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21 1908

Gleanings in Bee Culture



Apiary of circular hives covered with straw in the Caucasus Mountains, Southeastern Russia.

Published by **The A. I. Root Co., Medina, Ohio, U. S. A.**

Entered at the Postoffice, Medina, Ohio, as Second-class Matter.



Vol. XXXVI

April 15, 1908

No. 8

Our Comb-honey Outfit No. 6.

It is always a matter of considerable difficulty for the average beginner to decide exactly what he requires as an outfit for the first effort in keeping bees. To relieve the beginner of all perplexity we list certain outfits which we think will meet his needs. The one we give below is what may be fairly considered the best. Each item has been very carefully selected and we doubt the wisdom of leaving any article out; but the purchaser may do so without altering the prices on the other items.

A B C and X Y Z of Bee Culture	\$ 1.25
A year's subscription to "Gleanings in Bee Culture"	1.00
<small>(A large illustrated semi-monthly magazine.)</small>	
A Junior Root Smoker65
A pair cotton bee-gloves (small, medium, or large)35
Bee-veil No. 2, with silk front60
One full colony Italian bees in Danzenbaker hive	11.00
<small>(Complete with 32 section honey-boxes.)</small>	
A tested Italian queen	2.50
Two Danzenbaker hives complete for comb honey	6.20
<small>(Nailed and painted, ready for the bees.)</small>	

\$23.55

Some may regard this as too expensive an outfit; but it should be borne in mind that the colony of bees is just about perfect. The combs, for example, are beautifully straight and nearly full of brood. The breeding of the queen is of the very best, so that one has the nucleus of a fine stock of bees. In many cases a return of \$10.00 in honey has been secured the first year from just such an outfit as this, and in addition one swarm and possibly two may be secured, which practically doubles the value of the investment. This is not an uncommon occurrence. On the contrary, scores of men have done as well or better, where the conditions were at all favorable. Providing any one has a liking for bees, we would earnestly urge the propriety of securing one of these outfits this spring. One is never too old to learn bee-keeping, and there is no more delightful out-door vocation. It is just right for busy folks who must have a hobby. In fact, there can be nothing better.

If this offer is not quite to your liking, write us. We answer questions. To show we are not exaggerating the profits of bee-keeping when conditions are favorable, we insert the following unsolicited testimonial from a man of unquestioned integrity. We could secure many more like this if we chose to ask for them.

ST. PETER'S LUTHERAN CHURCH, NEW YORK, March 11, 1908.
The A. I. Root Company, Dear Sirs:—Enclosed please find my check for renewal of my subscription to GLEANINGS for five years. I greatly appreciate GLEANINGS, not only for the good and plain reading matter, but also because it furnishes many kinks, which otherwise one would be unable to find out. These kinks have enabled me in the last three years to sell from ten colonies on the average over \$100.00 per year. I donate the honey to my church for charitable purposes, and the members are eager to buy, because they know my honey is absolutely pure.
 Yours very truly, DR. A. B. MOLDENKE.

Fill out and mail to us this

Order Coupon.

Enclosed find remittance for \$23.55, for which send me your Outfit No. 6 complete.

Name _____
 Street, or R. D. _____
 Town _____
 County _____
 State _____

The A. I. Root Co., Medina, Ohio.

**OUR
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OFFER**

NEW LUMBER

**FIFTY MILLION FEET
AT REDUCED
PRICES**

Bought at Forced Sales from Manufacturers. It makes us Headquarters for Thousands of Genuine Bargains in Lumber and Building Supplies. We save you money.

**BIG
SPECIAL
SALE**

SAVE 30 TO 60 PER CENT. BUY DIRECT. BUILDING SUPPLIES OF EVERY KIND

The Chicago House Wrecking Co. Purchased at forced sales, 50,000,000 feet of new lumber. We are making special concessions to those who buy at once. Our prices today are far lower than prices have been for years. Order now for immediate or future use. Quick action will save you big profits. Remember prices elsewhere which are even now high, are bound to rise. We can quote you 30 to 60 per cent better prices for the same lumber than your local dealer. We guarantee every carload to be exactly as represented. Closest inspection of our lumber stock invited.

Call at our warehouse and yards at Chicago and see the lumber we are offering and you will recognize that it is all we say of it. Make your own selection and see it loaded. It is not necessary to come to Chicago, however, unless you wish to. We can fill your order by mail with just what you want and guarantee you absolute satisfaction. Ours is the largest direct to the

consumer lumber headquarters in the world. We sell millions of feet annually. Orders filled from every part of the United States. No matter where you live you can save money by supplying your building wants here.

We do not figure fancy prices, but quote figures that command your patronage. Whether your order is large or small we can save you money on it. Our tremendous business of millions of dollars annually is your best guarantee of complete satisfaction of every purchase made from us. In our enormous stock of new lumber of every kind we have just what you need for every purpose. Don't buy a stick of material until you get our prices. We offer you everything in the lumber and building supply line needed for residences, farm homes, stores, churches, barns, outbuildings of every kind, sidewalks and fencing. In short any kind of a structure requiring lumber, at from 30 to 60 per cent less than your local dealers or lumber yards ask for it.

IMPORTANT! Send Us Your Lumber Bill For Our Estimate

Make up a list of what you need. Send it to us for our price. If you are putting up a building of any kind whatsoever let us figure you up. Our prices talk louder than words. Have your carpenter or contractor send us your list of what is needed if he has charge of your building. Don't pay exorbitant prices to the lumber trust with their long line of lumber yards all over the country. Don't let the local dealer soak you with his heavy profit. Remember: Chicago House Wrecking Company buys millions of feet at a time under circumstances of forced sales which means sacrificed prices and enables us to sell even as low as cost without loss. You take no chances in dealing with the Chicago House Wrecking Company. Whether for \$1 or \$10,000 your order will be filled carefully. Our lumber and supplies are guaranteed exactly as represented. If you have no need for a whole carload yourself get your neighbors to club in with you. By buying a carload you can save all kinds of money on freight charges.

We have railroad trains running through our main warehouses and buildings and can load a car to good advantage to you. You can include in this same car, pipe, plumbing material, roofing, wire, fencing, furniture, hardware and merchandise of every kind.

We also furnish you building and barn plans absolutely free upon request. Write us for any information or advice you want and we will have our staff of architects answer every inquiry promptly. Our free book of plans is sent if you mention this paper. We simplify your building proposition.

Our business demands quick action. We must keep our stocks moving. This means prompt shipment—no annoying delays. Let us help you lay out your plans. We will relieve you of every detail. That is what our Special Builder Service is for. Be sure and send us your lumber bill for our estimate. Feel free to write for anything you want to know along the line of building supplies, furnishings, etc.

WE PURCHASE OUR GOODS AT Sheriffs' and Receivers' Sales
Hundreds of Big Money Saving Bargains for Every Builder. Don't Build Your House, Barn, Store, Corn Crips, Church, Etc., without getting Our Big Lumber Offer. Lowest Prices on Millwork Supplies, Roofing, Water Supply Outfits, Paints, Plumbing Supplies, Hardware, Heating Outfits, Furniture, Carpets, Linoleum, Etc.

DOORS 40c WINDOWS 20c



1,000 good doors, various sizes, secured by us in connection with dismantling operations, most of them with hardware. Prices range from 40c up. Fancy front doors, all designs, \$1.50 up. 10,000 window sash, 20c up, all sizes. Complete line of everything in mill work. All brand new, best quality. Barn sash, 6 sizes, 25c up. Cellar sash, 37c up. Clear yellow pine mill sash, 25c per 100 up. Porch columns, 54c up. Stair newels, \$1.78. Stair rail, 10c per ft. Pilaster casing, O. G. base, 1.3-4c per ft. Base blocks, 4c each. Quarter round, 25c per 100 ft. Hardwood thresholds, 4c. Porch brackets, 3c. Porch spindles, 4c. We handle everything in the Building Supply Line, including light and heavy hardware. Send us your lumber bill for our estimate. Ask for our new special mill work catalog. It prices everything needed for building purposes. Sent free.



Rubberized - Galvo Roofing

\$1.25 per sq. Easy to put on. Requires no previous experience. Can be put on over shingles without removing them. Weather-proof and fire-proof. We furnish with each order sufficient cement to make the laps and large head nails. Price is per sq. of 108 sq. ft. 1 ply, \$1.25. 2 ply, \$1.40. 3 ply, \$1.75.



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 What kind of building or buildings?.....

 What items in this advertisement interest you the most?

 Name.....
 Town.....County.....
 R. F. D. or P. O. Box.....State.....
 I saw this advertisement in Cleanings in Bee Culture.
 Send me free of all cost your 500-page Catalog. Address

OUR NEW 500-PAGE CATALOG NO. 683 FREE.

This Wonderful Bargain Book is just out and ready to be sent to you at once. It is a book such as every shrewd buyer must have. 500 Pages with thousands of examples of the very best merchandise and supplies bought at the Sheriffs' and Receivers' Sales. It will pay you to keep it handy. Its pages contain a full record of what we still have on hand from the wonderful St. Louis World's Fair. Merchandise, Machinery and Supplies, articles for every one. You will find it useful in the home, in the workshop or in the office. Write today. Cut out coupon in corner. Fill in answers to questions. Sign your name and address in full and mail to us. We will send you our Catalog free upon receipt of coupon and answers to questions.

**CHICAGO HOUSE WRECKING COMPANY,
35th and Iron Streets, CHICAGO, ILL.**

Chicago House Wrecking Co., Chicago

Honey Markets.

GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct, to the retail merchant. When sales are made by commission merchants, the usual commission (from five to ten per cent) cartage, and freight will be deducted, and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

PHILADELPHIA.—The sale of both comb and extracted honey has been very light ever since the holidays until last week when the stock in the stores was cleaned out somewhat, and there has been quite a demand for comb honey. Prices, however, seem weak, and large lots are being offered through the commission men from bee-keepers who have been holding their honey back for better prices. We quote: Fancy comb honey, 15 to 16; No. 1, 14 to 15; amber, 12; extracted, fancy white, in 60-lb. cans, 8½ to 9½; light amber, 7 to 8. Beeswax, 28. We do not handle honey on commission.

March 30.

WM. A. SELSER,
10 Vine St., Philadelphia.

BUFFALO.—The honey market here is very dull. Receipts of white-clover comb honey are liberal. Buckwheat is cleaned up. Prospects are rather discouraging for the rest of the season. No. 1 to fancy white comb honey, 15 to 16; No. 2, 12 to 13; No. 1 buckwheat, 11 to 12; No. 2 buckwheat, 9 to 10; white-clover extracted, 9 to 10; amber extracted, 7½ to 8; dark extracted, 7 to 8; tumblers, per dozen, 90 to \$1.00. Beeswax, 30 to 32.

March 27.

W. C. TOWNSEND,
Buffalo, N. Y.

CHICAGO.—The market is without any life. A little honey is being taken as the retailer exhausts his stock, but no lots are moving. Prices are about as last given in comb. Extracted is lower, especially the western product. Beeswax is wanted at 30 when clean and yellow.

April 8.

R. A. BURNETT & CO.,
Chicago, Ill.

DENVER.—The market on comb honey is slow, and prices are declining. We quote to our trade, No. 1 white, per case of 24 sections, \$3.00; No. 1 light amber, \$2.85; No. 2, \$2.70; extracted, white, 8 to 9; light amber, strained, 6½ to 7½. We pay 25 cts. for clean yellow beeswax delivered here.

March 31.

THE COLORADO HONEY-PRODUCERS' ASS'N.
F. Rauchfuss, Mgr., Denver.

INDIANAPOLIS.—Jobbers are fairly well stocked, but very little honey is being offered by producers. Best grade of extracted honey is in good demand, but comb honey is finding slow sale. Jobbers are offering the following prices, delivered here: No. 1 and fancy comb, 15 to 17; extracted white clover, 8 to 9; amber, in barrels, 6 to 6½. Beeswax, 28 cts. cash or 30 in exchange for merchandise.

April 3.

W. S. POWDER,
Indianapolis, Ind.

SAN FRANCISCO.—There is no movement to speak of in honey, as stocks are quite small, with little coming in, and the prices tend to limit the demand. We quote: Water-white, comb, 16 to 17; white, 15; water-white, extracted, 8 to 8½; light amber, extracted, 7 to 7½; dark amber and candied, 5¼ to 5½.

Pacific Rural Press, March 28.

CINCINNATI.—The market on comb honey is very quiet. There is no demand. Water-white sage honey is selling at 9 to 10; amber, in barrels, 6 to 6½. Beeswax is in fair demand, selling at 32.

March 30.

C. H. W. WEBER,
Cincinnati, O.

HAMBURG.—Prices of honey are as follows: California, 8½; Chile, 4½; Cuba, 4½; San Domingo, 4½; Mexico, 4½. Beeswax, Benguella, 30; Brazil, 32; Cuba, 30; Chile, 31; Madagascar, 29; Morocco, 30; Carnauba, yellow, 34; ditto gray, 28.—*L'Apiculture Nouvelle.*

BARCELONA.—Spanish beeswax, 29 to 31; foreign, 30 to 31. Extracted honey, first class, 5¼; second class, 5½; strained honey, 5; foreign honeys, 10; foreign, second-class, 8 to 9.—*L'Apiculture Nouvelle.*

Extracted Honey Wanted

We are always in the
market.
If you have any to sell, mail
small average sample to

NATIONAL
BISCUIT COMPANY

Purchasing Department,
205 La Salle St., Chicago, Illinois.

WE WILL BUY AND SELL

HONEY

of the different grades and kinds.

If you have any to dispose of, or if you
intend to buy, correspond with us.

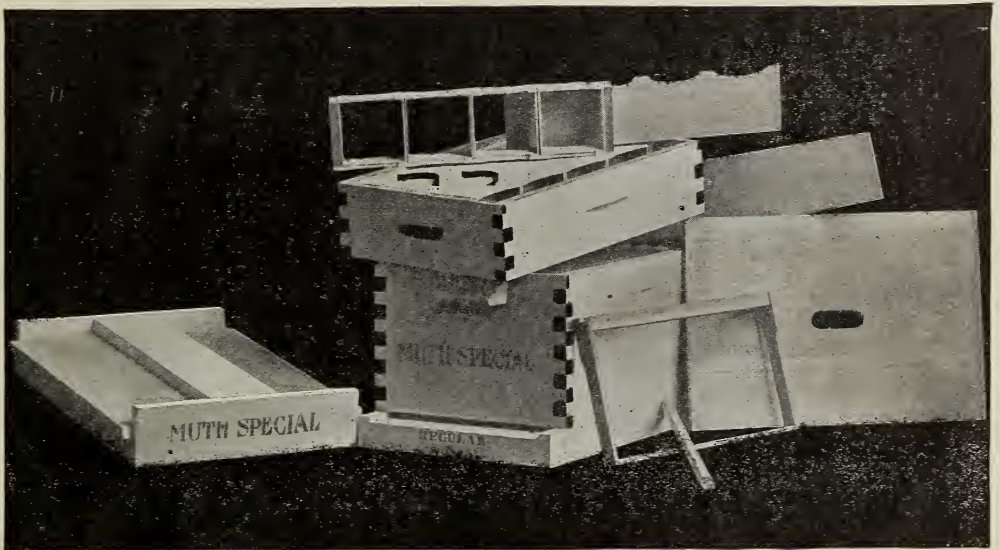
We are always in the market for WAX
at highest market prices.

HILDRETH & SEGELKEN,
265-267 Greenwich St. 82-86 Murray St.
NEW YORK.

The Hive that Makes Good= Because It Is Made Right!

MUTH SPECIAL

Is honestly the very best and most practical hive on the market to-day.



We offer it as a *leader*, because it is one! Regular Dovetailed hive, but finished like a parlor car—finest cover and bottom you ever saw.

Cover is gable-style, and can't blow off; has rim rabbeted on the inside edge of the sides, so it has to stick to its job. A honey-board (with the aid of a Porter bee-escape, enabling you to take off honey without a sting) is furnished with each hive.

Bottom is reversible, and it simply *can't* warp.

Look at the construction of this hive, as shown in the above photograph, and then tell us if you ever saw a better.

Here are prices :

	Nailed, Paint'd		Nailed.		In flat.		
	1	1	1	1	5	10	25 ¹
With starters.							
1-story, 8-frame.....	\$ 1 90	\$ 1 70			\$ 6 50	\$12 00	\$28 25
1-story, 10-frame.....	2 00	1 80			7 50	13 10	30 75
With sections and starters.							
1½-story, 8-frame.....	2 85	2 55			9 75	18 00	42 00
1¾-story, 10-frame.....	3 00	2 70			10 50	19 50	45 75
2-story, 8-frame.....	3 80	3 30			13 00	24 00	55 75
2-story, 10-frame.....	4 00	3 50			14 00	26 00	60 75

The FRED W. MUTH COMPANY
 51 Walnut Street The Busy Bee-men CINCINNATI, O.

Established
1873.
Circulation
32,000.
72 pages.
Semi-
monthly.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests.

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager

\$1 per year.
When paid
in advance:
2 years, \$1.50.
3 years, \$2.00.
5 years, \$3.00.

POSTAGE IS PREPAID by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutulla, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60 cents per year postage.

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DISCONTINUANCES.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

HOW TO REMIT. Remittances should be sent by Draft on New York, Express-order or

Money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by Registered Letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

PARIS, FRANCE. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 7½ fr.*

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\$53,700

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combination

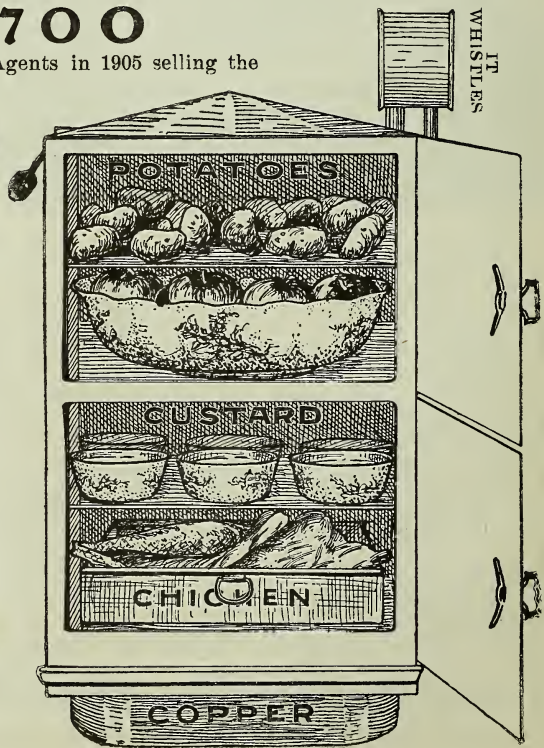
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We have many agents making \$5 to \$10 daily. Write us and we will give you names of agents near by who are making at least \$5 daily. We can easily prove that the "O-HI-O" is the best money-maker you ever heard of, and will make you more money than any thing you ever sold or are now selling. *Write us at once and we will prove it.*

Guaranteed to save 50 per cent in fuel, labor, time, and provisions. A whole meal cooked over one burner on any style stove. It assures you deliciously cooked hot meals; 30 days' trial. No intermingling of odors or tastes. Fine for use in summer cottages. A necessity every day of the year. The only healthful way to cook foods and breadstuffs.

Handsomely illustrated catalog free.

"O-HI-O" COOKER CO.
908 Jefferson Av., Toledo, O.



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Larger Quarters. A large warehouse has been secured, enabling us to store large quantities of goods for prompt shipment.

Better Facilities. We are located close to the depots, insuring quick deliveries to the transportation companies.

More Railroads. Grand Trunk, Lake Shore, Michigan Central, Pere Marquette—the four leading railroad systems of Michigan, reaching all sections of Lower Peninsula with better service than any other four roads.

More Express Offices. American, United States, National.

All these advantages are for the purpose of enabling us to attend better to the wants of the bee-keepers of Michigan and surrounding territory.

Headquarters for "Root Quality" Bee-supplies

We make it our business to please bee-keepers in search of the right bee-supplies. If you have time to come and see us in our new establishment we shall be glad to see you. All bee-keepers welcome. Make our store your headquarters while in Lansing. Send for our catalog. Root's factory prices.

M. H. Hunt & Son
Lansing Michigan

Gleanings in Bee Culture

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Editor Home Department

H. H. ROOT
Ass't Editor

Department Editors—DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE, LOUIS H. SCHOLL,
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CARRIAGES AND BUGGIES.

If you are on the outlook for a family carriage or buggy we should like to call attention to the advertisement on page 451 of the Elkhart Carriage and Harness Manufacturing Co., Elkhart, Ind. This is one of the largest firms, if not *the* largest, of the kind in the world. They have been dealing direct with the public, without the intervention of the middleman, for a period of 35 years. In fact, we think they were pioneers in the business of selling vehicles by mail. They have built up an immense business by fair and honorable dealing, without which a mail order business could not long exist. Our older readers do not need an introduction, because the firm is well known to them by its advertisement in these columns year after year, and many of them purchased their family conveyance from this source long ago when ordering by mail was something new, and a daring thing to do. The catalog of the firm is always to be had merely for the asking; and as it lists over 200 vehicles and 65 styles of harness it is really worth sending for. If you send for it, please mention this journal

THE CHARM OF EVERGREENS.

There is a place on every farm for evergreen trees. A thick belt of high evergreens makes a splendid shelter from wintry blasts. Protection of this kind is very welcome to the cattle, sheep, and poultry on a farm, more particularly when the trees are so planted as to check some peculiarly trying wind which blows in springtime when animals want to get out of doors after a long winter's imprisonment. Then, too, these trees serve to embellish a place and screen more sensitive plants and shrubs. Splendid hedges may be made of Norway spruce and arbor vitae. A thicket of pines or firs is an excellent roosting-place for the turkeys, guineas, and pheasants; and the chickens also appreciate it. Many evergreens are decidedly ornamental, such as the blue spruce, the cedars, and the junipers. We are moved to make these remarks by perusing the catalog of Mr. D. Hill, box 87, Dundee, Ill., who is a prominent specialist in this line. He has made a study of evergreens for the prairie States, and has been very successful in finding them.

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is more important than hard work.

Money deposited with us is secure and works for you continually. Our perfect system of Banking BY MAIL brings this opportunity to your door.

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The Savings Deposit Bank has a capital and surplus of \$70,000, and assets of over \$700,000. Its policy is conservative; its affairs are ably managed by capable and successful business men.

Deposits of \$1.00 and upwards accepted, on which we pay a yearly interest of 4 per cent, compounded semi-annually. Send currency in registered letter, your own check; or by P. O. or Express money-order.

WRITE FOR THE BOOKLET
TO-DAY

Established 1892

A State Bank



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President.

A. I. ROOT,
Vice-pres.

E. B. SPITZER,
Cashier.

**"If goods are wanted quick, send to Pouder."
Established 1889.**

Outlook Is Cheerful.

By the Bee Crank.

Said a great evangelical preacher,
"The hen is a beautiful creature."
And the hen, just for that,
Laid an egg in his hat,
And thus did the Hen-re-ward-
Beecher.

A Florida hen cackled and thus
betrayed
That a fine large egg she had just
laid.

And a bee-man of fame
Was heard to exclaim,

"Oh beautiful thing! come under
my wing;

It's us for the land where the
mockingbirds sing,

—And if a 'jigger' bites me, I'll
forget it."



Whether the story is true or not, there seems to be some circumstantial evidence to support it. Meanwhile I am making a specialty of selling Root's goods at Root's prices, and have a very complete stock of new goods. The indications are that, during May and June, the demand will be tremendous, and I am prepared for such an event. I could ship a ton of foundation the day the order reaches me, and still have

a complete stock on hand. My illustrated catalog is free, and I should like to send it to you, and should be pleased to quote an estimate on your wants; or if in a hurry you can order from the Root catalog, my prices being identical with factory list. This man sent for an estimate, and then

wrote as follows:

Walter S. Pouder. CONNERSVILLE, IND.
Dear Sir:—Your favor with estimate received. When freights are taken into consideration your prices are the lowest; and when I buy Root's goods I know what I shall get, which is worth something to me. Inclosed you will find check with order, and I am sending my beeswax by express.

Yours, THOS. H. WHITE.

Beeswax Wanted: — Don't waste beeswax, but save it and send it here. I pay highest market price, cash or trade, and I have an outlet for every pound that I could secure, and could use more.

Walter S. Pouder,

513-515 Massachusetts Avenue, Indianapolis, Ind.

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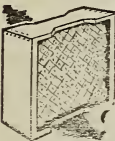
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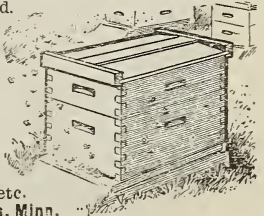
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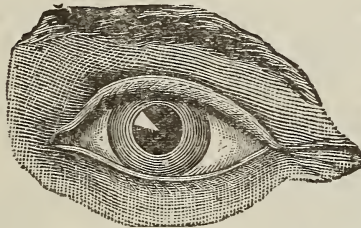


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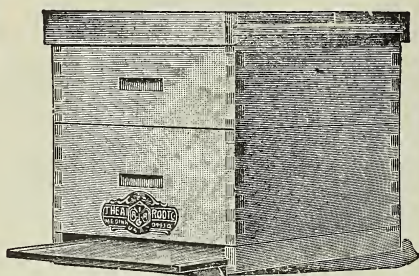
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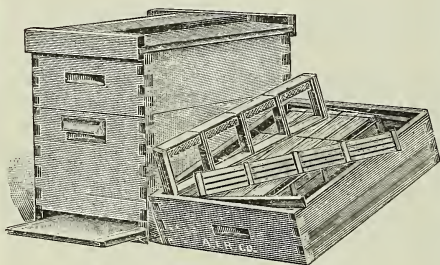
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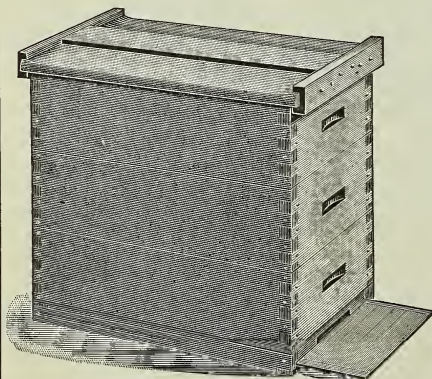
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H. H. ROOT, ASST. ED.

