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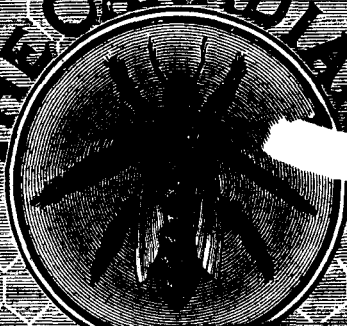
VOL. IV, NO. 39

1888

DECEMBER 19

PUBLISHED EXCLUSIVELY IN THE INTERESTS OF THE HONEY PRODUCER

THE CANADIAN



JOURNAL

THE FIRST \$ WEEKLY IN THE WORLD

ONE DOLLAR PER YEAR

THE GREATEST POSSIBLE GOOD TO THE GREATEST POSSIBLE NUMBER

PUBLISHED BY
THE D. A. JONES CO. LTD.
BEETON ONT.

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Table with 4 columns: Item description, Price per copy, Price per dozen, Price per 100 copies. Items include The Canadian Bee Journal, Book of Bees, A Bee in the Culture, etc.

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We have prepared a series of pamphlets on special subjects relating to bee culture. containing the best thoughts of our most practical beekeepers, which we offer at very low rates, as follows:

- 1. QUEENS, And How to Introduce Them. .10
2. HIVE PROOFING, and how to build them. .15
3. WAX DROPPING, and preparations therefor. .15
4. BEE-KEEPER'S HANDBOOK, containing the proper definition of the special terms used in Bee-keeping. .25
5. HIVE PROOF, its cause and cure. .40
Or the whole five books, post paid, for. .90

The D. A. Jones Co., Ed., Boston, Ont.

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We keep in stock constantly, and can send by mail post-paid the following:-

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'THE CULTURE OF THE BEE,' by A. I. Root. Price, cloth, \$1.00.
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'BEES-KEEPERS' HANDBOOK,' by Henry Alley. Price, cloth, \$1.00.
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'HOW TO KEEP THE HONEY BEE,' by Rev. L. E. Fausch. Price, cloth, \$1.00.
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'HOW PROOF, ITS MAINTENANCE AND CURE,' by D. A. Jones. Price, in paper, 10c.
'HOW TO KEEP THE BEE,' by A. I. Root, in paper, 10c.

...HONEY, some reasons why it should be eaten, by Allen Smith. This is in the shape of a letter (a page) for free distribution amongst prospective customers. Price, with name and address, per 100, 3c; per 500, 5c; per 1000, 8c; per 100, 8c. With blank for name and address per 100, 1c; per 500, 1c; per 1000, 1c.

The D. A. Jones Co., Ed., Boston.

Boring' Foot Power Machinery

We advertise on another page. We have just received for the sale of these machines, and we can make a price of 25c each at Toronto (post and freight paid). On application we will forward catalogue and prices free.

The D. A. Jones Co., Ed., Boston, Ont.

PUBLISHERS' NOTES.

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

Send us the names of three subscribers, with \$3 in cash and receive as a premium one of our Binder, seasonal card for sample of letter. Money, some reason why it should be eaten.

The Canadian Bee Journal will be continued to each address unless otherwise ordered, and all arrears paid. Subscriptions are always acknowledged on the wrapper label as soon as possible after receipt.

American Currency stamps and Office orders and New York and Chicago local drafts accepted in part in payment of subscription and advertising accounts.

Letters will be taken up, so long as we can, and we will cheerfully correct them. You write us. We will do our best to satisfy you, but if you cannot, then write to us. We will do our best to satisfy you, but if you cannot, then write to us.

We can supply binders for the Journal, 55 cents each, post paid, with name printed on the back in gold letters. Subscription price per 100, 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, \$1.00.

The number on each wrapper or address label will show the starting number of your subscription, and by comparing this with the "What No." on the Journal, you can ascertain your exact standing.

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All advertisements will be inserted at the following rates:

TRANSIENT ADVERTISEMENTS. 10 cents per line for the first insertion, and 5 cents per line for each subsequent insertion. Space measured by a square of solid nonpareil of which there are twelve lines to the inch, and both time works to each line.

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STRICTLY CASH IN ADVANCE

Contract advertisements may be changed to suit the seasons. Transient advertisements may not be changed and charged accordingly.

CLUBBING RATES

Table with 2 columns: THE CANADIAN BEE JOURNAL, and various other journals. Rows include: Greenings (semi-monthly), American Bee Journal (weekly), American Bee Journal (monthly), Bee-keeping Magazine (monthly), Bee-keepers' Guide (monthly), Key of the Bee, Bee-keepers' Review, Bee-keepers' Advocate.

TO CONTRIBUTORS

Communications on any subject of interest to the Bee-keepers are always welcome, and are solicited. Diagrams with text our Query Department of which we are. All questions will be answered by thorough practical men. Questions solicited.

When sending in anything intended for the Journal, do not mix it up with a business communication. Use thin 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 more interesting. If you are particularly interested in some system of management, we will be glad to publish it, and you are welcome to our meetings and to know us, let them through the medium of the Journal.

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MOISTURE.

If you would know the effects of moisture in bee cellars, how injury to the bees from its presence may be avoided, or how to have dry cellars, read the Nov. No. of **THE BEE-KEEPERS' REVIEW**. It gives, upon these points, the views and experience of James Heddon, H. R. Boardman, Dr. C. C. Miller, Eugene Secor, J. H. Martin, O. O. Poppleton, Prof. A. G. Cook, R. S. Taylor and S. Cornell. Besides this there are the usual lively, wide-awake, pointed editorials upon current topics, also appropriate extracts pertaining to the special topic under discussion. The Dec. No. will discuss, "Sections and their adjustment on the hives."

Price of the REVIEW 50 cents a year. Samples free. Back numbers can be furnished. The REVIEW and THE PRODUCTION OF COMB HONEY for 65 cents.

Address
W. Z. HUTCHINSON
613 Wood Street, Flint, Mich.

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.
Cor., Freeman & Central Avenues, Cincinnati

LOOK HERE !

Nickel plated pen and pencil stamp with name 30c; Nickel stamped stamp with name, 30c; Black wax nut handle with name on, 15c; Your name in rubber or any of the above sent post paid on receipt of price. Clubs amounting to \$1.20 sent for \$1. Boys and girls can make money canvassing for these stamps. Every school boy and girl should have a pen and pencil stamp. It contains a pen, lead pencil and stamp for printing your name on your books, etc. Write your name plainly. Remember you have no duty to pay on these stamps when you deal with us.

Gem Rubber Stamp Co.,
MALAKOFF, ONT.

SALESMEN WANTED.

SALARY AND EXPENSES PAID, OR LIBERAL commissions as representative chooses. Outfit free. Permanent positions guaranteed. Experience unnecessary. Special advantages to local men who devote part time.

L. P. THURSTON & CO.
Empire Nurseries, Rochester, N. Y.

WE WANT AGENTS

sending subscribers or we pay a cash commission as may be preferred. In addition to the premiums or cash commission allowed canvassers for every club of subscribers procured we offer

\$2250 IN SPECIAL PRIZES,

to be presented the 221 Agents sending the 221 largest clubs of subscribers to the AMERICAN AGRICULTURIST before March 1st, 1889.

