

...The Canadian Bee Journal

PUBLISHED MONTHLY.

NEW SERIES
Vol. VIII, No. 6.

BRANTFORD, ONT., DECEMBER, 1900.

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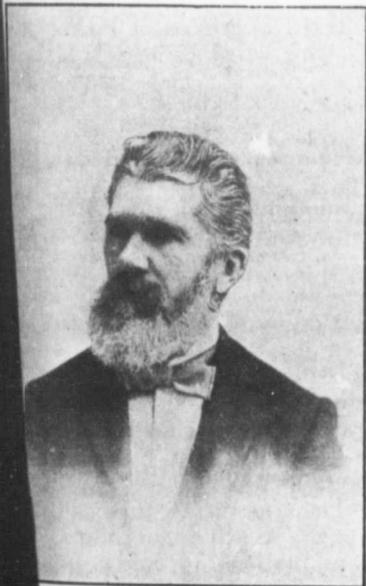
Annual Meeting

Twenty-First Annual Meeting Bee-Keepers' Assn., Ontario.

TO BE HELD AT
NIAGARA FALLS,
DEC. 4, 5, 6, 1900.

Programme.

Tuesday, Dec. 4th, 2 p. m. Reading and discussing minutes of last meeting.



W. W. POST, Trenton, President O. B. K. A.

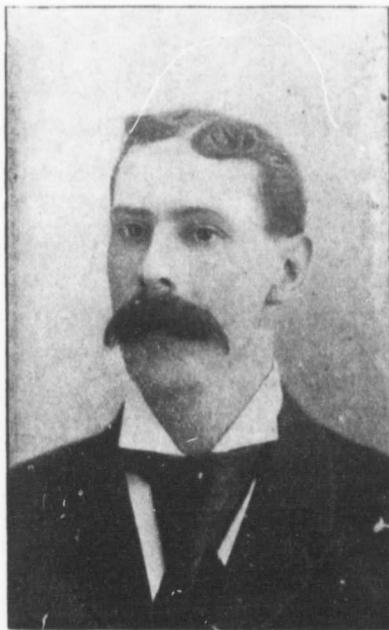
7 p. m. The president's address (see page 4, W. W. Post). Mr. J. W. Spar-

ling will open the discussion on the address.

3.30 p. m. Paper by Mr. R. H. Smith, St Thomas, on "moving bees." Mr. F. A. Gemmill to open the discussion.

Question Box—To be opened by Mr. J. B. Hall, Woodstock.

7.30 p. m. Paper by Mr. Alex.



JOHN NEWTON, Thamesford, Vice-President.

Dickson, Lancaster, on "The production of extracted honey." Mr.

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John Newton, Thamesford, to open the discussion.

8.30 p. m. Paper by Mr. H. G. Sibbald, Cooksville, on "Wintering bees in and out." Mr. Jacob Alpaugh, Galt, to open the discussion.

Question Box—To be opened by Mr. J. K. Darling, Almonte.

Wednesday, Dec. 5th, 9 p.m. Paper by Mr. W. J. Craig, Brantford, on "The uses and abuses of bee literature." Mr. J. D. Evans to open the discussion.



J. D. EVANS, Islington, 2nd Vice-President.

Official Reports.

10 a. m. Paper by Mr. M. B. Holmes, of Athens, on "Queens." Mr. W. J. Brown, Chard, to open the discussion.

11 a. m. Mr. E. A. Converse, superintendent of live stock and agricultural products at the Pan-American Exposition, Buffalo, will address the meeting on making an exhibit of bees and honey at the Exposition in 1901.

2 p. m. Paper by Prof. Harrison, Bacteriologist of the Ontario Agricul-

tural College, Guelph, on his "Experiments with foul brood germs in honey."

3 p. m. Election of officers.

5 p. m. Paper by Mr. W. Z. Hutchinson, Flint, Michigan, on "How little neglects effect the profit of the apiary." Mr. A. E. Hoshal, Beamsville, to open the discussion.

Question Box—Opened by H. G. Sibbald.

7.30 p. m. Address and Stereoptican views by Mr. Ernest R. Root, editor of "Gleanings in Bee Culture." Medina, Ohio, on "Bee-keepers have met and apiaries I have visited."

9 p. m. Banquet in honor of the President and ex-Presidents of the Association.

Thursday, Dec. 6th, 9 a. m. Paper by Mr. John Fixter, Central Experimental Farm, Ottawa, on "Experiments I have conducted."

10 a. m. Address by Prof. Fletcher, Entomologist and Botanist at the Central Experimental Farm, Ottawa, on "The value of bees in orchards."

11 a. m. Unfinished and new business.

Inside or Outside Wintering; Which?

This season of the year, indeed much earlier than this, the beginner is brought face to face with the question where shall I winter my bees—inside or out? He asks the question, and us older heads sometimes hesitate to answer, so many things have to be taken into consideration. Editor Root gives the following sensible rules for the guidance of the "doubtful" in "Gleanings" as follows:

"The answer to this will depend upon the weather conditions. If one has in his locality cold weather that lasts nearly all winter, with only now and then a day of temperature above the freezing-point, I would recommend by all means indoor wintering; or

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Various Factors in Bee

By Dr. W.

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the weather conditions are such that there is a month of cold weather ranging from 10° above to 10° below zero, then a warmer spell a little above the thaw-point, followed by 3 or 4 days of weather at that temperature, followed again by freezing weather, such weather continuing clear up till actual springtime, then I would still advise the indoor method. But if, on the other hand, the winters are somewhat open, there being perhaps a month of zero weather, followed by a month of warm open weather, continuing thus through the winter, the bees should be wintered outdoors in double-walled hives. We may have in our locality a month of real cold weather, but two weeks is about as long as it lasts at a time, when we will have a general breaking-up, a thaw, and perhaps rains. This will last for 3 or 4 weeks, when we will have another cold spell, lasting possibly a month. This kind of weather will continue in alternation till along April. In such a climate the average beginner will do far better with the outdoor method.

