as she walks across the comb the worker bees will turn with their heads towards her and touch her with their antennæ. That is a verifiable truth. However, if in giving a reason for that we say they do this because of a veneration or love which they have for the queen, we are stating something which may be true, but which we have absolutely no way of proving, and therefore, that is an opinion which we absolutely have no right to entertain. We must be very careful, then, in all our discussion of what bees do, and what other animals do, as well as man himself, for that matter, to distinguish carefully between those things which we can prove and on which we can make good our statements, and those things which we cannot prove.

In the behavior of bees, as in the behavior of other animals, including man, we have two kinds of activities. We commonly speak of the bee as doing certain things through instinct. It is an instinct for the bee to live in

colonies. A single bee cannot live alone; it cannot reproduce itself alone, of course; it cannot even exist alone. If you take a field bee and put it, properly provided with food, where it will be warm enough, it will die in a comparatively short time, and you could say, if you wanted to use an unverifiable statement, that it is lonesome. That is a thing which we cannot prove, but we do know that if an old bee is isolated from other bees it soon dies. On the other hand, we know, too, that if we take a bee young enough that it will live for a longer time; but leaving aside all that, we know through instinct bees live in colonies. That illustrates one kind of thing observed in bee life. We may call that an instinct; it is something which is inherent in the bee, something that the bee has, a certain tendency it has when it is born. However, there are other things that the bee does not possess when it is born, and which it gains through experience which it has. For instance, when a bee returns to the colony to which it belongs it has this instinct of coming back to the colony, but it does not come back to the colony through instinct. It comes back to the colony because through days of experience it has learned the way back. It has observed the surroundings of the hives, and it comes back then through an adaptation of itself to its environment. We have, then, a plastic activity, one whereby the bee can change its movements in accordance with the condition under which it may be placed; and we have that non-adaptive activity which the bee has as an instinct, and with which it is born. It is not always easy to distinguish between those things which a bee does almost automatically and those things which it does through adaptation; they are interwoven in a very complicated manner sometimes, and it is quite difficult at times for us to decide which is which.

Another thing mentioned is the activity we see when the bee moves. Now certain circumstances certain changes we see that be from an object move in some we have no we responds to the So that in studying the which the bee changes presents In speaking of well to call attention environment may be of the animal. mean by environment side the animal, take some food in some way and would be a factor. Now, ordinarily behavior it would be say that the colony of individuals, are and tell something which exist in the individuals, but to a audience which bee men those things I have thought perhaps to do was to call attention particularly interesting have never seen, as Bee Journal.

I want to call attention to what we may call a thing which exists in a colony have in the active scene individuals working together amount of harmony. men all together in would be great confusion an organised plan 30,000 men might live out to do everything

Another thing which might be mentioned is the fact that in the study of bee activity we can form conclusions only when the bee does something and the bee moves. Now we may put the bee under certain circumstances which brings on certain changes in the bee, but unless we see that bee moving toward or away from an object presented to it, or see it move in some way or change its position we have no way of knowing whether it responds to the stimulus presented or not. So that in studying the activity we are studying the activities, the motions, which the bee makes on account of the changes presented to it in its environment. In speaking of environment, it might be well to call attention to the fact that environment may be either outside or inside of the animal. To illustrate what I mean by environment which is actually inside the animal, if any animal were to take some food which would irritate it in some way and cause to act that food would be a factor in its environment.

Now, ordinarily in talking of bee behavior it would be the orthodox thing to say that the colony consists of three kinds of individuals, and to define what these are and tell something of the conditions which exist in these three kinds of individuals, but to a company of bee men or an audience which is composed largely of bee men those things are superfluous. So I have thought perhaps the best thing to do was to call attention to one or two particularly interesting points which I have never seen, as yet, developed in the *Bee Journal*.

