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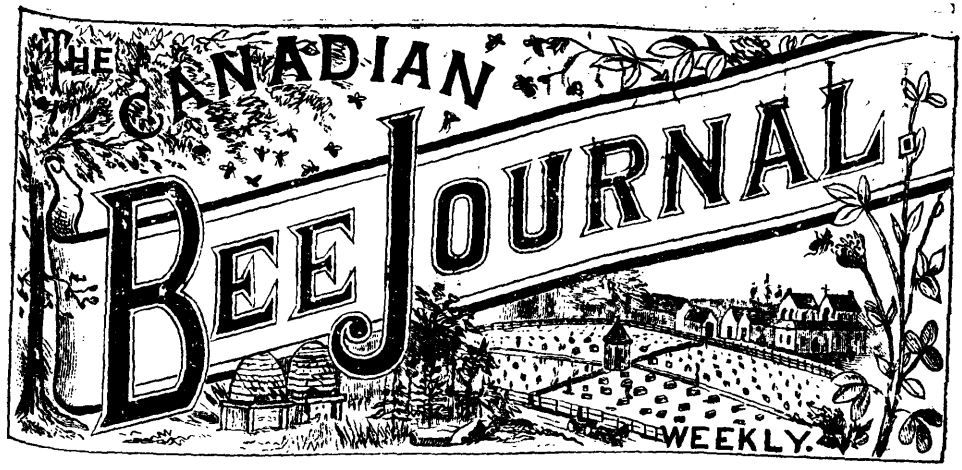

"THE GREATEST POSSIBLE GOOD TO THE GREATEST POSSIBLE NUMBER."

VOL. I. BEETON ONTARIO, JANUARY 6, 1886 No. 41

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PUBLISHER'S NOTES.

We will always be glad to forward sample copies to those desiring such.

Send us the names of three subscribers with $3 in cash and receive as a premium one C. B. J. Binder.

Send postal card for sample of leaflet. "Honey, some reasons why it should be eaten."

The CANADIAN BEE JOURNAL will be continued to each address until otherwise ordered, and all arrears paid.

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It is hoped that all who possibly can will attend the meeting of intending exhibitors to be held at Toronto, Jany. 14th; a full meeting is necessary to success.

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AND "Gleanings," semi-monthly	$1.80
" "American Bee Journal," weekly	1.75
" "American Apiculturist" monthly	1.75
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TO CONTRIBUTORS

Communications on any subject of interest to the Bee-keeping fraternity are always welcome, and are solicited.

Beginners will find our Query Department of much value. All questions will be answered by thoroughly practical men. Questions solicited.

When sending in anything intended for the JOURNAL do not mix it up with a business communication. Use different sheets of paper. Both may, however be enclosed in the same envelope.

Reports from subscribers are always welcome. They assist greatly in making the JOURNAL interesting. If any particular system of management has contributed to your success, and you are willing that your neighbors should know it, tell them through the medium of the JOURNAL.

THE CANADIAN BEE JOURNAL.

PUBLISHED BY

D. A. JONES & CO., BEETON.

WEEKLY - - $1.00 PER YEAR

The North American Convention.

CONTINUED FROM LAST WEEK.

Dr. A. B. Mason—When is the proper time to reverse the combs ?

James Heddon—The proper time to reverse brood-combs is when the bees are rearing large quantities of brood, and desire to increase the size of the brood-nest. To reverse the brood-combs late in the season, when they are contracting the brood-nest, will cause the brood-nest to be filled with honey all the faster. Sections should be reversed when the bees are inclined to store honey in them ; if done after the bees cease storing honey in them, it will hasten the removal of the honey to the brood-nest. As soon as the outside sections are far enough advanced to bear inversion, change them to the centre of the case, then insert the whole case, and all the sections will be finished at nearly the same time. Inversion causes the bees to attach the combs to the sections all around, and thus makes them bear shipment much better. Swarming is also lessened by reversing the combs, as the removal of the honey gives more room for brood, and thus helps to destroy the desire for swarming. It also has a tendency to the destruction of queen-cells.

C. P. Dadant—How about contraction ?

James Heddon—My objection to the Langstroth hive is its depth ; with that I contracted by removing some of the combs and putting in "dummies." With my new hive I contract by simply taking away one section of brood-frames.

Mr. Thompson, of New York—How shall those manage your new hive that do not wish to feed sugar for winter stores ?

James Heddon—During basswood the bees can gather honey faster than they can store it in the sections, and we have only to place a section of brood-combs over the sections, and in this catch the "overflow." When the harvest is over, remove this and keep it until fall, then shake the bees down in front of this case of honey, or else set it over the case containing the bees, and it is done.

Geo. E. Hilton—In practicing the contraction method, how can we remove a section of the brood-nest after swarming without removing some of the brood.

W. Z. Hutchinson—After a swarm has issued, the young queen does not commence laying until about the 19th day, two or three days later all the brood will have hatched, and we can remove one section without taking any brood ; we may get a few eggs, but this is immaterial.

L. C. Root—Are we to understand that you prefer brood-combs only 5 inches deep ?

Mr. Hutchinson—Most emphatically.

C. P. Dadant—We object to a shallow comb and to two sets of combs, because the queen cannot lay in a circle ; it consumes time for her to pass from comb to comb, or from one end of a shallow frame to the other.

W. Z. Hutchinson—We do not care how the queen travels, whether in a circle or crosslots, if she only keeps the combs full of brood, and if we do not give her too many combs to fill, she will do this.

Prof. A. J. Cook then read an essay on the Pollen Theory. It was a scientific dissertation on the nature of different food elements, and the process of digestion. The upshot of it was that bees during their long winter imprisonment should not have nitrogenous food, as it rendered them uneasy, and necessitated exertion. The Professor's paper was an argument in favor of what is known as the pollen theory, from a chemical stand-point.

C. P. Dadant—We once imported bees largely, and by long experience learned that the food must contain no pollen ; if it did, the bees died.

James Heddon—I have found bees frozen upon combs of honey—frozen before they had consumed enough pollen or bee-bread to produce diarrhœa. I have used the term "heat-producing food" in the sense in which it is generally used. I know that a stage driver in cold weather needs food of a different character than does a wood-chopper.