Various Forms of Diseases Among Bees—Cause and Cure.

By Dr. W. R. Howard, Fort Worth, Texas.

Read at the National Bee-Keepers' Convention, Chicago.

In 1881 and 1882 I undertook the investigation of bee paralysis and dysentery. As laboratories for original research were then crude compared with those of the present day, my success was not pronounced. Since we have been better equipped with laboratory appliances, and become better acquainted with the technic necessary for such investigations, I have, again, partially investigated these diseases.

In dysentery, I have succeeded in raising several forms of fungi and other bacteria, none of which were

isolated or determined; neither were the experiments made with cultures capable of reproducing the disease in prosperous colonies. I have quite a number of times repeated these experiments without arriving at any satisfactory conclusions. I have found as many as a dozen forms of fungi, besides numbers of algids, water bacteria, etc., growing in cultures made from bees of a single colony; this, at first, was somewhat strange, but further investigation showed that the pollen (bee-bread) found in these combs furnished many of the same forms which, on suitable media, grew luxuriantly. Cultures made from the excreta and body contents gave similar results.

Here allow me to mention a point worthy of attention, since it has been taught and is very generally believed, that old bees do not consume pollen when in a normal state; that they may be successfully wintered without it; that they do not require it except for brood-rearing, etc. I have always found more or less pollen in the stomach of all bees, both old and young, whether suffering from disease or in a healthy condition. I have always found pollen more abundant in the bees during confinement, especially in the spring months, but I have examined them during all the months with the same results. Climate may have something to do with it, as bees here are usually not confined over a week at a time during the winter months. In all bees suffering from dysentery, that have fallen under my observations, they have had an abundance of pollen, heavily charged with various forms of fungi in their excreta.

These outbreaks of dysentery usually follow a period of activity closed with a few days of confinement, on account of showers or cold weather sufficient to prevent daily

flying. Frequently pollen has been gathered from flowers upon which the rain has fallen; this may have had fungi from the branches of the plant or tree conveyed to it by the rains.

The warm, wet weather of spring starts to life thousands of forms of microscopical animals and vegetable organisms. Trees, plants, ponds, pools, etc., become literally alive with groves and swarms. Through the water many of these forms find their way to the hive, bringing about unsanitary conditions, which, to a greater or less extent, influence the general health of the colony, giving rise to spring dwindling, and possibly dysentery, paralysis, etc.

I have seen yards badly affected with paralysis and dysentery cured in a few days by feeding artificial pollen and pure water in the hive, when the weather was too bad for bees to fly; or fed in the open air when the weather was fair. Good water, plenty of honey in the field, fresh pollen and hygienic environments, will generally put an end to paralysis, dysentery, and pickled brood.

Apiaries should be so arranged and located that plenty of sunlight and pure, fresh, dry air could circulate through them; the bottom-board should always be dry, even on the underside; many harmful molds and mildews spring up in the presence of heat and moisture, some grow in the dark better than in the light, many spores are carried into the hive and find a suitable medium in which to grow. Highweeds and grass should not be allowed to grow about hives, neither should the shade be so dense that a few hours' sunshine could not dry the ground.

Cheshire found the cause of some of these diseases to be a bacillus which he isolated. I have not been so

fortunate as to isolate a single species that would infect a prosperous colony with paralysis or dysentery. In fact, during a good honey flow, with a prosperous colony and proper sanitation, it will be found a difficult task to infect such a colony with any disease and obtain immediate disastrous results. The most infectious, and one that is always present and more or less visible, is foul brood. Black brood, pickled brood, dysentery and paralysis all disappear during a good honey flow and hygienic surroundings; to this common-sense principle the "McEvoy method" owes its success.

Much has been said in conventional and written for journals on paralysis yet little is known as to its cause. I have not had the time at my disposal to make a thorough analysis of the disease, but will give some of the results obtained. It appears, at first as an indigestion; dissection shows obstruction in the way of casts of pollen and fungi in the true stomach and intestinal tract; there seems to

be an enlargement, as if engorged of the tubules corresponding to the urinary apparatus of higher animals—a general displacement of the internal organs is common. The result is cecilia, or threads, of various fungi found in the uriniferous tubules and air-passages of those dead from the disease. All of these bring me to conclude that when an individual bee has a bad case of paralysis it is worthless if cured. What is usually meant by curing all diseases among bees, is stopping the infection from spreading to new individuals and not individual cures.

In dysentery dissection shows the dropsical condition, an extra amount of fluids in the circulatory system, fungus and pollen casts in the excretory organs, and in some cases

species great amount of liquid in the alimentary tract.

In pickled brood the adult bee is rarely affected; in the larva and pupa much the same conditions are found in the adult bee in dysentery, and I have known pickled brood to follow dysentery and finish the destruction of the already decimated colony. In this, which is strickly a fungus disease, the attack seldom occurs before the feeding of pollen, yet I have sometimes found it earlier in larval life, where the disease had been introduced previously. Combs which have had any disease, whether of a fungus or bacterial nature, are never entirely free from the infection; while many cells may be free and safe, yet, as a rule, there always lurks spores capable of reinfection. Nearly all bees of the kind contain fungi of various forms which are gathered with it, but which are unimportant, as they do not grow except on the leaves of plants, grasses, etc., and are incapable of producing disease.

In the two colonies which were used for experimental purposes last spring, in which black brood was well developed and thoroughly established, the disease entirely disappeared during the spring honey-flow from horsemint; they became strong, and one swarmed, giving off a good swarm, which was placed in one of the hives, on the infected combs left after the death of the colonies used last winter in experimenting with this same black brood.