I want to call attention first of all to what we may call the division of labor which exists in a colony of bees. We have in the active season several thousand individuals working together in a certain amount of harmony. If you had 30,000 men all together in a small place there would be great confusion unless there was an organized plan under which these 30,000 men might live. If every man sets out to do everything for himself we have

the condition which Mr. James spoke of as quite common among the producing classes, not a co-operation. In the bee colony we have co-operation. That is, we see a minimum of superfluous movement. We see a harmony existing in the colony of bees and a division of labor of the colony in a very careful manner. Now we know of no governing individual in the colony. Of course every beekeeper knows that the queen is not the governor of the colony in any sense. The queen is the least, perhaps of all. We find no company of workers that gives orders or anything of that kind which we can recognize, and yet throughout the whole thing we see a beautiful system of the division of labor of the hive. Some of these things we can explain to a certain extent, but we cannot do very much better than to fall back on the expression Maeterlinck has used in his delightful book on the bee in which he says, "this is done by the spirit of the hive." Of course that is a confession of ignorance. At the same time we still are at sea as to what actually is the factor that brings about this harmony.

In the first place we find a marked division among the bees according to age. Those bees that are less than 14 to 17 days old do the inside work of the hive, they secrete the wax, feed the brood, clean out the hive and do the other inside work of the hive, and those bees that are more than 14 to 17 days old do the outside work. Now, we can change this condition. If, for instance, we were to move a colony of bees when a great many of the field bees were out, remove it to a new location we would then have a colony composed largely of young bees, and if we put a hive on the old stand we would have returning to it the field bee. But they are a group of bees which we could call a colony. If we gave them a queen, we should have a colony composed of old bees, and if it were necessary some of those old bees might begin to secrete the wax, and they

would feed the larvae, not so well as the younger bees, but they could adapt themselves to the work of the younger bees if it was absolutely necessary. On the other hand if we had a colony composed largely or exclusively of young bees we would find they would go to the field sooner than would be the case under normal circumstances. But in the normal colony we have a marked division of the labor of the colony according to the age of the bees. It has been stated in a number of bee books and in other places that there is a division of the castes inside of the hive, some of which secrete the wax, others which guard the colony, others which clean out the colony and still others that feed the brood and so on, but that is not correct. For instance, if a colony of bees is carefully watched during wax secretion it will be seen that some of the bees hanging in the curtain will separate themselves from the curtain and go over and feed a few of the larvae or clean out some place that needs cleaning out, and after a while come back and deposit on the comb, which is being built, the wax that, in the meantime, is being secreted in the wax pockets, and they shift around. Those feeding broods will go over and hang in the curtain while others secrete wax, so there is no demarcation in castes inside of the hive, which has often been reported. But perhaps the most interesting part of the division of labor is that which occurs outside the hive. Supposing an apiary were located in the region where white clover is abundant, and in the apiary itself and on the grounds there were 100 heads of white clover secreting nectar. Did it ever occur to you that the bees are no more prevalent on the clover within 100 feet of the hive than at some distance. Why is it if these 100 heads of clover contain nectar as they do, that every bee that comes out of the 100 colonies does not rush for these single heads of clover scattered through the apiary? There must be some system to this, because if a

bee's one ambition were to find a clover head naturally they would all go for it. But you don't find bees any more prevalent right in the apiary than you do a quarter or half a mile or mile or more. We have no very good explanation of this fact which all of us know to be true, but there was some good work done by a Frenchman named Bonnier a few years ago which is most interesting in this connection. I will give you an illustration of one of the experiments which he performed out of a great many to show what he thought to exist in the community of bees. First of all he cut ten twigs off a honey plant,—I have forgotten what he used,—and put them into bottles of water to keep these twigs fresh so that the blossoms which were on them would keep on secreting nectar, and he put them out one afternoon away from all other honey plants in an open field where he noticed the bees at work. They were working in other fields and around on the edge of fields where other plants were in bloom, but right out in the middle he placed these ten twigs. He put them out and sat down beside them and waited and no bees came. These were exactly the same kinds of plants as those on which they were working elsewhere. All afternoon no bees came, and his first conclusion was that the abnormal conditions under which he had placed these twigs had stopped secretion. However when he took a similar twig and put it right where the honey plants were the bees worked on it normally, and he was forced to the conclusion that they were still secreting nectar, but out to this open field no bees came. But next morning at daylight he was out with these plants again. In a little while a single bee came and flew over this group of plants which he had in the bottles. It alighted on one of the flowers for a very brief space. It did not suck any nectar, did not gather any pollen, simply alighted on one flower long enough for him to touch it with a brush which he had ready to