\$2250 TO BE GIVEN AWAY.	\$650 Fischer Boudoir upright Piano for the largest club	\$650
	\$200 in cash for the second largest club	200
	\$150 in cash for the third largest club	150
	\$150 Keystone Organ for the fourth largest club	150
	\$125 Bradley two-wheeler for the fifth largest club	125
	\$100 in cash for the sixth largest club	100
	\$50 each for the next two largest clubs	100
	\$25 each for the next three largest clubs...	75
	\$10 each for the next ten largest clubs	100
	\$5 each for the next fifty largest clubs	250
	\$3 each for the next fifty largest clubs	150
\$2 each for the next hundred largest clubs	200	
221 SPECIAL PRIZES TO THE AMOUNT OF		\$2250

Remember these special prizes will be presented in addition to the premiums or commission allowed for every club of subscribers procured.

It makes no difference how large or how small the club is, the persons sending the largest number of subscribers before March 1st, will receive the first prize of a \$650 piano; the person sending the second largest club will receive \$200 in cash and so on for the balance of the prizes

You cannot work for a better publication than the AMERICAN AGRICULTURIST. Its superior excellence, together with its great reputation gained by nearly fifty years of continuous publication, make it one of the easiest journals to canvas for. All our promises will be carried out in every respect, and you can rely on receiving good treatment.

SEND THREE TWO-CENT STAMPS for premium list and specimen copy giving full description of premiums and particulars of the above offers.

ADDRESS AMERICAN AGRICULTURIST,

751 Broadway, New York City.

Mention this paper.

BEE-KEEPERS'

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We make a specialty of Apiarian Printing, and have unequalled facilities for Illustrated

Catalogue and Label Work.

Note these figures, which include printing.

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Note Heads, good quality.....	\$1 15	\$1 90
" linen.....	1 25	2 00
Letter Heads, Superfine.....	1 75	2 50
" Linen.....	2 00	3 25
Envelopes, business size, No. 7,		
white.....	1 15	2 00
" Extra quality.....	1 35	2 25
Business Cards.....	1 50	2 50
Shipping Tags, 40c., 45c. and 50c. per 100.		

Our new book of labels contains nearly 100 specimens of elegant honey labels. Write for prices for any printing required.

THE CANADIAN BEE JOURNAL,

7

BEETON.

EXCHANGE AND MGMT.

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 they will be inserted in our regular advertising columns. This column is especially intended for those who have bees or other goods for exchange for something else, and for the purpose of advertising bees, honey, etc. for sale. Cash must accompany advt.

XMAS HOLIDAYS will soon be here, so make your friends happy by giving them a card with your name printed in elegant type, 50 cards or 25 large chromo cards for 12c. Samples 6c. PALMERSTON PRG. Co., Lock Box 20, Palmerston, Ont.

SAW Table, iron frame, wood top, made by Cant, Gourlay & Co, Galt; in first-class order; for sale or exchange. For further particulars and price, apply to WILL ELLIS, St. Davids, Ont.

SPLENDID OPPORTUNITY.

FOR SALE in Culloden, County of Oxford, a comfortable Dwelling, Outbuildings and four-fifths of an acre of splendid land, planted with the choicest fruit. In connection there are 60 Hives of Italian Bees with plenty of stores to winter, and everything else for carrying on Bee-keeping. All for Six Hundred Dollars (\$600). Owner leaving, and must sell. One of the finest districts for Bee-keeping in Ontario, situate two miles from Brownsville station, Michigan Central Railroad. Come and see, or apply to

JOHN A. GAIRNES,
Culloden, Ont

BUY ONLY THE
GENUINE

BELL

ORGANS - PIANOS

THE AMERICAN APICULTURIST

Will be mailed from Oct. 1 1888 to Jan 1 1890 for 75 cts. The editor has had 30 years experience in rearing Queens and practical Bee-keeping, and now proposes to give the result of that long experience in a series of articles in the APICULTURIST. The first Article will appear in the Nov. 1888 issue. The details of a new method of rearing Queens in full colonies, without making the colony queenless, will be given to each subscriber. Send for sample copy. Address

AMERICAN APICULTURIST, Wenham, Mass.

NEARLY 30 TONS OF
DADANT'S FOUNDATION

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CHAS. HERTEL, Jr., Freeburg, Ill.
E. L. ARMSTRONG, Jerseyville, Ill.
E. KRETCHMER, Coburg, Iowa.
M. J. DICKASON, Hiawatha, Kans.
ED. R. NEWCOMB, Pleasant Valley, N.Y.
J. W. PORTER, Charlottesville, Va.
J. B. MASON & SONS, Mechanic Falls, Me.
Dr. G. L. TINKER, New Philadelphia, O.
D. A. FULLER, Cherry Valley, Ills.
JOS. NYSEWANDER, Des Moines, Iowa.
G. B. LEWIS & CO., Watertown, Wis.
PAUL L. VIALLO, Bayou Goula, La.
B. J. MILLER & CO., Nappanee, Ind.
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OLIVER FORSTER, Mt. Vernon, Iowa.
GEORGE E. HILTON, Fremont, Mich.
J. M. CLARK & CO., 1409 15th St. Denver, Col.
E. L. GOOLD & Co., Brantford, Ont.
and numbers of other dealers. Write for SAMPLES FREE and Price List of Bee Supplies. We guarantee every inch of our Foundation equal to sample in every respect. Everyone who buys it is pleased with it.

CHAS. DADANT & SON,
Hamilton, Hancock Co., Ill.



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

VOL. IV. No. 39

BEETON, ONT., DEC. 19, 1888.

WHOLE No. 195

EDITORIAL.

FOR the two past weeks this JOURNAL has been delayed in issuing. The reason is that the paper mill where the cover is manufactured has been shut down. The mill is on the Cornwall canal and the break in the embankment is the cause. We regret the delay but the fault was not ours.

* *

One year old is the *Bee-keepers' Review*, and friend Hutchinson recites the many difficulties he has met and overcome. He has every reason to feel proud of his success and of his paper. The *Review* is a paper apiculture could ill afford to lose, and it will, we trust, continue to meet with unbounded prosperity.

FOR THE CANADIAN BEE JOURNAL.

Remedying Queenlessness in Winter.

DEAR SIR:—Your comments to my epistle of page 733 are, that I couldn't have read the query understandingly. The questioner asks what to do to remedy queenlessness in a colony which has lost its queen after going into winter quarters, not, as he (I) seem to think on the approach of winter.

I have offered the remedy *i. e.* in a supposed known case of queenlessness, of course provided always that a queen could be got, and that there are bees enough left to constitute a colony of proper strength otherwise unite, but on no ac-

count leave a colony queenless all through the winter, for the results will be as I stated, a very few bees alive if any by spring, and also the honey consumed. For in a colony without queen the bees will consume far more honey in a given time, and so you will not only lose the bees but likewise the honey. This statement I make in contrast to your correspondents and yourself, viz., that to leave a colony alone, don't bother colony policy till spring, would be fraught with evil. You would have no bees left to unite according to the replies of your correspondents, and yours would convey the idea that if the queen did die it wouldn't affect the bees of the colony and therefore the remedy could be applied in spring.