Prof. Cook—The chemist speaks of heat-producing food ; the physiologist does not. I think it an improper term.

Mr. Ira Barber's essay was read by the Secretary on

WINTERING BEES IN CELLARS.

Another year has passed since we met together in council, and thousands of colonies of bees have been lost for want of proper protection in winter. It is quite often said that no one has learned the secret of wintering bees, so that they can be wintered safely every time ; but I deny the assertion, and ask this association of bee-keepers if a quarter of a century of successful wintering of hundreds of colonies of bees without loss, except where an occasional one starves, is it not long enough to establish the fact that bees can be wintered as safely as any other stock ?

In my early experience I had all the troubles in

wintering that many are experiencing now, and I tried every place and manner of wintering that looked reasonable, to add to their comfort, and, as a rule, when they came out of winter quarters the loss would be from 30 to 75 per cent. For a long term of years I have wintered bees without loss, and fully 80 per cent. came out as good as when they were placed in winter quarters. If you ask where I winter my bees, my answer would be, in a warm, damp cellar. Why I prefer a warm cellar is because a warm atmosphere is a natural element of the honey-bee; and why I prefer a damp atmosphere is because bees are more quiet and healthier than in a warm, dry atmosphere for so long a time as 170 days without water.

In a warm cellar, where the temperature is from 60° to 90°, there is no discharge from the bees while in the cellar, unless it be in a dry state: and if bees have to be fed for winter, it can be done the last thing before placing them in, and then the bee-keeper knows just what the bees have, and no harm will be done because their feed is not sealed. The hives should be packed in a solid body when kept in a high temperature, and piled one on top of the other, three or four deep, with no upward ventilation. In this way of packing if some of the bees get uneasy and leave their hive, they are quite sure to enter some other hive, and no harm is done.

In wintering in a warm cellar, bees require all the combs that they occupy in the summer, and they will be all over the combs and do not cluster. The cellar must be closed, with no currents of air either hot or cold passing through it to arouse the bees. It is necessary to have a small ventilator from the top of the room for constant draft, a 3-inch pipe is sufficient for 200 colonies. A fire should be kept in the room above the bees whenever the mercury goes below zero.

Much is said about moisture in hives, and all manner of ways are tried to get rid of it. A warm atmosphere disposes of all moisture that arises from the bees, without any absorbents. Every colony should have plenty of feed to carry them through our longest winters, before they are placed in, so that their owner will have no excuse to go near them until spring. They will use more feed in a warm room than in a cool one.

The time to place bees in the cellar is before cold weather arrives—about the middle of November, as a rule. I use caps taken from the hives for stands to set the brood-chambers on, so that each tier of three or four hives rests on the one cap. The caps should be placed close together, and when all are in they form a floor to the cellar, and yet each stand is separate so that here is no jarring when handling in taking them out. The bottom tier of hives should be raised off the bottom boards about half an inch at one end of the hive, while all the rest should be left just as they come from the yard, with a good cloth and sound top-board well glued in every hive. When all are in, close the cellar and let them entirely alone until there is something for them to do in the spring. About the time that willow begins to bloom is early enough in my locality.

The above plan of wintering bees is no theory, but is one that is practiced by scores of bee-keepers in Northern New York, and invariably without loss in winter.

I have been as brief as possible in giving my mode of wintering, and will only add further that this plan is given for wintering large lots of bees. Where but few bees are kept where I live, they have no trouble in wintering them in any cellar where vegetables will keep without freezing.

What I claim for this plan of wintering is this: 1. It is the safest plan. 2. It is the cheapest. 3. It requires far less labor than any plan yet recommended

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Mr. C. R. Isham asked if Mr. Barber wintered his bees upon natural stores.

Ira Barber—Yes.

C. R. Isham—Do you leave the pollen in?

Ira Barber—Yes.

J. B. Hall endorsed the views and practices of Mr. Barber from his own experience. He accidently discovered that bees will winter well in a high temperature. He had 48 colonies in a small bed-room off the kitchen. While he was absent a warm spell came in winter. He feared the loss of his bees. When he came home they were roaring loudly. He gave them up for lost in his own mind. But they wintered safely, and came out strong in the spring with plenty of brood in the hives.

Martin Emigh—I endorse Mr. Barber's paper, except the dampness

C. P. Dadant—We have wintered bees in two cellars—one wet, the other dry, and the bees wintered better in the dry one.

Ira Barber—In a damp cellar the temperature must be higher than in a dry cellar. I have wintered bees successfully in a temperature of from 60° to 90°.

Dr. A. B. Mason—I agree with Mr. Barber except that I would take away the pollen. I do not say that the bees cannot be wintered well with pollen in the hives, but if they have no pollen they can have no diarrhœa.

C. F. Muth asked if he understood Mr. Hall correctly yesterday, that his honey harvest closed about July 20, and that last year he did not put his bees out until May 2. If so, how did

he obtain a sufficient force of bees to get in the honey during so short a harvest.

Mr. Hall replied that the secret lay in the bees being kept so warm that they bred early. He expected his hives to have several combs with brood in them by the time he put them out in the spring. By May 20, there would be not only brood in 6 or 7 combs, but that number full of brood. He could not winter without pollen, because if he did, he would not have his bees bred early enough in the spring to gather in the honey. If they started without brood they would not build up to strong colonies until near winter. He did not agree with Mr. Heddon upon the pollen theory, but must thank him for his surplus case.

James Heddon—I expect to be as successful as Mr. Barber. I think that nothing has been said that disproves the pollen theory. Pollen does not injure bees unless they consume it. Prof. Cook has explained that bees may breed without taking pollen into their intestines. In some instances honey may be free from pollen; in others it is not, and the bees cannot avoid its consumption. I kept bees in a cellar in which the temperature often fell to 20°. Those having natural stores suffered from diarrhœa, some perished with it; those having sugar stores were free from. I will furnish the facts that in many instances one colony has survived and another perished under exactly the same conditions except food. Who will furnish the explanation?

Ira Barber—The higher the temperature, the better my bees have wintered. There is sometimes water in the cellar, and the combs slightly mouldy.

Mr. Heddon did not consider that the experience of Mr. Barber and Mr. Hall conflicted with the pollen theory, because bees did not necessarily eat pollen when they fed it to larvæ. Pollen would not hurt bees in winter, unless they ate it, and if the temperature was right they would not consume pollen.