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leave a spot on the thorax by which he could identify that bee again if he saw it. The bee flew away and in a short time this bee which he called "A" returned and almost immediately another bee came "B," then they went away and another came which he called "C," giving each one a separate spot on the thorax with different colors so that they could be identified. Finally he had seven bees at work on these twigs which he had cut and all day those seven came back to this same place and worked on the flowers which were in these bottles. Out of the seven two of them gathered pollen all day and five gathered nectar, and those that gathered nectar never touched the pollen that was present in the same flowers, and those that gathered pollen never sucked the nectar. Other bees came but none of them alighted on these flowers. The next day at dawn he was out again and the same seven bees came back and continued working on these same flowers that were still in a perfectly fresh condition and still secreting nectar. When he found that they retained the same job, he then went to the place where he had cut these twigs and cut what he supposed was an equivalent amount of twigs, and put these in ten bottles which he placed right beside the others. When the bees came back to their work after he put what he supposed was double the quantity out they flew away from where he was and soon he found that six other bees which he also numbered were at work on this group of twigs. Two of them gathered pollen and four gathered nectar, but he concluded his judgment had not been particularly good in choosing just exactly the right amount; that while it looked to be the same amount to him the bees evidently in some way appreciated there was not quite as much in the second lot as in the first. But 13 bees continued to work all day, four of them gathering nothing but pollen and nine of them gathering nothing but nectar. This is

a verifiable experiment, and anyone is at liberty to try the same thing over again. He went further in this in what he concluded was the division of labor outside of the hive in some other interesting experiments. For instance, he had in his apiary a basin in the ground where the bees usually went for water and he had growing in this little depression some water plants or weeds. The bees were in the habit of alighting on the small leaves and getting water to carry back to the hive. He found if he took and dropped little drops of honey on these leaves when the bees were coming freely for water that the honey was never touched; that they were sent out for water and it was water that they got, and that other things were not in any way a temptation to them when they were on this one job. In the same way he took plants that were producing pollen only, that were not producing nectar, and put several drops of honey down in the bottoms of those flowers which were not touched; the bees that came were pollen gatherers, and the honey which he put in there which would ordinarily be attractive to a bee, as we suppose, was not touched. He also dropped pollen down by the nectar in other flowers and that was not touched. So he concluded outside of the hive there is a division according to the amount of material which is at hand for the bees to work on. Whether all of his conclusions will be found to be correct is something that we cannot say as yet until the work is repeated by more than one other observer; but it is certainly suggestive on its face when you take into consideration the fact that we do not see a perfect turmoil of bees around those heads of clover right in the apiary, and the bees evidently have that marked out in some way just how we do not know.

Now you may remember I said he put these plants out in the afternoon and no bees came. That was rather a puzzle to Bonnier for a time, but he repeated ex-

periments of that kind until he came to the conclusion that in the early morning there are sent out from the colony searchers; that is the bee on which he put the first spot and which he named "A" was a searcher, and in some way it communicated to the colony or to the other six bees that came that there was a certain amount of material to be collected. He does not attempt to say how that communication was made, whether there was some sign or whether the other bees simply followed it on its way back or what, but what he claimed was this, that "A" was a searcher; a searcher did not collect anything but returned to the hive. Immediately after that "A" became then a gatherer like the other six, and nothing would have been a temptation to "A" in the way of a fresh supply after that. He concluded that in the mornings searchers were sent out, and when the searchers found enough to keep the colony busy there were no more searchers. He also concluded the reason why the bees did not find out what he put out for them in the afternoon was because the searchers had all found something, and had become gatherers, and that there were no searchers in the afternoon. He repeated this a number of times with honey which he placed out in the afternoon and in the morning and at different hours of the day. If the nectar supply in the field was scant there would be searchers in the afternoon, and they would find the honey he placed out for them almost right away. If on the other there was an abundant supply of nectar in the field there would not be any searchers in the afternoon, but if he left it there until the next morning there would be searchers to take it up. Whether that is all true or not, I am simply giving you what Bonnier claimed for the bees, and I hope some of you will try some of these things.

