

ANNUAL REPORT
OF THE
BEE-KEEPERS' ASSOCIATION
FOR THE
PROVINCE OF ONTARIO
1894.

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO.)

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1895.

ONTARIO

To the Honorable the

SIR,—I have the
Ontario Bee-Keepers'
Meeting, recently held
Report of the Foul
mitted herewith.

STREETSVILLE, April,

ANNUAL REPORT
OF THE
ONTARIO BEE-KEEPERS' ASSOCIATION
1894.

To the Honorable the Minister of Agriculture :

SIR,—I have the honor to submit herewith the fifteenth Annual Report of the Ontario Bee-Keepers' Association, in which will be found the papers read at the Annual Meeting, recently held at Stratford, and a full report of the discussions thereon. The Report of the Foul Brood Inspector and the audited statement of the finances are submitted herewith.

Your obedient servant,

WM. COUSE,
Secretary.

STREETSVILLE, April, 1895.

OFFICERS FOR 1895.

<i>President,</i>		J. B. HALL, Woodstock.
<i>Vice-President</i>		J. K. DARLING, Almonte.
<i>Secretary</i>		WM. COUSE, Streetsville.
<i>Treasurer,</i>		MARTIN EMIGH, Holbrook.
<i>Directors :</i>		
Division No. 1	.....	W. J. BROWN, Chard.
Division No. 2	.....	J. K. DARLING, Almonte.
Division No. 3	.....	M. B. HOLMES, Athens.
Division No. 4	.....	ALLEN PRINGLE, Selby.
Division No. 5	.....	J. W. SPARLING, Bowmanville.
Division No. 6	.....	WM. COUSE, Streetsville.
Division No. 7	.....	ABNER PICKET, Nassagaweya.
Division No. 8	.....	F. A. ROSE, Balmoral.
Division No. 9	.....	S. T. PETTIT, Belmont.
Division No. 10	.....	A. E. SHERRINGTON, Walkerton.
Division No. 11	.....	F. A. GEMMELL, Stratford.
Division No. 12	.....	W. A. CHRYSLER, Chatham.
Division No. 13	.....	H. N. HUGHES, Barrie.
<i>Foul Brood Inspector,</i>		WM. McEVOY, Woodburn.
<i>Sub-Inspector</i>		F. A. GEMMELL, Stratford.

Name.

Artley, W. M.	.....
Armstrong, John	.....
Brenton, F.	.....
Blais, A. J.	.....
Boomer, A.	.....
Buller, Miss H. F.	.....
Brown, W. J.	.....
Brown, Dennis	.....
Baker, Lemon	.....
Bridge, A.	.....
Black, Alex	.....
Couse, H.	.....
Coomer, D. N.	.....
Calder, J. W.	.....
Couse, W.	.....
Chalmers, D.	.....
Chrysler, W. A.	.....
Clarke, Rev. W. F.	.....
Calvert, J.	.....
Charbonneau, Jos	.....
Craig, W. J.	.....
Cruikshank, J. M.	.....
Court, W. C.	.....
Dickenson, Edward	.....
Duncan, Dr. Geo. E.	.....
Deadman, Geo. A.	.....
Dickson, Alexander	.....
Darling, J. K.	.....
Dickson, Jas.	.....
Edmundson, C.	.....
Ely, Daniel	.....
Emigh, Martin	.....
Ellis, William	.....
Engle, Conrad	.....
Evans, J. D.	.....
Fowler, R. A.	.....
French, Augustine	.....
Farquharson, D. R.	.....
Frith, Jas. E.	.....
Fyfe, Albert	.....
Fairley, Jos. H.	.....
Gemmell, F. A.	.....
Goodyear, Wm.	.....
Gale, Henry C.	.....
Gendron, Moise	.....
Holtermann, R. F.	.....
Hughes, H. N.	.....
Heise, D. W.	.....
Hillsdon, W. A.	.....
Harkley, John	.....
Hoshal, A. E.	.....
Holmes, M. B.	.....
Hall, J. B.	.....
Hinchley, John	.....
Hunter, J. W.	.....
Helme, Jas.	.....
Isler, Wilson	.....
Jones, E. A.	.....
Jeater, W. H.	.....
Johnston, Geo. E.	.....
Kay, Jas	.....
Landrey, Magliore	.....
Lush, N.	.....
McCartney, R.	.....
McEvoy, Wm.	.....
Morrison, R. A.	.....
McCrinmon, J. N.	.....
McKnight, R.	.....

LIST OF MEMBERS FOR 1895.

Name.	P. O. Address.	Name.	P. O. Address.
Artley, W. M.	Walters' Falls.	Myers, John.	Stratford.
Armstrong, John	Streetsville.	Morris, J. D.	Dunvegan.
Brenton, F.	Corbyville.	March, John.	Bethesda.
Blais, A. J.	Glen Sandfield.	Moore, Thos.	Carholme.
Boomer, A.	Linwood.	McKenzie, Wm	Woodbridge.
Buller, Miss H. F.	Campbellford.	Miller, F. J.	London, 212 Dundas St.
Brown, W. J.	Chard.	Millard, Fred	Dutton.
Brown, Dennis	Chard.	McDonald, R. W.	Galt.
Baker, Lemon	Ringwood.	Newton, John	Thamesford.
Bridge, A.	Westbrook.	Nolan, Wm	Holton.
Black, Alex	Sonya.	Ort, Francis	Darling Road.
Couse, H.	Cheltenham.	Presley, Jos	Clarence Creek.
Coomer, D. N.	Florence.	Panter, Jos	Peterborough.
Calder, J. W.	Lancaster.	Pirie, John	Drumquin.
Couse, W.	Streetsville.	Paterson, R. L.	Linden.
Chalmers, D.	Poole.	Parker, Jas.	Napperton.
Chrysler, W. A.	Chatbam.	Post, C. W.	Trenton.
Clarke, Rev. W. F.	Guelph.	Picket, A.	Nassagaweya.
Calvert, J.	Walsh.	Pringle, Allen.	Selby.
Charbonneau, Jos	Plantagenet.	Pettit, S. T.	Belmont.
Craig, W. J.	Brantford.	Pyke, Rev. R.	Shakespeare.
Cruikshank, J. M.	Lyons.	Pierce, Moses	Brinsley.
Court, W. C.	Derwent.	Rosser, E.	Denfield.
Dickenson, Edward.	North Glanford.	Roach, R. W.	Little Britain.
Duncan, Dr. Geo. E.	Embro.	Rowand, Andrew.	Walkerton.
Deadman, Geo. A.	Brussels.	Rowand, Abram.	Walkerton.
Dickson, Alexander.	Lancaster.	Reaman, Josiah	Carville.
Darling, J. K.	Almonte.	Rivers, Charles.	Alfred.
Dickson, Jas.	Pendleton.	Rose, F. A.	Balmoral.
Edmundson, C.	Brantford.	Roadman, Isaac	Little Britain.
Ely, Daniel	Moorefield.	Russell, W. G.	Millbrook.
Emigh, Martin	Holbrook.	Schell, Levi	Gormley.
Ellis, William	St. David's.	Shier, Julius	Vroomanton.
Engle, Conrad	Poole.	Smith, S. M.	Listowel.
Evans, J. D.	Islington.	Schultz, H. A.	Clontarf.
Fowler, R. A.	Emerald.	Sly, Aaron	Port Hope.
French, Agustine.	North Glanford.	Sloan, W. A.	Milford.
Farquharson, D. R.	Walton.	Sparling, J. W.	Bowmanville.
Frith, Jas. E.	Princeton.	Sayer, Levi A.	Deseronto.
Fffe, Albert.	Harriston.	Slamford, Geo. Henry	Hamilton.
Fairley, Jos. H.	334 Mary St., Hamilton.	Sherrington, A. E.	Walkerton.
Gemmill, F. A.	Stratford.	Shultz, Ernest.	Kilworthy.
Goodyear, Wm.	Woodstock.	Smith, R. H.	St. Thomas.
Gale, Henry C.	Ormsdown, Que.	Stover, Jas.	Lindsay.
Gendron, Moise	The Brook.	Sigle, John	Walkerton.
Holtermann, R. F.	Brantford.	Shantz, Aaron	Haysville.
Hughes, H. N.	Barrie.	Shaver, J. H.	Cainsville.
Heise, D. W.	Bethesda.	Smith, Alexander	Glandine.
Hillsdon, W. A.	Ingersoll.	Shaw, Jas.	Kemble.
Harkley, John	Walkerton.	Switzer, J. F.	Streetsville.
Hoshal, A. E.	Beamsville.	Thomas, Joshua	Dracon.
Holmes, M. B.	Athens.	Tombs, Jas.	Alexandria.
Hall, J. B.	Woodstock.	Tolton, Archie.	Walkerton.
Hinchley, John	Constance.	Thurston, Wm.	Bobcaygeon.
Hunter, J. W.	London, c/o J. S. Pearce & [Co.	Taylor, W. P.	Fitzroy Harbor.
Helme, Jas.	Smith's Falls.	Vandervord, Geo. J.	Weston.
Isler, Wilson	Waterloo.	Vernon, M. W.	Newmarket.
Jones, E. A.	Kertch.	Woodland, L. L.	Rockland.
Jeater, W. H.	Kincardine.	Wood, Geo.	Monticello.
Johnston, Geo. E.	Bracebridge.	Wisner, Isaac G.	South Cayuga.
Kay, Jas	Pert Sidney.	Whiteside, R. F.	Little Britain.
Laudrey, Magliore	Clarence Creek.	Wells, W. C.	Phillipston, Hastings Co.
Lush, N.	Peterborough.	Wood, Samuel	Nottawa.
McCartney, R.	Rose Hall.	Walton, W. S.	Scarboro Junction.
McEvoy, Wm.	Woodburn.	Willows, A. G.	Carlingford.
Morrison, R. A.	Inverary.	Warden, W.	St. Paul's.
McCrinmon, J. N.	Laggan.	Whetstone, Josiah.	St. Marys.
McKnight, R.	Owen Sound.		

ONTARIO

The fifteenth of
Stratford, on January
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ANNUAL MEETING
OF THE
ONTARIO BEE-KEEPERS' ASSOCIATION

The fifteenth annual meeting of the Ontario Bee-keepers' Association was held at Stratford, on January 22, 23 and 24, 1895. The meeting was opened in the City Hall, but was almost immediately adjourned to the Council Chamber for the greater comfort of those in attendance.

Mr. A. PICKET, President, occupied the chair, and in opening said that it afforded him a great deal of pleasure to see so many old faces before him—the faces of those who had been associated in the past in the cause which they were endeavoring to advance. He was also pleased to see the faces of those who were strangers to him.

THE QUESTION DRAWER.

Pending the arrival of the Secretary, the President thought it would be advisable to open the Question Drawer.

The first question proposed was: Are queens raised after the swarming season less likely to swarm the following season?

Mr. J. K. DARLING, Almonte, said: I have some queens raised after the swarming season; but not having paid any particular attention to them I could not say whether they are as liable to swarm the following season or not. There may be something in it, but I question very much if it will have a very great effect in the swarming or non-swarming proclivities of the bees.

Mr. R. F. HOLTERMANN: There are so many other conditions connected with swarming that it is impossible to answer the question as it is.

Mr. R. MCKNIGHT, Owen Sound: That suggests another question: Is it the queen that determines the swarms?

Mr. J. B. HALL: It is hardly a fair question to ask. If the queens are raised after the honey-making season or after the superseding of the old queen, they are not so liable to swarm, because they belong to a non-swarming race of bees; but if you raise them after taking the mother away from them it would make no difference whatever.

Mr. ALLEN PRINGLE, Selby, said: I believe in the laws of heredity, but I do not think these laws would take effect so soon as Mr. Hall suggests.

Mr. HALL: Certainly; it would take generations before the results would take place.

Mr. MCKNIGHT: Does the queen determine the swarm?

Mr. HALL: She does through her daughters.

Mr. MCKNIGHT: Does the swarming instinct lie in the queen or her daughters?

Mr. HALL: All the properties are from the mother, because she is the mother of the lot.

Mr. PRINGLE: I agree with what Mr. Hall has said; but that is not the question. The question is: Does the immediate impulse come from the queen or from the workers?

Mr. HALL: That's a different question. The immediate impulse comes from the workers, because they find their mother failing. But the mother is responsible for all the good and bad qualities of her offspring.

Mr. R. H. SMITH: It may not depend altogether on either the queen or the bees. It may depend on the honey flow.

Mr. HALL: But it all comes back to the queen.

Mr. SMITH: They may be getting crowded, and want to swarm for that reason.

Mr. HALL: But they don't swarm after the honey flows. Swarming during the honey season or after the honey season comes from the mother.

Mr. DARLING: The question is that of the immediate impulse—the impulse a day or so before the intention is had to swarm. That comes from the bees and not from the queen. The queen may share it, but very often she does not. I have known instances where the bees wanted to swarm and where they forced the queen out time and again; but she would dodge back over their heads and into the hive again.

Mr. HOLMES, Athens: Why do we find that the queen cells are started quite a few days before the queen has deposited her egg, if the fault lies with the queen?

Mr. HALL: It is not a fault.

Mr. HOLMES: Perhaps that is not the word.

Mr. WALTON: I believe that the impulse is from the queen. Nearly everything in apiculture centres round the queen.

Mr. PETTIT said that it was a question of which started the racket to get out. "I believe," said he, "that the conditions of the hives are inherited from the queen; but when the impulse for swarming is on it is the bees that raise the racket."

Mr. HALL said that it was like a riot. The mass of people did the rioting, but it was one or two leaders who did the inciting.

The next question was: What is the best hive for wintering purposes?

Mr. HOLTERMANN: The hive I use.

Mr. GEMMELL, Stratford: Every man supplies that for himself.

The discussion was developing into a debate on the merits of outdoor and indoor wintering when Mr. R. H. SMITH intimated that he was down on the programme for a paper that would cover that phase of the subject.

The next question was: How much does it cost to produce a pound of honey?

Mr. GEMMELL doubted if anyone could give a correct answer to that question.

Mr. MCKNIGHT: I have heard it demonstrated how much it costs to produce a pound of butter, and I don't see why the cost of a pound of honey cannot be calculated. The whole question of profitability or non-profitability of honey-producing rests on what the answer will be.

Mr. HOLTERMANN: It depends on the locality and on the handling. All we can aim at is to produce the best article possible for the least cost possible, as people are doing in other branches. It appears that we should be able to have something authentic as to what it costs to produce a pound of honey; but as we are situated there are very few, if any, who are able to give these figures. The seasons vary very much, too; and then there are men who will sell their whole crop at very low prices—8 cents or less—and consider they have made a fair thing out of it.

Mr. HOLMES: I say, a laboring man would be from 4 to

Dr. DUNCAN, E pound of honey did when it cost double

Mr. W. J. BRO cost one man a good more than another.

Dr. DUNCAN, E themselves ten tim cost double more the

Mr. HOLTERMANN few colonies and in circumstances may o all working with a v ence, skill and intell tainly will cost some fore, it costs someh requires experience o costs something to p

Mr. SMITH: TH manage the bees as men went into the b their final experienc stood and were adap I have come to the o the business as there

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President PICH passed since we last your president, it no last we met we have some ways adverse t high, and with but coming out strong in better than for ma gathered some necta than live on what w

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Then there hav the seventh of April

Mr. HOLMES : I don't force my honey on the market, and should I allow myself, say, a laboring man's wages, I would say that the cost to produce a pound of honey would be from 4 to 4½ cents.

Dr. DUNCAN, Embro : My experience is this : I have seen some seasons when a pound of honey did not cost anything. On the other hand, there were other seasons when it cost double what it was worth.

Mr. W. J. BROWN, Chard : I don't think anyone can give exact figures. It may cost one man a good deal more than another, and in one particular season it may cost more than another.

Dr. DUNCAN, Embro, was asked for his opinion, and said : The bees will pay for themselves ten times over if it is a good season. If it is not a good season they will cost double more than they are worth.

Mr. HOLTERMANN : A man who does not understand anything about bees may buy a few colonies and in one particular year they may produce honey for nothing. But the circumstances may change, and he may find himself a loser on his investment. We are all working with a view to the dignity of our calling. We know that it requires experience, skill and intelligence to succeed for any length of time. These qualifications certainly will cost something, and as they are required in the production of honey, therefore, it costs something to produce honey. We must always have it understood that it requires experience and skill to produce honey, and in that view of the case it always costs something to produce the honey.

Mr. SMITH : The cost of the honey depends upon the experience of the parties who manage the bees as much as on the bees themselves. I know of several instances where men went into the bee business, and with a little experience got more bees, to find as their final experience that they had very little honey, whereas many others who understood and were adapted to the business, were able to produce large stocks of honey. I have come to the conclusion that there is as much in the experience that is applied to the business as there is in the bees themselves.

At this point Mr. Secretary Couse arrived and read the minutes of the last preceding meeting, held at Lindsay on January 9, 10 and 11, 1894, which were discussed at some length, and adopted.

THE PRESIDENT'S ADDRESS.

President PICKET then delivered the following address : Another year having passed since we last met in Lindsay, where, by your unanimous vote, you made me your president, it now becomes my duty to give an account of my stewardship. Since last we met we have had a year during which there have been some changes—a year in some ways adverse to bee-keepers. During the winter of 1893-4 the temperature was high, and with but few changes. The spring opened somewhat earlier than usual, bees coming out strong in numbers, with but few losses, and the prospect to my mind seemed better than for many years. But how soon were we doomed to disappointment ; bees gathered some nectar from the willow and soft maple, after which they did but little more than live on what was left of their winter stores.

The rain and cold weather kept them in till many colonies had eaten all the stores that were left from winter, and they died from starvation before they could get nectar to gather. Those living through were so lessened in numbers that but little clover honey was taken, and they were not ready to do good work until the linden bloomed, and because of the drouth it only remained in bloom a few days, the season ending with no more than one-half crop, and in many places there was scarcely enough to winter on. The increase of colonies in many places was very small.

Then there have been changes in our ranks. You will doubtless remember that on the seventh of April last we were called to mourn the death of our worthy secretary, S.

Cornell. While carrying out his bees and placing them on their summer stands, he suddenly expired. On hearing of his sudden death I hastened to write a few words of sympathy and condolence to the bereaved family, which expression was acknowledged by his son. I shall ask this Association to pass a resolution of sympathy to the bereaved family, and should it take a practical shape, I shall be much pleased, as I understand it is much needed by them.

I am pleased to note that our annual meetings are improving year by year in the number that attend and the interest manifested—also in the desire to know more about this our chosen pursuit. I also note a more earnest desire on the part of members of the Association to attract outsiders, by preparing entertainments to which the public are especially invited, seeking in every proper way to interest them and advance the art of bee culture.

I take pleasure in assuring you that both the Provincial and Dominion Governments are interested in apiculture, as shown by their giving us a Foul Brood Act and what is known as the Spraying Bill. I have been informed that the Dominion Parliament passed the Bill known as the Pure Honey Bill, which was defeated in the Senate. This fact is greatly to be deplored, after our spending so much of the funds of the Association on committees in trying to secure its passage.

As regards the prizes awarded at Chicago on honey and implements used in the apiary, I am not aware that they have yet reached those who were successful in earning them.

The number of affiliated associations is about the same as last year, with a prospect of a large increase in numbers if we had the means to encourage them to affiliate. Being short of funds, we cannot offer sufficient inducement to others to organize these associations. I hope that in the near future the Provincial Government, through the Minister of Agriculture, may see fit to place an amount at our disposal sufficient to meet our necessities in this particular.

I also bring before your notice the prize list of the Toronto Industrial Exhibition. As it reads at present the judges will have a task which they cannot perform with any degree of satisfaction to themselves or to those exhibiting honey or articles in which it is used.

In referring to the matter of foul brood, it is my earnest wish that the work which the inspector is doing shall be pushed forward until the disease cannot be found anywhere in this province of ours. The inspector has had a busy year in trying to clear out the scourge, and has had an amount of success which it is pleasing to note. Many who had the disease in their apiaries in the early summer are now free from its ravages, and we rejoice in the fact that we have one who can deal with it so successfully.

Allow me to thank you for choosing me to fill the responsible position of president and to assure you that I have endeavored carefully to perform the duties devolving upon me during the past year. After all the difficulties we have had to contend with, there is much to encourage us for the future; and we may fairly hope that, with perseverance and attention, we may place this industry on a good financial basis, and reap more largely the sweets of our labors.

Mr. GEMMELL moved and Mr. PETTIT seconded a vote of thanks to the president, which was carried.

CONVENTIONS.

Mr. A. E. SHERRINGTON, Walkerton, then read the following paper:

As the subject of this paper is "Conventions," the question might be asked what is a convention, and what is its object? A convention, as I understand it, is an organization of a body of men, or women, as the case may be, for the advancing of their calling, whether it is bee-keeping, farming, fruit growing or any other line of business. These conventions and institutes offer excellent opportunities for the interchange of ideas, and

for the dissemination and farmers themselves. But I wish here on widened greatly if as possible contribute interest and attention.

The object of reading of papers a past year's failures arrange for the expiring of our cause. acquainted by combe-keepers and far Association and Fa means of broadening time to come.

Now, in regard be more in the line for I claim that dis in what way can th general in the futur the years gone by, tion should be chan new blood into an a

The question a length. Some were however, was in fav subject he had in ha out the facts in con It was agreed that and issued to memb

Mr. HALL, I m a programme. Mr.

Mr. JAMES FLETCHER, Ontario, 1894, a paper "The Bees." Prof Fletcher was one of the most prominent beekeepers in America. The paper

At the Rochester experiments looking bloom affect the be either honey or any of the effect upon the in this question will be therefore, not be necal conditions under conclusive in point of favorable season in arrived in which I m

On May 2nd two thoroughly sprayed

for the dissemination of helpful information gained by practical experiments of bee-keepers and farmers themselves. They also promote the growth of the true co-operative spirit. But I wish here only to give a word of encouragement. The influence for good would be widened greatly if the meetings were better attended; therefore let as many of our friends as possible contribute to the success of these conventions and institutes by their personal interest and attendance.

The object of a convention is to hold meetings where we may gather together for the reading of papers and essays and discussing of the same, and giving our experience of the past year's failures as well as its successes, and lay our plans for the future; also to arrange for the expenditure of such moneys as may be entrusted to our care for the assisting of our cause. Then there is the sociability of those meetings, where we get better acquainted by coming in personal contact with one another; and I must say, that the bee-keepers and farmers who do not attend the meetings of the Ontario Bee-Keepers' Association and Farmers' Institutes are not only losing in dollars and cents, but the means of broadening their views as well as laying up a store of food for thought for some time to come.