And now as for the finding or diagnosis of colonies having become queenless while in winter quarters, *a la* questioner 652. The quarters, or bee house or cellar being in proper condition, a place where it is known bees have usually wintered successfully. If I find at a temperature 40° and 45° on going reasonably close to the hives in the dark, and suddenly show a light, previously carried concealed under cover of tin can, the colony that has no queen will, in an instant become uproarious and this is almost an intallible indication of queenlessness, although not always in every case, restlessness; being a cause of queenlessness, but I would in any such case institute examination, blow a little smoke among them which will soon quiet them. If such restlessness is found from the latter part of January onward, and there being no brood under way, that colony is nineteen times out of twenty queenless. It is of course difficult to make out for a certainty a case of queenlessness previous to the month of January, as any amount of feed-

ing will not stimulate them to raise brood, but almost any time in January they can be got breeding, which of course, would be proof of the presence of a queen. In all my experience I never yet could, in winter, or through cold weather, keep in a fairly quiescent state a colony without a queen; in summer it makes no difference. I have had colonies without a queen for sixty days, without, to an appreciable extent weakening, but in cold weather it is altogether different.

C. WURSTER.

Kleinburg, Dec. 12th 1888.

For the CANADIAN BEE JOURNAL.

PRACTICAL BEE-KEEPING.

INMATES OF THE HIVE.

THE denizens of the industrial hive and their respective offices and functions have been so clearly and amply set forth in the preceding paper that the task of adding thereto or finding fault therewith is a light one.

VIRGIN QUEENS.

The most important practical point, in my opinion, in the paper is that brought out under the sub-head, "Virgin Queens." The purchase of virgin queens instead of all mated ones by bee-keepers is recommended, and its advantages named. This is a question of great practical utility, and I have wondered how it was that the queen breeders and dealers did so little business in this direction. The introduction into the apiary of virgin queens from a distant, reliable breeder has reasons in its favor so cogent that bee men cannot long fail to appreciate their force. The comparative cheapness of the virgin queens, the introduction of new blood into the yard, and avoidance of "in and in breeding" are very important considerations, and, in themselves, sufficient to command the attention of bee-keepers.

THE QUEEN'S STING AND THE DRONE'S FOOD.

There is a popular notion that the queen never uses her sting except to puncture a rival. Mr. Jones explodes this by giving his own experience of being stung in the hand by a queen while holding her. He does not say whether the offender was a virgin or impregnated queen. The former will I know rarely use her sting profanely, but I have a deep conviction that the stately matron always keeps her weapon sacred to the body of a rival, or possibly some offending or obnoxious workers.

There is also a professional notion that "the drones are continually fed by the workers with the same food as is supplied to the larvæ."

Father Langstroth and Prof. Cook are cited in evidence of this. While I am not able to refute the notion I may safely say I do not believe it. My experience, observation, and common-sense all point to the fact that Mr. Drone, from the time he leaves his cell to near the end of his life, liberally helps himself to the best honey in the hive whenever he feels hungry and can get at it.

FERTILE WORKERS.

They are a great nuisance, and hard to be dealt with. After they have once got fairly down to business they "hold the fort" with commendable persistence. Many remedies are proposed, most of them ineffectual. The best of them, I think, is the one Mr. Jones gives, but it is a little expensive. In incorrigible cases I sometimes give them a sort of "heroic treatment" in this wise: I hunt up an old or inferior queen, whose "shuffling off" would be no loss, and give her to them—caged till it is safe to release her. Then I extract all the honey every four days and change combs. As this keeps all the false brood and larvæ back they can lay their eggs and work away to their heart's content. After a while the old queen will begin to lay and finally crowd out the laying workers or they will die off. The extracting can then stop and when the season is over the brood and young bees can be given to some colony in need of them.

ALLEN PRINGLE.

SPECIAL BOOK NOTICE.

We have a number of books which have been superceded by more recent editions, which we will sell at very low prices. In some instances they may be a trifle worn or abraded. We have:

	REGULAR PRICE.	OUR PRICE.
1 British Bee-keepers' Guide Book, T. W. Cowan, edition 1886—good as new.....	50	35
1 Bee-keepers' Guide, Prof. A. J. Cook, edition 1882.....	1 25	50
6 Bee-keepers' Guide, Prof. A. J. Cook, edition 1884.....	1 25	85
1 A.B.C., A. I. Root, edition 1883—a good deal worn.....	1 25	50
1 A.B.C., A. I. Root, edition 1883—good as new.....	1 25	75
1 A.B.C., A. I. Root, edition 1886.....	1 25	75
First come, first served. Now, don't all speak at once.		

In return for the names of ten bee-keepers sent upon a postal, we will send the "Bee-keepers' Dictionary" value 25 cents.

No matter what kind of printing you want, it can be done at this office. Visiting cards, bill heads, envelopes, pamphlets, note-heads, anything. Write for figures.

PRACTICAL BEE-KEEPING.

BY D. A. JONES.

PAPER IV.

WAX, COMB AND FOUNDATION.

ON the under side of the worker bee are situated eight small cavities termed wax pockets in which this substance is secreted. Wax is produced in the body of the bee and it requires the consumption of from ten to twenty-five pounds of honey to produce one pound of wax. Secretion goes on constantly during the honey-gathering season but in minute quantities only. The most is produced when the bees fill their sacs with honey and cluster on or between the combs and remain in a quiet state. The exuding scales of wax may be plainly seen on catching a bee by the wings and examining the under side of the abdomen. Occasionally I have found pellets of wax half the size of a small wheat kernel. This new wax is usually white and handsome, but I have examined bees having the outside edges of the scales soiled and dark. Sometimes these wax scales can be found in considerable quantities on the bottom board of the hive, dropped there during comb building; especially is this the case when the weather is cool and the hive is large with plenty of ventilation. I have gathered them in such quantity that I could make a small ball of wax from them. When this occurs it shows that the bees are not building comb to advantage, and when, during the comb building season, these scales are observed on the bottom-board or around the entrance, more protection should be given the bees that they may be able to get a higher and more even temperature.

Many experiments have been made to ascertain the amount of honey necessary to be consumed to produce one pound of wax. Huber put it at twenty pounds, Cowan says from thirteen to twenty, Liebig says twenty, and other writers place it at twenty-five. These conflicting results arise no doubt from the different manner in which the experiments were conducted, but, in all, the bees were not confined to the hive. G. M. Doolittle

states on page 166 vol. II. CANADIAN BEE JOURNAL his belief "that when bees are confined to the hive and have access to plenty of pollen and water from the fields that a pound of wax can be produced with the consumption of less than nine pounds of honey."

During warm weather with an accompanying honey flow the workers secrete wax rapidly and comb-building is carried on with vigor.

Wax melts at 145° F., and at 85° F. is plastic and readily moulded. 85° F. is the normal temperature of a hive in the breeding season and the bees are thus enabled to form the wax into comb.

COMB BUILDING.

All comb consists of two sheets of cells placed back to back, the partition walls of the sheets alternating. The base or backbone is first constructed by the bees hanging in festoons from the top of the frame. The worker seizes the scale of wax on its abdomen, moistens it, and manipulates with its mouth and mandibles until sufficiently kneaded and in the shape of a narrow yellow ribbon adds it to the mass deposited by its confreres. The size of the cells are determined by the use to which they will be put. If for raising worker brood small cells averaging 25 to the square inch, but larger for the drones of 17 to the inch. Five worker cells or four drone cells measure one lineal inch. Worker comb is seven-eighths of an inch in thickness, drone running as thick as an inch and a quarter. The depth of the cells is of course a trifle less than one half.

CELLS NOT ALWAYS HEXAGONAL.