One other thing that perhaps should be mentioned before I show the slides, and that is a discussion of the question of

how much bees remember and how much they get by experience—whether the bee is simply a machine that responds as if a button were pressed and it would do a certain thing, or whether it does more than that; whether it gains anything through its experience, and whether it remembers certain things that have happened to it in its past life. Now, you all know if you move a colony of bees a foot or two off to one side the bees return to the old location. It is pretty well demonstrated that the reason they come back to the same place is because in their first flights out as young bees, in the play flight which you see on sunny afternoons when your young bees fly out of the hive and circle around in front of the entrance in their early efforts, when they got to the field they carefully observe the surroundings. Any change in the environment is observed by the bees, and they mark it carefully. If you move a hive back a foot or two they will stop when they come to the place where the old entrance was. This is often something of a nuisance to the beekeeper when he wants to make a few shifts he has to make his move slowly so that the bees learn the new location. These things show conclusively that the bee has a memory, that it learns to know by doing something in its activity. There is another proof of the fact that bees remember certain things and that is that we can compel those bees to forget; some of these things which they learn in this way by experience they can be brought to forget entirely. For instance in swarming; a colony of bees has been in the habit of coming back to a certain location, but when they swarm and are put into another hive or find a place for themselves under natural conditions in the woods they no longer come back to the old place but go to the new. That is they have forgotten or have quit considering the old location. But even better than that is what we can do experimentally with bees showing that they

have a memory. of bees is chik are stupid and board, and then vive and become they are chloroform kill them—if they come to they have things which through previous experience, a foot or two away the old place and turn to the new returned and which be done by tobacco through memory. I want now to show them in w they are almost dead us if we can teach certain things we had actually remembered that the animal had actually remembered. I want now to show will readily recognize are a great many things which cannot be shown a picture at all. I have on the anatomy you will know a little which it has to do. (Dr. Phillips then lighted the audience of excellent slides of the bee, which had been shown.)

#### NOTES FROM THE PAPER

**Honey and Wax Am**  
In early times, according to the Romans did not use the method of bee-keeping themselves with the bees that were quartered in trees. A great deal of honey or wax was recorded.

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have a memory. For instance if a colony of bees is chloroformed until the bees are stupefied and drop to the bottom board, and then they are allowed to revive and become active again, that is, they are chloroformed not sufficiently to kill them—if then they are allowed to come to they have forgotten all those things which they learned through previous experience, they can then be moved a foot or two away or any distance from the old place and on flying out they return to the new location and do not return to the place to which they formerly returned and which they learned to know through memory. The same thing can be done by tobacco smoke and by immersing them in water to the point where they are almost dead. These things show us if we can teach an animal to forget certain things we are thereby proving that the animal had something which it had actually remembered.

I want now to show a few slides. You will readily recognize the fact that there are a great many things in bee behavior which cannot be shown on slides or in a picture at all. I thought it would be well to show a few illustrations which I have on the anatomy of the bee so that you will know a little better the things which it has to do.

(Dr. Phillips then interested and delighted the audience with a large number of excellent slides showing the anatomy of the bee, which he explained as the slides were shown.)

#### NOTES FROM THE GERMAN PAPERS

**Honey and Wax Amongst the Romans**  
In early times, according to Menzel, the Romans did not pursue an orderly method of bee-keeping. They contented themselves with the product of wild bees that were quartered in holes in cracks or in trees. A great consumption of honey or wax was in consequence recorded.

Gradually, as the seeking of pleasure and pomp of the Romans reached an ever-increasing degree, the use of wax and honey came into importance, and was employed in the most manifold kinds of ways.