Adjourned till 2 p.m.

AFTERNOON SESSION.

Ex-President Root called the meeting to order at 2 p.m.

Prof. Cook offered a resolution of respect to the memory of the late Moses Quinby, of St. Johnsville, N. Y., and announced the contribution of a handsome purse with which to purchase a portrait of the deceased to be presented to his widow. Mr. Quinby was one of the originators of this Society and its second president. This compliment to his memory was exceedingly appropriate and its announcement was enthusiastically received by the convention.

A. I. Root—I must go away in a few minutes, and before I go I desire to say that I have enjoyed this meeting very much. We may not have become rich by producing honey but this meeting has certainly done much good in uniting the bee-keepers of this country into one band. This convention has "taken the conceit out of me" and has given me a better opinion of my fellow men.

The discussion on wintering bees was resumed by Mr. S. F. Newman, who said—If such gentlemen as Mr. Barber and Mr. Hall meet with no winter losses, I should like to know what becomes of their bees.

Ira Barber—I work against increase and when I get more than I can use, I sell them.

T. Pierce—I have wintered bees for 3 or 4 years, the same as Mr. Barber does, and have been successful. I keep the temperature at from 44° to 50°.

L. C. Root—Do we understand Mr. Barber to say that he has no objection to feeding bees just before putting them into the cellar?

Ira Barber—I do not approve of it, but if I find any that need feeding when putting them in, I feed them. I think that fall honey is just as good for winter stores, provided the temperature is kept high enough. Old bees are just as good as any for wintering.

James Heddon—"Spring dwindling" I call bee-diarrhœa in disguise. The bees have had their vitality taxed to the utmost in retaining their feces, and when they begin brood-rearing the strain is too great, and they perish faster than young bees can be reared to replace the dying. When my bees winter well they are not troubled with "spring dwindling." I am not yet certain how much there may be in this pollen theory, and I am yet experimenting.

Rev. W. F. Clarke said there were three matters of great importance to him which had transpired to-day. First, Mr. Hall has explained his method of bee-keeping, and he was much obliged to him for it. Second, Mr. Barber and Mr. Hall had supplied confirmation of the hibernation theory. A year ago he did not understand Mr. Barber's method. Mr. B. said at the Rochester convention that he (Mr. C's) method was a cold system of wintering, and his (Mr. B's) a warm one. This was a mistake. Our systems are alike, only Mr. Barber, secured the right temperature in the whole cellar, and I secured it in the single hive. But Mr. Barber's bees quiesce in the fall; if the hive is too full of bees, a cluster will hang outside; they remain in torpor until the breeding instinct awakes, and then they arouse to activity. Third, the pollen theory has got its quietus from Prof Cook. He has told

us in scientific terms the nature of bee-food, and the process of assimilation. He has maintained that bees cannot breed without pollen, and that they cannot stand work without taking nitrogenous food. If they take that food it must be digested and the feces excreted. Well, Mr. Barber and Mr. Hall have proved that bees breed largely, *i. e*, work hard, and therefore must eat and digest strong food. The inferences are plain. The bees, if they excrete, do it in dry feces. They must excrete, that is clear. Therefore there is no danger in having pollen in the hive. On the contrary, it is necessary.

Thomas G. Newman, chairman of the committee on statistics, reported as follows: There were 103 members present, but quite a number had given no report of the past season's operations. Those reported summed up as follows:

Bees.—Colonies last May		4,283
Increase		3,195
Total now		7,479
Honey.—In comb	lbs,	155,354
Extracted	"	86,928
Total honey produced	lbs,	242,282
Beeswax produced	lbs,	2,233
Honey Unsold.—Comb	lbs,	43,275
Extracted	"	33,425
Total honey unsold	lbs,	76,700

Only about one-third present at the meeting had become members of the Society, and only about one-quarter of those present were included in the statistical report.

The smallest report was: 1 colony last spring, increased to 5, giving 43 pounds of extracted honey.

The largest report was: 47 colonies in May, 740 in the fall. Honey obtained from them 38,000 pounds in comb, and 6,000 pounds of extracted; 125 pounds of beeswax—all having been sold except 2,000 pounds of extracted honey.

All other reports of bees and honey varied between these. It was requested that no statistical table be published—the aggregate amounts being all that will serve the interests of bee-keepers in general.

The report was received and adopted, and the committee discharged.

The committee to whom was referred the address of Mr. T. G. Newman on the National Bee-keeper's Union, reported in favor of uniting the two societies. Mr. Heddon, president of the Union, remarked that he did not quite see how it could be done, and the resolution was tabled.

The committee on resolutions reported the following, which were unanimously adopted:

The committee on resolutions recommended that the thanks of the Society be, and are hereby presented to the retiring President, Secretary and Committee of Arrangements, for their energetic and efficient services in connection with this meeting.

To the railroads by which reduced fares were given to members attending this meeting.

To the proprietors of the Antisdel House for reduced rates, excellent fare, and polite attentions.

To the editors of the various bee-periodicals, also the publishers of the *Prairie Farmer*, for the publication of early and full notices of this meeting.

The committee also recommended the adoption of the following resolutions;

Resolved, That this society has felt it an especial privilege and pleasure to have had the presence of the patriarch of American apiculture in the person of Rev. L. L. Langstroth. It has gratefully appreciated the active part that he has been enabled to take in the discussions at this meeting, and rejoices that still, in his old age, he is enabled to do something for his favorite pursuit. The warm affection and best wishes of all present will hover about him so long as he shall be spared in this life, and his memory will be held dear while honey distills and bees fly.

Resolved, That a committee of one be appointed to present to the Commissioner of Agriculture our appreciation of his valuable efforts to aid our business in urging the importance of apiarian statistics, and suggest our desires in respect to the chemical examinations which we deem very important to our pursuit.

Resolved, That we appreciate the presence of ladies in larger numbers than ever before, particularizing Mrs. L. Harrison, of the *Prairie Farmer*, and Miss Johnson, of the *Michigan Farmer*.

Resolved, That the thanks of the North American Bee-Keeper's Society are due to Prof. C. V. Riley and to the United States Government for its action in forming an experimental station for the promotion of apiculture.