A. L. BOYDEN, ADVERTISING MGR.
J. T. CALVERT, BUSINESS MGR.
A. I. ROOT, EDITOR OF HOME DEPARTMENT

Vol. XXXVI.

APRIL 15, 1908.

No. 8



J. E. HAND, page 422, evidently thinks the best time for spring feeding is in the fall. Here's my hand on that, friend Hand.

ILLINOIS failed to get county option, but our new township-option law is making things lively for the saloons. Now that you Ohio fellows have county option, you ought to make things just hum.

PHILLIP B. STEWART, I don't believe you will like any of the plans you propose, page 445, unless it be the plan with box hives. Most, however, would prefer the plan given by W. K. M., only by some mistake he is made to say that the bees should be driven out 15 days after swarming. It should be 21.

F. DANZENBAKER thinks I shou'd put nothing in the two-inch space under frames to prevent bees building down, p. 447. Worth thinking over. But when the bees fill up the space with comb, will it not be the same as if there had been in the first place deeper combs with no deep space? Besides, the combs are generally built crosswise, making bad work lifting out the frames.

WHAT CAN possibly make such a difference between F. Greiner's experience and mine? He says, p. 435, that in the few cases when he left nothing but a board cover over his supers, with the hot sun upon them, the result was the loss of a super of honey. I do not think I ever had a section injured, to say nothing of the loss of a super, and I've had hundreds and hundreds of cases of the hot sun shining upon an unpainted single-board cover on the super. I wonder if his hives are in too close surroundings. I once had combs melt down in a hive in shade so dense that the sun never touched it, but with undergrowth on all sides to hinder free circula-

tion of air. [The difference may be accounted for on the basis of locality as well as the immediate surroundings.—Ed.]

DYSENTERY is mentioned, p. 418. Better call it diarrhea. Even that is a pretty strong term if there is nothing more than overloading the intestines. [We have known for some time that the word "dysentery" was not the correct or technical one to describe a certain disease of the bees in spring, and that "diarrhea" was much more exact; but, unfortunately, the former term has become so thoroughly incorporated in our literature and the minds of our correspondents that it has come to be one of those words that we can not very well change.—Ed.]

REPLYING, Mr. Editor, to your query, page 411, I do not believe that ventilation at each story "requires a large portion of fielders to stay at home to keep up the necessary body heat." The nurse bees are sufficient for that at any time when a flow is on, and are not even they sometimes forced to hang out idle when ventilation is insufficient? [Are you sure that there will be enough nurse bees in all localities to keep up the necessary body heat in double or triple deckers when you storify or pile one super on top of another in such a way as to leave ventilating-gaps? If there has been a large amount of brood-rearing at the right time, it is conceivable that there might be enough of such young bees —Ed.]

TAKING AWAY combs from a ten-frame hive and filling out with dummies when the harvest commences, as recommended on p. 417, has the disadvantage that sections over the dummy or dummies at the side will be slowly worked. A limited experience, however, leads me to believe that this may be remedied by putting the dummies, not at the side, but between the combs, one in a place. Contrary to my expectation this did not seem to hinder the work of either bees or queen. [A good suggestion. If a dummy be put in the center of the brood-nest it will have a tendency to force comb-building in supers clear out to the sides, and still the center will not be neglected.—Ed.]

I REFUSE to be convinced, Mr. Editor, that when I say it does not pay me to paint my hives I am thereby arguing that hives will not last longer, and look nicer if painted, p. 412. As to the rest, you are quite right in stating my position as far as you go, but not right as to Mr. Doolittle. He believes unpainted hives are better for the bees, and I suspect he is right. You say I have changed hives once already in forty years. Worse than that. In forty-seven years I have changed five times—from a sugar-barrel to Quinby box hives; then to the Lester frame hive; then to the Vandervort with frames 18 by 9; then to the Langstroth; then from ten frame to eight frame; also changing from several kinds of frames to the Miller frame.

CAN YOU TELL, Mr. Editor, when Neponset-covered covers came into use? You sent me one of the first, I think, with instructions to paint. I didn't paint, but the cover seems just as good yet. [We introduced it some five or six years ago, and at that time a correspondent, in calling our attention to it, stated that he had covers covered with the paper that had been used for twelve years, and it was then as good as ever. We have covered a large number of our hives with the material, and find it to be very durable, either with or without paint. We feel satisfied that it will outlast the ordinary steel tin plate. The only objection to it is that it will not stand much rough handling, such as piling a heavy hive on top of it in such a way as to gouge into the paper.—ED.]

THE METHOD of using two starters in sections, one at top and one at bottom, "still leaves a chance for pop-holes and bee-spaces in the comb at the sides," page 433. I don't wonder at your thinking so, Mr. Editor; but if you were to see a crop of my honey I think you would decide the bees had not made good use of their chance for pop-holes. Look at "Forty Years Among the Bees," pp. 283, 285. Of course, the sections there pictured were selected as the very best, and yet hundreds of others were like them. But look at pages 15, 269, 271, 279. Those sections were taken with no thought of avoiding pop-holes, many of them being unfinished, and not filled out as they would be later. [Your evidence, doctor, seems to be quite conclusive. Apparently you had already put into practice, in part at least, our suggestion as given on page 433, April 1st issue. If so, it would appear that comb honey without pop-holes can be produced by a large top starter reaching almost to the bottom, and a narrow bottom starter, providing both starters nearly touch the wood on either side. This allows for the sagging of the foundation and a slight side stretch. Of course, you keep your sections square; for foundation cut nearly to a fit (in width) requires square sections and square cutting—at least the top sheet.—ED.]

ALLEN LATHAM asks, "Had you ever thought that it stands to reason that there should be a poor joint between top starter and bottom in sections?" I must confess that it does, after his calling my attention to

some points. Only rarely will top and bottom starters exactly correspond so as to be the same as a continuous sheet of foundation, and the top starter will not always be in exact alignment with the bottom. I confess I had been so well satisfied with the finished product that I had never critically examined the work of the bees at that point; but happening to have on hand five sections emptied of honey by the bees, I have just made such examination. In the first four there was nothing to show that the foundation was not continuous from top to bottom. In the fifth case there were plainly three cells out of shape and unusually large. That was all that showed on the surface; but looking into the cells, and especially after cutting in, it was easy to see that the top was about $\frac{1}{4}$ inch out of alignment with the bottom, the bees having built horizontally across from one starter to the other. But in sealed sections there is no indication that the section was not entirely filled with a single starter. Just how the bees manage it, or why they don't do the crooked work that reason ought to expect, is beyond me. I only know that, when the section is done, it's all right.

YOU ARGUE, Mr. Editor, page 412, that by taking away from a weak colony a comb just as soon as the queen has filled it, and replacing it with a comb of just-hatching brood, you can get the queen to lay in a smaller room as many eggs as a queen having a strong force of bees. Let us see. Suppose A is a strong colony and B a weak one. You take from B a frame of eggs and young brood, and exchange with A for a frame of bees just emerging. There will be a big gain in B because there isn't the waiting for empty cells there would have been without the change. But you forgot about A, didn't you? Don't you see that A will have to do exactly the same waiting that you have saved B from, and that you have just hindered the queen in A by so much in *her* laying? [If you will turn to page 412 you will notice that we specify that, in order to get an equalization of queen-laying on the Hershiser plan, there would have to be a "proper coöperation on the part of the apiarist." In the case you cite between colonies A and B, it is apparent that, with no further manipulation, queen A would not be able to lay to her full capacity. But what is to interfere with the apiarist giving A an empty comb at the time he gives her a frame of young brood from B? If he does this, both queens might lay at pretty nearly an equal rate. This would be a case of proper coöperation on the part of the apiarist. It is true that it would take one extra comb. But in that case, of course storifying might be necessary. When we use the term "storifying we are using the excellent English word for "tiering up," one story on top of another. But suppose colony A does not need young brood, or, for that matter, the empty comb for the queen to lay in? It is possible that, by letting a queen lay to her full capacity, the strong colony might, as E. D. Townsend says, p. 419, be ahead of time for the harvest.—ED.]



SECRETARY W. Z. HUTCHINSON is doing some good work on plans for the next National convention at Detroit. See Convention Notices on page 525.

HOW THE BEES ARE WINTERING.

REPORTS from nearly every portion of the United States seem to indicate splendid wintering; in fact, we may say that in all of our experience we do not remember the time when bees came through so well.

HONEY CROP PROSPECTS FOR 1908.

We have just gone over a large number of reports that have accumulated within the last few days. The prospects for a good honey crop are favorable.

For the North the winter has been mild, and spring not so early as to start brood-rearing out of season to be chilled later on.

Reports from California are somewhat conflicting. Early in the spring bountiful rains had come, seeming to insure a good honey crop; but since that time conditions have been less favorable in some sections. As it is, we judge there will be from a light to a fair crop; and should the situation change for the better, the crop may be a good one.

Conditions are exceedingly good for a flow in Texas. It begins to look as if the Lone Star State would redeem its reputation. Its bee-keepers could once boast of a certain crop year after year; but during the last two years it has been a failure in many sections.

Reports from other portions of the South are favorable. It is too early to predict any results in the central and northern States.

SPRING OR FALL FEEDING; FURTHER REPORTS.

In answer to our request, as given on page 337, March 15th issue, for brief reports, quite a sprinkling of responses have come in. The consensus of opinion summarized is about as follows:

1. Don't feed in the spring.
2. Give combs of sealed stores to hives short of stores.
3. If these are not available, and colonies are likely to starve, give liquid syrup; or better
4. Feed the strong colonies, and give their sealed combs to the weak ones short of stores. We consider this suggestion excellent.

To stimulate brood-rearing in the spring it is advised to scratch the surface of the sealed combs of honey next to the brood rather than to feed thin syrup. This is also good.

WHAT AN AUTHORITY ON AGRICULTURE HAS TO SAY OF ALSIKE.

It is seldom that we read any thing more to the point than which Mr. Alva Agee has to say of alsike, in *The National Stockman and Farmer*, as a forage-plant for farmers. He certainly can not be accused of booming the plant in order to help the bees. In answer to a correspondent he says:

Alsike clover is sown with wheat or rye, or is seeded alone, like medium red clover. The seeds are about half as large as those of red clover, and therefore half the quantity per acre is sufficient. However, I doubt whether you want to seed to alsike unmixed, as it inclines to lie close to the ground, having more of the creeping habit than the common red. Moreover, its roots do not penetrate the soil as deeply as is desirable in a fertilizing plant. These are its two weak points. On the other hand, it is surer to make a stand than the red; it lasts longer in pasture and meadow, and it ripens more nearly with timothy. For many years our paper has urged the mixing of alsike with medium red for all land inclined to be unfriendly to clover. Alsike is pretty sure and dependable on any kind of land; and especially is it superior to the red on wet land. It makes a fine hay, but it yields less than the medium red. For pasture it is our most valuable clover. ALVA AGEE.

Bee-keepers would do well to help spread the doctrine among the farmers. They should get their local papers to publish it. It is good stuff.

DR. WILEY STILL HAMMERING.

In spite of the adverse glucose decision, Dr. Wiley is still on deck losing no opportunity to hammer the adulterators. At the International Congress of Mothers he had this to say, which we clip from the *American Grocer*:

"If every mistress of a household in this country should demand pure foods," he declared, "there would be little difficulty in the courts, and manufacturers would soon cease making things which the mothers of this country would refuse to buy for use in their families."

He added that there would be a cry against the mixing of certain substances with foods to make them palatable. Dr. Wiley called attention to the great importance of purity in such articles as butter, maple syrup, honey, and particularly of all dairy supplies.

"My plea is," he said, "in order to secure pure food in the household that this and similar organizations unite to compel the manufacturers and dealers in food stuffs to stop all adulterations, to stop all misbranding, to stop all coloring, all deception, and furnish the pure, unadulterated, and palatable article."

That is the right kind of doctrine, and bee-keepers will be delighted to support Dr. Wiley in his efforts to have this state of affairs come to pass. When it does come, bee-keeping will be one of the best callings in this country. W. K. M.

THE NEW POSTAL LAW.

It is just as we thought. Many of our subscribers who were in arrears with their subscription to this journal were so simply by lapse of memory or from inadvertence. Since the Postoffice Department has issued its new ruling many have promptly replied by paying up all past dues, and, besides that, paying for a considerable period ahead. Many have accompanied their remittance with complimentary words for GLEANINGS and its management. These are always acceptable, and the sentiments expressed are

cordially reciprocated by us. We look on our subscribers as our friends—friends in deed as well as in words.

We were a little afraid some of our old friends would take offense at our announcement, but really we have no choice in the matter. The postoffice authorities wish to suppress the never ordered and never stop papers which are only advertising sheets for their publishers. We think most of our readers will perceive the new ruling is really for the benefit of the people as a whole.

A CORRECTION.

MR. C. H. W. WEBER, whose entrance-controller we referred to on page 355 of our March 15th issue, says it is not true that his device is provided with "darkened passageways" as we stated, but air-channels, through which the bees can not go, but through which the air can pass freely. We understood perfectly the construction of the device, but we were unfortunate in the use of the terms.

He says further that it is not intended to have the exitway entirely closed by means of a slide, except only in the very coldest zero weather for a day or two. After this the slide is shoved over to one side, leaving an opening of about one inch wide. This is covered by another wooden slide in such a way as to shut off the light and yet allow a free passage to the bees into the hive. When so used, he explains, there will be no confined bees, and consequently no commotion within the colony as feared by us. Our readers will please note these corrections in connection with page 355.

SAMUEL SIMMINS, OF ENGLAND, A PIONEER IN THE INTRODUCTION OF MANY NEW METHODS AND DEVICES.

In our last issue, page 415, reference is made to the fact that Mr. Samuel Simmins, of Sussex, England, introduced split sections in 1887; but this is only one of some of the numerous devices or methods which have been "discovered" in the last year or so, but which we find were described by Mr. Simmins in his book in 1887, and other writings, twenty or twenty-five years ago.

We will take, for example, plain sections, described and recommended by him; direct introduction of queens; hiving swarms on foundation starters; plural-queen system; thick top-bars to prevent burr-combs; wooden queen-cell cups; perforated cylindrical queen-cell cages (which have recently been patented in this country); division-board feeders; bleaching comb honey; drawn comb in sections; a large space under frames to check swarming; uncapping-machines, etc. While he was not the original discoverer of all these devices or methods, it is apparent that he was an early pioneer in the use of some things, and an originator of others that are now receiving special prominence, and which have been counted as "something new under the sun."

In regard to split sections, Mr. Simmins described minutely in the 1887 and the 1903 editions of his book, "A Modern Bee-farm," the exact, precise method for putting foundation in split sections as described by Mr. J. E. Hand in these columns within the last year.

BE CAREFUL HOW YOU LABEL OR SELL YOUR HONEY; THE NATIONAL LAW ON MISBRANDING.

ONE of the provisions of the national pure-food law is that every article of food bearing a label, or that is sold as a certain product, must not misstate the source whence such food was produced. Applying this to the honey business it simply means that one can not sell heartsease or mountain sage as "white-clover honey" without getting into trouble with Uncle Sam, providing, of course, that such goods were shipped from one State to another.

A case has just arisen between two bee-keepers. The buyer has sent us the correspondence, showing that the seller wrote that he had a nice lot of white-clover comb honey to sell. A correspondence sprang up between the two parties. The buyer agreed to take the honey, paying for it cash in advance. When it arrived, instead of being a "nice lot of white-clover honey" it was heartsease and other fall honey, poorly graded and badly packed. The buyer demanded the return of his money, and the amount he paid in freight.

The producer refused to do this, saying he did not guarantee the source of the honey, etc. The buyer, on the other hand, sends us the correspondence to show that the seller was offering a "nice lot of white-clover honey." On the assumption that it was "white clover," and a "nice lot," he consented to send the money in advance. He now has complained to us, suggesting that we "show up" the other fellow through these columns. We are replying by saying that, under the conditions, on an interstate deal (if he represented that the honey was from white clover when it was not), the producer will have to return the money or be liable to a fine of \$500, imprisonment, or both. In this case the party evidently does not know what he is "up against."

We have thought best to mention this incident for the benefit of the few who either do not know or who are willfully regardless of the fact that, when they sell honey to a party outside of their own State, it must be exactly as represented as to the source, otherwise they will be liable to prosecution by a United States officer. It is bad enough to violate a State law, but a good deal worse when a national law is broken.

As we understand it, Uncle Sam does not attempt to adjust differences between producer and buyer if goods are improperly packed, or broken in shipment; neither will he prosecute if the goods are not as represented, except in cases where they are sold as coming from a certain district or from a

certain source when they are not, or otherwise misbranded. No more can Michigan or Ohio cheese be sold for York State cheese. They must be *exactly as represented*.

It is but fair to repeat that only a very few of our readers need to be reminded of this provision of the national pure-food law. The great majority would not knowingly misbrand, law or no law.

GLUCOSE IN AUSTRALIA.

The Australasia, published in Melbourne, Australia, prints the following in its issue of Jan. 4, 1908:

With regard to the company which has been formed to introduce the manufacture of glucose to Australia, a further step forward has been taken. It has been decided to send Mr. W. L. Engelbrecht, Mount Gambier, to America to select the most up-to-date machinery and get all available information as to the best processes for the manufacture of glucose. He will also visit Germany and England, and continue his inquiries there. In America glucose is made most largely from maize, but in Germany from potatoes. The machinery selected will be adapted for both. Mr. Engelbrecht will leave for America per first boat in January. The head works will be in Melbourne; but branches for dealing with potatoes will be established at Mount Gambier and Warrnambool, and in Tasmania.

We are sorry for our Australian friends, more particularly the bee-keepers. What can be the matter with the Australian people that they should desire to eat glucose? Cane syrup is infinitely to be preferred—in fact, glucose can not be eaten until some kind of good syrup is mixed with it. In this country its use has been ruinous to the manufacture of jams and jellies, and certainly it has always been used to lower the intrinsic value of any food in which it is used. In fact, its use is to cheapen or adulterate, *never to improve anything*. It has also created a number of millionaires at the expense of the poorer classes. The Australian bee-keepers will have their markets lessened if this scheme materializes.

W. K. M.

IN TERROR OF PARCELS POST.

The reporters in Washington are all agreed that parcels post stands a poor chance of being realized at this session of Congress. One reason they assign for this is interesting; namely, that members of Congress are being fairly deluged with letters from country merchants who think that parcels post would be the ruin of their business. As a matter of fact, great sums of money are being spent in creating a public opinion adverse to any movement of the kind. The men who are opposed to this reform are possessed of means, so that there is no trouble in getting funds; but it has been noted they are exactly the same class who resolutely opposed free rural delivery.

On the opposite side, the farmer and his friends are apathetic, and have no paid lawyers or lobbyists to influence the legislators at Washington. It is, unfortunately, true that the average farmer has no inclination to write or time to devote to the question. It is different, however, with the women of the farmer's family. The parcels post appeals to them. By its means they could

send to their home town for all sorts of small orders, such as every housekeeper really needs, without making a journey of so many miles. It is a wonderful convenience, more particularly when any one in the house is sick, or, as is the case with many, nobody is available to go for the goods required.

The only objection made thus far to parcels post is that it favors unduly the mail-order houses. But what are the facts? The mail-order houses do not care for the parcels post, because it is said they have an "understanding" with the express companies. In many instances the express people have greatly helped their business, and it is true they have assisted the mail-order houses in every possible way. In any case, the greater part of all mail-order trade is done by freight, and always will be, so that, after all, the country merchant sides with his old enemy, the express company, against his true friend the farmer, who has always patronized him.

If country storekeepers kept every thing in stock required by the farmer and his family there would be no need of parcels post; but, on the contrary, they keep only the bare necessities of life, and it would be absolutely impossible for them to keep on hand every thing the modern housekeeper or farmer requires. The rural dwellers of the United States have little idea of the wonderful convenience of parcels-post service; but they can imagine a good deal. It makes country life far pleasanter for all, more particularly for the women folks, who are almost constantly in need of some small order from "town."

The farmers should consider this matter carefully, and endeavor to influence others so that, the coming fall, every Congressman will be compelled to state whether he prefers the express companies to the farmer and his family. It is either one or the other.

W. K. M.

THE LOGICAL RESULT OF THE GLUCOSE CORN-SYRUP DECISION.

ACCORDING to the newspapers of Chicago, the Corn Products Co. has acquired 1200 feet of dock frontage on the Chicago drainage canal; by leasing the same for 99 years. It has purchased 110 acres of land in immediate proximity, on which will be erected a five-million-dollar plant for the manufacture of glucose on a grand scale. A new town will be built around the factory, to which the name Argo has already been applied.

This shows the tremendous importance of the "corn syrup" decision, for, as already stated, the Royal Baking Powder Co. and the Western Grocery Co. have both acquired immense factories quite recently for the manufacture of glucose. Under the proper name of glucose it was hard to sell, because the general public had learned to dislike it; but under the name of "corn syrup" it has obtained a new lease of life; and the starting-up of three immense factories proves the agitation against it had a solid foundation

in fact. Had Dr. Wiley's counsels prevailed, it is safe to say these three factories would never have been started. W. K. M.

THE NEW GRADING-RULES FOR WESTERN HONEY; THE PRACTICE OF NOT SEPARATING SECTION SUPERS DISCRIMINATED AGAINST.

The following letter, received from the Manager of the Colorado Honey-producers' Association, on the subject of grading western honey, will be read, we feel sure, with interest:

Mr. Root:—I am sending you herewith a copy of the new grading-rules adopted by the Colorado State Beekeepers' Association at its last annual meeting.

Experience had shown us that, while our former rules were satisfactory to most of the bee-keepers of Northern Colorado, where the larger part of the crop is always white, there was some dissatisfaction with them in other sections of the State where sometimes a considerable portion of the comb-honey crop is light amber in color and the cappings of the same also off in color. Under the old rules such honey, while it was a nice article of good flavor and appearance, well filled out and capped over, had to be graded as No. 2, although we are told it was very often sold again by jobbers in the East as No. 1 white.

Another matter that received attention in the revision of the rules was the weight of individual sections. We found that the term "all sections well filled" is sometimes misconstrued to mean also a section of honey that is capped over and securely fastened to the wood, but the comb so thin that it could not conscientiously be called a No. 1 section of honey, weighing only 1 1/2 to 1 3/4 ounces. Such honey packed with quite heavy sections would bring the weight of the case up to the required standard; and while it might pass through the hands of the jobber all right, it would prove unsatisfactory to the retailer, as the variation in the weight of the sections of honey would be too great to permit their being sold at a uniform price. Not only this, but, according to the views of the committee revising the rules, a standard 4 1/4 section filled with honey should weigh not less than 13 1/2 ounces in order to be classed No. 1.

As practically all the comb honey produced in the State is full separated, the new rules touch only upon the average net weight of half and non-separated honey without going into details.

The committee has aimed to secure grading-rules which will result in a close grading of the crop according to finish, color, and weight of individual sections, so as to make the handling of our honey entirely satisfactory and profitable to the retailer.

The recommendations cover the most important points to be observed in preparing and handling the crop after it leaves the hive.

Many of your western subscribers would, I believe, appreciate it if these new rules were published in GLEANINGS.

THE COLORADO HONEY-PRODUCERS' ASS'N.
Denver, Col. F. RAUCHFUSS, Mgr.

The grading-rules referred to in the letter above, it will give us pleasure to place at the head of our Honey Column along with the eastern grading-rules.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber; comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separated honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13 1/2 ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separated honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13 1/2 ounces.

Cases of half separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separated honey to average not less than 19 lbs. net.

Cases of half-separated honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 21 pounds net per case of 24 sections.

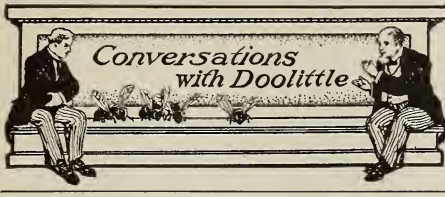
After receiving these rules we wrote to Mr. Rauchfuss, stating it was our opinion that, had these rules been in effect, some of the complications that arose over that car of misgraded honey, referred to on pages 339 and 358, March 15th issue, might have been avoided. In referring to this particular car he says:

I have no difficulty at all in locating the origin of this car, as it is evident that it was produced in the western part of this State. A good deal of missionary work seems to be necessary yet in that section when it comes to producing and grading comb honey. I was over there last fall and found there is quite a little honey produced yet by people who don't pay any attention to grading-rules, and apparently are not willing to learn, as, so far, they have always been able to dispose of their crop to careless buyers and speculators at somewhat near the figures that careful beekeepers were getting for their crop; and as long as such conditions exist we can not hope for much betterment until the time arrives when such stuff as illustrated on page 358 of GLEANINGS can not be sold at all, as comb honey, and can be sold only for what it really is—that is, cull honey, cut out and sold that way. If you read over the grading-rules adopted by the State association you will find no place mentioned for such honey as illustrated there, and it is not our intention to have such goods as that ever go out of the State. Regarding the use of separators, I want to say that at the present time we have our members (by this I mean the members of the Colorado Honey-producers' Association) in line, so none of them are producing comb honey without separators. Most of them use full separators, and a very few half-separators. During the past season we have had only one small lot of honey which we bought from a farmer in the house, that was non-separated, and it was a poor lot. We therefore graded it over, and sold it in the local market; but to my certain knowledge we have not shipped a single case of unseparated honey this year.

THE COLORADO HONEY-PRODUCERS' ASS'N.
Denver, Col. F. RAUCHFUSS, Mgr.

We may explain that, when we wrote Mr. Rauchfuss, we deplored the fact that some bee-keepers in Colorado were still trying to get along without separators, and that we hoped the time would come when all the beekeepers in the Rockies would see the importance of separating their supers. We are glad to see that the practice of leaving them out is becoming obsolete; at all events, the new grading-rules discriminate against such non-separated honey to such an extent now that the producer can not afford not to use them. It was a penny-wise and-pound-foolish policy before; but the conditions of the new ruling will make it even more foolish.