In order to make a more severe test on a new swarm during the good honey-flow, I used a sufficient number of all the combs sent from New York last fall to fill a frame, transferred these to the centre of the brood-nest and watched the results. The combs were all thoroughly treated and cleaned, and no disease occurred in this hive. A cessation of

the honey-flow in the latter part of July came, and the disease reappeared, so that on the first of August quite a number of both larvæ and pupæ were found diseased. The fall honey-flow came in about this time, so that on Aug. 20th no sign of the disease was present. The disease recurred in one of the colonies used last spring—not the one which swarmed, nor in the new swarm.

In this disease the first germ-growth appears in the ventriculus, which, in the larva, is a blind sack, which, on account of the sedentary life and liquid food provided, is not a fully developed alimentary canal till late in pupal life. There is no evidence of solid excreta until after the bee is hatched and begins to take food. In the larvæ the stomach (ventriculus) appears distended with pollen-grains, partially digested pollen atoms, chyle, a few fungi, bacteria, etc. The urinary apparatus, which develops early in larval life, appears engorged, sometimes colonies of bacteria are found within them. Much distortion and faulty development results from arrest of nutrition to the internal organs; there is a general abnormality of the glandular structures from faulty development. These developmental errors are due to the influence of the poisons elaborated by the bacteria in the digestive organs. In many examinations I have never been able to find growths or scattering bacteria in the dorsal vessel—which is the heart of the bee—or in parts of the vascular system.

In foul brood, if the egg has been deposited in a foul cell, when the food comes in contact with the infectious material, a suitable media is formed for the growth of the germ, and bacterial changes in the food destroy its nutritive qualities, and the young larva dies of starvation or from the effects of the poisons.

Where the egg was deposited in clean combs, and the infection reaches the brood through the food, growth of brood continues until the infectious growth changes the nutriment, produces poisons, and death results. The brood may continue to the pupa state, and death may take place after casting of the pupa skin, just before the bees is ready to emerge as a perfect insect. The fact that the alimentary tract is not a fully developed passage until the perfect state is reached, may influence to some extent the virulence of the infection, and be held to explain why diseases which belong to the larval and pupal states do not infect the perfect state.

I have been unable to find any valid evidence for holding queens responsible for, or that they have any influence upon, the perpetuation of any disease with which I am acquainted. Cheshire's statement of finding the bacillus alvei in the undeveloped egg, in the blood of the queen, in spermatozoa of the drone, etc., has not been verified in this or in any other instance, so far as I am aware. He cites as a parallel case the silkworm disease, which was once so destructive in France. Bechamp, who was first to investigate the case, gave quite a lengthy detail of his investigations. Here is what he says, that led Cheshire to quote him:

"The microzyma multiplies in the interior of the moth, developing with its growth so that the infected moth is unable to lay its eggs without depositing the spores at the same time, and thus expose the young grub to attack as soon as it is born."

Bechamp nowhere states that the miniature ovum, or undeveloped egg, is attacked. Again, this is not a parallel case, inasmuch as the silkworm larva partakes of much solid

food, voids solid excreta, is active, chooses its food, etc.; while the female moth lives but a few days, deposits thousands of eggs regardless of surroundings, and partakes of little or no food during her life.

Let us follow the undeveloped egg from its beginning to its deposition, and we shall see where the infection comes in contact with it.

The egg at first is a microscopical atom in the ovary answering to the ovum of higher animals, and subject to the same developmental changes; its growth begins under certain stimuli, and we now see it as a shapeless mass of apparently homogeneous matter, containing certain microscopical and chemical elements, in the minute channels of the ovary; as it continues to grow we find it in the larger channels, and finally the surrounding conditions to which it is subjected induce condensation of the peripheral zone, whereby the definite form is greatly favored; this progressive condensation is productive of a distinct limiting membrane; here, by high amplification, we discover the micropyle (little gates), or open pores, through which spermatozoa enter the interior of the egg for the purpose of fertilization. Now passing the gate whose opening leads to the seminal receptacle, or spermatheca, it receives the seminal element, which later results in fecundation; passing now into the still broader channel—the oviduct—it comes in contact with a liquid secretion called "chitin" which appears at first of a gelatinous nature, but which soon hardens, forming the shell of the egg. In this chitinous fluid we may meet the infectious germ, but this is the only place we may reasonably expect to meet it. This gelatinous fluid serves to fasten the egg to the base of the honey-comb cell. If the infection were to depend upon the transmission by the seminal elements

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what must be the condition of the seminal receptacle or spermatheca during the long life of the queen?

It may be a puzzle to some how such definite conclusions are arrived at, such as locating germ growths in the uriniferous tubules, malformations of glands, relative position of organs, etc. No better way can be found to explain this than to send with this sections of a larva and of a pupa. These sections are about 1-500 of an inch thick—much too thick for bacteriological study, so I send two or three sections about 1-1000 to 1-1500 of an inch in thickness. Serial or ribbon sections show the position very accurately of the organs, thickness and all. I have sections and bees of all ages and conditions.—American Bee Journal.

Apiary Experiments.

The Agricultural Experiment Station of the Agricultural College of Colorado has sent out a bulletin (No. 54) giving a report of experiments made in the interest of bee culture by Prof. C. P. Gillette. The results of some of these experiments may be of interest.

It sometimes happens that in the spring there is nice weather for flight of bees, but there is nothing from which they can gather nectar or pollen. At such times it is the practice of some bee-keepers to feed some substitute for pollen. Bees will work eagerly upon such substitute so long as no natural pollen is to be had, but when the genuine article is to be had the substitute will be utterly neglected. Prof. Gillette made experiments to see what substitute was preferred by the bees, putting out a number of articles at the same time. As nearly as could be determined, their preference was the following order: Ground

whole kernels of oats, corn and wheat, wheat bran ground over so as to be fine, waste dust and chaff as taken from cleaners at flouring mill, cottonseed meal, wheat bran, pea meal, wheat flour, rye flour, bean meal, barley meal. They would hardly touch the last three so long as they could get the others.

