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THE CANADIAN BEE JOURNAL

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

VOL. VII, No. 16. BEETON, ONT., NOV. 15, 1891. WHOLE No. 298

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 | \$4.50 | \$6.00 | \$8.00 | \$10.00 |
| 3 months..... | 3 00 | 4 50 | 6 50 | 8 50 | 11 00 | 17 00 |
| 6 months..... | 4 00 | 5 50 | 7 00 | 9 00 | 15 00 | 25 00 |
| 9 months..... | 6 00 | 9 00 | 12 00 | 15 00 | 21 00 | 40 00 |
| 12 months..... | 10 00 | 15 00 | 21 00 | 25 00 | 40 00 | 75 00 |

Breeders' Illustrated Directory.

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

Condensed Directory.

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

Transient Advertisements.

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 eleven lines to the inch, and about nine words to each line.

Exchange and Mart.

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 column. 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. Oa. h must accompany advt. Five insertions without charge, \$1.

STRICTLY CASH IN ADVANCE

Contract advertisements may be changed to suit the seasons. Transient advertisements inserted will 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 everyone, 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.

ADVERTISEMENTS.

The Wide Awake Bee-Keeper

Who reads the BEE-KEEPERS'S REVIEW one year, or even a few months, is almost certain to become a regular subscriber. As an inducement to non-subscribers to thus become acquainted with the REVIEW, I will send it during the three succeeding months for 20 cents in stamps, and I will also send three back numbers, selecting those of which I happen to have the most, but

of different issues. A list of all the special topics that have been discussed, the numbers in which they may be found, and the price of each will also be sent. Remember the Review has been enlarged, a beautiful cover added, and the price raised to \$1.00 W. E. Hutchison, Flint, Michigan.

Muth's Honey Extractor.

Perfection Cold Blast Smokers, Square Glass Honey Jars, etc. Send ten cents for "Practical Hints to Bee-Keepers." For circulars apply

CHAS. F. MUTH & SON,

or, Freeman & Central Avenues, Cincinnati



BEES AND HONEY

The Dovesailed Strongest, Best and Cheapest BEE-HIVE for all purposes. Please everybody. Send four address to the Largest Bee-Hive Factory in the World for sample copy of Cleanings in Bee Culture (a \$1 illustrated semi-monthly), and a 44 p. illustrated catalogue of Bee-Keepers' Supplies. Our A B C of Bee Culture is a cyclopedia of 400 pp., 6x10, and 300 cuts. Price in cloth, \$1.25. *U. S. Mention this paper.* A. I. ROOT, Medina, O.

ALLEY'S IMPROVED AUTOMATIC

SWARM HIVER

Thoroughly tested and guaranteed to SELF HIVE every swarm that issues. Sample by mail for \$1.00. American Apiculturist one year and swarmer by mail \$1.50. Sample Apiculturist giving full illustrated description of Swarmer free.

H. ALLEY, Wenham, Mass.

Michigan Lands For Sale ! 12,000 ACRES GOOD FARMING LAND

—TITLE PERFECT—

On Michigan Cen and Detroit & Alpena and Loop Lake Railroads, at prices from \$2 to \$5 per acre. These lands are close to enterprising new towns, churches, schools, etc., and will be sold on most favorable terms. Apply to R. M. PIERCE, West Bay City, or to J. W. CURTIS, Whittemore, Michigan

BARNES' FOOT-POWER MACHINERY



Read what J. J. Parent, of Charlton, N. Y., says—"we cut with one of your Combined Machines, last winter 50 chaff hives with 7 inc cap. 100 honey racks, 500 broad frames, 2000 honey boxes, and a great deal other work. This winter we have double the number of bee hives, etc. to make and we expect to do it all with this saw. It will do all you say it will." Catalogue and price list free. Address W. F. & JOHN ARNES, 5 Ruby st. Rockford, Ill.



Wilson's Nurseries!

—ESTABLISHED 1876—

CHATHAM. - - ONT.

Largest variety, Best Quality, Lowest prices. All the worthy old and promising new Fruit, Nut and Ornamental Trees, Bushes, Vines; Roses Plants, Bushes, etc. Best Improved Pumps for spraying trees, bushes, sidewalks, floors, bees, etc. and washing buggies, windows, etc. Galvanized Iron, \$3.50, Brass, \$4.10. Wilson's Improved Woven Wire Tree Guards, for hindering Rabbits Mice, etc., 50 cts. per doz. \$4 per 100. Great Dane and St. Bernard Dogs, 8 weeks old, \$20 to \$25 each, smooth-coated Fox Terrier, 8 weeks old, \$5 to \$10 each. Above dogs are from the best blood of Europe and America and won the best kennel prizes in Toronto's Greatest Bench shows in '89 and '90, where there were hundreds of competitors.

TERMS:

CASH—small but sure profits. Send your address now for my large catalogue and Guide to Fruit Growers, which will be issued about March—free to intending purchasers.

F. W. WILSON,

grower

Chatham, Ont.

MENTION THIS JOURNAL

Piso's Remedy for Catarrh is the Best, Easiest to Use and Cheapest.

CATARRH

Sold by druggists or sent by mail, 50c. E. T. Haseltine, Warren, Pa., U. S. A.

CARNOLIAN -:- QUEENS.

I expect to continue the breeding of Choice Carnolian Queens next season, and orders will be booked from date. No money sent until queens are ready to ship. JOHN ANDREWS, Paten's Mills, Wash. Co. N.

CONSUMPTION SURELY CURED

TO THE EDITOR—Please inform your readers that I have a positive remedy for the above named disease. By its timely use thousands of hopeless cases have been permanently cured. I shall be glad to send two bottles of my remedy FREE to any of your readers who have consumption if they will send me their Post Office Address. Respectfully, T. A. SLOCUM, M. C., 185 West Adelaide St., Toronto, Ont.

White Wyandottes Exclusively

MATINGS:

Pen No. 1—Headed by a Towle Cock that has sired some of the highest scoring birds in America. Mated to eight fine pullets.

Pen No. 2—Headed by the First Prize Cocker at the "International," score 96. Mated to hens that have proved themselves good breeders. In these pens are females scoring 95 $\frac{1}{2}$ and 97 points, and more just as good. Eggs, \$1.50 per 13. I can ship from Buffalo, N.Y., to American customers. Stock for sale after Oct. 1st.

J. F. DUNN,
RIDGEMAN, ONT.

BROWN LEGHORNS

Benner's Prize-Winning Strain.

EGGS for sale from a grand pen of my strain of Brown Leghorns at \$1.50 per 13, \$2 per 26. Satisfaction guaranteed. This pen is headed by a fine cock, winning 1st as a cockerel, by Bicknell, at Owen Sound, 1890, score 944, and 1st as a cock at Owen Sound, 1891, score 93, by J. K. Felch, a fine large bird. One hen has won three first and two special prizes three years in succession, and looks like a pullet; scored by Felch as a pullet, 964; as a hen by Felch, 95; one pullet scored by Bicknell last year 954; also 2nd prize hen at Owen Sound last year, score 944, and other hens and pullets that will score from 93 to 95.

Will sell Exhibition Cockerels and Pullets in the fall Address

J. C. BENNER, Owen Sound.

Cape Polson Iron Works. MENTION THIS JOURNAL.

THOMAS A. DUFF,
267 LANSLOWNE AVE., TORONTO,

BREEDER AND IMPORTER OF

WHITE AND BLACK MINORCAS,
AND HOMING PIGEONS.

I have a great number of chicks for sale. If you want stock to win with you should write now and secure the best. My record at New York, Detroit, Toronto, Hamilton, London, Brampton, Bowmanville and New Hamburg, proves that there is no better stock in America.

My Homers (breeders) consist of the best stock that money could buy in Belgium, England and America. I have young birds bred from these in my lot that have flown 226 miles when five months old. Call and inspect my stock.

SECTIONS ! SECTIONS !

I wish to inform the bee-keepers of Canada that I have purchased \$2000 worth of new machinery for cutting one and four-piece section, and we are running our factory every day and cutting as fine a section as I ever saw. No. 1 section, finished on both sides, White basswood, \$3.50 per thousand. No. 2 section, when I have them, \$2.00 per thousand. All kinds of bee-keepers' supplies always on hand. Don't fail to get a sample of one section before you buy for 1892. New price list will be out by December, 1891. All orders with cash before January 1892 discount of 5 per cent.

R. E. SMITH
BOX 72 TILBURY CENTRE, ONT.



WILL A. LANE,

TURNERVILLE, ONTARIO

Has for sale some extra fine young **Mammeth Bronze Turkeys.** Get his special Fall Announcement.

MODERATE PRICES. * SUPERIOR STOCK

JOHN GRAY. ROBT. BLOYE. T. R. WOODS.

JOHN GRAY & CO'Y

BREEDERS AND IMPORTERS OF

Golden, Silver, White Wyandottes
BLACK MINORCAS,
WHITE PLYMOUTH ROCKS,
WHITE MINORCAS.

The quality of our stock is second to none in America. We will sell nothing but good birds to any one. Our birds have won in the hottest competition. We select the choicest specimens for breeding purposes, and consequently have a lot of fine chicks for sale at all times. We have added to our already fine stock 1st prize cock, 1st prize hen, golden Wyandottes; 2nd prize silver cock at Toronto, 1891, also the best white Wyandotte cockerel in Canada last winter, score 973. You will hear from us at the winter show. If you want good birds at

REASONABLE PRICES,
you can get them right here.

EGGS IN SEASON, \$2 PER 13.

Also Homing Pigeons, Guinea Pigs,
Fancy Rats, Mice, Rabbits, etc.

All communications sent to

JOHN GRAY, - **LODMORDEN, ONT.**

EXCHANGE AND MART

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

A FEW PAIR of Dark Brahmas, young and old, for sale cheap. Also some Light Brahma Cocks els at \$1 each. T. COCKBURN, Canada St. Hamilton, Ont.

QUEENS.—We have a few left, tested Queens, Italians, which we will sell at \$1 each to clean out. First come, first served. Address E. L. GOULD, & Co., Brantford, manufacturers of bee-keepers' supplies and dealers in Bees, Queens and Honey.

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

FOR SALE.—A grand lot of Ornamental Bants including Japanese, Golden, Seabrights, Pekin and Games. B. B. R., I have some birds that will please you, sent on approval if required. I will exchange Ornamental Bants for other stock or sell for cash at: Japs, \$10 per toad; Golden Seabrights, \$5 per pair; Pek us, \$3 per pair. JOHN GRAY, Todmorden, Ont.

MEYER'S S. L. WYANDOTTES are acknowledged the best grand chicks for sale all bred from the following 2 to 4 year-old hens scored last winter by Mr. Smelt: 94; five 92½ each; 92 (first hen, Toronto, '90), 91½ and pullet 92, mated with cock, 94, cockel 93. If "like begets like," they must please you. J. E. MEYER, Kossuth. Mention this Journal.

APIARY FOR SALE.—54 Colonies of Bees, 31 upper stories for extracted honey and combs, supers, honey boards, extractor, 2 store cans holding 400 pounds each, packing boxes for outside wintering. Everything for the working of it except Foundation Mill. Foundation and beeswax enough for another season \$250 for everything concerned with it. Bees in good condition. S. AMUEL STAFFORD, Shedden, Ont.