Now, in regard to the papers and essays that are read at conventions, they should be more in the line of questions than mere essays, so as to bring out a good discussion, for I claim that discussion is the life of a convention. Now the question may be asked, in what way can this Association be made more useful to its members and bee-keepers in general in the future than it has been in the past? Not but that it has done grand work in the years gone by, but still there is work ahead yet. I think the officers of an association should be changed quite frequently, for I claim that there is nothing like infusing new blood into an association or organization, let it be what it may.

The question as to how to make the conventions more successful was discussed at length. Some were in favor of essays and some against. The preponderance of opinion, however, was in favor of essays, as the essayist was likely to understand the particular subject he had in hand, and, with time for thought and study of it, more likely to bring out the facts in connection with it than the off-hand speaker without special preparation. It was agreed that the programme should be carefully prepared by a special committee, and issued to members and others as long before the annual meeting as possible.

Mr. HALL, I move that the executive committee be a committee in future to arrange a programme. Mr. Pettit seconded this motion and it was adopted.

SPRAYING WITH ARSENITES *vs.* BEES.

Mr. JAMES FLETCHER, of Ottawa, read from the report of the Entomological Society of Ontario, 1894, a paper by F. M. WEBSTER, Wooster, Ohio, on "Spraying with Arsenites *vs.* Bees." Prof. Fletcher prefaced the reading of this paper by saying that Prof. Webster was one of the most accurate and careful observers as an entomologist we have in North America. The paper was as follows:

At the Rochester, N. Y., meeting of the Association, I gave the results of some experiments looking toward a solution of the problem, "Will spraying fruit trees while in bloom affect the bees which afterwards visit these trees for the purpose of securing either honey or any other substance carried to the hives, and if such be the case, what is the effect upon the inmates of such hives?" The results of my first attempt at settling this question will be found on record in *Insect Life*, vol. v., pp. 121-123, and it will, therefore, not be necessary for me to repeat them here. On account of the meteorological conditions under which the experiments were carried on they have never been deemed conclusive in point of definite results, even by myself, and I have only been waiting a favorable season in order to finish the work. This year the time appeared to have arrived in which I might hope to solve the problem.

On May 2nd two apple trees in full bloom—and the blossoms were abundant—were thoroughly sprayed with a mixture of 1 ounce of Paris green to each 12 gallons of

water. After the water had evaporated the poison could be clearly observed both on bloom and foliage. The application was made during the forenoon, the day being warm and clear, and during the afternoon quite a number of bees were caught while visiting the bloom and marked with carmine ink. The hives were located but a few yards distant from the trees, and both being situated at a considerable distance from any other trees at that time in bloom. None of these marked bees were afterwards found dead about the hives. During the night following the application there was a rainfall of 0.20 inch. On the following day bees were caught and killed by being dropped into a cyanide bottle where the cyanide was imbedded in plaster of Paris, after the usual custom. As soon as the bees were dead they were dissected as follows: The posterior legs with pollen attached were severed from the bodies and placed in a small glass vial and securely corked. The contents of the abdomens, including the honey sacs, were next dissected out and placed in a separate vial, and the same mode of procedure was followed with the whole inside of the thorax, this giving me the entire bee except the head, anterior and middle legs, wings, and chitinous walls of the thorax and abdomen. Besides these a number of the bees were kept intact. The whole series was submitted to the assistant professor of chemistry of the Ohio State University, L. M. Bloomfield, to be tested for arsenic by the Marsh method. Mr. Bloomfield found the weight of material submitted in each case to be as follows: Posterior legs with pollen attached, 0.3498 gram; contents of abdomens and honey sacs, 0.0990 gram; ditto thorax, 0.0710 gram. After the usual tests to prove the absence of arsenic in the reagents it was found that no arsenic was associated with the posterior legs or the pollen with which they were loaded, none had been left in the thoracic matter, but the material from the abdomens gave unmistakable proof of the presence of arsenic. The entire bodies of a number of the bees, taken at the same time from the same tree, were then washed with diluted ammonia water, three washings failing to give a trace of arsenic, but the bodies, after being thus treated, and being boiled in water slightly acidulated, gave distinct traces of the poison, thus eliminating any possibility of the poison having been introduced into the abdominal matter at the time of dissection and from the exterior. May 15th a crab-apple tree (*Crataegus*) was sprayed with a mixture of the same ratio of Paris green as before, but in this case only the contents of the abdomens were retained. This matter, to the weight of 0.1463 gram, treated as in the preceding, gave unmistakable proof of the presence of arsenic.

Just at this stage of my investigations, chance, if such a thing there be, threw in my way still more conclusive proof. A few days prior to my last experiment, probably about May 10th, a small apple orchard on the experiment farm was sprayed with Bordeaux mixture, to which had been added Paris green at the rate of 4 ounces to each 50 gallons of the mixture. The bloom had at this time nearly all fallen from the trees, the exceptions being an occasional belated cluster. Three colonies of bees, recently brought on to the premises, were located near by, to all appearances in a perfectly healthy condition. A few days after the application of the poisoned Bordeaux mixture one colony suddenly became extinct and a second greatly reduced in numbers, dead bees being abundant about both hives. From these colonies I was able to secure dead bees, and both honey from uncapped cells and dead brood from the hive that had been so mysteriously depopulated. When tested for arsenic by Mr. Bloomfield, precisely as with the other matter, contents of abdomens of the dead bees to the amount of 0.2334 grams revealed the presence of arsenic; 3.7061 grams of honey gave no trace of the poison, while 1.8481 grams dead brood showed it to be present, and the entire bodies of the dead bees thrice washed in ammonia water, as before explained, gave traces of arsenic. In regard to the honey I can only say that it was from uncapped cells, which might and probably did contain last year's honey that was still being used for a partial food supply by the bees.

Briefly recapitulated, arsenic was found present in the contents of the abdomens of bees frequenting recently sprayed blossoms, and we are at least free to assume that more or less of it was contained in the honey sacs. The dead bees three times washed in ammonia water, the latter not revealing the presence of arsenic externally, when tested, showed its presence internally. Brood from uncapped cells (larvæ) of a colony suddenly

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dying without other apparent cause gave evidence of having died from the effect of arsenic, which could have been introduced only from without.

In summing up the matter, then, I can see no other conclusion that can be drawn from the results of my experiments than that bees are liable to be poisoned by spraying the bloom of fruit trees, the liability increasing in proportion as the weather is favorable for the activity of the bees, and that all bloom must have fallen from the trees before the danger will have ceased.

Finally, I believe we now have the first conclusive proof of the effect on bees by the use of arsenical poisons in the orchard while the trees are in bloom. Heretofore all has been uncertainty, the statements made being based on either pure assumption, or, as in one instance, on the result of penning up bees and feeding them on poisoned sweetened water. It is certainly to the credit of the entomological fraternity of America that among their number but few could be found willing to risk a positive assertion based on such slender and unreliable information, and I feel that I am fully justified in pointing out the fact that in the case of two of our fellow members, Dr. Lintner and Mr. Fletcher, in the face of the legislative bodies of their respective States, both refused to commit themselves to the extent of making positive statements either one way or the other.

Mr. Lintner said that his position hitherto had been that laws ought not to be passed on the subject unless it was amply proved that harm did result to bees; and even in that event, the relative interests of the bee-keepers and fruit growers should be carefully weighed, since it has been shown by him that many harmful insects also visited the blossoms, and they would stand an equal chance with the bees of being poisoned by the arsenical mixtures.

Mr. Smith said that the bee-keepers would always have an advantage when it came to securing legislative action, because, while they represented a comparatively small number of individuals, they are well organized, and can secure action where the much larger body of fruit growers would be powerless.

Mr. FLETCHER: Now, Mr. President, that is the result of actual experiments carried on with great care by a competent man, and it shows that there is danger of killing bees with a mixture applied to kill other insects. Paris green is a chemical compound of arsenic and copper, containing about 60 per cent. of arsenic. It is, therefore, wrong to apply Paris green when trees are in blossom. You may injure the stigma, and there is danger to the bees. Spraying for the codling moth and the plum curculio is more effective in killing insects after the blossom has dropped and there is no danger. On the other hand, it is very dangerous to spray while the trees are in bloom, and there is no advantage whatever. After a careful examination of this subject, and also after ten years' investigation of crop injuries by insects, I cannot think of a single kind that requires the spraying to be done while the trees are in bloom. There are one or two that can be treated before bloom; but bees do not resort to trees before the development of the nectar. We have, therefore, a firmer basis than ever for demanding the enforcement of the Act prohibiting the spraying of fruit trees while in bloom.

Mr. McEvoy: I am pleased very much with what Mr. Fletcher has said. It is in accordance with what I urged before the Legislative committee. I claimed that spraying while in bloom killed the bees.

Mr. FRITH: I rise to ask a question. I maintain that spraying fruit trees during bloom destroys the fertilizing powers of those trees.

Mr. FLETCHER: I have no doubt that it would have that effect to a large extent, although I have made no experiments. Paris green applied to the foliage of some trees, even in the proportion of one pound to 200 gallons, affects the foliage. The pistil of a plant has no epidermis, and I have no doubt that the corrosive action of Paris green would hurt it.

Mr. HOLTERMANN: There is very little fruit bloom honey goes on the market and there is not much danger from that source; but I would like to ask Prof. Fletcher if there would be any danger of an individual being poisoned from eating the honey?

Mr. FLETCHER: I don't think that it would do any harm to the individual, but I don't know that it would not. This is what I *think*, not what I *know*, and I wish to emphasize that it is only an opinion.

Mr. McKNIGHT: Would the traces of arsenic found in the bees indicate that the effects would be injurious to the individual if taken in sufficient quantity?

Mr. FLETCHER: The traces, giving the term its chemical meaning, would not, I think, have any injurious effects on a human being.

Mr. McKNIGHT: Is it not true that it is possible for bees to partake of sufficient poisoned honey to poison them and yet not be killed,—that they may take five times the quantity necessary to kill, and yet they will suffer no particular injury so long as the poison is contained in the honey sack and is not used as food?

Mr. FLETCHER: I think that if they carried the poisoned honey with them it would eventually poison them. Arsenic is a slow poison; but it is cumulative, and when taken in successive small doses they will in time all have their full effect.

The SECRETARY read a letter from a bee-keeper in the county of Simcoe, in which the writer stated: "Last spring my bees were in the finest shape I ever had them so early, but I noticed that they were dying by wholesale, and began to think that some one was spraying trees. Upon enquiry I found that a man was taking contracts to spray orchards. I got together all the evidence I could, with the assistance of a few bee-keepers, and thought I could make out a good case. . . . There was a lawyer on each side, and we proved very clearly that the trees were sprayed while in bloom. The witnesses admitted that there might have been some blossoms fallen off the trees, and that the trees were not all yet in full bloom—that is, there were some blossoms not yet opened out, so the case was dismissed. The magistrate said he believed the defendant had broken the law, but did not feel justified in convicting, as the law said in *full bloom*. If we could get that word "full" removed from the law it would be of more use. As it is now, it is almost impossible to get a conviction."

Mr. HALL related an incident that had occurred in his neighborhood. A neighbor had some plum trees that were blooming for the first time. They were blooming heavily and it was pointed out to him that he should not spray until the bloom had fallen. But he wanted plums and so he sprayed the blooms. The result was that he had no plums, while his neighbors had good crops.

Mr. HOLMES: Does not the same danger exist, though in a less degree, in spraying after the bloom has fallen? Isn't there danger that the bees going in search of water may be attracted to the glistening drops on the leaves?

Mr. FLETCHER: Yes, probably there is some danger from that source; but bees would probably not be much attracted while the trees were not in bloom, and there would be plenty of moisture available at the time spraying is done. The amount of Paris green, too, is so small that it is surprising to find that it is sufficient to kill an insect so large as a bee.

Mr. HOLTERMANN: The pollen is distributed by the wind as well as by bees, so that when you spray the bloom you lessen the chances of the pollen being distributed.

Mr. PRINGLE: There are two or three facts in connection with this subject that ought to go before the world with emphasis in our report. One is that we have a law against spraying fruit trees when in bloom, and it is our intention to see that it is enforced. Another is that honey gathered during the time of fruit bloom is used up mostly for brood purposes.

Mr. McEVoy: Except in fruit districts.

Mr. PRINGLE: I don't think there is much exception.

Dr. DUNCAN: Arsenic is something that must be used with extreme care. It is not the one small dose that does the harm, but the accumulation of small doses.

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FIRST DAY—EVENING SESSION.

THE FOUL BROOD INSPECTOR'S REPORT.

During 1894 I visited bee yards in the counties of Essex, Lambton, Middlesex, Oxford, Brant, Wentworth, Wellington, Halton, Peel, York, Frontenac, Dufferin and Simcoe, and in the cities of Hamilton and Toronto. I examined one hundred and five apiaries, and found foul brood in thirty-nine bee yards. In two apiaries the disease had not made much headway, while in three it had. The remaining thirty-four apiaries were very bad with foul brood, and the death-rate among many of these had been very large before I examined any of them. The condition that I so often found things in in several localities gave me more to do than any person ever knew of. I found some bee yards very badly diseased and near five apiaries, and the owners of these foul broody apiaries away from their homes looking after other business that they were engaged in. In all such cases I tacked around, and got a good bee-keeper in the same locality to carry out my methods of treatment in these foul broody apiaries, and make cures without causing loss or trouble to any one. I never saw people more willing to take hold and cure their diseased apiaries, after I explained how to do it, than the bee-keepers I met with in the past season. I had one very old couple cure fifteen foul broody colonies under the most trying circumstances. This aged couple were in poor health and scarcely able to go around. The weather was very warm and the bees not gathering any honey, and the diseased colonies near some fine apiaries. I was very much pleased to see the grand cure the old couple had made in such a short time. In getting foul broody apiaries cured I have always found that it made a great difference who was going to do the work. Nearly all bee-keepers would cure their foul broody apiaries in a short time and end the season with every colony in grand condition; while some that had only a few colonies would be that careless and indifferent about the curing that they would not do as I told them; and then I resorted to stamping the disease out by fire for the public good. The very wet weather that set in all over the province in the last half of May and fore part of June was a serious thing, as it came at a time when the hives were full of bees and brood, and completely stopped all honey-gathering then. With the honey flow so suddenly shut off, the bees soon used up all the unsealed honey, and then they did not uncap the sealed stores fast enough to keep pace with the very large quantity of larvæ that required so much feeding. The result was a good deal of starved brood, which was left in the cells to decay. Then when the bee-keepers found the starved brood in a decaying state in their colonies many of them became greatly alarmed, and believed that foul brood was breaking out in their apiaries. Soon after that I received many letters from bee-keepers in Ontario and the United States, describing a kind of dead brood that the writers found in their colonies, and wanting to know if it was foul brood. In several cases it was starved brood, and in many others it was the genuine foul brood. This confused state of things, with the constitution of so many colonies going wrong, made the bee-keepers very anxious to have their apiaries examined. After that I was wanted in many places. I rushed through every locality as fast as I could, and kept pretty well up with the work. I burned one colony in Oxford county that was almost dead with foul brood, and nine in the county of Halton—four at one apiary and five in another. The owners of both these apiaries were very willing that I should destroy the few diseased colonies, and helped me to do the burning. I burned three foul broody colonies in Wellington county. I was well pleased with the work done by the owners of all other diseased apiaries. In getting the foul broody apiaries cured I always took the greatest of pains to explain to the owners how to manage the business so as to have every colony a good strong one and in fine condition every way when they were cured of the disease. When I was first appointed inspector I made up my mind not to put the names of those that had foul brood in my annual report, but to send them to the Minister of Agriculture, along with a detailed statement of my

time, car fare, livery hire, the exact condition I found every apiary in that I examined, what was done, and how I managed the whole business and succeeded in getting foul broody apiaries cured by wholesale; peaceful settlements made and justice done where diseased colonies had been sold through mistake; where I burned a few foul broody colonies and why I did it. I knew well that if I were to put the names of those who had foul brood in my annual report, it would hurt the sale of their honey, queens and bees for a long time after their apiaries were cured, and to publish the names could do no person any good while it would be sure to lead to the concealment of the disease. The bee-keepers of every part of the province that I have ever been in always gave me credit for the way I managed the whole business. At the first Board of Directors' meeting, held in Lindsay in January, 1894, it was moved by Mr. John Myers, and seconded by Mr. E. A. Jones, and carried, that the inspector send all the names to the Minister of Agriculture only. All the bee-keepers that I heard speak of this while on my rounds through the province were pleased that a resolution had been passed prohibiting any person from getting the names except the Minister of Agriculture. My time, car fare and livery hire came to \$662.25.

WM. McEVoy, Inspector.

WOODBURN, Ont., Jan. 21st, 1895.

On motion of Messrs. HOLTERMANN and GEMMELL, the report of the foul brood inspector was adopted.

Mr. MYERS asked the inspector the following question: What is your opinion about the state of foul brood in Ontario—whether increasing or decreasing?

Mr. McEVoy replied that it was decreasing rapidly. It was disappearing from the places he had visited years ago. All the cases reported on now were from fresh fields.

THE PAST AND THE FUTURE OF BEE-KEEPING.

Mr. W. Z. HUTCHINSON, editor of the *Bee-keepers' Review*, Flint, Mich., then read the following paper on the subject, "Will the Future of Bee-keeping differ from the Past?"

All well informed bee-keepers know something of the bee-keeping of the past. They know that in the early times bees were kept in log "gums" or in straw hives. Next came the box hive, made of boards. In those days there were no specialists—at least, not in this country, and as we understand the word. Probably not every farmer kept bees, but a large share of them did, and in the fall the heaviest and the lightest colonies were brimstoned. Then came the grandest invention of which modern bee-culture can boast—the movable comb hive. With the birth of this hive came the specialist. Then followed the bellows bee-smoker, the honey extractor, the section honey box, comb foundation, and queen-excluding metal, and new journals sprung up and disseminated apicultural knowledge broadcast over the land, and bee-culture soon attained to the dignity of a profession in which ignorance, superstition and slipshod management were supplanted by scientific knowledge and positive and accurate methods that brought certain and profitable results. Our country was in just the right condition to bring the best results from bee-keeping. It was not a howling wilderness in which there could be found no white clover, no orchards with their blush of bloom in the spring time, and no fields white with buckwheat in the autumn; neither had it reached that stage where all of the grand lindens had been made into broom handles, barrel heads or buggy boxes, the hedge-rows supplanted by the barbed wire fence, and the swamps once gorgeous with the purple and gold of autumnal flowers had been drained and converted into meadows of timothy. Then there were great forests that acted as meteorological balance wheels. They prevented floods in the spring, and drouths in the summer. Under these conditions bee-keeping flourished until the greatest problem connected with the business was the disposal of its

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Mr. PRINGLE: the border. It is e the condition of th to failures in the h the condition of affa

product. Farmers dropped the business because they could buy their honey more cheaply than they could produce it.

But a change has come in many parts of the country. Good crops are the exception. I know of no reason for this change except that the natural honey pastures are cut away and the artificial resources are not sufficient to make of the business a profitable calling. Added to this is the summer drouth that results from the clearing away of the forests. A forest is like a sponge for holding water. The earth is shaded and covered with a thick coating of leaves that acts as a mulch. Then there are fallen and decayed logs, brush and tree tops, all of which absorb water and retard its flow. The amount of water that a forest will absorb and hold is astonishing. Slowly the water evaporates or soaks into the earth to reappear in the shape of springs. With cleared fields the water is off for the sea with a rush, and when the July sun pours down his rays there is no water with which to moisten the parched, bare earth. The time will come when irrigation will be needed in places where it is not now dreamed of. Man will be obliged to store up artificially the water that nature once stored for him before he destroyed her reservoirs.

I have always advocated speciality, and I still believe that the highest success can be hoped for when only one business is attempted, but there are many localities now in which I should not dare to depend for a living upon bee-keeping alone. Unpleasant as may be the admission, it seems to be true that in many localities bee-keeping as a speciality is doomed. Letter after letter comes to me saying "I have no fault to find with the *Review*, but three years with no honey crop are more than I can stand, and I am going out of the business." Some mention four and even five failures in succession. The trouble is drouth and a lack of blossoms. I am not a croaker, and I also know that, as a rule the best time to buy is when everybody else is selling; that the time to embark in a business is when others are abandoning it, but not so if the natural conditions are against the business. There are probably localities where bee-keeping as a speciality will always be a success. In mountainous regions where the forests cannot be cleared away nor the posies plowed up; in Florida where there are orange groves and there is no inducement to cut down the saw-palmetto or the mangrove growing with their roots in the tide-water or those localities where the alfalfa sends its roots so deep into the earth that it can smile at dry weather; in these favored spots, and in the newer portions of the country, bee-keeping as a speciality can be followed with every hope of abundant success; but in those localities where the forests have been cut away, and the swamps drained, and fields of corn, wheat, rye, oats, potatoes and grass stretch away mile after mile, it is folly to attempt making a living by the keeping of bees. To attempt to make a poor honey locality a desirable one by planting for honey is still greater folly. If the conditions are such that it will pay to raise honey producing crops for the crop alone, such crops will be raised—otherwise not. Where three, four and five years of failure come in succession, it is foolhardy for men to cling to bee-keeping alone hoping that "next year will be a better one." In fact unless the purse is a long one, necessity will *compel* the adoption of some other business. If one has kept bees so long that he would feel lost without them, and I am one of that class, he can take up some other vocation as his main business, letting the bees become a side-issue. It is astonishing to see with how little care an apiary can now be managed. It may be almost reduced to this: setting the bees out of the cellar, putting on the supers, hiving the swarms, taking off the honey and putting the bees in the cellar. Possibly the swarming may yet be done away with.

To sum the matter up in a few words, bee-keeping in the early days was a side-issue, then it became a speciality and will remain such in favorable localities, but over a large portion of the country it will again become a side-issue; but improved hives, implements and methods will make of it a more desirable and profitable avocation than it was in days gone by.

Mr. PRINGLE: I am sure we are all pleased with the paper of our friend from across the border. It is exceedingly concise and well written. There is this, however: I think the condition of things over there is worse than it is throughout this province in regard to failures in the honey crop. When I was over there last summer I was surprised at the condition of affairs in different states. I found that they had one failure after an-

other such as I had not witnessed in Ontario. So I think we have a little advantage over the States in that respect. We may have partial failures for one or two years in succession, but that is all.

Mr. McEvoy: I think it is a fine paper and well written; but I think that the system has a little to do with it, to make four or five years of failure. In the northern part of this country I don't say that they could do without cellar wintering, but there's too much of it. If they could get their bees out in good shape in the spring there would not be quite so much failure.