Resolved, That we tender the thanks of this Society to the Department of Agriculture in sending to our meeting in Detroit, Prof. McLain, and for the able paper he has presented to us.

Resolved, That we recognize this step of the Department of Agriculture as in the right direction, and bespeak for it your continued support.

Resolved, That we recommend to the Department the making of accurate reports of all data concerning the production of honey, and have them embodied in the usual agricultural reports.

Resolved, That the Secretary of this Society

present a copy of this resolution to Prof. McLean for transmission to the Department of Agriculture.

Prof. Cook, who was about to leave, expressed the great pleasure he had experienced in meeting so many bee-keepers, especially the Eastern friends. Mr. L. C. Root responded, saying that he had hoped great things for this meeting, and he now felt certain that the Society had done wisely in coming to Detroit.

It was voted to hold an evening session, and the meeting adjourned until 7.30 p.m.

EVENING SESSION.

The meeting was called to order at 7.30 p.m. Ex-President Root in the chair.

Mr. Dadant introduced the subject of bees-wax, and urged the desirableness of inducing the United States Government to take off the protective duty in order that a supply might be obtained from other countries.

C. F. Muth remarked that much of the bees-wax offered in this country was very inferior, and went on to speak of several adulterations, some of which were such close imitations of the genuine article as to deceive experienced dealers. The greatest care should be taken to get pure bees-wax.

Prof. Cook was appointed "the committee of one" voted in the afternoon to communicate with the Department of Agriculture in regard to obtaining a scientifically-accurate analysis of honey.

Ex-President Root addressed the meeting, summing up some of the interesting features of the present meeting, expressing his satisfaction at the success which had attended the convention, and said that the hour had now come when we must part.

Adjourned *sine die*.

W. Z. HUTCHINSON, *Sec.*

CONVENTION NOTICES.

—Eastern New York Bee-keepers Association will hold its annual convention in the Agricultural hall, Albany, January 26, 27 and 28, 1886. C. W. Philo, Secty., Halfmoon, N. Y.

—Mount Forest Bee-keepers will meet in convention in Son's hall, Halsted's block, at 2.30 p. m., January 15th. Rev. W. F. Clarke will be present. J. H. Davison, Secty.

This week we conclude our lengthy report of the proceedings at the N. A. B. K. A. With our next issue we shall re-commence to give a general selection of bee-matter. We have some very able articles awaiting publication.

THE POLLEN THEORY.

THE pollen theory as I understand it is simply this: Under certain circumstances bees may winter with less liability to diarrhœa, disease and death, in case there is no pollen or bee-bread in the hive to serve as winter-food.

There are reasons drawn from experiment, I think, for the belief that facts sustain the theory. For several years we have tried to arrange our bees so that some should have abundance of pollen in their hives, while others should be destitute of the same, making a careful record in each case. While we have never lost a colony by diarrhœa during these experiments, we have had several cases of such disease, but never in colonies where the pollen was all excluded. In truth, the main portion of the diarrhetic excreta is almost always—if not always—composed of pollen grains, thus showing that pollen was present if not the cause of the trouble. Careful examination of bees from colonies with no pollen —some dead, others alive and lively, show little and frequently no pollen in their intestines.

Now with the theory and these facts in mind, let us study briefly the nature of food, and see whether or no physiological science has any facts or suggestions to offer us regarding this question.

There are four kinds of food, each of which probably enters more or less largely into the food regimen of all animals. Of these the inorganic, such as water, lime, chloride of sodium, or common salt, etc., are important as entering into the structure of organs, preserving the requisite consistency of tissues, and in aiding the vital processes. Thus it is necessary that blood or the nutritive substance of the animal body should be liquid. A large proportion of water keeps it so; hence what wonder that water is so essential to life, and so craved and sought after by most animals. In all vital activity osmosis—or the passing of liquids through animal membranes is all important, common salt promotes this osmosis, and thus it is that salt has such saving properties. Hence those of you who believe so heartily in giving water to bees may still rejoice in that you are improving the blood o your pets, while those who take pleasure in adding salt, may exult as you affirm "here goes for osmosis." These inorganic elements are usually obtained in sufficient quantities in the general food, though water is generally required in larger quantities and must be had in addition, separately to secure the best health and greatest strength. We have all seen bees sipping water, and ofte n in such places as to suggest that the addition of salt is very welcome to them. All kinds of food

are required in greater quantity when the vital activity is increased, hence our bees will need more water as breeding, storing, or other work is increased in the hive.

The second kind of food is known under the term carbo hydrates. It includes all the sugars and starch. As starch, when eaten, is changed under the influence of a ferment into sugar we may well consider it with the sugars. The carbo hydrates consist of oxygen, hydrogen, and carbon—the two former in proportion to form water. It is a matter of common observation that when the carbo hydrates enter largely into the food, the animal is apt to gain rapidly in fat. We are not sure that the sugars are changed directly into animal fat, possibly they serve so admirably as food, that they produce such an excellent condition of the animal system, that all the food is utilized, and a surplus is at hand which is stored up as fat. May be the nitrogenous food as well as the sugars aid in forming the fat of the body, in either case the food must be chemically changed in that wonderful laboratory the animal organism. The fact remains that much sugar in the food promotes the deposits of fat. We all know how the feeding of corn increases the fat and does not the fact that corn contains over 67 per cent. of starch, which when eaten and digested is all changed to sugar enforce the position here taken. Again when animals hibernate, or when they are long sick and take no food, the stored fat is used up. Thus if this stored fat can for a time serve the purpose of all food, it is not unreasonable to conclude that all organic food may under the best conditions be converted into fat. We positively know that animals may eat all muscle, as beef's heart and yet the liver will form glycogen, which in turn becomes liver sugar, and as we have seen in the marvelous economy of the body sugar promotes the formation of fat, it may be that all food under the best conditions conduces to the storing up of fat, and that sugar powerfully aids to bring about just this most favorable condition. These carbo hydrates are often styled the heat-producing foods. I think this term false and misleading. It is probable that all food, of which these sugars are an important part, are to nourish or to build up tissues and carry on the organic processes. This vital work generates heat. Heat then is incidental. Nutrition is to build up and keep the body in working condition; in doing this the body is kept warm.

