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THE CANADIAN BEE JOURNAL

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

VOL. VII, No. 7. BEETON, ONT., JULY 1, 1891. WHOLE No. 291

THE CANADIAN BEE JOURNAL

Devoted exclusively to the interests of the Honey Producer.

Seventy-five Cents per annum in Advance.

ADVERTISING RATES.

All advertisements will be inserted at the following rates

STANDING ADVERTISEMENTS.

Time.	1 in.	2 in.	3 in.	4 in.	1 col.	page
1 month.....	$2.00	$3.00	$3.50	$4.50	$6.50	$10.00
3 months.....	3.00	4.50	5.50	6.50	11.00	17.00
6 months.....	4.00	6.50	7.00	9.00	15.00	25.00
12 months.....	6.00	9.00	12.00	15.00	25.00	40.00
	10.00	15.00	20.00	25.00	40.00	75.00

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One-fifth column, $8 per year; $5 for 6 mos. All yearly advertisements payable quarterly in advance.

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Occupying one-half inch space, THREE DOLLARS per annum.

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10 cents per line. the first insertion, and 5 cents per line for each subsequent insertion.

Space measured by a scale of solid nonpareil of which there are twelve lines to the inch, and about nine words to each line.

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Advertisements for this Department will be inserted at the uniform rate of **25 CENTS** each insertion—not to exceed five lines—and 5 cents each additional line each insertion. If you desire your advt. in this column, be particular to mention the fact, else it will be inserted in our regular advertising columns. This column is specially intended for those who have poultry, eggs, bees, or other goods for exchange for something else and for the purpose of advertising bees, honey, poultry, etc., for sale. Cash must accompany advt. Five insertions without change, $1.

STRICTLY CASH IN ADVANCE

Contract advertisements may be changed to suit the season. Transient advertisements inserted till forbid and charged accordingly. All advertisements received for THE CANADIAN BEE JOURNAL are inserted, without extra charge, in THE CANADIAN POULTRY JOURNAL.

THE D. A. JONES CO., LD., Beeton,
Publishers.

PUBLISHERS' NOTES.

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

THE JOURNAL will be continued to each address until otherwise ordered and all arrears paid.

Subscriptions are always acknowledged on the wrapper label as soon as possible after receipt.

American Currency, stamps, Post Office orders, and New York and Chicago (par) drafts accepted at par in payment of subscription and advertising accounts.

Subscription Price, 75c. per Annum. Postage free for Canada and the United States; to England, Germany, etc, 10 cents per year extra; and to all countries not in the postal Union, 50c. extra per annum.

The number on each wrapper or address-label will show the expiring number of your subscription, and by comparing this with the Whole No. on the JOURNAL you can ascertain your exact standing.

Communications on any subject of interest to the fraternity are always welcome, and are 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.

ERRORS.— We make them: so does every one, and we will cheerfully correct them if you write us. Try to write us good naturedly, but if you cannot, then write to us anyway. Do not complain to any one else or let it pass. We want an early opportunity to make right any injustice we may do.

We do not accept any advertisements of a suspicious or swindling nature, but our readers must not expect us to be responsible should our advertisers not do as they agree. They will find it a good rule to be careful about extraordinary bargains, and in doubtful cases not to pay for goods before delivery.

Clubbing Rates.

THE CANADIAN BEE JOURNAL and THE CANADIAN POULTRY JOURNAL.....	$1 00
THE CANADIAN BEE JOURNAL and premium queen	1 00
Both JOURNALS and premium queen.....	1 25

Job Printing.

All we ask is the privilege of an opportunity to estimate. Free use of all our cuts given to those who favor us with orders. Specimen sheets furnished on application.

EXCHANGE AND MART

25 CENTS pays for a five line advertisement in this column. Five weeks for one dollar. Try it.

200 pounds Brood Foundation, cut to any size, 40 cents per pound. BURTON BROS., Osnabruck Centre.

POULTRY Netting.—See our advt. in another col with prices. Also for shipping and exhibition Coops, with owner's name printed on the canvas. Drinking fountains and poultry supplies generally. THE D. A. JONES CO. Ld. Beeton.

FOR SALE at a bargain—25 S. W. Jones and Langstroth Hives, mostly all painted; 8 and 12 combs each, all worker combs and in first-class order. Address E. J. BERRY, Brome, Que.

FOR SALE—White and Brown Leghorns and Black Minorca Hens; grand layers 65 to 80 cents each. Also Cockerels, $1.00 each. Address E. J. BERRY, Brome, Que.

EIGHTY Colonies Bees for sale in Langstroth single walled and Jones Porous Palace Hives. Price, Langstroth, $5.00; Jones P. P. $5.50. Bees in prime condition. Never any foul brood in this part of Ontario. Will ship on C. P. R. or G. T. R. as preferred. I. H. MANNING, Tyrone P. O., Ont.

1891, Carniolans bred from Imported Queens, Italians bred from Doolittle's selected stock, $1.00; six, $5.00. After June 20th we will dispose of 100 Italian Queens, one year old, bred from Doolittle's stock, $1.50; these are tested. 1000 lbs. Bees, $1.00 per lb. WALKER & HORTON, Fargo, Ont.

WE are now able to ship by first Express, in fact we are shipping every day all the Foundation ordered Knives, Force Pumps; in short, we endeavor to have everything go by first train after the order is received. D. A. JONES CO.Y, Beeton.

FOR SALE.—I will sell without reserve my entire stock of W. P. Kocks. 12 hens scoring 94 to 97½, 2 cocks, score 93½ and 95½, about 30 ckls. and 50 pullets. I intend making a specialty of S. L. Wyandottes and Pekin Bantams. This is a rare chance for someone. Everything goes; they are all high class. Refererecces: L. G. JARVIS Sharp, Butterfield. Prices right.

PRICES CURRENT.

BEESWAX

We pay 35c in trade for good pure Beeswax, delivered at Beeton, at this date, sediment, (if any), deducted. American customers must remember that there is a duty of 20 per cent. on Wax coming into Canada

FOUNDATION

Brood Foundation, cut to any size per pound.....55c
" over 50 lbs. Write for price.
Section " in sheets per pound.....60c
Section Foundation cut to fit 3½x4½ and 4½x4½, per lb.65c
Brood Foundation, starters, being wide enough for Frames but only three to ten inches deep .53c

THE D. A. JONES CO., BEETON.

SECOND HAND HIVES !

ABOUT FIVE HUNDRED COMBINATION AND JONES HIVES

that have been used one or two seasons. All have been painted and are in good shape, ready for use. We will sell the entire lot

AT HALF PRICE

—in large or small quantities.—

D. A. JONES, CO., - BEETON.

CONDENSED DIRECTORY.

Advertisements under this heading, occupying one-half inch space, three dollars a year

MICHIGAN LANDS, best in the State for $5 per acre; some at $2, $3 and $4. Write R. M. Pierce, West Bay City, Michigan

O. J. PUTNAM, Leominster, Mass. has for sale several fine cockerels and pullets, B P Rocks, won 1st 2nd and 3rd on pullets, and 2nd on pen at Ayr Jan. 14 to 16 1890. Eggs $2 per setting.

MENTION THIS JOURNAL

W. COLE'S Black Minorcas. I have bred those birds for 5 years and they are as good as any in Canada, United States or England. 1889 pullets 94 94½ 94½, 94½, 96, 96, 96½, cockerel 95½. J Y Bicknell, judge Eggs for hatching $1.25 per 13. WM. COLE, Brampton

TESTED ITALIAN QUEENS bred from selected mothers, principally of Doolittle stock. Prices as follows;—for those under 1 year $2.50 each. shipped the 20th of April, or 2c. less each day until June 10th. Queens under 2 years old one-fifth less. G. A. Deadman, Brussels, Ont.

SEND your address on a postal card for samples of Dadant's foundation and specimen pages of "The Hive and Honey-bee," revised by Dadant & Son edition of '89. Dadant's foundation is kept for sale in Canada by E. L. Gould & Co., Brantford Ontario CHAS. DADANT & SON, Hamilton. Hancock Co., Ill.

A FEW Trios, Buff and Partridge Cochins, $5 to $10 a trio, also three breeding pens of Br. Leghorns, $6 a pen. Eggs from Cochins and B. P. Rocks, $2. Br. Leghorns, $1.50. BARTLETT & GEORGE, Clarence St., London.

A RARE CHANCE—If you desire a good home within stone's throw of railway, express and post office in one of the very best honey locations in the United States. Write me for particulars. Excellent neighborhood. An apiary of 90 colonies, with fixtures, will be sold or leased with the place. Terms easy. Address JAMES HEDDON, Dowagiac, Mich.

FIRE HAS DESTROYED MY BEE HIVE factory, but send along your orders and we will try and fill all orders if possible. Foundation, sections, frames, hives, smokers, honey knives, queens, bees, &c., at bottom prices. Address W. CHRYSLER, Box 450, Chatham, Ont.

Special Offer for July !

I WILL SELL EGGS FROM MY BEST Breeding Pen of White Leghorns or Langshans for the month of May at the following prices :—

1 Setting (13) - - $1.50.
2 Settings (26) - $2.00.

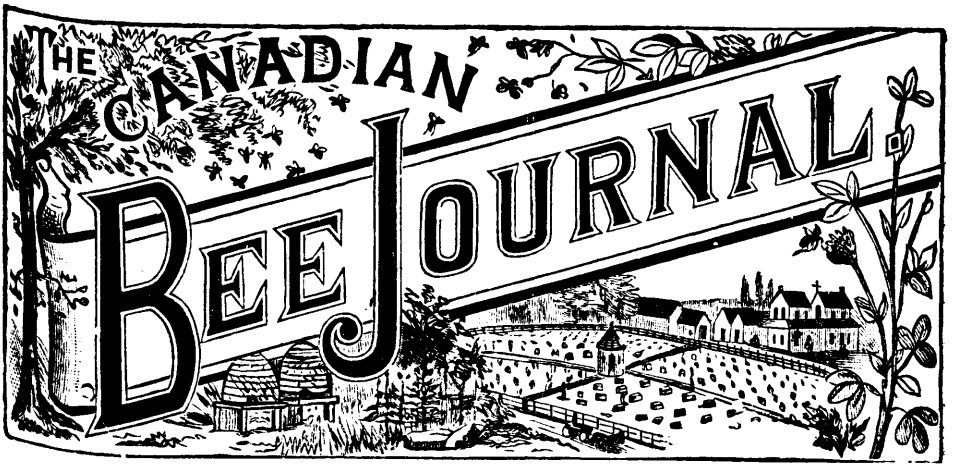
This is a grand offer as my birds are good.