Mr. McKnight: I have kept bees for a dozen or fourteen years, and there has not been one of those years when the apiary was not profitable, and I am not the best of bee-keepers. But I agree that the prospects of bee-keepers are lessening in the United States, and Canada as well, especially as one of our sources of honey is being destroyed—I mean our basswood. It has been a large source of income in years gone by. It is still a considerable source of revenue; but year after year it is becoming less. I think that the advice of Mr. Hutchinson is timely and well put, and all praise of his paper would, in my judgment, be superfluous. It commends itself. Good sense pervades it from beginning to end. Good sense pervades everything Mr. Hutchinson says. I look for the time when there shall be few specialists in bee-keeping in Ontario; I wouldn't like to look for my support to bee-keeping alone. I think the days of specialists in bee-keeping are nearly gone, and the destruction of the basswood forests has been a strong factor in bringing this about. The trees did not suffer from drouth as did the tender clover and other plants more tender still.

Mr. Pettit: We should not take quite so blue a view of it. In most of the small bushes there are still enough trees to remain for many years as a source of honey. And then we have the Canada thistle and according to my observations it does not decrease much. It is very tenacious of life and gives a plentiful flow of honey of good quality; I have very great faith in the Canada thistle.

Mr. Gemmell: It is only once in a while that we get anything worth speaking of from the basswood. If I was depending for my flow on basswood I would have a very short crop as a rule. I have had good crops from clover and extra good crops from the thistle, and this year I had a good crop from wild mustard. Most of our basswood trees are down on the river bank and whether or not they are too old I don't know, but they are not much good.

Mr. Holtermann: In the older districts it is found that where basswood trees are good there is, in nearly every case, a second growth that has sprung up and the small tree of second growth is comparatively of more value than the larger tree. Some advocate the planting of basswood in the streets. I have watched it, and it very rarely is of much practical value from the bee-keeper's point of view. The basswood wants to be in the woods to be of much value.

Mr. Myers: I can bear out Mr. Gemmell's statement with reference to the basswood flow. I can remember, say eight years ago, we never used to have a poor honey flow. We thought it poor if we didn't get 100, 150 or 160 lbs. to the colony. We do not get that now. We did not in those years depend on the basswood, but clover, thistles and other honey plants seemed then to yield every season. Last year we got all clover honey. This year but for the basswoods much feeding for winter stores would have been necessary. I can't make out what is causing it, but as far as clearing up the country is concerned, around this part it was about as clear eight years ago as it is now. I don't think it is that. The clover doesn't yield the same every year as it used to do, and it can hardly be laid to the drouth this year.

Mr. Pringle: You need not depend on the white clover for honey; but the alsike I hardly ever knew to fail. I have been sowing it for twenty-five years—every year more or less—and I never knew it to fail to yield nectar. We ought to sow more alsike, and I believe, too, in planting basswood. I have planted some hundreds myself, and they are

nearly ready to bloom. Most of the ground

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Mr. Gemmell was supposed to be

Mr. Frith: T has the strength of new. It was then little, if any, epider will, in the case of with our white clover in secreting any and Mr. Pringle and other stronger secreting. Then, electricians s the earth as it used atmosphere and th we can count on th be retarded. Whe more rapidly. The at no distant date will not know what is not well to trust else. There are a

Mr. Darling: possibility that if th was richer. There good crop of nectar sive crops of small f is, it might be ove cultivation. I que system of rotation

Mr. Frith: T part of the plant, an affect this part. A soil not replenished fact that it grows in Manitoba the wh I find that even the

Mr. R. H. Smith Perhaps it is e out in the spring, now-a-days need hav Some years ago great losses were r ments made by some losses.

nearly ready to bloom. As for the second growths, we need not depend much on that. Most of the ground so occupied is cleared and put under cultivation.

Mr. R. E. JONES related a circumstance to show that in his own case the bees had passed right over a crop of alsike and took none of it. The bees came home with honey, but it was not from the alsike.

Mr. GEMMELL could bear out the statement of Mr. Jones. Much of the honey that was supposed to be alsike was in reality wild mustard.

Mr. FRITH : Temperature has a good deal to do with the secretion of honey. So has the strength of the flower. Ten or fifteen years ago white clover was comparatively new. It was then strong and vigorous. Flowers, we learn from Prof. Fletcher, have little, if any, epidermis. They virtually have none. A very little unfavorable weather will, in the case of wild mustard, destroy the secreting power of that flower. The same with our white clover. I can remember when the flower was strong and had no trouble in secreting any amount of honey. Alsike is not yet universally sown in this country. Mr. Pringle and others have sown it, but the soil is virgin for it still, and the flower has stronger secreting powers than it will have when it becomes more universally sown. Then, electricians say that the electric current is not so strong over the northern half of the earth as it used to be, and there is a direct relationship between the electricity in the atmosphere and the honey flow. If the northern lights are strong during one season we can count on thunderstorms the season following stronger than usual and the flow will be retarded. When we have a soft, mild, warm electric atmosphere honey will secrete more rapidly. The circle of the seasons will be complete again, and we will have a period at no distant date when the honey flow will return and we will have so much of it we will not know what to do with it. I have faith yet in the business as a specialty, but it is not well to trust to it alone. It should be carried on in connection with something else. There are a vast number of localities in which it will not pay.

Mr. DARLING : With regard to the secreting powers of the white clover, there is a possibility that if the clover grows on a poor soil it will not secrete so well as if the soil was richer. There may be a very faint possibility of the elements required to produce a good crop of nectar becoming exhausted. We are assured that we cannot raise successive crops of small fruits on the same soil. There may be something in it, but if there is, it might be overcome by the country generally being brought to a higher state of cultivation. I question very much if the plant has degenerated; but perhaps some system of rotation might be required.

Mr. FRITH : The part of the flower that secretes the honey is the most delicate part of the plant, and any weakness in the soil or insufficiency of food in the soil will affect this part. And we know that a large portion of our white clover is grown in soil not replenished with plant food. And it is hard to keep it replenished, from the fact that it grows in fence corners and roadsides where it cannot be fed. We find that in Manitoba the wheat fields will not produce the same crops as they used to do; and I find that even the Canada thistle is weakening.

HOW ARE BEES WINTERING ?

Mr. R. H. SMITH, Bracebridge, then read the following paper :

Perhaps it is early in the winter to be anxious how the bees are likely to come out in the spring, but if they are properly prepared early in the fall the bee-keeper now-a-days need have very little anxiety about wintering.

Some years ago wintering was one of the greatest problems the bee-keeper had, and great losses were reported nearly every spring; but now, owing to the extensive experiments made by some of our best apiarists and given to the world, we do not hear of such losses.

For the benefit of some beginners and others who are still troubled with this question, I will give the method we have adopted. (I may say I have wintered bees in the Northwest Territory one winter, and in the northern part of this province for the past fourteen years.) Our first experience was with clamp-wintering, packed in chaff, but later we found a good cellar less labor and more satisfactory where such long, cold winters and low temperatures are the rule. Now that we are located in the southern part of the province we find clamp-wintering to be the best, for the following reasons: The bees are never moved from the summer stand, but are packed in the same position as they have been in all summer, consequently they do not require moving together. As for the old system of clamp-wintering, or carrying into a cellar, the bees can always get a flight if the weather is fine enough, as it usually is several times during the winter with us; but the greatest saving is in the spring. When setting out time comes they do not have a general flight as cellar wintered bees do, with the attendant risk of swarming out, when some colonies will get too many bees and others be depopulated. It also covers what is generally considered essential, and that is spring protection, as they are not unpacked till settled warm weather. This plan is less expensive than chaff hives, and better in many ways than packing each hive separately. It will be understood the hives stand in fours, that is two face east and two west, each four about six feet apart with an alley about the same width. The preparation of the bees is begun in August when each colony is examined to see that they have a good laying queen and enough honey to keep up brood rearing. In September the hives are weighed and the weight noted, and any deficiency made up by giving full combs of sealed honey or feeding till they have 30 lb. of good stores, when they will be ready to pack. The packing boxes are made to hold four hives, leaving two inches of space for packing around the outside. The packing—dry forest leaves—is taken from the box, leaving about an inch or more leaves in the bottom. The box is placed on the stand and the hives lifted into it, the little bridges placed over the entrance and the leaves packed lightly around and between the hives. The quilt is raised at the back about a quarter of an inch to allow moisture to escape. Then the box is filled up with leaves about ten inches and a few slats put on to keep them close, the flat cover is put on, and they will need very little attention till spring brooding will go on, no matter how changeable the weather may be, and by the middle of May they will be boiling over with bees. About the first of June they may be unpacked. Last spring, with an assistant, I unpacked 80 colonies in two hours, and stowed away the boxes with the leaves in them till again required in the fall, when I packed 115 colonies in the same manner.

Mr. HOLMES: Before entering upon a discussion of the paper I would like to give my method of wintering, or rather the method I have adopted on the advice of a friend. The bottom board is entirely removed. Two four-inch scantlings are laid down and the space between filled in with forest leaves. The hives are set just over the leaves.

Mr. HALL: Mr. Smith, do you prefer wintering them in this way to wintering in the cellar, considering the results on the first of June.

Mr. SMITH: Last year we had 80 colonies without a loss.

Mr. FRITH: I have practised outdoor wintering and cellar wintering simultaneously for a good number of years, and my experience is that if the bees get a good mid-winter flight for one or two days, outdoor wintering proves the best. In other cases I prefer the cellar. If they cannot get a good flight they will prove weaker than if wintered in the cellar.

Mr. EMIGH: Mr. Smith thinks that by wintering out of doors he can prevent swarming out and mixing up in the spring. I think the cause of swarming out is that the bees have not been properly wintered in the cellar. The temperature has not been at the proper point, or the stores have not been proper stores, and they come out weak and disordered. One great cause of mixing in the spring is the wind. If we set them out on a calm day there will be little or no mixing; but if the wind is blowing strong don't set them out. They will drift in the direction of the point from which the wind is blowing.

Mr. DARLING: from which the wind

Mr. PICKET: demonstrative is the followed indoor win

Mr. HALL: I H in the cellar from e stands they were tal

Mr. HOLTERMA there should not be

Mr. McEVoy: wintering, properly

Mr. PETTIT: W son affect changes in A few years ago wh the cellar. That wa Now we have had a are arguing for out change again, as they had a long experience that the proper thing bees get one good fly suffer. A good deal out of the cellar. T go through the sprin outside packing will one, and they were distance one from an well and be set out stores, although these

Mr. W. J. BROW handiest. With reg to 32?

Mr. PETTIT: W

Mr. BROWN: Th ferent from the north down a rule for winte

Mr. BROWN: My they will not want on

Mr. S. M. SMITH make an outside box, bottom. I always p the top with shives, a thicknesses of paper mildew or dampness you can save a good d

Mr. PRINGLE: If they are better outsid They don't get it. A many out at a time. able. The hives ought are many fast botton cleaned afterwards.

Mr. DARLING said that he had noticed that the bees usually congregated at the point from which the wind blew.

Mr. PICKET: I winter indoors, and my experience is that the hive that is the most demonstrative is the hive around which the bees congregate the most largely. I have followed indoor wintering ever since I have been in the business, nearly.

Mr. HALL: I have not had a case of swarming out in six years. The bees are put in the cellar from every part of the apiary, but when they come out they are put on same stands they were taken from. Put out only a few at a time; don't be in too great a hurry.

Mr. HOLTERMANN: I do as Mr. Hall says. Do not set out too many at a time, and there should not be any trouble. I never had a case of swarming out.

Mr. McEVoy: I have not had any swarming out in eighteen years. I think outside wintering, properly done, will become the method, except perhaps in the northerly parts.

Mr. PETTIT: We are very changeable and so are the seasons. The changes of season affect changes in the bees, and therefore in our opinions as to their proper treatment. A few years ago when we had a succession of cold spells the rage was for wintering in the cellar. That was because people found that in wintering outside the bees suffered. Now we have had a succession of mild winters, and bees winter outside or inside and men are arguing for outside wintering who used to say, winter inside. When the seasons change again, as they will, you will find a great many change their opinions again. I have had a long experience in outside wintering and, since 1886, of wintering inside. I contend that the proper thing to do in Ontario is to winter inside. The point is just this: if your bees get one good fly in January or February they are perfectly safe; if they don't they will suffer. A good deal has been said and written in favor of packing when you set your bees out of the cellar. That is a mistake; it is an unnecessary waste of time. Your bees will go through the spring all right if you winter them right. If they have not wintered well, outside packing will not do them much good. I never had a case of swarming out but one, and they were badly wintered. If they winter well and are set out at a proper distance one from another there will be no swarming out. But they must have wintered well and be set out a proper distance apart. It does not all depend on temperature and stores, although these are very necessary.

Mr. W. J. BROWN, Chard: I pack in the spring with hay, chaff or whatever comes handiest. With regard to outside wintering, what would you do where the climate drops to 32?

Mr. PETTIT: Winter inside.

Mr. BROWN: Therefore, I prefer to winter in the cellar. In south Ontario it is different from the north. Of course climate is so variable that it is almost impossible to lay down a rule for wintering. Each one must be governed by the locality he is in.

Mr. BROWN: My opinion is that if the bees have a flight in January or February they will not want one in the spring.

Mr. S. M. SMITH: I have tried both ways, and the way I have adopted lately is to make an outside box, a good large one, and set it on two scantlings. Have a good tight bottom. I always pack with shives from the flax mill. I pack all around the hive to the top with shives, and then put on a bridge with cloth cushion on top and three or four thicknesses of paper right over that, and then a covering of shives, and I never find any mildew or dampness inside. The paper is a good preventive of cold draughts. I think you can save a good deal of extra packing by three or four thicknesses of paper.

Mr. PRINGLE: If the bees can get a good flight during the winter and are well packed they are better outside. But the flight is out of the question in most parts of Ontario. They don't get it. As to swarming out, it is due to different causes. Do not put too many out at a time. The weather may change in a few hours and become very unfavorable. The hives ought to be cleaned out and fixed up soon after being carried out. There are many fast bottom hives used yet, and they must be carried out as they are and cleaned afterwards. Take your time in carrying out the bees. There is no need for

hurry. I would not get so many out at a time that I could not fix them up the same day.

Mr. HALL: You are a wise man Mr. Pringle; next spring put your bees into loose-bottomed hives. Mr. Smith, you go to a good deal of trouble packing bees, but you could pack as safely in a basket as in a box if you had a water-tight cover. Taking year with year there is not much difference between outside and cellar wintering.

Mr. PRINGLE: Do not run away with the idea that I have all fast bottoms. I have some, but I have a good many loose bottoms.

Mr. McKNIGHT: I saw a sight in New York State which convinced me that bees will winter under peculiar circumstances. It was the only bottomless hive I ever saw. It stood on four legs and the comb protruded from the lower margin of the hive several inches and was covered with bees. These bees must have been in that hive several years, yet they seemed to live.

Mr. HALL related the story of an old gentleman near Brantford who said that he was troubled with moths in the hive until he began to use the bottomless variety. Then the moths dropped out.

Mr. McKNIGHT: I believe everyone thinks his own method the best. Some tell us that the cellar wintering people are abandoning it and going outside. People who do that, it appears to me, are those whose cellars are only holes in the ground. There are cellars and cellars, and some cellars are only holes in the ground. But if properly constructed and ventilated the cellar is the better place. I speak from an experience of ten years or more. I packed for some years something after the manner of Mr. Smith in cases the length of the 12 ft. board, and my experience has been that the single-cased hive winters the best. I never could understand it, because the conditions were, otherwise, very much alike. But there is no doubt in my mind as between outdoor and indoor wintering. Indoor wintering saves honey, saves stores, saves an immense amount of trouble and often saves lives in the spring. The mid-winter flight is an excellent thing, if it could be had. It cannot be got in the east, and cannot always be got here. I have a bee-house in which, I don't believe I ever lost a hive of bees under other conditions than those under which they could not live anyway, and they have not ever got a winter flight. I scarcely ever look at them during the winter, and they come out very satisfactorily indeed. I could regulate the atmospheric condition. I have had as many as 200 hives in at once, and the temperature rose pretty high. At present with about 80 or 90 hives the temperature does not rise anything like so high—rarely as high as 40—and I never notice any marked difference in coming out in the spring. And I have the opinion that it is inadvisable to have the temperature too high. Bees are better to be below the recognized winter temperature than above it. But I would not think of going back from cellar wintering to outdoor wintering any more than I would think of flying in the air. If the cellar or bee-house is properly constructed it is the most convenient and satisfactory.

Mr. PETTIT: Mr. McKnight has failed to catch the meaning of those who advocate cellar wintering in speaking about giving the bees a winter flight. Nobody advocates the carrying of bees from the cellar to give them a fly.

Mr. PRINGLE: I had no such meaning in what I said. I have wintered successfully, both inside and outside.

Mr. HALL: You know that you keep your hive bottoms fast, and you will keep them fast until you have the intelligence to loosen them. I winter both ways. At home I winter inside. In another place I winter outside, and I find equally good results from both systems.

Mr. WALTON: Cellar-wintering may be well enough for scientific bee keepers; but for the ordinary bee keeper it is a great risk; there are a great many lost in taking them out and making the change. I think, all things considered, outside wintering is good if you have the right kind of box; but I don't like this extra packing with extra boards

and extra work. Outside is slip-lapped. All is made moth-proof to the ground. We stand. All we have is 13 inches long by 13 inches sawdust packing.

Mr. SPARLING:

Mr. PETTIT:

Mr. WALTON:

Mr. WALTON, with reference to "We have no loss of honey, and they are ready for it."

A MEMBER suggested the same experiment at 44. The box used the front ridge of the

Mr. MYERS asked

Mr. HALL: I wintering in the cellar wintering in the cave

The first order follows:

To the Members of the

GENTLEMEN,—Your incorporation, are pleased Association. The members the bee-keepers of Ontario

The total receipts from affiliated associations \$924.67, leaving a deficit most unsatisfactory abnormal demands upon

In the sudden death mourn the loss of an has been filled by the with the treasurer, Mr. satisfaction of our directors

It is needless to some of it not high in unusual drouth that p

and extra work. Our hives are wintering outside. They are packed in sawdust. The outside is slip-lapped, and between the outside of the hive and the packing is felt paper. All is made moth-proof, and they sit right on the summer stands, about 15 inches from the ground. We stand them pretty close together, almost as close as the hives can stand. All we have to do is to see that they have plenty of stores. Our hives are 19 inches long by 13 $\frac{1}{2}$ deep, and contain plenty of stores. I believe in a good, big hive with sawdust packing.

Mr. SPARLING: Not everyone has a fortune to spend on these big hives.

Mr. PETTIT: Will they swarm out of these big hives?

Mr. WALTON: Yes, if I would let them.

Mr. WALTON, continuing, said that he had noticed an article written by Mr. McEvoy with reference to the colonies last spring. Lots of broods suffer from want of honey. "We have no loss that way," said Mr. Walton. "Our bees in the spring have lots of honey, and they are encouraged to go ahead, and when the season comes they are ready for it."

A MEMBER suggested the question again in hopes that somebody else might have tried the same experiment. I winter in the cellar with the mercury pretty steady at 44. The box used is 12 or 14 feet long, 3 inches deep and wide enough to catch the front ridge of the hive. The packing used is forest leaves.

Mr. MYERS asked Mr. Hall if he wintered in the cellar or in a bee house.

Mr. HALL: I have wintered in the house, in the cellar, and in a cave in the bank. Wintering in the cellar he ranked number one; packing with forest leaves about equal; wintering in the cave number three.

SECOND DAY—MORNING SESSION.

The first order of business was the reading of the Directors' Report, which was as follows:

REPORT OF THE DIRECTORS.

To the Members of the Ontario Bee-keepers' Association.

GENTLEMEN,—Your directors in presenting this their Eleventh Annual Report since incorporation, are pleased to be able to assure you of the continued prosperity of the Association. The membership last year was 218, which is an evidence of the interest the bee-keepers of Ontario continue to take apicultural advancement.

The total receipts for the year just closed were \$872.04 derived from the following sources; \$46.04 balance from last year, \$271 for membership fees, \$55 fees from affiliated associations, and \$500 Government grant. The total disbursements were \$924.67, leaving a deficit in expenditure over receipts of \$52.63. This deficit is the most unsatisfactory feature in the year's transactions, but it was brought about by abnormal demands upon the treasury, which are not likely to occur in the future.

In the sudden death of our late secretary, Mr. S. Corneil, the Association has to mourn the loss of an able bee-keeper and a painstaking and efficient officer. His place has been filled by the appointment of our former secretary, Mr. W. Couse, who, together with the treasurer, Mr. M. Emigh, have discharged their respective duties to the entire satisfaction of our directors.

It is needless to tell you, that last year's crop of honey was small in quantity, and some of it not high in quality, which may be accounted for in part, at least, by the unusual drouth that prevailed throughout the greater part of the summer.

The members have each been furnished with the *Canadian Bee Journal* as a bonus, or *quid pro quo* for their membership fees.

The treasurer's report is appended, which will show in detail the expenditure of the year.

All of which is respectfully submitted.

A PICKET,
President.

W. COUSE,
Secretary.

Moved by Messrs. HOLTERMANN and DARLING that the report be adopted. Carried.

TREASURER'S REPORT.

The Treasurer's Report was then read as follows :

Abstract statement of receipts and expenditures of Ontario Bee-keepers' Association to January 22nd, 1895 :

RECEIPTS.		EXPENDITURE.	
Cash on hand as per last audit.....	\$46 04	Grant to affiliated societies.....	\$199 80
Legislative grant	500 00	" Industrial exhibition	25 00
Affiliated society fees for 1894	45 00	" Western Fair Association	10 00
Membership fees for 1894.....	202 00	Secretary's salary	50 00
Affiliated society fees for 1895	10 00	Treasurer's "	25 00
Membership fees for 1895.....	69 00	Auditors' fees	4 00
	872 04	Directors' and officers' railroad expenses and allowance for board	171 38
Balance due Treasurer	52 63	Periodicals for members	144 75
		Expenses representatives Central Farmers' Institute	16 50
		Cost of reporting last annual meeting....	20 00
		President's disbursements for 1892 and 1893	20 00
		Beeton Printing and Publishing Com- pany, account for 1893	52 38
		Printing, postage and stationery	74 96
		Expenses of committee <i>re</i> pure honey legislation	106 85
		Miscellaneous	4 11
Total	924 67	Total	924 67

We, the undersigned auditors, have examined the accounts and vouchers and receipts as per above account, and report all correct.

R. H. MYERS, }
J. W. SPARLING, } Auditors.

Moved by Mr. HOLMES, seconded by Mr. McEvoy, that the report be adopted. Carried.

