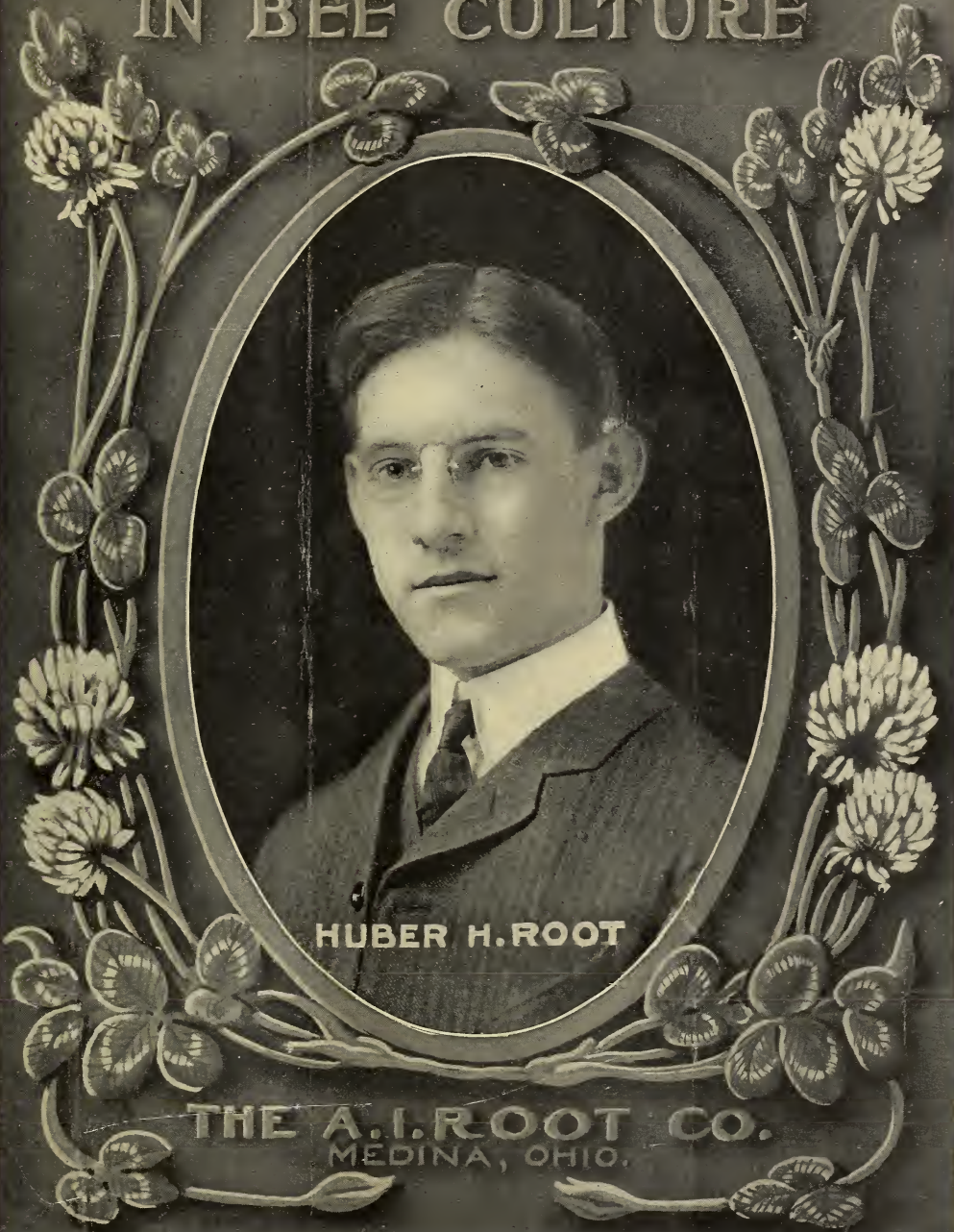


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GLEANINGS IN BEE CULTURE



HUBER H. ROOT

THE A. I. ROOT CO.
MEDINA, OHIO.

Western Edition

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

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will find Dallas the best point from which to purchase supplies. We have a carload of ROOT'S GOODS in stock, and sell them at Factory Prices. Don't forget that we can furnish anything in the way of field or garden seeds, plants, and poultry supplies. Large illustrated catalog for 1906 free on application. Mention *Gleanings* when you write. Wish to purchase Beeswax.

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Seed and Floral Co.
Dallas, Tex.

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Springfield, Mo.

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First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's *better* in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you supplies with the utmost promptness.

Then, too, I have installed a complete Weed-Process Foundation factory. I can turn out 500-lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when at San Antonio. You are *always* welcome. I have fitted up my office with plenty of desks and chairs, with writing material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

After the 15th or 20th of April I can supply Red-clover and Golden Italian queens promptly.