The practical conclusion of all this is that the bee-keeper may take what substitute is most convenient for him, which in most cases will be the ground feed he is using for his horses or cows. That can be used without any waste, for when the bees have used out the fine particles the remainder can be fed to the four-footed stock.

Using sheets of comb foundation made of melted wax which had lampblack added to it, Prof. Gillette could easily determine where the coloured wax was used, where it was mixed with fresh wax, and where it was wanting entirely. He found that the coloured wax was freely used in extending the midrib, and also in drawing out the cells, the colour gradually shading from pure black to pure white. Later than the publication of this bulletin comes the report of experiments in Holland not only showing the same results, but something more marked. A frame of foundation coloured green was put in a hive, and many of the cells in the other combs had green cappings! So the bees must have nibbled wax from the green foundation and carried it to the other combs.

If the midrib of the foundation was made heavier than natural, little or no thinning was done by the bees; but if the cell walls were made heavy, he bees did more at bringing them to the thickness of the natural comb. When foundation sufficiently light

was used, the resulting comb was fully as light as the natural article.

When heavy foundation is used, so heavy that it contains enough wax to build the entire comb, the bees still add much more wax, sometimes nearly enough to build the comb without the aid of the wax in the foundation.

To get the best results, foundation used for sections should have a base as thin, as natural, and a moderate amount of wax in the cell walls, and these cell walls should not be very high.

In natural worker comb one inch thick, there is one pound of wax to every 20 or 25 pounds of honey.

Drone comb has a thicker midrib and heavier cell walls than worker comb. From this a conclusion of some importance may be drawn, that Prof. Gillette does not mention. It is quite a common belief that bees prefer drone cells for storing honey because it is a matter of economy of wax. But the drone comb actually takes more wax, and if there is any economy it must be in the labor of constructing the comb. The important point, however, is that with the right kind of foundation there may be even less wax in comb built from it than in comb built entirely by the bees. For when bees build the entire comb in a surplus apartment, it is likely to be mostly drone comb, which is heavier than worker comb, and consequently heavier than comb built on the lightest foundation.—National Stockman.

Honey Your Porridge.

If you have the exceedingly unaristocratic habit of sugaring your porridge, try a little honey on it instead of the sugar some morning. You will find it a great improvement on sugar.—Martha's Management, in Chicago Record.

Melting Old Combs.

By Morley Pettit.

Late October and early November should be spent in winding up the affairs of the apiary. All hive parts that have been used during the summer should, before being stored for winter, be scraped clean of lumps or ridges of wax and propolis. Especially should the combs not in use be sorted and the exposed parts of their forms scraped before storing. While doing this, quite a lot of beeswax can be kept separate from the propolis and saved.

We divide combs into three classes: 1st, brood combs; 2nd, extracting combs; and 3rd, combs to be melted up. Brood combs may have a few drone cells in one lower corner, but otherwise must be all workers, be straight, and contain very little pollen. 2. Combs used for extracting may be partly or wholly of drone comb, but should contain no pollen. If a comb would belong to this class except for patches of pollen, cut them out and let the bees fill up the holes next summer with new comb.

In class 3 are the ones rejected from 1 and 2; combs heavy with pollen, old crooked and unfinished combs. These are cut out of their frames and melted up. Where two or three rows of cells next the top bar are good worker cells, leave them in the frame as a starter for the new comb next season. These useless combs, and all odd bits of wax, may be melted and purified into nice bright cakes of commercial beeswax.

First put them into a rather long, narrow, box, and pour cold water over them to clean them as far as possible of pollen and whatever else the water will carry off. Chop them fine with a spade, and scrape to one end of the box, which has been raised higher than the other to allow

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the pollen-water to drain off. Change the water often for two or three days until the mass is thoroughly soaked and enough water to float it nicely. The kettle should be in an arch, which prevents the fire coming higher up the sides than the level of the contents, else the wax may burn at the edges. When the mass has boiled for a few minutes, press out the pure wax.

To do this you need a bag of burlap, such as binder twine is shipped in, about 10 in. x 18 in., with two loops at the top to hold it open by when pouring in the hot wax. The press is made of two strong boards, 1 in. x 1 ft. x 5 ft., laid one on the other, and strongly hinged together at one end, the other ends being trimmed down for handles. Sharpen a board and drive it into the ground beside the kettle for the press to rest on, and another for the end of the lower handle. Let an assistant hold the bag open while you dip it about three-fourths full from the surface of the kettle with a dipper, then lay it in the press with the open end folded under. Strips of wood $\frac{3}{8}$ in. square and $\frac{1}{4}$ in. apart are nailed across the lower jaw of the press where the bag rests on it. Under the press a tin box about 20 inches each way has been set to catch the wax as it runs out. Press by putting your weight on the upper lever; shift the bag, and press again. This may be repeated until the beeswax is practically all out. Empty out the refuse which remains in the bag, refill from the kettle and press again. Repeat the operation until nothing remains in the kettle but hot water. Now wrap the box in old quilts or anything to hold the heat and cause it to cool very slowly, to allow any dross which may still remain to settle to the bottom of the wax. If it remains liquid for several hours before forming a cake, the

under side will be found coated with a dark substance, which should be scraped off before selling the wax.

Be sure to choose a still, mild day for melting up old combs. With a cold wind it is almost impossible to get the wax pressed before it "freezes" all over the press and hangs in icicles in the box.—Farmers Advocate.

A Good Beginning.