Moved by Dr. DUNCAN, seconded by Mr. HOLMES, that Messrs. Holtermann and Picket be a deputation to interview the Minister of Agriculture with reference to an increased grant for the Ontario Bee-keepers' Association.

Rev. Mr. CLARKE: I would like to ask the mover what are the purposes for which he feels the need of an increased grant? I ask because I don't know for what object more money is required.

Mr. PICKET: To encourage local societies to affiliate with the parent society.

Dr. DUNCAN: We are in need of more money in several ways. Look at the agricultural societies and dairy associations. They are supplied with men by the Government to go about lecturing. We are not. If we had more money we could hire men of ability to lecture for the Association and for the industry.

Mr. DARLING
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Mr. DARLING pointed out that the Central Farmer's Institute got a grant of \$1,600, the Fruit Growers Association \$1,800, the Eastern Dairymen's Association \$2,000, the Creameries' Association \$1,499, and the Western Dairymen's Association \$2,750.

Mr. FRITH: Take the money-value of the bee business and compare it with other industries, and you will find that we won't receive more than our share if we receive \$1,000. I am paying my share of these grants, and am not getting any returns as a bee-keeper. We should not be diffident in asking our servants for this grant. They will not kick. We have a right to share in these public funds. We should simply ask for \$500.

Mr. HOLTERMANN: As seconder of that resolution I would suggest that there be inserted in it, that the amount be placed at \$200. The fact is, there is money required. I see no reason why that should be questioned. As to whether the money has been wisely spent or not, the judgment of this Association has already approved of and endorsed the expenditure, and there is a deficit which we trust the Government is ready to wipe out. With the consent of the mover I would place the amount at \$200.

Mr. MCKNIGHT: I don't think the comparisons are just to other industries. The fruit growers get \$1,800 and we get practically \$1,160. I hold that the bee-keeping industry as compared with the fruit growers' industry is a mere bagatelle. There is no comparison. There are fifty people growing fruit for one who keeps bees.

Mr. HALL: And these fifty get the benefit of this one's labor.

Mr. MCKNIGHT: There is a good deal of theory about this. But what comparison is there between the bee-keepers' industry and the dairy industry? What have bee-keepers added to the wealth of the country? What have they added to the fund from which the country can draw so as to pay something back to us? It is useless to talk of the comparative importance of the dairy industry and the bee industry. I would rather not hear of it. We require to build up this Association. We require \$200 and that should meet all requirements, and we should not ask for more. Up to the present we have been able to do our work comfortably, and I think that \$20 each would be a reasonable amount to give the affiliated societies.

Mr. PETTIT: It is unfair to include foul brood expenses with our grant. In the cases of pleuro-pneumonia, hog cholera and the like, the Government makes special grants which are not included in the regular grants.

Mr. GEMMELL: I think the discussion has gone quite far enough. I think it is agreed that \$200 should be the amount asked.

The motion, amended to include the sum of \$200, was put and carried.

PURE HONEY BILL.

Mr. PETTIT, then read the following report on the Pure Honey Bill, which gave rise to a warm and lengthy discussion, ending in the appointment of a committee to further push the bill:

In answering the question—why I went more than once to Ottawa in 1894, I may say that the determined and vigorous opposition given the proposed legislation by two members, coupled with the declaration that appeared like a threat: "You'll never get it," convinced me of the absolute necessity of straining every nerve, and of leaving no stone unturned to that end, and my experience at Ottawa seemed to prove that these fears were well founded.

And believing it to be the wish of this Association and the wish of the bee-keepers of Canada that the matter be pushed with the greatest possible vigor, I did so to the best of my ability. But the unfortunate fact that we were not a unit in the matter militated sadly against our success. If your deputation had been in a position to state

that our Association was unanimous in seeking the desired legislation, I believe that at this moment we would be rejoicing in the full participation of our wishes. Our expenses are consequently largely increased, and no one regrets this more than your deputation.

On going to Ottawa we found that our difficulties had increased. But prudence and the hope of future success seem to indicate that all the particulars of our difficulties had not better be given to the whole meeting, as they would give pointers to our opponents.

The first time we went our way seemed hedged up, and not very much seemed to be accomplished, and I felt troubled about it, and soon resolved to go again.

I had written to about 70 ministers and members. Of course this brought on a large correspondence. Things seemed to move slowly but surely in the right direction. Here is a letter from our late Premier.

OTTAWA, March 3rd, 1894.

DEAR COL. PETTIT,—I have your letter of the 28th inst., and shall be glad to bring the views which you express to the attention of my colleagues without delay.

I beg to thank you for your suggestions of personal assistance in the matter, and we shall be glad to avail ourselves of your offer if we find that there is a point upon which we require additional information.

Believe me, yours sincerely,

JOHN S. D. THOMPSON.

When Mr. Sproule had introduced our Bill he sent me the following letter :

OTTAWA, April 30, 1894.

S. T. PETTIT, Esq.,
Belmont, Ont.:

DEAR SIR,—Yours to hand *re* Pure Honey Bill. From indications apparent now I fear the chances are that that Bill will not pass in its present shape. Numerous members of the Opposition, I am told, will oppose unless there is a provision in it which allows the sale of "sugar honey" under some name. If it is convenient, I think you had better come down and do what you can to satisfy some of those who intend to offer opposition to it. The second reading will probably take place this week, so that you would require to come at once.

Yours truly,

T. S. SPROULE.

On reaching Ottawa I found that a good deal of work had to be done to get members on both sides of the House to understand the truth. It was my privilege to disabuse the minds of many high up in position of the foolishness they had recently been taught about bees making honey out of sugar syrup. But I persevered as best I could, all the while insisting that stringent legislation is absolutely necessary to prevent the putting of food products upon the markets of the world other than those which are absolutely pure, upon which hang largely the reputation, development and the prosperity of the country. But the earnest hearing and the promises of support given assured me that if our bill should be reached it would pass with but little or no opposition at all. I then returned home feeling well repaid.

But while things appeared all serene on the surface, another and more serious trouble was brewing. In course of time I got a letter from Mr. Sproule telling of another bill—a Government bill—this time introduced by Hon. J. F. Wood, Comptroller of Inland Revenue. The bill came along, and I eagerly took in the provisions. I saw at a glance that it would do mischief instead of good, because it would legalize, and thus in a measure make respectable, imitation honey. Here is a letter that I sent to Mr. Sproule :

BELMONT, Ont., June 4, '94.

T. S. SPROULE, M.P.,
Ottawa:

DEAR SIR,—Your letter of June 1st is before me. I have read it with due care. It was partially answered in anticipation by my letter of Saturday last. I may be allowed to insist that although Hon. Mr. Wood's intentions are good his bill cannot possibly be of any use to us, but rather an injury.

A bill that aims at regulating the sale of or prohibiting the sale of imitation honey, but does not prohibit the production of it, will make the production legal by statute, and thus give it a certain degree of respectability; and then once produced it can be sold because of its perfect imitation of honey, that is, so far as its looks and appearance go, without applying name or terms at all, and of course Mr. Wood's bill would not be contravened or violated.

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S. T. PETTIT, Esq.,
Belmont

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Again, in Schedule B, second column, the definition of honey reads, "The matter of flowers and other saccharine exhalations of plants gathered by bees, etc." I beg to point out that this does not go far enough, for bees do some seasons gather large quantities of a sweet liquid, the production of the aphides, called honey dew, which is sometimes unavoidably stored by the bees with the honey.

I can see no objection to my definition, viz., "What bees gather from natural sources." That definition covers the case exactly, and leads to no trouble about sources of honey. It is the artificial sources that give trouble. It is all out of our power, even if we wished to, to prevent bees gathering from natural sources.

Again, the latter clause of section two reads, "unless it possesses the composition and distinguishing characteristics stated in the second column of the said schedule."

Now, in the said schedule we find these words: "Gathered by the bees and stored in cells built at least in part by the bees themselves."

Now, this may be interpreted to prevent the selling of honey out of the comb. I may say that many bee-keepers produce but very little comb honey; they extract most of their honey and sell it out of the comb.

Again, the words "for domestic use" might form a loophole through which difficulties and complications would come. I hope Mr. Wood will kindly consent to expunge from his bill all reference to honey.

Please tell Mr. Wood that I thank him for efforts on our behalf, and that I very much regret that his bill in its present form cannot better our condition in the least, but I fear it would work injury.

I have the honor to be as ever,

Your servant,

S. T. PETTIT.

Now, right before me are two difficulties—a Government bill that fails to meet our wants, and a statement by Mr. Sproule that our bill cannot be reached this session. Then with all the powers of my being I resolved that Mr. Wood's bill must not become law, and that our bill must be reached and put through. I at once wrote a large number of letters to Ministers and members.

In a few days a number of letters of a most encouraging nature came to hand. Mr. Sproule wrote that upon the receipt of my last letter Mr. Wood had signified his intention of having his bill dropped in the Senate.

I may mention here the fact that the members not being practical bee-keepers in a measure accounts for the difficulty of securing the passage of this Pure Honey Bill.

Several letters passed between Mr. Wood and myself. He always answered promptly. Here is his last letter to me:

OTTAWA, 11th July, 1894.

DEAR SIR,—I am desired by the Hon. Mr. Wood to acknowledge the receipt of your letters of the 9th and 10th instant further "re sugar honey," and to thank you for your interesting remarks upon the production of honey contained in your letter of the 10th. I am further to assure you that the matter will continue to have Mr. Wood's best attentions, and that his most earnest desire is to uphold the reputation of all Canadian products in every way within his power.

CHARLES F. WINTER,
Private Secretary.

S. T. PETTIT, Esq.,
Belmont, Ont.

The contents of that kind letter satisfied me that Hon. Mr. Wood had decided to have his bill dropped—that portion of it dealing with honey.

The only difficulty that appeared in the way now seemed to be the reaching of our bill. This I felt sure could be done, and with renewed energy I bent all my efforts in that direction, and on the 19th of July Mr. T. S. Sproule wrote me as follows: "Should I fail to get the Government to put the bill on Government orders, for they have not finally decided yet, I can only allow things to stand until next session, when, all being well, I will reintroduce it early in the session, and push it through if possible."

All of which is respectfully submitted.

S. T. PETTIT,
Chairman of Deputation.

In answer to Rev. Mr. Clarke, Mr. Pettit explained the difference between their (the bee-keepers') bill and Mr. Wood's bill. The bill which the bee-keepers wanted prohibited the production of so called sugar honey. The other did not. It permitted it to be produced, but under restriction, so that it should not be sold as honey.

Mr. DARLING said that after the lengthy report of Mr. Pettit he would occupy only a few minutes with regard to his visit to Ottawa. When it was found that there was

no possibility of getting the bill through last session, and that Mr. Wood had brought in a bill which he thought covered the ground, Mr. Pettit wrote him (Darling) to use what influence he could bring to bear in the matter. He wrote Mr. Wood, Dr. Sproule and the local member. The local member, not being a practical bee-keeper, he (Darling) had made arrangements with Mr. Wood to meet him. He went to Ottawa and met Mr. Sproule and went with him to the Minister's office. "The more I conversed with him," said Mr. Darling, "the more he seemed to desire to get information and to help us, and I went away feeling I had accomplished quite an object. I went away with the understanding to meet him and others in the House of Commons. He brought Mr. Wallace, Comptroller of Customs, and another gentleman. Dr. Sproule was there, and the result of the conversation was that Mr. Wood agreed to help our bill through, and I believe he faithfully kept his promise. I am glad to be able to state that the Ministers and members of the House of Commons, regardless of politics, did everything they could to forward our interests. A little more effort on our part, and we shall have secured everything we have asked for.

Mr. McEVOY: I am very well pleased with the work they have done. They secured 215 members who think we are in the right, and it is only a question of time till the Senate will think so. I move that Messrs. Pettit, Darling and Frith be a committee to go back to Ottawa in the interests of our legislation.

Mr. HOLTERMANN: I second the motion. In a quiet way I went to Ottawa, too. I feel that a good work has been done. There are too many men who think bee-keeping is not an industry, and we have got to overcome that feeling. The committee has done splendid work.

Mr. HALL: Could not one accomplish what has to be done, or, say two? I ask this with a view to lessening expenses. If it takes three, send three; but if one will do, send one.

Mr. McKNIGHT: I must oppose this motion. I have opposed the move from the outset. I thought I saw what it would result in, and my prophecy, so far, has been fulfilled. I have always contended that the bill, if passed, would serve no good purpose to bee-keepers. We have in the Adulteration of Foods Act all the protection which this bill provides. But I will say that all credit is due to the delegation. While I think the mission was not a wise one, there can be only one opinion as to the zealous and able way in which they discharged their duty. Some of these gentlemen seem to think that because I opposed the movement I was, therefore, personally opposed to the gentlemen themselves. Such a construction is simply absurd; but that they believe that is evident from their statements, from the letter read by Mr. Pettit, from communications in the *Bee Journal*, and from the remarks of the editor of that journal. You know that last year and the year before I opposed this matter because it provided nothing better than the Adulteration of Foods Act, and because it threatened to jeopardize the usefulness of this Association by crippling its finances. These gentlemen—Mr. Pettit and the editor of the *Bee Journal*—have done me a personal injustice by seeking to leave the impression that there was an enemy in the camp. That is the word used. It is repeated editorially, and repeated in Mr. Pettit's letters. But they have not heard me speak one word about this bill outside this Association. Can a man not talk in the house of his friends and give advice? And if he does, must he be considered an enemy? I said the bill would not be of any use to the Association or to the industry, and I stick to that.

Mr. PETTIT: When we go to Ottawa we are catechised on every side. We are asked: "Is your Association a unit with reference to this bill?" And we have to say that we are not a unit. We have to say that there are two members that speak and vote against it. Then they ask us, What about these men? Are they men of ability, men of influence, men who could criticize us? And we have to say, "Yes, they are men of ability."

Mr. McKNIGHT: Did they ask you if Mr. McKnight was an enemy to bee-keepers?

Mr. PETTIT: I didn't say he was an enemy. I have to tell them to talk about the experience. I have to say, "Yes, they are men of ability, and be united, and"

Mr. McKNIGHT: when it was before the House, who went to Ottawa and as money things. My proposition was sound, and I believe we should go to Toronto for more influence, and a man of influence, and a man to stigmatize a brother Association. Had I probably you would speak about it outside. I have great encouragement with reference to what

Mr. PETTIT: I

Mr. McKNIGHT: House, and so satisfy

Mr. PETTIT: I anything with all his I never said or insinuated. The Act has no penalty. The commissioner, told me the value of the dairy in the buying, the selling was found necessary. The question we are asking is a matter? It will help the earnestness that Mr.

Mr. McKNIGHT: is that it is like a child. I have no objection to it.

Mr. McEVOY: I customers, and show the States the trade has to creep in. If we had to and show them that the

Mr. HALL: Mr. McKnight withdraw opposition. I take it for granted, the

Mr. HOLTERMANN: supported the form of the bill, but when it comes to the thing goes the way we the development of honey of bee-keepers, when a man he is an enemy to the industry.

Mr. MYERS: Two to Ottawa we would be

Mr. PETTIT: I just simply told them that Mr. McKnight opposed this bill. I didn't say he was an enemy of bee keepers. They ask us, "What do these men say?" We have to tell them that they say the Adulteration Act is all that is required, and they also talk about the expense. Then they ask us, "Are these men in good position?" and we have to say, "Yes, one is a director and one was secretary." And they say to us, "Try and be united, and then we will help you."

Mr. MCKNIGHT: I oppose this motion now for the same reason that I opposed it when it was before the Association before. But I say, give all credit to these gentlemen who went to Ottawa to press the claims of the majority. But I looked upon it as labor lost and as money thrown away, and I am not going to vote to perpetuate that state of things. My prophecies at the beginning have come out right. My deductions I believe were sound, and I can see one reason now why certain gentlemen are anxious to go to Toronto for more money; but what I have to complain of is that Mr. Pettit, a man of influence, and a man of ability, should not think it beneath his dignity and manhood to stigmatize a brother bee-keeper as an enemy because he gives his views before the Association. Had I gone to Dr. Sproule and presented the case from my standpoint, probably you wouldn't have received so much encouragement as you did. Did I ever speak about it outside the house of friends? Did I ever write about it? They say they have great encouragement. But Mr. Pettit let slip one little sentence, and that was with reference to what happened Mr. Wood's bill, which was killed in the Senate.

Mr. PETTIT: I wish to withdraw that.

Mr. MCKNIGHT: It showed that Mr. Wood can have the bill passed through the House, and so satisfy those that press it, and afterwards have it killed in the Senate.

Mr. PETTIT: I said enemies to the bill, not to bee-keeping, and if a man opposes anything with all his might he is an enemy of that thing. I don't take that back; but I never said or insinuated that he is an enemy of bee-keeping. The Adulteration of Foods Act has no penalty and does not prohibit production. Prof. Robertson, Dairy Commissioner, told me that the bill to prohibit the production of filled cheese was the salvation of the dairy interests. It is just as arbitrary as ours. It prohibits the production, the buying, the selling and the keeping for sale of filled cheese. And if such legislation was found necessary for the salvation of the dairy interests, why should not the legislation we are asking be considered necessary. Why should we have opponents in this matter? It will help us very much if Mr. McKnight will not oppose it. I do ask in all earnestness that Mr. McKnight will withdraw his opposition.

Mr. MCKNIGHT: I'll empower you to say that Mr. McKnight's opinion of the bill is that it is like a chip in porridge—very little good and very little harm—and that I have no objection to its passing apart from the waste of the Association's funds.

Mr. McEVoy: If this Act was passed we could send copies of it to our foreign customers, and show them that Canadian honey was guaranteed by law. In the United States the trade has been almost ruined by the adulterations that have been allowed to creep in. If we had this Act passed we could go with confidence to our foreign customers and show them that the law guaranteed the purity of our honey.

Mr. HALL: Mr. McKnight is very magnanimous opponent. He has consented to withdraw opposition. He has characterized it as merely a chip in the porridge, and I take it for granted, therefore, that there will be practical unanimity.

Mr. HOLTERMANN: The *Canadian Bee Journal* has opposed a certain amendment and supported the form of bill now under discussion. And not only have we supported it, but when it comes to a question of finance, we are willing to give \$25 or \$50 before the thing goes the way we don't want it. I would just say that no one is more interested in the development of honey than I am. With regard to a certain person being an enemy of bee-keepers, when a person advocates what is contrary to the interests of the industry he is an enemy to the industry. In that sense and no other I used the word.

Mr. MYERS: Two years ago we got the impression that by sending this delegation to Ottawa we would be sure to get this bill passed. They went, and it did not avail very

much. Last year they told us that by once more sending the delegation we would be sure to get the bill. The delegation was sent, and we have not got the bill yet. How long is the thing going to run? We are behind in our finances, and if we are not going to get anything more in another year I don't know that we should go on with it.

Mr. DARLING: The question of Mr. Myers is answered in the letter read by Mr. Pettit, in which we are told that we should not lose heart, and that there is every hope of success in the next parliament. With regard to some reference made to Mr. McKnight, personally I consider him my friend. I do not think there is any personality in the matter. I have already said that I don't think he has used his influence outside to hinder us. With regard to the advisability of prosecuting this thing further, I have not said much before now. I have not had much experience, but I feel we are in the position of the man who has put up a fence all around his farm, and because it costs a little more will not hang his gates. I feel we are going to get what we are seeking, and a few dollars of expense should not be taken into account at this stage.

Mr. FRITH: I am glad that the feeling of the meeting is as it is. I am glad that Mr. McKnight has withdrawn the sharpness of his opposition. I consider he has been a kicker, but if it wasn't for his kicking we would not have been able to bring out all the fine points. I have felt the weakness of our position when the Ministers would ask, "Are you all united?" We have had to make a straightforward answer and tell how matters stood. It would strengthen our position if we were unanimous. With regard to the expense and the passage of the bill, it must be borne in mind that there are very few bills that unless they are Government bills, can pass in less than two or three or sometimes four or five sessions. We were told at first that we couldn't get it through in less than two years. The oleomargarine bill was two or three years in passing, and it was introduced by Government men; we can't expect to move any faster. I had a long talk with the Ministers, and they acknowledged that they were not posted on the bee bill, and they asked us a thousand and one questions about matters that we cannot introduce here. The Minister of Agriculture acknowledged that he knew nothing about the bee business, and said that they had to depend upon their professors, and that they would be largely guided by Prof. Saunders. We also found that the Senators were men of years, and the Minister of Agriculture acknowledged that they knew but little about the bee business. The Government deserved credit—I mean the House of Commons, both sides. Some say we are not getting any return for the expenditure; but are we not advancing our industry in the eyes of the world? and it is just a question of time till a large portion of a hundred millions of pounds will be to export. And where is it going? We want our name and business untarnished. If we have our bill our honey goes out to the world protected. What would our cheese be if it was allowed to go to the old country as "filled"? How could we sell it?

Mr. PRINGLE: Whether it was wise or otherwise to begin this work it would perhaps be foolish to drop it just now. The only question is as to the necessity of sending a delegation of three to Ottawa. If three are necessary, send three; if two will do, send two, if one will do, send one.

Rev. Mr. CLARKE: I feel it a duty to define my position. A year ago I was not able to attend this meeting because of ill health. I was under the influence of the grippe and could not go. Two years ago I took, when the question first came up, the ground taken by Mr. McKnight. I didn't approve of the legislation and have not changed my mind now. We have heard a good deal about what has been done to get that legislation passed. All that we have heard has been in regard to Government influence. The principle of the bill has not been touched upon. There is a great principle of political economy involved in it, a great principle of right. The same principle was connected with the oleomargarine legislation in the United States and after hundreds of thousands of dollars had been expended the conclusion was come to that in this the nineteenth century, there could not be any legislation to prevent legitimate production. And on that point the manufacture of oleomargarine was legalized, and it is legalized to-day. You will spend a lot more money before you get this question passed, and when it is passed you will

find after it is cont of political economy tion of justice and keeping. For thirt in the interests of their ideas cannot b and their enemy. business is a reproac and fully discussed.

The motion was

Mr. J. K. DA a subject like the pursuit in life there accomplished. This that these objective those pursuits. Thi

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find after it is contested in the courts that it is not in accordance with the true principles of political economy. It is a question of what is right. Convince me that there is a question of justice and right in the bill, and I am satisfied. It isn't that I am an enemy of bee-keeping. For thirty-six years I have been doing what I could with pen and otherwise in the interests of the industry. But there is a class of men in this Association, and if all their ideas cannot be carried out, then all opposed to them are the enemies of bee-keeping and their enemy. It is an outrage that men should take that position. This sugar honey business is a reproach and a disgrace to the editorial fraternity that it could not be fairly and fully discussed.