I am now paying 25c cash and 28c in trade for average clean beeswax delivered here.

Call or Address

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1322 South Flores Street

C. H. W. Weber,

Headquarters for

Bee - Supplies.

Distributor of Root's Goods Exclusively, at Root's Factory Prices.

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be 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 cell, 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 straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 2.—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. 3.—Three-fourths of the total surface must be filled and sealed.

No. 4.—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.

PHILADELPHIA.—The season now is so far advanced that there is very little call for comb honey; not enough sales to fix a price. Some little odd lots parties are selling at the best off they can get. Extracted honey for fancy grades is also low. Medium and low grades are in abundance. We quote: Fancy white, 7 to 8; amber, 6 to 7; dark, 5 to 6. We are producers of honey, and do not handle on commission. WM. A. SELSER, April 23. 10 Vine St., Philadelphia, Pa.

DENVER.—Market on choice white comb honey is active; off grades and partly candied not wanted. We quote the following prices: Strictly No. 1 white, per case of 24 sections, \$3.30; off grades No. 1, \$3.00; No. 2 and partly candied, \$2.40 per case. Extracted, 6½ to 7 per lb. We are in the market for beeswax at 24c, delivered here, for average yellow wax.

THE COLORADO HONEY-PRODUCERS' ASS'N, April 21. Denver, Colo.

CHICAGO.—There is very little comb honey on the market and, as usual at this season of the year, the demand is very limited. There is no change in the prices obtainable from recent quotations. Choice white comb will bring 15c when wanted; other grades are of uncertain value, ranging from 10 to 14c per lb. Choice white extracted, 6½ to 7; amber grades, 5½ to 6½. Beeswax, 30. R. A. BURNETT & Co., April 20. 199 South Water St., Chicago, Ill.

TORONTO.—Honey about all sold; very little extracted left; has not been sold so close for some time. Comb honey has not all gone yet. The demand for extracted honey has been better than usual this winter, while comb honey with us has been a little slower. Bees came through outside in fine shape. They are now busy on the maples. Lots of young bees are flying. Toronto, Ont. E. GRAINGER & Co.

TOLEDO.—The market on comb honey at this writing is rather quiet; very little demand for comb or extracted honey. The price ranges about the same as last quotations. Fancy white comb would bring 15 and 16; No. 1, 14; extracted in barrels, 6½; amber, 5 to 5¼. Beeswax, 28 and 30. GRIGGS BROS., 521 Monroe St. Toledo, Ohio. April 20.

KANSAS CITY.—Receipts of comb honey are light, as is also the demand on comb and extracted. We quote fancy white 24-section cases comb honey at \$3.00 to \$3.25; No. 2, \$2.75. Extracted, amber, 5 to 5½; white, 6 to 6½. Beeswax, 25c. April 21. C. C. CLEMONS & Co., Kansas City, Mo.

ATLANTA.—New honey beginning to move. Demand good at following prices. Fancy, 14 to 15c; A No. 1, 12 to 13. Extracted, white, in barrels, 6½ to 7; amber, 5½ to 6. Beeswax, 28 to 30. JUDSON HEARD & Co., April 21. Atlanta, Ga.

BUFFALO.—Honey is all cleaned up in our market. There has been an advance and a very good demand at the advanced price. It is scarce in the country, and we think it will stay high until next crop is ready for market. We quote: No. 1 to fancy white comb, 15 to 16; No. 2, white comb, 12 to 13; No. 1 buckwheat, comb, 12 to 13; No. 2 buckwheat, comb, 11 to 12; white-clover extracted, 8½ to 9; amber extracted, 7 to 7½; dark extracted, 6 to 7. Beeswax, 30 to 32. W. C. TOWNSEND, Buffalo, N. Y. April 20.

ST. LOUIS.—There is no change in our honey business. The market drags along slowly at quotations same as last. We quote fancy white comb honey, 13 to 14; No. 1 at 12 to 13; amber, nominal at 11 to 12; there is, however, none of the latter description on the market. Extracted California light amber, 6 to 6½; Spanish needle, 6½ to 7; Southern, in barrels, 4¼ to 4½; in cases, 5 to 5½. Beeswax, 30 to 30½. R. HARTMANN & Co., April 20. 14 So. Second St., St. Louis, Mo.

CINCINNATI.—There is no material change in the honey market since our last report. The demand does not come up to expectations, which, in all probability, is due to the inclement weather of the past month. Continue to quote amber in barrels at 5¼ to 6½. Fancy white extracted, in crates of two 60-lb. cans, at 6½ to 8½. For choice yellow beeswax we are paying 30 cts. per lb. delivered here. THE FRED W. MUTH CO., April 20. 51 Walnut St., Cincinnati, O.