Of course we assumed that the attitude of the Colorado Honey-producers' Association as a whole is plainly against misgrading honey and trying to get along without separators; but it is a pleasure to see that the manager so plainly declares against it. We are glad to say that the great bulk of the Colorado honey on both sides of the Rockies is of the finest quality and up to the grading. It is only occasionally that we run across a bad lot. We find the same to be true of other localities where good honey is produced.



VOLUTION OF QUEENS; SHAKING BEES, ETC.

"I should like to have Mr. Doolittle answer the following questions through GLEANINGS, believing that its readers will be interested in the subject.

"1. Does the queen lay more drone eggs as she grows older?

"2. Can the queen lay eggs at will?

"3. What is a worker doing when she shakes her abdomen over the combs with a gyrating movement, doing this on brood-combs over eggs, larvæ, and sealed brood? Some bees following after, seem to be doing something with their heads. I see that a worker that comes from the fields with pollen on her legs does this as well as the other bees, and there must be some reason for it.

"In order to make a thorough investigation of these matters, a one-comb observation hive will be necessary, with squares marked off on the glass, so that certain portions of the comb can be kept track of under all of the development of the brood under or beyond these squares, a memorandum being kept of the whole

"E. A. NEWELL, Massillon, Ohio."

In answer to the first question I would say that, during the time between the fertilization of the young queen and when the spermatozoa begin to fail, the number of drone eggs she may lay depends almost wholly upon the wants of the bees in the colony of which she is considered "mother." I know that this may be considered as heresy among those who have been telling us, during the past, that a young queen never lays eggs in drone-cells for the rearing of drone brood during her first season of laying; but hundreds of cases if not thousands, which have come under my observation, prove to me that a queen which has been laying from two weeks to two months will lay just as many drone eggs under the same circumstances as will the queen which is from three to five years old, unless the spermatozoa she has been carrying have partially or wholly failed. With such failure, any queen will lay eggs which will produce only drones, just the same as will the eggs laid before she has mated. I said "under the same circumstances," and by that I mean any circumstances under which the colony wants drones. Such circumstances are generally when a colony is strong enough in bees to begin to think of swarming, with exceptional cases where the bees take it into their heads that they should supersede a queen of the same year's rearing. Where I have had early swarms, or made colonies early by the shaken-swarm plan I have, scores of times, found

all the drone comb in the hive full of drone brood within a month of the time the young queen (which the colony had reared, or which had come from the cell I had given) had begun to lay where the colonies containing them became populous from the amount of brood the combs contained after swarming. I have thought many times of writing this matter up, when I have seen it stated that a queen of the first season rarely if ever lays any eggs for drones that season, but never got around to it.

Twenty to thirty years ago, when I used natural swarming for my increase, I saw many times much drone comb built and filled with drone brood by second swarms; but, as a rule, all after-swarms are not strong enough as to number of bees to wish any drone brood. Then I have many times gotten a young queen at the head of colonies a week or so before the time I expected the honey harvest to commence; and, in order to get a "great big yield" of section honey, I have taken out all the combs not well filled with brood, and those having mostly eggs and larvæ in, filling up the hive with combs from which the brood was just emerging, saying to myself, "Now I have you, for colonies do not swarm with queens which have been laying only a week or so, enough so that they have gotten fully settled down to business," only to have such colonies fill every drone-cell the hive contained with drone brood, and swarm inside of two weeks, just when the honey harvest had nicely begun. From this experience, covering a period of nearly forty years, I am led to say that any and all queens lay drone eggs just in accord with the wants of their colonies, and that the age of the queen has nothing to do with the matter so long as she is capable of laying eggs which will produce worker bees. After she has passed the stage of laying eggs which are fertilized, she becomes what is termed a "drone layer," and can lay no other kind, no matter how much the bees may desire it otherwise.

Regarding the second question, I can see no other answer than yes; as, so far as laying is concerned, the queen is obliged to will to do just as the bees will. In other words, she *wills* just as the colony wills, every time, when it comes to the egg-laying part. She lays only when the bees feed her prepared food in sufficient amount, and, quite often, after the bees have fed her so that she has laid a large number of eggs, if the weather turns bad, they will not allow these eggs to hatch, removing many of those which would hatch at once, and keeping others for an indefinite period, then allowing them to hatch, or destroying them, just as the weather seems to justify. These things have come under my observation quite a few times during May and June in very fickle weather.

But from a portion of our questioner's letter which was not for print I judge that he wishes to ask if the queen can lay either drone or worker eggs at will, as he speaks of the pitch of the cells having much to do with the queen laying eggs in drone comb. Be-

lieving that is what he wishes me to express myself about, I will again answer yes. I have every reason to believe that the queen knows whether she is laying eggs which are to produce drones or those which are to produce workers. Those who read the conversation on drone comb in GLEANINGS for Feb. 1, 1908, will see how I allow in most of my hives drone comb in only one frame, and keep this frame at the side of the hive so that it may be kept unoccupied by drone brood as long as possible. Well, I have often had colonies start brood-rearing in spring on the side of the hive furthest from this comb, and as the season advanced, and the bees desired drones, and before worker brood had come within three combs of this outside comb with drone-cells, the queen would travel clear around those three unoccupied combs and lay in all of the drone-cells, without putting a single egg in any worker-cells all about the margin of this drone comb. Further, in some cases, all along the edges of the drone comb there may be drone and worker cells mixed, when every drone-cell would be picked out and eggs deposited, without a single egg in *even one* worker-cell. As soon as all the drone-cells were occupied with eggs the queen would return to the brood-nest and go to laying worker eggs as she was doing before. I know that there is now and then a case where a queen will deposit eggs in drone comb, a part of which will produce workers, and the other part drones; but in this case I am inclined to the supposition that the "queen wills it," rather than that the size, depth, or pitch of the cell has anything to do with it. Of one thing I am certain from many observations; and that is, where the bees desire drones *every* cell of this drone comb will contain only drones, no matter whether the cells are a shade smaller, a little deeper or a little shallower, or whether the pitch is different. The only thing which confronts us, then, is, whether there may be times when the bees and queen want worker brood but are prevented because of the size of the cell. To this I should say no, for I have often confined a nucleus, which had a queen just commencing to lay, to cells wholly of the drone size, and had nothing produced from these cells but worker bees. From these observations, I conclude that, where both drone and worker brood are found in drone comb at certain times, the bees and queen are willing to have some drones as well as workers in the hive.

Regarding the third question, I will frankly say that I do not know; nor have I ever found anybody who does. I have asked a great many bee-keepers about this, and the most of them seem willing to acknowledge that they do not know why this shaking process is gone through with by certain bees in certain colonies any more than they know why certain bees from certain colonies will arrange themselves in rows all up and down on the outside of the front of the hive, and stand there and scrape away, up and down, with a swinging motion of the body, for hours and days at a time. Some have claim-

ed that, when this scraping act was begun, the bees intended to swarm soon; but scores of colonies, keeping it up off and on for a month without swarming, have shown the falsity of any such conclusion; and, so far as I know, *all* are alike ignorant as to what the bees are thus exercising for. I have been told many times that this shaking motion of the bees is to loosen the pollen from the pollen-baskets, so that it would slip off easily into the cells when the bee wished to leave the loads; but this will not account for the matter, for, as our questioner tells us, the majority of the bees which go through this gyrating exercise do not have pollen in their pollen-baskets. Then this "gyrating" is confined, as is the scraping, to certain colonies, so that it can not be of universal necessity in the economy of the hive, and for this reason it will be more difficult to come to any direct conclusion in the matter, even if it were possible to do otherwise. I have stood, sat, and lain beside a single-comb observation hive for hours that have lengthened into days and weeks, but I never saw a bee so gyrating in a one-comb observation hive; and until I do find one, the "marked-off squares" will not be needed. Like our questioner, I believe that all are interested in these things, even though it may be of no money value to us, and, like him, I "should like to know what the bees are doing it for," and what the scraping motions are for; but so far I do not know, nor have I found any one able to tell me.



Dr. Miller says, page 7, Jan. 1. that bees when taken from a cellar can be placed without reference to former location. True; and, more, they can be moved at almost any season if a board or other obstruction is placed in front of the hive for a few days.

Page 8 the doctor wonders if there is not a larger proportion of Prohibitionists among bee-keepers than any other class. I believe he is quite right. I remember attending a large convention of bee-keepers some years ago, when it seemed as if nearly all were of this persuasion; and, more, a large number were in favor of a party for carrying their principles into effect.

On page 84 Stenog gives some rules from C. J. H. Gravenhorst, republished in the *Bee-keepers' Review*, as to why some colonies do so much better than others. Now, it seems well to know why it is; but can we not, while aiming at this as an ideal condi-

tion, spend our time more profitably on a few more colonies than in trying to bring all up to this standard?

A. I. Root's advice to rest, page 104, before eating is (to those not very strong) one of the best things between the covers of the Jan. 15th issue of GLEANINGS; and if heeded it is well worth more than one year's subscription. Better by far take the rest before than after, but better after dinner than not at all.

I fear your editorial on page 18, on the "big field for bottling honey," is somewhat overdrawn so far as New England is concerned. Few stores here in this section that can be persuaded to sell bottled honey, but they have an opportunity to do so, and a single firm in a single year has put out as much as 17 carloads of extracted honey.

Mr. Holtermann, in reporting the Michigan convention, page 99, says Mr. Aspinwall advocated continuous passageways between brood-frames and sections, as it gives better ventilation, and the bees can go in a straight line to reach the sections. This is all very beautiful in theory, but I fear not in practice. I believe Mr. A. has great faith in ventilation. All right; but if too free communication is given, bees are more apt to carry up pollen, and the queen to lay eggs in sections, to say nothing of the bits of dark wax or cappings to injure the appearance of the finished section.

Glucose! glucose! glucose! corn syrup! corn syrup! corn syrup! If a man steals a loaf he is a thief. If he robs a bank of \$100,000 he is only a defaulter. If a man mixes 10 lbs. of glucose with 90 lbs. of cane syrup it is adulterated; but if he mixes 90 lbs. of glucose with 10 lbs. of cane syrup it is corn syrup.

Well, defaulters are not so respectable as they used to be; and if the so called corn syrup is as bad as represented, the people will soon find it out, and the reputation of the offspring will be no better than its ancestor, glucose. Let us be patient. Meanwhile let the people know how it is made.

Some very interesting facts and articles have appeared of late in GLEANINGS in regard to feeding bees for winter. J. L. Byer, page 99, prefers to feed syrup made two parts sugar to one of water. This has been my rule for many years. But unless I mix some honey with it there is apt to be some loss by granulation.

Along this same line E. W. Alexander, p. 99, says, "If it requires 20 lbs. of honey to winter a colony, this additional surplus would be worth at wholesale about \$1.50. Now, if in its place we use 14 lbs. of sugar to make 21 lbs. of very thick syrup, costing about 75 cents, or half the amount the honey will bring, there is a saving of over \$400 in an apiary of 600 colonies; besides, the bees are given a much safer and better winter food." I believe no one will dispute the statement that the sugar syrup is a safer food, as a rule, than honey—especially late-gathered

honey. But that 14 lbs. of sugar made into 21 lbs. of syrup, and fed to a colony of bees, is equal to 20 lbs. of sealed honey, there may be, it seems to me, some question.

Dr. E. F. Phillips tells us in "Miscellaneous Papers on Apiculture," pages 7, 8, that the water in thoroughly ripened honey will not exceed 25 per cent, and is generally not more than 20; and some very ripe honeys will have as little as 12 per cent of water, while the thick syrup that Mr. Alexander speaks of, page 29, is 33½ per cent water. It would seem that this extra 13½ per cent of water must be eliminated before we can get a correct comparison of the actual feeding value of the sugar. To this must be added the loss caused by the activity of the bees in storing the sugar syrup, and for wax for capping, so we can not safely figure on more than 18 lbs. of sugar stored that will be of equal value to the honey extracted. It will probably be less. Thus we must reduce the total amount of honey secured from 600 colonies 1200 lbs., which, at his estimate of 7½ cents as its value, would make \$90. To this must be added the cost of the labor of extracting 12,000 lbs. of honey and feeding 12,600 lbs. of syrup, which might be from \$25 to \$50 more.

Now that I have GLEANINGS for Jan. 1 before me I think I must stir up my good friend Doolittle a little. In answering the questions of T. E. Howe, page 23, Mr. Doolittle assumes that basswood always yields honey when it blooms, and always blooms when not killed by frost. This is undoubtedly true at Borodino, for Mr. Doolittle would no more knowingly make a false statement than cut off his right hand; but what is true of Borodino may not be true of some other places. During the past five years I have seen basswood bloom more plentifully than ever before, and yet fail to yield honey appreciably.

There are places where basswood has yielded even better than for Mr. Doolittle or Dr. Gallup. Mr. O. H. Townsend, of Otsego, Mich., told me last August that he once had a colony that gathered over 40 lbs. (I think it was 45 lbs.) for three days in succession, and would have gathered more, but that by 4 o'clock P.M. the hive was so crowded there was no room for storing more. So it seems to me that much depends on location as well as the amount of bloom. Near the bottom of page 23 he says, "The fruit-buds and leaflets to all trees with which I am familiar are formed in June and July of the preceding year, so the results of next season's honey-yield, so far as the buds and flowers are concerned, are already in embryo on the apparently bare and lifeless branches of the basswood-trees, as we behold them these zero days of winter." Now, this statement is quite true of many fruit-bearing trees as the apple, pear, plum, peach, etc.; but when it comes to the basswood, I believe my friend is a little off. If we look carefully we shall find that the blossom-bud of the basswood comes out of the new or present season's growth of wood at the base of the leaf, or where the present season's leaves join the

stem close to the axillary leaf-bud for next year, and does not form till after the present season's leaves appear. The fruit-buds of the grape are somewhat similar, and come along the new growth of wood opposite the leaves. I have sometimes known frost to kill the basswood-buds, but it was very late when the basswood was partly leaved out, and the new blossom-buds formed on the present season's growth of wood.



I AM "OVERSTOCKED" WITH INFORMATION

When I started in the bee business I was puzzled to know just how many "gums" I could keep. I got a couple of hives and then wondered if that was too many, or if I could keep a thousand. I thought I would keep three or four hives; but one day I happened to find out that a neighbor, only two blocks away, had six colonies, and my heart sank within me. All my future hopes as a bee-keeper were blasted. His bees outnumbered mine, and, as I thought, would, whenever a flower had any juice in it, beat mine to it. I wondered if he would not get discouraged and quit. I thought I might buy his bees; but he would not sell, so I watched sorrowfully for my poor little darlings to starve. They did not gather any honey, and I was satisfied that my locality was overstocked, as there were eight hives within a radius of — well, they were all the bees I knew of in the county.

I went to a man who knew all about bees, they told me. In fact, he admitted that he did when I accused him. He had reared queens, he had bought queens, he had imported them, he had done every thing with them; and he told me confidentially that I could get enough honey for table use, if I did not make a hog of myself, provided I kept but eight swarms; but as sure as I kept more I not only would get no honey but would have to feed. It was like this: It takes power to propel a bee through the air; there is no such thing as perpetual motion, and in order to generate that power it takes honey, which was to the bee what coal is to the locomotive. Now, after you have more than eight colonies the bees have to go so far to get enough honey to supply power that it is all digested before they get home, and they starve. Then often, in going so far they are never able to find their way back. This, you know, was not idle theory, but scientific facts. But I thought I would keep a number just for the fun of it, even if I did have to feed. The first year I got a little honey. I increased to fifteen, and got less.

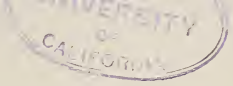
Just as he told me. The next year I increased to thirty, and got still less. Just as he told me, The next year I increased up to sixty, got nothing, and had to feed. Just as he told me. The next year they all did better than they ever did when I had only two. Then I began to think that possibly the crop or something else had to do with success or failure besides the number of colonies. I would just read the bee-journals and find out. I read two articles, and that settled it. The first article said that bees gathering nectar was just like dipping water out of the ocean with a pint measure. It did not make a blamed bit of difference how much you dip out, the plants will all be full again before another bee can poke its nose in, and a few thousand colonies more or less is nothing.

The other article substantiated the first as follows: When bees gather nectar it is just like "shuckin' corn." There is just so much nectar; and when the bees go out and shuck it there is "nothin' doin'" till a new crop is grown. You want only just the right number of bees that will gather all the nectar; and if you happen to count your blossoms wrong, and have a dozen or so of bees more than there are blossoms, why, those poor extra little devils will have to starve, and you, you incompetent bee-keeper, their blood be upon your head! It is often amusing to read the arguments on both sides of the overstocking question; and when there is a failure it is customary to lay it to overstocking. I think a good deal of it is imagination, superstition, or something like it. One writer has nearly a thousand colonies in one place, but they all say he has an extra good place — buckwheat as far as you can see, all buckwheat. He frequently gets a surplus from white clover. In this locality buckwheat never does produce any white-clover honey, but still this is not a good locality.

Here is an experiment that I should like to see tried. Necessarily, from the magnitude of the enterprise, it should be undertaken by some gentleman with philanthropic tendencies. The government might try it. I think it would give us some light on the overstocking problem.

Take an average white-clover locality, and take fifty colonies and set them all on a big wagon-scale. Then take five hundred more, put them on trolley cars and run them up beside the fifty. At night weigh the fifty and record the weight. Then during the night run those that are on the cars away for ten miles or so. Then the next night again weigh the fifty and keep a record. Then bring back the five hundred beside the fifty, and at the end of the day weigh again, and so on till the flow is over. Then average up the honey the fifty gathered when alone and when the five hundred were with them, and see what the difference was, if any.

That would be an interesting test, and before it came off all the bee-keepers could have a guessing-contest as to results. I will register my guess now. I am not theorizing nor arguing — just guessing. My guess is there would be two per cent difference.



FANCY COMB HONEY FROM COLONIES CURED OF FOUL BROOD.

How to get Rid of the Disease without Sacrificing the Honey Crop.

BY R. F. HOLTERMANN.

In connection with this article are shown two engravings of the first-prize honey exhibited at the fruit, flower, and honey show at Toronto, and produced by I. A. Thomson, Britannia, Ont. This was also a portion of the honey which was sent by the Ontario Bee-keepers' Association as a Christmas present to His Majesty King Edward.

spector for the district. Mr. Sibbald, after his arrival, went carefully through the apiary, and out of seventy-eight colonies he found eighteen diseased. Mr. Sibbald then told him that, if he liked, he could cure the eighteen, and wait to see whether any disease would develop in the remaining sixty. Or he might treat the entire lot by following a certain plan outlined, and at the same time secure what crop of comb and extracted honey that might be obtained. The plan recommended and carried out was as follows:

The queens in six of the eighteen diseased colonies were caged, and these six were removed to a secluded spot in an orchard. The bees in the remaining twelve were shaken

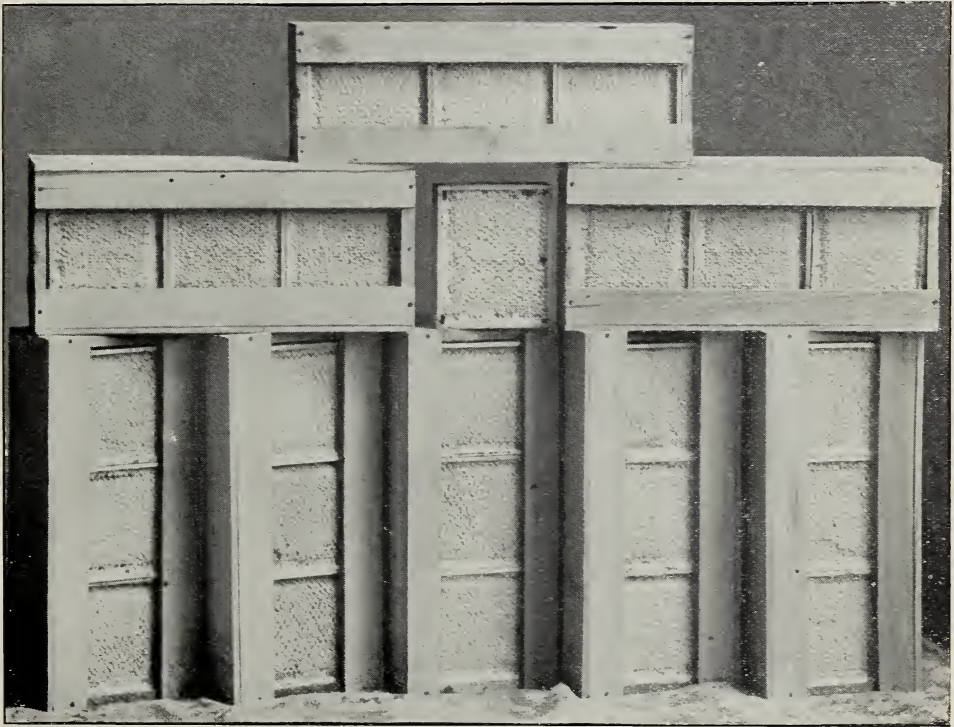


FIG. 1.—PART OF THE HONEY SENT BY THE ONTARIO BEE-KEEPERS' ASSOCIATION AS A CHRISTMAS PRESENT TO KING EDWARD.

This honey was produced in sections containing full sheets of foundation fastened with melted wax on the sides and top; $\frac{1}{8}$ inch space was left between the foundation and the bottom of the section to prevent buckling.

Incidentally these engravings show that profit may result, even under adverse conditions, and also that a foul-brood inspector may make himself very useful by dropping a few words of advice which may not cost any additional time.

Mr. Thomson, who is a very thorough and intelligent bee-keeper, stated that, on finding foul brood among his bees, he notified the Hon. Nelson Monteith, Minister of Agriculture for Ontario, at Toronto, as the law requires, and he in turn sent Mr. H. G. Sibbald, of Claude, Ont., who is foul-brood in-

upon starters, and the combs of brood and honey were piled two supers deep upon the six hives with caged queens.

In four days the twelve on starters were again shaken upon full sheets of foundation, and when the comb was nearly completed top stories were given containing full sheets of foundation, and the twelve colonies then run for extracted honey.

There was left, then, only the six diseased colonies with their queens caged, and with two supers each, containing the old combs of the other twelve. These were treated in ten

days as follows: The top stories in each with their combs of brood and bees were removed and placed on a new stand. The bees in the next super and those in the brood-chamber were shaken into a hive containing starters, and the queen released, and the two shaken hives again piled on top of one of the former top supers removed to the new stand.

In four days the shaken hives were again shaken upon full sheets; the starters as in the first case were taken to the honey-house and rendered into wax.

These last six hives treated, being strong in bees, were given section supers containing slatted separators, wide frames, and $4 \times 5 \times 1\frac{1}{8}$ sections filled to within $\frac{1}{8}$ in. of the bottom, with sheets of extra-thin section foundation attached to the section at the top and at the two sides by means of a brush and melted wax.

In four days the old hives remaining were shaken on starters followed by a shaking

foundation and received no second shaking. These were run for comb and extracted honey, the same as were the foul-brood colonies; and although only a medium year in the locality, at the end of the season there were 88 colonies in good condition, 3000 lbs. of extracted honey, 1000 lbs. of comb honey, and 1100 lbs. of beeswax.

The above plan necessitates careful work, and care must be taken not to expose diseased comb or honey to the bees. Mr. Thomson felt sure he had a clean yard when through. Every thing was done when honey was coming in. Every scrap of the old comb was melted into wax, the refuse burned, and a thorough cleaning-up was effected. The plan is well worth giving to bee-keepers, particularly as there is so much foul brood in some sections, and as this method not only does not interfere with the honey crop, but leaves the apiary in 99 cases out of 100 in better condition than before.

Brantford, Ont., Can.

TRANSFERRING.

A Beginner's Experience in Cutting Combs from Old Box Hives and Transferring them to Modern Hives.

BY F. DUNDAS TODD.

[Several years ago, after we had made several hundred pictures, some of which appeared in these columns, and having read various books on photography designed for amateurs, we decided to take some journal devoted to the art in order that we might keep abreast with the times. The *Photo-Beacon* was recommended; and having subscribed for it we were delighted with its contents—especially the editorials.

Not long after, a correspondence sprang up between its editor, Mr. F. Dundas Todd, and the editor of this journal. The former was seeking pointers on the subject of bees, and we were equally anxious to gather pointers on the art of making pictures. The result was a pleasant correspondence, during which we "swapped" ideas.

We said we were delighted with the editorial work on the *Photo-Beacon*, and so we were. Mr. Todd, the editor, instead of writing along conventional lines, adopted the simplest and purest Anglo-Saxon, using short, crisp, and clean-cut sentences. How easy it was to follow him! We could almost see him in his dark-room showing us *how*.

It finally developed that our friend found it necessary to sever his connection with the *Photo-Beacon*, on account of falling health on the part of a member of his family, and go west. He had already been keeping bees in a small way, going into the study of them with all the ardor and intensity of a professional man. On arriving in his new field he began bee-keeping anew in a larger way. And now, to make a long story short, he has submitted to us manuscript detailing the experiences of an amateur bee-keeper. When we say "amateur" we do not mean one who is "amateurish," but one who is expert and who takes up the study just for the love of it. Such an amateur is Mr. Todd. Along with the manuscript came a number of photos which, it can be readily imagined, would be first-class from the standpoint of a professional picture-maker.

We take pleasure therefore in submitting the first installment, which, we apprehend, will not only be seasonable but particularly welcome to the amateur and to the beginning class of bee-keepers, of which we have many in our GLEANINGS family. The style is the same simple clean-cut English used in his photographic writing; and as one reads the lines he can scarcely fail to understand and to imbibe some of his enthusiasm.

It is but fair to Mr. Todd to state that we are taking the last of the series and putting it first, because it comes at *just the time* of the year when most persons,

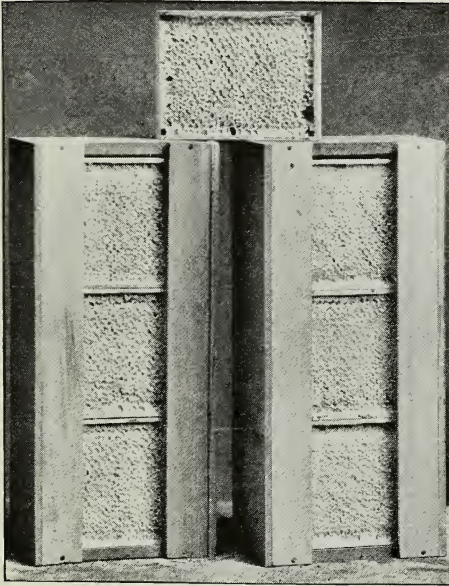


FIG. 2.—COMB HONEY PRODUCED IN A COLONY JUST CURED OF FOUL BROOD.

upon full sheets as before described, the combs being taken away for rendering. These colonies, also being extra strong, were run for comb honey as outlined above. As soon as the sections were well under way, and when they would be considered by most advanced bee-keepers to be too far under way, the supers were raised up and others put underneath.