The motion was then put and carried.

SOME DIFFICULTIES.

Mr. J. K. DARLING, of Almonte, then read the following paper: In dealing with a subject like the one before us it is just as well to remember, that in nearly every pursuit in life there is an impelling motive, an object to be attained, a purpose to be accomplished. This is especially true of bee-keeping. Then again, we must remember that these objective points differ according to the tastes of the persons engaged in those pursuits. This also is true of bee-keeping.

One person may keep bees "Just for the fun of the thing, you know." Of such I would say, that if they do not get all the fun they have bargained for they must be rather slow to appreciate a good thing when they have it. As I have found no difficulties from that standpoint, I pass it by.

Another may keep bees for the purpose of experimenting for the benefit of others, and increasing his own knowledge in that branch of natural history. Him I would leave to battle with his own difficulties, as I am not competent to deal with them, even if I should know what they were.

Others keep bees for the money they may get out of them, the profit there is from a dollar and cent point of view. This, I think, is true of the vast majority of the bee-keepers of to-day, and it is from this point I wish to make a few observations.

Assuming that we are all engaged in trying to obtain maximum returns from a minimum of labor and expense, it naturally follows that anything which hinders our realizing our ideal is a difficulty to be overcome if in our power to do so.

I scarcely know just where to begin, for we are met with some obstacle at nearly every season of the year. However, as the winter is a period of comparative quiet, we will take the first thing we meet in the spring, and that is, winter losses.

There is a difficulty here that has baffled many a bee-keeper, myself among them. The question forces itself upon me; what is the reason that I put away 4 colonies and brought out 2 my first winter (1882-3), put away 33 and brought out 33 the second winter, put away 59 and brought out 59 the third winter, put away 110 and brought out 110 the fourth winter, and since that I have suffered losses of five to twenty per cent., notwithstanding the fact that the bees are wintered in the same cellar and under the same conditions as nearly as possible? This is a serious item in the matter of extra labor and expense, and reduces our profits.

Then again, when the bees are set out in the spring they have a "jubilee," and like some specimens of humanity, don't know enough to go home. They will crowd, first to one hive and then to another, until some are full to overflowing and others are empty. True, we might even them up by moving hives and so partly overcome the trouble the first day, but the fun is kept up the next day, and the next, with the result that some colonies have queens and a few bees, while others have nearly double the bees they should have and very likely no queen.

Close on this comes spring dwindling, until some colonies that appeared to be in the best shape of any in the yard become the poorest, and in some cases peter out altogether. Then some of the queens disappear some weeks after being set out, just

how, or why, I have never been able to find out. Sometimes several queens disappear from the same colony one after the other. I remember one season I had one colony that lost several queens in that manner, and did not give me a pound of surplus, in fact had to be fed for winter. I was so badly discouraged with them that I would have sold them very cheap, but next season they proved themselves very profitable—they were the best colony I had in the yard.

Now, suppose we have got past winter losses, swarming out and pitching in, balling of queens, desertions and spring dwindling, and have arrived at the honey flow, how do we often find it? Perhaps two colonies that appear to be equally good are standing side by side, the one will fill two or three stories containing over three thousand cubic inches each, while the other will not fill one, or if they do that much for you they cannot be induced to enter a second story. Again, the two may stand side by side, and while the one is storing nature's sweets as fast as it is possible for them to do the others do very little and presently swarm. Or, we may find that these two colonies may both work well for a time. One keeps at it, the other swarms, or, they may both work well and both swarm, one swarm doing its best as soon as settled in its new hive, the other loafing around for a few days and then coming out again without leaving either honey or eggs, or the queen may lay a few eggs, and then they all leave without any thought or care for what is left behind. Sometimes colonies appear to be good workers in the body of the hive, but utterly refuse to "do a tap" in an upper story, seem to think they are not called upon to go outside the "corporation." Can it be that these are a little smarter than other bees, and have enough reason to conclude if they do work up there they will not be allowed to enjoy the fruit of their labors, and have enough of human nature about them to refuse to work for nothing and board themselves?

I might go on very much farther in enumerating difficulties of the above nature, but time will not permit. The object of this paper is not so much to tell the things I know as to name some of the things I do not know; not so much to display my knowledge as to expose my ignorance. Perhaps some of you will think it should have gone into the question box instead of being read here. If so I cannot help it, I cannot take it back now.

One writer (I am sorry I have forgotten his name), said a few years since that a man could winter a hundred colonies of bees with as much certainty of bringing all through as there would be in wintering a hundred sheep; that winter losses among bees need not be any heavier than among other farm stock. I wonder if he is of the same opinion still. If so, will he be kind enough to tell us how, so we can do it too?

Will some of the bee-masters—yes, bee-masters, not merely bee-keepers—tell us how to make the bees keep at home in the spring like good children? How to make them be kind to their mothers? Will they not tell us how to avoid spring dwindling and desertions? Are they able to induce lazy or sulky bees to work? Are they able to get the bees to work in the upper stories whenever they wish? Can they persuade all swarms to go to work at once in the new hive instead of enjoying a "honey moon" for a week or ten days while the "honey flow" is passing by never to return to them.

Cannot those bee-masters who appear to be able to get a fair crop any season, and extra large crops in good seasons, tell us, who are not up to the times, just how they manage to succeed—tell us so we can go and do likewise? If they can, and will do so, and in that manner help us to overcome those difficulties referred to, they will help us a long way towards securing a maximum return with a minimum expense.

In answer to a question by Mr. Pringle, Mr. Darling said for the first few years of his experience with bees the honey flow was better than it had been since. The average product of the colonies was greater. The flow of honey last year lasted later in the season. With regard to the quality of the honey, I get as good now as then, except this year for I have no strictly first-class honey. I have not got it clear on account of it being mixed. I have no clover honey. I don't find them winter any better on clover honey than on darker honey gathered later in the season. I am not troubled with honey dew in my section. I remember the winters I wintered most successfully I placed the bees in the

cellar from the yard from the house, and they have one or two

Mr. PETTIT: So weather, and there i bees come out, and t rest; it takes them or noise comes from. never act just right,

Mr. DARLING, i to have them occupy

Mr. HALL: Set have them mixed up would be found to b let them fly around. they have had a good

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Mr. PICKET: T day they will have th

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Mr. F. A. GEMM paper on the product advisability of produc as several seasons hav producing and market my further knowledge.

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cellar from the yard right at the house. Of late years I have had them 40 or 50 rods from the house, and I brought them home some weeks before putting them in. Generally they have one or two or three flies after moving.

Mr. PETTIT: Set bees out a respectable distance apart and in the right kind of weather, and there is no reason for mixing up except that they don't winter well. When bees come out, and their bowels are covered with poisonous matter, they don't seem to take rest; it takes them longer to clean themselves. Then, they go where the strongest roar or noise comes from. I attribute mixing up to imperfect wintering. Bees that are sick never act just right, and one of their drawbacks is the failing to find their hive.

Mr. DARLING, in answer to a question, said that he was not particular in setting out to have them occupy the same stand as the previous year.

Mr. HALL: Set out 50 or 60 in one day. Put them on their own stands. I used to have them mixed up very badly when I carried out 250 stocks in 1½ hours. One corner would be found to be filled and others would be depleted. Take out 10 or 15 stocks and let them fly around. If there is a wind let them stay in till fine weather comes again. If they have had a good fly they will take care of themselves.

President PICKET: I set them out in the evening after the hour of light is over. I set them all out at once, so that they get quieted down before the morning comes.

Mr. PRINGLE: Suppose it turns cold in the night they'll fly next day and be lost.

Mr. PICKET: They won't fly. Taken out at night they won't be disturbed, and next day they will have their sober senses.

Mr. HALL: I twice put my bees out at night. The next day wasn't favorable for flight and it ended then. They didn't take the return flight.

Mr. DARLING asked about those bees that were taken out first. His experience was that they had a jubilee after they came back instead of going home.

Mr. HALL: No, if they have their location they know it, and will find it.

Rev. Mr. CLARKE: If there is anything more stupid than bees by night I would like to know what they are. I would not want to handle bees by night.

Mr. HALL said that he marked its location on every hive.

Mr. PRINGLE: I mark the number on the hive and on the cover. The cover is left on the stand.

DIFFICULTIES EXPERIENCED IN MARKETING COMB HONEY.

Mr. F. A. GEMMELL read the following paper: On a former occasion I read you a paper on the production of the above article, and followed with a few remarks as to the advisability of producing it in the most marketable and attractive shape possible; and as several seasons have passed since, and having had some additional experience in both producing and marketing it, I have thought it not out of place to give you the benefit of my further knowledge in this direction.

First of all, I might mention that the harvesting of good marketable comb honey (and no other kind is worthy of the name), is a special branch of apiculture, and one requiring more close attention than the securing of a crop of the extracted article.

Those having their doubts in regard to this statement will soon find out the truth of this assertion, as I already know for a fact, that some who in the past have accepted this hint with the proverbial "grain of salt," have already realized by the past season's experience, that "all is not gold that glitters." Especially so has this been the case with those who may have prepared on an extensive scale for a trial of what appeared to them so easily accomplished.

The individual apiarist's interest is what I have most at heart, and I trust that nothing that I may state or write will cause anyone to think otherwise. In fact, so far from desiring to deter my brother bee-keepers from this particular line of apiculture, I rather incline to the opinion or conviction that it would be a blessing, at least in some particular instances, if less extracted, and more comb honey were produced, as the former

is now at rock bottom prices, with the appearance of its being soon produced at a loss to those engaged in the business.

Be this as it may, I would at the same time caution all present from going from one extreme to the other, as there is a happy medium between the two, which common sense and the market must in each particular case decide. My prime caution, therefore, would be, that any who cannot bestow some judgment, patience, and the requisite amount of time and labor for raising comb honey, such as already described, would, in most instances coming under my observation, do better in the extracted honey line, especially if they can succeed at present prices: especially as successful wintering, favorable springs, and good flows of nectar, coupled with having the requisite numbers of *gleaners* at the proper time, has much more to do with success in this case, than in securing honey in the liquid form. It is beyond a doubt that our pursuit is fraught with ups and downs, good and bad seasons, as with any other occupation which one may choose, either from the love of following it, or from the inevitable force of circumstances.

Secondly, it is quite certain that with a sufficient quantity of extracting combs, so that thorough tiering up may be practised, in order that too frequent extracting is not done before the honey is properly ripened, a first-class article of extracted honey can be produced in the hands of any one who has even a slight knowledge of apiculture, and said article will sell without detriment to the purchaser, producer, consumer, or his brother bee-keeper. This, however, is not the case with respect to comb honey, as from samples which it has been my privilege to see exhibited in the windows, and on the counters of stores in some of the cities and towns in Ontario, especially of late years, and more particularly this fall, I consider that is anything but encouraging to the apiarist, yes, even detrimental to the pursuit, and I may add nothing short of a disgrace to apiculture in its present stage of actual or supposed advancement. It is an unpleasant fact to be compelled to face, but none the less true, that there are those to-day, who have in the past sold large quantities of comb honey who positively refuse now to handle it. Others again say the comb honey business appears to be going to the dogs, if indeed it has not already gone there. This latter statement, in one instance, came from one who had a supply exhibited in his window, and the thought at once arose in my mind that if he was endeavoring to drive it out of existence that he was taking the most effectual and expeditious means of succeeding in his purpose, as it presented the appearance of having been worried by a half dozen canines, which had finally given up the contract in disgust, reminding one to some extent of the ruins of an ancient city that through apathy or want of enthusiasm on the part of its former occupants had nothing but its walls standing to tell us of what the interior once contained.

But, jesting aside, no doubt some will say "a good article will always command a good price," and while this is true to a certain extent, my own experience of late, as well as what I have learned from others, does not always prove it so. It is not so easy running up hill as it is running down; therefore it behoves us all to make a united effort to in future produce a better and not a larger quantity of our product, put up in such an attractive and enticing manner as to compete favorably with the many other articles of consumption, which meet us on every hand, which as a rule are displayed in the most pleasing shape possible, so that they meet not only the eye but at the same time tickle the palate of the ordinary mortal, as well as the capricious epicure.

Finally, let me urge the necessity of removing as far as possible all traces of propolis from the sections, and then putting them in new crates, never sending comb honey to market in the same super or case in which it is produced. These crates should be made of light material and glassed at one side. Before crating the sections however, first place a sheet of manilla paper in the bottom, placing thereon some thin strips of wood, so that should any section become damaged and leak, it will not soil the others. A good plan, also, is to put your name on all sections with a small rubber stamp, which can be had for a trifle, and if you are sure the crate will not be again used to show inferior honey purchased from others, then by all means put your name on it also. The latter caution I give, after having seen some of my own crates (with my own name on of course) containing honey such as I would not give away much less sell to anyone.

This session was Foundations." The t at Ottawa. In his int on some experiments of which had been pu to be done, applicatio for suggestions as to had suggested experim and the result given possible to complete t year. They would be to carry out all of t to be read was by Mr great care weighed th Fletcher now submit

REPORT UP

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The frames were weight of two inches inches square was cut removed, and the hon exhaustions with cold v air and was weighed.

SECOND DAY—AFTERNOON SESSION.

This session was opened by a talk from Mr. FLETCHER on "Some Experiments on Foundations." The talk was illustrated by several specimens the result of experiments at Ottawa. In his introductory remarks he said that the Government had decided to carry on some experiments in bee-keeping, and had started a small apiary, the management of which had been put in Mr. Fixter's hands. When it was decided that some work was to be done, application was made to Mr. Holtermann, as connected with the Association, for suggestions as to what line of work would be the most useful to be carried out. He had suggested experiments as to the value of different foundations. These were carried out and the result given in the following report. They are not nearly complete; it is not possible to complete them in one year. Further experiments would be carried out next year. They would be glad to have suggestions from any source. They would not promise to carry out all of them; but would carry them out as far as possible. The report to be read was by Mr. F. T. SHUTT, the chemist of the Experimental Farms, who had with great care weighed the various combs and had kindly prepared the report which Mr. Fletcher now submitted.

REPORT UPON AN EXPERIMENT WITH SOME BRANDS OF
"FOUNDATION."

Wax, like honey, is a true secretion, and not a material gathered by the bees, special cells or glands having for their function its production. It differs from honey, however, in its formation in certain particulars. Honey would appear to be the result of the action of a diatase or ferment, produced by certain cells in the bee, upon the cane sugar contained in the nectar gathered from flowers. Wax is manufactured, so to speak, in the bee, and is the result of the physiological function of certain glands, as already stated. Wax, therefore, is produced at the expense of the honey or sugar (as the case may be) consumed by the bee. Thus Dumas and Milne-Edwards found that bees fed with 500 grammes of sugar produced 30 grammes of wax, the same weight of honey only yielding 20 grammes. It would also appear that although pollen is not absolutely necessary to the production of wax, its consumption by the bees greatly reduces the amount of honey or sugar otherwise required (Berlepsch). From this it is evident that wax is secreted, primarily at the expense of the tissue and, secondarily, of the food consumed.

In supplying "foundation" to the bees, the object is to save much of this expenditure, and thus allow the bees more time and energy for the production of honey.

The primary object of the present series of experiments, as suggested by Mr. Holtermann, was to ascertain the relative ease with which the various foundations tested were drawn out and used by the bees; it, naturally, being held that those would be the most profitable which were utilized in this way to the greatest extent by the bees, or, in other words, those to which the least wax was added by the bees in building the comb. It will be seen that other and perhaps more important results have been incidentally obtained.

The experiments were conducted as follows:

The frames were filled with the various foundations under test, and the exact weight of two inches square noted. At the close of the season a similar area of two inches square was cut out of the centre of the full comb, the caps of the cells carefully removed, and the honey was extracted with the extractor, and finally by successive exhaustions with cold water. The empty honeycomb was finally allowed to dry in the air and was weighed.

The following tables give in consecutive form the data obtained and the averages therefrom:

Experiments with Various Brands of "Foundation," 1894.

Designating letter.	Name of wax and mill.	Milling temperature.	Weight in grammes of "foundation" 2 inches square.	Weight in grammes of empty honey-comb, 2 inches square.	Weight in grammes of wax added by bees, per 2 inches square.	Percentage of wax added by bees.	Approximate measurement of one pound.
A.	Choice wax, Root mill, outer section....	89 F.	1.4010	2.8335	1.4325	102.2	} 9.0 sq. ft.
B.	" " " " " " " " " " " " " "	89 F.	1.4010	3.0804	1.6830	120.1	
C.	" " " " " " " " " " " " " "	120 F.	1.2040	2.6025	1.3985	116.1	} 10.5 "
D.	" " " " " inner section....	120 F.	1.2040	2.8635	1.6595	137.8	
E.	Foundation in general use, outer section.....	1.4145	2.5650	1.1505	81.3	} 8.9 "	
F.	" " " " " " " " " " " " " "	1.4145	2.4805	1.0660	75.3		
G.	Heavy sheet, Root mill, outer section....	120 F.	1.3157	2.8165	1.5008	114.0	} 9.6 "
H.	" " " " " inner section....	120 F.	1.3157	2.6750	1.3593	103.3	
I.	Inferior wax, Root mill, inner section....	120 F.	1.1670	2.5340	1.3670	117.1	} 10.8 "
J.	" " " " " outer section....	120 F.	1.1670	2.5050	1.3380	114.7	
K.	" " " " " " " " " " " " " "	89 F.	1.2240	2.5410	1.3170	107.6	} 10.8 "
L.	" " " " " inner section....	89 F.	1.2240	2.8060	1.5820	129.2	
M.	Choice wax, Given press, inner section....	120 F.	1.8010	3.0565	1.2555	69.1	} 7.0 "
N.	Patent process, 12 sq. feet, inner section.....	1.0040	2.7665	1.7625	175.5	12.5 "	
O.	Patent process, 15 sq. feet, inner section.....	1.0930	2.9115	1.8185	166.4	11.5 "	} 8.0 "
P.	Inferior wax, Given press, inner section.....	1.5820	3.0090	1.4270	90.0		

Table of Averages.

Designating letter.	Name of wax and mill.	Milling temperature.	Average weight of 2- in square of empty honeycomb.	Average weight in grammes of wax added by bees.	Average percentage of wax added by bees.
A. and B.	Choice wax, Root mill	89 F.	2.9587	1.5577	111.1
C. and D.	" " " " " " " " " " " " " "	120 F.	2.7330	1.5290	126.9
E. and F.	Foundation in general use.....	2.5227	1.1082	78.3	
G. and H.	Heavy sheets, Root mill.....	120 F.	2.7457	1.4300	108.6
I. and J.	Inferior wax, Root mill.....	120 F.	2.5195	1.3525	116.0
K. and L.	" " " " " " " " " " " " " "	89 F.	2.6735	1.4495	118.4
M.	Choice wax, Given press.....	120 F.	3.0565	1.2555	69.1
N.	Patent process, 12 feet square.....	2.7665	1.7625	175.5	
O.	" " " " " 15 " " " " " " " "	2.9115	1.8185	166.4	
P.	Inferior wax, Given press.....	3.0090	1.4270	90.0	

Particulars respecting the color and appearance of the foundations and their resulting honeycomb are contained in the subjoined memoranda :

- A. & B.—Foundation, nearly white, clear and bright; in the honeycomb, it was only a shade darker than the cells.
- C. & D.—Foundation a shade darker than A, but almost white. Honeycomb very similar to A.
- E. & F.—Foundation a bright yellow, clear; in comb several shades darker than cells, color gradually diminishing from foundation plate to top of cells.

G. & H.—Foun-
section tha
I. & J.—Foun-
darker tha
K. & L.—Foun-
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& J. On t
M.—Foundatio
comb, almo
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1. That a certain
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2. That when a
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This is well illus-
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feet to eight feet to the

3. That a dark color
in the resulting comb

4. That in addition
to the theory that cer-
others. The results of
and the "inferior wax"
view. The facts at once
arrived at on this point
of the data here given
the bees in the founda-

5. That the presen-
draw conclusions as to
at high and low temper-

It might be urged
supply all the wax ne-
facts to support this ex-
function, and its entire
rangement of the gene-
wax that can be advan-
future experiments.

- G. & H.—Foundation very pale yellow; in comb, it is slightly more yellow in inner section than in outer; somewhat darker than wax of cells.
- I. & J.—Foundation brownish yellow, not so light as E. In comb it is considerably darker than cells, color shading off from centre.
- K. & L.—Foundation almost identical in color with that of preceding; in comb, yellowish brown and considerably darker than the cells, color shading off as in I. & J. On the whole, very similar in appearance to the preceding.
- M.—Foundation a very pale yellow. In color this comes between E. and A.; in comb, almost white; scarcely any difference in color to be distinguished between it and the cells.
- N.—Foundation a bright yellow, a little lighter in color than E.; in comb, color almost gone and in this particular scarcely distinguishable from cells.
- O.—Foundation bright yellow, a shade darker than N., probably owing to greater thickness; in comb, pale yellow and in this respect differing from N.; does not show the same shading off from centre as noticed in some of the heavier foundations.
- P.—Foundation, deep yellowish brown, the darkest in the series, appears to be more elastic than M., which is of about the same weight and from the same mill; in comb, brownish yellow, color extending about one-half the depth of the cells.

DEDUCTIONS FROM THE ABOVE DATA.

1. That a certain minimum weight of wax is apparently required for the construction and strength of the cells, although not necessarily the same weight is required in every case.

2. That when a light (in weight) foundation is supplied, the bees make up the deficiency; in other words, the weight of wax produced by the bees is inversely proportional to the amount of wax supplied as foundation.

This is well illustrated by M. and O., and is borne out to a greater or lesser extent (with one or two exceptions) by the other members of the series. It points emphatically to the economy of supplying the bees with a foundation of not more than seven and a half feet to eight feet to the pound.

3. That a dark or deeply colored foundation gives a dark and unsightly "fish-bone" in the resulting comb, materially affecting its palatability and injuring the sale.

4. That in addition to what has already been said, there appears to be some support to the theory that certain waxes are more easily worked and drawn out by the bees than others. The results obtained in the experiments with the "foundations in general use" and the "inferior waxes" from the Root mill, would, apparently, lend weight to this view. The facts at our command do not at present allow of any general conclusion being arrived at on this point. There can be no doubt, however, that this factor cannot, in view of the data here given, be of equal importance with that of the weight of wax supplied to the bees in the foundation.

5. That the present experiments give no definite results that would enable us to draw conclusions as to the relative merits, as regards working by the bees, of wax milled at high and low temperatures.