J. L. MYERS,
Box 94, Stratford, Ont.

BEES WAX

FOR SALE—Crude and Refined. We have constantly in stock large quantities of Beeswax, and supply the prominent manufacturers of comb foundation throughout the country. We guarantee every pound of Beeswax purchased from us absolutely pure. Write for our prices, stating quantity wanted.

ECKERMANN & WILL,
Bleachers, refiners and importers of Beeswax,
Syracuse, N.Y.



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VOL. VII, No. 7. BEETON, ONT., JULY 1, 1891. WHOLE No. 291

THE CANADIAN BEE JOURNAL

ISSUED 1ST AND 15TH OF EACH MONTH.

D. A. JONES, - EDITOR-IN-CHIEF.
F. H. MACPHERSON, - ASSOCIATE EDITOR.

EDITORIAL.

When To put on Sections.

SEVERAL have written us in reference to putting on and taking off sections. There seems to be a difference of opinion in reference to this. But we prefer, after the bees are sufficiently strong, and the white clover commences to yield, to put on one case of sections first, and as soon as the bees commence to work in them nicely, and get them partially drawn out and a little honey in the most of them to make up the first case of sections, and set another under it next to the brood. The bees continue, if they are strong enough to store in the top sections, while they are drawing out those below. As soon as the second case of sections is drawn out and partially filled with honey, the next above will be about full, and sometimes the bees will just commence to cap a little in the centre rows. This will probably be about six or nine days from the time the first case was put on. We then raise the two up, and put a third case of sections filled with foundation under, next to the brood. In this way we keep adding some every few days in proportion to the strength of the colony, inducing the colony to store in the top sections, and leaving an empty space, or rather sections only partially filled just above the brood chamber. This keeps down the swarming fever very much better than to have fully filled sections that only require a small corner to be filled and sealed here and there over the frames berore they are ready to be taken off. The bees are not so inclined to swarm out when they have what appears to them an empty brood chamber. Then there is another advantage in so placing the sections. If the empty sections are placed on top of those being filled, the partially filled will have to remain on for some days to be filled, and the bees travelling over these capped sections to get to the ones above, soil the sections and mar their appearance. The bees are also less inclined to daub the sections with propollis if they are placed as we suggest, because they are raised a little up in the hive, and they are not nearly so badly daubed as when down next to the brood chamber. According to our method a number of cases may be put on equal to the strength of the colony and the length of the season. If, however, at the latter part of the honey season you find that you have not room enough in the hive, it is not advisable to put in empty sections next the brood chamber, as the bees will not cross over the empty ones to carry honey to the top, but will be more apt to bring down

the honey from the top sections into the lower ones as the honey flow ceases. In order then to give them plenty of room, induce them to work, and prevent swarming; put a crate of partially filled sections or empty sections with foundation in them on top of the sections which are being filled and capped over instead of underneath, thus bringing these latter down next the brood chamber. The bees will be sure to fill and cap these and should the honey-flow continue longer than you expect, the bees can work in the upper sections and the work done there is by no means lost to you, Besides the stimulating effect which these empty sections have on the bees, inducing them to work to fill all up before the honey-flow ceases, it gives you a good start the following season, and you can make no better investment. This system will keep the largest possible force of working bees fully occupied, and prevent swarming through the honey season, and at the close will induce the bees to complete their work, and what they may do over is not lost, but can be used next year.

We may say that sometimes the honey season is suddenly cut off, and leaves us with one super of sections with foundation scarcely touched, and another with perhaps the foundation only partially drawn out, and a little honey in. Instead of leaving these empty spaces between the brood chamber, and the sections being completed above, you should lift up the filled sections, take out these two crates, and put the sections that are being completed down next the brood chamber, and set these two partially filled supers on the top. A little careful manipulating in this way will leave very few empty sections in the fall. To carry on this work it is best to have a stand made of light strips, about an inch square, and the top so arranged that you can lift off your crates and set them on top of these stands. The top of the stand should be large enough so that you can put down three sets of crates. This enables you to change them as you desire, remove sections, or manipulate in any way you wish. This stand should not weigh more than from five to ten pounds, and be about two and a half feet high. If built of slats, there will be no place to mash bees in setting on crates and it can be carried about the yard in one hand.

Hiving a Swarm with several Queens

THE other day at our home yard our assistant attempted to hive a swarm, which, in spite of his efforts would constantly fly back, and light on the tree, and as it was a second swarm, and had several queens, some would light on one limb and some on another, thus making several bunches, some not being larger than a tea cup. He kept cutting off these little twigs with a cluster of bees attached, and laying them carefully down in front of the hive, but apparently the fear or dissatisfaction of the different queens being hived together caused the queens to leave the hive, with as many bees as they could get to follow them. Now this state of things continued for some time, as we were anxious to let him do his best, and if he failed to hive them we determined to try the force pump remedy, which we had in readiness, in case they attempted to abscond. And right here let us say that as soon as a colony of bees commences to move off from the yard, just get in front of them with a force pump and a pail of cold water, throwing it high in the air, in a fine spray, and allow it to come down among the bees, when you will be astonished to see how quickly they come to the conclusion that they had better stop and wait till the shower is over. Well these dissatisfied bees utterly refused to accept a home, and when put down in front of the open hive, or laid inside, they would rush out pell mell into the air, lighting some place, and every time seeming more dissatisfied, and more determined not to be hived. At last they began to show signs of uneasiness, and indications of preparing to leave, by not clustering as they should. In fact those in the cluster began to leave it, and join those on the wing. We accordingly got on the windward side of them, and with one of the improved force pumps, sent a spray of cold water into the air, which had the effect of dampening their ardour, and many of them alighted at once on the limbs of the tree, where they were partially clustered. We then sent another spray up, dampening the cluster thoroughly, which caused them to hug up tighter together, and remain very quiet. Then, with our swarm catcher, we took the cluster down, and poured them in front of the hive, and they ran in per-

fectly contented. Then by shaking the limbs most of the others took wing, and settled down with them. We are satisfied that this swarm would have absconded had it not been tor the force pump; and on a hot or even cold day, when the swarm is once clustered on the limb, we find it a great advantage to spray a little cold water in the air, dampening the bees a little, and also the ground around the hive. When they are shaken down into the swarm catcher and placed in front of the hive, they run in without any ceremony. We have sometimes had the bees leave the hive when the sun was pouring down on it, and cluster again; but by pouring a little water on the hive, and putting the bees back, they would stay perfectly contented.

Winter Packing-Cases for Sunshades.

SOME of our friends are asking if the outside or winter packing case for hives will answer for sunshades, and not interfere with the ordinary manipulation. Yes, they will answer well, and can be put together in half a minute, and the hives set into them, the rays of the sun are kept off, while the bees are allowed to pass in and out the entrance with as much freedom as if no outside case were there Some are wanting them for two and three story hives, but we would not advise such an outside case. Merely covering the brood chamber is all that is necessary, and the second or third stories or supers for honey may be set on top, and manipulated with as much comfort as if there was no outside case there. This prevents the bees from clustering out in hot weather; they go to the fields and gather instead. This will make a considerable difference in the yield of honey, perhaps enough to pay the cost of the case. On extremely hot days during the honey flow, if the bees have no such protection, they will cluster out, and lose perhaps half a day's work. Now if a colony will carry in ten pounds of honey in one day, and they only work half the time, it is easily seen that five pounds is lost. It is evident, then, that some protection is necessary, and the cases answer a double purpose—of protection from cold with packing, and proteetion from heat without packing, leaving an air space around the hive.

We are pleased to see by the A. B. J., that our esteemed friend Prof. Cooke, of the Agricultural College, Michigan, has succeeded in inducing the American Government, to allow the free importation of queen bees, for breeding purposes. It is evident from their answer to the Prof. that they did not know they were legislating against the interests of the bee-keepers, and we wonder if all our American friends appreciate Prof. Cook, as he deserves. The Prof's. arguments in favor of his case, are so clear and so strong, that no honest government could refuse his demands. He knows he is right before he starts, and then he knows equally well that justice must be done and that no government can afford to lose the friendship or legislate against such an influential body as the bee-keepers of America.

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"Misery likes "Company" is an old saying. We feel ashamed to have to tell our readers, that we have allowed mice to injure our home apiary after giving so many instructions for destroying mice, but after reading friend Miller's article, telling how he allowed his bees to starve, we thought we might say—That's no worse any way, than Miller did: Now friend Miller, just let us give you a little piece of advice, providing you turn round and do the same thing to us. When you find your bees want a little food to keep them from starving, just before you set them out, buy a little cheese cloth, or the cheapest, thinnest cotton you can get. Put a little granulated honey, say one lb. in it, tie the corners together and place it over the cluster. This will prevent the bees, from getting smeared with the honey and also prevent the honey from running down amongst them, and allow them to suck through the bag. They will gnaw through the bag and get at the honey itself. Now how easy it would have been, to go round and put one of these bags on top of frames just over the cluster, without disturbing them. These little packages can be tied up in a few minutes, and distributed among the bees. We think we see friend Miller going out to cut a stick for Jones, but never mind he'll accept a little touching up, on the mouse question this time.

GENERAL.

Foul-Brood Spread by Comb-Foundation.

THE following articles on the above important subject by Mr. Corneil is taken from the American Bee Journal. The editor of that paper after putting Mr. Corneil's communication in type, sent a proof to each of the persons who replied to Mr. C's. former article and the criticisms which they made follow immediately :

Now, that some of the most prominent manufacturers of foundation, as well as several editors of the bee-periodicals have expressed their views on the question of infection in comb-foundation, I ask for space for a partial reply, and to give some additional facts bearing on the question.