1891. Don't you want to improve your stock Don't you want large, beautiful yellow Queens, producing bees that will please you fully; the best honey gatherers on earth. Seven years carefully breeding. 650 Queens sold and have heard of only one mismatched. Queen, 75c.; 3 for \$2. A yellow to the tip, select breeder, by return mail, \$1.50. W. H. LAWS Lavaca, Ark.

MUST be sold, pair "White Indian Games" \$10; Colored Indian Game cockerel, \$5; White Plymouth Rock cockerel, a beauty, \$3; two Black Minorca cockerels, \$3 each; trio of extra choice Golden Seabright Bantams, \$7.50; Pekin Bantam cockerels, \$1 each; Silver Wyandotte cockerels, large birds, \$3 each; 2nd prize Silver Wyandotte cock, Toronto, \$4; trio of White Cocl in chicks, \$5. All at Todmorden come and see them. Satisfaction or money refunded. JOHN GRAY, Todmorden, Ont.

NOW OR NEVER. Having had placed in our hands several incubators to sell for parties who have gone out of the business. They are now put into the market at a great reduction. We have thoroughly tested them and put in all our latest improvements which makes them equal to our new ones. Remember all these machines have great records. Two 200 egg capacity, \$25 each; one 175 egg capacity, \$20; two 100 egg capacity, \$20 each. For further particulars address THE GERRED INCUBATOR CO. P. S.—See large ad., go De Grassi Street, Toronto. Send 3 cent stamp for reply.

FOR SALE—1 Partridge Cochin Cock and 3 Cockerels; 6 Light Brahma Cockerels; also a few Pullets each variety which are all first class; no culls shipped. R. H. Marshall, Sec'y Perfection Fanciers Club, Dunnville, Ont.

A WHITE WYANDOTTE COCK and Cockerel; both A good; for sale or exchange. For offers, \$3 each. JOHN GRAY, Todmorden, Ont.

FOR SALE.—A lot of Partridge Cochin Cocks at \$2 and \$3 each; also two pair of Light Brahmas, and a pair of Black Hamburgs. T. COCKBURN, 64 Canada Street, Hamilton, Ont.

A GRAND LOT of Silver Laced Wyandotte Cocks for sale. They are good and will be sold cheap as I want to make room. T. COCKBURN, Canada Street, Hamilton, Ont.

FOR SALE.—2 pair Black Java Chicks; 2 pair White Cochin Chicks; also 2 Black Cochin pullets, very large with great toe feathering. All are 1 birds. T. D. ROBERTSON, box 164, Guelph, Ont.

FOUR fine W. Rock cockerels bred from pen average score 95; 1 Cock 92½; 1 White Leghorn Cock imported; 2 White Cockerels and 4 Brown, extra fine. For Sale Cheap. D. L. SOMERVILLE, Esquimaux, Ont.

FOR SALE, 3 grand Light Brahma Chicks, a lot of cockerels, hens and pullets, the best I ever raised—certain winners the coming winter. Brown Leghorns old and young. Cock and five hens, Silver Grey Dorking and a quantity of young Pekin Ducks, the best in Canada. JNO. COLE, Hamilton.

I HAVE about 20 Cocks for disposal in Partridge, Black and White Cochins, Light and Dark Brahmas, Langshans, Minorcas and Hamburgs; Silver Wyandotte, Brahma Cochin, Langshan, Minorca and Hamburg Chicks for sale cheap, as I want the room. I will be pleased to answer all enquiries when stamp is enclosed. T. COCKBURN, Canada Street, Hamilton.

FOR SALE.

The entire business of THE D. A. JONES Co., Beeton, now in Liquidation, en bloc or in departments to suit purchasers. This includes

FACTORY, TIN SHOP and PRINTING OFFICE

WITH ALL NECESSARY MACHINERY.

Favorable arrangements made with suitable purchasers.

APPLY TO

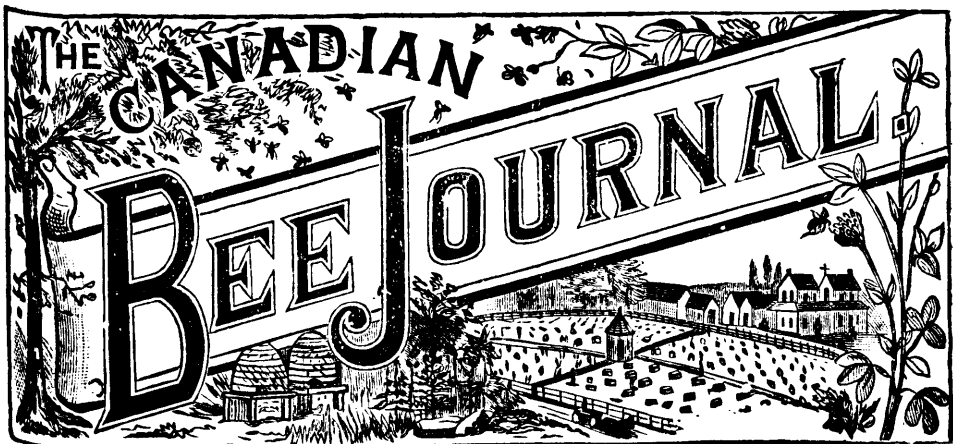
D. A. JONES,

Liquidator.

BEETON, ONT.

ONE COLONY

Saved from Death the Coming Winter Would Repay the cost of a copy of "ADVANCED BEE CULTURE" ten Times Over. In 5 of its 32 Chapters may be Found the Best That is Known upon Wintering Bees. It costs 50 cents but its Perusal may Make you \$50 Richer next Spring. The "REVIEW" and this Book for \$1.25. If not Acquainted with the "REVIEW," send for Samples. W. X. HUTCHINSON, Flint, Michigan.



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

VOL. VII, No. 16.

BEETON, ONT., NOV. 15, 1891.

WHOLE No. 298

THE CANADIAN BEE JOURNAL.

ISSUED 1ST AND 15TH OF EACH MONTH.

D. A. JONES

EDITOR.

GENERAL.

FOR THE CANADIAN BEE JOURNAL,
Shipping Facilities.

MR. EDITOR.—A friend living in Toronto visits this district and likes our honey so well as to order a case of two dozen sections to be sent per express.

The express company refuse to take the honey except at the owners' risk, and upon inquiry I find the same difficulty with other public carriers. Permit me to call the attention of the B. K. A. to this matter in the hope that such a harmless thing as honey may receive proper care, or the same care, as other goods which are shipped at the carriers' and not the owners' risk. Will you kindly inform us through your valuable bee journal if this is the custom generally throughout the Province.

Yours, etc.,
SHIPPER.

Picton, Ont., 6th Nov. 1891.

We do not know why the railway company should refuse to carry honey except at the owner's risk, unless it is that honey is sometimes shipped when badly fastened in the sections, and that the least jar causes it to break down. The honey then commences to leak and the purchaser refuses to accept it in the leaky condition unless the railway company pay damages. We think

the shipper is very frequently at fault, in not having the honey properly cased, and the cases labelled with caution labels. It is not necessary to send comb honey by express, in fact, we think it will go as safely by freight, when properly put up. We find that those handling honey now are much more careful than they used to be, and though they may refuse to accept honey except at the owner's risk, it is altogether likely it will receive very careful handling, and reach its destination in safety.

At the Top of the Ladder.

You may search Europe and America to find perfection in newspaper production, and you will at the end of the search willingly admit that the *Family Herald* and *Weekly Star* beats them all out and out. The *Family Herald* has been increased to a wonderful size, and the publishers are spending large sums of money in perfecting its literary excellence. As a news gatherer the *Family Herald* is really a wonder, and it has a thousand features bristling with interest.

Funny Ways of Bees.

THE department of Agriculture has recently added to its scientific staff an expert in bees. Secretary Rusk is of the opinion that the keeping of these insects might be made a vastly more profitable industry in the United States than it now is. It is estimated that bees in this country produce a value of \$10,000,000 yearly in the shape of honey and

wax. This could be multiplied by ten without much difficulty. First, however, the farmers must be taught the art of bee culture, and this is precisely what it is proposed shall be attempted. Next year a plant will be established for the purpose by the division of entomology, and experiments will be made with methods for caring for bees. Also it will be ascertained which of the various races are best adapted to the climate, and a study will be made of their diseases. Possibly Dr. Benton, the expert referred to, will be sent abroad to secure fine stocks. Of course there were no honey bees on this continent until the white man brought them hither from the old world.

A REASONABLY POPULOUS HIVE.

One may well spend a lifetime in the study of bees without acquiring nearly all the knowledge that is obtainable respecting them. Nothing can be more interesting as well as instructive than observation of these little creatures, so wonderful in their social organization and manner of living, regulated by laws as strict as those which govern mankind. With them is realized the condition recognized as ideal by advocates of women's rights, where the females run everything, the males being considered useful only for the purpose of perpetuating the species. A reasonably populous hive will contain about 30,000 workers, all of whom are of the gentler sex, though sexually undeveloped. They are not obliged to lay eggs, because the single queen attends to that business entirely.

Within a few days after the queen becomes a full-fledged insect she flies out of the hive and mates with one of the drones, as the males are called, which at the proper season are always flying about. In this way provision is made for the fertilization of all the eggs that she will lay within the next three years or more. Upon returning to the hive she at once begins laying, crawling over the comb and depositing in each cell one egg. Thus she oviposits in many hundreds of cells at a time, perhaps, and on the third day the eggs hatch out into little worm-like larvæ. It is the duty of the younger workers to take care of these larvæ, and this they do by going from cell to cell and depositing in each a very nutritious fluid composed of albumen, sugar and fatty matter from glands in their heads. The larvæ grow very rapidly on this diet and on the twelfth day the nurse bees seal up each cell by covering it over with wax. When the twenty-first day arrives the little ones bite their way out of the cells and appear as perfect bees. For three days more they do nothing but clean their

plumage and feed, but after that they immediately take up the duties of nurse bees themselves and devote their attention to feeding and caring for the young. So it goes on continually, the queen constantly laying eggs and the young workers taking care of the growing larvæ. In this manner the population of the hive is maintained, notwithstanding the fact that most of the workers do not live more than two or three months. They literally work themselves to death, gathering honey and building.

APPROACH OF THE SWARMING SEASON.

At the approach of the swarming season, which arrives in May and is also the time for mating, the queen bee begins laying male eggs. They are the same sort of eggs as produce the workers, but they are not fertilized. For that reason they hatch out only drones, and of these several hundreds may be born in a hive. Cells of special size and shape are constructed by the workers for the incubation of these drones, which are given a somewhat different food and require twenty-four or twenty-five days of nursing before coming out of their capsules. When the mating is over and the harvest of honey begins to diminish they are driven out of the hives into the cold world, where they quickly starve to death, because they are not provided by nature with any instruments for getting food from the blossoms.