It might be urged from what has already been said, that it would be economical to supply all the wax necessary for the construction of the comb. There are, however, no facts to support this extreme view. The production of the wax by the bees is a normal function, and its entire cessation might possibly affect the honey yield or lead to a disarrangement of the general health of the bees. There is probably a limit in the amount of wax that can be advantageously furnished as foundation, a limit to be ascertained by future experiments.

averages

Approximate measurement of one pound,
9.0 sq. ft.
10.5 "
8.9 "
9.6 "
10.8 "
10.8 "
7.0 "
12.5 "
11.5 "
8.0 "

Average percentage of wax added by bees,
111.1
126.9
78.3
108.6
116.0
118.4
69.1
175.5
166.4
90.0

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comb very

darker than

s.

Mr. McKNIGHT: The experiment appears to show that the bees consume 500 grammes of this sugar and produce 30 grammes of wax, which, assuming the nutritive qualities of honey to be equal to sugar, would represent a consumption of 16 pounds of honey to one of wax. That has been a moot question among bee-keepers for many a day. From the experiment you have concluded that that would seem to be the proportion?

Mr. FLETCHER: That is the conclusion from two French experiments. The usually accepted opinion is that 10 pounds of honey represents one of wax.

Mr. McKNIGHT: Another conclusion is that the darker the foundation the more and further extended will be the discoloration of the comb built.

Mr. FLETCHER: Certainly.

Mr. McKNIGHT: Another deduction is that the higher the quality of wax in the foundation the less temptation to the bees to secrete additional wax for the building of comb.

Mr. FLETCHER: Not in all cases. The first one in this series happened to be so, but it does not appear from the others to be always the case.

Mr. McKNIGHT moved and Rev. Mr. CLARKE seconded a hearty vote of thanks to Mr. Fletcher, which was adopted.

Mr. FLETCHER, in acknowledging it, expressed the hope that in the future he might be of use to the Association.

Mr. DARLING: Did I understand you right, that the lighter the formation the more wax the bees supply?

Mr. FLETCHER: The best results were obtained from wax of a medium weight, not from light weight wax.

Mr. McKNIGHT: Don't the experiments show that the bees have to supply a little over 100 per cent?

Mr. FLETCHER: In most cases, yes. In this series of experiments there were added by seven over 100 per cent. and by three below 100 per cent.

EDUCATION.

Mr. ALLEN PRINGLE, of Selby, read a paper on Education. He prefaced it by explaining that the paper was intended to be read at the public meeting in the evening:

Two or three years ago I was requested by the executive of this Association to give a paper on Education at one of our night meetings, as these were becoming more varied and popular in character than the regular sessions of our convention. I declined that honor, but have now accepted it by endeavoring to commit a few thoughts to this paper on a very wide subject, and one, too, of vital interest and importance to us all.

There is ample scope here for wit, wisdom and learning, albeit the numerous dissertations on education are usually dry enough, if not altogether barren. In all that has been said and written on the subject, so far as I know, a good substantial bottom for building on has scarcely been reached. But the buildings are numerous, such as they are. I can, therefore, see no difficulty in writing a long essay (or a dozen of them) on so large a subject, especially by following well-beaten tracks along popular and orthodox lines. But I have a perverse habit of getting out of old ruts and on to new roads; and when you insist on getting a lecture from me on Education you must not expect me to travel the old roads, and give you somebody else's opinions on the subject (except, of course, when they agree with my own), but you must take what you get, and you shall get what is good and wholesome or it will be no fault of mine.

I know of hardly any other word that covers so much misconception and error (I had almost said ignorance) as the word at the top of this paper. The common notion about education is that it consists, for the male, in learning certain branches, called reading, writing, arithmetic, geography, grammar, Latin, Greek, etc., etc., and, for the

female, a few of the drawing, etc. They are in their proper educated after all—to get an honest living (which education only unfits the student papers a short exposure on technical education stored up for the washing out of the bibbing. The fact are demoralized by

So far so good for a quarter of a Many a man who is a better educated an honest living a many degrees. The

Bear in mind schools or colleges the cart before the the other way about have the most important and always.

What is education it ought to be. Education is, in every child, faculties, physically is of the good in human nature, as it is, fails to parent or teacher.

ties first and impart the home or school. to take care of the depend on the machine (which is so in importance is to and body—to get a hends, in fact, all the popular education has stubborn facts all attention; instead of sincerity being the physical, is corrupt. aries, asylums—these nature herself, or the Huxley, as quoted at this festering sore to the home and home again to false foundations rather than sins. Pa these premises. The of reproduction—of t

female, a few of these with the ornamental addition of French, German, music, painting, drawing, etc. That is not education at all in the true sense—useful as these branches are in their proper places. A student may have learned them all and be very poorly educated after all—not knowing enough even to take care of his health or turn his hand to get an honest living. Instead of a healthy *leading out* of all the faculties and powers (which education literally means) the book-stuffing and cramming in a multitude of cases only unfits the subjects of it for the real duties of life. The other day I read in the papers a short extract from an address recently given to workmen by Prof. Huxley on technical education, as follows: "The freshness and vigor which should have been stored up for the purposes of the hard struggle for existence in practical life have been washed out of them by precocious mental debauchery, by book-gluttony and lesson-bibbing. The faculties are worn out by the strain put upon their callow brains, and they are demoralized by worthless childish triumphs before the real work of life begins."

So far so good. That is what I have been pointing out and endeavoring to get righted for a quarter of a century; but that is not all of the indictment, as we shall see later. Many a man who never saw the inside of a college, and but little of the inside of schools, is a better educated man, so far as the practical duties of life and the ability to get an honest living are concerned, than the college stripling and mental weakling with many degrees. The poet describes him as

"The book-full blockhead, ignorantly read,
With loads of learned lumber in his head."

Bear in mind I am not condemning learning—high or low. I am not condemning schools or colleges *per se*. I am condemning their methods and their matter. They have the cart before the horse, with a poor load in the cart at that, and I wish to put things the other way about—to get the horse before the cart and the cart better loaded. They have the most important part of education last, or not at all, instead of having it first and always.

What is education? Whatever it may be or has been I shall tell you what I think it ought to be. Education ought to make the most and best of the raw material, such as it is, in every child. Education ought to effect the best possible development of all the faculties, physically, mentally and morally. Education ought to lead out whatever there is of the good in human nature and restrain whatever there is of the bad. But education, as it is, fails to do this, either in the school, college or university—either under the parent or teacher. Furthermore, education ought to develop the more important faculties first and impart the more important knowledge first. But this is not done, either in the home or school. The most important of all knowledge is self-knowledge—to know how to take care of the body, for on it everything depends. Mind, morals, character—all depend on the machinery. The very first thing, then, to learn, is how to keep that machine (which is so "fearfully and wonderfully made") in good running order. Next in importance is to know how best to use the machine—to employ the faculties of mind and body—to get a living and to perform the duties of parent and citizen. This comprehends, in fact, all the essentials of a sound and useful education. Just how far home and popular education have accomplished or failed to accomplish this may be inferred from the stubborn facts all around us. Instead of physical health being the rule, it is the exception; instead of moral rectitude being the rule it is the exception; instead of social sincerity being the rule it is the exception; and the body politic, as well as the body physical, is corrupt. Sickness, suffering, premature death, poverty, prisons, penitentiaries, asylums—these all bear witness either that there is something terribly rotten in nature herself, or that our methods of manufacturing citizens are fearfully defective. Huxley, as quoted above, is right so far as he goes; but we must go further. To probe this festering sore to the bottom we must go from the universities and schools back to the home and home influences; and back of that to pre-natal influences, and back of that again to false foundations. Ignorance is the word here, and it covers a multitude of ills rather than sins. Parents generally are ignorant of the very rudiments of knowledge in these premises. They know little or nothing of the genesis of their species—of the laws of reproduction—of the laws of heredity—how the sins and diseases of the parents are

visited upon the unfortunate offspring "unto the third and fourth generation"—not by Providence, but by outraged nature. They are either ignorant of these evils or know not how to avoid them. The truth is they do not know. They are going it blind, and who can blame them? They have never been taught the most important of all knowledge. They neither know how properly to bring their offspring into the world, nor what to do with them afterwards. But if a mysterious Providence has attended to the whole thing so far, why may not Providence do the rest? That is their reasoning, and it is logical enough. And when the child—through the ignorance of the parents—gets the deadly germs of typhoid or diphtheria into its system, and dies (the cause and result being amply demonstrated by science), that, too, is charged up to Providence, and the parents "resign" themselves to the so-called "dispensation," instead of cleaning up the filth that caused the trouble. So that education, in its true sense, for the future, must not only be a positive process of learning truth, but it must be a negative process of unlearning error, and we have just had an instance of it by way of illustration. To the lover of truth it is simply appalling to see the huge mass of error in the world, in these premises, which must be pulled down before there can be a substantial foundation laid for the great superstructure yet to be reared. A sense of duty impels me to say here again what I have said and written before, and what I have thought since I began to think at all, and that is, that this absurd belief in the minds of the masses that sickness and health are the arbitrary dispensations of a mysterious Providence, has been the cause of more evil in the world, in the shape of sickness, suffering and premature death, than almost any other blighting influence. I could, therefore, in my humble opinion, give my fellows here and elsewhere no more useful and wholesome advice than this: Get rid of that absurd superstition, so disastrous to humanity, just as soon as possible, and study the natural causes of physical ills, that you may, as far as possible, avoid them. And what a strange perversity (no, I will say inconsistency) humanity here manifests. The parent of children will study his dumb animals carefully, and treat them every time on natural, common-sense principles, while the human animal—his own offspring—is not studied at all, and is treated on supernatural instead of natural principles—by irrational instead of common-sense methods. Is this human perversity or is it merely human ignorance? The husband knows a hundred times more about the breeding and proper management of his stock, and the mother knows better how to care for the chickens and ducks than her own offspring. Aye, the bee-keeper will study with great diligence all the ins and outs of queens, and drones, and workers; of breeding and interbreeding; of crossing and intercrossing; of pre-natal influences and post-natal conditions; of genesis and parthenogenesis, till he knows it all "like a book;" but there are some other things about the genesis of a higher order of animal which he knows little, and appears to care less about. The bee-hive is of more interest, if not importance, to him than the human hive. "A word to the wise is sufficient," and bee-keepers are, of course, all wise men.

"'Tis education forms the common mind,
Just as the twig is bent the tree's inclined."

So says Alexander Pope. The poet, by common consent, appears to have a license to tell a whole truth, a half truth or no truth at all. This is a half truth. Education, as it is, fails to properly "form" either the "common" or the uncommon mind. Even education as it ought to be could not do it. Nature does a deal of the business, and you cannot "make a silk purse out of a sow's ear." "Just as the twig is bent the tree's inclined." Yes, but if it happen to be a basswood twig it will always be a basswood, no matter how straight you may make it by bending the crook out of it. And, if it happen to be an oak twig it will be an oak tree, no matter whether it is crooked or straight. Now, there are human sprouts, of basswood, of tag-alder, of swamp-elm and of oak. There are basswood men and men of oak. And while you cannot make an oak tree out of a slippery elm, or an ash out of a birch, you can make the best of each tree, in its place. By proper training and cultivation you can make the tree straight and comely, healthy and strong, fairly free from knots and gnarls, crooks and curls. In like manner you may take the human sprout, and if he be born a basswood, you may make a good basswood out of him by proper training and education. But the soft timber will still be there com-

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pared with the oak man. On the other hand, if he be born an oak, you may make either a splendid, stately oak man out of him or you may turn out a stunted and gnarled specimen of little worth. A poor, stunted oak tree might not be half as good and useful as a good basswood. In like manner the basswood man, with little talent or strength of character, is sometimes a better and more useful citizen than the oak man, with talents prostituted, opportunities wasted, and life a failure. I am saying nothing here about the other sex, and for obvious reasons—they are mostly all born daisies, and lilies, and roses; balm of Gileads, cedars and sycamores—beautiful trees, comely, and some of them always fresh, and occasionally green. Of course there is, too, an occasional brier, and thorn, and prickly ash, just to give spice, and variety—and—and—sauce. A deadly-nightshade is exceedingly rare, yet is occasionally there.

But to return: The basswood always remains the basswood, the oak remains the oak, yet either one may be quite perfect in its way, or quite the reverse, depending upon the conditions—the education—in a word the whole environment. It is so with human beings. This, you see, is giving education its due, and nature, also, her due. Neither one can take the place of, or wholly supersede, the other. Poets, philanthropists, philosophers, are born not made. Shakespeare was born a Shakespeare, and Bacon was born Bacon (I don't mean ham). No educational laboratory could elaborate these men—nothing could do it but the laboratory of nature. And our own living Spencer of the present was born a philosopher—the greatest of the nineteenth century, an example, too, of a great and learned man without the aid of college or university. That nature makes the idiot none will deny; and education, so-called, sometimes does the same thing. But no educational process, good or bad, can make a philosopher out of a fool, though you might manage to make a fool of a philosopher. And while there is no educational process, or method of training, of any kind, which could make a Gladstone out of Almedee Chappelle, the right kind of education and training might have made a fairly average, self-supporting citizen out of the Listowel murderer—bad as was the "raw material."* And while nature, and nature alone, can make a Florence Nightingale or a Lucretia Borgia the latter might have been very different under different circumstances.

Vice and crime are not the legitimate fruit of any human faculty or passion; nor are they the result of "innate depravity." This great truth must be recognized as a first step towards sound educational progress. It is high time the "innate depravity" dogma was exploded. The normal function of every physical and mental organ is good. Vice is a perversion of the faculties. It does not follow that because a man has large combativeness and destructiveness he ought, therefore, to fight and kill. The proper function of combativeness is to give energy of character, of destructiveness to give executive energy and to prompt us to destroy without mercy whatever ought to be destroyed—popular errors for example. It does not follow because one has a large endowment of secretiveness and acquisitiveness that he ought to lie and steal, as the proper function of these is industry, frugality, economy, prudence. Nor does it follow that amativeness should make one licentious, as the marriage and domestic relations of life afford legitimate exercise for this and the other domestic faculties. Because a woman has large language and is richly endowed with tongue, it does not follow that she should talk about her neighbors or at her husband. Because a man has large alimentiveness it hardly follows that he should be an epicure or gourmand, or that he should eat all and sundry. Of course man still has the cheerful habit, in a state of nature, of dining off his fellows (not infrequently the missionary); but we (out of a state of nature, and more's the pity in some cases) stop a bit short of that. We simply prey upon, and kill each other both in peace and war, but we draw the line at eating each other.

*Since this was written, through the courtesy of County Crown Attorney John Idington, Q.C., I saw and examined Almedee Chappelle, who is now in Stratford jail under sentence of death for the foul murder of Jessie Keith near Listowel, Ont., in October, 1894. His organization, from a physiological and phrenological standpoint, is a low type throughout—poor quality of brain and fibre. The temperament is bilious-motive, and the cranial conformation very unfavorable, intellect weak, animal propensities strong, with the part of the brain which exercises the moral-sentiments deficient. The "raw material" in this case is indeed poor enough, yet a proper system of education and training might have kept him clear of that terrible crime.—A. P.

One of the chief functions of a sound education is to teach the subject how to exercise all his faculties and passions without abusing any of them, and how to evenly exercise them—how to restrain those by nature too strong, and how to cultivate and strengthen those by nature too weak—how, in fact, to attain a balance of function, of mind and body, for this is perfect mental and physical health. Education, as it is, utterly fails to do this.

Throughout the present era, during about nineteen centuries (leaving out the pagans) mental education and moral training have been largely based on an erroneous view of human nature; and this is the chief reason why mental culture and moral training have so signally failed up to date to accomplish their true purposes. Sound education should proceed on the following lines, named in the order of their importance: First, physical development; second, mental cultivation, and third, moral and social training. Of course all should proceed concurrently, and I place mental cultivation before moral and social training simply because the intellectual faculties must open before the principles of ethics and sociology can be comprehended. These include all there is to be developed in man or woman—the religious element being included in the moral and social. But if the bodily and mental faculties of the child are not understood how can they be led out and developed? If false theories concerning the nature, origin, and functions of the faculties are entertained, the methods employed for their development cannot be the best. I contend that in every department education has been proceeding upon assumptions more or less erroneous. Take physical education first. It is neither understood by the people nor taught by the teachers. Of course anatomy, physiology and hygiene are at the present day developed in the hands of the devotees of science; but the masses of the people know little about them and care less. And why should they? Is not sickness sent by Providence? Their spiritual advisers tell them so, and why should they inquire into or question the doings of Providence? Then, again, is it not the doctor's business to cure sickness; that is, Providence permitting? And the only way to find out as to the permit is to let the doctor try his hand. If the patient dies that proves that Providence went against the doctor; if he lives it proves the other thing, and the people are content, and think it all right no matter which way it goes.

Is it likely, then, that the people, entertaining such notions as these, will bother themselves to study the conditions of health and the natural causes of disease? When a belief in Providence is in it sanitary science is out of it, and at a discount. The people will not get much instruction from the doctor, for that is against his business; besides, only a few of the doctors know themselves how to live, or if they do they fail to practise it. Thus it is that physical education—the most important of all—is at a discount all round.

We now come to intellectual education. Here, also, the old metaphysical conceptions of mind prevail; and in so far as they still guide intellectual education it must be defective. The new mental philosophy is fundamentally different from the old; and in this case, as usual, the new and the true is slow in superseding the old and the false. New truths, no matter how obvious, seem destined to go through certain stages of probation before humanity in general will finally accept them. First they are scorned, persecuted and trampled upon. Then, after a while, they are tolerated as heresies ("dangerous" heresies of course). Finally they are embraced as great truths (which, however, "everybody knew before anyway!") and they forthwith become popular. The new science of mind, discovered and developed by Gall, Spurzheim, Combe, Fowler, Mann and others, though still, no doubt, imperfect in detail, is fundamentally and scientifically true; but the world has not yet accepted it. It overturns too many antiquated notions, and fossilized errors, to be readily accepted. It is still a "heresy" more or less "dangerous," and unpopular. Astronomy, too, was "dangerous" at one time. The new doctrine that the earth moved round the sun instead of the sun around the earth was an exceedingly "dangerous" one at the time it was discovered, but it turned out to be true all the same. It is only error that is in danger in the presence of truth. It never seems to occur to these fogies that we can no more extinguish truth than we can the sun. If they have the truth they need fear nothing. If they have error they scent "danger" in the truth. Now, when this new and rational mental science is fully accepted as the basis of education then

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will education, mental and moral, accomplish for the world what it has so far failed to accomplish. The educator will then understand the real nature and functions of the several faculties—the natural and proper nourishment for each—and will know how to administer it. He will also see that the modes best suited to one child (or even adult) will not answer for another differently constituted—that as the mind is a plurality of faculties instead of a unit, it is folly to try to do effective teaching on the unit theory—and as one child has a talent for this and another for that, and one this peculiarity of character and another that, the educational treatment and training must be varied and regulated accordingly.

We now come to the moral and social part of education. Here matters are worse if possible. The orthodox doctrine at the bottom of the popular moral and social systems of education has, indeed, been abundantly fruitful of bad results. This precious doctrine is that we are all by nature "utterly depraved," and that "the heart of man" (there is nothing said about woman) "is deceitful above all things and desperately wicked." Now, I have seen a good many women and girls, and a few men and boys, who would hardly, I think, fill that bill of indictment—who appeared to have at least a little native and spontaneous goodness in them. There is enough depravity and wickedness in all conscience; nevertheless, that absurd dogma is a libel on humanity. From the time I saw the school-boy divide his dinner with the boy who had none, and the school-girl cry to break her heart when her little brother was punished, I never believed that "total depravity" doctrine. But, then, a great many people do believe it, and act upon it; and it moulds the methods of education, moral and social. What fruits should we expect from a system of moral training built on such a foundation? And that is not all. There is another dogma at the side of that one, still more absurd and worse in its effects, forming another educational corner-stone. It is this, that there exists in this universe a malign influence, or power, or personality, omnipresent and well nigh omnipotent, that is continually operating on the minds of people—minds already "utterly depraved," remember—operating upon them with the express intention and malignant purpose of leading them into all manner of sin and evil! Think of that as a part of the order of things in which man finds himself—the sport and victim not only of the material universe, but of unseen powers? Is it any wonder the race has got no higher than it is on the moral and social plane? Is it surprising that the average man should go for the "game" when he has such a "name"? Why, if these abominable doctrines were true there would be ample justification for all the Chattelles, Birchalls and Borgias that ever mixed the poisonous draught, or drew the assassin's knife!

It will thus be seen that I impeach the very foundations of existing educational systems; and those fundamental errors and superstitions must be destroyed, root and branch, before education will be a success; and before humanity can be a success, morally and socially. And as the education of the child begins with the parent (and morally often ends with the parent) enlightenment and reform must begin there. It would be amusing, were it not so serious a matter, to note the idea parents usually have of education! They imagine that the child's education begins when it begins to go to school, and ends when it leaves school. That is their idea of education! That the little world the child has been in since it opened its eyes has been its perpetual school they have not realized. From its earliest infancy the environment, the parents and those around it, are constantly educating and moulding the child's character for good or ill. Not only are the intellectual faculties rapidly opening up, but the moral and social education is going on. The child fairly absorbs the influences around it, like as it breathes the atmosphere around it; hence both ought to be pure and wholesome. As it grows older, the child is often taught—and effectually taught—deceit, duplicity, dishonesty and untruthfulness, without a word of direct evil precept from the parents or others, who may, indeed, be quite unconscious of what they are doing. The parent practices deceit and the child takes it in. The parent is, directly or indirectly, untruthful or dishonest, and the child catches it as he would the measles. As the children grow older they branch out and learn more tricks and trends. The father may be a "respectable" man—highly

respectable and religious—before the world, but he practices the “tricks of trade,” and the dubious arts of the politician and place seeker, and the son imbibes it all. It becomes his first principle of action in life. It is this :

“Get place and wealth ; if possible with grace ;
If not, by any means get wealth and place.”

Take the opposite picture. The influence of the parent on the child is good and wholesome. The parent not only teaches the right and the true by precept, but by example, which is a thousand times better. There is no deceit, no hypocrisy to be absorbed. The son is taught, not that labor is degrading, but that it is ennobling—not to get money by trickery and fraud but by honest effort and work—that honesty is not merely the best policy, but that it is right in itself ; that the highest manhood consists in uprightness in all things, that

“A king can mak a belted knight,
A marquis, duke, and a' that ;
But an honest man's aboon his might ;
Gude faith, he canna fa' that.

“What though on hamely fare we dine,
Wear hoddin-grey, and a' that ?
Gi'e fochs their silks and knaves their wine ;
A man's a man for a' that

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“The rank is but the guinea stamp,
The man's the gowd for a' that.

* * * *

“The pith o' sense, the pride o' warth,
Are higher ranks than a' that.”