Mr. Dadant is in error when he says (American Bee Journal, page 470) that the number of bee-keepers I alluded to as having raised the question of infection by means of foundation is only four. I wanted to show that the subject is one on which bee-keepers are not agreed, and I quoted four on one side of the question, and four on the other, which was quite sufficient for my purpose.

Since it is evident that Mr. Dadant has missed, or forgotten, these items in the bee-periodicals published in England, the fact that he does not recollect noticing only such items in the periodicals published in France, Germany, Italy, or Switzerland is not good proof that the bee-keepers in these countries have not raised the question. I am sure that bee-keepers "in Europe and America" will not soon forget their deep obligation to Mr. Dadant for the information that, "with Mr. Corneil England is Europe, and the United States America."

Mr. Dadant argues that because Pasteur taught that a temperature of 140 kills the "seeds of disease" in wine, therefore, 150 will kill the spores of foul-brood in wax. I do not so understand Pasteur. Troussart, in his work on "Microbes, Ferments and Moulds," quotes from Pasteur's book, "Etudes les sur vins," as follows: "The source of diseases which affect wine consists in the presence of parasitic microscopic plans, which are found in wine under conditions favorable to their development, and which change its nature. either by the withdrawal of what they take for their own nutriment, or, still more, by the formation of fresh products which are due then to multiplication of these parasites in the wine."

From this it is plain that Pasteur does not teach that the spores or "seeds of disease" are killed by a heat of 140°, as alleged by Mr. Dadant, but that it is the growing microscopic plants which are destroyed by this temperature. The spores of these plants or ferments are air germs, introduced before the wine is put into the casks; like noxious seeds in the soil, they are harmless till they germinate and multiply, which they do by budding and bipartition, no spores being formed while the nutriment in the wine lasts.

Mr. Dadant is not the first who has failed to discriminate between spores and microscopic plants in active growth. Regarding such mistakes, Tyndal writes: "The failure to distinguish between these stubborn germs and the soft and sensitive organisms which spring from them, has been a source of error in writings on biogenesis."

In my article, on page 417, I stated that so far as I then knew the lowest temperature at which the spores of bacillus alvei, when in their most resistant condition, are invariably killed had not been determined, nor has it been so far as I yet know; but I now find that good work has been done in this direction, of which I was not then aware. I am indebted to my friend Dr. P. Burrows, of this place, for calling my attention to Vol. XIII, Papers and Reports of the American Public Health Association. This volume contains the report of Dr. G. M. Sternberg, Chairman of the Committee on Disinfectants.

Under the directions of Dr. Sternberg, experiments were made in the biological laboratory of Johns Hopkins University, Baltimore, to test the effects of chemicals on the spores of several kinds of microbes, including the microbe of foul-brood. Dr. Sternberg himself made experiments to test the effects of heat as a germicide, and in two of his experiments he included the spores of bacillus alvei.

His first experiment showed that the spores of foul-brood were not killed by a 10 minutes' exposure to 176°, nor by an exposure of the same duration to 194°; but it showed that they were killed by an exposure for 10 minutes to 212°. The results of the second experiment showed that the spores of bacillus alvei were not killed by an exposure of 2 minutes to 212°, but that they were killed by an exposure of 4 minutes to that temperature.

Such experiments require costly appliances, a great deal of time, patience, skill, and good judgment. The particulars furnished in Dr. Sternberg's Report on Disinfectants, show that his experiments were conducted with the care

and skill which beget confidence in the accuracy of the results obtained. Although these experiments were made in the interests of sanitary science, bee-keepers are under great obligations to Dr. Sternberg for ascertaining the thermal death point of the spores of bacillus alvei, when exposed to moist heat. I believe Dr. Sternberg is entitled to the credit of priority in determining this point.

Dr. Sternberg says: "It will be understood that the experiments included in this report relate to *moist heat*, that is to say, the test organisms were in fluid cultures, and in a moist condition. The effects of *dry heat* (italics in both cases are mine) on desiccated organisms is quite another matter. This has been studied by Koch and Wolffhuegel, and their results have been given by Dr. Goe. Hohe, in his essay on 'Dry Heat,' in the report of the committee for 1885."

I took the liberty of addressing a letter to Prof. Rohe, explaining the question under discussion, and the ground I had taken, that spores in melted wax are in the position of spores exposed to dry heat, and ask him if he could favor me with a copy of his essay. He very kindly sent me the Report of the Committee on Disinfectants for 1885, containing his essay on "Dry Heat," accompanied by a letter from which I make the following extract:

"Comparing Dr. Sternberg's observation upon the thermal death point of micro-organisms (Public Health, XIII, page 97), I find the resistance of spores of bacillus alvei to be equal to that of B. anthracis and B. tuberculosis, two of our most resistant pathological microbes. Now, Koch and Wolffhuegel showed that a temperature of 248° to 262° F. failed in three hours to destroy the vitality of these organisms. Hence, it seems to me we may extend the same observation to B. alvei. In the absence of direct experiment, it seems to me that your point, *i. e.*, that the heat applied in melted wax is dry heat, is well taken, and I should take your contention as a valid one."

In another series of observations by Koch and Wolffhuegel, it was found that bacillus anthracis was killed by an exposure of 3 hours and 10 minutes to a temperature of 283°. As the result of further observations, they say: "Complete destruction of the spore-bearing organisms did not follow, unless the temperature of 282° had been reached."

Dr. Rohe closes his essay with the following paragraph: "Koch and Wolffhuegel (*Mittheilungen aus dem Kaiserlichen Gesundheitsamte*, page 231) submit the following conclusions, which seem to the writer to be fully justified by the results of their own and other observations here collected." Among the conclusions here referred to by Prof. Rohe, is the following: "Bacillus spores require, for their destruction in hot air, a temperature of 234° F. maintained for 3 hours."

Dr. Sternberg gives a table containing the thermal death point of 37 different micro-organisms, as regards moist heat. The time of exposure required was from 4 to 10 minutes. The lowest temperature required was 122°, and the highest 212°, only five of the organisms requiring the latter temperature for four minutes, and one of these five was bacillus alvei; showing, as Prof. Rohe says, that it is one of the most resistant pathogenic germs known.

From the foregoing I think it is now clear that Mr. Dadant, and others who contend that a temperature of from 140° to 212° is sufficient to sterilize wax, are mistaken. Whether an exposure to, say, 200° for 7 or 8 hours, as in Mr. Hunt's case, is equivalent to 284° for 3 hours, can be only a matter of conjecture in the absence of experiment.

What is required to make sterilization a certainty is a tank having a jacket to which steam, under pressure, can be supplied, the same as is done in packing houses for rendering lard. From all that seems to be known at present, wax kept at from 284° to 290° for 3 hours might be sent out without any qualms of conscience as to its being the means of spreading foul-brood.

I purposed replying to the contention that experience in using foundation proves that it does not spread the disease, and therefore it does not contain live germs of foul-brood, and to show that there is a cause for the partial immunity from the spreading of the disease in this way, which, up to the present, does not seem to have occurred to any of those who have taken issue with me on this subject, but I must not forget Voltaire's remark that the way to be tiresome is to say everything, so for the present I shall "break off."

Lindsay, Ont. F. CORNEIL.

Mr. Dadant says: In the foregoing article, after stating, regarding the report of the experiments made by Dr. G. L. Sternberg, that "the results of the second experiment showed that the spores of bacillus alvei were not killed by an exposure of 2 minutes to 212°, but that they were killed by an exposure of 4 minutes to that temperature," the experiments having been conducted with *moist heat*, and quoting the conclusions of Koch and Wolffhuegel, that "bacillus spores require, for their destruction in hot air, a temperature of 284° F., maintained for 3 hours," Mr. Corneil adds:

"It is now clear that Mr. Dadant, and others, who contend that a temperature of 140° to 212° is sufficient to sterilize wax, are mistaken." And further: "From all that seems to be known at present, wax kept at from 284° to 290° for 3 hours, might be sent out *without any qualms of conscience* (italics are mine) as to its being the means of spreading foul-brood.

In answer, I will say that Mr. Corneil has made a great mistake in thinking that wax melted with water, as we do, is heated in *hot air*. During the melting, and long before the boiling of the water, we see the steam produced passing through the melted wax. Our object in melting wax with water, is to wet all particles of extraneous matter, to get rid of them. These particles, when soaked with water, are heavier than liquid wax, and even the smallest and lightest substances sink to the bottom.

Sometimes we find bits of paper, which, soaked with wax, are so transparent that it seems impossible to separate the two substances, yet when our cakes of wax are cold, we find the paper altogether clear of wax. Suppose that, instead of paper, we have a spore of foul-brood, will this spore remain dryer than the paper? Consequently, we are right when we hold that all the spores of foul-brood are killed by the temperature of boiling water, since we maintain this temperature in our boiler for more than 4 minutes.

Besides, although we have certainly worked wax from foul-broody combs by the thousand pounds, and as our bees, which have free access to our wax bins, and to the barrels in which we put the refuse of our meltings, have never been affected with foul-brood, can we not, without any qualms of conscience, continue to manufacture comb-foundation by the same methods that we have used so far?

In calling our attention to this prejudice, as it is entertained by some bee-keepers, Mr. Corneil has done a service to our community; for it seems that I have well demonstrated that foul-brood cannot be scattered by comb-foundation, as the beeswax is sufficiently heated.

CHAS. DADANT.

Mr. M. H. Hunt sends us the following in reply to Mr. Corneil:

All my beeswax is now refined in a wooden tank, and the steam goes directly into it, which must raise the temperature to a very high point—so much so, that after shutting off the steam the wax will remain liquid all night. It is necessary to have the steam go directly into the wax to heat it above the boiling point. Water cannot be heated above the boiling point, unless it is confined. This great heat kept up through the day, and again remelting the wax to sheet, must, according to Mr. Corneil's own figuring, be all that is necessary to destroy the germs.