Many prominent bee-keepers and writers assert that bees invariably build cells perfectly hexagonal in shape, and this is the popular impression. But it is not founded on fact. I have found in a dozen different pieces of comb as many varieties of cells, some oblong, a few hexagonal and others V-shaped; some had three sides the ordinary hexagonal

shape, the other three made with two forming a V running off to a sharp point; then others were as perfectly square as the bees could make them and not a few triangular; some are pentagonal, some nearly round, others heart-shaped, in fact there is hardly any shape but may be found. The square cells were in perfect rows two inches in width and six or more in length, nearly all perfectly square. Most of these cells had brood in them and I was unable to detect any difference between the bees hatched in these peculiar shaped cells and those from ordinary ones.

I have known some colonies to build more or less of these cells in every comb; irregular cells will appear on every sheet of comb containing both worker and drone cells uniting the two kinds, but I am not referring to these. Bees seem willing and able to build cells of any pattern to occupy the space at their disposal.

Discussions have been carried on in apicultural papers as to whether wax was secreted only by the young bees, the exudation of this animal oil stopping at a certain period of the insect's existence, but be this as it may, I have after considerable experimenting concluded that the old bees build more perfect cells than the young ones. Now, do the old bees neglect their work in superintending the construction of the comb, or are the youngsters like humans prone to do the work imperfectly? Some cells are so small and of such peculiar shape that it is impossible for the queen to lay in them, while an occasional one will be double the ordinary size. I had one with nine sides and slightly oblong, fully equal to two ordinary cells. Perhaps they built this one to raise twins in to see how it would work.

The amount of comb a colony will build varies in proportion to its numerical strength. It is said that a small colony will build as much in proportion as a large one, and this may be so, provided they have a hive proportionate to their size. Berlepsch states "that he has known cases in which a swarm have built 300 square inches of comb in one night." When a swarm is hived in its new home without combs it naturally puts forth all its energies to rapidly provide comb

for the queen to lay in and for the reception of stores.

CAPPING.

The cells containing brood and honey are covered over by the bees with a thin coat consisting principally of wax and termed capping. Cells containing worker larvæ are capped almost flat, drone brood is covered with a conical cap when in worker cells, but almost flat when in drone cells. The novice will find no difficulty in distinguishing them.

In a hive with all the combs new the honey will be covered with caps of virgin whiteness, but when the combs are old and discolored the cappings will be dark. Bees use a portion of the old wax in the operation and the color is accounted for in this way.

COLOR OF WAX.

An article appeared in an English bee journal some time ago, in which the writer tried to prove that bees in different countries secreted wax of various colors from pale yellow to sage green and marbled. All wax when first secreted is pure virgin white which becomes yellow by discoloration. I have examined bees in many climes and have yet to see the bees which produce any but white wax.

RENDERING WAX.

Of the various systems of clarifying wax I believe the simplest for all practical purposes is to melt it over a fire in a vessel containing water. The object of the water is to avoid the wax being subjected to such a high temperature as would destroy its usefulness, this being one thing which must be carefully guarded against. The water also improves it in color and purity. Melted without the water wax is liable to be scorched, making it so hard and flinty that when used for foundation the bees can mould it only with difficulty; I have seen samples that the bees have positively refused to work on.

When thoroughly liquid the wax may be poured out into a flaring tin dish and if allowed to cool slowly will be in grand condition. There is always a sediment

and this should be eliminated as far as possible. Keep it in a place sufficiently warm to prevent its solidifying for at least twelve hours. This allows the propolis or bee glue, pollen, dirt and impurities to precipitate. Water should always be left under the wax to receive the sediment. Very dark or almost black wax loaded with impurities melted and cooled as above, the operations being repeated two or three times, care being taken never to allow the wax to boil, will be so improved in color and purity as to be almost unrecognisable.

There are those who prefer to cool the wax as soon as possible after liquifying. This is a bad plan, for the mass becomes cold before the impurities have time to settle, and on cutting open the cake you will find it quite dark on the outside, lighter towards the centre. The centre retaining the heat longest is freer from foreign substances. When the impurities remain the wax will not stand nearly as high a degree of heat, and combs of such will melt down much more readily.

WAX EXTRACTORS.

I think the quickest and best mode of rendering wax is by steam, and it will be seen from the engraving of the wax

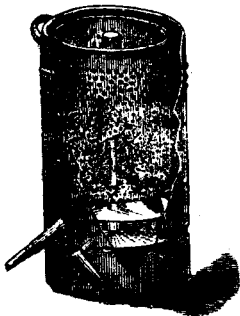


FIG. 1.

extractor that this is the principle embodied, and its mode of construction is also shown. Figure 1 is the extractor, Fig. 2 is a perforated basket into which the comb or cappings to be rendered are placed. This basket rests on the sloping tin placed about six inches from the bottom and under which the water is put. A perforated tube runs up through the basket, and by this means the heat reaches the heart of the entire

mass and expedites the work of melting. The melted wax drops on the shield and is carried to the basin at the side and bottom of extractor whence it passes into the receptacle under the spout. To use it put extractor on stove, having first filled the lower tank with water, and the perforated basket above tank

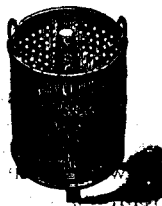


FIG. 2.

with broken comb or whatever material you wish to extract from. The steam passes through the perforated metal walls of basket, melting every particle of wax in the crude material; the wax runs out of a spout, for the purpose, turned downwards; under this spout have a receptacle, in which have about two inches of hot water, as also have the sides slightly oiled to keep wax from adhering to the walls. The tube turned upwards serves two very important purposes, viz.: to fill water into lower tank, and to see when tank requires replenishing, without taking out basket above. Keep everything but tube for wax closed, in order to lose no steam, and to give it full force. The receptacle into which the wax is run should be kept warm so that the mass will not solidify until the whole of the wax has been extracted from the material in the basket, or until the dish becomes full.



JONES' WAX EXTRACTOR.

The extractor described above is the one known as the "Jones." Another

inexpensive method of clarifying wax is by using

THE SOLAR WAX EXTRACTOR.

This is a simple contrivance, and it has the advantage of cheapness on its side, so that no one may say they have gone without rendering all the broken bits of comb, because of the cost of the necessary utensil. Where one has sufficient bees to warrant the expense, we would, of course, suggest the purchase of the above mentioned extractor. As I have never used the solar wax extractor I content myself with giving the method of making them, as employed by Mr. G. W. Demaree, who speaks very highly of this particular kind. He says: "Make a plain box $19\frac{1}{2}$ inches wide, 14 inches deep and $35\frac{1}{2}$ inches long, inside measurement, nail on a bottom and have it bee-tight. Nail on some legs at the ends, and the box is ready for the draining pan, etc. To make the wax or draining pan, cut a piece of sheet iron 24 inches wide by 28 inches long. To get the concave shape of the pan, get out a board from half-inch stuff 5 inches wide and $19\frac{1}{2}$ inches, and cut one of its edges to a true circle; now bend the sheet of metal around the circular board and nail it closely. This gives a concave pan $19\frac{1}{2}$ inches wide and 28 inches long, with one end closed and the other end open. To adjust the pan in the box or frame work, get out a board 7 or 8 inches wide and $19\frac{1}{2}$ inches long, and hollow out one of its edges to correspond with the circular shape of the pan, and nail it crosswise in the box so that when the open end of the pan rests on it the pan will project about two inches over the board and be about 6 inches above the bottom of the box. This will give room for the wax moulds under the drop end of the wax pan. Two beveled strips of wood 28 inches long nailed one on either side of the box corresponding with the position of the circular, support the sides of the metal pan. When all is ready the wax pan is shoved down into the box or frame work until its open end rests in the circular board and the sides of the pan on the pan on the beveled strips. Secure in position by nailing through the wooden head of the pan and into the end-piece of the frame work. The sides of the

pan are nailed closely to the beveled strips at the sides of the frame work. The sash is made of $\frac{7}{8}$ stuff like a shallow box 2 inches deep and is rabbeted at the top to receive two panes of glass 12 x 20 inches. The glasses have nothing between them to cast a shadow, but simply fit up close together at their edges. The sash is made to slide backward and forward between strips of wood nailed to the outside of the frame-work. Some tin pans a little wider at the bottom answer as wax moulds. The frame is kept in position so that the sun's rays fall directly on the glass, and the pan is regulated by blocking up or letting down the back end of the box or frame."