These are the sterling principles from auld Scotia's immortal bard to be instilled into the minds of youth ; and then with the proper education and training of all the faculties along natural lines, as the “child is father to the man” the man will be a man.

Mr. McKNIGHT : We have all listened to the paper with a great deal of interest. There is much of good common sense in it, and there is a sprinkling of Allen Pringle over all. No one will attempt to criticize. He is a pretty tough snag to run against anyway. He evidently believes with some of those who enjoy the benefits of our system of education that the college class of students who went in fools came out asses. His idea is the complete development of men and women, physically, mentally and morally. While we must all admit that, we must also admit that no system of scholastic education yet devised can accomplish that entire aim. It is impossible for any school system to educate in that full sense. I am afraid to go farther, but not afraid to go this far, and propose that the thanks of the Association be tendered Mr. Pringle for his very able paper ; but I think it was a mistake that it was not assigned for the evening meeting.

Mr. MYERS : I have great pleasure in seconding the motion. As one of the committee in getting up the programme I feel deep regret that it was not brought up at the evening meeting, but the committee as a whole had no idea of the nature of the paper.

Mr. DARLING : I was very much pleased with the paper, and I feel that in Mr. Pringle's hands it was ably dealt with. I don't know that we have another man so well qualified to deal with a question of that description as he is. But I very much regret certain phrases. We here are supposed to be brother bee-keepers, and our doors should be shut to political and religious discussion. Now, there were several things in that paper which trod on the corns of the vast majority here to day. I think I would be untrue to myself and the views that I hold if I did not say something in protest. I merely wish to offer my objections to these phrases. Outside of that it could not be better.

Mr. PETIT : I fully endorse all that has been said by Mr. Darling. We are a Christian community, and we believe in God, and I cannot sit and listen to a paper that ignores God without expressing my disapproval.

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Mr. GEMMELL: I understood that the educational entertainment was to be educational in regard to honey, not educational in the broad sense of the word. That is why the paper was excluded from the evening entertainment. It was not done intentionally.

Rev. Mr. CLARKE: I have heard Mr. Pringle's address with mingled pleasure and pain, just as I have heard Ingersoll's lectures with mingled pleasure and pain. Ingersoll always gets a great amount of truth into his lectures, and also a fund of another character. I wish Mr. Pringle had repeated his declination a second time, because I think he could not do justice to his own convictions without going across the feelings of a large majority of those present. I am as firm a believer in the reign of law as Mr. Pringle, as firm a believer in nature; but in my creed there is no conflict between nature and Providence. I respect and love Mr. Pringle, and he and I have often had some very hot controversies, and I don't think it has broken the friendship between us. I have a large amount of charity for those that are known as agnostics. I think that skepticism is largely the outgrowth of false teaching in the past. I think there is a large amount of misunderstanding abroad, and especially is there a misunderstanding with reference to the old creeds of the past, with which Mr. Pringle fell foul—old creeds that are no longer held by the masses of the Christian people. But it is a very hard thing to get them modified and revised. So far as Mr. Pettit's criticism is concerned, I think it is too strong. Our friends who hold the views of Mr. Pringle do not assert that there is no God, but simply that they do not know. They do not deny and they do not affirm. There was far more in the paper that I agree with than there is that I differ from. The great Christian world does not believe in the doctrine of total depravity and some others of the doctrines of the past. But they are embalmed in creeds that it is almost impossible to modify, and so we have them as relics of the past.

The vote of thanks was put and carried.

Mr. PRINGLE: I thank you for the vote. I am not responsible if the paper has been presented at a regular session instead of the public meeting. I expected it would be read at the night meeting. And if I am asked to write a paper on education must I not do it in an honest sense? I was careful, as I thought, not to write anything that would offend any man, no matter what his belief. It is a mistake to say that my paper "ignores God." I endeavored to keep clear of all offence.

ELECTION OF OFFICERS.

The election of officers was then proceeded with. The result is given on page 4.

After the election of officers, Mr. ALLEN PRINGLE, finding that there was another member from his district present, proffered his resignation, giving as his reason that the Association had not done fairly in dropping an old and worthy member like Mr. McKnight from the board.

After considerable discussion, in which many kind things were said of Mr. McKnight, the meeting declined to take any action, Mr. Pringle being regarded as still the choice of the Association upon the board for his district.

On motion of Messrs. Holtermann and McEvoy, Brantford was recommended as the next place of meeting.

Mr. HALL, the new President, was at this point introduced to the chair. He said: I don't know how you think I have behaved. I think you have forgotten what you have been doing, or you would not have invited me to preside over such an assembly. I consent to do so on the premises that you behave, which, no doubt, you will do, and I thank you all for the honor you have conferred upon me.

The appointment of delegates, etc., and the selection of premiums for members here followed.

COMMITTEES.

Executive.—The President, Vice-President and Secretary.

On Pure Honey Legislation.—Mr. S. T. Petitt, Mr. J. K. Darling, Mr. Jas. E. Frith.

To ask the Provincial Government for an increased grant.—Mr. A. Picket and Mr.

R. F. Holtermann.

To Toronto Industrial Exhibition Association.—(To assist to revise prize list, etc.)

Mr. R. F. Holtermann.

To Western Fair Association of London—(To assist to revise prize list, etc.) Mr. R.

H. Smith.

To revise stenographer's report of annual meeting.—Mr. Allen Pringle, President J.

B. Hall, Vice-President J. K. Darling, and Secretary W. Couse.

To arrange programme for annual meeting.—The Executive.

Foul Brood Inspectors: Wm. McEvoy, Inspector, and F. A. Gemmell, Sub-inspector.

The *Canadian Bee Journal* was decided on as to be given as a premium to members of the Association.

At the subsequent meeting of the Directors two hundred dollars were voted to be distributed among the affiliated societies, twenty dollars to be the maximum to any one society.

The usual grants of \$25 and \$10 were made to Industrial and Western Exhibitions respectively.

SECOND DAY—EVENING SESSION.

The Wednesday evening session was held in the assembly room of the Stratford Collegiate Institute.

Hon. THOS. BALLANTYNE, occupied the chair, and after some introductory remarks called upon Mr. McKnight of Owen Sound.

THE QUEEN BEE.

Mr. McKnight said: I am sure I echo the sentiments of the bee-keepers of the Province of Ontario, when I say that they very highly appreciate the kindness and good will which the people of Stratford have manifested since we came here. The fact that they have provided for their visitors an entertainment such as we are getting, speaks very highly for their generosity and good sense. I do not know how it has come about the people of Stratford have been so kind as to provide this entertainment; perhaps it is because you have a citizen here who is a very zealous bee-keeper himself, I mean Mr. Gemmell. I have not the slightest doubt that all we have received is largely due to the efforts of that gentleman and the other bee keepers here. I don't know what I am expected to say or what I ought to say; one thing is certain I won't say much. I suppose a good many of those present are not bee-keepers and do not know very much about bees except that they have a sting. They are all certain of that. I have thought it would be well to tell you a few things about bees not generally known. The queen bee is not a sovereign. A better appellation would be "mother" bee. She exercises no control over her people. The hive is not a monarchy. It's a commonwealth, a republic, governed by the people and for the people. It is extremely democratic. None but workers are permitted any voice in the management or control of the colony. The queen bee is the mother of the whole family; yet she does not perform all the functions of maternity. She takes no part in the care of her offspring. The business of the queen bee is to reproduce her kind. Her life work is to deposit eggs, and it is simply astonishing what she can do in that direction. The queen bee may deposit 2,000 eggs a day and keep it up for months. She can produce three times her own weight in eggs in a day and keep it up for months, which is something marvellous in animated nature. How

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rich the food must be that is administered to her to enable her to sustain this drain upon her vitality. You had a very large meeting of the dairymen of the province recently, and one of the questions discussed was the economical feeding of stock. It occurred to me that dairymen and stockmen might take a leaf out of the history of the queen bee and apply it to some purpose in discovering rations for a cow that would enable her to give three times her own weight in milk in a day and keep it up. It would be no more surprising than the fact that the queen bee can do it. Is it not possible that agricultural chemists may yet discover a ration, from testing the nourishment of the queen bee bearing on the subject? Would not it be a blessing to those who feed turkeys if that could be done? Wouldn't it better than stuffing them with peas ten months before they are to be killed. Bees rank first among the social insects. And they are extremely exclusive. They are not neighborly. They are not like dogs that occasionally foregather. They make visits to their neighbors only as the Highland clans used to do, for the purpose of raiding and carrying away the property of somebody else. They are not good natured; but they have one trait in common with ourselves—they are best natured when their stomachs are full. The male bee has no father and no sting; the female has both. Three kinds of bees are produced from two kinds of eggs. An egg that will produce a queen bee whose life span is about four years will also produce a worker bee whose life span is only about two months. The queen determines the sex of the bees. The transformation of an egg that would produce a worker into one that would produce a queen is carried out by the food administered to the larva and the accommodation afforded. It is known that people engaged in the industry are looked upon as cranks. People cannot understand why men of ordinary intelligence should consume so much time in the apparently frivolous work of the apiary attending to these pesky creatures. Some specialists in stock raising feel big in proportion to the size of the stock that they raise, and we are apt to feel lower than we ought to feel, but I believe that our work is just as important as and far more interesting than raising Percherons. It has all the dignity of age. There was honey before butter and beeswax before cheese. The bees were buzzing around Adam, but I never yet learned that Noah had any Polled Angus, Durhams, or Percherons with him in the ark.

Mr. HOLTERMANN, then gave an entertaining talk, illustrating by views thrown from a lantern, the structure and habits of bees.

THE VALUE OF SKILL.

Mr. C. C. JAMES, Deputy Minister of Agriculture for Ontario, was then introduced and spoke as follows:

In the eating of honey it is well to know when one has had enough, and the audience which has gathered here to give a welcome to the Bee-keepers' Association would be getting a little too much if we were to tax your patience at any great length. It must be a very great pleasure in the members of the Association to be welcomed by such a large gathering on such a stormy night, and we may certainly congratulate the Association upon the interest taken in its work. Those of us who came from a distance must also congratulate the city of Stratford, on the splendid school building in which we are now assembled.

Various meetings of associations connected with agriculture have been held of late in different parts of the province, and in most instances the halls have been too small to accommodate the gatherings. This means that the people from one end of the province to the other are becoming more and more interested in the questions bearing on agriculture or any of its branches. The people of this province, not simply the people of rural districts, but the people in our towns and villages, the people in the professions, the people in the universities, are becoming convinced that after all agriculture in its various departments lies at the foundation of the prosperity of this country. And whatever affects the farming industry, whatever affects the live stock industry, whatever affects the poultry industry, or whatever affects the bee industry, must have a material effect upon the pros-

perity of the whole country. As these callings improve so must all others improve. We have only to take a glance at the map to be convinced that this province possesses special advantages in connection with the various departments of agriculture. We have a situation and a soil adapted to agriculture more than to any other pursuit. So that these associations deserve the encouragement of all classes, of governments and of citizens. The question was proposed a short time ago. If a carpenter at work drops a nail, can he afford to stoop down and pick it up? *The Iron Age*, has figured out this question to a nicety, and its conclusion is that while the carpenter was stooping down to pick up the nail he was wasting time that was worth all the way from five to ten nails. That proves that the skill of the carpenter has advanced in value or the value of the nail has decreased. The manufactured article has become very cheap in comparison with the skilled labor of the man. We find all over the province complaint that everything has become so cheap that we can hardly make a living. Prices are going down and along with this the value of skill is on the increase. And why? The point I want to make is that skill at the present day is a very valuable commodity. And it is becoming day by day more valuable. And these lines of work are becoming more important and are paying better just as they are becoming more skillful. Take a tweed suit. It weighs only a few pounds. We will say that it weighs 5lb, and that the raw material in it was worth not more than a dollar. Why did it cost between \$20 and \$30? Because from the beginning of the production of the wool until it was turned out by a skillful tailor, skill was applied all along the line. There was skill in connection with the wool growing, skill in handling it, skill in designing the pattern, etc., etc. Suppose the wool in the first place had been carelessly produced, the sheep had not been properly cared for, the wool had not been properly treated in the mill, the designer had been careless or the cutter careless, we would have found the suit hanging in front of a cheap store and \$2 or \$3 ticketed on it. In that connection skill means increased returns. Apply that to agriculture. Is it not a fact that the more skill we put into our work the more successful we are likely to be. Here is a bushel of wheat. Instead of being worth a dollar or \$1.25 it has come down to 45 cts. or 50 cts. Why? One reason is that the production of wheat does not require much skill. We can produce wheat in some parts of this province equal to the best in North America; but we can go down to South America, to Australia, to India or to Siberia, and find people who have not very much education, or skill, or training, living on cheap land and working for a mere pittance, and they are producing wheat and bringing it into competition with our product. The result is that all over the world these great areas have been opening up and unskilled, cheap labor has been producing enormous quantities of wheat. Take mutton or beef. Ontario is celebrated for its mutton and beef; yet these two articles are low in price. Why? Out west where land is cheap they have established great ranches. So in Australia and South America. It doesn't require very much skill to produce ranch beef or mutton, and the production is so great that the price is kept low. But take the production of a pound of butter or a pound of cheese. You wouldn't expect a Siberian, or a South American or a native of Africa or India to be skillful to produce butter or cheese as we turn it out. It means the cultivation of the soil, the growing of crops, the keeping of first-class dairy stocks, the feeding of that stock, the handling of the milk and the making of that into butter and cheese. Therefore butter and cheese rest upon a higher level than meat and wheat. And as we go up in the scale we find fewer and fewer coming into competition. When we come into the old world with our dairy products we come in contact with the labor of France, Germany, Denmark, Holland and Sweden, countries in which instruction in agriculture has been imparted and the greatest encouragement has been given to the various departments of dairying.

We come to bee-keeping. Does it not require some skill to produce a pound of honey? We have had it demonstrated that it is not so simple after all, but that the habits, the peculiarities and the lives of the bees call for a certain amount of skill. What is the difference between a pound of first-class butter and a pound of poor butter? One has cost as much labor as the other. It took just as much soil to produce the food, and just as much food to produce the milk, and just as much milk to produce the butter and just as much labor. Yet there will be a difference of 5 cts. to 15 cts. a pound. If the

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material is the same and the labor is the same, where's the difference? In the skill that was brought to bear on the one more than the other. So in regard to honey. Two men can produce two kinds of honey, superior and inferior, and the difference is accounted for to a large extent by the fact that one man is more skilful than the other.

The time was in Ontario when it did not make much difference what the farmer sold, but it makes a great deal of difference to-day. In regard to too many farmers, it can be said that their land has run out. Already we can see evidence of the land giving out to a very great extent. This land as our ancestors started with it was exceedingly rich, and it didn't make much difference to them whether they sold wheat, mutton or honey. Everything that brought money went from the farm. But to-day it is a matter of extreme importance as to the nature of the products that go from the farm. Here is a load of wheat. It represents so much of the soil. If the farmer had turned it into butter or cheese he would have left a large portion of it on the farm. So that it is a matter of great importance that we send out as large a quantity as possible of those articles that take the least away from the soil. Butter takes practically nothing from the farm and those who go into dairy farming find that the old land grows rich again. And so in regard to the cheese industry. But when we come to the production of honey we strike something on a still higher plain. There is very little that comes from the soil. Nature produces the large portion of the material and the bee goes to the stores which nature supplies. Of course the best beemen grow suitable crops; but not merely for honey. The honey is a bonus. Further, the keeping of bees is a great help in connection with the growing of fruit, and all the facts adduced go to show that bee-keeping is of great importance and should be encouraged. It adds to the wealth of the country and takes practically nothing from it. Every move that the bee makes in collecting honey and storing, increases the wealth of the country without taking anything from it. This is something in which skill tells, and as we bring skill to bear on agriculture, as we begin to develop a skilful agriculture—or scientific farming, which is just the same thing—as we apply this skill or this science to agriculture in its various forms, as the growing of crops and the feeding of them, the handling of stock, the production of milk, butter, cheese and honey become more skilful, we will find that the men concerned will begin to appreciate their situation a little more, to feel their own importance, to take greater interest in their work and to feel that their work is on a higher level; that after all the practice of bee-keeping, stock-keeping and dairying is of quite as much importance and is quite as respectable as work in connection with the manufactures or any of the professions. And why not? Why should it be generally considered that because a man is in one of the professions he occupies a higher place than a man connected with agriculture?

Here and there you will find a man who is not engaged in his work merely for the money that is in it. He is asking this question, "Why is this so? What is the reason for it all? He is constantly storing up in his mind the science in connection with the work. He is getting the knowledge of the *why* as well as of the *how*. He is working in the light, and he is beginning to take a deep interest in his work. As years go on he appears to be a leader. He is looked up to for information. He comes to be looked upon as an authority, and not only does he make progress mentally, but socially and financially as well. And just as we shall build up men of this kind, and as they raise themselves and their neighbors, we shall find that the agriculture of this province will advance and take its stand side by side with the best agriculture of Europe, and it will be found that the well-trained, clear-thinking and educated agriculturist of this country will be among the leaders of the country, as they should be.

On motion of the Rev. Mr. Clarke, a vote of thanks was tendered all those who had taken part in the evening's entertainment.

THIRD DAY—MORNING SESSION.

Discussion was resumed on Mr. Darling's paper, "Some Difficulties." Mr. Darling enumerated some of the difficulties as follows:

"A member had said that he could winter 100 colonies as successfully as 100 sheep. How? Will the bee master tell us how to make bees keep at home in the spring? How to make them be kind to their mothers? How to prevent spring dwindlings and desertions? How to get the lazy bees to work? How to get them to work in the upper stories and how to get them to work at once?"

Mr. HOLTERMANN: I am always careful to put the supers on before the bees get anything like the swarming impulse. If they get a strong impulse we can put as many supers in as we like and they will not answer. A good many people complain that their bees will not work in supers, when the reason is that there is not sufficient inducement in the shape of honey to bring them up. I have had no experience of swarming in the super; but there is no doubt that a good deal depends upon the strain of bees.

Mr. NEWTON, Woodstock: I have seen several cases where the bright bees would not go up as readily as the dark bees.

Mr. SHERRINGTON: I had no trouble except with one colony. They wouldn't go up. I pinched the head off the queen and put in a virgin queen, and the next day or the day after they went up. The other colonies were all doing well at the same time.

Mr. NEWTON: I had intended raising some nice queens. I wintered the stock successfully, and they came through in the spring booming. I used both the comb super and the extractor super, but they filled up below and swarmed. They did nothing after that, and I had to feed them all winter.

A MEMBER: What kind of bees?

Mr. NEWTON: They were these five banded bees.

Mr. BROWN: My experience is that when there is a good honey flow the bees will go up.

Mr. MCKNIGHT: There has been too much breeding for color. This five banded stock has been bred pretty much out of the Cyprians.

Mr. WALTON: Our hives are big and our swarms just as big. In regard to extra supers, we have no difficulty in getting our bees up. We take a comb or two from below and we have the bees up at once. If the bees are in right condition they should go up. I think it is possible that Mr. Sherrington's bees would have gone up themselves even if he didn't pinch the head off the queen.

Mr. NEWTON: In my case, after I pinched the head off the queen I got a new stock and they went up.

Mr. PETTIT: With regard to wintering bees as successfully as any other stock, I have said it repeatedly, and I say it now, that we can winter bees as successfully as any other stock. I have proven it by fifteen years' experience. I won't attempt to tell you how to do it. It would take all the time we have this forenoon to go over the ground. But I wish to make this point: that bees can be wintered as successfully as any other stock on the farm.

Mr. WALTON: I have maintained in our neighborhood, and I am glad there are others with me, that we can winter bees as successfully as we can other stock. With regard to Mr. Darling's failure there must be some kink, and what we want to do to-day is to get at that kink. If there are two stocks sitting side by side, and one doing nothing and the other bringing in a good supply, I maintain the difference is in the queen.

Mr. HALL: In other words, the strain of bees.

Mr. WALTON: Since we have got our queens of a more uniform grade, our colonies are more equal in their work.

Mr. FRITH: It has to be the queen. A large part of the success depends upon the queen.

Mr. HALL: Ever thanks if you could give us some more information.

Mr. PRINGLE: Thank you.

Mr. HALL: Yes, thank you.

Mr. McEVoy: A winter my bees in July and that is the easiest way. Bees in winter quarters are comparatively few and always have stores sufficient to last them through the winter. I have a full colony. Thank you.

Mr. MYERS: Super them?

Mr. PETTIT: Oh, temperature pretty near 40° or 42°. Windy weather you must have a cushion or quilts, and when the temperature is not prepared for it should be low. It depends upon the cushion it should be low. The ventilation should be higher. The ventilation for packing, two or three inches. Bees warm inside, and moisture from the breath rises to the bottom. I wouldn't winter as well. Behind it should be a cushion, rises up through the entrance. Thus the bees get the fresh air. They will set up a fan when they come out in the sense of being worried then they come out right.

In answer to a question still as death. He comes out at 40°, 41° or 42°, for the temperature of the hive and the temperature of the air. If the two temperatures are the same then the bees are content to hibernate. When spring comes the bees are not kept quiet and they eat more than their strength of their system. from any cause they come out.

In answer to a question entrance. My combs are open in front of every colony.

Mr. DARLING: I have found, if I had put the queen in a little yellow ochre.

Mr. FRITH: It has never been proven to my satisfaction that the fault all lies with the queen. A large proportion of it lies with the drone.

Mr. HALL: Every member of this Association would give you ten thousand votes of thanks if you could tell us how to control the qualities, good or bad, of the drone.

Mr. PRINGLE: To ignore the drone is to ignore the laws of nature.

Mr. HALL: Yes; but we can't regulate him.

Mr. McEVoy: Admitting that it is in the queen, we can regulate it. I begin to winter my bees in July. That is the time to see that every colony is in good condition, and that is the easiest time to see that every colony has a right queen. If you put your bees in winter quarters with a poor queen you bring them out in poor condition, and they are comparatively a failure next year. Your stores must be right. The bees do not always have stores sufficient. Now we have a right queen and right stores, and we will have a full colony. The proper time to put in the cellar is just before the first freeze.

Mr. MYERS: Suppose there was a hard frost in October, would you put them in then?