M. H. HUNT.

Mr. E. R. Root gives his views of the matter, and replies to Mr. Corneil in the following words:

Mr. Corneil is, I think, magnifying a mole hill into a mountain. All history of foundation making, and its use, is against his argument as above stated. Permit me to say that I have tried the experiment repeatedly, of putting foundation, made from diseased combs, into our hives, and I never noticed any disease that ought to have developed later, according to Mr. Corneil's argument. Has our Canadian friend tried the experiment himself?

In the next to the last paragraph he intimates that the wax should be kept at a temperature of 284° or 290° for *three hours*, before running into foundation. Does not Mr. Corneil know that this would very nearly ruin wax for foundation making? Experiments in our own factory have shown that we could not go much above the boiling point. If I am correct, Mr. Corneil's remedy, then, is beyond the reach of application.

Our friend makes a distinction between dry heat and moist heat for killing germs. I have no doubt he is right; but I somewhat question his grounds, that melted wax has only a dry heat effect upon any possible germs that may be present in it.

I do not say that this *is* so—I simply raise the question. If this is true, it will not disprove the figures which Mr. Corneil gives from the eminent scientists whom he quotes, nor will it prove that foundation may be the means of propagating foul-brood; because, if 211° is sufficient to sterilize wax at a *moist* heat: then we apprehend no danger.

Allow me to repeat, by way of emphasis, that all history of foundation is against Mr. Corneil's position.

ERNEST R. ROOT.

[On page 448, Mr. Corneil approvingly quoted this remark: "An exposure of 1½ hours to a temperature of 212° appeared to be equivalent to an exposure of 15 minutes at 228°"—just one-sixth of the time. The difference between 212° and 257°, the point at which spores are surely killed, is 45°. If that 1½ hours are reduced to one-sixth of that time by the increase of 15° in temperature, then 1½ hours at 212° equals 5 minutes at 257°. And Mr. Corneil affirms that "it has been ascertained that a low

exposure to a lower temperature produced the same effect as an exposure to a higher temperature for a shorter time."

Dr. Sternberg shows that the death point in micro-organisms was from 122° to 212°, and that 5 out of 37 of the strongest of them required 4 minutes of moist heat to cause death, and one of that five was bacillus alvei (foul-brood microbes).

Now, instead of subjecting these microbes for 4 minutes to 222° in making comb-foundation, the wax is held at over 212° for 24 hours, as shown by Mr. Dadant's statement on page 470. Surely, this is more than sufficient to take the life out of even the strongest microbes; as they are for 360 times the length of time exposed to the temperature required to kill "one of the most resistant pathogenic germs known."

There is not, therefore, the slightest excuse for further agitation of the question, or for the suspicion that the use of comb-foundation, when properly made, can possibly aid in spreading the disease —ED. AMERICAN BEE JOURNAL.]

For THE CANADIAN BEE JOURNAL.

Microbes, Ashes, Drugs.

BY ALLAN PRINGLE.

I NOTICE that several writers in the bee journals (among them Prof. Cook,) deny that chilled brood rotted, or brood dead and decomposed from other causes, can cause foul brood. They emphasise the denial, but admit that the rotting brood may be the indirect cause of the foul brood. Prof. Cook, (C. B.J. vol. vii, p. 522), says "chilled brood may open the door for foul brood, but can never cause it." Outside of mathematics and demonstrated science, it is hardly safe to be dogmatic. This is really an open question. There are two theories in the premises. One is that the foul brood spore had but one origin—a creative origin away back in the past—and has ever since propagated its kind; that it is impossible to originate it without a parent spore—that it will propagate itself under certain favorable conditions—one of which is rotting brood in the hive from "chill," or some other cause—that the floating and well nigh omnipresent spore from without must find lodgment in the decaying mass, or there can be no development of spores there. The other theory is that the spore may possibly originate in the rotting mass, and not always be introduced from without. I think both are yet theories. Neither has been demonstrated. The present scientific position on the question is, I venture to assert, just this:—Foul brood is always caused by a microbe—the *bacillus alvei*. This bacillus, so far as science knows, never now originates in decaying brood, or any other kind of decomposition. Unless the spore be introduced from without there will be no origin or multiplication of spores there. This is the scientific position, but it is certainly tentative and hypothetical. Science does not undertake to say that the spontaneous generation of the spore without a progenitor, under all circumstances and conditions, is *impossible*. Science only says that so far as she knows there has been no such spontaneous generation on the earth within the period of her life history—that is, within the period in which life has existed on the earth. It is quite true that the theological scientist, who believes that all living things, including foul brood microbes, small pox microbes, and all manner of parasites and vermin which pest and prey upon humanity, were created specially to increase and multiply, has no hesitation in denying the possibility of the spontaneous generation of anything. But the theological scientist is not to be taken into the account—his dogmatism at any rate. An overwhelming majority of the highest scientific authorities in the world have discarded the theological conception of special creation, and have adopted the philosophy of evolution, which they regard as being as well established by incontrovertible evidence as the law of gravitation or the motion of the earth. It is quite natural that the man who still believes in special creation should deny the possibility of spontaneous generation, either now, or at any time in the world's history.

It seems to me that the safe and reasonable view to take of this matter is this—that while it may be true that the foul brood spore was created originally once for all, or that it spontaneously originated once for all, never to so originate again; it may also be true that if it was possible for it once to originate under certain natural conditions, it is possible for it to so originate again. The facts before us would seem to point to the latter conclusion.

At all events it is practically safe to assume that foul brood may originate in rotting brood in the hive, and then there will be more care exercised to avoid the causes of dead and decaying brood in the hive.

When I commenced to write I intended to say something about ashes as a *packing*, and drugs as *ingesta*, but must defer that till another time.

Selby, Ont., June 22, 1891.

*** Please send us the names of your neighbors who keep bees, that we may forward copies of the BEE JOURNAL to them. **A postal card and five minutes time will do it.**

Taking Sections Out of a super.

DR. C. C. MILLER.

I WILL now describe the plan I have followed for some time, to take single sections out of a T super, without taking the super off the hive. I thought of doing so some time ago, but had about given it up, with the thought that, if followers and wedges in T supers came into general use, there would be no special plan needed. Still, it may be useful to a good many.

You may remember, friend Root, a tool that I took to the convention at Madison, a year ago, and then forgot to show. Well, I send it herewith. I have pulled sections by the thousand with the identical one I send you. I will tell you how to make one. Have your tinner cut a piece of No. 11 wire about a foot long. Straighten it. Bend the wire at right angles about 1 inch from one end. Make another right-angled bend, ¼ of an inch or less, from the same end. (I am not sure which of these bends should be made first). The end of your wire is now shaped like the bottom part of a capital L. But the end is blunt, and must be filed down to a cutting edge like a chisel. Your chisel-edge will, of course, be the size of the thickness of your wire—a little more than ⅛ of an inch.

Now, for a handle. Make a curved bend at the other end of the wire, about 3 inches from the end, so that it shall form a semi-circle at the end, an inch in diameter,. This leaves about 2 inches of the end straight, and I do not know whether it is better to have this 2 inches parallel with the main wire, or to have the end come within ⅝ of the main wire. The bends at both ends are all made in the same plane, so that the hook will lie flat upon a table, without any part projecting upward.

Another tool is needed. Take a common steel table-knife, and make it square across the end by cutting off the rounding part. Make this square end about as sharp as the cutting edge of a table-knife usually is,

Now, we will go to the hive, and I will show you how to pull out any desired section. Take of the cover and give the bees just enough smoke to drive them out of the way a little. There are separators in the super, and on top little separators ¼x⅛ inch, 12 inches long to keep the ends of the sections apart. Now, run the knife across at each end of the section, to loosen the little separator from it. I must confess that I usually use a third tool for this, the big blade of a pocket knife. Run in the case-knife at each side to the bottom of the section, so as to loosen the section from the separators. Put your hook down between the section and separator, and give it a quarter turn, so as to let the hook on the lower end run under the section.

I have a bit of string tied on the wire, to show me when it is pushed just deep enough to turn the hook. If the hook is not in deep enough when turned, of course it will dig into the honey. A ring of bright paint might be better than the string, for it would never slip out of its place. I think you will understand the rest. Like a bureau drawer, it may pull out straight; but very likely it will need starting at each end. When you get the section out, just grasp across it with the thumb and fingers of one hand, and give it a few rapid whirls, and every bee will be thrown off.

Now, that looks like a good deal of fuss to read it, but it does not take as much time as you probably imagine. I think I can take out a single section, or several sections, from a T super in less time—a great deal less time—than out of a wide frame. You see, there is no frame to take out—nothing but the section. In fact, if you loosen the super you will find it much harder to pull the section. Sometimes I have taken out the sections without the hook, merely loosening them with the knife and then pulling them with the fingers; but every now and then the bottom-bar of a section would pull off, and I was glad to go back to the hook.

The objection made by the editor, in the foot-note, is a valid one, that sections left on the hive for a long time will have a soiled, travel-stained, yellow appearance. But they should never be left on after the harvest is over; and in a poor season, when nothing is put in them, I think they come off about as bright as if they had been in a wide frame. You know, the bees do not go into the glue business (at least they do not here) until the white honey season is over. Indeed if you take into consideration the whole surface of a section, or, in other words, its total appearance as viewed by a purchaser, the section out of a T super is the cleaner. In the wide frame, a heavy streak of propolis is crowded in just as far as the bees can push it all around the section. This they have no temptation to do in the T super, for there is no crack.

You say, friend Root, that an enameled cloth can be laid flat on the section tops in wide frames and section holders. I do not see what good it would do in wide frames, for it would

cover only the top-bars, and I am sure it could be put on a T super just as well as on section holders. But do you not know that it would make matters a good deal worse in either case? If you want to see the tops of sections thoroughly daubed with glue, just lay an enameled cloth flat on the harvest. The bees are busy trying to fill up cracks: and as fast as they push in propolis under the cloth, the cloth is raised up, making more space to fill; and if glue is to be found at all, you will find it there in plenty.—*Gleanings.*

Marengo, Ills.

A Letter From Bracebridge.