NEW YORK.—Demand for comb honey is fair, especially for the better grades, and fancy white is selling at from 14 to 15; No. 1 at 13; light amber at 11 to 12. No more demand for dark comb honey. Extracted is in good demand, mostly California, at unchanged prices. Beeswax is firm at 29 to 31, according to quality. HILDRETH & SEGELKEN, 82 Murray St., New York. April 20.

BEE-SUPPLIES!

We handle the finest bee-supplies, made by the W. T. FALCONER MFG. Co., Jamestown, N. Y. Big Discounts on early orders. Let us figure with you on your wants.

MUTH SPECIAL DOVETAIL HIVES have a honey-board, warp-proof cover and bottom-board. Think of it. Same price as regular styles. Send for catalog.

The Fred W. Muth Company, Cincinnati, Ohio
51 Walnut Street

FOR SALE.—Thirty 5 gallon cans of clover honey. Single can, 7½ cts. per lb.; two or more at 7 cts.
C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.
O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

FOR SALE.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.
HILDRETH & SEGELKEN, 82 Murray St., N. Y. City.

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

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.
GRIGGS BROS., Toledo, Ohio.

WANTED.—Comb and extracted honey. State quality, quantity, and price.
JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—Carlot or less quantity of fancy comb honey, also extracted basswood or white clover.
E. R. PAHL & Co.,
Broadway and Detroit St., Milwaukee, Wis.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.
EVANS & TURNER, Columbus, Ohio.

WANTED.—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.
THE A. I. ROOT CO., Medina, Ohio.

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A GOLD MEDAL
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CLEANEST.**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

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I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best. N. E. FRANCE, Platteville, Wis.

SURPASSES ALL OTHERS.—"After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."
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Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

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**WE ARE HEADQUARTERS FOR THE
ALBINO BEES,**

the best in the world. If you are looking for the bee that will gather the most honey, and is the gentlest of all bees in handling, buy the Albino. I also furnish the Italian, but orders stand fifty to one in favor of the Albino.

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POULTRY SUCCESS CO., Springfield, Ohio.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

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Asst. Editor

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The April issue contains an illustration of his hive, and the arrangement whereby he can detect the build-

ing of cells. Not only does the inventor, Mr. Olmstead, show how he can detect the building of cells, but he explains how he has carried his plans still further, and is now able to rear a queen, have her fertilized, and take the place of the old queen, thereby preventing swarming, all without removing the supers, or opening or disturbing the brood-nest.

Send ten cents for this issue of the REVIEW, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, Flint, Mich.

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to win a prize by doing a little work in
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Last contest EVERY contestant that sent in more than ONE subscription obtained a prize. It will doubtless be so in this contest, so that besides the regular commission you will receive a prize that will more than pay any effort made.

Twenty-five Prizes!

(Variety of queen to be winner's selection)

First Prize \$10.00 queen
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Third Prize 5.00 queen

Fourth Prize 3.00 queen
Fifth Prize 2.00 queen
6th to 15th Prize..... One cloth-bound A B C
16th to 25th Prizes..... One Junior Corneil smoker

Conditions!

FIRST.—That subscriptions to be entered in this contest are to be obtained as results of work between February 15 and July 1, 1906.

SECOND.—To be eligible to any one of the first fifteen prizes, contestant must have at least five yearly subscriptions, or their equivalents, to his credit.

THIRD.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, six months) are equivalent to one year's subscription.

FOURTH.—That subscriptions can be sent in any time, but must be plainly marked "For Second Subscription Contest."

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Gleanings in Bee Culture

Subscription Contest Department.

Date

GLEANINGS IN BEE CULTURE, Medina, Ohio:

Please send agents' terms and enter my name as contestant in Second Subscription Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions and agree to them.

Name

P. O.

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ADVERTISING TALKS

BY THE AD. MAN.

WHERE GLEANINGS GOES.

Our advertisers will be interested to know the field which GLEANINGS enters.

We print below a list of sixty foreign countries where we have subscribers—in addition to every State in the United States, and every Province in Canada. One will readily see that every farming community of the world is represented here.

Any advertiser who realizes the value of foreign trade knows what a desirable and profitable trade this is, and should get in touch with us at once.

GLEANINGS GOES ROUND THE WORLD, AND WE HAVE NO DULL SEASON.

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It is always interesting to feel that your efforts to give satisfaction and full worth to an advertiser, to a customer, or to a friend, are appreciated. Thus we can not refrain from printing an extract from a letter just received:

My first customer came from my ad. in GLEANINGS, and he still orders every season. I have never lost through a customer whom I secured through my GLEANINGS ad. It is a good journal to have about the house, also to advertise in.
E. A. SIMMONS.
Greenville, Ala.

Almost everybody has seen a sectional book-case, and knows how much more convenient this kind of a case is than the old-style cabinet affair.