Now as to the remaining sixty colonies in the yard, which had no foul brood as far as could be seen. Not caring to run any risk, however, and wishing to make a clean job of the apiary, Mr. Thomson carried out the above plan, with the exception that the bees were in every case shaken upon full sheets of

if they transfer at all by the direct method, can do it to the best advantage.

The other installments will follow in consecutive order and at their conclusion we hope to put them in pamphlet form for the benefit of beginners and amateurs who may not have time to read the more extended works now offered for sale.—ED.]

When I started keeping bees in a modern hive I would have scouted the idea of ever having to wrestle with the problem of transferring; yet I had performed the operation in less than three months. That was to be my first and only venture; but in my second year of bee-keeping I transferred twice, and I suspect I shall probably beat that record in my third season, as I am in a locality where gums are many and hives are few, and I am just starting in afresh.

There are two ways of transferring—the direct and the indirect. The latter is by far the more preferable, I suspect; but I have never practiced it, for the simple reason I have always wanted to transfer when the conditions demanded the direct method. I hope to follow in the future the indirect route, but at the same time I do not look upon the other any more as a serious ordeal.

In the direct method the combs are cut out of their original position and transferred to the frames of a regular hive; in the indirect method the *bees only* are transferred, and that gradually, to their new home. It is the first I am about to describe and illustrate.

My first venture in transferring was easy—merely changing the bees and combs from the regular Hoffman frames to the Danzenbaker. Since the original frame was considerably wider than the Danzenbaker, and as the combs were simply perfect, it was no trick at all to cut from the one, trim to the proper size, and place in position in the smaller frame, where they were held in place by a string of loose fibrous nature that was wound round the frames several times and fastened securely. In a week the hive was opened and the strings cut away as the combs were found firmly fixed in position.

My second venture was for a friend who had fallen heir to a colony housed in a soap-box, and he wished them put in a regular hive. This proved a more difficult proposition, but I carried it through all right; but since I did some things rather awkwardly I prefer to describe my third venture, which was the most difficult of all.

The following tools have been found necessary: Heavy hammer, cold chisel, sharp steel knife (a carver is excellent), a saw

(I always have it handy but have never used it); a large empty tin biscuit-box with a hinged lid to receive scraps of comb which can be made useful afterward; a board a little larger than the frames; a table, preferably covered with oilcloth; an empty box whose opening is, as nearly as possible, the same as that of the lower part of the hive to be operated upon; a couple of moderately heavy sticks for drumming with; a pail of water and a towel; a ball of binding-twine, or for small frames a box of rubber bands, which are much handier, and a bee-brush or a wisp



FIG. 1.—DRUMMING THE BEES UP INTO THE EMPTY BOX.

of grass. Since the new hive must necessarily occupy the place of the old one it is better to do the work a little to one side or at the rear of the latter so as to save time in disposing of each frame as it is prepared.

I prefer a clear sunny day when the thermometer shows at least 65 degrees in the shade, so as to avoid as far as possible any chilling of the brood. Of course, there are certain seasons when the free flow of nectar makes them more favorable; but I would at

such times use the indirect method in preference to the one I am about to describe. I suspected the presence of the beeswax-moth in the end of October, and felt they had to be got rid of as quickly as possible, for if I did not I might not have any hive in the spring. Direct transfer is, I am convinced, to be used on only urgent occasions, because the comb is usually so uneven that it must be replaced at the earliest opportunity; so one is thus brought right to the level of the indirect method, but with lots of muss and extra labor.

Having all your tools brought together, set your table in the most convenient position and place the tools in the order you expect to use them so that you will waste no time hunting for them.



FIG. 2.—REMOVING ONE OF THE SIDES OF THE BOX HIVES.

Assume your armor of defense—veil, gloves, and do not forget strings around your trousers at the ankles, as myriads of bees will soon be crawling everywhere on the ground.

See that your smoker is in first-class working order, though it is probable you will find little use for it after the start, because the ordeal about to be inflicted on the colony will in all likelihood thoroughly demoralize its members.

Begin by puffing a little smoke into the entrance. Wait a minute; then give them another dose; repeat a little later. Wait two minutes or so, then lift the box hive off its stand and place it on the table upside

down; then place the new hive-body (empty of course) in the place the box hive occupied. It is desirable to get at least one frame of brood and honey into the new hive as quickly as possible, so that the flying bees will find an abiding interest in the new conditions.

Now on top of the box hive place the empty box, upside down, and proceed to drive the bees up into it by vigorously thumping the sides of the box hive with the sticks provided for that purpose—Fig. 1. The more bees you drive up, the better; but at this stage I could never get much over a pint to vacate the combs. However, as the work proceeds they will continue to come to the top, and I generally jar them off into the box each time I cut out a comb.

TRANSFERRING THE COMBS.

The next thing to do is to cut away one side of the box hive, Fig. 2. Still keeping it upside down, place it at some convenient height, and commence operations by driving the cold chisel between two of the boards. With a flimsy box the wood will probably split away; but with heavy lumber you will probably have to cut the nails with a chisel. At any rate I have never found any difficulty in removing one side of the box hive.

The combs will certainly not be in the fine shape and condition in a properly cared-for hive, but they are more apt to be curved and twisted in many directions; besides, if old they will be not only black, but so hard it will seem almost impossible to cut them with a sharp steel knife; in fact, the first temptation is to use a hatchet.

On the table place the board that is slightly larger than the frame. Some recommend a folded newspaper or cloth on top of that so as to protect the brood from injury as far as possible; but it gets so sloppy and inconvenient that I have discarded its use.

With the sharp knife, used as if it were a saw, slice the first comb from the sides of the box, and then cut it away from the top. The comb being free, lift it and clear it of bees by giving it a sudden jerk above the empty box. If it be old and hard it will stand such rough treatment; if new, brush off the bees with a bee-brush or a wisp of grass.

Now place the comb on the board; take the first frame, and adjust it on top of the comb so as to take the best of it. You want to save as much of the honey and brood as you can. If honey is coming in freely you will have less worry about the stores; but if you transfer in the fall or early spring, then save as much of the honey as you can. Therefore adjust the frame to include as much of the upper part of the comb as possible. Since these combs will probably be discarded at the earliest opportunity, one need not be very careful as to the direction in which the cells are turned; but, all the same, as far as you can, let the comb that was at the top of the hive be at top of the brood-frame.

Your frame adjusted, take the carving-knife and mark out on the comb the inside



FIG. 3.—OUTSIDE OF THE BOX HIVE REMOVED, SHOWING THE APPEARANCE OF THE INTERIOR.

dimensions of the frame. Then remove the frame and cut right through, but preferably keeping to the outside of the bounding lines so that, when you replace the frame, the comb will have to be squeezed into place. If the original comb was both longer and wider than the frame your task will be easy; but this rarely happens, even when transferring to small frames, and so you will have gaps at the corners and ends. The remedy is easy: Put a piece of comb larger than the gap on top of it, never minding how the new piece is turned; then cut through both combs; remove the trimmings, and force the new piece into the hole, where, of course, it will fit perfectly. All this is a long story, but in practice I find it takes 45 minutes from the first puff of smoke to the moment the cover goes on the new hive, so about three minutes is time enough to spend on each frame.

You were advised to place the comb on top of a board. You will see why. The frame has to be brought to the perpendicular; and if you try to lift it bodily the pieces of comb will simply fall out; but by

means of the board both frame and comb are tilted safely to the proper angle. To secure the combs in position I find rubber bands more convenient than strings. The size depends upon the frame, of course; but, roughly speaking, they ought to be, when unstretched, about one-third the width of the frame. An assistant can slip these on in a few seconds, the frame being projected over the end of the table for the purpose. Four is an average number for a frame. If rubber bands are not handy, then a soft string, such as binder-twine, is good. Make two turns at one end of the frame so as to catch one end of the string; then wind to the other end of the frame; cast a loop, or make any kind of a knot, and the job is done. Get the frame into the hive as quickly as possible, so that



FIG. 4.—BOX OF BEES PLACED IN FRONT OF THE ENTRANCE OF THE HIVE.

the bees will have something to care for. Never mind the slop on the frame; the bees will take care of that right away, and probably get more assistance than either you or they care for.

Before starting the next frame, clear the table of the trimmings by dropping them into the tin box, and closing the lid. Before your job is finished you will probably draw from this store; but in the mean time you want the fragments under cover, to be free from the annoyance of thousands of bees that are naturally attracted by the smell of honey. Turning to the box hive you will find a host of bees on top of the combs. Jar them off into the empty box, and proceed with the second comb and the second frame. If you find brood here, be as gentle as you can. Do not kill any life wantonly or even carelessly. I know it is impossible to make omelettes without smashing eggs; but one need not smash eggs when omelettes are not being made. Besides, bees cost money. Bees, and honey are convertible terms. Bees make honey, but honey is made into bees. Therefore both humanity and business protest against the careless destruction of life.

If the weather be at all cool, one can not proceed too quickly with the brood-combs to get them into the care of the bees as speedily as possible.

The instructions for filling one frame apply equally to all others; but this may be added: Get the combs as even as possible, and never hesitate to cut out a piece that is too thick, as it will interfere with the future handling of the frames. Again, in piecing out, try as far as possible to cut pieces that will reach from top to bottom of the frame, as the wedging-in gives more certainty of the comb staying in place. And do not forget the reserve stock in the tin box.

Once the frames are all in place and the cover on the hive, place a board running to the entrance and set the box with the bees on it (open end, of course) toward the entrance, and the procession will soon start homeward, Fig. 4.

PREVENTING ROBBERS.

Last of all, remove the honey mess as quickly as possible, so that you will not encourage robbing. Even with only one hive in the yard, and the nearest apiary quite a distance away, it is simply amazing how speedily a well-defined line of travel one can see in the air. So at once carry the old box hive at least one hundred feet from the scene of operations; pick up all loose fragments of comb, and dispose of them in the covered tin box; then wash the tools and table as speedily as possible. A few minutes' playing with the hose-pipe is very effective.

The last time I transferred was toward the middle of November. The day was warm, with no wind. I worked on the south side of a thick hedge so that the conditions for comfort were ideal. The task was finished by two o'clock; but before the bees were all in the hive a perfect cloud of robbers had gathered from far and near. To protect the hive I flung a liberal supply of damp grass

on the entrance-board, leaving it there until four o'clock, when the chilly air drove the visitors away. The grass was removed, so that those which rightfully belonged there could find admission.

The robbers returned for at least two days; but I was on the alert, and at the first hint of their presence I applied the wet grass. The unwelcome visitors held the outside of the hive for the best part of these two days, but after that a very contracted entrance seemed sufficient.

The scrap comb was strained of its honey over the stove, then diluted and fed back to the bees in an Alexander feeder, giving about a pint each day. At the end of a week I opened the hive, examined only one comb, but found it in fine condition; so with a sharp knife I cut the rubber bands, which snapped back to the bottom of the hive. The bees are now carrying them out at their leisure. On the same day I cleaned the bottom-board. The hive was exceedingly strong in bees, but I found hundreds dead on the bottom. I think the chilly night had killed off those that failed to get into the combs, as in my present locality the thermometer touches 32 degrees every night during the winter months.

A few moth larvæ were found, but not enough, I think, to have hurt much; and since the transfer a couple have been found outside the entrance.

December 9, a month later, young bees were sporting in goodly numbers, so that, apparently, all is well. A few bees were carrying in pollen of a light-yellow color. The source of this is unknown to me. The only bee-plant I knew to be in bloom was alfiflarella; but the blossoms were few, as its season is not due until February, so far as I can learn. There also lingered on the stage a small quantity of second-growth sweet clover.

Medford, Oregon.

MOVING BEES IN CAR LOTS.

Some Timely Suggestions from One who has Learned by Extensive Experience.

BY E. D. TOWNSEND.

There is but one good time to move bees, and that is at the period in spring when the hives are the lightest in bees and honey. In this location this is about the middle of May. Our plan is to watch the progress of the season to see whether it is late or early, and occasionally to look through the swarms in order to keep posted on the time when the colony is weakest in bees and in stores. This will be when the last of the old bees have died, and when their places are filled by young bees just reared, which are not, as yet, very numerous.

PREPARING COLONIES FOR MOVING.

If the bottom-board has a deep side, place this side up, and fasten with four box-staples, which should be put on the sides of the hive,

as it is not satisfactory to put staples on the back end for moving on a car. When both sides of the bottoms are stapled, two staples to a side, as shown in Fig. 1, there will be no danger of their being bumped off in transit.

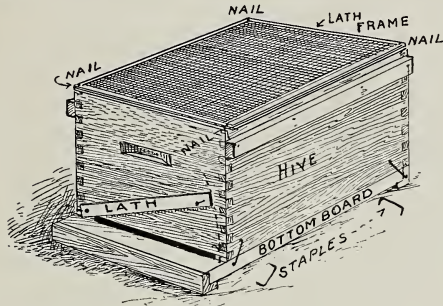


FIG. 1.

As many wire-cloth frames will be needed as there are colonies to move. These are to be nailed on the top of the hive, after removing the cover, and are for ventilation. Ask the hardware man for black window screen (other colors may do just as well, but I prefer the black); and if the right width is purchased it will cut to good advantage.

The wire cloth should be the size of the top of the hive, outside measure. As the lath are $1\frac{1}{2}$ inches wide, cut four pieces $1\frac{1}{2}$ inches shorter than the length of the hive, and four $1\frac{1}{2}$ inches short of the width, and make the frame as shown in Fig. 2, in such a way as to mismatch the pieces at the corners, which will be double thickness. With the inch nails that are sold for bee-keepers' work nail through both sets of lath and the wire screen, especially at the corners. If bass-wood lath is used and the nails clinched, the

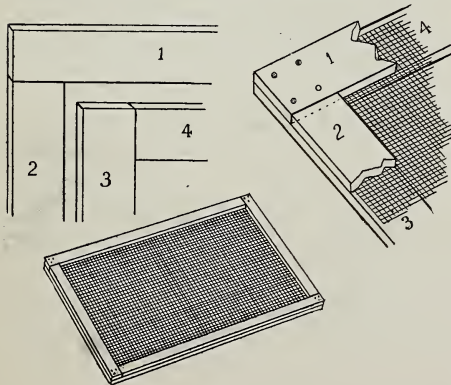


FIG. 2.

screen ordinarily ought to last a lifetime, and it will be much more handy than simply a piece of wire cloth fastened with loose lath or strips that are always being lost. The screen is to be fastened on the top of the hive with four 5-penny box nails, one at each corner, driven into the side board of the

hive. As this screen affords ample ventilation for May moving, a lath is nailed over the entrance to shut the bees in. It is very harmful to keep bees shut in their hives, and we aim to plan so that all of the entrances are left open until the morning the car is to be loaded. If the colonies to be moved are far from the depot they are moved in by wagon, unloaded in some convenient place, the entrance-blocks removed, and the bees allowed to fly until the morning they are to be put in the car. It is very important to have every thing handy, for the work should all be done in one day, and the bees started toward their destination at the earliest moment.

HOW TO MOVE BEES ON A WAGON.

Some may want to know how we move bees from an outyard to the car. This is done on a common low-wheeled farm-wagon. We put on a set of bolster-springs and then a flat hay-rack. If there is no front rail or dash, a narrow board is nailed across the front edge of the rack to keep the first row of screened hives from being jostled out of position.

The hives are loaded so that the frames are crosswise of the rack; and if they are of the Langstroth pattern, ten or twelve rows of four hives each can be put on crosswise. One tier high will make an ordinary load. When all are on, a narrow strip of board is also nailed along both sides and the back to keep the hives from sliding off.

THE KIND OF CAR TO SHIP IN.

The agent of the railroad company should order a single-deck stock or cattle car for the day the hives are to be loaded. A non-ventilated box car should not be used, for hot weather may come before the bees get to the journey's end, and there would then be trouble in ventilating. As an illustration of the importance of making use of a ventilated car I will cite an instance that happened here in Michigan a year ago. A party moved a car of bees in a regular box car, and provided no screens for the tops of the hives. The combs in seventeen of the best colonies melted down, and other colonies were so reduced in strength that they were of but little use that season; in fact, there would not have been a single colony to go through without smothering had it not been that the trip took but two days, and these two days were during some of the coldest weather in the spring. I believe, then, that it is best to have in all cases a well-ventilated stock-car, and to provide screens for the top of each hive.

LOADING THE CAR.

The car should be placed, as nearly as possible, to the colonies so that they can be conveniently loaded. In placing the hives in the car every thing must be braced rigidly to prevent shaking and jarring any more than is necessary. It is important to remember that there is no side shaking to speak of, so all of the bracing should be done with the intent of preventing the lengthwise shaking. A few hundred feet of 2x4 scantling will be needed, and also a few 16-ft. pieces of 2x6

timber. The 2×4's will need to be 16 ft. long for a 36-ft. car and 14 ft. long for a 33-ft. car, for they must be long enough to reach from one end of the car up to the doorway. These 2×4's are to be placed lengthwise of the car

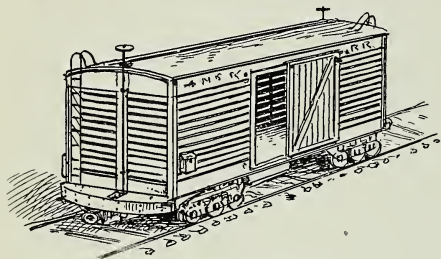


FIG. 3.

over the first tier of hives, to act as a support for the second tier. The 2×6 pieces are to go across the car between the last row of hives and the doorway. In this way each tier of hives can be keyed up tight with covers, etc., so that there will be no unnecessary jostling.

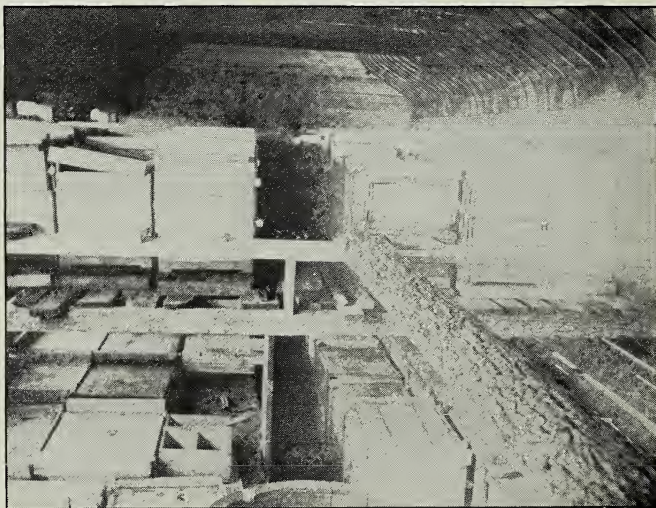
After sweeping out the car, fill one end nearly to the door with one tier of hives placed directly on the floor. Before reaching the doorway with the last row of hives, cut one of the 16-ft. 2×6 pieces in two in the middle, which will make two pieces 8 ft. long. One of these will be just the right length to reach across the car, and it should be placed flat on the floor against the car-door-post and on the side of the post toward the bees. There will probably be a space between the edge of this two-inch piece and the last row of hives put in, and this space should be filled in with covers or bottoms or some other material, for it is very important to have the hives placed and held so close together that there can be no movement endwise of the car. Six ten-frame hives, if there are no projections on the sides, can be placed in each crosswise row, for, of course, the hives should be loaded parallel with the rails. If eight-frame hives were used, possibly seven could be put into each crosswise row.

After the first tier of hives is loaded so that the floor is covered on one end of the car up to the doorway, and keyed up firmly, as before explained, seven of the 2×4 scantlings are to be placed parallel with the car on top of this first tier. One of these is put at each

side of the car, and the other five spaced equally between them, so that the next tier of hives may rest on them. (If these 2×4's were placed crosswise, the hives would be more likely to get shaken off.) In order to give a larger surface for the rows of hives to rest on, the 2×4's should, of course, be laid flat. This will allow a two-inch space between the first two tiers of hives, which is ample to give good circulation. The subsequent tiers are loaded in the same way.

By this plan we have moved three cars of bees from Remus to the northern part of the State during the month of May. However, when we do any further moving we propose putting 2×4's crosswise of the car also, between each tier, so that there will be 4 inches of space instead of only two. In this way there will be openings at the sides as well as at the ends of the car, and we are sure it will be sufficient, since there would be circulation from all four sides and also up and down at the ends of the hives where the hand-hole cleats hold them apart 1½ inches.

If bees only were to be moved, probably four hundred colonies could be put in, using both ends of the car. However, we once moved nearly two hundred colonies of bees in one end, while about one-half of the necessary fixtures belonging to them were placed in the other end. The rest of the fixtures were put into a regular box car without any crating. The goods in this second car were billed at 600 pieces weighing 4000 pounds. We paid by the hundred-weight and not for



O. H. TOWNSEND'S PLAN FOR LOADING THE HIVES IN THE CAR.

It will be noted that the two tiers of hives are separate, and that access can therefore be had to any hive in the car.

a full car. Since I did not wish the car of bees to arrive before the other car did, I asked the agent to blanket the shipping-bills; but he said he knew no way of doing this. However, I asked him to pin the two bills together, which I believe he did finally. As

there was a car shortage at that time I knew it would be quite difficult to hold this one car that contained only 4000 pounds. I had found that the agent could not bill both cars together, so I counted up all the pieces I could find in the supply-car, and found there were something like 600, as before mentioned. As good luck would have it, the two cars started out hitched together. We went over four different divisions of railroad; and at each division, armed with a shipping-receipt calling for 600 pieces, I went to the agent and asked him to let this car of supplies go through with the bees. If he did not seem to be inclined to grant the request I would mention the fact that there were 600 pieces in the car to transfer, many of them in poor shape to handle. The consequence was I had my way at each point, and both cars were sidetracked together at the destination.

If not too many colonies are to be moved, the hives might be tiered up along each side of the car, leaving an alley in the center between, so that one could walk the whole length of the car. Better ventilation could be afforded by this plan.

In moving bees in hot weather, when the colonies are more populous and the weather such that it is necessary to have more ventilation, an empty story might be placed over each hive with the screen on top, thus giving a large clustering-space for the bees. While I have had no experience in moving bees by railroad in hot weather, my experience in moving by wagon would convince me of the necessity of this additional clustering room at all times when the weather is hot.

Mr. O. H. Townsend has had considerable experience in shipping bees; and concerning this part of the subject he writes as follows:

My experience in shipping bees has taught me that it is best to load them so that it will be possible to have access to any hive in the car if necessary. In order to accomplish this the upper tier of hives must be placed some distance above the lower tier instead of resting upon it. This leaves every hive in the car so that it can be moved independently of any of the others. The engraving on the preceding page gives an idea how this is done.

In order to save all brood it is best to feed *en route* with thin sugar syrup. The barrel indistinctly shown in the engraving is for the purpose of holding the sugar. Last spring I shipped the colonies late, and so had a shallow Heddon case on each hive with the screen on top of this. An Alexander feeder made just right for fitting lengthwise in each hive, and resting on the tin rabbets, was filled and placed in each hive the day before the colonies were taken away. These were also filled again as the bees were loaded into the car. The feed was poured from a common garden-sprinkler with the perforated end removed.

Even in hot weather it would be better if one could get the air to the bees without the light shining in, for this light keeps the bees trying to get out.

One who has never moved bees in car lots by freight has no idea how much the cars are bumped together in switching. Anybody in the car will be almost knocked from his feet, and the first thought is that every comb in the hive will be broken down; but if the combs are a few years old there will be no breakage. It is not necessary that the combs

be wired to stand moving, but they should be two or three years old so that they will be well fastened to the frame on the ends as well as the top. Combs used for brood-rearing are also tougher and less easily broken than those that have not contained brood.

Bees in car lots go by freight at a second-class rate on 12,000 pounds. If the car goes to a station where there is no agent, as will be the case many times in shipping to a new location, the freight will have to be prepaid, and there will be no siding privileges included in this. In other words, in shipping to a prepaid station or over a different road, the car can not be sidetracked at different points for the purpose of taking on more bees along the line. In shipping from Remus over the Pere Marquette Railroad we can get the car sidetracked at any point along the line by paying \$3.00 as a minimum charge. If it is necessary to sidetrack on some different road the matter must be taken up, of course, with the officials of that road.

In order to make the best headway with the car, find out from the agent the time when the car will be transferred to the next division of the line or to the next line, for it sometimes happens that the car would have to wait for several hours before being transferred. In such cases always have the agent ask the division superintendent for permission to have the car transferred immediately after arriving at the point of transferring. In asking for this privilege, always present the argument of *very perishable goods*. It is then necessary to see the agent of the next division, or road, as the case may be, and tell him that there is a car of very perishable goods on the transfer siding, and ask him to get it off on the very first freight. I always ask if there is any through freight that might get the car to destination first, for it is always best to wait a little longer if a through freight can be made use of that will save a little time in the end. There is also less jarring because of the shorter number of stops, etc.

On arrival at the destination the hives should be unloaded, placed on the permanent stands, and the entrance-blocks removed as soon as possible, for the bees seem to suffer most when confined if the hives are not being jarred. A neighbor once moved two wagonloads of bees in very hot weather. The hives were placed on the new stands about noon, and part of the bees were not allowed to fly until the next morning. The result was that these colonies that were confined were suffocated, for the combs were melted down. When there is danger of suffocation on the car, water should be sprinkled on the bees frequently with a sprinkler in order to keep the temperature down. For this purpose a couple of five-gallon cans should be kept filled with water, to be used in case of an emergency. A lantern will be found necessary also. If the destination is reached during the night the colonies may be unloaded early in the morning, as the bees will keep quiet during the night.