MR. EDITOR:—It is some time since I wrote to you on bee matters and as Mr. Schulz of Kileworthy keeps you posted with regard to bees in his locality I have not ventured to write lately as we are only 18 or 20 miles apart. A few years ago I would not have believed such a short distance would have made so much difference in the honey flow during the same season, but the last three seasons we have been in Bracebridge, two out of the three have been comparative failures, while Mr. Schulz has had good crops.

When on the farm some 11 miles north of this place we usually had from 50 lbs to 120 lbs of an average surplus, mainly from clover, and very seldom any from basswood, while Mr. Schulz would have little clover, but a good crop of basswood and willow herb honey.

I think the difference was in the land, with us it was sandy, while round Kileworthy it is mostly clay loam. I thought the management might have something to do with it too, till last season about July 15th we had strong colonies that had sections ready to seal get gradually lighter till during August some were almost starving; as far as I can learn all bees in this neighborhood and north were in that condition in August, while south it seems to have been better. Mr. Bull 12 miles south of us and Mr. Schulz secured an average crop. I think we should have fed some to have kept up breeding, but we usually expect a full flow till the first week in September but it did not come last year, and by the time we came back from the Toronto Exhibition it was rather late to stimulate brooding, and we had only time to prepare for winter, when looking them over we found about twenty colonies that had sufficient stores—twenty-five lbs or more, the balance of one hundred and thirty colonies had from five to ten lbs. As I could not afford to feed them, I united them down to eighty and fed granulated sugar syrup for stores, when uniting I first mixed up the bees by shaking them into one hive leaving the queens, and in all cases they seem to have left the most vigorous queen. We winter in cellars and they were rather cooler than usual, but dry. (I may say we never wintered bees better than when we had water running through the cellar all winter). Owing to sickness I did not go into the cellar from Nov. till March, when some of the hives were badly spotted, showing dysentery. As soon as a fine day offered in April, I set out a number from the coldest cellar for a flight, and returned them till pollen should appear. About April 18th we set out all the bees and found fifteen colonies that were not fed in the fall dead from dysentery or starvation, most of them that had been fed showed that those having the largest proportion of sugar syrup were in good condition and only showed dysentery in proportion to the amount of honey they had before feeding. Last fall our bees visited the grocery and candy stores where preserving was being done, and in one case where some plum preserves was put out to cool. the bees took possession and only left the stones. I have little doubt that these things were the cause of dysentery combined, with the low temperature,

Another season, if they gather stuff of that kind I shall take it all away and feed sugar syrup, but as it never occured before it may be some time before it occurs again.

After the bees had their first flight this spring I put them into clean hives. On the S. W. hives, I placed a sawdust division board two inches thick on each side of the combs and a cushion on top of the frames and they have not felt the cold weather. The sawdust division boards are a decided advantage as shown by the queens laying in the combs next to them I adopted that plan out of the many that were given in answer to my query how to prevent spring dwindling in C. B. J. Feb. 15th. But I intend to make double walled hives in the future or make other cases to pack the hives in.

Beekeeping has had a decided set back in the country to the north of us as most that I have heard from report losses of 30 to 50 per cent, several have lost all. R. SMITH.

Bracebridge, June 30th, 91.

We are glad to hear from you again friend Smith. The longer you remain in the bee business the more discoveries you will make. Soil undoubtedly affects honey yield and friend Schulz undoubtedly has a good locality. The basswood trees in his immediate neighborhood, grow in soil where the roots can get abundance of moisture and the abun-

dance of willow herbs within reach of his bees, provides them with an almost unlimited supply of honey. One of the largest yields ever taken in the province was reported from your neighborhood or rather nearer Orillia some years ago —One colony increased to fifteen and gave over 600 pounds of surplus honey, while all the fifteen colonies except one or two had sufficient stores for winter. We have noticed in the locality of Bracebridge, especially on the south side of the river, large quantities of ground or dwarf maple which is an excellent honey bearing plant, it commences about the time fruit bloom is over and usually continues for about three weeks. It is not an unusual occurrence, where bees are strong, for them to store large quantities of honey from it, but it is more frequently the case, that it serves —as a connecting link, between fruit bloom and clover, and keeps bees breeding, to their fullest capacity. Sandy land frequently gives earlier honey than clay, but we have noticed the bees somtimes working much longer on the clay ground, when the season is suitable. Than again we have known the clay ground to be so wet, that the clover, or other honey plants, fail to secrete while the sandy ground gives good returns. On the whole we think it is better, for a person to be in a locality, where the soil is varied. This is more likely to give a permanent yield. The doubling down of bees late in the fall, will very often result in dysentery, before spring, or weak and depopulated swarms in the spring, which is not unfrequently followed by spring dwindling. There is no doubt, that one of the fatal mistakes, that we too frequently make, is not preparing our bees early enough in the season. If every colony was prepared for winter, beforethe 1st of Oct., and those packed outdoors, by the 1st or middle of Sept. there would be fewer dead colonies in the spring.

For THE CANADIAN BEE JOURNAL

Different Thickness of Comb Foundation in Sections.

I HAVE read with interest the answer to the query about united experimentation and the one upon different thicknesses of comb foundation in sections. Unfortunately I have not the copy of C. B. J. to hand, so can only write from a general recollection of the answers given. I may say the reason why the Ontario Agricultural and Experimental Union selected the experiment with different thicknesses of comb foundation was because there are a good many who are using brood foundation to put in the sections, and we thought the results in the experiment would show that heavy foundation is not desirable as generally it remains heavy and the consumer finding such an amount of beeswax amongst the honey would loose the case for comb honey and in such instances a consumer of the article. we are so much interested in be lost. If we have say 100 bee-keepers test the matter and can give the results to the bee-journals, agricultural papers and have them published in one government report, I think it will attract the attention of a certain class of bee-keepers to the matter in a more forcible manner than it has hitherto been presented, very likely our best bee-keepers will say I must have met a very peculiar class of bee-keepers when brood foundation is used in sections, yet there will be many agree with me in this matter.

As to experimental apicultural stations, I must say I favor them,much good work may be done in other branches of agriculture, perhaps in the past the reason they have not done more is because men not practical have been chosen, a notable instance I now recollect is where the gentleman in charge proposed confining the bees to the hives during the season the grapes ripened should it be shown the bees injured the grape.

I look for good results under Prof. Cook at the Mich. Agricultural College.

R. F. HALTERMANN.

Brantford, Ont.

Queen-Excluding Honey-Boards, Etc.

G. M. DOOLITTLE.

ALLOW me, Mr. Editor, to say a few more words relative to Query 767. By the replies to that query I see that some think that not as much honey will be stored above a queen-excluder as there would be if no such honey-board was used. I have very carefully tested this matter, for both comb and extracted honey, and while I can see no difference in the least in regard to comb-honey, I think that I do see a difference as regards extracted-honey, the same being in favor of the excluders—not against them, as some would have it.

Without the excluders, the queen is bound to spread her brood to her utmost capacity, filling not only the lower story, but much of the comb in the upper story as well. This having brood in the combs you wish to extract from is a great

disadvantage in two ways, the first of which is, that you have to handle more combs for the same amount of honey, turn the extractor more carefully so that the unsealed brood may not be thrown out with the honey (thus making a sickish looking mess of the product before it is strained), as well as endangering the life and limb of the queen in getting the bees off the combs; this latter being quite a serious matter, according to my experience.

Then, again, the bee-escape boards are of no use in freeing the combs of bees where the queen is in the upper story, for the bees will not go below and leave her, no matter how good the escape is. Also, the queen will lay the given number of eggs which nature has prepared her to lay, much sooner than she otherwise would, so that the queen arrives at old age, and must be superseded much oftener than is necessary; and all for what? This brings us to the second disadvantage (which the reader probably has already divined), which is that nine times out of ten this brood is only reared at our loss.

Where the queen has access to the whole amount of room given, she increases her egg laying on the arrival of the honey harvest until she often has brood in every frame used. This brood requires much of the honey brought in from the field to rear it, and, as I said before, nine times out of ten arrives on the stage of action as mature bees, just in time to become consumers instead of producers, thus taking a large part of our honey crop, not only in the brood stage, but in the adult as well.

How often have I seen hives black with bees during the month of August, when there was no honey in the fields to gather by these supernumerary bees, which are hanging on the outside, in perfect idleness day after day. Far better that they had not been reared, for they have not added a single ounce to our crop of honey, but, on the contrary, have consumed pounds of what we might have head.

Now, the queen-excluders give us the privilege of determining just how much brood may be reared after the harvest of honey commences, and the wisest apiarist will place the amount at the point which will allow him bees enough to secure all subsequent crops for that year; for, as a rule, none of the eggs laid by the queen after a honey harvest commences, will be of any direct use in securing the honey from the bloom of the kind of flowers which are yielding honey at that time, for it takes 37 days from the time the egg is laid until the bee goes into the field as a laborer, where a colony is in a normal condition; while no flora, here at the North with which I am acquainted, gives a continuous yield of honey for that length of time. Inasmuch as the perforated zinc allows us to adapt the number of laborers to the capacity of our field, I consider it one of the greatest inventions of the age; especially so, as it in no way hinders the work in the surplus apartment, no matter whether we are working for comb or extracted honey.

WHY BEES CLUSTER.

On page 680 I see that Prof. Cook "supposed it settled" that bees always have a home selected when they swarm, and cluster so that the queen may rest her wings, which are unused to flying. No, no, Professor; if such were the fact, why do not the bees go at once to their home, instead of going about the country for days before entering that home, as they are often known to do?

While I fully agree with you that bees "sometimes" have a home picked out before they leave the hive, yet I "guess" you are wrong in supposing that they do always; for I believe that more swarms do not *thus* have a home selected than do, and I will proceed to give the reasons why I believe my guess to be nearer right than yours: In the first place, I have known of very many swarms which have settled "for the queen to rest her wings," and before the one intending to hive them had all in readiness, they "went off"—not to their home which they had selected, but from half a mile to two miles, where they clustered again; not to allow the queen to rest her wings, but for the swarm to send out scouts in this new locality to see if a home could not be found—and in one instance the proof is pretty conclusive that this moving was kept up for a week.