They offered honey to the gods, and gave it as a gift to friends and favorites. It was presented to the guest and never failed at a meal, where it was served in the comb or in liquid form.

In addition to milk, it was used in many kinds of foods. They added it to wine; mead and vinegar were made from it, and even the bodies of the dead were embalmed with it. With honey the baker flavored his cakes. Alone or in conjunction with other things they used it in medicine.

Wax played a part of not less importance, both in the simplest household as also in the demands of luxury and pageantry, in private and public life, and in the cult of the gods.

Moreover, there was a demand for it in taking the impressions for written notices in tablets of wax. The many-sided uses that wax was put to in Roman households was also the reason why in their later days the Romans, as no other people, carried on the industry of bee-keeping to such an extent. This extensive use could not be satisfied by the quantity produced at home, and all lands must have contributed to supply the need—be it through commerce, through tribute or rent—namely, those of Greece, Southwest Asia, and North Africa, where the bees flourished, and being well attended to, were in consequence good friends of man.

#### The Origin of Honey Dew

According to the theory of Büsgen, honey dew is only the product of the aphid. Prof. Dr. A. Heinz of Agrau states in the *Illustr. Monatsset*, the following facts based upon his observations:

Honey dew results on leaves that are strong growing, yet not too old, when

the sap is suddenly checked by the attraction of light, causing too high a pressure in the cells.

If the interruption continues above a certain degree the leaf suffers and falls prematurely. It is a question whether it is always high temperature and attraction of light which cause it, or whether it is not sometimes due to a sudden change of temperature, as, for example, after a cool spring night, when a tree in its dewy state and with low vitality, receives the attraction of the intense morning moonlight.

Frequently I have observed on young limes, where few aphides could be found, that the drops that should have been sprinkled on the leaves by these insects were abundant on the highest and tenderest leaves, where in general none of the aphides locate themselves.

#### The Flight of Bees

The bee can, as every bee-keeper has observed, not only fly backwards, but also suddenly stop while she is in full flight. She causes this sudden check through the changing of her inclination of the planes of her wings, as well as by strong contrary vibrations of the wings, after the manner of the bird when it wants to stop in the middle of flight. But she can also do it through an answering movement of the abdomen through which she alters her balance or equilibrium.

This power makes it possible for her to increase the speed of her wings, or to decrease, to fly backwards, or sideways, up or down, as well as in the quickest flight to stop when she discovers a flower that she fancies to visit.—*From Leipg. Bztg.*

#### BEE-KEEPING IN SOUTH AFRICA

We often hear that South Africa is the only country in the world where disease is unknown. South African bees are singularly free from the serious diseases known in other parts of the world, climatic conditions and freedom from predisposing causes, being undoubtedly

helpful in this direction. Foreign bees were being largely imported into the different colonies, and from time to time there have been scares that "foul brood" had broken out, but any suspicious case has been drastically dealt with. The Government very wisely took up the question before it was too late, and by means of legislation stopped the importation of bees, honey, and wax into the country. The law has now been modified so that comb foundation only is now imported, but it must be accompanied by a guarantee that it has been sterilised, and been kept at a temperature of 212 degrees for two hours; this, of course, does not improve the wax, but is an absolute safeguard against carrying diseases in any form.

In April, 1911, a stock was found showing signs of foul brood. Samples were sent to the Chairman of the B.B.K.A., Mr. Cowan, and he reported that the foul brood bacilli were present, but were not identical with those in Great Britain. When this was reported to the Government Agricultural Department they at once had the hive, bees, and all appliances destroyed, and compensated the owner; they also appointed a temporary inspector, who visited all the apiaries round the district. No serious cases of disease were discovered, but in some instances bees were found very badly kept.

Just before I left the country I was asked by the Government to inspect again, and visited all the apiaries near Johannesburg, going very carefully through all the colonies I found one bad case, and I watched it carefully. At the end of a fortnight this stock was almost healthy, no sign of disease appeared in the brood and honey was being brought in abundantly. At an altitude of 4,500 ft. above the sea-level I do not think disease will flourish, but I am sorry to say some of the beekeepers are very careless and the colonies do not receive proper attention.