Remus, Mich.

FALL AND SPRING FEEDING.

When to Feed Thick and when to Feed Thin Syrup; Syrup vs. Honey as a Winter Food.

BY E. W. ALEXANDER.

Feeding is becoming a very important part of our business, and from the many letters of inquiry I am receiving from parties in many places I find some bee-keepers have rather erroneous ideas of the proper way to do this work in order to secure the best results, and at the same time avoid all danger of the feed entering the supers. There is no question but that we can secure very beneficial results by judicious feeding in early spring as well as late in the fall; but we must be careful to do it so no possible harm can come from the practice. I would advise having every thing as handy as possible before commencing this line of work; for after it is commenced there should be no stop until the weather becomes warm and settled, except on fair days, when the bees can gather nectar from the flowers.

Before taking our bees from the cellar we have our feeders all ready, and the necessary barrels of sugar for spring use in our beehouse; then with an agricultural boiler which holds 45 gallons two men can make the necessary syrup and feed six or seven hundred colonies in less time than we could formerly feed fifty. It is the advantage secured from taking these short cuts on both time and expense that I have called your attention to so often.

There are only a few conditions a colony is likely to be in when it is necessary to resort to feeding. First, in the spring, if the bees have little or no honey they should be fed at once five or six barrels to prevent starving. This syrup should be about the consistency of good honey; then to stimulate brood-rearing it is far better to feed a much thinner syrup. I find that, if made of 1 lb. of sugar to 3 lbs. of water, it will give the best results. This furnishes both food and water mixed together, which is very necessary to encourage early breeding.

Then before the close of the season, if there are some colonies rather weak in bees, also light in honey, they should be fed daily two or three pounds of either extracted honey or sugar syrup. This should be one-half sugar to one-half water, which will encourage fall breeding and also add somewhat to their winter stores.

For the principal winter food the colonies should have a syrup made of the best granulated sugar, one pound of water and two of sugar. This should be boiled well until the sugar is thoroughly dissolved. Some think it necessary to add a little extracted honey or tartaric acid to prevent the syrup from crystallizing. We rather prefer this addition, but have had good results without it.

Feeding for winter stores should be done late in the fall, about two weeks before putting the bees in their winter quarters; and whatever amount they require should be given them at one time.

When feeding at any time or for any purpose we must use good judgment; otherwise we may thwart the very object we wish to achieve. First we must be very careful to feed just enough, and no more than the necessary amount to secure the desired object. When feeding in the spring, give only enough for daily use of the thin syrup; and if there is a spell of a day or two that is fair, and the bees are getting some nectar from the flowers, then stop feeding until the weather becomes unfavorable for them to work, but don't stop unless you are sure that the flowers are yielding nectar. If you watch your bees and the weather closely you can stop feeding as it becomes more pleasant, so there will not be any syrup left in their combs.

When feeding in the fall for winter stores, we must be careful to feed only enough to furnish them with the necessary amount to last during their long confinement. I think it best to feed all colonies 15 or 20 lbs. of *thick* sugar syrup late in the fall; where a colony has as much honey as it requires for winter use, or more, I would remove two combs of their honey from each side of their hive early in the fall. Extract these four combs and return them near to the center of the hive; then when giving them their winter food they will store it in these center combs, and cluster on them during the winter. In this way they will use up all the syrup you have given them, and there will be no danger of any being left to enter the supers.

We must be careful how we feed, to avoid all harm, and at the same time secure those good results from feeding.

If we gave our bees a lot of thick syrup in the spring it would be of but little use to stimulate breeding, as they require water at that season as much as they do honey. Then if we gave them the thin syrup in the fall, such as they require in the spring, it would be one of the worst things we could do, as it would cause almost every colony to have the dysentery before mid-winter.

You may think that, if a colony requires feeding, it is of but little consequence when, how, or what it is fed; but there is a right and a wrong way to do all things, and our bees are certainly very exacting in their requirements. There is a great deal to be gained in turning sugar syrup into bees in early spring, and by it saving their lives during the winter; but remember, even if the law would allow us to do it there is not a particle of profit in feeding sugar syrup to bees to get them to turn it into either comb or extracted honey.

In one of my articles last fall I spoke of our feeding 200 colonies sugar syrup as a substitute for honey during the winter. Before feeding we removed nearly all the honey from these colonies, and now after five months of confinement they are in perfect health, and, without a single exception, have wintered well. They are as bright and lively as we could expect to see them in June. We are so well pleased with this experi-

ment on a large number of colonies that it is rather doubtful if we ever again depend on honey as a winter food.

I think Prof. A. J. Cook, nearly forty years ago, was the first man who called our attention to this very important subject. It was at a bee-keepers' convention in Utica, N. Y., and I can never forget how anxious father Quinby and Capt. J. E. Hetherington were to inquire all about this substitute for honey as a winter food, which at that time was a new discovery. If his advice had been taken then it would have saved the lives of far more colonies of bees than there are to-day in the United States.

Delanson, N. Y.

[When this article was written Mr. Alexander had not seen the special series of articles on spring management that appeared in our two March issues, wherein *spring* feeding, except to prevent starvation, was considered ill-advised. Even if he had seen them, it is presumed that his advice would have been just the same, except that he probably would have presented some arguments in defense of the practice for his locality.

As we have before pointed out, our correspondent has a late honey-flow, mainly from buckwheat, and therefore this must be taken into consideration.—ED.]

THE PLURAL-QUEEN SYSTEM.

A Review of the English and American Systems; Their Advantages and Disadvantages as Viewed from the Standpoint of a Traveling Bee Expert in England.

BY J. GRAY,

In this article I propose to review briefly the various conditions under which two laying queens will live in peace in one colony.

PLURAL QUEENS UNDER NATURAL CONDITIONS.

When supersedure takes place in a colony of kindly disposition the old queen is allowed to continue while the young one takes up the duties of motherhood. The forces that go to make up this variation from the normal conditions of a colony are twofold—disposition and plenty. The bees of a colony of kindly disposition will extend their kindness to the old queen, neither workers nor young queen showing fight; and while stores are pouring into the hive the old queen still finds some workers to feed and care for her. Here, then, is one of the vital points: Under what conditions can I get a colony to feed two queens, without which all our efforts will fail? Note how easily the hundreds of drones are disposed of, all for want of food. It is not a question of drone fighting drone, but it is a question of starvation. When those conditions arrive that a queen begins to restrict her laying because she is not fed so lavishly, then comes the time that one queen is neglected and starved. It is here that Alexander is beaten by the bee.

THE ENGLISH SYSTEM.

Our Wells hive provides for the two colonies becoming one in scent and heat, only until harvest time, when the two forces are worked together in one common super. I pointed out in my last the greatest fault of the system; *i. e.*, the big unwieldy hive. There is also another fault that comes through the two colonies carrying the same scent.

Dr. Miller has called attention to the fact that a colony will use one side of the hive more than the other. It is just this that causes trouble with the Wells—both colonies carry the same scent, with the result that, in the early flights, one side increases to the depleting of the other until at last the queen is missing from the weakened side. I have had the same experience when trying to winter tiered-up instead of side-by-side scent, and heat allowed only between the two.

THE ADVANTAGES OF THE WELLS SYSTEM.

The advantages are a big yield of honey and less swarming. The lesson it teaches is that it takes about four days for two colonies to acquire the same scent.

THE HAND SYSTEM.

This has some very good points. The shallow frames make a crowded condition of brood-nest which would tend to favor two queens from the workers' point of view. The queens being kept apart by the excluder, their time is not wasted by useless fighting, even though their stings were cut off, and the frames are shallow enough for two sets to form one chamber with a queen in each set.

Doolittle has pointed out how bees contract with cold, and occupy only half the space. When this contraction occurs there would be the fault of starving one queen, as in the Wells system. Is it possible to modify the Hand system and use a queen-excluder in summer and wire cloth in winter, with an upper and lower entrance? Even then the risk would still remain that the lower entrance might be used the more.

THE ALEXANDER SYSTEM.

This would have been excellent if possible to carry out; but it fails at the most critical time. We want a system that will carry us through the winter. It would be hard on the stock to sacrifice every other queen, and, when the spring comes, raise an equal number to fill up again.

Modern apiculture has guided the bees to perform some wonderful work, yet this problem presents a big difficulty in that we are against the natural instinct of the bees.

Long Eaton, England.

[Mr. Gray suggests the use of wire cloth after the honey-flow, or during winter, instead of perforated zinc; for when a flush of good times for the colony has passed, one of the queens will be missing because the bees favor one more than the other. It is possible, if the cluster were divided by wire cloth, the two queens could be maintained over winter.—ED.]

PLURALITY OF QUEENS.

Points in the Wells System Explained.

BY SAMUEL SIMMINS.

In my 1893 edition of "A Modern Bee Farm" I gave a chapter upon this subject; but in preparing my 1904 issue, the question appearing to have ceased to create any further interest, I gave but a passing notice to the plural-queen methods.

It may interest your readers to know that, some twenty years ago, Dr. Stroud, of Port Elizabeth, South Africa, claimed to be able to work a number of queens in one colony without their killing each other or being disturbed by the workers; but he gave no particulars that would have explained his plan of management.

More recently Mr. Heddon stated that he could run more than one queen in the same hive; but it was reserved for Mr. Wells, of Aylesford, Maidstone, England, to be acknowledged as the first to reduce the matter to practical working as a system in honey production.

The correspondence relating to the matter is to be found in the *British Bee Journal* for 1892, and in the issue for November 10, of that year, after stating he had at first made up his mind to work none but "two-queen" colonies in future. Upon further consideration, and in deference to other expressed opinions, he said: "In order to compare results, and to make the matter as plain as possible, I decided to change my plans and work five single-queened stocks through the season, and very carefully note results.

"It will, perhaps, not be out of place just to say once more that the double stocks have two queens in each, divided in the center of the hive with the thin wood perforated dummy, so that neither queen nor bees can pass beyond their own part of the stock hive; but at supering time a sheet of queen-excluder zinc is placed on top of the frames, and on this the super into which both lots of bees are allowed to run and mix together as they please"

Now, this is just the point which the editor of GLEANINGS has somehow overlooked, for the bees not only mix in the supers, but of course can also, through that medium, mix up into either side occupied by the separated queens. Without doubt any other projected plan of working more than one queen in a hive will come to grief where a similar neutral medium (as to queens) is not allowed. By Mr. Wells' plan there was no uncertainty as to the fate of either queen; as, when the supers were removed, each queen was left where she started. The five double-queen hives gave him 789 lbs. of honey, mostly extracted, while the five single-queen hives yielded 205 lbs.

Mr. Wells used 14 frames in the brood-chamber, each $14 \times 8\frac{1}{2}$, so that, with two queens, he would not have more than six of such frames to each queen, while the single queens had most of the 14 frames. His hives

did not appear to be large enough for the dual-queen plan, as he was troubled with much swarming.

In my 1893 edition I illustrated a larger hive for the purpose than is used by Mr. Wells, with two chambers for each queen, with his perforated divider at the center, and a full-length super, though a sectional super in three divisions would appear to be better for either comb or extracted honey.

At the same time I also gave a sketch of my tiering hive of ten frames, with excluder zinc between each, as another method of working two or more queens in the same colony. I was careful, however, to advise my readers that when

UNITING TWO OR MORE STOCKS

by this plan a small-hole perforated divider was to be placed as a safeguard between each brood-chamber, until the bees were considered mutually good-tempered. These boards were then to be replaced by zinc queen-excluders. A colony of two chambers in this style, if divided in the center of each by a Wells dummy, will accommodate four queens, either with entrances each way, or only one below. Furthermore, with no entrance cut in the rim of the hive, a further zinc-excluder frame may be at the base, with a hollow floor under, thus preventing any loss of queens by swarming. But just here is a question as to disposing of the drones, even if so much zinc is advisable.

It was in the year 1889 that my own experiments were made in holding more than one queen in the same chamber; but at the time I failed to find any advantage in the plan. The queens and combs being divided by excluder zinc, I was troubled by the loss of valuable queens as soon as bad weather occurred, and the brood-nest was restricted; hence there was little encouragement so far as my experience had gone.

COMPARATIVE RESULTS.

That the plural-queen plan can not always be relied upon to give the best results may be gleaned from the following experience with various hives. These bees were on British standard frames, $14 \times 8\frac{1}{2}$, and were worked for comb honey. The results secured by this bee-keeper do not show any advantage for the plural-queen plan, but certainly the reverse, as at the most the double-queen lots show only 40 lbs. to each queen, whereas several single-queen hives gave 80 lbs., and in one case as much as 120 lbs.

No. 1, single-queen, 80 lbs.	No. 6, double-queen, 50 lbs.
" 2, " " 80 "	" 7, " " 60 "
" 3, " " 120 "	" 8, single-queen, 80 "
" 4, " " 70 "	" 9, double-queen, 70 "
" 5, " " 21 "	" 10, " " 80 "
No. 11, single-queen, 78 lbs.	

No. 3 appeared to make a big jump in comparison with the rest, and it may be interesting to note this was Simmins' "hanging-chamber" hive. In this hive a super with full sheets of foundation is started beneath the stock; and as soon as the bees cluster upon the foundation the case of sections is placed above the stock, with the bees just as they are, already drawing out the cells.

This appears to me to be the most expeditious way of providing drawn combs in sections, and the above result fully justifies my contention. More detailed arrangement is to be found in "A Modern Bee Farm."

It will have been seen that, in working for extracted honey, Mr. Wells secured higher results with his double-queen hives than with single queens, there being an average of 156 lbs., for his five lots, or 78 lbs. for each. Will there be any advantage in the plural-queen plan? I see none.

Note.—The first intimation of my method of selection by breeding *solely from one queen for one season* was outlined in the *American Bee Journal* for March, 1906, also showing how each selected queen-mother was afterward passed on as the parent or grandparent of the only drones used in the following season, thus always mating back to the progeny of the next selected queen brought into the strain.

Heathfield, Sussex, Eng.

[In looking up the Wells system originally, we did not run across any articles where Mr. Wells mentioned the use of perforated zinc. In the reference above given, he clearly states its use and we accept the correction.—Ed.]

THE DUAL AND PLURAL QUEEN SYSTEMS.

Conditions Under which They may be Used; a Review of the Whole Question.

BY J. E. HAND.

Judging from the nature of the argument that has been advanced in opposition to the plural-queen system it would seem that this system is not well understood, even by those who consider themselves sufficiently qualified to criticize it. Therefore the object of this article is to show that the plural-queen system is not only possible but profitable, as well as highly desirable under certain conditions.

It is claimed that the conditions under which two queens are allowed to remain in the same hive are in cases of supersedure, when, after rearing a young queen, the old one is allowed to remain in the hive as long as she lives. Granted that this is true of bees when guided by the hand of nature. It is equally true, however, that, when guided by man's reason and ingenuity, two or more queens may be kept in the same hive with impunity.

It has been found that, while a vigorous queen will not tolerate a rival queen, the bees themselves will tolerate a plurality of queens or any number of queen-cells; therefore all that is necessary in order to keep two queens in one hive is to keep them from getting together. This is done by means of perforated metal, which keeps the queens apart, but allows the bees free access to both queens. Thus we have one large hive with two queens, each queen being sole mistress of her own brood-apartment.

It is hardly necessary to add that these are the only conditions under which two queens may be kept successfully in the same hive. It will be seen that the two-queen system, instead of being an open violation of nature's laws, is the result of a correct knowledge of the habits and instincts of bees.

In discussing matters pertaining to apiculture, sufficient allowance should be made for the location and environments of the writer of an article as well as the hive he uses.

THE PLURAL-QUEEN SYSTEM OF DOUBTFUL VALUE IN DEEP HIVES.

Viewing the plural-queen system from the standpoint of the deep-frame hive, with its slow-going methods of manipulating frames singly, it is doubtful if it could be made a success. However, it should require little argument to prove to the bee-keeper of average intelligence the many advantages to be derived from the use of the plural-queen system when used in connection with the sectional hive with its improved methods of rapid hive manipulation.

Bee-keeping as a pursuit is progressing, and bee-keepers are fast realizing the necessity of employing short-cut, labor-saving methods. Twenty-five years ago rural electric lines, rural telephones, and rural mail delivery, were unknown. To-day the face of the country presents a network of electric and telephone lines, and every rural district has its free mail delivery; likewise the bee-keeper of to-day is compelled to meet greatly changed conditions. Good locations are scarce. Our one-time bee-pastures have given way to fields of waving grain, and the woodman's ax has laid low our forests of basswood. Our honey yield has been cut in two in the middle, which means that we must either adopt short-cut labor-saving methods that will enable us to keep twice as many bees as we kept before, or go out of business.

The bee-keeper of to-day who advocates the slow-going methods of a quarter of a century ago is fast becoming a back number. It is high time for this class of bee-keepers to wake up and take an inventory of stock before they get so far in the rear that they will never catch up.

As the horse-car has give way to electricity, so the old methods of handling, brushing, and interchanging brood-frames singly must soon give way to the more modern methods of rapid manipulation by hives.

Mr. Dadant's statement, that the queen is of vastly more value than any one thing connected with the colony, is literally true. Does not this prove that a plurality of queens increases the value of a colony? A queen may easily be worth ten dollars. Is not the bee-keeper making money who can rear such a queen at practically no expense, save for a very little time and with a little talent?

Again, Mr. Dadant discourses at considerable length upon the difficulties of rearing queens early enough in the spring to produce workers in time for the harvest. This argument falls to the ground in the face of the fact that queens are reared at the close of

harvest and carried over winter in shallow brood-cases. These little colonies, with vigorous young queens, will winter in a good cellar even better than a strong colony.

We have found it more profitable to work our bees on the two-queen system of swarm control, and then, at the close of the harvest, make our increase, as above stated, at a time when there is nothing for the bees to do, and every colony in the apiary can well spare enough bees, brood, and comb to stock one of these small brood-cases. By the above method each colony is provided with a young queen at the beginning of each season. When we consider that these queens are reared from our choicest breeders, it is easy to see the value of such a system as a means of improving our bees.

Two of the brood-cases, above mentioned, are equal in capacity to 8 L. frames; but we usually use three during the breeding season. At the close of the season, the third (or top) brood-case, with the young queen, is removed and wintered separately.

There are no weak colonies to nurse, and every colony in the apiary will be in condition to enter the sections at the beginning of harvest, and will give uniform results in honey production.

The claim that one queen will lay more eggs than a colony can care for, amounts to but little in the face of the fact that, if a weak colony is placed upon a strong one, the heat from the strong colony, and the addition of more nurses, will enable a weak colony to care for as much brood as the strong.

Again, the two-queen system is a guarantee against the loss of a crop of honey, which is often the result of the failure of the queen.

That the difficulty of introducing another queen is often used as an argument against the two-queen system is sufficient proof that the opponents of this system are not up to modern methods of rapid queen-introduction by hives.

All that is necessary is to place the small colony upon the strong one; only one cover is removed. It takes about a minute to do it, and not one queen in fifty will be lost.

If the colony added is very weak, a wire screen is used between the colonies until the brood-nest is well established, when the wire cloth is removed, allowing the bees free access to both brood-apartments through the perforated metal honey-board that separates the two colonies. It is merely two colonies under one cover and upon one bottom-board, which may be instantly separated whenever desired, and which insures a mighty army of workers for the harvest, and is practically a non-swarmmer. A medium colony usually amounts to but little.

If you want honey you must have a hive literally jammed with bees, and the two-queen system gets them without fail.

Birmingham, O.

[It is getting about time to close this discussion of the plural-queen system, as we do not believe it would be wise to prolong it much further at this time. Next fall or next

winter, after another season's work in testing it, we will reopen the question if desired.

We may be warranted in drawing some conclusions as a result of the past discussion in these columns:

1. More than two queens to the hive is seldom necessary or desirable, and hence, in a general way, not practicable. The more the queens, the greater the complication.

2. The plural, or dual, plan ordinarily can not be worked, except by the use of queen-excluders, so that each queen can be kept from her rival, and that even then—

3. After the main or general honey-flow is over, one of the queens (or all but one) will be missing. This is not invariably so; but the general trend of the discussion seems to indicate that this is so with most of those who have tried it.

4. While the *plural* plan, as above noted, is not practicable, the *dual* (two queens to the hive) may be and probably is profitable under some conditions. The evidence thus far submitted seems to bear out this statement if we may believe the testimony of some good and competent men.

5. Not all hives or systems are adapted to the dual plan and we may say some men couldn't work it with any plan. Unless one has faith in this or *any* system there is not much use in his wasting time with it.

6. The dual plan requires more skill and patience to work it than the single-queen-to-the-hive plan.

7. The beginner had better let it alone until the veterans more generally are able to work it.

8. All veterans with the proper equipment should try it in a small way. The possibilities of the system seem too great to be lightly passed over.

We have attempted to take no sides in this discussion, but we have endeavored to have the subject thoroughly discussed and considered fairly before it was dropped.—ED.]

DOG EAT DOG; SIC 'EM!

According to the latest newspaper reports, the Royal Baking Powder Co. intend to do things on a grand scale, and have invested \$1,500,000 in a glucose-factory at Roby, Ind. It is said the factory cost originally \$2,400,000. Had Dr. Wiley's decision on the glucose question been allowed to stand, it is safe to say the factory would have sold for much less. The Corn Products Co., we are informed, expected to buy this factory immediately after the decision, and are chagrined at the sale to others. Now, it is alleged, they have declared war to the knife, and intend to engage in the manufacture of baking-powder on a vast scale. They are well fitted to do this, as they have been supplying, or claiming to supply, the manufacturers of baking-powder with 85 per cent of their raw material. They use great quantities of soda to neutralize the hydrochloric acid in the manufacture of glucose, and, of course, this gives them a great opportunity to control the sale of it.

W. K. M.



LIQUEFYING HONEY IN CANS; WEIGHT OF STORES COMPARED WITH WEIGHT OF SUGAR FED.

A word about heating cans of honey. After the honey has begun to warm, loosen the screw cap with that corner of the can uppermost. This will let out the expanded air and gases. The cap can then be replaced, and later the act repeated if occasion demands. There is no danger of a can bursting from the swelling of the honey; but the expanding of much enclosed air or gas is quite likely to bring disaster.

If one has only a can or two to liquefy, let him try this plan: Lay the can on its side on the hot stove, turning it to expose a new side to the heat every two or three minutes. After the four sides of the can are fairly hot, set the can upright on a part of the stove where a kettle of water would keep hot but would not boil. The side heating loosens the cake of honey and causes it to fall to the bottom as the can is set upright. There is little danger of overheating so long as this cake of candied honey is constantly pressing down upon the bottom of the can. I find this a rapid way to liquefy, and a safe one when conducted properly.

On page 1508 Mr. O. S. Rexford writes of his experience in feeding winter stores. The editor asks for the experience of others. Mr. Rexford mentioned his experience in the fall meeting of our Connecticut Association. In consequence of that I experimented a little this fall. I was obliged to feed some fifty colonies for winter. In three cases I weighed the colony before and after the feeding, allowing two weeks for the syrup to become digested and stored in the combs. I found that the weight of stores was in each case from 15 to 20 per cent larger than the weight of the dry sugar used. The three colonies were simply fair selections from the fifty, and can be considered typical cases. Examination of the brood-nests of several others corroborated the result.

I feel sure that there was something unusual or abnormal in the case cited by Mr. Rexford.

ALLEN LATHAM.

Norwich, Ct.

QUEENS REARED BY SWARMING IMPULSE TEND TO PERPETUATE EXCESSIVE SWARMING.

I think Mr. Alexander's statements on queen-rearing, Feb. 15, page 209, are well worth consideration. I formerly used swarm-cells altogether, with the result that every colony would almost invariably prepare to swarm, and some of the prime swarms would

swarm again in four weeks. Within the last few years I have reared my queens from colonies which do not swarm, and in colonies free from the swarming impulse; and the result is more than satisfactory, reducing swarming to a fraction less than four per cent. This conclusion might be questioned on the ground that the last two seasons were so very poor that colonies would not attempt to swarm much, or that the queens were poor ones and could not populate their hives sufficiently to swarm; but these bees produced an average of 62 pounds per colony in 1906, and about the same in 1907. Furthermore, the queens seem to keep their hives well populated throughout the season. The majority of the colonies which do prepare to swarm are those containing queens reared under the swarming impulse. I keep some of these for testing their prolificness and the honey-gathering qualities of their bees, and comparing them with queens reared on the supersedure impulse. I find these results are about the same.

J. C. ATKINSON.

Beaumont, O.

[Here is a statement on the other side of the question.—Ed.]

QUEENS FROM NATURAL-SWARM CELLS FOUND TO BE BETTER THAN ANY THAT WERE BOUGHT.

I have read Mr. Alexander's article, Feb. 15, page 209, about using queens from natural-swarm cells. Now, Mr. Editor, I have practiced that same thing for ten years, of course selecting the best cells or virgins from the best queens. I produce comb honey in ten-frame hives, and I use two hive-bodies until the beginning of the honey-flow. I find these natural-swarm-cell queens fill two ten-frame bodies with brood as readily as any queens I have been able to buy would fill a single eight-frame hive (I have bought queens from many queen-breeders, and have never been able to get one that would give me half the surplus the average swarm-cell queens do). I think continued selection along this line, instead of running a strain of bees out, as per Mr. Alexander, would in time give us the best it is possible to get by any possible plan or line of breeding.

Berthoud, Col.

A. C. VANGALDER.

HOW TO TEST THE VALUE OF A QUEEN.

Mr. Editor:—In your comment on the article by Wm. M. Whitney, p. 36, Jan. 1, you ask how we can know a good queen the first season. This is an easy matter with me. It can be determined by putting a young queen, when she first begins to lay, on a ten-day test. Encourage her to lay by feeding the colony one pint of feed at night for ten days. Try this on six or more queens with the same amount of bees, and see the difference in the amount of eggs laid.

Little Rock, Ark. W. J. LITTLEFIELD.

[The laying test under stimulative feeding would determine only one thing, viz., her prolificness. She might be never so good in

this one respect, and yet fall down when her bees came to the honey-flow. Some strains of colonies, however populous, are inclined to loaf. By your test, a Holy Land queen ought to be a great honey-producer because she is a great layer. But an extended experience covering a period of years did not show that these bees were superior, if as good, in the production of honey as the less prolific Italians.