RENDERING BY STEAM.

When large quantities of wax are to be melted it is usually done by connecting the melting vessel with a boiler, the heat being supplied by a jet of steam. If the steam is allowed to play directly on the wax it will injure it, and if wax be placed on water and the steam pipe enters this water, the steam will first melt the wax and then find vent through it, rendering it foamy, frothy and useless.

The tank in which we melt the wax for foundation making, is made of tin, in two parts. In the smaller is placed the wax, and when this is put into position half an inch space is left between it and the outer case on all three sides. This space is filled with water and heated by steam from the factory boiler. This ensures the melting being done at a temperature that cannot harm the wax. The inner tank has three compartments, all the "dipping" being done from the centre, the supply being maintained by keeping wax in the two outer.

ADULTERATED WAX.

Commercial wax is largely adulterated with grease and paraffine. The most simple test is to draw the thumb nail over the face of the cake. If genuine the nail will stick slightly, but if adulterated the wax becomes slippery and will give out the smell of tallow or other adulterant. When chewed, pure wax will not adhere to the teeth, if it does there is usually resin mixed with it, as the taste will identify. Mr. J. Dennler gives the following test: To separate

pure beeswax from adulterated is also determined by first dumping quickly on a hot iron plate a small bit of beeswax which is known to be pure. The smell which is given off is noticed. Then a piece of wax is burnt which is to be examined. If it contains ceresine there is given off a disagreeable, fatty, white smoke, which differs the more from the smell of wax the more ceresine there is mixed with the wax.

The Progressive South.

A GROVE OF HONEY-TREES.

PLANTING FOR HONEY WITH A VENGEANCE.

A REPORTER of the Griffin (Ga.) News recently visited John E. Mitchell, in Spalding County. He says:

"After dinner we were sitting in his front piazza smoking, and I discovered bees going in and out of a knot in one of the large oak-trees in front of his dwelling. This tree is known to be over a hundred years old. I learned that several years ago a swarm of bees assembled in that tree as their new home, and they have lived and worked there ever since. After they had been there three years the colony had become very large and strong, and no attempt had ever been made to rob them of their honey. At last Mr. Mitchell came to the conclusion that the tree must be full of honey, from seeing large numbers of flies and bees around the root of the tree; so he set to work to devise some means to get the honey without cutting the tree down. After applying all the tests known to beemen, he satisfied himself that the tree was full, and then decided to tap it like a fellow is tapped for dropsy. So he got him a faucet and an auger and bored a hole in the tree near the root and then screwed in the faucet, and to his surprise and great delight a solid stream of pure and elegant honey, as clear as crystal, gushed forth, and the supply seemed to be inexhaustible. It continued to pour out until he had filled six barrels, and he has drawn each year since that time from three to four barrels of strained honey from that old oak-tree, and up to this time there seems to be no signs of a failure of the supply, as the bees are still a very strong and healthy colony.

The same year that Mr. Mitchell tapped the old oak-tree there was a new thick growth sprung up all around the old oak of an unusual appearance, having smooth bark and thick waxy leaves. One day he pulled off one of the leaves and put it in his mouth, and found it to be very sweet, and upon examining the place from which he had plucked the leaf he discovered that the plant was bleeding or emitting from the wound a clear, thick-looking juice, which, upon tasting and examination, proved to be honey. He then commenced to nurse the new volunteer growth with the tenderest care and attention, looking after them daily; and as the summer advanced the plants continued to grow, and in the fall he selected and transplanted three hundred of them in very rich soil, thirty feet apart, and they grew

very rapidly, making a beautiful display with their straight, smooth trunks and their thick and glossy wax-like leaves, and the grove was seen and admired by all for miles and miles around. Mr. Mitchell's idea was that as large money was made from the sugar-maple by boiling the juice, he ought to make more from a tree that would run pure honey, and he was right. When the trees were four years old in the fall of the year they were long enough to insert faucets. So he had three hundred faucets made to order and screwed them into the young trees, and the following spring the result was remarkable. Each tree yielded an average of ten gallons of the richest golden honey. The following year each tree yielded an average of twenty gallons, and now the average yield is about a barrel to each tree during the year, and the grove continues to grow and flourish, and shows no signs of failing to supply a bountiful yield in the years to come. The quality of the honey is so fine and the flavor is so delicate that it always commands the highest prices, and the demand is greater than the supply."

The Progressive South.

BEE-KEEPING IN ALABAMA.

STUPENDOUS STORIES FROM THE SUNNY SOUTH.

I HAVE just been reading your April number, and as I am running an apiary, anything on bees draws my attention. The man Mitchell's tree is no uncommon thing here. I have quit fooling with them on such a small scale. I commenced a few years ago with one Italian queen and six escort bees in the cage with her, and last year they run to twenty-eight colonies, besides those in barrels. I have now discovered a great remedy and labor-saving idea. I tried it last year on one late swarm. I was out of hives, so I put them in a forty-gallon molasses barrel, and before the season was over they filled the barrel. It weighed 480 pounds. The colony being weak, I decided on the novel plan of driving out the bees and selling the whole barrel together. I did it, and got \$48 for the same. Now I have all my old and I am putting all new swarms in forty-gallon barrels, and will be able to ship about one hundred such packages, or forty-eight thousand pounds; all this from one queen and six bees in four years. Besides, I have fifteen swarms in the quince-bushes, where they settled when swarming; they have been there two years, and have combs ten feet long. As our winters are moderate they seem to thrive in this way. When dinner is announced my wife or children simply go with knife and plate and cut off what is needed. One swarm this year got flustered and came in the dining-room and settled, and I let them alone and they seemed to be content; so I bored a two-inch auger-hole in the wall and they went to work. Now this saves me the time and trouble of going out; I simply step up to the wall and cut off any amount wanted. My wife says she aims to have the next one in the cupboard, and let them put it up in one and two-pound dishes. This will be easily done, as my bees are educated and seem to understand me. I often set a gallon jug by a

hive, with a tag on it, thus: "Extracted honey;" they fill the jug that night and cap up the hote.

I have a honey plant, but not a tree; its foliage is good for cattle. Its honey is simply in the blooms. It is a five-bloom, and has a kind of sack or bag, the middle of which is full of honey. The bees have nothing to do but bore in its sack and draw all they can carry. It is already evaporated. I seal it at night after taking it in that day. The roots of the plant are famous hog-feed, as they draw considerable from the honey parts, and are a sure cure for various diseases.

J. J. B. McELRATH.

Center, Ala.,

Prairie Farmer.

NECTAR.

HONEY IS NOT MADE, BUT GATHERED FROM FLOWERS.

IN an old book that my father used to read from as I stood by his knee, are these words

"My son, eat thou honey, because it is good."