Another thing, which I consider still better proof, is the fact, as I believe it to be, that when bees have a home selected before they swarm, all of the bees go to that home after the swarm starts from the limb—when the queen has become rested, according to the Professor—so that no bees are left hanging about the limb afterward, as is the case where no home is selected, and scouts are sent out to find one.

Who has not noticed from six to fifty bees around a limb on which a swarm has clustered for an hour or more, and then been hived, flying about and alighting on the same for from one to three days afterward, apparently homeless wanderers? These, I claim, are the scouts which have returned to find the swarm gone. I wish to thank the Professor for giving me credit for general correctness along the bee line, the same being more than I deserve; but on this point I am not willing to take a back seat yet, as he will see by the above.

Borodino, N. S.

CAPPINGS.

CUT FROM A VARIETY OF COMBS

Fruit-Growers and the Honey Bee.

From a paper laid before the Illinois Legislature, entitled—"Facts concerning Bee-Keeping," we clip the following from the pen of Prof. Cook, which relates to the benefits derived by fruit-growers from the honey bee :—

"The bees are of signal benefit to the fruit-growers, and so every fruit-grower should, on selfish grounds, protect, rather than injure or destroy bees. That bees secure better crops is as certain as any fact in science. The fruit-grower should desire that bees swarm in his fruit trees during the blooming season."

Our scientists are recognizing this important truth, that it is essential for our orchards, during the time of their bloom, to "literally swarm with bees," to realize a bountiful yield of fruit, and our wide awake horticulturist is becoming convinced of this fact, and is co-operating with the bee-keeper in this important work.

The time is not far distant when the established horticulturist will likewise become an apiarist, or will have an apiary established in the midst of his orchards, and thus, while performing an essential part towards the proper fertilization of the fruit bloom and seed product, he is assisting in the production of a sweet that is fit for the gods—honey! Delicious honey! "Not made, but gathered from the nectar of flowers, which is secreted according to the rules of Nature's laboratory."

And now, as to the future possibilities of bee-culture. I believe that if it were possible to gather the sweets from the flora, of the State of Illinois, that are yearly lost, we could nearly or quite double the record given in our census reports of the product of the entire United States. Bee-culture, under modern, improved methods, is making long strides in this direction.

I have produced 15,000 pounds of honey from 18 square miles of territory, and within the borders of this territory were more colonies of bees belonging to other parties than the number under my supervision.

We have in the State of Illinois 56,000 square miles of territory, not including, of course, the lakes and rivers. Within the borders of the 18 square miles previously referred to, is a lake 4 miles long by from ¼ to ½ mile wide. If you will compute this amount, at the rate of 15.000 pounds of honey to every 18 square miles of tertory, you will have the neat little sum of 46,665,000 pounds of honey for the State of Illinois.

The census of 1890 gives the total product of the entire United States and territories as 25,743,208 pounds. That of the State of Illinois alone was 1,005,689 pounds. From this you can base your calculations as to the undeveloped condition of the bee industry, and the importance we could attain in this direction by developing the same.

We believe that we are entitled to some recognition from our law makers, and we believe that if you will grant us the small amount asked for as an appropriation to enable us to publish our reports, encourage the industry, increase our wealth, and rebound two fold to the good of our fellow men.

Remember, we are not only an essential adjunct to the fruit and seed growers of the country, but we are storing a sweet that would otherwise be lost; hence, our product is that much saved from the economy of Nature. We occupy no territory, and do not interfere with any other pursuit or industry."

BEES AND MULES.

Richard Emery's mule kicked over a hive of bees belonging to A. J. Price. The bees became enraged, and stung the mules until they could kick no longer. The bees then took possession of the highway between here and Saylor Springs, and caused the team of Henry Pain, living north of here, to run away. Traffic is now stopped on the road at this point, and hacks are compelled to go a long distance around to reach here from Saylor Springs. Mrs. Anderson had to have the bees literally raked off of her. Several children were stung to such an extent that they are in a critical condition.

Clay City, Ill.

After reading the above despatch in the daily papers we wondered if some one became jealous of Prof. Wylie, of the Wylie lie notoriety, and desired to win the championship. If this yarn was not gotten up by Wylie, he should bring an action against the author. We are surprised that any editor would publish it as a fact, when it seems too ridiculous for even the most gullible to believe. Bees only defend their stores, and resent insults. They neither take charge of, nor block up highways, and we think the biggest mule in connection with this yarn is the one who manufactured it.

CONGRATULATIONS TO A BEE KEEPER.

The *British Bee Journal* commenting on the recent marriage of Mr. James Andrews Abbot, of Dublin, to Miss Price, of Robertstown, Co. Kildare, Ireland, which took place on the 26th May, says :—

Few bee-keepers were more actively engaged in the work of publicly furthering and teaching the "art of modern bee-keeping," a few years ago than Mr. James Abbot, (or "Jim Abbot," as he would insist on being designated by his friends), and we know of no one man more deservedly popular. By his modest and genial bearing he was—and we hope still is—a favorite everywhere, and it has been a mystery to us how such a good fellow managed to remain a bachelor for so long; and now that a "daughter of Erin" has removed that "fault" from his character, we are sure that his troop of friends, who are readers of the *Bee Journal* in congratulating him will cordially wish long life and happiness to James Abbot and his good wife."

We also extend the congratulations of ourselves and friends to friend Abbot, and bespeak for him a successful, prolonged and happy future.

Queries and Replies

UNDER THIS HEAD will appear Questions which have been asked, and replied to, by prominent and practical bee-keepers—also by the Editor. Only questions of importance should be asked in this Department, and such questions are requested from everyone. As these questions have to be put into type, sent out for answers, and the replies all awaited for, it will take some time in each case to have the answers appear.

Could Sanfoin be Cultivated in Canada.

QUERY No. 303.—Great yields of excellent honey are secured in Switzerland and Berne from Sanfoine. Could this be cultivated in Canada as an agricultural crop and a honey crop?—A. C.

ALLEN PRINGLE, SELBY, Ont.—Doubtful.

C. W. POST, MURRAY.—I know nothing about Sanfoine.

J. K. DARLING, ALMONTE.—I know nothing about it.

G. A. DEADMAN, BRUSSELS.—I have no knowledge of Sanfoine.

H. D. CUTTING, CLINTON, MICH.—This is something I know nothing about.

J. E. POND, NORTH ATTLEBORO, MASS.—I have not sufficient knowlege to form a belief.

G. M. DOOLITTLE, BORODINO, N. Y.—I don't know. Try it and report.

JAS. HEDDON, DOWAGIAC, MICH.—Now you have "batted me out the box." I am "not in it." Could'nt even guess.

PROF. A. J. COOK, LANSING MICH.—I have tried Sanfoine here in a small way, and it was not at all equal, either to white or alsike clover. I think the same would be true of Canada.

G. W. DEMAREE, CHRISTIANBURG, KY.—I don't know. Honey plants are very uncertain, when moved from their native soil and climat. In fact very few honey plants yield nectar uniformely over any very great scope of country. Still it would be interesting to try the plant you mention.

J. F. DUNN, RIDGEWAY, ONT.—Sanfoine belongs to the order Leguminosae as do all the clovers, and although its native home is in Asia and Europe it would undoubtedly flourish in this country. Why not sow alfalfa? There is some near here and the bees are busy on it. It makes good hay too.

A Non-Swarming System Wanted.

QUERY No. 304.—Is there any non-swarming system sufficiently reliable to admit an out-apiary without a constant attendant? If so, what?—J. D.

H. D. CUTTING, CLINTON.—There may be one, but I have not "got on to it as yet."

EUGENE SECOR, FOREST CITY, IOWA.—Possibly, but I do not know which one to recommend.

G. M. DOOLITTLE, BORODINO, N. Y.—For extracted honey yes. For section honey, not any that I know of.

J. E. POND, NORTH ATTLEBORO, MASS.—Use a reliable queen excluder. One that will hold the queen, and allow the bees to pass freely. The "alley excluder" has worked well with myself.

C. W. POST, MURRAY.—The querist does not say whether for comb or extracted honey. For extracted honey. I say yes. Give plenty of good clean empty combs with proper ventilation. For comb honey I think the revolving stands would succeed.

J. K. DARLING, ALMONTE—Have had no experience, have not heard of any, I would adopt as "reliable" until I had tested them for myself. A system that would be quite satisfactory one season might prove an entire failure another season, or under different circumstances.

PROF. A. J. COOK, LANSING, MICH.—No not without it is a queen trap at front of hive, and then the apiary must be visited as often as once a week. Clipping the queens wings, and weekly visits will give fairly good results, if the apiarist knows well his business.

ALLEN PRINGLE, SELBY, ONT.—If properly managed the attendant can be dispensed with except for occasional or periodical visits. To fully set forth the requisite management would require considerable time and space. The two main essentials are abundance of room and ventilation *given in time*.

J. F. DUNN, RIDGEWAY—Well—with a 10 frame brood chamber and all the combe I could use in top stories, I would not be afraid to try it—The top extra stories should however be put on just at the right time—that would be before the honey is capped, and yes before the combs already on are more than ⅞ full.

JAS. HEDDON, DOWAGIAC, MICH.—I believe I am developing a practical system of this kind, with the use of the new hive based on the simultaneous alternation and in version of the divisible brood-chambers. It will be practical because not a frame has to be moved, nor even looked at; So while the change is radical, the work is almost instantly accomplished. It will be the first practical non-swarming System.

G. W. DEMAREE, CHRISTIANBURG, KY.—I

think I am perfectly safe in answering no. Bees may be kept in some fashion without a constant attendant, but to manage them properly, they need constant attention in swarming time. Clipping the wings of the queens will prevent prime swarms, but the bees will supercide the queen if she proves unable to go with the swarm, and then a worse state of things follows to wit: a lot of improfitable often swarms. The queen traps work no better. These persons who succeed with bees give them constant attention and always find enough to do.

SELECTIONS.

A Curosity.