When the swarming time is coming on the workers know that it is necessary to rear more queens, because she who is the mother of them all will shortly desert them and the population of the hive would be wiped out in the absence of an egg-laying female. Luckily, any worker egg can be made to produce a queen. It is all a matter of proper diet for the larva and accommodation for it while it is developing. So the workers build a number of unusually large cells of elongated shape, perhaps as many as a dozen. In each of these they see that an egg is lodged, and, as soon as the occupant is hatched, they begin feeding it with a quality of food, likewise secreted by the glands in their heads, such as is never given to any but queen larvæ. So rich is this food, particularly in sugar, that by the sixteenth day the young queen is ready to emerge from her sealed capsule.

THE OLD AND NEW QUEENS.

Just a day or two before this, however—so carefully is the whole affair calculated—the old queen has made up her mind that a change of residence is desirable for her. So she runs about in the hive and makes a great disturbance, trying to excite the workers and persuade them to accompany her. Presently she flies out and takes with her a swarm, leaving perhaps

only a few behind. The latter, aided by those which return from the fields, not having been present at the time of the exodus, devote their attention to taking care of the queen cells, which are about to open, also looking out for the growing young. Each queen cell has been carefully guarded by special sentinels to prevent the occupants from getting out prematurely, because, if they did so, and there should be more than one queen in the hive at the same time, an awful fight would ensue. When the old queen has gone with the swarm and the proper moment has arrived, the remaining workers let a single young queen out of her prison. She knows that there are other young queens around and she walks about, uttering a note of challenge to them, which sounds like "peep, peep!"

The other queens answer her with a similar piping noise from their guarded cells. If she were permitted to do so she would bite open every one of their capsules in the rear and sting them to death, but the workers will not allow it. Sometimes in the excitement of swarming the guards fail to do their duty properly, and two or more young queens obtaining their freedom at the same time engage in mortal combat, each desiring to reign over the hive. It may be that the new queen will get disgusted and lead off a second swarm from the hive, upon which the workers will liberate another queen, and the business will proceed as before until the remaining workers consider that the hive cannot stand any more drafts from its population. Having arrived at this conclusion they will permit the queen at liberty to sting the others to death in their capsules, and will even help her in killing her rivals, because it is a recognized fact in the bee world that there cannot be two mistresses in the same house.

A few days after a new queen has thus been set to rule over the hive she is inspired to seek a mate and for that purpose flies out and high in the air, where drones from other hives are to be met with. Very often some accident will happen to her on this excursion. She may be gobbled by a bird or otherwise injured. Supposing that she does not return, the colony in her hive will necessarily become extinct, because there is no egg-layer to continue the family. Under such conditions it is usual for some of the workers, in their anxiety to perpetuate the species, to develop the power of laying eggs. Unfortunately, however, all the eggs they lay, being unimpregnated, produce only drones, and the population of the hive is wiped out very soon. It has been surmised that the chance of accidents befalling the queen

bees on their flights for mating purposes is contemplated by nature for keeping these in sects from increasing unduly.

AN EMIGRANT SWARM.

Before a swarm starts away from the hive to accompany a queen who seeks another dwelling place each bee goes to the stores of honey and fills its sack with a supply. One individual can carry a quantity about the bigness of a pea. This provision is intended to start housekeeping within the fresh locality. The swarm flies to a little distance and forms a cluster on the branch of a tree or elsewhere. This is a convention gathered for the purpose of considering further action. Scouts are immediately sent out in all directions to look for some convenient spot to make a home in, such as a hollow tree or a crevice in a rock. When the scouts return they will lead the swarm to the best place that has been discovered: but it is before they get back that the prudent beekeeper gathers in the bees and induces them to take up their residence in a hive which he provides by catching the queen and placing her with clipped wings in the hive, or by other means. In that case the returning scouts go back to the parent hive. If the queen is removed from a swarm by the beekeeper the workers set up a mighty roar and scatter in every direction looking for her.

At once upon taking up their abode in new hives the workers proceed to build their combs with wax from the honey they have brought with them, gathering more in the fields and constructing cells to contain honey and eggs. The queen, if she be a new one, goes out to mate, returns and proceeds to lay. From that time on everything goes on as has been already described. The queen continually keeps on laying, the nurse bees feed the larvae and the workers collect the spoils of the flowers for making and filling the combs. As fast as cells are filled with honey they are sealed over with wax. As autumn comes on and the weather grows colder the queen bee lays fewer and fewer eggs and more and more of the cells, not being required for reproductive purposes, are filled with honey. The bees spend the winter in a drowsy conditions, clustered as closely as possible together between the combs and in the empty cells for the sake of warmth. Once in eight or ten days they wake up somewhat and eat a little honey. When spring comes they start in to work again, the drone eggs are laid and hatched, the swarming takes place and so on through the cycle of the year.—The Evening Washington Star.

FOR THE CANADIAN BEE JOURNAL.

New System of Handling Bees.

FRIEND JONES.—Since writing my article published in your issue of Nov. 1st, page 678 and 679, inclusive, I have read your further explanation of the "new system of handling bees." As I understand the manipulation outlined by you, I do not have to guess that the plan will give good results, for it is so nearly like my "queenless system" of six or seven years ago that I am able to decide in advance what is in it. The distinctive difference between the Alpaugh system and my "queenless system" consists mainly in the one point, viz., Mr. Alpaugh heads his surplus workers with a queen, while I only give mine a bit of comb with larvae to keep them in heart, but never permitted them to have a queen. By this management I utilized the extra force of bees in the production of surplus honey, and come through the season with the same number of colonies I commenced with.

If I understand the Alpaugh system, it must necessarily increase the colonies 50 per cent. each season, unless the increase is wiped out by uniting during honey season, or at the close of it. Then, again, the Alpaugh plan requires the handling of three colonies to run one surplus colony. This is a serious objection to it, and is the main cause that induced me to abandon it, for my new and more simple system. In practising my new system, the preparation consists of one single manipulation as described in my article in your issue of Nov. 1st. And after the colony is thus prepared, it is managed just like any strong colony is managed on the tiering up plan. I do not wish to leave the impression that it requires little judgment and skill to practice my new system, for such is not the fact. It requires good judgment to make it work uniformly. If the hives are prepared at the beginning of the swarming season there will be no swarms unless they are induced by very old queens, not very old "combs," as the printer makes me say in my article on page 679, the tenth line from top of the page. I want to make this correction because I have been trying for several years to impress apiarists with the fact—without much success, that the presence of an old queen in the hive is the greatest of all inducements to swarm. When a swarm issues on this account, the best thing to do is to destroy the old queen and give the colony a young laying queen or a queen cell nearly ready to hatch. This will satisfy the bees.

I have labored for a number of years to formulate a controlling system that would en-

able me to keep a given number of colonies, and have to handle just that given number of colonies to accomplish it. My new system does it when taking honey with the extractor in the more satisfactory way. And after I learned the art of "feeding back" and thereby converting the liquid honey taken from the extra set of combs after the brood is all hatched above the queen excluder, into section comb honey, I have found it equally satisfactory for taking comb honey.

If I am not mistaken, as practical a man as is Brother Jones, he has advised against "feeding back" to have partly filled sections finished. And I think he says that "fed back honey" will candy in the combs. How is this, friend Jones? Have you never experimented along this line till you know how to do it? I would be pleased to show you some cases of sections produced in this way. The combs are as white as this sheet of paper I write upon, and as straight as a board, and the honey don't candy. If the "feeding back" is done immediately after the white honey harvest is over, at a time when the weather is warm, and the honey to be fed back diluted with water a day in advance of going into the feeders, there is very little danger of it candying in the combs. In a climate like our's in Kentucky, there is no trouble about it at all. In a cold climate it may be best to put the honey thus finished on the market as early as it will be taken. The fact is, in my location when all the surplus must come from white clover, and every season is beset with danger of being out short by one or more of the many causes that may shorten the honey yield, I was never able to produce comb honey in profitable marketable shape till I learned the art of feeding back liquid honey to have the sections all finished.

It would be quite interesting to learn just what proportion of the $4\frac{1}{2}$ sections that go on the hives annually, are finished up in marketable shape. I really doubt if three-fourths, or even one half of them, taking the country over, are finished in good marketable shape. Every experienced apiarist has at some time, if not often, seen his bees booming in his section cases, with hundreds of sections growing like the touch of magic, and has fairly held his breath. A few more days and then—but the "few more days" are swallowed up by a sudden change of weather, it may be a hot wave, or a cool "easter," or it may be a patter down of rain every day, and every hour, and the booming is over for the season, and he asks, "what am I going to do with all these partly-filled sections?"

My new system answers this question in a practical way. It furnishes the bees the means to store liquid honey if they cannot build comb to advantage, and it furnishes the honey in the extracted form to "feed back" to have the partly filled sections completed.

Some persons when investigating my controlling system, have expressed anxiety about the "much room" necessary to carry out the system. I hold that there is never too much room in a hive if there are bees to fill it to the crowding point, and this is the gage I go by.

G. W. DEMAREEE.

Christianburg, Ky.

As I said before, there are some valuable points about Mr. Alpaugh's system we are not in possession of, and which constitute the secrets for which, we believe, he intends to charge a small fee. His plan, as we understand it, reduces the number of colonies from one hundred to fifty, that have to be handled and managed for surplus, and out of 150 colonies only fifty produce honey, so that it will be readily seen that even though you doubled up the 100 down to 50, that labor would not equal the handling of them from time to time for the surplus, and as I understand it, they require no attention whatever.

Now, we are very much interested in this feeding back, and if you are able to teach our friends how to feed back without having the honey granulated, you certainly deserve the thanks of many bee-keepers. A few years ago one of our most successful bee-keepers, Mr. Emi, of Holbrook, Ont., fed back and had a number of sections completed. In the fall, when he exhibited the fed-back honey to us, it was granulated solidly. Some sections with patches of liquid honey sealed in the centre, while that fed back and sealed in the very next cell was granulated, which indicated pretty clearly that it was not a success. Now, the lacking point in this matter, you seem to have filled in. No doubt, if sections partially filled can be completed by fed-back honey, it is a step in the right direction.

We were just wondering when reading your description, if it would not pay to keep a case of sections on top of your extracting frames, or perhaps under for three or four days, until the bees got started to fill them up pretty well. It

would not soil the comb in the sections much, even if the bees passed over them when going up to store their honey in the large combs above in full frames, but as soon, or before they commenced to seal, the sections would have to be lifted on top. Now, it seems to us that to have a few sections on every hive drawn out and partially filled during the honey flow, and let them have the extra combs for putting in any surplus would be worth trying. Surely they could put a portion of their honey in the sections, which would enable them to complete them in about half the time after the honey harvest is over. No doubt, you have experimented on this line and we shall be pleased to hear more from you in reference to this matter, as it is a very important one.

An Immense Honey Bee.

AN immense honey bee has been imprisoned in one of the rooms of the University of Pennsylvania. It is fully four and a half feet from sucker to sting, and measures nearly six feet from tip to tip of the wings. This is the largest bee ever seen in this part of the country, at least, and if it could feed on clover blossoms, would make necessarily a great honey producer, for its honey bag is big enough to store away a whole comb. There is little danger that it will escape from imprisonment in the fields, as it is made entirely of papier-mache. This huge imitation has been purchased for the use of the students in the biological department of the university. It was manufactured in Paris by an ingenious artificer, Emile Deyrolle, who is famous for being the unique constructor of such biological working models.