South African beekeeping, the best flora in the world is very suitable for the temper of some to be very un- tell you there any reason, and poultry, dogs, and cattle. I think a reason for the the temperature ritability. I have in this state, and the like again. will in time be modern methods, best tempered bee in selection of s avoiding the other tact with the bees will also eliminate ance, and these avoided. I know farmer lost £1000 v his calves being have found that th African bees are think the native be to sounds and disa the bees at home, a due to the rarity The native bees of S to be smaller than t are various differen in the inmates of colour, size, and ma bee are very definite. in his book; "At t bright yellow kind, characteristics of t shade of Eastern ma smaller and darker b docile." Neither of we can call them su from the same hive b are often found, and s which must not be co



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t the country I was ervention to inspect all the apiaries near ng very carefully nies I found one had it carefully. At the his stock was almost disease appeared in y was being brought an altitude of 4,500 al I do not think dis at I am sorry to sa ers are very careless, not receive prop-

South Africa is an ideal country for beekeeping, certain districts having the best flora in the world; the climate also is very suitable, as is indicated by the numbers of nests of wild bees. The temper of some colonies certainly seems to be very uncertain. Beekeepers will tell you these bees went mad without any reason, and stung everything, killing poultry, dogs, and sometimes horses and cattle. I think myself there is always a reason for their being so very cross; the temperature may add to their irritability. I have only twice seen bees in this state, and I do not wish to see the like again. I think this tendency will in time be overcome by promoting modern methods, by breeding from the best tempered bees, and care being taken in selection of sites for apiaries, thus avoiding the other stock coming in contact with the bees; educating beekeepers will also eliminate carelessness in ignorance, and these serious losses will be avoided. I know of one case where a farmer lost £1000 worth of stock through his calves being attacked by bees. I have found that these very savage South African bees are the best workers. I think the native bees are more sensitive to sounds and disagreeable smells than the bees at home, and think this may be due to the rarity of the atmosphere. The native bees of South Africa all seem to be smaller than the British, but there are various differences to be found even in the inmates of the same hive. The colour, size, and markings of the native bee are very definite. Mr. Attridge says in his book; "At the top we have the bright yellow kind, partaking of the characteristics of the Italian with a shade of Eastern manners, down to the smaller and darker bee, which is not so docile." Neither of these varieties, if we can call them such, is constant, as from the same hive both the above kinds are often found, and also another grade, which must not be confounded with the

young bees showing a grey hairy fringe on the abdominal segments.

The bee, commonly called by the Dutch the Kranze bee seems to be the most ferocious of all, and they will attack and sting without any apparent reason. They are very small and dark in colour. When domesticated the wild bees have a great tendency to swarm, but are excellent workers. The agricultural shows have done a great deal to develop beekeeping on the right lines, and the grading of honey by the South African Beekeepers' Association before it goes to the depots for sale has raised the standard considerably. The prices last month were:—First grade sections, 15 oz. to 16 oz., 1s. 5d. each; second grade, 1s. 2d. each. Good sections that have candied, 11d. to 8d. each. Extracted first grade honey, 18s. per doz.; second grade, 16s. per doz.; third grade, 14s. per doz. Beeswax, raw, 2s. per lb.; treated 2s. 6d. per lb.. There is a great demand for wax throughout the whole country, and in the large towns the demands for first-grade honey is increasing, but the beekeepers with a few exceptions, have not learnt the art of sending honey to market. Certainly the conditions for transport are not so easy or so safe as in this country, and the tremendous distance some of the produce has to travel is unknown here. The price of hives and appliances was at one time prohibitive, and but for this, no doubt, beekeeping could have advanced more rapidly. I am afraid this was due to the grasping methods adopted by some of the British manufacturers and their agents, together with the high freightage rates.