I have done remarkably well this season, having marketed 2,050 lbs. of honey from 18 colonies, and have had an increase of 10, which, I think, is a fair average for a beginner. About 75 per cent. of my crop was comb.

J. REAGH.

British Columbia, Nov. 19, 1900,

Putting your shoulder to the wheel is no good if you don't intend to shove.

Poorly attached combs in sections seem to be more the result of weak colonies and poor honey flow than to the kind of starter that is used; though large starters and strips of foundation in the bottom of the sections do help to strengthen the union of the comb to the section.—Prof. Gillette.

Separators between the sections are essential to the best results in producing comb honey.—Prof. Gillette.

Draw the attention of your friends to the exceedingly low clubbing rates on Magazines offered in the Canadian Bee Journal.

THE
CANADIAN BEE JOURNAL

Devoted to the Interests of Bee-Keepers,
Published Monthly by

GOOLD, SHAPLEY & MUIR CO.
(LIMITED)

BRANTFORD - CANADA.

Editor, W. J. Craig.

DECEMBER, 1900.

EDITORIAL NOTES.

Don't neglect to read about our premium pictures in this number, these artogravures are really beautiful things and will come in well for Christmas or New Year's presents: nothing cheap looking about them except the price.

Our Clubbing List of Magazines for the New Year is also well worth considering, you can't have too much good reading. Good reading enriches the mind and in the list herein given you will find a very large amount at a very low price.

We would correct a slight discrepancy which appeared in Mr. McEvoy's article in our last issue, page 116. Line 21 reads "I then fitted up 15 colonies with 5 combs of sealed honey dew each." This should read "ten colonies" not "15." The error which was typographical, was overlooked in the proof. It will be noted that further down in the article the correct number (10) is referred to.

Drop everything and come to Niagara Falls. Secretary Couse says that the programme will be well worth the time and expense and that everything will be done to make the convention pleasant and profitable. The Mayor of the town has very courteously written Mr. Couse to say that the citizens will do what they can to make it pleasant for the bee men.

Doctors continue to differ over the merits and de-merits of the Carniolans; who is going to decide between them? We have always been somewhat partial to the Italians and so far as our experience with both breeds is concerned, have no reason yet to change our mind. Such authorities, however, as Mr. J. B. Hall and C. W. Post in our own country and many leading bee-keepers across the border are heavy weights in their favor. Mr. Post says give them a large hive, so does Mr. H. W. Jamison, whose article we copy in this issue. There may, perhaps, be something in the line of management, more than either race or stock, which would account for the diversity of results and opinions.

The "Toronto Globe" of November 26, brought us the intelligence of the sad death by drowning of Mr. H. Holden, Port Dover. Mr. Holden is known to some of our readers as one of Ontario's successful bee-keepers. He was a man of much intelligence and of wonderful energy and activity, notwithstanding his 70

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to years or thereabout. He took great enjoyment in the management of his bees and from his gun and bicycle. On more than one occasion during the past summer he has called upon us in the morning, having wheeled from his home in Port Dover a distance of between thirty and forty miles. His favorite pastime was shooting, and we understand that it was when on an expedition of this sort to Long Point that the accident occurred through which he lost his life. We extend to Mr. Holdens, family our sincere sympathy.

None of our exchanges come to us with more acceptance than the "Australasian Bee-Keeper," edited by W. S. Pender, West Maitland, N.S.W. It is well conducted by its editor and made interesting by a good staff of intelligent contributors. These brother colonists of ours evidently don't intend being behind us in any way, from fighting shoulder to shoulder with us in South Africa to that of pushing their honey in Great Britain. The Hunter River bee-keepers' association have taken up the matter, have estimated the cost and are arranging for the collecting of a shipment of fifty tons to be sent in charge of a competent salesman who will accompany the shipment and dispose of it to the best advantage in the British market. Mr. Pender speaks of this effort editorially as follows:

"On the success or failure of a scheme to export honey at satisfactory prices hangs the future of the bee-

keeping industry. Several attempts have been made at export and have returned from poor to fairly satisfactory results. Other trial shipments are on the way and bee-keepers are anxiously awaiting results. Recognising the vital importance to the bee-keeping industry of having an outside market, the Hunter River Bee-Keepers' Association have given the matter a great deal of attention and have prepared a scheme by which its members hope to make a start and place the export business on a proper basis. The details of the scheme appear in this issue. The object of the association in sending a man with the honey is to enable bee-keepers in the future to export their honey with some certainty of what they are doing. At present the honey is sent away to be sold we know not how. From returns coming to hand, irrespective of what the British dealers say of flavor, etc., one honey does not command a better price than another. These and many other matters the salesman will inquire into and obtain, for the benefit of all bee-keepers, all information he can get so as to enable those who make future shipments to so pack and place their honey on the market to the best advantage. The estimate shows a number of items that possibly will be saved and the items were placed on the estimate as possible charges against the venture and what were considered liberal allowances to cover the various costs were set down, besides which an item of £50 pounds was set down for any unforeseen cost which in any undertaking is apt to arise. Shipments made to London agents prove that small packages command a better price, and a price of over 4d per pound having been obtained for honey in 7 lb. tins, while the same honey in 60 lb. tins realized only 2½d