The big shiny bee is perfectly articulated, moulded, and joined together, true to the busy little "yellow-breeched philosopher" of the fields, after whom it was fashioned. Wings, head, thorax and abdomen can all be disjuncted by the simple surgery of thumb and finger, the head may be trepanned, displaying the small brain and physiological machinery within, the thorax separated, and the abdomen disembowelled.

Every organ, artery, vein, fold, sinew, tissue, has been carefully reproduced in exact proportion with a delicate fidelity, half lost sight of in so large a model. Dean Charles S. Colley intends that the pupils of his department shall dissect this big bee and study it until they become expert in bee agriculture. A huge snail and leech, and each about three feet long, have also been secured for the biological department.—Philadelphia Record.

FOR THE CANADIAN BEE JOURNAL.

N. A. B. K. Association.

THE following is the program of the North American Bee-Keepers' Association, to be held in Agricultural Hall, Albany, N. Y., Dec. 8 to 11.

December 8—Informal Meeting.

First day—Wednesday, Dec. 9.—9 a.m.—President's address.—P. H. Elwood, Starkville, N. Y.

Appointment of Committees, and routine business. Question-box.

2 p.m.—The prevention of swarming.—W. F. Clarke, Guelph, Ontario, Canada. Discussion. Question-box.

7:30 p.m.—The outlook for Apiculture at the Columbian Exposition.—A. B. Mason, Auburn-dale, O. Discussion.

Second day—Thursday, Dec. 10.—9 a.m.—Election of Officers. Selection of next place of meeting. Business of the Association. Volunteer contributions. Discussion. "Prices of honey and sugar."

2 p.m.—Can we settle upon two sizes of sections as standard?—C. C. Miller, Marengo, Ill. Discussion. Question-box.

7:30 p.m.—The bees, the location, and the Apiarist.—G. M. Doolittle, Borodino, N. Y. Discussion.

Third day—Friday, Dec. 11.—9 a.m.—The Italian Bees. What are the principal points of excellence, and to which qualities should we give the preference?—G. H. Knickerbocker, Pine Plains, N. Y. Discussion. Question-box.

2 p.m.—Some facts not generally known about rendering beeswax.—R. F. Holtermann, Brantford, Canada.—Adjournment.

REDUCED RATES ON RAILROADS.

One and one-third regular fair for round trip. The concession is for delegates and others going to Albany to attend the North American Bee-keepers' Convention, Dec. 8—11, 1891, from the following described trunk-line territory:

By the Central Traffic Association from all points in Ohio, Indiana, Illinois, Pennsylvania, as far east as Pittsburg; New York, as far east as Salamanca; and Ontario, Canada, as far north as Toronto. Trunk Line Association of New York, Pennsylvania, and New Jersey, and the Southern Passenger Association, which includes all the principal roads of the Southern States.

INSTRUCTIONS TO PERSONS ATTENDING THE MEETING.

1. The concession is for delegates and others going to Albany from any of the above described trunk-line territory.

2. If the starting point is located on some

small road, or one not in either one of the three trunk-line associations making the concession-tickets should be purchased only to the most convenient place where a trunk-line certificate can be obtained, and thence by direct routes only, through to place of meeting.

3. The going ticket must be purchased within three days before, or not more than three days after, the opening date of the meeting, otherwise, no reduction in fare will be made on the return passage.

4. Each person availing himself of the concession will pay full tariff fare going to the meeting, and get a certificate filed in on one side by the agent of whom the ticket is purchased. (The agents keep the certificates in stock.)

5. Present the certificate to the secretary at the meeting, that the other side may be filled in. Certificates are not transferable.

6. On presentation of the certificate, duly filled in on both sides, within three days (Sunday excepted) after the adjournment of the meeting the ticket agent at Albany will return the person to his starting-point at one-third regular fare. The return ticket will be issued over the route used in going to meeting, and will be available for continuous passage only.

VERY IMPORTANT.

7. It is absolutely necessary for each passenger, before starting, to obtain a certificate from the ticket agent at the point at which the going ticket is purchased, otherwise said passenger will be unable to obtain special rate for return journey, and will be obliged to pay full tariff rates in both directions.

8. Delegates, and others availing themselves of the concession, should present themselves at the office for certificates and tickets at least thirty minutes before the departure of trains.

9. Every person attending the meeting should get a certificate, no matter how short the distance, as, the more certificates are signed at the meeting, the easier it will be to secure reduced rates another year.

Cyprus; Bees and Bee-Keeping.

ONLY eleven years are past since Jones and Benton left America in search of the Eastern bees, and imported hundreds of the yellow beauties into Europe and America; and now I should say it is next to impossible to have one single pure Cyprian. Isn't this a curious fact? Many parties have been writing to me to have Cyprian queens; but up to last fall Mr. Benton had the choice; and as I am no queen-breeder I almost always directed to him. Although Cyprus can be reached from Jaffa in 24 hours I never thought it would pay to go

there myself; but I wanted a little bit of fresh sea-air. The trip to Cyprus and back was supposed to take four days. Up coast the steamer passes Cæsarea, Palestina, mentioned in Acts, where St. Paul was tried before King Herod and Felix, and here he appealed unto Cæsar. Only ruins of by-gone beauty mark the place, and a Bosnian colony of Mohammedan emigrants are now building up into a new Cæsarea.

After six hours by sea the steamer anchors in the bay of Acre, at the foot of Mt. Carmel, where a German settlement is flourishing in all but bee-keeping. Some have clay cylinder hives, others box hives, and some Dathe, Dzierzon, and other German hives. They average very little honey, owing to want of pasture in the immediate vicinity of the town of Haifa, and the want of knowledge. Mt. Carmel itself is beautifully covered with melliferous plants, as sages, thymes, and others. In one of the Russian-Jewish refugee colonies on Mt. Carmel one of my scholars is putting up an apiary, after the Langstroth system, our hive, and seems to have done tolerably well.

Going up the coast we passed Tyre and Sidon by night, and morning found us at the foot of Mt. Lebanon. Two days were lost at anchorage at Beyrouth. A gale would not allow the steamer to discharge the goods; and when, on the morning of the third day, we arrived at Larnaca, in Cyprus, the steamer was gone, and I was told that, before a fortnight was over, I could not go back again. What a dull hope, to be walking about a small town, with the prospect of enjoying its crumbled walls and base Cypricots for a fortnight, while the bees in Palestine are in vain waiting me to take them to pastures new! I then concluded not to leave home again, at least not in May, across the sea, when work is pressing. How often did I hear about this "abode of the gods"! but the Turks have done their part in destroying nature and art. It is not now to be envied. The position is good; the climate, like all Mediterranean countries, is haunted with fever in the lowlands; but, besides this, locusts have been roaming over the land, and destroying what little green the numerous goats left, which themselves have been gnawing the young growth, preventing, in connection with the Turkish misrule, the restoration to its former charms. The British government is trying to restore the island; but it certainly will be long before the inhabitants will awake from their drowsy nap. And right here friends Jones and Benton first brought American ideas and bar-frame hives; and the only thing I found here was two two-frame nuclei in the house of Mr. Derwishian, a grad-

uate of Benton's school. The day before I arrived, another of Benton's scholars had gathered every movable hive and steered into Egypt to improve the Egyptians, as I understood; but not having seen him I was sorry to find I had come here to go back again without taking even a Cyprian queen with me.


The two two-frame nuclei at Mr. Derwishian's were as cross as cross can be. Smokers and veils of enormous size availed nothing. I never saw such a bad lot, even in Palestine, except when the camels had upset quite a number of hives, and they were pitching at us in fury. Mr. D. attributed this behavior to Mr. S. G.'s rough handling the day before, or three days before. Mr. D. insisted on working them without smoke, which was just the right thing to keep us at a distance, and I could not enjoy the pleasure of seeing the queen. Since I came back the queens have mated, and I received one here which is developing nicely, with very nervous bees. Mr. D. has sold all his bees to Mr. L., who started with them to Egypt, and he himself will leave the island, thus leaving nobody to care for Cyprian queers or bar-frame hives. He had a beautiful arrangement for silk-worm raising. The moths were actively engaged laying eggs, while he had a nice white funnel through which the eggs were dropping into little sacks. Mr. D. pretends to have a method of raising healthy insects, peculiar to himself, and tries to beat the French market. He will not divulge his secret, but keeps it to himself. He has dropped bee-keeping altogether, as he does not believe in returns from this business. It certainly is a poor place for honey; and as he could not depend upon queen sales, from different causes, he has made up his mind to give up bees that give no honey, and the island altogether, as the climate has ruined his health and the islanders his feelings. He had given a man a few hives a year ago; and when he invited me to take a look at them, the superstitious Cypricote objected, fearing the effect of the evil eye. After demonstrations, diokering, and threatening the man at length gave way, and we proceeded to the clay-cylinder apiary. P. H. BALDENSPERGER,

Jaffa, Syria, Oct., 1891.

To be continued.

—Gleanings.

Carrying in the Bees Without Labor Saving Devices--Arrangement of the Hives.

 MOVING bees; when to do it and how to do it, seems a simple subject to treat, and may be answered in a few words. Move them into the cellar, or bee house, at the proper

time and by the shortest and most convenient way. The proper time cannot be well defined, as it depends upon locality and the condition of the weather. Here in Ontario I consider the proper time is the second week in November if the weather is suitable. They should be dry when put away. I consider five months as the limit that bees should be confined, and this should regulate to some extent the time they are put away.

How to move them is a question that will remain open. The man of devices will contrive something he thinks that may aid him in the work (and the divisors amongst bee-keepers are legion). The man of good sense and muscle will pick them up and carry them off without fussing much over devices. My method of moving hives is to remove the cover, bend my back, turn the first and second joints of my fingers under the bottom board, then straighten my back and walk off with them. I have frequently an assistant in the work, and then sometimes we use the old fashioned hand barrow. Where there are no abrupt descents to be made I consider the hand barrow the best aid available.

You tell us of people who use hand-carts, slings and neck-yokes as aids in the work. I think we have seen Dr. Miller, Mr. Boardman, Mr. McFarland and others depicted in bee papers, each harnessed to his hobby, and the situation appears to me a trifle silly. That yoke is an old device. I saw it used by butter-milk venders and water carriers forty years ago, but that was where porridge was a staple article of food and wells and pumps few and far between. It was generally on the shoulders of an old woman in those days. Mr. Boardman's horned cart would be a good thing if hives were all cleated at top and bee yards as level and smooth as an asphalted avenue; but they are not. In most yards I fear the jolting of the wheels would create an uncomfortable commotion among the tenants of the impaled hive.

Your method of arranging the hives in a cellar differs somewhat from my practice. Instead of leaving a vacant space between the hives when piling them up, I place mine as close together as I can put them when the first row is completed. I remove the honey boards (there is still a cloth covering on top of the frames). I then spread two or three thicknesses of old carpet on top of the entire row. Upon this I put two 2x4 scantling, one along the back of the hives and the other along the front. Upon these I place the next tier, and so on to the top. After trying a number of devices I have settled down to the above plan and have practiced it with satisfactory results for six or

seven years.—R. M'KNIGHT, in Bee-Keepers' Review.