W. H. LAWS—I have a curiosity to report, one that I have never heard or read of, and I have been a close reader of the journals, for years. It is this:—A frame of sealed honey was placed next a frame of brood, but by accident was left too far spaced, the colony being cramped for room, and instead of building new combs had built cells by lengthening those on top of sealed honey, and the queen had therein deposited eggs, and when discovered, there was brood in nearly every stage of development, I remember having read of honey on top of sealed honey, but not brood. Bees are booming, one hundred colonies have increased to one hundred and forty—Took 1,100 lbs honey the past week. Nice honey extracted is in demand in my home market at 15c. I will say that I have shipped the present season 307 queens and have orders for 75 more, which will all go the present week. Canada has given me orders for 72. Thanks for the C. B. Journal as I find it a good advertising medium.

Lavaca, Ark.

REPORT FROM BURLEIGH TOWNSHIP.

CHAS. HALES.—About the fall of 1887 I bought three colonirs of bees, and left them with the person from whom I bought them until the spring of '89, when they had made an increase of one, which made me four, one of which was dead, one queenless, two were good, and I lost one in moving. I started that spring with one good strong colony, and one queenless. I gave the queenless one a frame of brood and eggs, and increased to five, but in the fall found two queenless. I put in winter quarters (a dark garret) three good strong colonies. I get about 200 lbs. of honey. In the spring of 1890 I bought three colonies, and started with six good and strong. I spent some $70 for hives, bees and fixtures, such as cans, extracter, &c.,; fed 70lbs. of sugar, and got about the same amonnt of honey that I fed of sugar. My bees increased from six to nineteen, but honey being scarce they stopped breeding. About the 1st October I put the whole lot into five hives, fed them, and stowed them away in the garret about ist Nov. On March 26th I set them out for a fly, they appeared stronger than in the fall, two had brood and eggs. I put them back in the garret till April 20th when I set them on their summer stand in fine condition and pretty strong. I never saw bees work better than they have all spring when they could get out, but it has been so cold a great dal of the time that the bees could not fly. They are pretty strong and in good condition. They have plenty of honey for brood rearing. Dandelion is in full bloom, but the season for it is far advanced. In this section we have basswood, goldenrod, aster, white clover, besides raspberries, wild cherry, and various other honey-producing plants, but the year 1890 was a total failure here in regard to honey. If the weather keeps fine, and the honey flow keeps up, I will expect swarms in a few days, as they are pretty well packed in the hives. For the last two winters I have lost none.

Burleigh Township.

CHLOROFORM FOR RESTRICTING INCREASE.

W. H. Kirby, Being away from home, I do not know much about what is transpiring in the Apicultural world as I do not get the Journal, I am told that there is a pretty sassy letter from you awaiting me on my arrival home at Oshawa: I am also told, that Mr. G. M. Doolittle in an answer to a query, states that he thought the Kirby theory was dead; what this has to do with the question asked, I cannot conceive. He may have stated this for a jest, or for the purpose of reviving it again, or for some reason that I do not know, and care as little about. I suppose Mr. D. alludes to a theory that I advanced two or three years ago, in the Canadian Honey Producer" re the prevention of increase while working for comb honey, by the use of Chloroform.

Permit me to inform Mr. D. that my theory is not dead yet, but simply sleeping, resting peacefully beneath the fostering care of the "Ontario Experimental Union," a combination that was formed for the purose of acquiring cheap information and diserninating it broadcast throughout the land. It was composed largely of one who would be an illustrious apairist (who often writes useless articles for the bee papers,)and some nobodys else's, that I could hear tell of!

Mr. Editor you must recollect the announcement appeared in the "C.B.J." as well as in the "C.H.P." at that time that some pointers and some drops of chloroform were sent out to whoever wanted to experiment, and reports were to be sent in at the close of the season, and the results made known through the journals, if any reports ever came in, the illustrious secretary has not announced them to the public. I suppose he is busy preparing another letter for your paper, to let us know that comb honey is very scarce, and that we had better hold for a high price.

That the restruction of increase with chloroform, while working for comb honey, can be accomplished I know to be a fact, but would not advise it, for the reason that far better results can be obtained by allowing one swarm.

My bees wintered firstrate, I packed sixty one colonies in their summer stands, four of which early became defunct through queenlessness. This has been a very poor spring for bees, and swarming will be late, the indications at present are not a very big crop of honey, which may help to elevate the price, it being very low around Oshawa and Toronto, first class comb honey was sold at those places last winter, as low as 10½ cts. per lb., which was very discouraging.

Newmarket, June 20th, 61.

THE CANADIAN BEE JOURNAL

ISSUED 1ST AND 15TH OF EACH MONTH.

D. A. JONES, - - EDITOR-IN-CHIEF.
F. H. MACPHERSON, - ASSOCIATE EDITOR.

BEETON, ONTARIO, JULY 1ST, 1891.

Hot water or steam applied to wood zinc queen excluding honey boards to clean burr combs, or propollis is so quickly and easily done, that it is not worth while spending much time hunting for any other method.

We have received several lots of wax with no name attached, and consequently we do not know who to credit it to. If our friends will be more careful in this matter and put there name on or in the parcel, with the weight of the package, it will be a great assistance to us, and save much disappointment.

Friend Newman gives the World's Fair at Chicago considerable prominence in the A. B. J. We have no doubt but that it will be a great success, and the bee-keepers should leave no stone unturned to make their department more attractive, if possible, than any other.

We are sorry that the last few JOURNALS have been so late in getting out, but unavoidable circumstances have kept us back with our work. We hope our friends will bear with us as we are doing our best to catch up.

We are having an abundance of rain, in fact for the last two days it has been raining almost constantly, or rather the showers are so frequent, that it is hardly worth while stopping to commence again, and it sometimes rains so heavily for an hour or more, that the water just runs in creeks, on top of the ground. This may not affect sandy land and may perhaps be a benefit, but we fear if it does not fair up soon, there will be altogether two much rain for the crop of clover honey. Probably what we lose in the clover will be gained in the bass wood, as plenty of rain indicates a larger yield of bass wood honey. In fact we have very strong proof, that one of the causes of failure or partial failure in the bass wood honey crop, for the last few years, has been the want of rain. We well recollect three years ago, when the bass wood was not yielding one drop of honey on the dry lands, seeing the bees fairly swarming on the limbs of a tree standing on the edge of a stream with the limbs very low, almost touching the water, while dozens of trees, not ten rods from it up on the hill, were without a single bee. Several years ago a friend of ours secured a large crop of basswood honey, from trees that stood in wet land, while all his neighbors, who kept bees and had not the advantage of the moist soil for their basswood, lost the crop. If we remember correctly it was friend McKnight, a few years ago, who secured 68 lbs. to the colony in seven or eight days, during a short basswood flow, where the trees stood on wet land, while many others more favorably situated for basswood in wet seasons got little or none. We might fill a Journal with proofs or instances, of large yields from basswood growing along streams, and in wet localities, while on higher and dryer ground, they gave no honey at all. Will our bee friends make a note of the above facts and see if it will not enable us to judge pretty correctly of the basswood yield, before or as soon as the trees bloom.

It appears the bee-keepers of the United States are determined to make the bee and honey show, a success, at the World's Fair, Chicago. Everything is being prepared on a large scale, and some of our bee friends, should try and get up a colony with 1000 lbs. of honey, of its own gathering for one season, and have it on exhibition. While in London, Eng., we were shown a super, that took 1st prize at their Exhibition. It weighed about 120 lbs. Mr. Geo. Neighbor, who showed it, and kept it on exhibition to show what our English friends could do, seemed very proud of it, and it certainly was a very handsome package of honey, but while it was large and handsome, it was not marketable. Would it not be a good idea, for some of our bee friends to try section honey, the ordinary thickness, of worker and drone comb. If section honey was to be sold by the piece instead of the pound, there would be more section honey produced less than 1½ inches than more, as the ordinary thickness of worker or drone comb, will be filled and capped off, in less time than thick heavy combs, and we believe with right management, that the bees will store and cap about as much honey in thin combs, as thick ones, unless they are given more room than they usually are, in the production of section honey. We have frequently known bees to lose much time in evaporating their honey in thick combs. While the weather is very dry and the honey thick, this is not so apparent, but during a season, when the weather is damp and wet, the honey is thin with very thick combs and it will be found that the honey is thinner in the

thick combs, than it is in the thin one. Besides the flavor of it is not as fine, unless well evaporated. The better honey is evaporated, the thicker, richer and finer the flavor.

The other day in walking through our home yard, we found two colonies of bees, clustered on two separate limbs. We knew they could not have been there very long, as they were not at all wet, and a heavy shower had just passed over about an hour before. After a heavy thunder shower, bees are less liable to swarm, than they are when there has been no thunder. We have frequently noticed that as soon as the sun began to shine after a shower, when there was little or no thunder, that a swarm would issue, but very seldom after a severe storm, until one or two hours. Whether the noise or jar has anything to do with it, we are unable to say, perhaps they become somewhat frightened and disorganized, and we have sometimes wondered whether heavy thunder would not cause the bees to fill themselves with honey, and have somewhat of the effect of rapping on the hive, or smoking them.

Spraying fruit trees when in bloom, is considered an unwise and useless operation by many, but after the bloom drops off, the spraying is then considered of some value, and no danger of poisoning bees.

Queen excluding zinc is becoming more popular every day, and although it found little favor when we first introduced it to the beekeepers of America, we believe they are beginning to see the great benefit they are deriving from it, and it has come to stay.

Some claim that Mr. Gibbons Bee Escape, does not give good results. There are circumstances, under which nothing would give satisfaction to the operator, and then again, there are some, who perhaps do not use them in the best way to have the most satisfactory results, but we think the Porter Bee Escape, is the best yet invented.

Reports from many quarters indicate large increase this year, that is owing to the wet season causing the honey to be thin, which tends to induce the bees to breed, and yet not store sufficient honey to narrow down the brood chamber.

The low price we are offering our honey glasses at, is making them go like hot cakes, at the present rate orders arecoming in, our entire stock will soon be cleaned out.

Force pumps and cold water for spraying bees, in hiving robbing absconding swarms, and the various manipulations, has come to stay, and the longer our friends do without the force pumps, the longer they are behind the times.

A great many people, taking comb honey this year, from newly hived swarms, are using narrow strips of foundation with profit.