Yes, indeed, "it is good;" not only for the young, but the old, decrepit, and middle-aged. It gives warmth to the system, arouses nervous energy, and gives vigor to the vital functions.

After the closing of the North American Bee-Keepers' Convention during the fall of 1880, a number of bee-keepers, myself among the number, called at the home of General Withers. We walked through and admired that beautiful palace, with its many stained windows, perfect ventilation, and hard-finished interior, furnished with every convenience, for the comfort and health of the horses, which were to be its inmates. In the course of conversation this genial gentlemen said the horses had paid for their home, and among other things, that his father, who lived to be a very old man, always ate a little honey every day.

People have said to me: "I thought honey was all the same; that bees made it, and you bee-keepers call it bass-wood, clover honey, etc." It is true, that all that the bees collect and store in their combs is honey, whether it is the product of the leaves or bark of trees, honey-dew or sweet juice oozing from corn-stalks, wheat-stubble, or distilled in the corallas of beautiful flowers.

Bee-masters now endeavor to keep the different kinds of honey as distinct as possible, and they do it in this way: All the honey gathered in the North and the West, up to the time of the blooming of white clover, is used in brood-rearing. There may be exceptions to this, in the vicinity of large apple orchards, but in this locality there are but few trees, and what there are, are crab apples.

During some seasons, very large colonies, at near the close of fruit-bloom, will have their combs built out white with new wax, and the bees rich in wax, so much so that the scales are visible with the naked eye, and occasionally a swarm issues. These are the right conditions for colonies to be in when surplus boxes are to be put on; but instead of putting them on we removed two or three frames of brood and honey,

as the circumstances may favor, and fill their places with empty comb.

I do this because I know that honey from this source is of short duration, and it is better to remove this brood and honey, and give it to weak colonies, so that they may all be strong, at the advent of white clover.

Apple honey is dark, but has a rose flavor which is agreeable, but bees are not strong enough when it blooms, to store any amount of surplus, as it requires so much to support brood-rearing at this time of the year.

Raspberry honey is fine, but there is not enough of it in this locality to yield much surplus, and at about the same time wild cherry blossoms, which secrete bitter honey. Some seasons, locusts and dandelions are rich in nectar, and it is much better to have these honeys made into bees, than mixed up in surplus.

WHITE CLOVER HONEY.

When the spring flows of nectar are passed, and the apiary has been managed intelligently, every colony will be ready for business, with its hive full to overflowing with workers, anxious for the fray. Where there are acres upon acres of white clover, with millions of blossoms, and the electrical conditions are favorable for the secretion of nectar, comb will be built so rapidly to store the flood coming in, that it will be so delicate as to be almost imperceptible, as it melts away in the mouth. When there are millions of nectar-bearing blossoms of white clover, there is no need for bees to roam among other flowers to get honey to mix with clover.

It is evident that white clover honey is simply the nectar secreted in the blossoms, gathered and evaporated by bees. I have eaten the white sage honey of California, the orange of Florida, yet I have never seen the white clover of the North excelled in delicacy of flavor—a real ambrosia, fit food for gods.

BASSWOOD HONEY.

This is a fine white honey, with a flavor peculiarly its own. In this locality, there is little of this honey to be had in its purity, as it blooms before the close of the white clover, and usually lasts only for a day or so. In northern latitudes the bloom lasts for three weeks, and the trees are very plentiful. More honey has been gathered in one day from this source, than from any other.

About twenty years ago a bee-keeper in this vicinity knowing the reputation of these trees, erected a monument to his memory, by planting largely, and in order to prolong the season of bloom, planted both the American and European varieties. His planting was a success, as far as the trees are concerned, for they grew finely, but he did not take into consideration the difference of soil and climate, and they are a partial failure as to honey. In this dry, sandy soil, the bloom all opens at once, and the bees hold high carnival while it lasts, for a day or so.

GRANULATED HONEY.

At the National Bee-Convention at Detroit, there was on exhibition a square block of extracted, granulated, basswood honey. I was requested by the owner to sample it, and I never enjoyed eating any kind of confectionery as I did this magnificent sweet. The honey had been stored in a barrel, and, when it was used, it was taken

out from one side, and a part left standing, which drained and hardened. A block was cut out from the dry side, and how nicely it sliced off.

Some persons have a mistaken idea, with reference to the granulation of honey. When it granulates in cold weather, as it runs out of the comb, they jump to the conclusion that the bees have been fed sugar, when it is an evidence of its purity.

MRS. L. HARRISON.

Peoria, Ills.

For the CANADIAN BEE JOURNAL.

BRUCE BEE-KEEPERS.

A MEETING was held in the council chamber Walkerton, on Saturday, Dec. the 1st, for the purpose of forming a Bee-Keepers' Association for the county of Bruce. Mr. Abram Rowand acted as chairman and D. McKay secretary. On motion of John Harkley, seconded by Wm. Rowand, it was resolved to form a Bee-Keepers' Association, to be known as the "Bruce Bee-Keepers' Association."

The following were the officers chosen for the ensuing year; John Harkley President, R. Parker vice-President, Wm. Rowand Treasurer, and D. McKay Secretary.

The directors are, Messrs Arch. Jolton, Jacob Seegmiller, A. Sherrington, F. Ernst and R. Rivers.

The Auditors appointed are Jas. Lamb, and J. B. Ritchie.

The Association authorized the officers to prepare a code of by-laws for the guidance of the members, each to receive a printed copy.

The number of members is fourteen, which is a good beginning. The fee for membership is placed at the small sum of fifty cents.

The object in forming the Association is to further the industry of bee-keeping in Bruce county. During the year the Association purposes holding meetings in different parts of the county to discuss the management of bees.

Bruce county has long been noted for its stock, butter and cheese, and before long we hope to see the industry of bee-keeping receive such an impetus through the Association that it will also be noted for its honey, so that it may be truly said to be a land flowing with "milk and honey."

D. MCKAY, Sec.

Walkerton, Dec. 3rd 1888.

ROOT'S A.B.C.—NEW EDITION.

We have on order to arrive by express another lot of the "A B C of Bee Culture" by Friend Root. This, too, has just been re-issued—the 37th thousand—and much new and interesting matter has been added. We sell more "A B C" than any other; it seems to be so arranged that it is really an A B C for the beginner. The name, too, helps the sale—novices expect to find in it just what they, as beginners, most need.

The Australasian Bee-Journal.

Bee-Keeping in Queensland.

I MAY safely say that, whatever was the condition of bee-keeping in Queensland four years ago, it is on the high road to "the most scientific American method" now. "Modern" bee-keeping is practiced more than one can count on one's fingers, and yet there are not many bee-keepers in Queensland. We formed a Bee-Keepers' Association last August, 1886, at the annual Agricultural Exhibition in Brisbane, which numbers over 30 members. We have monthly meetings, to which some of us travel over sixty miles, when papers are read, new and old methods discussed, and much business arranged. We have induced the National Association to multiply by four their entries for exhibits under Honey, Bees and Bee-Keeping materials; and we appoint one of the judges for the show. Our improvements, to be taken in hand at once, are the commencement of a museum and a library. We intend to ask the Government to make arrangements for sending bees by post, which is now impossible. So you see we have not "died ere scarcely born."

It has been remarkable that while you were complaining of the drouth, we had our season almost spoiled by wet. We had had a drouth before that for four or five years; and the rain will have done good for next season. I am not sure how much of our crop, mostly from eucalypti, depends on the rain fall. Clover, of course, fails certainly without rain; but these gum trees of ours do not seem to mind how dry the ground is. Indeed, some varieties never bloomed at all last year, apparently because the rain came when their flowers should have opened.