Owen Sound, Canada,

Nov. 9, 1891.

The "Puzzle" of "Guessing" When to Carry in the Bees—How to Carry the Hives.—Reversible Bottom Boards.

AS to the time of taking bees into the cellar, I am fully in accord with your leader, unless it may be that I am not so sure as to leaving them out till freezing weather sets in. What do you mean by "freezing weather sets in?" You say you have put in bees as early as Nov. 10. Well, if your climate is like mine, you have some pretty hard freezing before that time. On the morning of Nov. 2, this year my thermometer stood at 24°. Yet the days seem quite pleasant. To-day, Nov. 3, in the middle of the day the sun is shining bright, and it seems a very pleasant autumn day, with the thermometer at 48°. Scarcely a bee is flying. Now, would you say freezing weather has set in.

The question in my mind is, should the bees be put in the cellar yet or not? I am quite a little inclined to the opinion that it might have been well to have put them in a week ago. They have flown so little since, that nothing has been gained in that direction, and if they had been in the cellar they would have been warmer, and the cellar doors being left wide open they would have had just as good air. If taken in just as they are, to be sure they have not suffered any, but are they any better for staying out? But suppose to-night there comes a cold rain and then it freezes solid, as it may do any night, then they are worse for staying out. Especially if no warm days come again before spring. Of course it makes a difference where you are and what is likely to happen in your locality.

Now as to "how," I'm not sure that I agree with you fully. For some time I used a barrow such as you speak of, but the jarring is objectionable. If bees can be picked up, carried into the cellar, and then put in the place they are to remain, without ever knowing they have been touched, it is very much pleasanter for the carriers and perhaps better for the bees. As I now carry them I can hardly agree with you that it is "hard work at best." Take a rope, or several strands of light rope, tie together so as to be endless, let it be long enough to reach a little more than around the hive, and then slip it over the two end cleats, and two persons can walk along side by side and each one take a side of the rope. The work is so light that my eight years old nephew teases to help, although I

don't think he would want to help long. If there are no end cleats, then the rope can't well be used, but for other reasons I would have cleats anyhow.

If the hives are so arranged that you can easily put something under the bottom, then the carriers such as Mr. Root describes and sells, are good. They are much the same as two pail bails or handles, with bent hooks to catch under the hive. Although I occasionally use them, I don't think they compare with the rope.

Yes, I would bring the bottom boards in with the hives, and I have bottom boards purposely made for winter with a two inch space under the frames, reversing them for summer. With coarse wire cloth at the entrance there is then no danger of mice getting into the hives.

With the deep bottom boards there's no need of piling hives so that each hive rests on two others, for in that case if you jar one hive you jar the whole lot, and when piled up in a straight pile, jarring one can only affect three or four others.

C. C. MILLER,

Nov. 4, 1891.

—Bee-Keepers' Review.

Marengo, Ill.,

Carniolans vs Italians.

At the convention held by the Missouri State Bee-keepers' Association at Sedalia, Mo., Mr. E. F. Quigley read a paper entitled Carniolan bees as compared with Italians.

The Missouri Bee-keeper condensed the essay as follows:

In comparing the two races, Carniolans and Italians, they were kept in the same yard for three years. With a steady honey flow, Carniolans stored more surplus honey than the Italians, with about the same per cent. of swarms. With a poor honey season, the Italians came out ahead. Italians are as prolific up to the commencement of the honey flow but check brood-rearing and fill a part of their combs with honey. While the Carniolan keep up brood-rearing until late in the fall, using up their stores, and in many cases require feeding for winter. Carniolans swarm many times when no honey is being gathered. It is claimed they are very gentle, they may be in their native country. I did not find them as gentle as Italians. My queens were from the best breeders in this country. In keeping the two races for three seasons the Italians gave more honey with less labor and stings.

The paper was discussed at length, Albino bees also included. The result being that Italians were considered preferable to all other races.

Some of the answers to the questions placed

in the question box are instructive. We cull a few:

Q. Will inverting frames cause the bees to tear down queen cells?

A. Think it would.

Q. What encouragement should bee-keepers hold out to farmers to sow honey-producing plants?

A. No inducement unless profitable to farmers also.

Q. What are the most certain indications of bees swarming?

A. To see them coming out.

Q. Will bees swarm without drones?

A. Yes.

Q. Has any one tried alfalfa in this country and with what success?

A. Yes. With varied success.

Q. What is the greatest mistake you have made in bee-keeping this season?

A. Making too big calculations on the honey crop; allowing bees to swarm too much; extracted too late in season.

Q. Are bees ever a nuisance?

A. No. They are useful in fertilizing all kinds of fruit, besides storing honey.

Spraying Fruit.

SPRAYING fruit has received an advertise-ment that will result in making known its merits far and wide. The New York City Board of Health recently condemned grapes on the market that showed signs of poison on the stems, and had tons of them destroyed. The hasty action of the Board caused a grape panic. An investigation showed that the grapes had been sprayed with a solution of the Bordeaux Mixture, and that traces of the sulphate of copper remained on the stems. The matter was referred to the Department of Agriculture, which has for several years been recommending the spraying of grapes with this mixture, as a preventive against fungus diseases. The department officially replied that over a ton of grapes, sprayed eight times with the mixture, would be required to furnish a single poisonous dose. After consumers understand it, they will not hesitate to purchase perfect fruit because of the means used to make it so, as long as they are harmless.—Farm and Fireside.

Spraying fruit trees, plants and vines for the prevention of the ravages of insects and fungus diseases is no longer an experiment, but a necessity, in order to get large crops of perfect fruit. For full information on this subject address William Stahl, manufacturer of Excelsior Spraying Outfits, Quincy, Ill., who will send, free, a full and complete treatise on this subject.

Experiments.

DO WORKER BEES LIVE MORE THAN 45 DAYS, UNDER NORMAL CONDITIONS?

It was with intense interest that I read Bro. France's article on page 760 of October 1st *Gleanings*; not particularly because Bro. France was trying to disprove some of the things which I have written, but because he has brought out something new for us to think about. May it not yet be possible that we can make individual worker bees live a year by throwing the colony into an abnormal condition? All of my experiments have been with colonies in a normal condition, or in other words, with colonies that have their "own sweet will" just as they would have it were they in their home in the hollow tree in the woods. I never had a doubt but that bees could be compelled to do many things which they do not usually do by throwing them out of balance, as it were. Huber threw his colony out of balance by confining them to the hive, and so proved that it took 20 pounds of honey to produce one pound of wax; but nearly all of the present day do not consider this just a fair experiment; and, if I am correct, none now believe that it takes that amount of honey in "our every-day" bee-keeping to produce a pound of comb. Again, some one has proven that, by allowing none but young bees in a hive, bees go into the field to labor when three or four days old; but all who are at all observing know that, in the production of honey "with the least amount of capital and labor" bees do not go into the fields as laborers in their "childish moments." Now, like Bro. F., Doolittle has been experimenting to see if he has been wrong in the assertions which he has made for a number of years, that "bees when in a normal condition, do not live more than 45 days," and here is the history of those experiments:

July 9th I went to my out-apiary five miles distant, and there shook into a box $2\frac{1}{2}$ lbs. of young, poorly marked hybrid bees. I brought them home to my own apiary, and set them a little distance away from the other bees, after having first introduced to them one of the queens which give bees so yellow that they look when flying at the entrance like lumps of gold. In this lot of bees there were hundreds which had only just crawled out of their cells, and those probably not more than from three minutes to an hour old, for I took pains to secure all the young bees possible. On the morning of July 10 three frames of brood from this queen which was introduced to the box of bees were put into a hive and set away from the rest of the bees as above, and the swarm made as above given hived from

the box in this hive, which also contained two empty combs and the rest of the hives filled out with frames having starters of foundation in them. As the three frames of brood had many cells from which bees were hatching, I watched the hive closely to see when the first "lump of gold" would take wing, for, according to those who have bees go to the field young, these lumps of gold should be astir as soon as the 14th or 15th, but neither of these days showed any signs of aught but hybrid bees. On the 16th, at about two o'clock, I saw the first out for a play-spell; and each pleasant afternoon thereafter more and more were out, but not one of these yellow ones showed herself at any other time of day till the 26th, when the first yellow bees were seen coming in with loads of pollen and honey during the forenoon. So far I had the same proof I had in my other experiments, that, when there were plenty of field laborers in a colony bees do not go out into the fields as laborers till they are 16 days old. I now watched with more than usual interest, as the 20th to the 25th of August came on apace, to see the field bees go out and in at the entrance to this hive; for if I had been right in the past with the 23rd of August, at 10, A.M., none of the hybrid bees should be left. August 22nd a very few hybrid bees were seen going out and in at the entrance, perhaps one in three or four minutes; but August 23 none were seen, and on the next day the hive was opened and carefully looked through without finding a single hybrid bee in it.

Now, the question which arises is. Would there have been any difference had these bees been Carniolans? I do not think so, for, with the Carniolans which I have had at three different times, they have not proved any longer lived than other bees, and I have had Carniolan bees from a queen from the same source Bro. F. says his were from. Then, if the above conclusion is correct, we see that the long life which Bro. F. secured for his bees came from throwing the colony into an abnormal condition, or else young bees from other colonies kept the population good. I am glad he is to experiment further, to tell us which of these is correct. One thing I do not understand about that colony of his, unless young bees from other colonies did go to it. He says he "hived a good fair-sized swarm" in his experiments; and I think that it is Professor Cook who defines a "fair-sized swarm" as consisting of about 20,000 bees. Bro. F. then goes on to tell us how this fair-sized swarm of bees occupied and filled with brood and honey a three-storey hive, so that he had to take away all of the combs out of these three stories in order to get all the brood away, as

they had brood in all the combs forty days after they were hived. If not a single bee had died up to this time, they occupied more room than I should expect a good fair-sized colony to occupy which had had no accessions to its number in 40 days.

Now just a word about secreting wax. Bro. F. asks whether the bees in my observatory hive were building comb or not. Most certainly. Bees always build comb in a honey flow. Does not Bro. F. know that? You cannot have a honey-flow without the bees secreting wax, all talk to the contrary notwithstanding. When a honey-flow begins what do we see? The cells of the combs already built lengthened out with new wax, which delights the heart of the bee-keeper; next the cells of honey capped over, burr-combs built, etc., and Prof. Cook tells us that even bees on the clover blossoms have the wax scales on them (I quote from memory). But my time is up. Don't shut down on us yet, Bro. Root, for out of these friendly discussions and experiments much good may come.

G. M. DOOLITTLE.

Brodino, N. Y. Oct. 16.