PASTE TO STICK TO TIN.

Dr. J. W. Vance, in *Wisconsin Farmer* advises the use of honey in paste to make it stick well. He says:—

"I have found it very difficult to get labels to stick to tin; have tried many sorts of pastes, but not until recently have I found out how to make a paste that is sure to stick. It seems strange to me that I should have been trying so long different recipes without it once occurring to me to add a little honey to the paste or mucilage. Since I have added honey the labels stick well to tin boxes.

I have made a paste as follows: Corn starch, one ounce; water, one-half pint; boil a few minutes, stirring until it thickens slightly, then add two ounces of extracted honey, and mix well. Keep in a cool place. I keep mine in my ice chest.

TABLE OF CONTENTS.

BEES.

MENTION this Journal if you are writing about anything advertised in its columns.

WAX FOR SALE—100 lbs. good clean wax. No sediment. Offers solicited. J. H. MANNING, Tyrone P. O., Ont.

FOR SALE—100 Brood Foundation 10½ x 12½, 45 c. per lb. F. O. B. here. Cash with order. Lindsay Poultry Farm and Apiary, Lindsay, Ont.

WE have about 75,000 more sections on hand of the 2nd quality, which we will sell for $1.25 retail. Large discounts for will be given agents. D.A.JONES Co. Beeton.

ITALIAN Bees and Queens for sale. Comb foundation a specialty. Agent for the D. A. Jones Co supplies. Bees wax wanted. Ship either by G. T. R. or C. P. R. H. COUSE, Cheltenham

1,000 LBS. OF BEES, at $1.00 per lb. 5 colonies of bees for sale. Comb foundation and sections and everything you want cheap. Send for price list. J. A. Foster, Tilbury Centre, Ont.

BEES, BEES, yes all the bees you want, 2000 lbs. for sale, also Queens, Root's Comb Foundation, Honey Extractors, Sections, Hives, and all kinds of supplies at rock bottom prices. Send for price list for 1891 now out. PETER BUSSEY, Cottam, Ont.

BEE-SUPPLIES—No. 3 Honey Knife, 85c. Very large stock just to hand. Bee Veils, can ship in quantity by return mail. Second hand Jones and Combination hives, used from one to three years. Write for special quotations. D. A. JONES Co., Beeton.

JUNE 1ST.—Orders booked now to ship June 1st or after. Tested Italian Queens, under 1 year, $1.25; under 2 years, $1.00; selected stock. Order now. G. A. DEADMAN, Druggist & Apiarist, Brussels, Ontario.

FOR SALE OR EXCHANGE—For anything I can use about one hundred empty bee hives, very superior to any in this country for storing honey and bees, glass boxes, sundries, etc., etc. Also a first class patent incubator by the very best maker, cost $40, capacity, 200 eggs; also brooder, capacity, 300 chicks. The above have only been in use one season. WM. SNELGROVE, Woodstock, Ont.

Comb Foundation Free !

THE MEMBERS OF THE

Ontario Agricultural & Experimental Union

wish to secure the co-operation of some of our Canadian Bee-Keepers in conducting an experiment with different weights of Comb Foundation in sections; to note extent to which bees thin it out, and difference in thinning out of base in these varieties. Until the supply is exhausted three thicknesses will be sent free of charge by mail. These are inserted in sections and results noted according to instructions which are very simple. Address

R. F. HOLTERMANN,
Brantford, Ont.

POULTRY

FOR SALE—Pekin Duck Eggs, only $1.00 per setting. Packed carefully. Address. J. A. GUTTIN, Owen Sound, Ont.

A FEW Silver Laced Wyandotte Cockerels for sale from American prize winning birds. Eggs for hatching in season. W. J. O'NEAIL, Paris, Ont

R. BLOYE, Todmorden, has eggs for hatching from grand pens of White Wyandottes (Knapp) White Plymouth Rocks (Empire) and White Javas at $2 per 13. Pekin duck eggs, $1 per 12. Correspondence a pleasure.

FOR SALE—Four White Leghorn Cockerels, scoring from 92½ to 95½; 4 Black Leghorn Cockerels, scoring from 92 to 95½ by Smelt and Jarvis; 3 Black Minorca Cockerels, Pickuell's strain, also one pair of White Bearded Poland Chicks. I guarantee satisfaction. JOHN PLETSCH, Shakespeare, Ont.

FOR SALE—My entire stock of Black Leghorns, one Cock, 3 Cockerels 10 Pullets and four hens, for twenty dollars, with following score cards, Cock, 95, Cockerels, 95½, 95 92½, hens, 93½, 94, 95 1/2, 93. Pullets from 94 to 96. Have to sell for want of room. Eggs from White and Brown Leghorns and Black Minorcas for $2 per setting. JOHN PLETSCH, Shakespeare, Ont.

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A RARE CHANCE

For anyone desiring to make a start in breeding fine poultry, or anyone wanting a good start with one breed. I have to sell my entire stock of

PARTRIDGE COCHINS

on account of my intention to keep only Wyandottes in future. My Cochins are second to none. Cock scored 94, one hen 94½; Cock won as Cockerel last winter 2nd at Brampton, only time shown, and is now a magnificent bird. I have Cock, 2 Hens, 4 Cockerels, 13 Pullets, 4 Cockerels and 5 Pullets early March hatch and are fine in feather; the other 8 Pullets are early April hatch. I prefer selling the lot together; 20 birds in all, for $30, or part cash and part trade for anything useful. I will ship on approval to any responsible buyer and guarantee satisfaction.

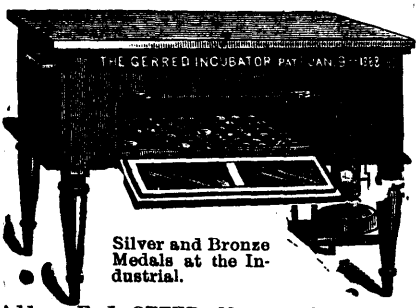
JOHN GRAY, TODMORDEN, ONTARIO.

The above is a good snap for some one.

I CURE FITS!

THOUSANDS OF BOTTLES GIVEN AWAY YEARLY.

When I say **Cure** I do not mean merely to stop them for a time, and then have them return again. **I MEAN A RADICAL CURE.** I have made the disease of **Fits, Epilepsy or Falling Sickness** a life-long study. I **warrant** my remedy to **Cure** the worst cases. Because others have failed is no reason for not now receiving a cure. Send at once for a treatise and a **Free Bottle** of my **Infallible Remedy.** Give Express and Post Office. It costs you nothing for a trial, and it will cure you. Address:—**H. G. ROOT, M.C., Branch Office, 186 WEST ADELAIDE STREET, TORONTO.**



Silver and Bronze Medals at the Industrial.

All sizes, 50, 100 and 200 egg machines. Send for descriptive circular. MENTION THIS JOURNAL.

Address E. J. OTTER, Manager, Gerred Incubator Co., 90 De Grassi street, Toronto.

EGGS, $1.00 for 13.

Light Brahmas—Six yards. Fletcher, Duke of York, Williams and Bucknam strains
Dark Brahmas—Three yards. Mansfield and Bucknam strains
White Cochins—Two yards. Lovell strain
Partridge Cochins—Three Yards. Williams, Booth and Washington strains.
Buff Cochins—Three yards. Gold Dust strain
Black Cochins—Two Yards Williams strain
Langshans—Three yards Croad strain
White Plymouth Rocks—Four yards
White Wyandottes—Two yards
Silver Wyandottes...Two yards
Barred Plymouth Rocks...Twelve yards. Drake Upham and Corbin strains
Houdans—Two yards Pinckney strain
White-Faced Black Spanish—Two yards McMillan and McKinstry strains
Rose-Comb Brown Leghorns...Two yards Forbes strain
Rose-Comb White Leghorns...Two yards Forbes strain
Single Comb White Leghorns...One yard
Single Comb Brown Leghorns...Two yards Bonney strain

I make a specialty of furnishing eggs in large quantities for incubators at reduced rates. Send for 1890 catalogue.

E. H. MOORE, Melrose, Mass.

MENTION THIS JOURNAL.

CLAMPS FOR SPRING PACKING.

All practical Beekeepers concur in the opinion that bees wintered in the cellar, should be packed on their own stands in spring, to keep them in the best condition. We are making a light clamp specially designed for this purpose.

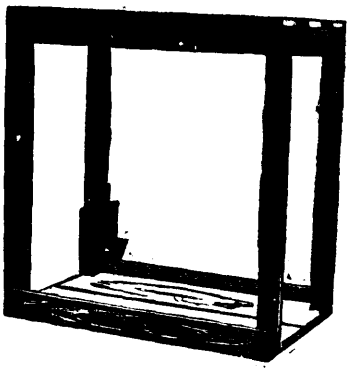
This clamp consists of a bottom board of ⅜ in. lumber to cross pieces 7/8 x 3 in. to set hive on to allow of packing under; the four wall and a bevelled rim to cover the packing above, arranged so as to allow of using the ordinary lid of hive for cover. To be used with 4 inches of sawdust or chaff, and will be in sizes to suit the Jones Combination or Langstroth hives, at the ollowing figures :—

Each	5	10	25	100
75	70	67	63	60

They will be shipped in panels, ready to nail together.

D. A. JONES CO. LD.

BEETON, ONT.



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Save money in express charges by buying light, well made coops--weigh only 5½ lbs.

We keep in stock one size only, 20 in. x 13 in. x 20 in for pairs or light trios.

PRICES MADE UP.

	Each	10	25	100
Skeletons, only,	30c.	$2.75	$6.25	$23.50
With Canvas,	40c.	3.75	8.50	30.00

PRICE IN FLAT.

Skeletons, only,	50c.	2.50	5.60	18.00

Name and address printed on canvas 5c. each extra. $3.00 per 100.

For Exhibition purposes, where coops are not furnished by the Fair Associations, strips are supplied which are tacked on one side of coop, at 4c. per coop.

OTHER SIZES.

We make coops in any size desired, and shall, at all times, be prepared to quote prices. In asking for estimates please give size and number wanted.

DRINKING FOUNTAINS.

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