The flora of South Africa is in some districts the finest in the world. After the rains flowers spring up all over the veldt, and the natural forests in Cape Colony swarm with wild bees and abound in flowering trees. One tree bears the appropriate name of the "honey bush." The eucalyptus, which is being planted

all over the country, yields honey during the winter. The acacia is one of the first trees to blossom in the spring, the tamarisk, beefwood, and mimosa yield good honey, as do also the fruit trees, especially in districts where there are large orchards. In Natal are the mango, loquats, orange blossom, and in some parts the veldt flowers alone yield an abundant harvest. Lucerne is largely grown, but it has not quite come up to the expectations of the South African beekeepers, as the bees will not work on it if there are any other sources of nectar; the flowers explode and hit the bees when they alight, and this disconcerts them. Lucerne that is irrigated with water pumped direct from wells, and which is not allowed to stand some time in the sun, being run straight on to the land, does not secrete nectar. In the Cape Province this plan is not followed but irrigation from reservoirs is carried on, and the farmers reap some excellent crops of honey. The tree lucerne yields a honey of good flavor, and is readily visited by the bees. Some plants and trees only secrete nectar at certain times of the day during the very hot weather, generally in the early mornings and evening; in fact during very warm weather the bees frequently leave the hives and work by moonlight some time before day-break.

It is impossible to give the slightest idea of the differences of climate in such a vast country. In some parts there is not a drop of rain for from eleven to fifteen months at a time; then a deluge comes. I have seen four inches of rain fall in one hour. It was quite usual to have 16 degrees of frost at night in June on the farm I was on in the Free State, and last winter we had from 21 degrees to 26 degrees of frost, but that is very unusual. Throughout the whole country, however, there is always the bright sunshine, and the clear air which means so much to Sunny South Africa.

The South African bees are excellent

workers; I have heard of cases in Rhodesia and Cape Colony where twenty-one sections were filled in two days. The best record I personally know of is a September swarm put into a new hive, and it produced 48 lb. of honey, one natural and one artificial swarm, and went into winter quarters with five frames of sealed honey. I went down from Bloemfontein to Durban show one June. Our bees in the Free State were wintered just like bees at home, and the queens had not laid since April. I found the Natal bees busy at work, queens laying and brood in all frames. It was quite hot weather in Natal. I have heard it stated that the short (or no) rest of the queens during winter causes less energy in the spring, and the queens wear out sooner; consequently some beekeepers re-queen every year. It has been suggested, but I do not think tried, to cellar the hive for a month or two during the winter, and so compel a complete rest. One great mistake made by Beginners in beekeeping is that they only studied British and American books, and fail to realize that the seasons are different, and everything does not apply to South Africa. There are also people who seem to think that they can keep bees without studying them at all. One great safeguard to beekeeping is the fear of stings, this prevents many undesirable would-be keepers of bees from doing so.

Bees in South Africa have many enemies; different species of birds, ants, wax moth, death'shead moth, snakes, spiders, toads, sometimes Kaffir boys, and 'worst of all the "bee pirate," or bee tiger as it is called, and by the Dutch "mal-bij," which means bad bee. It is a species of Digger wasp which preys upon hive bees.

There are several species of these, the banded one and the yellow being most common. They are very strong and swift in flight; the yellow ones catch the bees on the wing and on the flowers and the striped ones wait on the floor board

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South Africa great possibilities feel sure that b become a great source of national honey classed as products of the c —From a paper a meeting of th Association.

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of the hive and catch them as they go in and out; the bees become so frightened that they will not leave the hive, but cluster at the entrance. Their procedure is to sting the bees to death, lay their eggs in the body, carry this off to their burrows, and there the young hatch. Various methods are adopted to catch these pirates; the most useful seems to be a white plate half filled with paraffin oil and water placed in the sun near the hive. This attracts them and dazzles them, when they drop into the liquid and get drowned.

South Africa is a young country with great possibilities for agriculture, and I feel sure that beekeeping will one day become a great industry, and a rich source of national wealth. I have heard honey classed as one of the "staple" products of the country.

—From a paper read by Miss Sillar at a meeting of the British Beekeepers' Association.