We have seen that stored fat in animals that hibernate, and in case of disease, will alone serve to keep up the nutrition. We have also seen that these carbo hydrates conduce more than other food to the formation of this fat. Is it not scientific then to urge that the pure carbo hydrates are the best food on which to winter our bees? And this is enforced I believe by experience and by nature as well, for I doubt not but that in most cases in nature, almost the entire food of bees while they are quiescent in winter is honey.

Let me state further that cane sugar which composes from one to eight per cent. of honey when eaten by any animal, man included, is changed in the stomach to a sugar much like, if not identical with honey. The bees do the same with nearly all the cane sugar of nectar or with most of the cane sugar when they feed upon it. Hence it is more than likely that honey is one of the most healthy and nutritious of all our sugars, that the bees have done for us what we would have to do for ourselves had we eaten the cane sugar. Who has not found that honey seems to go further, and satisfy more quickly, even than cane sugar when eaten on our tables. One more point, common glucose, or grape sugar—I now mean the artificial product produced by the action of sulphuric acid on corn starch—honey, and liver sugar are usually all called glucose or grape sugar by chemists. They are chemically identical and give the same reactions with the copper salts which they all reduce, which fact furnishes one of the best tests for these sugars. Yet I do not believe they are the same. Physiologically they seem quite different. Why when we eat glucose is it changed to glycogen in the liver and then to liver sugar, unless the latter is more easily assimilated? Why do bees thrive on honey and die when fed the artificial glucose? Why do bees refuse to eat artificial grape sugar when honey or nectar is to be had? All these facts seem to indicate what I believe to be true, that physiologically honey, starch glucose and liver glucose are really different. Taste and vital action are nicer chemists than our scientists, and detect differences which the latter as yet fail to recognize. It is possible that honey and liver glucose are identical. The fact that both arise in the animal body under the influence of the digestive ferments would make this view plausible.

The third group of food elements consists of the fats. The higher animals obtain these largely in all vegetable and animal food. While the fats, also called by some the hydro carbons, consist of the same chemical elements as do the carbo hydrates, the oxygen is far less in amount. Actual experiment has shown that higher animals thrive poorly without some of this kind of food. Its value is farther attested by the appetite which craves fat, especially if the weather is cold. Bees get some of this kind of food in their pollen. It seems quite likely that the stored fat of the body

may come in part from the fat eaten, though this is not certain. It is certainly true that all does not, as animals are often known to store much more fat than is taken with their food. It is quite likely that most fat eaten goes to serve the current needs, while some of the carbo hydrates and the nitrogenous food and quite likely some fat is through the wondrous economy of the vital organism changed into and stored up as fat. That nitrogenous tissues may be robbed of their nitrogen and further changed into fat is proved by disease where fatty degeneration is noticed. This may occur in all organs. In some cases as in fatty degeneration of the heart, almost pure muscle is transformed into fat. Bees get but little fat in their food, and so this group of food elements interests us less than do the others.

The albumenoids or nitrogenous food elements make up our last group. These have in addition to the oxygen, hydrogen and carbon, nitrogen. All protoplasm or active vital tissue, whether animal or vegetable consists largely of this nitrogenous material. But as all organs get their substance from the food, it becomes evident that the albumenoids are absolutely essential in food. Higher animals get this albumenous food in all vegetables, in muscle, eggs, cheese, etc. Bees also get it from vegetables, usually from honey which contains from 2 to 6 per cent. albumenoids and from pollen, often from fungoid spores and occasionally from various kinds of flour or meal. This kind of food *must* furnish the elements for the building up all the protoplasm of the body which forms a large proportion of all the vital organs and tissues. We have already seen that some of this nitrogenous food may be transformed into fat.

As no animal can possibly be developed from the egg to adult life without this albumenous food, and as in all vital action some of this material in the body is used up and must be restored, it follows that brood rearing in the hive and activity of the bees necessitates the presence of these albumenoids in the food.

As honey contains no *albumenous food except* the pollen in it, it follows that bees must have bee bread to rear brood, and also to preserve their organisms intact during the busy part of their existence. To say that bees may breed with no bee bread, or that the active workers need none, is to say that you can have an ocean without water, a desert without sand, or bricks without clay.

We know that hibernating animals, and animals long sick, often fast for months. Yet here the vital forces must be kept up and must have nourishment. We have seen that in such cases the fat is used up, and without doubt the protoplasm in muscle and other inactive tissues yield up of their substance to furnish the small amount of albumenous nutriment needed. If we could keep our minds and bodies wholly inactive we should need but little nitrogenous food.

We may conclude then, reasoning from real hibernation, where animals are wholly inactive, from cases of long sickness and from higher animals in a state of quiescence, that our bees during their winter quiet in cellar or clamp, when the vital activities are at a minimum have enough of the albumenoid elements in blood and tissues and may thrive on a pure carbonaceous diet. Analogies as pointed out make the hypothesis tenable.

Again, bees are naturally very neat and do not void their excreta in the hive except under the severest stress of circumstances. I have more than once gathered all the refuse under a full colony of bees at the close of a long winter's sojourn in the cellar, and found almost no nitrogenous matter. If then bees are to be forced to long confinement we should spare no pains to secure the greatest possible quietude. Just the proper temperature I think will under favorable circumstances of food and air secure this quiescence. But in case the temperature or ought else should irritate, then t'were better that no pollen should be eaten, for without it breeding, which demands great activity, would be impossible, and in its absence the active digestion necessary to liquify albumenous food would be avoided. It is a generally recognized fact that an inactive life needs little and is better with little albumenous food. Indeed albumenous food, as we have seen subserves the vital activities, of course then as we reduce these, we reduce the required amount of nitrogenous aliment.

Again the indigestible portion of the carbonaceous food, especially the carbo hydrates is very slight. Not so with pollen. We can readily see then that where the feces are to be retained in the intestines so long the pollenaceous food would be or might be irritating, and were better withheld.

We thus see that from experience, from analogy, and from what we know of foods and the vital activities we may well believe that our bees were better off in many cases were pollen absent from their winter aliment.

A. J. Cook.

DEATH'S RECORD—THE ABSENTEES.