[Doolittle is a pretty careful observer, and on general grounds it is not wise to disagree with him; but there is just one point on which my observation differs. I will admit that the average worker bee during the busy season dies inside of 45 days; but I cannot think they all do. Nearly every spring we have been obliged to by up colonies and some would be hybrids. Although these latter would be re-queened early in May, I have often observed the presence of quite a number of the original hybrid bees, even to the latter part of August. This would make more than 90 days, and these colonies were remote from other hybrids too. The reason why I have observed the fact is because we do not dare to send out to our customers nuclei containing any impure bees. Two or three times we have been very much annoyed to find in a colony from which we had intended to fill an order, some four months after an Italian queen had been introduced, too many hybrid bees. We have once or twice sent bees to Australia in a mailing cage, and these bees were on the road anywhere from 38 to 42 days. It seems to me that, if bees will live this long, jostled about in the mails, with no opportunity for flight, they ought to be able, a few of them, to survive 90 days or longer, with freedom to fly, even when subjected to the toils of the season. Now, it is possible that I have not understood Mr. Doolittle, but I am very sure I have observed for several different seasons, Italianized hybrid colonies that would show

their hybrid blood for three months, and longer after the Italian queen had been introduced. —E. R., in Gleanings.

The above have many valuable points and as there has been something said in reference to the length of time bees will live, this gives the other side of the picture. We do not think bees live as long when shaken out on combs as they do in a hive in the ordinary way, and bees die off more rapidly after they have been introduced to a colony, than if hatched there. Of course, if they come a distance, the shipping and excitement will have much to do with it. On watching bees in an excited condition I have sometimes thought of suggesting the propriety of using a little chloroform, ether, or something equivalent in the food of bees, when they are to be shipped long distances, in order to keep them as quiet as possible. I have made some experiments in this direction, but as it is very difficult to determine just how long they would have lived had they been fed on good candy, and shipped in one of Benton's improved cages, these experiments would have to be carried out very carefully, in order to determine beyond question, whether it had any benefits or not. They seem very quiet in the cage, much more so than bees put on ordinary food, but there appeared to be no difference until after they had partaken of a sufficient quantity of food to affect them. Then again, we found that the moisture evaporated, and there was very little chloroform odor about the food after a day or two; on the whole we considered our experiments not of sufficient importance to warrant us in considering it an improvement, perhaps the good candy, by keeping the bees in a dark place when they are first caged, until they become quite accustomed to the new order of things, is best.

Bacillus Alvei—Reply to Messrs. Doolittle and Jones.

IN the article of Mr. Doolittle's, republished on page 680, of the C. B. J., he very plainly intimates that Cheshire is mistaken in his diagnosis of foul brood, and in a foot note Mr. Jones confirms what Mr. Doolittle says, that is, these gentlemen agree in saying substantially that Cheshire does not know foul brood when he sees it, yet strange to say, neither the one nor

the other makes any attempt whatever to justify this charge of ignorance against Cheshire, but Mr. Doolittle proceeds at once to find fault with his teaching, as to the means by which the disease is propagated, and Mr. Jones does his best to back Mr. Doolittle up.

Mr. Doolittle says "the fact remains that where no honey goes no disease goes." This is not true. Hon. R. L. Taylor says there are other means of carrying the disease besides honey, and so many other accurate observers agree with him that the fact is as well established as is the fact that Mr. Doolittle breeds and sells queens.

Mr. Doolittle says "Jones and Root have proven the fallacy of Cheshire's conclusions." They have done nothing of the kind. On the contrary, their conclusions, drawn from experiments exposed to so many sources of error, are wholly unreliable. Mr. Jones, for instance, will feed boiled honey taken from a diseased hive, and if no disease develops he will ask us to believe that the germs were killed by boiling. Although he has no proof whatever, and in fact does not know that the honey contained germs in the first place. He will next feed honey from the same lot without being boiled, and, if foul brood afterward appears, he will ask us to believe that this proves that honey from infected hives always carries the disease, although, from anything he knows to the contrary, it may have been started by germs floating in the air, by bees from diseased hives, or by germs adhering to Mr. Jones' own foulbroody fingers.

Both Mr. Jones and Mr. Doolittle assume that the fasting plan is an infallible method of cure. This is not so. Hon. R. L. Taylor tried it with forty colonies, and he says "in a considerable per centage the disease soon re-appeared, and in others after a time." It failed with Dr. Deziertzon in 1848, and with Berlepsch in 1865 and 1867. Cowan and others say they have known it to fail in England. Has it ever occurred to Mr. Jones that it requires very strong faith to believe that it is possible to know when the last particle of honey in every individual bee of the 20,000 or more under treatment has been assimilated. In all Cheshire's theories he never makes such a heavy draft on our credulity as this. There is another explanation for the success attending the fasting cure, and if Messrs. Jones and Doolittle will undertake to study Cheshire without prejudice they will probably find out what it is.

As to honey being a medium for spreading foul brood, after the disease has progressed so far that the decayed matter adheres to the feet and antennae of the bees, and, later on, when the decayed matter dries up, and spores rise

from it in clouds, it would be strange, indeed, if the spores were not caught in cells of unsealed honey. Cheshire admits this; he says "such minute bodies as bacilli, produced in inconceivable numbers in the hive—a dead larva containing frequently 1,000,000,000 spores—must occur in honey as an occasional contamination; the bees cannot perambulate the combs without bringing their pulvilli, and the hairs of their bodies, into dangerous contact with them, and so the visits of robbers are likely enough to result in infection of the stock whence they came, while the honey would, by its adhesiveness, aid in carrying away the terrible spores."

Both Mr. Doolittle and Mr. Jones are very emphatic in condemning Mr. Cheshire's statement that foul brood may be introduced with diseased queens. Prof. McLain, Cowan, Schonfeld, Hilbert, and Dr. Lortet, found the bacilli in mature bees, and Hon. R. L. Taylor is certain that worker bees die of the disease in his yard. With such men as these making independent investigations, in different countries, and agreeing as to the results, there is not much danger that there is any mistake about the matter.

Some years ago Pasteur traced the disease called Pebrine to the microbes in the eggs laid by the moth of the silkworm, and from a knowledge of this fact he devised a successful method of extirpating the disease. Cheshire found the microbes of foul brood in larvae just hatched from the egg. He then dissected the queen which laid the eggs, and found the same microbe in her ovaries and eggs unladen. Through the columns of the B.B.J. he asked for queens from diseased stocks in which the larvae were affected when very young. Amongst the queens sent him he found dozens of cases in which the queen was diseased.

Mr. Cheshire did not find that all queens from diseased stocks were affected. He says probably a majority are not diseased. Hilbert found that out of twenty-five queens taken from diseased colonies, indiscriminately, three were diseased with bacillus alvei. Surely with such evidence before him there was no other conclusion possible to Cheshire but that the disease may be communicated by a diseased queen, although Mr. Jones and the late Adam Grimm may never have observed such a case. And with such evidence before him was Cheshire not justified in saying that it is as absurd to speak of *foul brood in a queen* as it is to talk of toothache in the liver, or rheumatism in a wooden leg. His new name, Bacillus Alvei, is now adopted by biologists the world over.

The true inwardness of Mr. Doolittle's oppo-

sition to Mr. Cheshire's statement, that the disease is sometimes introduced with the queen, may perhaps be gathered from the following. When the Roots were battling with foul brood a few years ago, the question was raised as to whether the disease would be carried to other apiaries by queens and bees shipped from their yard. On page 682 of Gleanings for 1887, we find Mr. Doolittle writing as follows: "If you accept any other theory of the spreading of foul brood than through the honey, such as that the disease is in the tissues of the old bees, and in the ovaries of the queen, as put forth by Cheshire, you put an effectual barrier on the queen traffic, and an untold catastrophe on bee-keeping throughout the world."

Cheshire seems to have anticipated just such opposition from men like Mr. Doolittle and Mr. Jones. On page 138 of the B.B.J. for 1885 he says: "That queens can and do sometimes bring disease to the stock into which they are inserted, I have put altogether beyond question; and this fact, although perhaps at first unwelcome to dealers is, after all, an addition to our knowledge, which tends directly to the advantage not only of the bee-keeper, but of the dealer himself, since the interests of the two, when clearly understood, are found to be identical."

I think I would be quite justified in applying Mr. Jones' expressions of surprise at the want of knowledge of certain persons "at this late date," to himself and his friend, Mr. Doolittle, but I forbear.

S. CORNEIL.

Lindsay, Nov. 6th, 1891.

S. M. Doolittle's Reply.

HAVE only a few words to say in reply to Mr. Corneil's article on "Bacillus Alvei." He says I make "no attempt whatever to justify" my position against Mr. Cheshire on the foul brood matter, "but proceed to find fault with his teaching." Well, if proving that honey is the chief way, if not the only way, that foul brood is spread in the U.S., or the whole of North America, while Mr. Cheshire says that only occasionally can honey convey it," is no attempt to justify my position, then I am no judge of logic or of any matters pertaining to bee-keeping. Quinby said he took foul broody honey and fed it to healthy young swarms soon after they were hived, and every one, without exception had caught the contagion," and hundreds of bee-keepers know that this is the sure result of such a course, and yet, notwithstanding all this, Mr. Cheshire rises and says, (and Mr. Corneil would have us believe what Cheshire says in preference to our own experience, and

that of our beloved Quinby), "There is not one single old idea about this disease which is not incorrect, except that it is contagious," and "the old bees almost invariably are the channels of infection." I know that I cured my apiary in 1872 and 1873 by the Quinby plan of hiving all natural and driven swarms into clean empty hives, and right in the face of this knowledge, Mr. Cheshire and Mr. Corneil tell me that the disease is not spread, only occasionally by the honey, but by the old bees which are full of bacillus alvei. No one respects or prizes scientific research more highly than I do, but to be of value to me that "research" must not run right squarely up against positive known facts. Quinby cured hundreds of colonies of bees of foul brood by simply hiving them in clean empty hives. I cured my whole apiary in just the same way seventeen years ago, since which I have not even seen a single cell of foul brood in our locality, and hundreds of others have cured thousands of colonies in the same way, while with all the care and best endeavor used by those careful experimenters, the Roots of Medina Ohio, not a single colony was cured by Mr. Cheshire's plan; but in order to cure them they had to finally come over to the old Quinby plan; that one single old idea among others about this disease, which Mr. Cheshire says is "incorrect." If I have made no attempt to justify my position, all right, I am willing to abide by the judgment of the general reader. I am not prejudiced in the matter, and had hoped that time would prove that the phenol cure would be one which the every day practical bee-keeper could use with success; but as such has not proven to be the case, there was no other way for me to do, as a faithful servant of those for whom I labor, but to lift up a warning voice. The part of Mr. Corneil's article in which he gives any tangible proof to support his theories, is so fine and hair-splitting that it is of no value to the rank and file of our pursuit, and reminds me of the winding up of the "pollen theory" as put forth by Mr. Heddon, in which, to get the theory out of the corner in which it was driven, the microscope had to be used to prove that enough pollen remained about the sides and bottoms to the cells of what all practical observers would call perfectly empty combs, to give the "disease" to any colony; thus proving that all the previous talk about giving bees combs containing no pollen, and then feeding sugar syrup, could not be of any practical benefit to the average apiarist of our country. In conclusion, permit me to ask Mr. Corneil, if Mr. McEvoy of his Province, who is appointed by the authority of that Province as a foul brood inspector and curer, is exterminating that disease by the

Cheshire plan? If he is, all right, I take back all I have said. If he is not, it is Mr. Cornell's first duty to look after him and see that he goes right, if he would be a faithful servant of the bee-keeping world, rather than "forbearing" to intimate that Mr. Jones and myself show a "want of knowledge."