No, it will not take at least a season through to test a good queen, and it would take a year to give her an all-around test.—ED.]

CEMENT PAINT FOR OLD OR NEW HIVES.

Having studied your A B C very carefully for a year now, and from personal experience in painting hives for a year, and other outdoor farming implements for many years, I now use no more oil paints for hives, but the following recipe for this country, which is hot, is a perfect success so far as bees are concerned, and very much cheaper and easier than oil.

Take milk containing a large percentage of cream; add good cement slowly, stirring well until a good thick paint is made. Apply with a broad flat brush. Two or three coats put on will petrify the outside surface of the wood. I claim the following advantages for hives over oil paint: Cheapness, ease, and quickness of painting; cleanliness, no clothes or hands soiled; practically no swell; certainly not objectionable to bees; unaffected by damp or weather for years; fills up old cracks admirably; smooth surface; and last, but not least, a porous paint which does exclude air through the wood. The natural color is a yellowish slate; but any dry-powder paint may be added to give the desired color. I prefer the natural color, which always looks tidy and clean. One barrel of cement will or ought to do for hundreds of hives. It is necessary to paint occupied hives on a cool cloudy day, the idea being to keep the sun off for six hours, so that the paint will not set too quickly. The slower it sets, the harder the surface gets. Milk containing a good thick set of cream on top is much more preferable than skim or separator milk. It is also necessary to use up all paint mixed, within a few hours.

Amerspoort, So. Af. U. L. ROBERTSON.

HONEY-DEW GATHERED IN JANUARY.

I have seen bees gathering pollen here in January, but not before have I noticed honey coming in at this time of year. Jan. 22 was a very warm day, and I was not surprised to see bees flying out, but I could not understand why some of them alighted so heavily, just as they do in summer when a flow is on. There is a small patch of pines about 200 yards away, from which bees were busily coming and going—some of them so heavy that they dropped on the way. Upon examination I found a sweet liquid on pine twigs, which I took to be honey-dew. To make sure the bees were gathering this, I opened a hive that had a loose top, and found

a patch of brood near which I found several cells full of this liquid. This may be nothing new to some people, but it is something unusual to me.

HUGH JOHNSON.

Reidsville, N. C., Jan. 23.

A WET BOARD FOR WATERING BEES.

In watering bees in the spring of the year I place a board about 10 feet long and 10 or 12 inches wide on an incline, lengthwise. A bucket of water on the other end of the board, punctured at the bottom so the water will leak out and run down the board is just enough to keep the board wet.

I wet the surface of the board first, and the leak will usually keep the entire surface wet until the water has all run out. I teach my bees by being prompt to supply the water, so that they come regularly at a certain time. After they once start, it is surprising to see how many will get on the board in a short time.

B. J. WORSLEY.

Theresa, N. Y.

OUTDOOR FEEDING FOR STIMULATING.

For stimulative feeding I fill gallon jars with syrup, tie a cloth over the top just thick enough so the syrup will not run too fast, and turn the cloth end down on some short sticks so the bees can get under. If these are set in some nice warm place the bees work on it nicely, and it causes no disturbance. I use about 1½ to 2 lbs. of granulated sugar to each, for it also supplies them with the water they need.

What does any one want of two queees if he can have queens like some I have, that fill two hive-bodies? One queen is enough for me; but I want good ones or none at all.

Mt. Jackson, Va.

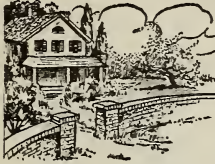
S. CLICK.

SWEET CLOVER AS A FOOD FOR STOCK.

Last week, seeing in the cornfield sweet clover over two feet high in bloom I thought of a writer who said it would not grow in cultivated fields. The large plant which I send in a separate inclosure has grown from seed which has germinated since July 29, when the corn was last cultivated. I also send two young plants which have grown from seed since our first rain, Oct. 14. The whole field was plowed late last spring, and that part which is now covered with a dense growth of young clover, being above the irrigation line, was not planted. This part of the field was free from clover last year, and the seed must have lain dormant two years. I consider it a good plow-under crop. Today I counted over 100 nodules on one plant. This coming season I hope to save enough seed to plant ten acres, and the following spring plow it under for corn-planting. Last week I gave some sweet clover to a pen of young fattening hogs which had never eaten any. They were all very fond of it. Some horses and cattle do not relish it *at first*, but, like human being, have to acquire an appetite for some foods. I well remember my first attempt to eat an olive. Now you can scarcely feed me too many. If you have a

pet Jersey cow you wish to have love you, and give you a good quantity of rich milk, give her a good feed of sweet clover at milking time; but too heavy feeding with it will give the milk a peculiar flavor.

Descanso, Cal., Dec. 5. E. P. ST. JOHN.



OUR HOMES

by A. I. ROOT

And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it.—GEN. 1:28.

Please notice the above is what *God* said in the beginning of the human family. The very first command God ever gave to humanity was to be fruitful, and multiply; and a reason for it is given in almost the same breath, that we may *subdue* the earth. Just now in this year of 1908 we are subduing the earth in one sense, and may God be praised for it. But this Home paper is not to be a temperance talk, but rather a talk on "high-pressure gardening." Do you ask what our text has to do with gardening, etc.? Well, I think I can show you. A few days ago I saw in one of the Cleveland dailies a notice of the arrival of the first car of Florida celery, and that it had sold readily for quite a good price. About the same time, Mr. Rood remarked that a man near us was offered \$5000 for his crop of celery, about ready to harvest, on only five acres of ground. As it was less than two miles from our home I sprang on my wheel and proceeded to investigate.

By the way, I do *once in a while* go back and "get astride" of my hobbies of former years. My wheel has only recently been shipped from the old "cabin home" (cabin in the woods No. 1), and I started off with my old enthusiasm for wheeling, and soon found that there is a "second wind" down here in Florida equal to any in the world. I was soon out in the wilderness, and had to inquire my way. Two colored boys and a white one were sawing wood.

Now, I want to stop right here to consider the *tremendous* difference in specimens of humanity. In this region I have been much impressed with the numbers of bright well-informed people. Yes, I have mentioned the good behavior and the well-educated condition of the colored people around here.

Now for my illustration: Not one of the three young men I met had ever heard of "Lattimer's celery-farm," while it was less than one-fourth mile from where they were at work. A fourth colored man, a little further along, told me to open the first big gate on the left-hand side and follow the well-traveled road and I would soon see the celery. The two photographs which will appear in the next issue of GLEANINGS will

give you a faint glimpse of the vision that suddenly burst on my (enraptured?) view. Let me explain a little.

At that time we were in the midst of a severe drouth. The morning was hot, and after I left the town there was little to be seen except the dry dusty wilderness. Every thing looked dead and dried up; and if you didn't *know* better you might be tempted to say none of the land was worth more than \$5.00 an acre. Well, imagine my surprise to see, all at once, a field of celery that eclipsed any thing I ever saw before in Florida or anywhere else.

A short time ago Manatee Co. cut a drainage-ditch through this locality that permitted draining a number of ponds, or swamps, and this was one of them. After the water was let off into the big ditch the next thing was to get water to put back on the ground during a dry time. As the garden was in a slight depression it was all spread out before me, as I stood on a little higher ground. I got a drink of water at one of the two artesian wells, and soon found a very bright young man of eighteen who regretted that his father, Mr. C. L. Lattimer, was just then away, but he kindly gave me the following points:

Mr. Lattimer, as nearly as I can remember, commenced work here in the woods just about a year ago last January, so that the wild land has been "subdued" (see text) and this wonderful crop grown in only a little over a year. Most astounding of all, the father had had no experience with celery before this time, and was not even an *experienced gardener*, and had had no experience in gardening or even farming in Florida.

As the boy gave me the facts I said:

"Why, my young friend, this is almost incredible. Your father must have suddenly developed a craze for celery-growing, and done a deal of studying."

"You can bet your life he did. We all of us studied it up, and we have just worked like beavers in clearing up the land and getting it ready."

"All of us?" How many children has your father?"

"Eight—four boys and four girls."

There you have it, friends. Mr. Lattimer has obeyed that first command that God gave humanity, and the loving Father has rewarded him.

Young Lattimer informed me further that such land can be bought for about \$50 or \$75 per acre, and that clearing it up and getting it ready for celery will cost about as much more. They have never yet used as *much* as a ton of fertilizer to the acre, costing about \$40 per ton.

The two artesian wells cost something like \$600 each. As nearly as I could gather, the entire outlay of cash has been *much less* than *half* of what he has been offered for the very first crop.

As fast as the celery is gathered and shipped tomatoes are put right on the ground, so the land is idle hardly a single day. The tomato-plants are grown in shaded beds



right on the premises, and were already growing finely when the celery had been sold off.

Now let me put in a word of caution. Mr. Lattimer was probably an excellent farmer in Alabama, where he came from. Before going into this venture he probably looked up celery-growing in this region very thoroughly, and I have reason to think he employs at least one or more expert men who know all about the business. I think, too, he must have ample means to do the right thing at the right time, for his son told me he had still another celery-ranch ten or twelve miles away.

Just now very good prices are being offered for *celery*; but during the past winter, I am told, carload after carload of *lettuce* has been grown that didn't pay cost. Mr. Lattimer had quite a little patch that was never cut, on account of the low price offered.

The bleaching is done with boards, and these are of what is called "pecky cypress." I do not know what the boards cost for an acre; but this kind of lumber can be bought here for about \$18 or \$20 per 1000. As it is light, never warps, and almost never rots, it is a splendid material for bee-hives. As the boards can be moved as fast as the celery is bleached sufficiently, and sold, only enough boards are needed at one time for a small part of the whole field.

Quite a quantity of water is needed during a dry time. As it lay in the furrow between the rows of plants it seemed to me it must be almost "knee-deep." The strong but not unpleasant perfume pervades the whole locality when marketing and shipping are going on.

SELLING SECRETS, ETC.

For some time past there has appeared in many of the poultry journals the following advertisement:

CUT OFF THREE-FOURTHS YOUR FEED-BILL.

Send us your name and address on a postal card, and we will send you free 16 sample pages of our revised book, "Successful Poultry Culture." This book will tell you now to actually make four bushels of the BEST FEED IN THE WORLD for chickens from one bushel of common grain, and it will tell you how to SAVE THREE-FOURTHS YOUR FEED-BILL.

This is certainly the greatest discovery of the 20th century, and will *double and triple your profits* in the poultry business. These 16 sample pages are absolutely *free*, and will tell you all about it. Send us a postal to-day for them.

RECORDER PUBLISHING Co.,
332 Dearborn St., Chicago, Ill.

A cut, which we do not reproduce, represents a loaf of bread cut in four pieces. I suppose the advertiser does not object to our giving him one insertion of this advertisement free of charge. Now, the greatest obstacle in the way of successful poultry-keeping in Florida is the cost of grain; and it certainly would be a big item to be able to save *three-fourths* of this expense. I accordingly sent at once for the free (?) sample pages that the above advertisement says will "act-

ually tell you how to make," etc. The 16 pages came promptly; but they did *not* tell the wonderful secret. They simply indicated that it was given in *one* chapter of the whole book, and you could not get the whole book unless you sent them \$1.00 for it. If they make misstatements in their advertisement, why should they not make more in their dollar book? But as I had started in to save three-fourths of my grain I thought I would follow the thing out. I found, as I rather suspected, it was the Briggs secret of making "feed for ten cents a bushel" that I exposed and wrote up at different times during last year*. As I have been feeding sprouted oats and also sprouted corn and wheat all winter, more or less, I ought to know something about it. While sprouted grains are excellent feed for fowls, especially during the winter time, when there is apt to be a dearth of green food, I am satisfied that you *do not* cut off three-fourths of your feed-bill, nor any thing like it. May be the sprouted grain will go *twice* as far, but I very much doubt that. It seems to me our experiment stations are the ones to settle this matter before more such statements come out along this line. Poultry of all ages will eat with avidity sprouted grain, even when the sprouts are as much as six inches long. I suppose all of you have seen fowls scratch up seeds in the garden, and then swallow them, and the plant attached, with great satisfaction, and no doubt this is an excellent thing for poultry; but will our experiment stations please tell us how *much* money it saves in feeding sprouted corn and oats instead of feeding the grain itself? If the advertisers are right in saying that one bushel furnishes as much nutriment as four bushels of dry grain, I will beg their pardon and be glad that I have advertised for them.

Sprouted grains, as is well known, have been used more or less for human food. In the Chinese quarters of San Francisco, and in some other cities, I have seen sprouted peas offered for sale in front of the Chinese groceries. "Malted nuts" are excellent food, and, I believe, are made from nuts that have been sprouted so as to convert the starch into sugar for making a more delicious food, and perhaps a more digestible one. But if one bushel of sprouted oats is worth as much as three dry for poultry, why wouldn't they be worth something for horses or for human beings? I have often gathered beechnuts in the woods in the spring of the year, when the nuts had sprouted till the plants were two or three inches high, and they were very good food.

Now, then, who will tell us more about sprouting nuts and grain for human food? And, by the way, why do not some of our enterprising poultry journals inquire into such things a little more before inserting advertisements like the above?

* The "book" is a cheap paper pamphlet, 128 pages, with nothing in it particularly new or valuable except about two pages on sprouted grains.

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"Seaboard Magazine" SIX SOUTHERN STATES SENT SEABOARD'S STRONGHOLD SFREE

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is, without doubt, seriously affected by the climatic conditions which surround him.

ARE YOU PLEASANTLY LOCATED?

Are you shut in by the ice and snow of a rigorous winter, with naught but a cheerless sky to gaze upon? What of your lands now? Covered with snow? How about your stock? Have to be kept housed and fed?

The farmers in our territory are plowing, their stock grazing on the hillsides, and in the famous Manatee section growers are shipping their products to Northern markets, receiving remarkable prices for the same, due to the season.

Our lands are just as fertile as yours, produce just as much and at a time when prices are the best. It's a duty you owe yourself and family to look into this.

CLIMATE IS A MOST IMPORTANT FACTOR in connection with the profits, as well as pleasure, to be derived from your location.

Wouldn't you like to be pleasantly situated, surrounded by climatic conditions which permit work to be carried on the entire year, and where the struggle for existence against the elements of a frozen North is not known?

The climate in the six States traversed by our line is unsurpassed anywhere, and the profits being derived by those who only a few years ago were battling with the rigors of winter in a northern location is evidence of the value of our lands. Do you expect to remain where you are and keep up the struggle? Why not come down into southern sunshine and be pleasantly located, while at the same time you are deriving big profits from your crops?

OUR LITERATURE IS FREE. The "Seaboard Magazine," prepared especially for the benefit of parties contemplating a change of location, will help you. Let us put your name on our mailing-list. Drop us a postal to-day,

J. W. White,
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Seaboard Air Line Railway,
Dept. F, Portsmouth, Virginia.

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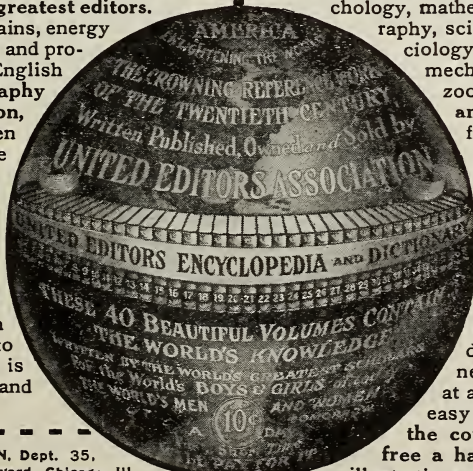
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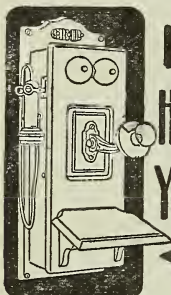
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who is a High-School Graduate

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Your Farm Profits

HERE'S the answer: Build a telephone line—you and nine or ten of your neighbors—so that you can keep in daily touch with your markets.

The telephone is more of a necessity on the farm than it is in the city. You can buy a

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Made of High Carbon Double Strength Coiled Wire. Heavily Galvanized to prevent rust. Have no agents. Sell at factory prices on 30 days' free trial. We pay all freight. 37 heights of farm and poultry fence. Catalog Free.
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Something New. Gets twice the results with same labor and fluid. Flat or round, fine or coarse sprays from same Nozzle. Ten styles. For trees, vines, vegetables, whitewashing, etc.
Agents Wanted.
Booklets free.
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Send today for Free Book and bottom Factory Prices on Metal Roofing and Siding. Made in our own factory. Better than you can buy elsewhere at any price. Shipped at our risk. You **Send No Money** so you take no risk. Our guarantee and see-what-you-buy-before-paying-Plan specify you pay nothing unless fully satisfied. Lowest prices on all roofing and roofing supplies sold straight to you from Factory at real **Factory Prices.** Don't buy till you get our prices and **FREE Roofers' Guide**—Write for this Book today.
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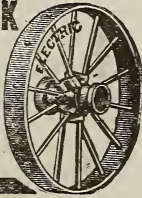


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White Cedar, 3 to 4 ft., 25 cts. each; Spruce, 3 to 4 ft., 25 cts. each; Balsam, 3 to 4 ft., 25 cts. each. Send for price list and get reduced prices on large orders. Address **SCHUH BROS., CATAWBA, WIS.**

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Write for prices and **Wood's Crop Special**, giving interesting information about Farm Seeds. Mailed free on request.

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Your Name Will Get \$2 Eggs For 50 Cents Per Sitting

The White and Brown Leghorns are the greatest layers in the World. I keep 1000 of the celebrated Chamberlain laying strain on my Experimental Farm, and to increase the sale of my Perfect Chick Feed, I will send to any one who will send me their name so I can send them my Perfect Chick Feed Catalogue, 2 sittings of Single Comb Brown or White Leghorn Eggs for \$1 for the 2 sittings. Only 2 sittings sold to one person. White or Barred Plymouth Rock Eggs \$1 per sitting. This is a rare chance to get a start of extra fine stock. Send money and have your orders booked early as we can only fill about 10 in season.

W. F. CHAMBERLAIN, (The Perfect Chick Feed Man)
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All leading varieties of standard-bred chickens, ducks, geese, turkeys, and peafowls. Send 4 cts. for large catalog. **J. J. BRENNER, D. 12, Mankato, Minn.**

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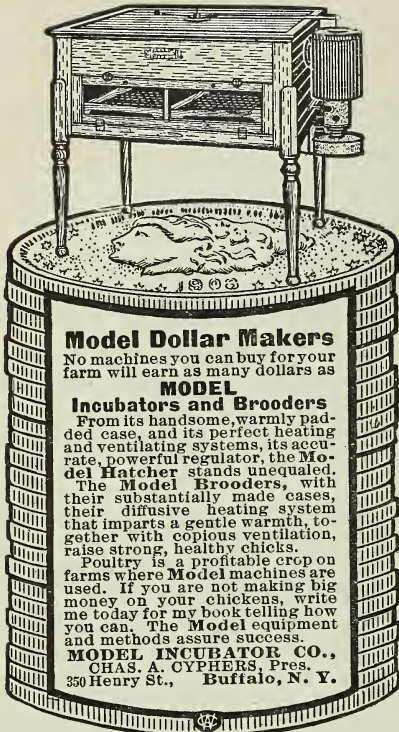
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SEND 10 CTS. FOR THREE MONTHS' TRIAL SUBSCRIPTION.

The National Fruit Grower, St. Joseph, Mich.

FRUIT TREES as cheap as \$5 PER 100 Guaranteed true to name.

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No machines you can buy for your farm will earn as many dollars as

MODEL Incubators and Brooders
From its handsome, warmly padded case, and its perfect heating and ventilating systems, its accurate, powerful regulator, the **Model Hatcher** stands unequaled.

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Poultry is a profitable crop on farms where **Model** machines are used. If you are not making big money on your chickens, write me today for my book telling how you can. The **Model** equipment and methods assure success.

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Buys the Best 120-EGG Incubator ever made

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Double cases all over; best copper tank; nursery; self-regulating. Best 100 chick hot-water Brooder, \$4.35. Both ordered together, \$11.00. Satisfaction guaranteed. No machines at any price are better. Write for our book today or send price now and save waiting.
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for 1908 is larger and better than ever. Tells all about pure-bred poultry and illustrates 60 varieties. Contains 10 beautiful chromos of leading breeds—pretty enough to frame. Tells of best Louse Killer, how to cure diseases, make money. Only 10c postpaid. Send-to-day for a copy.
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R. C. Rhode Island Reds, White and Silver-laced Wyandotte eggs per 15, \$1.25; Barred Rocks at \$1.25 per 15. Muscovie duck-eggs, \$3.00 per 9. Fine Italian stand of bees, \$5.75 with queen; tested queen, \$1.25.
Address **LAFAYETTE POULTRY CO., ALMA, MO.**

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BIG STOCK!**

New Warehouse Root's Goods
Prompt Shipment Low Freight

**EVERYTHING
FOR THE BEE-KEEPER AT
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We are now prepared to furnish promptly a full line of supplies; choice new stock just from the factory.

Bees and Queens!

We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

HOWKINS & RUSH
241 BULL ST. SAVANNAH, GA.

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Bee-keepers**

.. will ..

SAVE TIME AND FREIGHT

by ordering **ROOT'S GOODS**
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Complete **NEW STOCK** now on hand. Our stock includes a full line of Danzenbaker lives and all other up-to-date goods.

Remember we sell at Root's factory prices, and offer liberal discounts now.

Estimates cheerfully given. Send us a list of your wants, and get our net prices by letter.

Our 1908 catalog is now ready to mail. Write for it to-day. Address

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FREE! 50 lbs. Comb Foundation FREE!

WEED'S NEW-PROCESS COMB FOUNDATION.

PRIZES GIVEN AWAY

ABSOLUTELY FREE IN A CONTEST.

FIRST PRIZE—25 lbs. Comb Fdn.
SECOND " —10 lbs. Comb Fdn.

THIRD PRIZE—5 lbs. Comb Fdn.
FOURTH " —5 lbs. Comb Fdn.

FIFTH PRIZE—5 lbs. Comb Fdn.

THE ABOVE PRIZES will be given absolutely free to those who will make the largest number of words out of the letters found in the name "Toepperwein." The letters may be used over as many times as desired, but in no single word oftener than found in the name "Toepperwein." Only words found in Webster's dictionary are admitted. The words must all be plainly written in columns, and numbered.

This contest is absolutely free to any one and anywhere. It is a fair contest, and one has the same chance as the other. These contests are very instructive, and just the thing for schoolchildren to pass the evenings. The contest will close May 1, 1908, and all lists with words must then be in, and in May 15th GLEANINGS the results will be published, giving the names of the winners and all the words of the one who wins the first prize. The winners have the privilege of choosing any grade of foundation. We feel confident that the winners will be highly pleased with the prizes, as the comb foundation is as fine and perfect as any machinery can make, and is made right here in our factory out of this clear Southern beeswax.

SHIPPING-CASES.

12-in. 4-row shipping-cases, with 3-in. glass.....	\$17.00 per 100.
9½-in. 4-row shipping-cases, with 3-in. glass.....	15.00 per 100.
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We always carry a large and complete stock of The A. I. Root Co.'s make of bee-supplies at Root's factory prices. Write us for illustrated catalog and price list.

WEED NEW-PROCESS FD'N.

We have just received a set of new machinery, and our *Weed New Process Foundation* is perfect and gives perfect satisfaction everywhere.

13,000 CASES OF HONEY-CANS

on the way which will be here in time to supply the bee-keepers with cans. We buy honey in large amounts at market price.

Whenever you are in San Antonio make our office your headquarters and let us show you through our plant. Stay here a while and meet the bee-keepers as they come in. You are always welcome and will be courteously treated.

UDO & MAX TOEPPERWEIN,
1322 South Flores St. SAN ANTONIO, TEXAS.

ITALIAN Queens

and bees, and nothing but Italians. An improved superior strain is what QUIRIN-THE-QUEEN-BREEDER raises. Our stock is northern-bred and hardy. We just visited our outyards (all wintered on summer stands), and not a colony is dead to date (March 18). Some hives have lost scarcely a bee, so it appears. BROTHER BEE-KEEPER, how do you like such stock for hardiness? A party up in Maine got 50 nuclei of us several years ago. We just received a letter from him. He is after more of our bees, because last season he got 2200 pounds of honey which sold for 22 cts. per pound. Our stock is well known throughout the United States. Some of the largest yields reported can be traced to our stock. Over 20 years a breeder. Free circular and testimonials. Price of stock as below.

Prices of Queens before July.	1	6	12
Select queens	\$1 00	\$5 00	\$ 9 00
Tested queens	1 50	8 00	15 00
Select tested queens	2 00	10 00	18 00
Breeders	4 00		
Golden five-band breeders	6 00		
Two-comb nuclei, no queen	2 50	14 00	25 00
Three-comb nuclei, no queen	3 50	20 00	35 00
Full colonies on eight frames	6 00	30 00	

ADD the price of whatever grade of queen is wanted, with nuclei or colonies; nuclei ready about May 1st to 10th; can furnish bees on Danzenbaker or L. frames; pure mating and safe arrival guaranteed. We employ 400 to 500 swarms in queen-rearing, and expect to keep 500 to 1000 queens on hand ready to mail. Our Northern-bred bees are hardy, yet gentle; they will give you results. Address all orders to

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio

Imported Carniolans, Caucasians, Queens

and Hungarians (Banats), each bred in native land of respective race, \$5.00 each. Now on hand ready for immediate delivery.

Frank Benton, P.O. Box 17, Washington, D.C.

Queens from Southwest Florida

From very best stock, furnished by The A. I. Root Co.; reared on the island where A. I. Root was formerly located. Prompt shipments and correspondence solicited. I. T. SHUMARD, Osprey, Manatee Co., Fla.

Queens FOR 1908.

Finest Golden bred in America. Send for my latest circular and prices — "and be convinced." DANIEL WURTH, PITKIN, ARK.

GOLDEN ITALIAN QUEENS,

Six for \$5. **\$1**

Safe arrival and satisfaction guaranteed. 18 years' experience. Circular.