SINCE last I had the pleasure of meeting with this Continental Society of Apiculturists, many of those who have been our companions in these

assemblies have passed from the present state of being, and we are now deprived of their gladsome greeting and hearty welcome. Much as I would like to mention *all* their names in tender remembrance, I find it impossible, because in many cases the surviving friends have not communicated the facts to the apicultural public. Allow me, with affectionate regard, to mention a few of the most prominent of our brothers of America and Europe, who during the past four years, have been added to that vast army now numbered with the dead!

Of these, four were editors of our bee-periodicals, who had, during their lives, done much to raise apiculture up to it's present "standard of excellence," devoting the best energies of their lives to its development and advancement, often sacrificing their ease, comfort, physical strength and wealth to their favorite pursuit. It is true that each one fought a "hard battle"; they were often severely criticised, and sometimes strongly condemned by those who should have been their constant friends and co-laborers. While admitting that they often erred (for "to err is human") let us cast "the mantle of charity" over their short comings, and think only of their good deeds, energetic work, unselfish lives, and the general nobility of their characters!

I will now "call the roll" of those over whom death has triumphed:

A. F. Moon, of Rome, Ga., was one of the founders of this Society, and in the absence of the Rev. L. L. Langstroth, its first president, Mr. Moon presided over the convention. He was the editor of the *Bee World*, and died on Aug. 2, 1882; aged 58 years. He commenced to keep bees when 11 years of age, and ever after gave the fullest energies of his mind to the advancement of practical bee culture.

Rev. Jasper Hazen, Woodstock, Vt., after 25 years of progressive bee-culture, died on April 13, 1882, aged 92. He strenuously advocated the use of surplus honey-boxes, invented a hive, and welcomed the introduction of the Italian bees. He was also a vigorous apicultural writer twenty years ago.

Edward Townley, of Cincinnatti, O., died in the 80th year of his age, in July, 1882. He commenced to keep bees in 1850, and built up a large apiary at Mt. Auburn. He was the author of a book on bee-culture, and devoted his energies to apiculture.

Jesse C. Estlack, of Littleton, Colo., died on Aug. 5, 1885, at the age of 64. He went from New Jersey to Colorado in 1859, and there established an apiary in which he took much delight.

Theodore Houck, of Canajoharie, N. Y., died on June 16, 1883, at Denver, Colo., whither he went on account of failing health. He was one of the editors of the Bee-keepers' *Exchange*, and was never happier than when among his bees. The last convention he attended was at Albany, N. Y., in January, 1883, and was one of its most energetic members. His age was 26.

E. F. Cassell, of Illinois City, Ills., was killed on Oct. 6, 1883, while attempting to board a moving train. He had been a prominent and enthusiastic bee-keeper for 15 or 20 years.

William Howlett, of Beaver Lick, Ky., was killed by lightning on May 19, 1884, while at work on his farm. His apiary contained 125 colonies of bees. He attended the Cincinnatti meeting of this society, and took part in the deliberations.

D. S. Given, of Hoopeston, Ills. the inventor of the Foundation Press, died at the age of 40, on July 10, 1884, at Los Angeles, Calif., whither he had gone for his health. His kind disposition endeared him to all who knew him, and his name will go down to posterity as one who did his part to make apiculture practical.

John Madden, of Davenport, Iowa, was thrown from his wagon and killed on Sept. 19, 1884. He was one of the organisers of the Eastern Iowa and Western Illinois Bee-keepers' Association, and was filled with energy and enthusiasm. There were 225 carriages in his funeral procession (ten being filled with apiarists); this proves how much he was beloved by those who knew him.

William W. Cary, of Colerain, Mass., died on Dec. 9, 1884, in the 70th year of his age,—full of years, ripe in experience and faithful in friendship. At the time of his death he had some 300 colonies of bees. He was intimately connected with the first importations of Italian

bees into America, and was the faithful co-worker with Father Langstroth, in all his efforts to revolutionise bee-keeping in America.

R. M. Argo, of Garrard Co., Ky., died of congestive chills on Feb. 13, 1885. As one of the pioneers of modern apiculture, he wrote extensively some twenty years ago. He was a well posted and practical bee-keeper, and reared many very fine queens.

William Williamson, of Lexington, Ky., died on Feb. 13, 1885, at the age of 40. Those who attended the meeting of this Society at Lexington, 1881, will witness to his zeal and enthusiasm, as well as his whole-souled disposition. He was one of the projectors of the International Congress at New Orleans, but died just before it convened.

Rev. Herbert R. Peel died in England on June 2, 1885. He was the editor of the *British Bee Journal*, and the Secretary of the British Bee-keepers' Association. In his death our English brethren have sustained an irreparable loss. He was a firm friend, an indefatigable worker and a progressive apiarist.

Prof. Von Siebold died in Germany on April 7, 1885. He was the faithful friend of Father Dzierzon, and was one of the first to accept the theory of parthenogenesis. He a thoroughly-progressive apiarist, a prominent scientist, and rendered much assistance to the development of rational bee-culture.

Prof. Andreas Schmidt, for twenty years editor of the *Bienen-Zeitung*, the leading apicultural publication of Germany, is also numbered with the dead. He was a co-worker and an ardent admirer of Father Dzierzon, whose Golden Jubilee was celebrated in Germany last September with great enthusiasm. In his death our German brethren have lost a master mind, a thorough scholar, an energetic worker, and a faithful friend.

There are many, many others—but time would fail me to speak of all those who through faith in scientific research and devotion to experiments and manipulations, have helped to dispel the darkness and scatter the light,—as if by "magic wand" commanding modern apiculture to "arise and shine"—pulsating and luminating every zone!

Men pass away! Monuments crumble into dust! and all that remains of human greatness are thoughts and deeds. By these we may lay up treasures where moth and rust *cannot* corrupt. In death we take nothing with us but that which we really are! Shrouds have no pockets! Coffins no coupon-drawers! Crowns fall off at the touch of death! Stripped of our robes of state, insignia, uniforms and decorations, we then shall stand for just what *we are*!

Our best thoughts and noble deeds, given to the world by the aid of the printed page, may live on and energize a world after we are crumbled to dust. True men *live*, long after they have passed from this stage of action. The ponderous steam-engines which brought this convention together, are but the spirit of James Watt living again in our very midst! Modern apiculture is but the embodiment of the thoughts and lives of those who have gone before us; and our thoughts and work, which may add to its practicability, may live on after we are gone!