justifies the association in taking the whole shipment at the 4d per pound basis, and it is more than probable that the smaller size of tins, viz. 2 lb. and 4 lb. will command a much better figure. The estimate shows that 2d per pound will be paid to bee-keepers, which price is as much as they are likely to get on the Australian market and the surplus over that amount probably amounting to over £300 to be paid pro rata, i. e., at per pound on the amount of honey contributed, at the final settlement. The H. R. Bee-Keepers' Association look for no profit. They simply undertake to make all arrangements and carry out the scheme, the bee-keepers being asked simply to subscribe the honey, individual members arranging the finances by giving their own personal security to the bank for the necessary initiatory expenses. As all bee-keepers are invited to co-operate in the undertaking, it is but fair to them that they have a say in the matter. The association, therefore, invites criticism before finally issuing the prospectus to bee-keepers, and any explanation required will be giving by the Secretary or through the medium of this journal. We would be pleased to obtain and give any information in our next, and invite criticism of the whole scheme. The scheme is not limited to 50 tons except as a minimum, if more honey is subscribed the expense pro rata will be lessened. The idea of having the honey put up in the small tins at the apiary is to save all expense of retinning and any possible chance of spoiling the flavor, aroma and colour by liquefying should it granulate. It will be necessary for the bee-keepers when filling the tins to see that the honey has become perfectly clarified so that no scum will arise after it has packed. We hope bee-keepers will

discuss the matter thoroughly, and we will be pleased to have our columns open in next issue to further the project.

The price available for honey in the Australian home market is certainly not very encouraging from our point of view; the average, as we understand, being from three to four cents a pound for a No. 1 article. Their yields, however, are far ahead of anything we can touch at, and more than counter-balance the defect in price if the following is a fair sample:

"I came through the previous winter with 45 colonies, and reduced them to 40, took 15,000 lbs. of honey and closed the season with 110 colonies, and sold during the year 15 colonies. That, I think, was a fair return, to me it certainly was, only there was a little trouble in getting it into the market, the old song 'a prophet having no honor in his own country.' I found I had a lot to learn regarding the prejudice of W. A. honey, which had to be a bought experience. However, one thing is certain, last season proved to producer and consumer that we can produce an article equal to the best. So our future as regards quality of honey is beyond a doubt, and should prices not be more satisfactory, it will be the fault of the beekeepers themselves."

"I use the 10-frame Langstroth hive principally, and find it suits me fairly well, except the removing full supers. I find them a little too heavy when I get them three stories high and full of honey. I extract only after the honey is fully ripened and capped. I use the Porter bee-escape while the flow is on, because I find it gives the least trouble. I like the Root-Hoffman frame, yes; and the

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staples too, and am a thorough believer in the Italian stock."

—JOHN SUTTON,

Wingate Bee Farm, Drakesbrook, W.A.

Editor Pender says in a foot note to this:

"Western Australia, evidently from the above report of an average of over 375 lbs. per colony spring count and an increase to 110 colonies, is going to claim equality with the best of the other colonies of the Australian Commonwealth as a honey producing state, and will justify the claim of Australia being the best honey-producing country in the world. The above result is certainly very encouraging to Westralians to enter upon the industry in a large way, but if many bee-keepers' started and each reached anything like the above mentioned average, their market will soon be over-supplied, and in view of such state of things they should already have under consideration a scheme by which their market can be ridded of its surplus, and thus maintain a paying price. There is a tendency in some of the other colonies to clamour for restricted production, and it has surprised me to find so many do so at the dawn of the 20th century of progress and expansion, especially when there are millions in other parts of the world who have never tasted honey."

What the American Bee Keeper says of Mr. Hall.

The "American Bee-Keeper" for November devotes its first page to a splendid photo of our friend Mr. J.B. Hall, of Woodstock. We are pleased to note and copy the editorial tribute in connection, which we heartily endorse so far as our acquaintance with

Mr. Hall is concerned. Editor Hill has known friend Hall well and favorably for many years and we appreciate the expression of his esteem at this time, it is so much better than "post mortem" praise and we certainly wish friend Hall many long, useful and happy years. The following are Editor Hills remarks:

"We have pleasure in presenting in this number a most excellent protrait of Mr. J. B. Hall, of Ontario, one of the Dominion's acknowledged leaders in things apicultural.

While Mr. Hall is a very earnest and popular association worker, it is to be regretted that, for some years past, all persuasion and force, in their oft-repeated applications, have proven inadequate to the purpose of eliciting from his pen contributions to the bee-keeping press. This is the more to be deplored when we consider the fact that Mr. Hall's pen productions have a style at once interesting and instructive, peculiarly their own. A more methodical and painstaking bee-master than Mr. Hall cannot be found —nor a more successful one. Too many futile efforts have been made to stealthily remove the "bushel" in which so much "light" is confined to leave any hope for the future in that direction; but, were it not for the profound respect which we feel for this esteemed instructor of our youth, we should not hesitate to suggest the trial of a quicker method of removing it. This might, however, prove equally ineffectual, and we shall neither try nor recommend the kicking plan.

Mr. Hall is a producer of honey, and being such, he says he has

nothing but honey to sell. His favorite bee for the production of comb-honey is an Italian-Carniolan cross, of which he has an excellent strain. He is the originator of the thick top-bar and of the wood-zinc excluder; though too modest to assert his right to the honor.

In the conduct of his business, Mr. Hall's operations are governed by attendant conditions and their immediate requirements, from the standpoint of independent reason, and not according to any set of stereotyped rules, as is too frequently the case with bee-keepers. His is, obviously, a case of "the right man in the right place;" and there is ample evidence on every side of the wisdom of his choice in adopting apiculture as his profession.

At the present time a week seldom passes in which we do not have occasion to recall some of the advice and admonitions given with his characteristic earnestness and kindly manner, fifteen long years ago, when he labored to eliminate the erroneous ideas which we had previously acquired, and to establish in their stead a clear understanding of what then appeared to be a most obscure subject.

Building up Weak Colonies for the Honey Flow.

Wm. McEvoy.

For over a third of a century I have worked more or less at building up the few colonies that I found weak in spring, and experimented a good deal along this line.

Taking combs of brood from strong colonies and giving them to weak ones to strengthen them, was once very much advocated, and is practiced to this day in many parts of the province.