J. B. CASE, Port Orange, Fla.

GOLDEN-ALL-OVER and RED-CLOVER ITALIAN QUEENS

My stock is the result of years of careful selection, and is equal to any in the country. The prices are only such as to insure long-lived, prolific queens, whose workers will be hardy and good honey-gatherers. Write for 1908 circular. PRICES. 1 6 12
 Untested \$1.00 \$5.00 \$9.00
 Select untested 1.25 6.50 12.00
 Tested, \$1.75 each; select tested, \$2.00 each.
 I am booking orders now, delivery after May 25.

Wm. A. Shuff, 4426 Osage Ave., Philadelphia, Pa

Taylor's Strain of Italians is the Best

Long tongues and golden are the best of honey-gatherers; 19 years a specialty breeding for the best honey-gatherers. Untested, 75 cts. each, or \$8.00 a dozen; tested, \$1.00 each, or \$10.00 a dozen; select tested, \$1.50 each. Breeders, the very best, from \$3.00 to \$5.00 each. We sell nuclei in full colonies. Bees in separate yards. Safe arrival guaranteed. Send all orders to
 J. W. TAYLOR & SON, Beeville, Bee Co., Texas.

Italian Bees and Queens

from Root's red-clover stock of golden Italian queens. Untested, 75 cts. each; six, \$3.75. Select untested, \$1.00 each; six, \$5.00. Tested, \$1.50 each; six, \$8.00. Select tested, \$2.00. Two frame nuclei, with untested queen, \$2.25. Orders filled in rotation. Send all orders to E. A. SIMMONS, GREENVILLE ALA

NOT CHEAP QUEENS, BUT QUEENS CHEAP

500 Best Strain Italian Queens Ready to Mail March 1st. Untested queens in lots as follows: 1, 75 cts.; 6, \$4.20; 12, \$ 7.80. Tested queens in lots as follows: 1, \$1.00; 6, \$5.70; 12, \$10.80. Breeders' queens in lots as follows: 1, \$5.00; 3, \$12.00. Nuclei with untd queen: 1-fr., \$1.75; 2-fr., \$2.25; full colonies, \$4.75. Nuclei with tested queen: 1-fr., \$2; 2-fr., \$2.50; full colonies, \$5. Also dealer in bee-keepers' supplies. Root's goods. Ask for cat'g. W. J. LITTLEFIELD, LITTLE ROCK ARK.

The Time To Place Your Order for QUEENS

for spring delivery is here. Order now (with partial payment if not convenient to send all) and state when you want delivery. When ready for the queens, send the remainder. By so doing I shall be able to handle your order without the usual delays incident to the rush orders when the season is on.

	1	6	12
Untested, in May and June,	\$1.00	\$5.50	\$10.00
Untested, after July 175	4.00	7.50

Selects, 25 cents extra. Tested, May and June, \$1.50; after July 1, \$1.25. Nuclei and full colonies ready May 1. Catalog for 1908 free. Send for one.

GEO. W. BARNES, Box 340, NORWALK, O.

Westwood Red-clover Queens

Are the bees that got the honey in 1907. Better try them for 1908. Nuclei and full colonies a specialty. Price list on application.

HENRY SHAFFER, 2860 Harrison Ave., Sta. L, Cincinnati, O.

PHARR'S GOLDENS

took first prize at three exhibits in 1907. We also breed Carniolans, three-banded Italians, and Caucasians, bred in separate yards and from the best breeders obtainable; guarantee safe delivery and fair treatment. Untested, \$1; tested, \$1.25. Address New Century Queen-rearing Co., Berclair, Tex. John W. Pharr, Prop.

W. H. Laws is again on hand for the coming season with a larger stock of queens than ever before.

He sold 400 queens to a New Mexico producer last May who wrote, "Your stock is far ahead of those Eastern queens I have been buying," and has placed his order for 1000 more of the Law queens to be delivered in May and June coming.

Others write that, if they had purchased all Laws queens, their crop of honey would have been doubled. Testimonials enough to fill this book. If you are going to improve your stock, had you not better investigate?

Single queen, \$1.00; dozen, \$10.00; breeders, the best, each, \$5.00. **W. H. LAWS, Beeville, Bee Co., Texas.**

For Sale. Red-clover, Italian, and

A Carload of BEE-SUPPLIES. AND QUEENS.



Caucasian Queens Ready Now.

SEND ME A BILL OF SUPPLIES NEEDED, AND I WILL GIVE YOU MY LOW PRICES.

I can save you money.

PRICES OF QUEENS: Untested, 85 cts. each; dozen, \$8.50; tested, \$1.00; dozen, \$10.00; breeding queens, \$2.50 to \$5.00; nuclei, four-frame, with fine queen, \$4.00.

SEND FOR CATALOG. GOODS GUARANTEED.

G. ROUTZAHN, BIGLERVILLE, PA.

DOOLITTLE & CLARK

have some choice Italian queens reared last fall, and ready for delivery May 1. These queens are mated to select drones. Price \$2.50, \$5.00, and \$10.00 **BORODINO, ONONDAGA CO., N. Y.**

Queens Queens

of the

FINEST POSSIBLE BREEDING

BRED BY

F. J. WARDELL, UHRICHSVILLE, OHIO, U. S. A.

After many years' experience as head queen-breeder for The A. I. Root Co., I am now breeding bees at the above address. My stock is equal to any now advertised, and my long experience enables me to judge very accurately the value of any strain. Mine is the celebrated red-clover stock, which has given so much satisfaction to thousands of buyers for a number of years past. If you desire something very select for breeding purposes, write to me, stating your wants, and the same will be supplied. I have no cheap or inferior queens to sell. My prices for the season are as follows:

	May to June.
Untested queen	\$1.25
Select untested queen	1.50
Tested queen	2.50
Select tested queen	3.50
Breeding queens	6.00
Select breeding queens	9.00
Extra select	1 year old, 12.00

No untested queens sent before May 15; but to secure your queens early in the season it is necessary to order now. Absolutely, all orders filled in rotation.

We are READY NOW to take your orders for Bees—Nuclei and Queens

Shipment can be made with safety on and after May 15; we guarantee safe arrival then. If you want queens early, communicate with us; we have a few that we can ship by May 5, at your risk.

Don't forget that we do a general bee and honey business; that we can supply you with Root hives and fittings, sections, foundation, tools, etc., at their factory prices. It is not necessary to have our catalog (though we send it free); make your list from any Root catalog published this year; send us the total amount, and we'll ship the goods by the most direct route. Dozens of freight trains enter and leave Bangor each day, and we're waiting to hustle your order aboard one of them in red-hot fashion. If you're not decided about some detail, or want us to quote you a net price on the supplies you want, write us; the mails travel 800 miles a day, and you will be surprised to see how quickly we will answer your inquiries. And we'll do it *cheerfully* too.

SEND US YOUR WAX. We are giving *thirty cents cash*, or *thirty-three cents in trade* for pure yellow beeswax of average quality.

TIME IS UP on our special book-offer May 1. After that date all bee-books and journals will be sold at regular price instead of the 10 per cent discount we have been giving.

GEO. S. GRAFFAN & BRO., Fifth St., Bangor, Me.

How are Your Bees?

Any Queenless Colonies?

If so, send for a queen at once. We can furnish by return mail fine tested queens, reared last fall, wintered in four-frame nuclei, three-band Italians, none better, \$1.00 each. Satisfaction guaranteed. Send for price list.

J. W. K. SHAW & CO., Iberia Parish, Loreauville, La.

QUEENS FROM ITALY

Tested. Safe arrival guaranteed. \$2 each.
References: The A. I. Root Co., G. M. Doolittle, C. P. Dadant, etc.
Address: V. ASPREA, GALLINA, CALABRIA, ITALY.

If You are Located in West Virginia or Ohio

or anywhere else, order ROOT'S GOODS from PEIRCE and save time and freight.

EDMUND W. PEIRCE,

136 W. Main St., Zanesville, O.

BIG STOCK OF A. I. ROOT CO'S AND MARSHFIELD CO'S BEE-SUPPLIES AT MANUFACTURERS' PRICES
For cash sent in April, deduct 8 per cent; for cash sent in May, deduct 7 per cent; take their 1908 price lists if you have one. If not, send for one or both. S. D. BUELL, Union City, Mich.

SAVE EXPRESS! by ordering
SAVE FREIGHT! your supplies
SAVE TIME! in **Boston**

H. H. JEPSON,
182 Friend St. Phone Haymarket 1489-1

WANTED = Salesmen

TO INTRODUCE OUR NEW WALL-CHARTS

These charts are a splendid compilation of facts, figures, and drawings, showing all the latest statistics gathered by the county and State officials. They are of wonderful value in the home and in all classes of business. Railroads are shown up-to-date, special attention being given to them. All counties, towns, and postoffices fully indexed, and population given; many other features too numerous to mention. A splendid opportunity for energetic men.

RAND, McNALLY & COMPANY, CHICAGO, ILL.

ROOT'S BEE-SUPPLIES

AT SPRINGFIELD, MASS.

New Goods. Free Catalog. Phone.
F. R. DANIELS, 117 FLORENCE ST.

Honey-cases for Sale. Price 30 cts. per case.
Two cans to the case.
Both cans and cases in A-1 condition. For lots of 100 or more write us for price. Michigan White-Clover Honey Co., Detroit, Mich.



FOR SALE.—It will pay to get our special proposition.
A. G. WOODMAN & CO., Grand Rapids, Mich.

The Hand System

TO satisfy a number of customers we are now making hives to suit the above system, just as the inventor himself uses them. These are not listed in our regular spring catalog, and are not kept in stock at any of our agencies. All orders will be filled from Medina. If ordered early enough, however, they can be forwarded to any one of our branches for redistribution. If you are going to try a few of these hives the coming season, we earnestly urge you to order early before the rush season comes on.

PRICE LIST OF HAND DIVISIONAL HIVE AND PARTS.

We have had numerous calls for divisional hives just as Mr. Hand uses them. We will not list them in our catalog for the coming season, but will make them up to supply on special order, to those who desire to try them, at prices in table below. The outside dimensions being nearly the same as the regular Dovetailed hive, the regular covers and bottoms may be used.

	Designating or Short Name	Nailed and Painted Each	In Flat		
			Each	Five	Weight of 5
Each section is 19 1/2 in. long, 5 1/2 in. deep outside; upper portion of side removable with clamps to hold it in place. Sections used are 4 1/4 x 1 1/2 plain, split three sides. Furnished in both eight and ten frame size.					
Hand brood or extracting section, including the frames, springs, clamps, and nails; no foundation	Hand 8-8	\$ 65	\$ 50	\$ 2 25	35
Hand brood or extracting section, including the frames, springs, clamps, and 1-inch foundation starters	Hand 8-10	75	55	2 50	40
Hand brood or extracting section, including the frames, springs, clamps, and 1-inch foundation starters	Hand 9-8	75	60	2 50	35
Hand brood or extracting section, including the frames, springs, clamps, and full sheets comb foundation	Hand 9-10	80	65	2 75	40
Hand brood or extracting section, including the frames, springs, clamps, and full sheets comb foundation	Hand 0-8	1 30	85	4 00	38
Hand brood or extracting section, including the frames, springs, clamps, and full sheets comb foundation	Hand 0-10	1 40	95	4 50	43
Hand comb-honey section, including section-frames, and fences; no sections or foundation starters	Hand 2-8	75	60	2 75	30
Hand comb-honey section, including section-frames, and fences; no sections or foundation starters	Hand 2-10	80	65	3 00	35
Hand comb-honey section, including section-frames, fences, sections, and full sheets foundation	Hand 1-8	1 45	1 00	4 75	35
Hand comb-honey section, including section-frames, fences, sections, and full sheets foundation	Hand 1-10	1 55	1 10	5 25	40
Hand four-section hive including two brood and two comb-honey sections; no sections or foundation starters	HandCE8822-8	3 50	2 65	12 00	180
Hand four-section hive including two brood and two comb-honey sections with sections and full sheets foundation	HandCE8822-10	3 75	2 90	13 25	190
Hand four-section hive including two brood and two comb-honey sections with sections and full sheets foundation	HandCE0011-8	6 30	4 25	20 00	200
Hand four-section hive including two brood and two comb-honey sections with sections and full sheets foundation	HandCE0011-10	6 75	4 70	22 25	210
Hand sectional super, no inside fixtures, including clamps, nails, and flat tins	Hand Super-8	40	30	1 25	22
Hand sectional super, no inside fixtures, including clamps, nails, and flat tins	Hand Super-10	43	32	1 35	24

Hand brood-frames, 4 1/4 x 17 x 1 1/2; ends, 1 3/4 x 1 1/2; top, 1 1/2 x 3/4; bottom, 1 1/2 x 1/4 \$2.00 per 100 in flat; \$18.00 per 1000
Hand section-frames, 4 1/4 x 17 x 1 1/2; ends and top, 1 1/2 x 1/4; bottom, 1 1/2 x 3/4 2.50 " " 22.00 "
Hand fences, 4 1/4 x 17 x 1/2 P style 1.75 " " 16.00 "

The A. I. Root Company, Medina, Ohio

Classified Advertisements.

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Help Wanted.

WANTED.—A young bee-keeper who wants to learn the business, and is willing to work anywhere.
W. L. COGGSHALL, Groton, N. Y.

Wanted, Situations.

A single woman of 35 would correspond with beekeepers with a view of engaging to work where she can learn the business. Best of references given and required. J. B. NEWTON, Eastern Av., Springfield Mass.

WANTED.—A German couple desire a situation with some bee-farmer; have had 15 years' experience. Can also do gardening and light carpenter work. In regard to place and wages, address
NICK BABEK, 3169A, Alfred Ave., St. Louis, Mo.

Post Cards.

"Kinks on Post Cards" is a booklet telling you the things you don't know about making photographic post cards. Write for particulars.
E. O. WALTZ, Medina, Ohio.

Plants.

GLADIOLUS BULBS.—Choice stock in mixtures and named varieties. Descriptive price list and cultural directions free.
M. T. WRIGHT, Medina, O.

Beautiful your homes with our plants. Twelve all different geraniums, \$1.00; salvia, 40c per doz.; asters, pansies, and verbenas, 25c per doz.; coleus, 40c per doz. Fine plants. Express and postage charged to purchaser. List free.
HAMMERSCHMIDT & CLARK, Dept. A, Medina, O.

Food Products.

Send for circulars and price lists of Smucker's apple butter. Guaranteed to be absolutely pure. Agents wanted.
J. M. SMUCKER, Orrville, Ohio.

Rugs.

Be sure to send for our circular before you have your old carpet made into rugs. A postal will bring it.
SANITARY RUG CO., Delaware, O.

Poultry Offers.

W. Wyandotte eggs, 15, 65c. J. H. RISING Owego, N. Y.

FOR SALE.—Best White Leghorns; eggs, 15, \$1.00; 30, \$1.75. G. DETTMANN, Appleton, Wis. R. No. 6.

FOR SALE.—\$1.00 Barred Rock and Pekin duck eggs. Circular.
A. W. NEWCOMER, Glen Rock, Pa.

FOR SALE.—About 40 pairs of Plymouth Rock Homer pigeons at a bargain. G. W. PETRIE, Fairmont, Minn.

FOR SALE.—Eggs from my select S. C. W. Leghorns, B. P. Rocks, \$1 per 15. C. R. GUERNSEY, E. Cobleskill, N. Y.

FOR SALE.—Choice Silver-spangled Hamburg eggs, \$1.50 for 15. ELIAS FOX, Hillsboro, Wis.

FOR SALE.—Single-comb Brown Leghorns and Buff Orpington eggs, \$1 per 15; \$4 per 100. Fertility guaranteed.
C. M. CONRAD, Flanagan, Ill.

FOR SALE.—Indian Runner duck eggs from choice stock, \$1.00 per 12; \$4.00 per 55; \$6.50 per 100.
KENT JENNINGS, Mt. Gilead, O.

FOR SALE.—White Wyandottes, 15 eggs, 75 cts.; 30, \$1.25. Uncle Sam potato, very productive; 1 pound by mail, 30 cts.
J. F. MICHAEL, Winchester, Ind.

FOR SALE.—Eggs for hatching. Rose Comb White Leghorn, 15 for \$1.00; 30 for \$1.75.
E. M. JOHNSON, Blue Mounds, Wis.

FOR SALE.—Rose Comb W. Leghorn eggs, \$1.00 per 15; 30 for \$1.50.
S. THOMAS, Route 1, Box 1, Osceola Mills, Pa.

FOR SALE.—Standard-bred snow-white Rock eggs, 15 \$1.00; 50, \$3.00; 100, \$5.00. Satisfaction, or money back.
Geo. W. COOK, Spring Hill, Kan.

FOR SALE.—W. P. Rocks, Fishel and Empire strain. I have twenty select females headed by two extra-fine roosters. Eggs, \$2.00 per twenty.
W. M. PARRISH, Rt. 8, Lawrence, Kan.

FOR SALE.—Eggs for hatching from choice stock of the "Best Fowls on Earth" (Rose Comb Rhode Island Reds), \$1.00 per 15. BURDETT HASSETT, Box 45, Reliance, Va.

FOR SALE.—Eggs for hatching, S. C. Brown, Buff, and White Leghorns; Buff and White Rocks; Buff Wyandottes and S. S. Hamburgs, \$2.00 per 15; \$3.50 per 30.
PETER H. LEVEY, Preston, Minn.

EGGS FOR HATCHING.—White Holland turkeys, Rose Comb Brown and White Leghorns; S. C. Black Langshans and Minorcas; Banded and White Rocks; White Wyandottes; Pekin and Rouen ducks. Catalog for stamp. JEWETT ALLEN, Walnut Grove, Minn.

White Wyandottes, great winter layers; 90 pullets averaged better than 50 per cent yield for December, January, and February. Eggs from these pens, \$1.00 per 15; \$3.00 per 50; \$5.00 per 100.
H. H. WOODS, Crown Point, Ind.

Highland Farm S. C. Brown Leghorns are veritable egg-machines, and will lay their weight in eggs in 30 days—farm range, vigorous stock; bred to lay; eggs, \$1.00 per 15; \$1.75 per 30. Prompt service and satisfaction guaranteed.
J. E. HAND, Birmingham, Erie Co., Ohio.

For Sale.

FOR SALE.—White silk French poodles. Puppies, \$5 and \$10. MRS. CARRIE BRANCH, Garrett, Texas.

FOR SALE.—Vermont bee-keepers should have my 1908 price list.
C. J. LAMB, East Calais, Vt.

FOR SALE.—200 lbs. brood or surplus foundation at a bargain. F. W. LESSER, Sta. A, Syracuse, N. Y.

FOR SALE.—25 ex. supers, new combs, L. size; 20 q. excluders, wood-zinc, new; 10-fr. comb-honey supers. Other supplies. ISAAC D. KREISS, Benjamin, Pa.

FOR SALE.—Best Wisconsin sections, per 1000, \$4.00; 2000, \$7.75; 3000, \$11.10; No. 2, 50 cts. less. Discount on Root's and Danz. hives and other supplies. Fifteen eggs, B. P. Rocks and Wyandotte, \$1.00; Pekin ducks, 11 eggs, \$1.50.
H. S. DUBY, St. Anne, Ill.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. W. P. SMITH, Penn. Miss.

FOR SALE.—Honey-cans used but once, emptied without steam or water, bright and clean; 100 cases or more, per case two cans, 25c; 50 cases, 30c; 25 cases, 32c; less, 35c. E. R. PAHL & CO., Milwaukee, Wis.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS, (Root's Goods.) Paden City, W. Va.

FOR SALE.—About 1300 or 1400 cases, two five-gallon cans each, practically free from nail-holes, and were new tins when originally shipped to us. Make us an offer. CLEVELAND HEALTH FOOD CO., Cleveland, O.

FOR SALE.—Alexander wire bee-veils, no pins or sewing required; made from the very best wire cloth at 60 cts. each, postpaid. FRANK ALEXANDER, Delanson, N. Y.

FOR SALE.—Two hundred 8-frame dovetailed hives (Root's make), 200 5-gal. honey-cans in cases (new) at Lovelock, Nevada. Address C. K. ERCANBRACK, Watsonville, Cal.

FOR SALE.—Yellow and white sweet-clover seed. Yellow, hulled, at 18 cts. and white about 3/4 hulled, at 12 cts. per lb., in lots of 100 lbs. or more. On smaller lots a little extra to cover extra cost. M. W. HARRINGTON, Williamsburg, Iowa Co., Iowa.

FOR SALE.—One two-horse steam-boiler, \$30; one six-horse boiler, \$60; one 2 1/2-horse engine, \$35, all in perfect working order, with fittings to connect to engines. All machines upright. J. W. UTTER, Amity, Orange Co., N. Y.

FOR SALE.—Well-established queen-rearing business, widely advertised for two years; large circle of steady customers; best testimonials; orders at hand; best location and climate; no speculation. Reason for selling, departure for Europe. Write immediately to A. E. TITOFF, Coamosa, Cal.

FOR SALE.—My out-apiary of 25 colonies very cheap, or I will sell the bees for \$4.00 per colony. They are in The A. I. Root Jumbo hive, all good straight combs, built on wire. It is in a good place in an orchard, one block from the street-car; honey-house and fixtures. J. M. ROOD, 2234 Jefferson Ave., W., Detroit, Mich.

FOR SALE.—75 eight-frame Root hives with good worker combs; used two seasons; also lid and bottom; \$1.60, each. One hundred 4 1/4 supers, trimmed with sections and foundation; used one season; 40c each. Sixty 10-frame hives and 5 Danzenbaker hives, with combs wired, all Root's goods, \$1.75 each, without super. Thirty 8-frame supers, trimmed, \$3.00 each. H. A. ROSS, Evansville, Ind.

Real Estate for Bee-keepers.

FOR SALE.—Residence in a university city in the Ozark Mountains. Four-room house; basement and cellar; east and north front. Price \$1000. Terms, \$500 cash, rest on time. Call on or address MRS. M. B. READ, 301 S. School St., Fayetteville, Ark.

FOR SALE.—Three village lots with a three-room house, small barn and henhouse, and 100 colonies of bees in two-story dovetailed comb-honey hives, extractor and all fixtures; good location; satisfactory reasons for selling. Write for particulars if interested. S. LAMONT, Jarretts, Minn.

FOR SALE.—A desirable farm of 118 A. in southern Michigan, well located, and in a fine bee country; 100 A. plow land in a good state of cultivation; 15 A. valuable timber, plenty of good buildings, good water, and a fine bee-cellar. Write for particulars. FLOYD E. SMITH, Somerset Center, Mich.

FOR SALE.—Good bee and fruit ranch. Price \$4500; 200 acres of land; 20 acres tillable; 500 apple-trees from 2 years old to 10; 200 English walnuts; 50 peach-trees; good small house, and barn. The rest of the ranch is mountain covered with live oak—say 4000 cords of wood. One of the best sage-brush locations in central California; 200 stands of good bees in patent hives on full foundation; extractor-tanks, honey-house; only 12 miles from San Luis Obispo, Cal. This place is well watered with plenty of good spring water, and a snap if taken soon. OTIS RAMAGE, San Luis Obispo, Cal.

Wants and Exchange.

FOR EXCHANGE.—12 volumes of Gleanings. W. H. KERR, Crawfordsville, Ind.

WANTED.—Bees, full colonies, nuclei, for Rossland, British Columbia. E. M. HUSBAND Delaware, Ont., Can.

WANTED.—To purchase an apiary in a good location. A. CARDER, Constance, Boone Co., Ky.

WANTED.—20 to 50 colonies bees in L. frame hives, within 200 miles of Chicago. F. E. EMERSON, 2887 N. 46th Ave., Chicago, Ill.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price. OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

Bees and Queens.

Early queens, 70 cts.; after May 15, 60 cts.; also queen-supplies. List free. A. RATTRAY, Almont, Mich.

FOR SALE.—Five colonies of bees in Root hives. J. P. GEIGER, Orwigsburg, Pa.

FOR SALE.—I will sell six colonies Italian bees at \$4.50 per colony, Root Company 8 frame hives. J. W. GARRY, Millstone, Md.

FOR SALE.—Untested golden Italian queens; good queens; safe arrival. One, 60 cts.; three or more, 50 cts. each. D. T. GASTER, Rt. 2, Randleman, N. C.

Italian queens, untested, 75 cts.; tested, \$1.00; 2-fr. nucleus, with queen, \$2; 8-fr. colony with queen, \$7 and \$8. E. M. COLLYER, 75 Broadway, Ossining, N. Y.

FOR SALE.—Twelve colonies Italian bees in shipping-boxes, on 7 L. or H. frames, in good condition, at \$3.50 per colony. WM. AMELANG, Ottumwa, Ia.

FOR SALE.—Fifty colonies of Italian bees, 8-frame Dovetailed hives, straight combs, no disease; \$5.00 per hive. P. H. DAVIS, Camden Place, Minneapolis, Minn.

FOR SALE.—Ten stands of Italian bees in Langstroth-Simplicity hives. Will exchange for anything I can use. Bees are strong and in good condition. Make an offer. D. R. PHILLIPS, Brownsville, Pa.

FOR SALE.—45 colonies of bees; hives and fixtures for 100 more; shop extractor; uncapping-can; 60 twin mating-boxes in good sheltered location; good location for queen-rearing. Also incubator and brooder. A. H. KANAGY, Milroy, Pa.

FOR SALE.—Thirty colonies of bees; mostly young queens of 1907; about half from J. P. Moore; have produced an average of 180 lbs. of honey per colony for 1905 and '6. Complete outfit of supers, extracting-combs, extractors, etc. G. H. EVANS, Napanee, Ont., Can.

FOR SALE.—400 colonies Italian bees in 8 or 10 frame dovetailed hives with Hoffman frames, at \$6.00 per colony. In lots of 10, \$5.00 per colony.
F. A. GRAY, Redwood Falls, Minn.

Headquarters for shook-swarm bees. I furnish colonies until May 10. Two frames, brood and queen; enough bees to cover three frames. Buyers furnish shipping-cases at \$1.50 f.o.b. A. DUNCAN, Argyle, Ga.

FOR SALE.—After May 15th, Italian, Carniolan, and Caucasian queens. Tested, \$1.00; dozen, \$11.00; untested, 75 cts.; dozen, \$8.50; virgins, 40 cts.; dozen, \$4.50. Nuclei, after June 10, 1, 2, and 3 frame, \$2.00, \$3.00, \$4.00, including queens. Orders booked now. Cash orders filled first.
EDW. A. REDDOUT,
Baldwinsville, N. Y.