G. M. DOOLITTLE.

Borodino, N.Y.

We wish to give full credit to scientists, and, in fact, we owe them a great debt of gratitude for the able work they have done for us, and yet we are sure in the past some scientists have made mistakes, and none are infallible. No doubt many of those who have read Cheshire have noticed his statement on page 177, Vol. 1, in reference to the capabilities of bees building square cells. He states: "This matter is not unimportant, for, if the books are believed in, the manner of cell elaboration cannot be understood. Even Langstroth, to whom the debt of apiculture is very great, has an illustration of the intermediate cell with a prolonged internal angle of 62° , which a number of English writers have improved (?) to 51° , whereas about 100° is the limit the bee can reach." Now, notwithstanding friend Cheshire's elaborate calculations and his positive theories on this point, we have known bees to build cells in direct opposition to, and in defiance of all his rules and regulations. Many will recollect us exhibiting at Toronto Exhibition, large pieces of comb with cells built in almost every conceivable shape, and when Mr. Cowan, the able editor of the B. B. J., was visiting us in 1887, we gave him a number of large pieces of comb to take home to England, disproving beyond question these statements made by Cheshire. While scientists work largely with their microscopes, we go by practical experience. Experimenting for years with thousands of colonies ought to be some proof of a person's knowledge in reference to matters pertaining to their business. The back numbers of the C. B. J. contain many pages describing the various experiments in connection with the curing of foul brood, and we do not desire to go over them again, but we have had occasion lately to make some further tests in order to prove some points. Now, we have taken bees from a foul broody colony, that had honey in their sacs, and shaken them all up not. After remaining in this close

together so that we could not tell any difference in them. We took part of them and mashed them up, and mixed the mashed bees in honey, fed this honey to a colony and gave it foul brood. We took the other half, and fasted them until all the honey in their sacs was consumed, in fact, until they starved to death. We then mashed them, and fed them to a nuclei, or small colony, first mixing them thoroughly in honey, and the result was not a trace of foul brood. We have had repeated experiments clearly indicating to us that the honey is almost the only cause of spreading the disease. We have no knowledge of the disease ever being spread by the bees, after the honey in their sacs was all consumed. Of course, we have known it to start from hives that contained foul brood, but not after they had been scalded.

Queens are also said to lay eggs which will produce foul brood. This statement we have no hesitation in saying, was made in good faith, yet experience in America at least, proves that it is quite astray. I have made tests in more than 500 instances of queens from foul brood colonies and the disease in not one instance ever appeared again. See the thousands and thousands of foul broody colonies that are fasted every year and which never show a sign of foul brood afterwards. If the queen gives the disease or if the disease was carried by the bees on their bodies, fasting would be of no use. If the disease is in their bodies in any way, so that it could afterwards come in contact with the honey, why does it not produce the disease again? Perhaps some of these scientists can tell us why it is that a bee with its sac filled with foul broody honey can consume or remove every particle of it from the sack so that clean honey put into the sac never gets a trace of foul brood. We have set a clean colony of bees without combs on top of a foul broody hive, placing two partitions of wire cloth between sufficiently far apart to prevent the bees from feeding any of the diseased honey to the upper colony, but allowing free circulation of atmosphere between the two colonies, until the top colony was so permeated with the foul broody odor that it was impossible to tell from the smell which colony was diseased and which was

proximity to the diseased colony and giving them every chance to contract the disorder, if it could be communicated through the atmosphere, we have removed them to a clean hive and they never showed a sign of foul brood. Next, we placed a number of combs containing honey in the same place over this foul broody colony for a few hours, and upon placing these combs and honey in a perfectly healthy colony the disease almost immediately broke out. This is only one proof among many which we have that no matter how the bees be exposed to the disease they do not contract it, but immediately the honey is placed in proximity to the plague, it takes up the germs or whatever means the disease is carried by, and when fed to the nuclei brings foul brood every time. We have taken a queen from the worst foul broody colony in our yard, introduced her to a queenless colony in a few minutes after she was taken out. Every egg she laid produced a healthy bee. We then placed her back in the diseased colony again, and nearly every egg she laid produced a larva, which died of foul brood. We have again put her in another clean nuclei, when every egg she laid produced healthy bees. We have made this experiment frequently and thoroughly, and we are speaking of what we have seen with our eyes, not with the microscope. This whole question, in fact, seems to resolve itself into a dispute between experiments and investigations by half a dozen or so scientists in their studies, and hundreds of practical bee-keepers in their bee yards. Whether the scientists have discovered the germs of foul brood or not is a question. But the testimony of thousands of bee-keepers, added to years of our own experience, is our evidence to the fact that the scientific *bacillus alvei* is entirely harmless except when fed to the larval in the food. We are very glad that Mr. Corneil has brought this subject up and probed it a little more, because it brings out fresh facts and new points that are worthy of our attention; just as long as tin cans, or other vessels in which foul broody honey is sold, are scattered about back yards and lanes, or left lying around where robber bees can get at them, just that long will we have to keep posted on how to cure foul brood.

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.

Advice to a Young Man.

QUERY No. 319.—What is the best way for a young man to learn bee-keeping. He wishes to make a business of it, and has \$1,500 capital. T.J.

ENGENE SECOR, FOREST CITY, IOWA.—Go and spend the season with some advanced bee-keeper.

JAS. HEDDON, DOWAGIAC, MICH.—To spend a season in the practical working apiary (a large apiary every time) of some successful honey producer.

ALLEN PRINGLE, SELBY, ONT.—Go to a good bee-keeper for instruction, and study the textbooks and journals. I believe W. F. Clarke has opened an apicultural college at Guelph.

G. M. DOOLITTLE, BORODINO, N. Y.—Buy from two to five colonies. Read, study, investigate, and so grow up in knowledge as your bees gain in numbers. Work out when not needed with the bees.

PROF. A. J. COOK, LANSING, MICH.—Either go to some agricultural college where it is taught and practice, or else study well and work on gradually, or else go to some good bee-keeper and study it some time.

J. F. DUNN, RIDGEWAY, ONT.—First, take a college course where apiculture is taught. The Michigan Agricultural College is the only one that has ever been of any benefit to students of apiculture. Spend the next season with some successful apiarist. That, I think, would be the best way.

G. A. DEADMAN, BRUSSELS.—No doubt the best way would be to work a season with a practical bee-keeper who has upward of 100 colonies. If you cannot do this, buy say two colonies and read up the business, and by the time they have increased to your desired limit, you should be able to manage them successfully.

J. K. DARLING, ALMONTE.—If he has time go one season with a practical bee-keeper. If not able to do that, take two or three of the most progressive bee journals and buy as many of the best standard works, read up well, buy a few colonies, do the best he can with them, and learn by experience, while he builds up his apiary.

R. F. HOLTERMANN, BRANTFORD, ONT.—Spend, after reading one or more good works on bee-

keeping, two seasons with a good bee-keeper, unless you have a friend understanding the business to whom you can go for advice, then one year may do, but remember the second year you will learn many things at your own expense you might have learned at some one else's.

J. E. POND, NORTH ATTLEBORO, MASS.—The best way is to apprentice himself to some well informed bee-keeper for a season. He must also study faithfully some of the best textbooks on the subject, and, of course, subscribe for and faithfully read two or three of the bee journals. He may, after thorough study of text books, get one or two colonies and work them till he gets a practical knowledge of the matter. But economy says take a course of apprenticeship.

G. W. DEMAREE, CHRISTIANBURG, KY.—The following would be my way. I should select the best locality I could find for the apiary. Some expert in such matters should be consulted as this is the most important matter as to future prosperity. Stock the yard at first with about twenty-five colonies. Get some good bee-keeper to set the things in order at the start. Read the books on bee culture, take the bee papers, visit some good apiarian and learn all you can by seeing things done in the apiary and by doing work that requires skill under the direction of your teacher. Don't be lavish in way of expenses, but pay your way. Put up a honey house as wide as you will want it and so that you can extend it in length as you will need the room for extracting room, store room shop. One storey high is best, where ground room is no object. I could point out several good bee men who started in this way under my teaching.

D. A. JONES, BEETON—First secure the best works on bees, and take several of the leading bee journals. Secure a situation for one season with some prominent bee-keeper, after which time he should be able to take charge of and manage a large apiary successfully.

Re-Queening.

QUERY No. 320.—How can I tell if I should re-queen. Having purchased an apiary, I do not know the age of the queens?—BRANTFORD.

J. F. DUNN, RIDGEWAY, ONT.—Re-queen those colonies that are the least prosperous.

PROF. A. J. COOK, LANSING, MICH.—By noting from success. It always pays to "let well enough alone."

ALLEN PRINGLE, SELBY, ONT.—When you see a queen failing, replace her. The bees will do the same, and between you both you will soon know where you stood.

M. DOOLITTLE, BORODINO, N. Y.—Let the bees attend to that if they are Italians or

Hybrids. If blacks re-queen when the proper amount of brood is not kept up.

EUGENE SECOR, FOREST CITY, IOWA.—The bees will usually attend to that matter. If there is a colony that does not pay for its keeping, it is always safe to re-queen such.

J. K. DARLING, ALMONTE.—Supercede all queens not keeping their colonies strong, whether old or young. Give only young queens and those from the most vigorous colonies you have. A poor queen is worse than none at all.

G. A. DEADMAN, BRUSSELS—In your case the first year I would let them re-queen themselves. The second year I would select cells from best colonies and re-queen all except any special ones which may have distinguished themselves.

JAS. HEDDON, DOWAGIAC, MICH.—Oh, let your bees attend to that themselves, the same as nearly every practical honey producer of this country does. You have been reading some theories about young queens and re-queening, haven't you?

J. E. POND, NORTH ATTLEBORO, MASS.—This question opens up a big field. If a queen is not laying well, change her. So long, however, as a queen is prolific, if of the race wanted there is no need of re-queening. Read the text books and bee journals for information.

G. W. DEMAREE, CHRISTIANBURG.—The bees will generally attend to superceding of their queens at their proper time. The only way you can tell when the bees are tolerating their old mother too long for the prosperity of the colony is by the dwindling down in number of the workers and small amount of brood in comparison with colonies that have vigorous young queens. I always exchange the old queen with a young one when I see this state of things, a condition that is readily and easily seen when handling the colonies.

R. F. HOLTERMAN, BRANTFORD, ONT.—If you do not take the breed into consideration, I should judge by the appearance of the queen and the way she deposits her eggs. If the queen's wings are much worn and ragged in appearance I should judge she was getting aged. As to the manner of depositing eggs if she lays eggs in a compact way in the combs and there are nice sheets of brood of even appearance I should hesitate to destroy her even if she was old. If a colony showed undesirable broods I should destroy the queen. Remember, however, cross bees are often so through handling.

D. A. JONES, BEETON, ONT.—Select the best hives to breed from, and during the height of the honey flow and swarming season, raise sufficient queens to give one to each colony. You then know that your queens are all young. If half of them are young, and you cannot tell which it is, it is better to re-queen the entire apiary than to keep old queens.