The second president of this society—the lamented Moses Quinby (than whom apiculture never had a truer and more unselfish friend), now in this very assembly *lives again* in those who are practicing his thoughts, theories and progressive methods of bee-culture; as well as in those who love him for his scientific research, grand character, and noble life!

That band of brothers whose names we have to-day inscribed on our "Roll of the Honored Dead," *live again* in our tender remembrance, and we may almost seem to catch a glimpse of "the Angel of Life," with open scroll recording their names with the plaudit—"Blessed are the dead;"—"they rest from their labors and their works do follow them."

"Breathe soft and low, O whispering wind,
Above the tangled grasses deep,
Where those who loved me long ago
Forgot the world and fell asleep.
So many voices have been hushed,
So many songs have ceased for aye,
So many hands I used to touch
Are folded over hearts of clay.

"I only know that, calm and still,
They sleep beyond life's woe and wail,
Beyond the fleet of sailing clouds,
Beyond the shadow of the vale.
I only feel that, tired and worn,
I halt upon the highway bare,

And gaze with yearning eyes beyond—
On fields that shine supremely fair."

THOMAS G. NEWMAN.

OXFORD BEE-KEEPERS.

The annual meeting of the Oxford Bee-keepers' Association commenced on Friday, Dec. 18, President Emigh in the chair.

The Secretary and Treasurer's reports were presented and on motion adopted.

The following officers were then elected for the ensuing year :—Dr. Duncan, Embro, president ; Fr ancis Malcolm, and J. E. Frith, 1st and 2nd vice-presidents ; Wm. Goodger, Jas. R. Tennant, J. B. Hall, Richard Martin and Martin Emigh, Executive Committee ; M. S. Schell, secretary-treasurer.

Dr. Duncan on taking the chair addressed the meeting on various topics relating to apiculture, referring to some of the benefits to be derived by bee-keepers meeting in convention.

It was moved by Mr. F. Malcolm and seconded by Mr. J. E. Frith, and resolved, that a vote of thanks be tendered to Mr. Emigh, for his services during the past year as president, which was gracefully acknowledged.

After some discussion the following were appointed a committee to answer the questions placed on the table before being discussed by the convention, namely :—Hall, Emigh, Goodger and Malcolm.

The first question taken up by the convention was :—What is the cause of the low prices, the honey crop being equal to a 75 per cent. failure ? asked by J. E. Frith.

Answer by committee—Hard times, low prices of other sweets, putting honey on the market too early in competition with small fruits, and taking honey too green.

An interesting discussion took place relating to the question, much stress being put on the question of allowing the bees to fully ripen the honey before taking it from them, as the honey would have a much finer flavor and greater consistency, and be more satisfactory both to consumer and producer.

Question II asked by J. E. Frith—What means can or could be adopted to counteract the downward tendency in the price of honey ?

Answer by committee—Find a foreign market.

Mr. Hall said he was glad the question had been asked, as he thought an opportunity was offered the bee-keepers of Canada such as he never expected would be presented again in his lifetime at least, viz., that of making an exhibit at the Colonial exhibition to be held in England next year. He had learned from prominent American apiculturists who were in attendance at the National bee-keepers convention, held in Toronto in Sept. 1884, when the Industrial Exhibition was being held, at which a large exhibit of honey was made, that Canadian honey was equal to, if not superior to any in the world.

A lengthy and spirited discussion ensued, which was taken part in by Messrs Frith, Schell, Malcolm and Emigh who were unanimous in urging the importance of taking such steps as may be deemed necessary to insuae an exhibit such as would be a credit not only to to the bee-keepers, but to the Province at large.

It was moved by J. E. Frith, and seconded by Mr. Malcolm, that Messrs. Emigh, Hall, and Schell be a committee to make such arrangements as may be necessary, to insure, if possible, an exhibit of honey at the approaching Colonial Exhibition.

An amendment was moved by Mr. Hall and seconded by Mr. Shannon, that Messrs. Emigh, Schell and Malcolm comprise the committee.

The motion on being put, the amendment was declared carried.

Question III—What is the best method of preventing dampness inside the hives in winter ; whether in cellar or in chaff hives on summer stands ? asked by Dr. Duncan.

Answered by committee—High temperature, and large lower ventilation.

Mr. Hall spoke to the question, strongly urging the necessity of high temperature to keep the bees both warm and dry, while if there is plenty of lower ventilation the dampness will be driven out by the heat from the cluster of bees.

Mr. Firth said ventilation had been discussed so much that it was almost threadbare, still there was always something to be learned. He spoke on the scientific aspect of the question, showing that when a high temperature is

maintained, if a current of cool or damp air came in contact with the warmer air inside, it expanded, absorbing the dampness, maintaining a dry proper condition.

Mr. F. Malcolm having had very good success in the past two years, thought it might be profitable to explain his method of wintering. Having a furnace in use for heating his house, he was enabled to keep up a good temperature registering from 45 to 50 degrees Fahrenheit. He would emphatically recommend a high temperature.

Mr. Emigh corroborated Mr. Malcolm's experience, believing that there would be no trouble experienced from dampness if the temperature would be kept at about 50 degrees.

On motion the convention adjourned to meet in the morning at ten o'clock.

SATURDAY SESSION.

The meeting opened with the president in the chair. Minutes of former session read and confirmed.

Mr. Whealy wished to know from Mr. Hall if he had any experience with carniolian bees, and if so what are their merits or demerits as honey gatherers.

Not having any experience with them, Mr. Hall said he could not answer the question.

(1) The question—Will it pay to plant for honey alone? asked by James Shannon.

Answer by committee—No.

Mr. Malcolm said the same question had frequently been asked at conventions and was usually answered in the negative. He was also of the same opinion but would recommend the planting of young basswood trees, as it would pay for ornamental and other purposes other than purely for producing honey.

(11) What honey-producing plants are most suitable for our locality.

Answer—Alsike clover.

Messrs. Emigh and Malcolm spoke to the question, highly recommending it as a profitable crop to raise not only for honey but as being even preferable to red clover for hay or pasture especially on low or damp soils.

Mr. Whealy said he had not succeeded very well in raising it, but though it it was owing to his soil being too dry. But he had realized a magnificent return of honey from a field of the pea vine, or large red germ clover, which had grown to an immense height, producing a good crop of fodder as well.