As a rule the larvæ in weak colonies

is not fed as well as it should be, and combs with much larvæ should never be put into any colony that is weak in bees, because it gives the few bees too much feeding to do, and they don't get all the larvæ fed, and the result is a good deal of starved brood.

To get all the larvæ well fed and turn the weak colonies into strong ones in the shortest possible time was a thing I was most anxious to have done. So I thought out a plan that would just do that, and I put it into practice ever since, and have it well.

Just as soon as the strongest colonies are in shape to put the extracting combs on I lift up a comb full of brood that is about ready to be capped, and place it above the queen excluder and leave it there for nine days. I do this with every strong colony.

During the nine days the bees in these strong colonies will feed the larvæ extra well, and all that was in the egg form when I placed the combs above the queen excluder will be capped brood at the close.

At the end of nine days I take all the combs out of the brood chambers of the weak colonies and fill up every brood chamber with capped brood from these top stories, and in a few days after this is done the capped brood will be hatched out, and these weak colonies will be full of bees. The combs that I take out of the brood chambers of the weak colonies I put in the top stories where I took the capped brood out of and let them have that in place of the brood I took from them. The bees in the strong colonies feed the larvæ that is given them from the weak colonies well as before.

Woodburn, Ont., Nov. 28, 1900.

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The Month's Work

A. E. Hoshal, Beamsville, Ont.

December is the month for bee-keepers to put on their thinking cap and sit down and do some real hard thinking, not only during their leisure time, but if necessary take whole long days of valuable time for it. It is not as the ignorant or impractical might imagine, time thrown away.

What are we to think about? Arthur C. Miller, in *The Bee-Keeper's Review* for October, answers it as follows: "What has the past season profited you? Can you tell? Have you advanced in the science of the art? Is your apiary properly equipped and is it in the most convenient location? Will you be able to handle your bees next season more rapidly and with less labor? Can you raise better queens? Have you a good and satisfactory way of introducing them? Can you produce better honey? Can you put it on the market in better condition? Can you sell it in a more profitable way? And this does not mean get a higher price for it, but to get greater net returns. Is your capital sufficient for the business you are trying to do?"

Ask yourself these questions; look over your apiary and its equipment, and study well how you may advance.

As a class, we do not have the appliances we need for our trade. We make some cheap substitute do when the best is none too good. Often we are "penny wise and pound foolish." We do not have enough spare hives, extracting combs, etc. Should feeding suddenly become necessary, how many have suitable and sufficient feeders?"

"If you need new implements do not

begrudge the money good ones cost. Do not be afraid that you will help the supply dealer to get rich rapidly—he has no bonanza."

"Take some of the coming winter evening and think long, deep thoughts."

I most heartily endorse all the above by this writer, and still further would suggest, to ask: Is the amount of honey stored by your colonies somewhat uniform, or does it vary, some colonies storing but twenty or thirty pounds, while others under similar conditions store sixty, eighty or perhaps one hundred pounds? Can not more uniform and better results be obtained by giving better attention to queen rearing? Have you the best strain of bees available? Would it not be profitable to occupy all available waste land with honey plants which bloom when the bees have nothing else to work upon? Did you ever fully understand the merits of the Heddon or case system of bee-keeping, or know that it might be profitable for you to drop the Langstroth or movable frame system, and adopt it? Did you ever think that it is possible to successfully winter bees and yet not be a successful honey producer? Which is the more profitable during the honey flow in June and July, having the bees filling sections for market or their brood combs for winter? Is your bee-keeping giving you as good returns as you would expect any other business to do? If not, would it not be the wise thing to either sell out or else take the necessary time and expense and find out at once how to make it do so?

Thoughtful, intelligent and careful perseverance is the short cut to success.

In studying up these questions, or any others which may suggest themselves, read up first the standard

works on bee-keeping. Next get together all your C. B. Journals for the past year (the December number of which I trust will be properly indexed) and bind them. Now select the question you wish answered or information upon, and with the aid of the index turn up and carefully read everything that has been written about it during the year. If you can also get *The Bee-Keepers Review*, or *Gleanings in Bee-Culture*, or *The American Bee Journal*, any or all of them for the past year or other recent years, go through them in like manner, and so with all other questions you wish to post yourself upon. If after doing this there are still some questions unsatisfactorily answered, take them with you to a bee-keepers' convention and have them threshed out there.

Visit also some successful honey producers, particularly specialists if any are within reach, and see how they do. Examine into their methods and see if they have not some ways of doing things better than you have, and if so plan to adopt them.

If you have the ability to practically apply the knowledge you have thus gained after having studied out this whole question of "profitable honey production," you are now in a better position to make bee-keeping pay, or else know why you cannot, then you may consider the one subscribing himself to this article as a false prophet.

Wintering Bees by Burying Them in Clamps.

By W. Z. Hutchinson, Flint Mich.

For many years I have wintered bees by burying them in the ground, much as farmers bury potatoes and other vegetables. I don't remember where I first got the idea, but I do remember having some correspondence on the subject with C. J. Robin-

son, of Richford, N. Y. He very persistently urged me to give no ventilation. He asserted that the bees would winter better with no ventilation—that the hibernation would be more perfect than in a "sea of oxygen." I was very loth to take this advise; and it was with many misgivings that I finally ventured to risk six colonies with no ventilation except that which would come through the earth. At the same time I buried a dozen other colonies, giving them ventilation by means of a four-inch tube laid along the bottom of the trench, and extending out into the outer air. There was also a similar tube at the top, extending from the bottom of the pit up through the earth some three or four feet. I remember that I had a thermometer hung, by means of a string, in this upper tube, and that I often climbed up and drew up the thermometer to learn the temperature. The outside temperature had very little effect upon that inside the pit. When the mercury stood at zero in the open air, thermometer drawn up from the clamp showed 43°. It did not vary three degrees from this in all winter.