Now that we can organize our work and observation through the Queensland Bee-Keepers' Association, we hope to be able by and by to present a complete report of the different times of flowering, and the value of our honey trees.

D. R. MCCONNELL.

JOHN ZWAHLEN.—I feel it due to you to say that from your Journal I have learnt many things which are valuable to me and always feel pleased to read it, and sometimes I hand it over to my neighbor bee-keepers. I am sorry to read that in your part of the country the honey harvest has been so poor this year; it was right good in this part. For the near future I will be able to give a report about a few things which perhaps will be interesting to many of the readers of your Journal.

Castle Dale, Emery County., Utah Territory.

Attention is called to the list of books in this number. In this connection we might say that we can supply you with any standard book on the market and at lower rates than the stores. Write for prices on the works required.

TO THE DEAF.—A person cured of deafness and noises in the head of twenty-three years standing, by a simple remedy; will send a description of it FREE to any person who applies to Nicholson, 30 St. John St. Montreal.

CONVENTION NOTICE.

OXFORD BEE-KEEPERS ASSOCIATION.

The Annual meeting of the Oxford B.K. Association will be held on the 3rd Tuesday 18th of Dec., 1888, commencing at 9 a.m. promptly; at the Council Chamber, Woodstock.

Members will please be prepared with detailed statistics of Apiarian Products, &c. to fill the Government annual report.

J. E. FRITH, Secretary.

Read the grand array of premiums offered on page 756 of this issue.

HONEY WANTED.

We will pay 12 cents per pound for good extracted honey, delivered in Beeton, in exchange for supplies at catalogue prices, and we will take all that offers, allowing 30 cents each for the tins when they are the "Jones sixty-pound."

COOK'S MANUAL—NEW EDITION.

We have now in stock ready to go by return mail the latest edition of Prof. Cook's Manual. The price this time is \$1.50, postpaid, but the increase in price is most fully compensated for in the increased quantity of matter and the better quality of the work.

GOOD BOOKS

—FOR THE—

Farm, Garden AND Household.

THE FOLLOWING VALUABLE BOOKS WILL BE SUPPLIED FROM THE OFFICE OF THE CANADIAN BEE JOURNAL. ANY ONE OR MORE OF THESE BOOKS WILL BE SENT POST-PAID DIRECT TO ANY OF OUR READERS ON RECEIPT OF THE REGULAR PRICE, WHICH IS NAMED AGAINST EACH BOOK.

FARM AND GARDEN.

Allen's (R.L.&L.F.) New Am. Farm Book	\$2 50
Barry's Fruit Garden. New and revised	2 00
Beal's Grasses of North America.....	2 50
Brackett's Farm Talk, Paper, 50c. Cloth	75
Brill's Farm Gardening and Seed-Growing	1 00
Farm Appliances.....	1 00
Farm Conveniences.....	1 50
Farming for Profit.....	3 75
Fences, Gates and Bridges	1 00
Fuller's Practical Forestry.....	1 50
Gregory on Cabbages.....	30
Gregory on Onion Raising.....	80
Harris' Gardening for Young and Old	1 25
Henderson's Gardening for Pleasure...	2 00
Henderson's Gardening for Profit.....	2 00
Johnson's How Crops Feed.....	2 00
Johnson's How Crops Grow.....	2 00

Johnson's How to Plant.....Paper...	50
Long's Ornamental Gardening.....	2 00
Onions—How to raise them Profitably	20
Our Farm of Four Acres.....Paper...	30
Quinn's Money in the Garden.....	1 50
Silos and Ensilage.....	50
Starr's Farm Echoes.....	1 00
Stewart's Irrigation for the Farm, Garden and Orchard	1 50
Ten Acres Enough	1 00
The Soil of the Farm	1 00
Thomas's Farm Implements and Ma- chinery	1 50
Treat's Injurious Insects of the Farm and Garden	2 00
Waring's draining for Profit and Health	1 50
Waring's Elements of Agriculture	1 00
Weld's and Others' A.B.C. of Agricul- ture	50

FRUITS AND FLOWERS.

Bailey's Field notes on Apple culture	75
Elliott's Hand Book for Fruit Growers Paper, 60c	1 00
Fuller's Grape Culturist	1 50
Fuller's Illus. Strawberry Culturist ...	25
Fuller's The Propagation of Plants....	1 50
Fuller's Small Fruit Culturist. new ed.	1 50
Fulton's Peach Culture New ed.....	1 50
Henderson's Practical Floriculture....	1 50
Husmann's American Grape Growing & Wine Making.....	1 50
Parsons on the Rose.....	1 00
Saunders' Insects Injurious to Fruits.	3 00
Vick's Flower and Vegetable Garden.	1 25

HORSES, RIDING, ETC.

Anderson's The Galop.....	1 00
Armatage's Horse Owner and Stable- man's Companion	1 50
Battersby's The Bridle Bits, Valuable	1 00
Chawnet's Diseases of the Horse.....	1 25
Dadd's American Reformed Horse Book. 8vo	2 50
Dadd's Modern Horse Doctor. 12mo.	1 50
Day's The Race Horse in Training...	6 25
Du Hays' Percheron Horse. Revised and Enlarged.....	1 00
Heatley's Every man his own Veterin- arian	2 50
Herbert's Hints to Horse Keepers.....	1 75
Howden's How to buy and sell a Horse	1 00
Jenning's Horse Training Made Easy.	1 00
Jennings on the horse and his diseases	1 25
Law's Farmers' Veterinary Adviser...	3 00
Manning's The Illus. Stock Doctor....	5 00
Rarey and Knowlson's Complete Horse Tamer.....	50
Riding and Driving.....	20
Saddle Horse, The ; Complete Guide to Riding and Training.....	1 00

CATTLE, SHEEP AND SWINE.

Armsby's Manual of Cattle Feeding...	2 50
Cattle, The Varieties, Breeding and Management	75

Clok's Diseases of Sheep.....Paper... 75
 Coburn's Swine Husbandry. New ed. 1 75
 Dadd's American Cattle Doctor. 12mo 1 50
 Dadd's American Cattle Doctor. 8 vo. 2 50
 Guenon on Milch Cows. New ed 1 00
 Jennings on Sheep, Swine & Poultry. 1 25
 Jersey, Alderney and Guernsey Cow. 1 50
 Keeping One Cow. New edition..... 1 00
 Martin's Hog Raising and Pork Making 40
 Miles' Stock Breeding... 1 50
 Powers' The American Merino for Wool and Mutton. A practical and valuable work..... 1 50
 Stewart's The Dairyman's Manual.... 2 00

DOGS, ETC.

Dog, The ; Its Varieties and Management. Boards... 50
 Dogs of Great Britain, America and other countries..... 2 00
 Floyd's Hints on Dog breaking 50
 Stables' Our Friend The Dog..... 3 00

POULTRY AND BEES.