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 94 94, 94, 96, 96, 96, cockerel 95, J Y Bicknell, judge Eggs for hatching \$1.2 per 13. WM. COLE, Brampton

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.

GET new blood in your bees by getting our large beautiful yellow Queens, 75 cents each. Honey extractors, knives, smokers, frames sections, &c., &c. We are selling our nice foundations for 45 and 55 cents per lb. W. CHRYSLER, Box 450, Chatham, Ont.

JANUARY ONLY

We will sell our noted 200 and 100 egg capacity

- INCUBATORS -
AT 15 PER CENT. DISCOUNT

off our regular prices till January 1st, 1892. Read one of our many testimonials.

THE GERRED INCUBATOR CO.:

Gentlemen.—I take great pleasure in writing to you of my experience with the Incubator I purchased from you. I have had two hatches, hatching all the fertile eggs. The chicks and ducks are all strong and healthy and easily raised. Yours respectfully,

THOMAS HAMLIN.

Allandale, July 6, '91

Send for circular and price list.

THE GERRED INCUBATOR CO.

90 De Grassi Street, Toronto.

BEEES

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

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.

LARGE BEES are a consideration. Our No. 1 colony from which we purpose breeding next season produces a large Italian Bees as I have seen. I will not guarantee delivery of any queens not booked in advance. G A. DEADMAN, druggist, etc., Brussels, Ont.

LOOK AT THIS!

HAVING nearly completed our new factory, in order to keep it running, we offer 5 per cent. discount off our list prices on all orders for goods to be used next season. This does not apply to Honey Cans, Sections, Crates, or Chaff hives. Only on goods for next season's use. We pay 30 cents cash or 35 cents trade for good average beeswax.

MYERS BROS.,

MENTION THIS JOURNAL Box 94, Stratford, Ont

SECTIONS!

NO. 2 SECTIONS FOR SALE.

70,000 Sections about 4 1/2 x 4 1/2 x 1 1/2 and 4 1/2 x 4 1/2 x 1 3/8, at the following

ASTONISHING PRICES:

Per 1000, \$1.25, or in lots of 10,000, \$1.00.

FIRST COME, FIRST SERVED.

D. A. JONES Co'y Ltd. BEETON.

DOGS AND COMB FOUNDATION.

Brood Foundation, 50 cts. per lb.
Section Foundation, 60cts. per lb.

L. JONES,

DEXTER P. O., ELGIN COUNTY, ONT.

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.D., Branch Office, 186 WEST ADELAIDE STREET, TORONTO.



ROBERT BLOYE,
TODMORDEN, ONT.
WHITE WYANDOTTES
Exclusively.

Having decided to keep only White Wyandottes in future, I offer for sale my entire stock of

WHITE PLYMOUTH ROCKS (EMPIRE STRAIN)

Cheap. A large number of Chicks of both varieties for sale now.

EGGS IN SEASON, \$2 PER 13.

LOOK HERE!

Dunville P. P. Stock

3rd Exhibition

1st and 2nd on S. C. B. Cock. These birds are for sale 2nd on S. C. B. Hen, 96; 1st on Blk Minorca Pullet, 94 1st on S. C. B. Leghorn, B. P.; 1st on Blk Minorca B. P.; 1st on Pekin Duck, 1st on Pekin Drake, drake for sale. All birds for sale now.

C. H. McRae
Park Poultry Yards, Dunville.

NOTICE.

I have a few White Leghorn Cockerels and Pullets from my best breeding pens. These are fine birds. Will sell singly in pairs or in trios.

J. L. MYERS.

P. O. Box 94. STRATFORD, ONT.

EGGS, \$1.00 for 13.

Light Brahma—Six yards. Fletcher, Duke of York, Williams and Bucknam strains

Dark Brahma—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 Rock—Four yards

White Wyandottes—Two yards

Silver Wyandottes—Two yards

Barred Plymouth Rock—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

FALL



IN



PRICES

EVERYTHING * GOES

During the next thirty days

WE WILL ALLOW

20 per cent. Discount

from Catalogue prices on all goods except

WIRE NAILS, HONEY TINS AND

FOUNDATION,

of which we are prepared to allow 10 per cent. All orders must be accompanied by the cash.

Agents write for special cut in prices.

D. A. JONES CO'Y Ltd.
BEEYTON.

LOOK HERE!! SMOKERS.

We have about 500 Smokers, No. 2 and 3, ready for immediate shipment, by mail or express. Special rates for large orders. See our Catalogue for regular rates. We have also

1000 Honey Knives
of various kinds. Extra discount to dealers. Write for particulars.
THE D. A. JONES CO., LTD.,
Beeton, Ont.

TO BEE - KEEPERS

AND FARMERS.

We have on hand a large quantity of 5 gallon (oak) kegs, just the thing for cider or vinegar, at only 40 cents each; also a quantity of second hand hives; and honey tins at half price.

Foundation and General Bee Supplies always on hand.

THE D. A. JONES CO., Ltd.

Beeswax/Wanted

PRICES CURRENT.

BEESWAX

We pay 85c 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.....50c over 50 lbs. Write for price.
Section " in sheets per pound..... 55c
Section Foundation cut to fit 3; x4½ and 4½ x4½. per lb.: 0c
Brood Foundation, starters, being wide enough for 48c Frames, but only three to ten inches deep.

THE D. A. JONES CO., BEETON

THIS SIZE AD.



3 months..... \$3 00
6 " 5 00
1 year. 8 00

Payable in Advance.

BE SURE AND GET

GOULD & Co's

-PRICE LIST OF-

HIVES, EXTRACTORS, FOUNDATION, &c.,
before ordering elsewhere. Address E. L. GOULD & Co., Brantford, Ont.

C. J. DANIELS, -

221 River St., Toronto, Canada.

BREEDER AND IMPORTER OF

Buff Leghorns, Indian Games (Imp.)

Red Caps, Back Javas,

Red and White Malay Bantams,

Golden Wyandottes,

Long Distance Homing Pigeons.

Canadian Agent for Mann's Bone Cutter; 100 per cent. more profit in feeding ground green bones to your poultry.

Poultry Netting & Fencing.

We can now furnish the best Poultry Netting at the following low prices for 2 in. mesh No. 19 wire, in the various widths, in full roll lots (150 feet to roll):

| 19 GAUGE. | | | | |
|-----------|--------|--------|--------|--------|
| 24 in. | 30 in. | 36 in. | 48 in. | 72 in. |
| \$3 10 | 4 00 | 4 85 | 00 | 9 50 |

| 18 GAUGE. | | | | |
|-----------|------|----|------|------|
| \$3 25 | 4 00 | 00 | 6 30 | 9 90 |

Less than full roll lots the price will be 1/2 c sq ft

D. A. JONES, CO., BEETON,

1882-Chester Poultry Yards-1891

E. J. OTTER,

90 DE GRASSI ST., TORONTO.

IMPORTER AND BREEDER OF

EXHIBITION DARK BRAHMAS,

ORNAMENTAL BANTAMS.

My birds are second to none. They have won since 1890, 97 trophy prizes; 4 specials. Birds for sale at all times. Eggs in season, \$3 per 13, or 26 for \$5. Satisfaction guaranteed.

Guelph Poultry and Pet Stock

ASSOCIATION

Annual Exhibition

City Hall, Guelph,

Dec., 14, 15, 16 and 17, '91

Prize list sent on application

JOHN COLSON, SECT. - - BOX 462
GUELPH.

+ P. H. HAMILTON, +
HAMILTON, ONT.

Breeder of
White and Black Leghorns,
 —AND—
IMPERIAL - PEKIN - DUCKS.

Chicks and Ducklings for sale in September. No more Duck Eggs for sale. Leghorn Eggs for balance of season, \$2.00 per setting of 13; or two settings for \$3.00, one of each if desired.

Prices to suit the Times

A FEW pairs of Silver Laced Wyandottes and a few Plymouth Rock cockerels for sale cheap. Brown White and Black Leghorns, White and Barred Plymouth Rock, White and Silver Laced Wyandottes Eggs of any of the above varieties, or mixed, at \$1.50 per setting, or two settings or \$

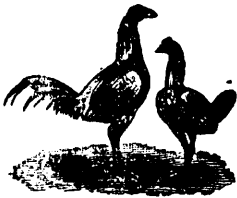
WM. MOORE

MENTION THIS JOURNAL Box 462 LONDON, ONT

GAME

Bantam Fanciers

NEW FANCIERS.



Eight Black Red Cockerels—grand ones, guaranteed Bred from a Crystal Palace cup winner. Sure to please you; from \$2 to \$5 each. Some Fine

Brown-Reds at \$4 to \$5 per pair; also a good Pile Bantam Cockerel, (yellow legged), bred from a great English winner, fine station, color, etc. Price only \$3, these are sold on account of having too many birds; also large Game fowls. All are in fine health and condition. First money gets the best. E. F. DOTY, 47 Wellington Place, Toronto

COCKERELS AND PULLETS

S. C. BROWN AND WHITE LEGHORNS

| | | |
|-------------------|------------------|--------------|
| COCKERELS, | PULLETS, | HENS, |
| \$1.50 to \$3.50 | \$1.00 to \$2.00 | \$1.25. |

Barred Plymouth Rock Cockerels, \$1.50.

Setting of Eggs.

| | |
|------------------------------|---------|
| BROWN AND WHITE LEGHORN..... | \$1.50. |
| BLACK MINORCAS..... | 2.00. |
| BARRED PLYMOUTH ROCKS..... | 2.00. |

I have not spared money in procuring best strains in this country, and you can rest assured you will get

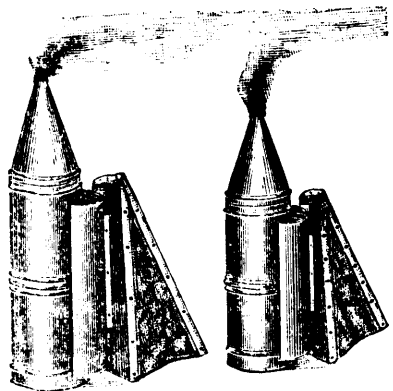
GOOD VALUE FOR YOUR MONEY.

Bay of Quinte Poultry Yard; with 40 acres of a run.

GEO. H GRILLS,
BELLEVILLE.

Box 889.

SMOKERS !
CUT IN PRICE



Since our Catalogue was issued, we have made a contract for a large number of smokers by piece work, at such figures as will enable us to reduce the prices. Hereafter the price of the No. 2 Smoker will be \$1, (formerly \$1.25,) with goods; \$1.25 by mail.

See Discount on above in another column.

'BIRDS EYE VIEW'

OF BEE-KEEPING

WE HAVE ABOUT

1000 COPIES

OF "BIRDS EYE VIEW" WRITTEN

By Rev W. F. Clarke

FORMLY SOLD AT 25 CENTS

In order to reduce our stock in this line and to give our customers something good for winter perusal, we will make the price during the next month,

ONLY TEN CENTS

POSTAGE PREPAID

D. A. Jones Coy Ltd., Beeton