Mr. Hall said he had planted catnip and sweet clover, but realized no return therefrom. He tried summer rape, from which his bees had gathered pollen but not a particle of honey. He purposed planting a new plant called figbert for honey purposes alone next year.

Mr. Goodger just coming in, said he sowed Alsike, and was well satisfied with it as a honey producing crop. He thought it would pay to furnish the seed free to neighbors where a large apiary is kept if the apiarist could not grow it himself.

A general discussion followed regarding the value of buckwheat as a honey-producing crop which was considered a failure, both as regards amount and quality of honey produced.

(111) All things considered, what are the most convenient receptacles for extracted honey?

Answer by committee—Not decided; open for discussion.

Mr. Shannon said as he had asked the question, he would like to know what to use for marketing extracted honey.

Mr. Hall said for wholesale he had used tin cans that would hold 60 or 65 pounds, and box them to prevent damage to cans. But for retailers they were too large. Would recommend cans that would hold about 10 or 15 pounds, and explained several kinds in use, offering some very valuable suggestions in the matter of marketing honey.

Mr. Malcolm said he was using a pail with a cover, made to fit snug, and holding about 25 pounds, which he had found to give good satisfaction to purchasers, but was not convenient for storing up or carrying to market.

No more questions being on the table, Mr. Malcolm wished to know if anyone in the convention was aware of any foul brood in the county.

Mr. Bueglass said he knew of foul brood, but it was not in the county, being some 25 miles from his apiary.

Dr. Duncan said if any foul brood was known to exist it would be better to burn them up rather than attempt a cure, excepting at the time of the honey flow.

Messrs. Whealey, Hall and Malcolm spoke on the question, giving some very

valuable suggestions relative to the cause, remedy and cure of foul brood.

Meeting adjourned to meet at 1.30 p. m.

AFTERNOON SESSION.

The first question taken up by the convention was—Does it pay to extract all the honey from a colony, with the intention of feeding back sugar for wintering.

Answer by committee—No.

M. S. Schell said as he had asked the question he would preface his remarks by stating that his experience corresponded with the answer by the committee. He believed that, taking sugar at 7c. and honey at 10c. per pound, the bees would consume so much in storing as to make the sugar more expensive than the honey, to say nothing of the labor incurred.

Mr. Malcolm said he believed it would not pay, and would not recommend feeding for wintering only to colonies that were weak and without sufficient stores.

CONCLUDED NEXT WEEK.

FOR THE CANADIAN BEE JOURNAL.

COLONIAL AND INDIAN EXHIBIT.

AT the annual convention of the County of Oxford Bee-keeper's Association a resolution was passed recommending that steps be taken to aid in making an exhibit of honey at the coming Colonial exhibition if satisfactory arrangements can be made with the Government in regard to the time the exhibit would have to be made, the carrying of the same, &c. As secretary of the association I was instructed to write you notifying our willingness to assist and also to know if the exhibit could be made in August, say, just after the honey flow is over. The feeling seemed to be unanimous that unless a *good* exhibit be made and out of *next year's* honey it would be better not to attempt it at all. If you have any information regarding space, time of making exhibit, co-operation, &c., &c., we would be pleased to hear from you.

M. S. SCHELL.

Woodstock, Dec. 30th, 1885.

Provided the space can be properly filled from the commencement of the Exposition Honey producers will be allowed to send next years crop in August, at least we have the promise of such from the Canadian agents. We will explain more fully in our next issue.

THE CANADIAN BEE JOURNAL.

D. A. JONES. F. H. MACPHERSON

D. A. JONES & CO.,

EDITORS AND PUBLISHERS,

BEETON, ONTAIO.

WEEKLY, $1.00 *per Year, Postpaid*

BEETON, ONTARIO, JANUARY 6TH 1886.

Prof. N. W. McLain, who is in charge of the government apicultural station at Aurora, Ill., did us the knidness to promise us from time to time reports of the progress made in their experiments at that station. These will be of much value to everyone.

Speaking of the different journals the *Rural Canadian* says: Though the youngest-born of them all, the CANADIAN BEE JOURNAL rightfully claims the first place of mention and of honor, if for no other reason than that it is published in our own country. Mr. D. A. Jones, its editor and publisher, has rendered many important services to apiculture, and it is certainly not the least that he has given Canadians a bee journal of which they have no cause to be ashamed. It is not perfect—no journal is—but it is a periodical of marked excellence, and is furnished weekly at a remarkably low figure—only $1 a year. No Canadian beekeeper can afford to be without it, however small the number of hives kept. The state and progress of beekeeping in Canada can only be learned by perusing these well-filled pages. They also contain valuable contributions from leading apiarists in the United States. By all means remit a dollar to Beeton, Ont. and secure a weekly visit from this periodical during 1886.

If all the friends who have comb honey for sale will keep us posted as to the quantity and price of their offerings we can often direct customers to them. We have none to offer.

HONEY MARKET.

CHICAGO.

Without any material change. White comb honey in one pound frames brings 16 cents; very fancy 17 cents. Dark is slow sale. Extracted honey 6 to 8 cents per pound. Beeswax 25 to 26 for yellow, market steady.

R. A. BURNETT.

Chicago, Nov. 27, 1885

CINCINNATI.

There is a very slow demand from manufacturers for extracted honey, with a large supply in the market, while the demand is very good for clover honey in square glass jars. Prices for all qualities are low and range from 4 to 8 cents a pound on arrival. Supply and demand is fair for choice comb honey in small sections, which bring from 12 to 15 cents per pound on arrival. Good yellow beeswax is in good demand and arrivals are fair. It brings 20 to 22 cents on arrival.

CHAS. F. MUTH.

Cincinnati, O. Nov. 10, 1885.

BOSTON.

Honey is selling very well but prices are very low, and we are often obliged to shade our prices in order to make rates, We quote 1 lb. comb, 14 to 16 cents. 2 lb. comb, 12 to 14 cents, Extracted, 6 to 8 cents.

BLAKE & RIPLEY.

Oct. 21, 1885.

ADVERTISEMENTS.

In purchasing articles advertised in the "Canadian Bee Journal" please mention in what paper you saw the advertisement. Advertisers always wish to know which advertisements are most effective.