Burnham's New Poultry Book..... 1 50
 Cooper's Game Fowls..... 5 00
 Felch's Poultry Culture..... 1 50
 Johnson's Practical Poultry Keeper Poultry : Breeding, Rearing, Feeding, etc.....Boards... 50
 Profits in Poultry and their Profitable Management..... 1 00
 A Year Among the Bees, by Dr. C. C. Miller..... 75
 A.B.C. in Bee Culture by A. I. Root. cloth, \$1.25, paper..... 00
 Quinby's New Bee-Keeping, by L. C. Root, Price in cloth..... 1 50
 Bee-keepers' Handy Book, by Henry Alley, Price in cloth..... 1 50
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 The Hive and Honey Bee, by Rev. L. L. Langstroth. Price, in cloth... 2 00
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10 Combination Hives, for comb honey. 9 00
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One Union or Family Scale, 240 lbs. with tin scoop..... 10 45

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3000 Sections—one piece—any size..... 13 00

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Two Colonies Bees with good queens... 16 00

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Three Colonies Bees, good queens..... 24 00

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Postage.	Per 10 lots.	Per 25 lots.
3		
	\$ 75	\$1 00
1		
	40	88
3		
	45	1 05
2		
	40	95
1		
	45	1 10
8		
	45	1 00
1		
	45	
1		
	40	
1		
	40	90
1		
	40	80
2		
	45	
1		
	45	1 00
1		
	45	1 00
1		
	45	1 05
1		
	40	90
2		
	45	

8 CENT ARTICLES.

	\$ 75	\$1 75
	75	1 75
	65	
	70	
	65	
1		
	75	1 75
6		
	75	
1		
	75	

10 CENT GOODS.

	\$ 90	2 10
	85	2 00
	85	2 00
2		
	80	1 90
3		
	80	1 90
2		
	90	2 10
	90	

Postage.

	Per 10 lots.	Per 25 lots.
2	90	2 00
	85	1 80
2		
	95	
2		
	90	2 10
3		
	90	
2		
	90	
2		
	90	
2		
	90	
1		
	80	
1		
	95	2 25
4		
	90	2 10
	90	

13 CENT ARTICLES.

2	1 25	3 00
	1 25	2 90
	1 25	2 90
	1 20	2 75

15 CENT ARTICLES.

	1 45	
12		
	1 30	
	1 45	
3		
	1 40	3 35
5		
	1 30	
6		
	1 40	3 40
4		
	1 40	
4		
	1 40	3 30
2		
	1 40	3 30
12		
	1 40	3 35

18 CENT ARTICLES.

	1 65	4 00
	1 65	
	1	

20 CENT ARTICLES.

Postage.	Per 10 lots.	Per 25 lots.
Bit, best make, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{9}{16}$..	1 90	4 50
Brass traps.....	1 85	4 50
Brushes, flat, 2nd quality, $1\frac{1}{2}$ in. paste or varnish.....	1 80	4 25
Chisel, firmer, inch.....	1 90	
Ebony ruler, bevelled for book-keeper.....	1 90	4 50
File, 8 inch, flat, round or 3 corner.....	1 90	
Glue, 1 lb. light, broken.....	1 75	
3 Lead pencils, 1 doz. 201 good value, rubber tipped.....	1 80	
12 Paint brush, No. 3.....		
12 Papeterie, "Jubilee" containing 24 sheets, ivory notes, 24 square envelopes.....	1 80	
6 Pens, gross box "292 school"....	1 80	
51 Pocket memo book, indexed....	1 90	
Screw-driver, steel, 6 inch rd bit	1 90	
Square, iron, grad. to $\frac{1}{2}$ one side	1 90	
Thermometer.....		

25 CENT ARTICLES.

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2 Duplicate order books, with black leaf.....	2 00	4 50
File, 10 inch, flat.....	2 25	
3 Lead pencils, 1 doz. Faber's H, H. B., B. or B. B.....	2 30	
Paint brush No 1.....		
Rule, 2 foot, boxwood.....	2 30	
Tape Lines, "Universal," 3 ft..	2 30	

30 CENT ARTICLES.

3 Bills payable and receivable....	2 85	6 90
Bits, best make, 10/16, $\frac{3}{8}$, $\frac{1}{2}$	2 85	6 90
250 Envelopes, Ladies', square.		
5 Foolscap, 2 quires, extra quality	2 80	
4 " legal, in pads of 100 sheets.....	2 75	6 00
Inkwell, square, glass, bevelled edges.....	2 75	

35 CENT ARTICLES.

Bit, best make, inch.....	3 40	8 20
Hammer, steel face, for light work.....	3 30	
Square, grad. to 1/16 both sides	3 30	

40 CENT ARTICLES.

Foolscap, 5 quires, good quality;	3 75	
Hammer, No. 50, steel head, adze eye.....	3 60	
Pens, gross box, 'Bank of Eng.'	3 80	
" " Blackstone or J.	3 80	
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Blank books—		
Day book, 200 p. p. good paper, well bound.....	4 25	
Cash " " " " " "	4 25	

Postage.	Per 10 lots.	Per 25 lots.
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Minute " " " "	4 25	
Complete set, Cash, Day and Ledger, \$1.25.....		
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Hammer, No. 51, steel head, adze eye.....	4 50	
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Each

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55

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" wood smoothing.....

80

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1 35

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75

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Hives, Sections, Honey Extractors, Honey Boards, Section Frames, Section Cases, Frame Turners, Wire for Frames & Hives, Smokers, Hive Champs, Honey Knives, Wax Extractors, Bee Tools, Comb-carrying Buckets, Comb Scales, Bee Guards, Roping Cars, Uncapping arrangements, Bee Yehs, Queen Nurseries, Labels, Anatomical Charts.

5 PER CENT.

Nails, Perforated Metal, Comb Foundation, Force Pumps, Feeders, Rubber Gloves, Introducing Cages, Tins, Shipping Crates, Honey Glasses, Sealers, Dextrine, Wire Cloth, Mosquito Bar.

All other goods in our Catalogue are subject to the prices found therein. For January the Discounts will be 8 per cent. and 4 per cent. respectively; for February 6 per cent. and 3 per cent.; March 5 per cent. and 2 per cent. No discount after April 1st. These prices of course are for cash with order. We have a big stock of almost everything on hand, and can ship at short notice. Catalogue free on application.

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In estimating the price, we have calculated the same as for full gross lots, an allowance of 20 cents being made for each barrel and packing (they cost us 50 cents).

No. of Barrels.	No. of Doz.	Price.
1	12	25
2	24	45
3	36	65
4	48	85
5	60	105
6	72	125
7	84	145
8	96	165
9	108	185
10	120	205
11	132	225
12	144	245
13	156	265
14	168	285
15	180	305
16	192	325
17	204	345
18	216	365
19	228	385
20	240	405
21	252	425
22	264	445
23	276	465
24	288	485
25	300	505
26	312	525
27	324	545
28	336	565
29	348	585
30	360	605
31	372	625
32	384	645
33	396	665
34	408	685
35	420	705
36	432	725
37	444	745
38	456	765
39	468	785
40	480	805
41	492	825
42	504	845
43	516	865
44	528	885
45	540	905
46	552	925
47	564	945
48	576	965
49	588	985
50	600	1005

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2 inch	5000	20	17	1 68
3 inch	3800	18	17	1 60
4 inch	3000	18	12	1 04
5 inch	2400	17	11	1 00
6 inch	2000	16	10	90
7 inch	1600	14	9	80
8 inch	1200	13	9	74
9 inch	1000	12	8	70

PRICES OF BOX OR NINE NAILS.

	Per lb.	Per 10 lbs.	Per 100 lbs.
1 1/2 inch	7	65	6 00
2 inch	64	60	5 50
3 inch	6	55	5 45
4 inch	6	55	5 25

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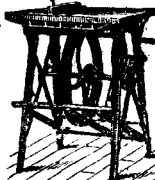
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