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### BEWARE OF FOUL BROOD

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In a honey flow, in the evening, remove the colony from its stand and set in its place a clean disinfected hive containing clean frames with foundation starters. If the weather is very warm, place an empty hive under the one containing the starters for a few days, to give a good clustering place for the swarm. Cover the entrance with queen-excluding metal. Now shake the bees from the combs of the old hive into the new; but if any fresh nectar flies out in shaking it will be necessary to brush the bees. Get these combs immediately under cover, and clean up very carefully any honey that may be around, so robbers from healthy colonies cannot carry home disease.

When the diseased colonies are weak in bees, two or three should be put together into one clean hive so as to get a good-sized colony. In doing this diseased colonies must be united with their next-door neighbor and not carried to another part of the apiary.

All combs from the supers as well as from the brood-chambers of the diseased colonies must be either burned or melted and boiled thoroughly before the wax is fit to use again. The honey that is removed is entirely unfit for bee feed and should be buried deep enough to be out of the reach of any bees.

For fuller particulars in reference to Foul Brood see Bulletin No. 197, issued by the Ontario Dept. of Agriculture, which will be sent you on application to the Director, Fruit Branch, Parliament Buildings, Toronto.

When writing to advertisers, please mention the Canadian Bee Journal.

## Want and Exchange Column

Advertisements for this column will be received at the rate of 50 cents for 25 words, each additional word one cent. Payments strictly in advance, as the amounts are too small to permit of book-keeping. Write copy of ad. on a separate sheet from any other matter, and on one side of the paper only. Say plainly how many times ad is to be inserted. Matter must reach us not later than the 23rd of each month.

### WANTED

**WANTED**—Offers wanted for this season's crop of Light Extracted Honey, buyer to furnish tins and bear all transportation charges. Mention size of container when writing. Miss F. Palmer, Shetland, Ont.

**HIVES**—Wanted, a few 10-frame Langstroth hives, in good condition, second-hand, Ham & Nott goods preferred. A. Crutcher, Bee-keeper, Burns, Ont.

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**WANTED**—Your order for untested, leather-colored Italian Queens. One 75c; 10 for \$7. Select virgins, 10 for \$4.50. N. E. France & Son, Platteville, Wis., U.S.A.

**WANTED**—To buy, Bees, Honey and Wax. Bee-keepers' supplies for sale, especially the A. I. Root Co.'s line of goods. Address F. W. Bell, 4 Cherrier St., Montreal, Que. tf

**WANTED**—Representative wanted in each locality to mail circulars for Cut-Rate Grocery Mail Order House. Few hours' spare time will easily earn \$20 weekly. Any one can do the work. Outfit furnished free. Dominion Grocery Co., Windsor, Ont. tf

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**FOR SALE**—25 colonies of bees and outfit. A good locality here for keeping bees. George Ott, Arkona, Ont.

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**LAST** Spring we were a hundred or more colonies short in filling orders. We are prepared to book orders for ten-frame Langstroth colonies, 75 per cent. pure Italian, balance Italian and Carniolan mixed; all from Southern States in Spring. Guaranteed free from disease. R. F. Holtermann, Brantford, Ont.

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# Gasoline Engines

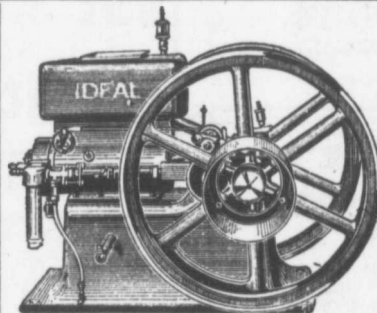
We have the largest and most up-to-date Gasoline Engine Factory in Canada and build the most complete line.

**1½ to 50 h.p. Stationary, Portable, Traction**

Power Spraying  
Outfits.

Grain Grinders

Galvanized  
Steel and Wood  
Storage Tanks.



Windmills Gal-  
vanized after  
Completion

Towers girted  
every 5 ft. and  
double braced

Concrete  
Mixers

**Pumps, Water Boxes, Etc.**

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**Goold, Shapley & Muir Co**  
Limited

**Brantford, Winnipeg, Calgary,  
Saskatoon**