Honey and Wax For Sale.

Fancy orange-blossom, 60-lb. cans, 8 $\frac{1}{2}$ cts.; water-white sage, 8 $\frac{1}{2}$ cts.; light amber, 8 $\frac{1}{4}$ cts.; dark amber, 8 cts.
E. R. PAHL & Co., Milwaukee, Wis.

FOR SALE.—302 lbs. of No. 1 white-clover comb honey in 4 $\frac{1}{4}$ plain sections, no-drip cases; 17 cts. a pound.
E. D. TOWNSEND, Remus, Mecosta Co., Mich.

FOR SALE.—5000 lbs. clover and amber honey in 160-lb. kegs.
C. J. BALDRIDGE, Homestead Farm,
Kendaia, N. Y.

FOR SALE.—A few 60-lb. tins of Michigan's best raspberry extracted honey.
A. G. WOODMAN Co., Grand Rapids, Mich.

FOR SALE.—Fancy white comb honey; also extracted basswood, white clover, alfalfa, and amber honey in barrels or 60-lb. cans.
ROBT. A. HOLEKAMP & SON,
4263 Virginia Avenue, St. Louis, Mo.

FOR SALE.—White comb honey, No. 1, average 23 lbs. to the case of 24 sections, \$3.25 per case; amber, \$2.50. Fancy white extracted in 60-lb. cans, 10 $\frac{1}{2}$ ¢; amber, 9 $\frac{1}{2}$ ¢.
HAROLD HORNOR, Jenkintown, Pa.

FOR SALE.—Choice extracted honey for table use—thick, well-ripened, delicious flavor; color, light amber; remained on hives for months after being sealed over. Price 8 cts. per lb. in 60-lb. cans, two to case. Sample 10 cts.
J. P. MOORE, queen-breeder, Morgan, Ky.

Honey and Wax Wanted.

WANTED.—White ripe extracted honey; will pay cash.
GEO. RAUCH, No. 5343 Hudson Boulevard,
North Bergen, N. J.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

Bee-keepers' Directory.

My late circular on bees and poultry will interest you.
H. G. LARUE, LaRue, O.

ITALIAN queens bred for honey, untested, 75c each.
GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

Bee-keepers' Supply Co., Lincoln, Neb. We buy car lots of Root's goods. Save freight. Write.

ITALIAN QUEENS from imported mothers; red-clover strain, \$1.
A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN QUEENS.—Mott's long-tongued (Imp'd) and goldens. Circular free. E. E. MOTT, Glenwood, Mich.

ITALIANS, CARNIOLANS. No disease. Two-comb-nucleus with queen, \$3.00. A. L. AMOS, Comstock, Neb.

Golden-all-over and red-clover Italian queens; circular ready. W. A. SHUFF, 442 $\frac{1}{2}$ Osage Ave., Phila., Pa.

I club a high-grade Italian queen with GLEANNINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

ITALIAN BEES, queens, honey, and Root's bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York City.

For bee-smoker and honey-knife circular send card to T. F. BINGHAM, Farwell, Mich.

GOLDEN yellow Italian queens—my specialty. Price list free. E. E. LAWRENCE, Doniphan, Mo.

ROOT'S BEE SUPPLIES. Send for catalog. D. COOLEY, Kendall, Mich.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa. Queen-rearing outfits and books: new 40-p. catalog free

Root's bee-supplies at factory prices. *Black Diamond Brand Honey*, and *bee-literature*. Catalog and circulars free. GEO. S. GRAFFAM & BRO., Bangor, Maine.

Have you seen Hand's queen circular? It's an eye-opener. Your address on a postal card will bring it. It will pay you to send for it.
J. E. HAND,
Birmingham, Erie Co., O.

QUEENS.—Improved red-clover Italians, bred for business, June 1 to Nov. 15, untested queens, 60 cts.; select, 75 cts.; tested, \$1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

ANGEL is breeding his Golden beauties and bright three-banded Italian queens, but will not offer any for sale this season, on account of not being at home at all times of the season.
SAMUEL M. ANGEL,
Evansville, Ind.

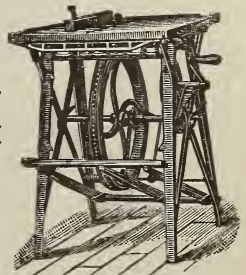
ITALIAN BEES AND QUEENS. I breed three-banded stock only, and use the finest breeding stock to be had. For prices, see display advertising columns in this issue. Send for price list. Twenty-five years' experience.
F. J. WARDELL, Uhrichsville, O.

TENNESSEE QUEENS.—Best that experience can produce. Untested three-band and goldens, \$1.00 each; 6 for \$5.00; 12 for \$9.00. Caucasians and Carniolans, \$1.25 each. Write for circular, order goldens from Ben G. Davis; others from John M. Davis, Spring Hill, Tenn.

BARNES' HAND and FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

MACHINES ON TRIAL
Send for illustrated catalog and prices. Address
W. F. & J. NO. BARNES CO.
545 Ruby Street,
ROCKFORD, ILLINOIS.





HONEY WANTED.

We are in the market for comb honey in Danzenbaker sections, either clover or basswood. Only fancy or A No. 1 grades are required. If you have any on hand which meets these requirements, please communicate at once, stating quantity and price.

CARTONS FOR OUNCE CAKES OF BEESWAX.

We can supply cartons for one-ounce cakes of beeswax, printed with name and address blank, at 35 cts. per 100; 250 for 80 cts.; 500 for \$1.50; 1000 for \$2.75; by mail, 15 cts. per 100 extra. These prices will also include the large carton to contain 32 of the small ones. The complete package weighs 2 lbs., and, when filled, sells to the dealer at \$1.00. They retail the cakes at 5 cts. each. Retinned molds for molding ounce cakes cost 35 cts. per dozen; by mail, 40 cts.; for two-ounce cakes, 40 cts.; by mail, 50. We do not have cartons to fit the two-ounce cakes. To print your name and address on the cartons will add, 250 or less, 50 cts.; 500, 75 cts.; 1000, \$1.00.

THE ALEXANDER BEE-VEIL.

We have secured, for making a bee-veil of wire cloth, a special weave of cloth having 8 meshes to the inch, and No. 32 wire painted black. Ordinary window-screen cloth is of the same size of wire, and 12 to 14 meshes to the inch. This special cloth is, therefore, more transparent, and obstructs the vision less than any other cloth we were ever able to secure. One objection to a veil of this kind is its bulk and the difficulty of transporting it, either by mail or when packed with other goods. We have overcome this one objection by



making it with an open seam from the crown to the bottom of the skirt. Eight small safety-pins are included to pin up this seam when you receive it, or you may prefer to sew it up. The veil is rolled up so as to be placed in a box 3 x 3 x 12 inches so that it can be mailed safely for 12 cents postage, or packed with other goods to go by freight. Price, complete, 60 cts. By mail, 72 cts. Special wire cloth for veil furnished at 6 cts. per foot or piece for a veil at 13 cts.; by mail, 3 cts. a foot extra, or 25 cts. postpaid for a veil-piece 10 x 33 inches, having edges folded ready to sew on the cloth parts.

SIMPLEX HONEY-JARS.

The factory have assured us that we may again secure this popular honey-jar in several sizes, including the one holding one pound of honey. We have ordered a fresh supply, and expect to have them in stock this next month. They will be packed in reshipping-cases of two dozen each, and the price will be \$1.10 per case; 6 cases, \$6.30.

NO. 25 HONEY-JARS.

During the past year we have had an unusual amount of trouble with breakage of this jar, even in the reshipping-cases packed with corrugated paper. The breakage occurred either in the porcelain cap or the top rim of the jar where the cap rests. We find we can get this same jar with lacquered tin cap without the center being cut out. This cap is lined with waxed paper wad, which seals tight on the top edge of the jar. This style of cap not only does away with breakage almost entirely, but enables us to furnish the jar at a



lower price. We are not yet supplied with the new stock, but expect to have them this month at the following price. They will be packed as usual, two dozen in reshipping partitioned cases. No. 25 jars, tin cap lined, 90 cts. per case; 6 cases, \$5.10. We can still furnish from stock the usual style of No. 25 with porcelain caps at \$1.10 per case; 6 cases, \$6.30.

MAPLE SYRUP.

We have a good supply of very choice maple syrup which we can supply at \$1.00 per gal.; 6 gal. at 95c; 20 gal. or over, 90c. Will be pleased to hear from those interested. Maple sugar is not so plentiful, and we can not offer this at less than 15c per lb. for best; 13c for fair to choice.

Special Notices by A. I. Root.

WANTED—SEEDS OF HONEY-PLANTS.

Just now we are sold out of both spider plant and figwort (or Simpson honey-plant). If any of our readers have any seed of the above-named plants that they have saved, and will mail it to us, we shall be very glad to allow them what it is worth.

BASSWOOD-TREES FOR SPRING PLANTING.

I find on my return home from Florida that our people are sold out on basswoods "one foot and under." We are also sold out on every thing more than about 3 ft. high. But we have quite a good supply of little trees from 1 to 3 ft. high. Prices will be, for one tree, 10 cts.; 10 for 50 cts.; 100, \$4.00. These are rather big to send by mail. But we can, however, pick out the smallest ones so the postage will not be so much, and send you ten of these little trees by mail for 50 cents. Better get in your orders at once if you want them, as they will soon be budding out; and they do much better when taken out of the ground before the leaves have made very much of a start.

ANOTHER POULTRY-BOOK.

On p. 527 a new book on poultry is announced; and as some of the claims made for it sound a little extravagant I sent for it while I was in Florida, and read it through twice, and certain parts of it several times. The book is so much in the line of my "nature studies" with poultry during the past two winters that I wrote to the author I should like to make him a visit; and I have to-day, April 9, just returned from that visit. I am satisfied that Mr. Philo has struck on a plan of saving a greater part (and perhaps almost all) of the chickens that die in the shell, even with the best incubators. I am satisfied, too, that he is succeeding with a fireless brooder, even during the winter months. I saw them not only at his place, but at several other places, working with apparent success. His plan of keeping poultry permits them to be kept, even in a crowded town or city, without annoying the neighbors. He seems also to have demonstrated that he gets fully as many eggs by keeping a few hens, say half a dozen, in the little houses he has devised, as where they have unlimited liberty. It is true the book is not a very large one; but the price, \$1.00, includes a year's subscription to the excellent *Poultry Review*. When I first got the book, when I was down in Florida, I sat down and wrote the author as follows:

Friend Philo—I have had your book three days, and have read it through twice and much of it three or four times. The book is all original. Not only every page but almost every line has the stamp of a real practical worker, and of a delver for nature's secrets. It strikes on a hundred points where I have been pushing ahead in the dark—yes, in the dark, for the reason that the multitude of poultry books and journals have scarcely a word to say in the way of helping the explorer; and you have also done more than any other poultry writer, so far as I know, in making chickens attractive, and their care easy for the average boy or girl in towns and cities where room is expensive. The same will apply to poultry for elderly men and women.

Bradentown, Fla., March 10.

A. I. Root.

After looking it over more or less during the past month, and finally paying him a visit, I see no particular reason to change my mind in regard to the book as a system of poultry-keeping.

We expect to give a picture of one of his little poultry-houses in our next issue; and I shall then have something more to say in regard to my visit to his place.

Convention Notices.

Mr. Root.—In the notice sent to GLEANINGS, and published in the March 15th and April 1st issues, the date for the meeting of the Central Tennessee Beekeepers' Association was given as April 25, when it should have been March. The meeting took place on March 28, and I am enclosing a report of same.

The Central Tennessee Beekeepers' Association met at the rooms of the Nashville Board of Trade on March 28, with about twenty members present.

Mr. J. M. Davis read a paper entitled "The Advantages of Associations;" Dr. J. L. Butterworth gave a description and demonstration of the Danzenbaker hive, and the following subjects were presented in an interesting manner: "Moving Bee," by Mr. G. N. McKannon; "Transferring," by Mr. Leslie Martin; "Comb Honey," by J. M. Buchanan.

The old officers were unanimously elected for another year—J. M. Davis, Spring Hill, President; W. M. Joseph, Nashville, Vice-president; J. M. Buchanan, Franklin, Secretary.

It was decided that this Association join the National Bee-keepers' Association in a body.

The date for the regular annual meeting was fixed for the second Saturday in March of each year, after which the association adjourned to meet August 8, at 10 A.M.

J. M. BUCHANAN, Sec.

Franklin, Tenn.

WHAT SHALL BE DONE AT THE NEXT NATIONAL CONVENTION?

We have laid the foundations for the next National convention. We have selected the city (Detroit) in which it is to be held, secured the Wayne Sun Parlor for holding the meeting, and decided on the dates—Oct. 13, 14, 15. We know where and when the convention is to be held, and can begin to lay our plans accordingly.

The next step is the arrangement of a program. Of course, the burden of this work will fall upon the secretary; but he can be greatly assisted, and the convention made vastly better by the help, hints, and suggestions of the members. It is with this end in view that I am going to outline briefly what I have in my own mind; then, as is the case at a convention when a motion is made, we shall have something "to talk to."

I would suggest that the first session he held in the evening, and wholly devoted to a discussion of diseases of bees. I have made application to the authorities at Washington to send a scientist to the meeting, probably Professor White, who can take up the matter from a scientific standpoint, show how these diseases are studied by the use of cultures and illustrate the matter with a stereopticon if possible. Then have some one of the inspectors tell how a practical bee-keeper can detect foul brood. He, too, might use stereopticon pictures in giving his description. Ernest R. Root has promised to furnish the stereopticon, if one is desired. Next, let another inspector give the best methods of treating diseases. Then wind up the evening by a general discussion of the subject.

Another feature that has been suggested to me is that of having at least one *debate* during each of the day sessions. I believe this is something that has never been attempted at any of the meetings of the National. Suppose, for instance, we take up the size of hives. Let us say: "Resolved, That a twelve-frame Langstroth hive-body is more desirable, in the production of extracted honey, than an eight-frame hive-body." Get some experienced, competent man to take the affirmative, and some other equally good man, who believes in the eight-frame hive, to take the negative. Let these men be chosen early in the season, secure their consent thus to enter the arena, then they can have months to prepare for the contest, and we common folks can sit back and enjoy the "feast of reason and the flow of soul."

As a rule, I think that most of our conventions are held down too closely to the steady grind of hard discussion, session after session, from beginning to end of the meeting. I think at least one evening session might be very profitably and pleasantly devoted to something in a lighter vein. I suppose that a banquet followed by responses to toasts would be in this line, but there are objections. First is the cost, which would not be less than \$1.00 a plate. This is not really serious, although there might be some difficulty in determining in advance how many would participate, so that preparations might be made on a

sufficient scale. I may be old-fashioned; but the real objection, in my mind, is the late hour at which we would be compelled to begin our responses. The regular supper would have to be out of the way before the dining-room could be used for spreading the banquet, which would require some little time. If we finished our feast at half-past nine we should be fortunate indeed, and it is likely that midnight would still find most of us out of our beds. To persons accustomed to late hours this would mean nothing; but most of us bee-keepers are plain country folks, accustomed to early hours; and to be up half the night means extreme dullness—possibly a headache the next day. To attend a convention at some distance from home is more or less of a strain at best, and every precaution ought to be taken to see that the members feel just as well and as bright as they possibly can, otherwise there is but little enjoyment. My idea is that we cut out the banquet part—the feast at nine or ten o'clock at night. Just take our usual supper at the usual time, then meet at the usual time, 7:30, or whatever time we think best, and begin at once the responses to toasts or sentiments, finishing up at nine or ten o'clock, then the next day we shall feel as well as ever, ready for business and discussions, and able to enjoy ourselves. I would suggest that eight or ten of our best speakers be chosen, and appropriate topics be selected for each, early in the season, so that there may be plenty of time for preparation and thought. I would announce the topics in advance, also the list of speakers; but I think I would leave it a secret as to which speaker any given topic would be assigned, until the announcement is made by the toastmaster. I think the speeches ought not to exceed ten or fifteen minutes. The right man can say a lot of good things in fifteen minutes.

Another feature, for which I shall put forth my best efforts, is to secure the greatest possible attendance of bee-keepers' wives. It may be just a little out of the line of bee-keeping, but I hope I may be pardoned for saying that, naturally, business takes men out into the world. A man has the incalculable advantage of a great variety of experiences and freshness of view. He is continually coming in contact with new people, new things, and being molded by a vast number of forces which never touch the wife in the quiet home. I believe most women feel this terrible depression of the monotony of their lives, the lack of that stimulus which comes to man from constant change. Let us begin now to plan for the making of a big break in that monotony next October. There is a saying that good works and charity ought to begin at home, so I have secured a promise from Mrs. Hutchinson that she will accompany me to the convention next October. Then I secured a similar promise from my brother's wife. Then I wrote to a few near acquaintances, such as Manager France, President Hilton, Ex-president Aspinwall, and asked them if they would bring their wives, and all replied that they would do so. My friend Muth, of Cincinnati, also writes me that he will bring Mrs. Muth.

I think I would have at least one good essay each session, then the debate, as already mentioned, and finish up with the question-box, which I hope will be contributed to from all over the country by those who are so unfortunate as to be unable to attend.

One other little point: As every thing promises to be on a larger scale than usual, I have already made arrangements for the use of a camera that will take a picture 14 x 17 inches, and I hope to make a group picture that every member will be proud to hang upon the walls of his home. I shall see to it that each person in the group has a number upon the lapel of the coat; and a printed list giving numbers, names, and addresses, will accompany each picture, then all can see who is who.

What I have written gives simply a glimpse of the program in embryo. Nothing is definitely settled. I shall do my utmost to make the convention one of the most enjoyable, the best and most really helpful, that the Association has ever held; and I earnestly request every one who has any interest whatever in the matter to write me a letter full of advice and suggestions. Tell the subjects you would like to have discussed, and the persons you would like to have discuss them. Suggest topics for responses to toasts or sentiments, and the men you would desire to hear respond. Tell me what subjects you would like to hear debated, and the men you would like to hear do the arguing. If I have suggested something that does not please you, let me know, giving reasons why. Take hold right now, and do your share in making the coming convention a grand success.

W. Z. HUTCHINSON, Sec. N. B. K. A.

Mr. Bee-keeper,

Was 1907 a POOR YEAR for you?

It was a GOOD YEAR for users of

DADANTS' FOUNDATION.

One dealer used 14 000 pounds.

Another dealer used 7,250 pounds. Another dealer used 4 500 pounds. Another dealer used 4,500 pounds.
Another dealer used 6,000 pounds. Another dealer used 4,500 pounds. Another dealer used 3,000 pounds.

Thousands of pounds sold to the bee-keeper direct, or worked up for him out of his beeswax.

The DEALER likes DADANT'S FOUNDATION because the bee-keeper likes it.

The bee-keeper likes it because his BEES like it.

The BEES like it because it is exactly like their own comb, so PURE and SWEET and CLEAN.

DADANT'S FOUNDATION is the Standard because it is the BEST.

Wax worked into foundation.

Send for our Supply Catalog.

DADANT & SONS, HAMILTON, ILL.

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Every thing you want; all made by us
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LOWEST PRICES.

The American Bee-keeper (published 17 years), a monthly at 50 cts.
a year. Sample copy and illustrated catalog and price list free. Address

W. T. FALCONER MFG. CO.

DEPARTMENT G, :: :: :: :: :: :: :: JAMESTOWN, N. Y.



ARE THEY WORTH SAVING?

Mr. Haviland Saves 28 Chicks in One Hatch.

Fully one-third of all the chickens ready to hatch die in the shell. After 30 years' study and practice we have discovered a simple way to save every chick that is fully developed and ready to hatch, whether the egg is pipped or not. This, we believe, is one of the lost arts of the ancient Egyptians. It takes but a minute to save a chick, and no skill required. Note Mr. Haviland's success:

Dear Sirs:— Brookville, Md., Feb. 27, 1908.
I received my copy of the Philo System at noon, the last

hour of the 21st day for my incubator, containing 172 fertile eggs. About 100 were out of the shell and about 30 of the remainder were still alive, some pipped. According to directions with our hot-air machine these were worthless. We immediately proceeded according to "A Trick of the Trade" in your book and hatched them all, even one that showed signs of life after laying in a garbage-pail for some time. We still have 128 chicks three days old; lost but two. Many of the eggs were three or four weeks old when set.

Respectfully,
E. W. HAVILAND.

\$200 IN SIX MONTHS FROM 20 HENS

To the average poultryman that would seem impossible, and when we tell you that we have actually done a \$500.00 poultry business with 20 hens on a corner in the city garden, 30 feet wide by 40 feet long, we are simply stating facts. It would not be possible to get such returns by any of the systems of poultry-keeping recommended and practiced by the American people, still it is an easy matter when the new PHILO SYSTEM is adopted.

The Philo System is Unlike all other Ways of Keeping Poultry

and in many respects is just the reverse, accomplishing things in poultry work that have always been considered impossible, and getting unheard-of results that are hard to believe without seeing; however, the facts remain the same and we can prove to you every word of the above statement.

The New System Covers all Branches of the Work Necessary for Success

from selecting the breeders to marketing the product. It tells how to get eggs that will hatch, how to hatch nearly every egg, and how to raise nearly all the chicks hatched. It gives complete plans in detail how to make every thing necessary to run the business, and at less than half the cost required to handle the poultry business in any other manner. There is nothing complicated about the work, and any man or woman that can handle a saw and hammer can do the work.

Two-pound Broilers in Eight Weeks

are raised in a space of less than a square foot to the broiler without any loss, and the broilers are of the very best quality, bringing here three cents per pound above the highest market price.

Our Six Months' Old Pullets are Laying at the Rate of 24 Eggs Each Per Month

in a space of two square feet for each. No green cut bone of any description is fed, and the food used is inexpensive as compared with food others are using.

Our new book, the Philo System of Progressive Poultry Keeping, gives full particulars regarding these wonderful discoveries with simple, easy-to-understand directions that

are right to the point, and 15 pages of illustrations showing all branches of the work from start to finish.

Our New Brooder Saves Two Cents on Each Chicken

No lamp required. No danger of chilling, overheating, or burning up the chickens as with brooders using lamps or any kind of fire. They also keep all lice off the chickens automatically, or kill any that may be on when placed in the brooder. Our book gives full plans and the right to make and use them. One can be easily made in an hour at a cost of 25 to 50 cents.

Dear Sir:— River Falls, Wis., March 16, 1908.
I am well pleased with your system in poultry-keeping. We have more than doubled our egg production.

Yours truly,
J. C. THAYER.

Gentlemen:— Ligonier, Ind., Jan. 24, 1908.
Some time ago I ordered your book, Philo System, and your paper. Want to say I am highly pleased with them. Never in my life have I received so much for so little money. It is a very comprehensive treatise indeed. Your methods are so simple that a child might follow them.

Yours truly,
J. BERT MCCONNELL

Gentlemen:— R. F. D. 1, Melrose Park, Ill.
Your publication, the Philo System, at hand, and, after careful comparison, must say that without doubt or hesitation that more boiled-down, good common sense and natural facts and instruction are condensed in the pages of your book than in all I have tried (to learn) and read the date.

Yours with best wishes,
GEO. A. WOLFF.

Dear Sir:— Cincinnati, O., March 3, 1908.
Your book came to hand and I must say I am very much pleased with it. It is far the best book I have seen on poultry. The ideas set forth in the book, which are the results of your experimenting, certainly show that you are a little in advance of others in this work.

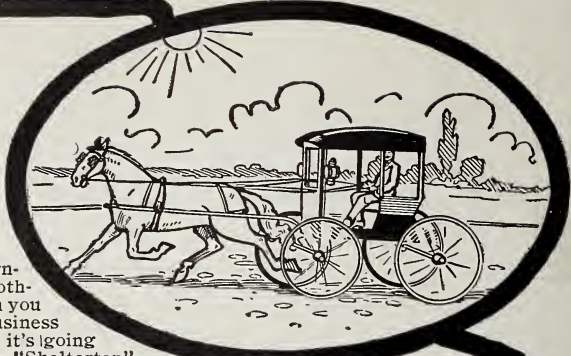
I have built several of the brooders as described by Mr. Philo, and at present time have young chicks, a week old, outdoors, healthy and strong, without being warmed by any artificial heat.

Yours respectfully,
WILSON BROOKS.

SPECIAL INTRODUCTION OFFER. We will send the book and right to use all patents and one year's subscription to Poultry Review for \$1.00.

POULTRY REVIEW, 23 Third Street, ELMIRA, NEW YORK.

SHELTER FROM SUN OR STORM



There's a certain satisfaction in owning a "Shelertop" Buggy that no other buggy can supply. Why? When you start out for a drive, or on a long business trip, you know for a certainty that it's going to be pleasant. In hot weather the "Shelertop" protects you from the sun's sweltering rays. If a storm or a sudden squall comes up, simply close the buggy and ride dry and comfortable. No ifs or ands or maybes about it—you cannot forget to take along the side curtains, or the storm front, because they are a part of the "Shelertop"—out of sight when not in use—handy to get in position when needed.



THE "SHELTERTOP" BUGGY

THE
ONE BUGGY
FOR ALL
WEATHERS

Three simple one-hand movements—done in three seconds—without leaving seat, stopping horse or dropping the lines, shuts the "Shelertop" up so tight a drop of water cannot get inside the buggy no matter how hard it rains or the wind blows. Changed instantly from a handsome, fair-weather buggy to a cosy shelter from wind, rain, dust and mud. The only real improvement in buggies since the days of the Deacon's Old One-Horse Shay. Constructed from the best materials money can buy, in a factory especially equipped with the latest machinery, by skilled buggy builders. Handsomely finished, and sold on **30 days' free trial** before you pay us a cent. We ship the buggy and allow you to try it—we want you to use it just as if it were yours —we want you to ride in it in all kinds of weather, and convince yourself that it is the buggy to buy. While



you are buying a buggy you might as well get the best. The protection you can get only in the "Shelertop" Buggy alone is worth every dollar the buggy costs. Write to-day for catalog describing the construction of all parts of the vehicle, and be sure to ask for our **free trial plan**. Don't buy a buggy until you get the catalog and this information. Address.

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