Mr. PETTIT: Oh, no. Your cellar should be so constructed that you can keep the temperature pretty nearly even, and so that you can regulate the drafts. If you have windy weather you must be able to control the drafts. You want then to close the ventilators, and when the weather changes, open them again. It will make trouble; but if you are not prepared to take trouble don't go into bee-keeping. What is the right temperature? It depends more or less on how the hives are fixed. If covered with a cushion it should be lower, say down to 45° or 42°; if not covered with a cushion it should be higher. The ventilation should come from the bottom. I most generally use chaff for packing, two or three inches thick. When the top of the hive is warm it keeps the bees warm inside, and prevents moisture on the top. It prevents the condensation of moisture from the breath of the bees. You want to have the hive well ventilated from the bottom. I wouldn't take the bottom board away. My experience is that they do not winter as well. But the bottom board should be raised both before and behind. Behind it should be about three inches higher than in front. The air comes in at the entrance, rises up through and around the bees and passes out at the highest opening. Thus the bees get the ventilation they have need of without moving. If you do not prepare your hive in some way to ensure automatic ventilation the bees will not be contented. They will set up a fanning with their wings, and this fanning wears out the bees, and when they come out in the spring they come out old bees, not old in age, but old in the sense of being worried out. But if the temperature is right and the ventilation is right, then they come out right.

In answer to a question, Mr. Pettit said that in his depository everything was as still as death. He continued: Why do I want the cellar below 45°? I want it about 40°, 41° or 42°, for the reason that the difference between the temperature surrounding the hive and the temperature of the bees is such as to cause a current of air to circulate. If the two temperatures are nearly the same this automatic circulation will not go on, and then the bees are contented and happy. I would almost go so far as to say that they hibernate. When spring comes the consumption of honey is very light indeed. If your bees are not kept quiet that way and comfortable, the constant fanning disturbs them, and they eat more than they should. They feel the necessity of eating to keep up the strength of their system. And it is not only the loss of the stores, but when disturbed from any cause they commence to feed the queen.

In answer to a question, Mr. Pettit said: Seventeen inches is the width of my entrance. My combs run with their ends toward the entrance, so that the entrance is open in front of every comb all the way across. I wouldn't have it any other way.

Mr. DARLING: I have used oilcloth and common cotton as covering, and I have found, if I had put the cotton on before the hives were filled, portions of it in the comb. But I have taken a piece of ten cent cotton and brushed it over with linseed oil mixed with a little yellow ochre, and that I have used for ten years and there is not a hole in it.

Mr. EDWARD DICKENSON : I winter my bees much as Mr. Pettit does ; but there are some points of difference. I like to put them in the cellar with as little trouble as possible. I leave the covers on, but I elevate them—I mean the wooden cover of the hive outside. My experience is that there is no trouble in wintering. If there is I attribute it to the colony not being in the right condition in the fall. I elevate the bottom board at the back. I wintered 90 last year with 3 or 4 of a loss. The year before I put in 70 and brought out 70. The bottom board is elevated one inch, which amounts to the same as Mr. Pettit's.

Mr. PETTIT : One inch of elevation is not the same as three.

Mr. DICKENSON : Of course. Does Mr. Pettit tier up, and how does he manage it on top of the cushion ?

Mr. PETTIT : Oh, yes.

Mr. PRINGLE : At what temperature do you keep your cellar ?

Mr. DICKENSON : As near 44° as I can get it. I am not particular if it is 45° or 42°. It is impossible to keep it that towards spring.

Mr. MYERS wanted to know how the hot air got down from the top in Mr. Pettit's hive so as to pass out at the bottom.

Mr. PETTIT : The air rises and passes around the cluster, and the cold air crowds in ; as the hot air passes the bees it cools a little, and as it cools it drops a little, and so the work goes on.

Mr. NEWTON : Does Mr. Dickenson use a gable roof or a flat roof ?

Mr. DICKENSON : I don't use a gable roof. What does Mr. Pettit use on top of the cushions in tiering up ?

Mr. PETTIT : I put the cushion on the sealed top and set the next hive on top of that. In setting the hive on top, if you don't take care the cushion will crush the comb out of shape. The bottom board is made with a projection of 3½ inches, and these projections make the bottom board set on the rim of the hive below. The number of colonies you take out is no criterion of your success in wintering. It is the condition in which they come out. I take my bees out as they went in.

Mr. DARLING : I feel I am well repaid for asking these questions ; but I do not understand how the cold air in Mr. Pettit's hive rises on one occasion and lowers on another. The practice is right, but the theory is wrong. It is the carbonic acid gas given off by the animal bodies which makes the air go down.

Mr. WALTON : The use of propolis cloth may do well enough for inside wintering, but not for outside.

Mr. PRINGLE : It will do for outside wintering or inside, if the other conditions are right.

Mr. HOLTERMANN : This year our bees are wintering on Mr. Pettit's principle. In regard to outside wintering, we have this year ten colonies wintering outside. They have an inch thick of paper on the top.

Mr. R. H. SMITH : How high does Mr. Pettit tier his colonies ?

Mr. PETTIT : I tier as high as the cellar will allow, which means four hives. There's a difference made sometimes. Those in the most perfect condition as a rule are in the top, and as a rule there is a grade clean down, and if anything at all is wrong I find it is in the bottom row. There is a difference in the cloth cover as the bees cover it, and a fresh cloth. The bees become dissatisfied with a fresh cloth. They nibble at it and pick at it, and it troubles them all winter. But put the cloth on that they are used to, as they have made it themselves, and the bees are satisfied and don't worry.

Mr. NEWTON : My experience is that new sheets are not good in outdoor wintering. Enough packing on the top is what we want. With regard to outdoor wintering I don't approve of the propolis cloth in winter. I prefer the board hermetically sealed. My

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bees are packed in separate cases with about four inches of forest leaves. I find that the board allows the bees a free passage above, which the propolis quilt does not. I have found that bees winter better with the board than with the quilt.

Mr. McEvoy: If you let the entrance to the hive choke up then use the cloth. If you do not it does not matter so much.

Mr. MYERS: As to the bees eating the quilt, if the quilt is put on in the summer when the bees are busy, they will very seldom touch it.

Mr. HALL: I agree with Mr. Pettit, except that in the case of my bees, none of them go in with cloths. Some have half-inch boards, others quarter-inch, others $\frac{3}{4}$ -inch, all sealed tight. I have raised mine up at the front, and at the back too, and I can't see any difference. Last year we put half our bees out, and they began to swarm on the 10th of May. In regard to piling I am not particular as to front or rear elevation. Sometimes I have used a clean cotton quilt with cushion on top; at others the propolised quilt; other times, nothing but the wooden covers. Others I sealed. I find that if you leave plenty of material on top so as to prevent the condensation of the moisture and leave ventilation for the bees, and see that the entrance is not clogged up, they will come out all right.

Mr. NEWTON: These boards are not really tight. The moisture will pass through a three-eighths' board, and you can't make them tight. Let a heavy fall of snow come and block up the hives. If the snow is kept cleaned away it doesn't make any difference if the boards are glued down tight. But if you don't look after the snow, and the board is glued down tight, the hives will suffer.

Mr. PRINGLE: Just as sure as you cover them hermetically on top and do not look after them they will suffer. If I had a hive that was fast on the top, as soon as a snow-storm came I would free it in front. Do not make the mistake of leaving hives that are hermetically sealed, covered with snow.

Mr. HALL: I can endorse that. I had some bees covered up that I could not attend to, and when I got to them they were not worth the empty hives.

Mr. PETTIT: I am not exactly pleased with the impression left by the chairman that you can be a little careless in wintering. Success in all departments of life depends upon having all the conditions right. Bee-keepers as a rule do not winter with perfect success, and the reason is that the conditions are not all right. I do not say that my conditions are perfect. I do not want you to take it that I am telling you there is no better way. Bees may do well wintered in various ways. Still there is a right way of doing it.

A MEMBER: Do you lay your cushions right on your frames?

Mr. PETTIT: I lay my cushions on top of the frames, and if I had a frame more than nine inches deep I would most certainly have passages through to the top; but with a frame of only nine inches this is not necessary.

W. W. PEGG: In chaff hives would you put the cushions on top in wintering out of doors?

Mr. PETTIT: Yes, I would use cushions, chaff or forest leaves to conserve the heat.

Mr. PEGG: Do you provide passageways over the frames in wintering out of doors?

Mr. PETTIT: I always provide passageways over the frames or through the combs in outdoor wintering. If the frames are not more than ten inches deep, passageways over the frames will do. But in deeper frames I bore two holes a little above the centres of the combs. For this purpose I make a gauge to place on this side of the hives and with a $\frac{3}{8}$ inch bit I bore two holes. With this gauge the holes will be made exactly in the same positions in all the different hives. Then with a $\frac{3}{8}$ inch iron rod with a short crank on one end

and the other end brought to a square, sharp point and kept hot in a pail of water at about 120°, I pierce the combs. Turn the crank pretty lively and the holes are made easily and quickly. I use a gauge to make sure that the instrument goes squarely through the hive, and consequently in the same holes or place every fall. Close the holes in the hive with suitable wooden plugs. Let them project a little to facilitate removal next fall.

Mr. DICKENSON: I use the "queen excluder." It gives the passage over the tops of the frames and is the easiest way.

Mr. PETTIT has furnished the following as supplementary to what he said in the preceding discussion on wintering, as owing to indisposition he could not, he says, do justice to the subject in the extempore discussion:

First it is of much importance that the cellar be right. I prefer a cellar so nearly all under ground as to be as nearly as possible beyond the influence of severe weather; with ventilators under control so as to regulate the temperature according to the weather. So much for the cellar. Winter preparations should begin in July; for July is a good time to supply good queens and fresh blood, and also to have combs filled and capped for winter use. The bees are placed in the cellar when the chances of a cleansing flight seem to be past—in Ontario generally from the 10th to the 20th November. Hives should be placed on stands about 15 inches high with back end of hive raised up 3 inches higher than the front; then pry up the back end of the hive from the bottom board three-eighths of an inch and block up with bits of earth. Leave entrance open full width. I use heavy white duck for quilts. For winter use, they should be well covered with propolis and sealed down. My frames are only nine inches deep so there is no need of winter passages over them. Each hive is covered with a good warm cushion. In stacking up the hives, lay a piece of lath across the top of the front end of each hive to keep the proper pitch to the hives as they are piled up. Now your hives are in the cellar and doors closed and windows and ventilators so arranged that no ray of light enters the cellar. Now gauge the ventilators so the mercury will stand at about 40° to 42° as near as you can.

I may here state that there is no doubt in my mind that in Canada more bees perish from the effects, directly or indirectly, of foul air than from all other causes put together.

In order to overcome trouble from that cause my bees are prepared as above described. When bees feel uncomfortable from foul air they fan with their wings to drive it out of the hive, and they move about, and generally this uneasiness will cause them to feed the queen, and brood rearing will likely begin. Now all this activity, be it more or less, wears out your bees, causes them to eat too much and thus their bowels become clogged. Now then if these bees should pull through many will be in a wretched, dysenteric condition, the vitality of the queen is injured, food wasted, and the bees will be of very little use to anyone. Now let us look into the reason why my bees winter so near to perfection. Have the cellar say at about 40°, not lower. As we all know, the air in the hives is warmed up by the heat the bees generate; and as warm air is lighter than cold air it rises and seeks an exit at the highest opening and cold air takes its place. In other words the greater specific gravity of the cold air causes it to push in at the lowest opening and crowds the warm air up, through and around the bees, and as it leaves the cluster it is pushed to the back end of the hive, where it cools slightly and falls down and is pushed out at the highest opening.

Please note this point: The difference of temperature between about 40° and the temperature of the cluster, and consequent difference of specific gravity between cellar air and hive air, causes the automatic ventilation to operate more perfectly than a higher temperature would do.

Another point: In severe weather, where no artificial heat is employed, the purity of the cellar air can be better maintained at 40° than at 45°, the orthodox figures. Still another point, and I ask you to make a note of it: As the temperature rises the air becomes thirsty, and as it gently moves through the hives it licks up the moisture thrown

off by the bees. Perfectly comfortable, happy, and they winter is past and clean, young, healthy flow that comes.

Mr. FRITH pioneers in bee-keeping to determine whether you do it satisfy the laws of the disposal of the great deal of trouble have been impossible they will deal with disposal, and we ought to devise means of one these experiments be taken into consideration.

Mr. PRINGLE laws and know the experiments unless the individual bee a little thought, and all. Let us masterments properly.

Upon re-assembly

There are twelve time and have proper keepers' Association their grants not in a of by the secretaries

The societies of the Ontario Bee-keepers' Association

The total number being an increase of of comb, and 69,664 extracted per colony.

There are a few reports have been

off by the bees. When in winter quarters as I have described, the bees seem to be perfectly comfortable, with nothing to worry about and nothing to do but just sleep and be happy, and they do not seem to care if summer never comes again. But when the bleak winter is past and April sunshine and showers again gladden the earth they come forth clean, young, healthy and vigorous, and are thus ready and willing to take the very first flow that comes.

Mr. FRITH: With reference to the experiments that are being carried on. The pioneers in bee-keeping have spent thousands of dollars in experimenting and endeavoring to determine the conditions required by nature. You must fulfil the laws of nature, and whether you do it scientifically or inadvertently you must do it. It is only when you satisfy the laws of nature that you are successful. We have machinery that is laid at the disposal of this Association, and if we put our questions and difficulties in proper shape and submit them to the experimental bee department at the farm, it will save us a very great deal of trouble. We have heard from the professor experiments which it would have been impossible for us as individuals to accomplish. If we submit our questions they will deal with them from a scientific standpoint. The machinery is now at our disposal, and we ought to take advantage of it. It should be the object of this Association to devise means of saving expenses to its members, and at a very small expense to each one these experiments can be carried on at Ottawa. There are a great many things to be taken into consideration which a good many of us don't understand.

Mr. PRINGLE: The gist of the whole thing is this: If we would study a few simple laws and know them, they are better than a thousand theories and experiments, for experiments unless properly interpreted in relation to law are worth nothing. I recommend the individual bee-keeper to put his own mental machinery in motion and give the subject a little thought, and many a time he can master the first principles without any help at all. Let us master a few simple laws of nature and then we can interpret the experiments properly.

THIRD DAY—AFTERNOON SESSION.

Upon re-assembling in the afternoon the following report was presented:

REPORT OF AFFILIATED SOCIETIES.

There are twelve societies in affiliation, the most of which had their reports in in due time and have properly accounted for the spending of their grant from the Ontario Bee-keepers' Association. But in a few cases there have been small errors in expending their grants not in accordance with the by-laws, which it is hoped will be taken notice of by the secretaries and officers of affiliated societies present.

The societies report a total number of 174 members, 75 of these being members of the Ontario Bee-keepers' Association.

The total number of colonies reported in spring are 3,801, and in fall 4,853, there being an increase of about 27 per cent., and amount of honey produced being 22,701 lb. of comb, and 69,664 lb. of extracted, or an average of about 6 lb. of comb and 18 lb. of extracted per colony, which is considerably under the average production.

There are a few societies that have not reported as fully as desired, and also their reports have been later coming in than the time set by by-law.

W. COUSE, Secretary.

SCORE CARD.

Moved by R. F. HOLTERMANN, and seconded by R. H. SMITH, that in view of the unsatisfactory method of judging honey at exhibitions be it resolved, that we recommend the following score card for judging the quality of honey :

Name of Exhibition.....
Place.....

SCORE CARD FOR EXTRACTED HONEY.

Kind.....Granulated, Liquid.

Extracted honey will be judged on the following points, the figures set opposite indicating the maximum per cent., the total of all such maximums being 100 :

Flavor.....	35
Body	35
Color	25
Finish	5
	Total
	100
..... Exhibitor	
No.....	

Flavor.....	
Body	
Color	
Finish	
	Total

Name of Exhibition.....
Place.....

SCORE CARD FOR COMB HONEY.

Kind.....

Comb honey will be judged on the following points, the figure set opposite indicating the maximum per cent., the total of all such maximums being 100; for defects deduct from the perfect :

Flavor.....	30
Sealed cells.....	10
Freedom from pop holes.....	10
Absence of travel stain or propolis on wood or comb.....	10
Evenness of color of honey	10
Evenness of comb (drone or brood).....	10
Pollen in the sections	10
Neatness of crating	5
Style of section	5
	Total
	100
..... Exhibitor	
No.....	

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Be it further mentioned as well of 100 divided as

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That in section judges.

That a copy of the Dominion of C

Mr. McEVoy : flavor, 30 for body of itself.

Mr. McKNIGHT : tory to all concerned to any extent certain things mean being, and there was Mr. Deadman v the list.

Mr. McEVoy :

Mr. McKNIGHT : to interpret the wo much for the best di much for the best di I don't know how an one knows that there the best money ever helter-skelter display that list should have going to remove any

Mr. DEADMAN : display and quality. Holtermann arranges there be a separate whether the prize w

Mr. WALTON : I good judges. Many

Flavor.....	
Sealed cells.....	
Freedom from pop holes.....	
Absence of travel stain or propolis on wood or comb.	
Evenness of color of honey.....	
Evenness of comb (drone or brood).....	
Pollen in the sections.....	
Neatness of crating.....	
Style of section.....	

Total

Be it furthermore resolved that this Association recommends that where display is mentioned as well as quality, display and quality count equal, display count a maximum of 100 divided as follows :

Magnitude.....	35
Originality.....	15
Neatness and artistic design.....	50

Total 100

That in sections where quality of honey is not considered, artists be secured as judges.

That a copy of this resolution be sent to the secretaries of the leading exhibitions in the Dominion of Canada.

Mr. McEvoy : I wouldn't want to work according to this card, which gives 40 for flavor, 30 for body and 25 for color. Get color and body and the flavor will take care of itself.

Mr. McKnight : No standard of merit that could be formulated would be satisfactory to all concerned, and I question very much if the scheme proposed is an improvement to any extent on the old system. There was a good deal of confusion as to what certain things meant before, and it depended on the view the judges took for the time being, and there will be a diversity of opinion in the future as in the past. I think it was Mr. Deadman who wrote to the *Bee Journal* recommending an entire revision of the list.

Mr. McEvoy : Yes, and it was a good one.

Mr. McKnight : That is a question. It was said that it was impossible for a judge to interpret the word "display" in any other way than one. But if it was put, so much for the best display of the best 50 lb. of extracted honey, instead of merely, so much for the best display, no stickler could have any two opinions in the matter. And I don't know how any judges could have two opinions, taking our old prize list. Everyone knows that there was \$50 for display alone, irrespective of quality. And that was the best money ever expended in connection with our show. It converted it from a helter-skelter display to a nice, respectable, artistic display. Every award previous to that list should have been on quality alone. I don't see how this proposed scheme is going to remove any trouble.

Mr. Deadman : My article in the *Bee Journal* advocated judging separately for display and quality. That has nothing to do with Mr. Holtermann's proposal. Mr. Holtermann arranges a mark for quality, and that should help in the judging. And let there be a separate prize for display. No one could tell at the exhibition last year whether the prize was for display or for quality.

Mr. Walton : I see much reason for a score card. I see more reason for having good judges. Many who make honey cannot judge honey.

Mr. MCKNIGHT: Why have they not assigned any place to aroma?

Mr. HOLTERMANN: Flavor and aroma are the same.

Mr. MCKNIGHT: Smell a rose and you have the aroma. Chew the petals and you have the flavor. It is the aroma that tells the flower from which it is collected.

Mr. FRITH: How can you tell by the aroma whether it comes from glucose, honey sugar, or the like?

Mr. HOLTERMANN announced that on the card flavor and body had been rated equal, and on motion the card was adopted and recommended to the use of the various societies.

The report of the affiliated societies was received and filed on motion of Messrs. Darling and Holmes.

The committee on resolutions reported as follows:

RESOLUTIONS.

Moved by S. T. PETTIT, seconded by J. K. DARLING, and resolved, that the Ontario Bee-keepers' Association now in session assembled tender its thanks to the Ministers and members of the House of Commons of Canada for the passage of the Pure Honey Bill, introduced by T. S. Sproule, M. P.

Be it furthermore resolved, That the thanks of this Association are due to the citizens of Stratford in general, and to those in particular who have contributed so much to make the stay of the members of this Association pleasant while in convention in their city; also to the press which has been represented; also to the Hon. John Dryden, Minister of Agriculture, and the Deputy Minister, Mr. C. C. James, who have manifested such a deep interest in the bee-keeping industry; and lastly that a cordial vote of thanks be passed to those who have contributed papers.

Moved by R. F. HOLTERMANN, seconded by R. H. SMITH, that we rescind the motion of yesterday in regard to this meeting accepting the offer of the proprietors of the *Canadian Bee Journal* as a bonus to the members of this Association at 65 cents, and empower the Board to act on the matter. Carried.

The report was adopted.

Mr. McEVOY reported that there was a non-swarming hive which had been brought up by a member who wished to have it tested at Ottawa, and he moved that the association send it to Ottawa to be tested.

Mr. DARLING suggested that the test be made along two or three lines.

Mr. FRITH: Any of these tests made should be made through the Association and should become the property of the Association.

Mr. PRINGLE: If this Association sends anything down the Department will feel morally bound to make it the subject of experiment. If some individual sends it the Department will use its own judgment in the matter.

Mr. S. A. SMITH suggested that anyone wishing to have an invention tested should make a present of it to the Association, that the committee should forward it to the experimental farm and that the report should be made to the committee.

A MEMBER suggested that each individual could test the hive for himself, and that the people at the experimental farm might be given something to do that would be of some use to the Association.

Mr. HOLTERMANN's advice was to get into no hive troubles. By recommending the hive to be tested the Association was tacitly saying that there was something in it.

It was decided by a show of hands that the hive be not sent.

Mr. MCKNIGHT asked if nothing was to be done to recognize the meeting of the North American Bee-keepers' Association, which is to be held in the province this summer.

Mr. HOLTERMANN
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meets there, with

Mr. MYERS

Mr. MYERS
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Mr. DARLING
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meet with exper

This was ad

Mr. HOLTERMANN moved, "That we have a special meeting of the Ontario Bee-keepers' Association in Toronto at the time the North American Bee-keepers' Association meets there, with the understanding that every member pays his own expenses."

Mr. MYERS seconded the motion and it was adopted.

Mr. MYERS brought up the question of testing the comparative values of golden queens and the ordinary Italians.

Mr. DARLING moved that the matter of furnishing work for the experimental farm be laid over, the individual members of the Association to make suggestions as they meet with experiences.

This was adopted and the convention adjourned.

ERRATA IN ANNUAL REPORT FOR 1893.

On page 8 at the bottom a speech is credited to Allen Pringle, commencing with the words, "About thirty years ago," which is not his. On page 34, second paragraph from top, the lines commencing with the words "As I understood it" are also erroneously credited to Mr. Pringle. On page 33, near the middle of the page, the words "not governed by feeling or prejudice *or* reason" ought to read "not governed by feeling or prejudice *but* reason." On page 29, in 4th line from bottom instead of "one *theory* is certain," read "one *thing* is certain," etc.

A. P.

Affiliated Societies
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