The bees wintered perfectly in both clamps. It seemed as though they were just about the same as when set in the previous fall. The straw around them, and the hives and combs, were dry and clean and free from mold. My belief in the ability of bees to pass the winter with no ventilation was greatly strengthened. The next winter I put 32 colonies into one clamp, and wintered them perfectly with no ventilation. This brought my confidence up to such a height that, the next winter, I put 96 colonies into one clamp and lost nearly all of them. There were 16 hives that had live bees in them when dug out in the spring. These were weak in numbers, and several of them

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balled and killed their queens when they were set out. This was the most serious loss with which I ever met while in the bee business. There

haps the heat generated by so great a number piled in such close quarters drove out the bees, Perhaps they went in search of air. They certainly



READY FOR THE RAILS.



READY FOR THE STRAW.



READY FOR THE EARTH.



READY FOR THE WINTER.

was nodysentery. The combs were clean and dry and full of honey, but the bees had deserted the hives, and crawled all through the straw. Per-

went.

Since then I have several times wintered a dozen colonies in one clamp, and always with good success

except in clay soil. Two or three times I have tried it there, and the bees wintered poorly; the hives and combs coming out in the spring reeking with mold and dampness. My successes have all been on a dry sandy hillside. With such a location I should have no hesitancy, whatever, in putting any number up to 25 or 30 into a clamp. It is possible that a large number might winter all right if given sufficient ventilation, but I am without experience on that point.

The work of burying the bees is about as follows: First dig a trench wide and deep enough to allow the hive to set down in until the tops of the hives are level with the surface of the earth. Put in a little straw and lay in two rails a foot apart. Set the hives in a row on these rails. Put some straw around the hives, and then lay some rails over the hives, putting some short pieces of rail across under the rails to support them. Next cover the hives liberally with straw, say, to the depth of two feet, and then shovel on the earth to a depth of 18 inches. Sometimes I vary this by putting on only a few inches of earth, and then another layer of straw and then a few more inches of earth, covering the whole with a light covering of manure.

I do not know that wintering bees in clamps has any advantages over that of wintering them in the cellar, and it is certainly considerable more work; but when one has a few colonies to winter at a place where there is no cellar, and experience has told him that indoor wintering is better than out-door, he can successfully winter the bees by putting them in a clamp, if the soil and location is suitable. Don't winter in clay. Don't bury them where water will stand. Don't try wintering large numbers without ventilation, in fact, my experience is against large numbers, and I do not

know that there is any objection to giving ventilation, even with small numbers, but I have never found it necessary.—Bee-Keepers Review.

The Carniolan Again.

Mr. H. M. Jameson, of Corona, Cal., writes in the "American Bee-Keeper" of his experience with Carniolan bees compared with Italian. The article will be interesting to many of our readers. We copy it as follows:

"I promised to write you something about Carniolan bees. Well, I will say this: Within the last two years I have received Italian queens from six different breeders in the East. The queens were represented in most cases as being very prolific, great honey gathers, etc. They have all had a fair trial, and so far have proven themselves utterly worthless, as compared with the Carniolans. Some of these Ligurians have built up fairly well and stored a little more than needed for their subsistence, while others have remained weak and must be fed for the coming winter. They never leave their hives before sunrise and retire early. In the spring time they are slow to build up in time for orange or other early bloom."

"What are the Carniolans doing while these loafers are asleep? Well, I will tell you. In late winter or early spring they start a strong brood-nest on the north side of the hive, and when early flowers come, they are ready with a good force to work. When orange bloom and other great honey-flowers come, they are there with a grand army. They go forth at break of day and work till night fall. What Mr. Doolittle and others have written about Carniolans in no sense applies to these bees. See editorial comments in Review for August, on what C. W. Post, of Canada, has to say about Carniolans. As Mr. Post

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has it, it is absolutely true of mine. Editor Hutchinson says: 'All of this illustrates the great difference there is in stock.' Mr. Hutchinson should have used the word race in lieu of stock; but that would not be riding his hobby. Swarming! The bees have shown no more inclination to swarm than have the Italians, though they have stored a surplus of fifty pounds or more to each colony over that of the others."

"Some of these fair daughters of "Eetalv" will luxuriate the coming winter on Carniolan white-capped honey."

"Large hives! Yes, these black bees must have large hives; and perhaps two eight-frame bodies are not too large, though I believe the Draper barn to be about right. They must have a cool situation. On the 4th of May last, we had a gentle rain throughout the entire day; the Carniolans were out at work the whole day, with not a yellow bee in sight. There was not a day last winter but these bees were at work, and consumed none of the honey stored previously."

"We often read of the great loss of bees in the cold States, some losing all their bees. If they would stock up with Carniolans, such fatal results would never occur."

"Gentleness! The Italians with me are extremely gentle; while the Carniolans are also gentle, they are not so quiet and more inclined to fly from the combs and sting."

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A Fifty Thousand Dollar Painting



THE BALLOON. By Julien Dupre.

Julien Dupre, one of the foremost artists of the time, is a Frenchman and a Parisian. He is now at the height of his power, in his forty-eighth year of his age. M. Dupre has been honored with medals in the Salon on several occasions, and such of his work as "The Gleaners," "In the Pasture," and "The Escaped Cow" have excited the greatest admiration among the general public, and also among the connoisseurs. His most remarkable work is called "The

Balloon," and is a canvas which would have made him famous had not already stood among the leaders of the French school of artists. The subject treats of a group of peasants in the harvest-field. The peasants have spent the morning raking and stacking hay, the sun is at its zenith, but not a breath of air is stirring, and can almost hear the bees as they buzz from flower to flower, and away in the distance is seen a balloon floating majestically in the clear, blue