Perhaps you are in need of a book-case or some other article of furniture. If so, send to the Cleveland Desk Co., Cleveland, Ohio, for their catalogs. Tell what you want a catalog about, and you will receive it free of charge. The Cleveland goods are first-class. They have always satisfied us in our office.

Quite often some of our readers, who recall that Mr. A. I. Root was formerly engaged in the jewelry business, write in for prices and information about watches and jewelry. We no longer handle any thing in this line; but as one of our advertisers, the Joseph Horne Company, Pittsburg, Penn., has a large jewelry department in connection with their department store, we would refer our inquirers to this company. In this number the above company advertise a watch bargain in which you may be interested. We have not had time to send for one of these watches, and to give it a careful examination, but feel safe in saying that it will entirely satisfy you.

The Joseph Horne Company have a reputation for square dealing which must be sustained, and they will treat you squarely. Many attractive articles of jewelry and other lines are shown in their spring catalog, and they invite you to send for it free of charge.

The FARM GATE is a pretty important article. Next to a good fence, come good gates. The gate should be strong, easy to open, and durable.

The Best Gate Company, Shelbyville, Indiana, make a gate which answers these three requirements. If they are so good that one farmer purchased 85 you ought to know about them. Send a postal card for the Best Gate booklet. It will be mailed free of charge.

HAMMOND'S SLUG SHOT is a name familiar to a great many of our readers.

Hammond's Slug Shot Insect-powder is a very effective insecticide. Mr. Hammond has several interesting pamphlets on bugs and blight which he will send to our readers free of charge upon request. Address Hammond's Slug Shot Works, Fishkill-on-Hudson, N. Y.

The More You
Know About
Our Bee
Goods

The More You
Will Wonder
Why in the World
You Have Kept
Bees without Them.

A large stock of Bee-keepers' Supplies are in storage at Syracuse, N. Y., for prompt shipment.

The A. I. Root Co., Syracuse, N. Y.

Root's Goods in Michigan!!

Our prices are identical with those of The Root Co. We carry several carloads their goods in stock—hives, sections, foundation, smokers. Every thing for bees.

We can save you time and freight expense in getting your supplies—and they are Root's goods, too.

The Danz. hive—the comb-honey hive, is one of our specialties. We would like to tell you more about it if you are interested.

If you are just beginning with bees, we would like to mail you our booklet, "Outfits for beginners." Our catalog goes with it.

The goods you want now, you want "in a hurry." For Root's Goods "in a hurry" send to

M. H. HUNT & SON, BELL BRANCH, MICH.

Just Out!!!!**Dr. Miller's****New Edition!****"Forty Years Among the Bees"****What Some Say of "Forty Years"**

The more I read the more I am convinced it is one of the most practical books ever written. There are 101—yes, 1001—little kirks, little tricks of the trade, little ideas, and big ones too, which, while they may be old to some of the veterans, I am of the opinion will prove to be new and useful to the majority of them. The doctor has crowded into it his ripest experience; and not only that, he has drawn from the ideas of others so that we have the very latest and best in the way of practical information from one who has actually spent over "forty years among the bees."—*Gleanings in Bee Culture.*

In this the author goes briefly, but concisely, over his forty years of bee-keeping, for he has really kept bees for over forty years. Not only this, but he gives us a very delightfully written biographical sketch of his boyhood in Pennsylvania; his heroic struggles in securing an education, in which he boarded himself, cutting his weekly expense for board down to only thirty-five cents a week, which so affected his health that he has never fully recovered from it. I found this account of his early life so interesting that I read it aloud to the whole family. Most vividly did it recall my own boyhood days, in which I roamed the forest as free as the wild things in whose lives I became so interested. . . . I feel warranted in saying that it is the masterpiece of the author's over forty years among the bees.—*Bee-keepers' Review.*

AN APPENDIX added to this latest edition brings it right down to date; 344 pages; bound in beautiful cloth, gold lettered.

Price, postpaid, \$1.00; appendix alone, only 10c. (The appendix alone is specially for those who have the former edition, but any one can have it for the 10c, or free with the Weekly AMERICAN BEE JOURNAL for one year at \$1.00.)

We mail the complete book with the Weekly AMERICAN BEE JOURNAL one year—BOTH FOR ONLY \$1.80. Every reader of GLEANINGS should have both Dr. Miller's book and the Weekly Bee Journal. Sample copy of the latter sent free, or a "Trial Trip" of three months (13 copies) for 20c. But you'd better send \$1.80 NOW for the book, and the Bee Journal a whole year. It will pay you to do so

George W. York & Co.
334 Dearborn St., Chicago, Illinois

Now Ready

To book your orders for bees for May and June shipment.

Our New Stock of Goods

has arrived, and we can fill orders for eight and ten frame Dovetailed or Danz. hives and supers, also the new METAL-SPACED HOFFMAN FRAME on short notice.

Send for price list of Bees, Queens, and Hives.

W. W. Cary & Son,
Lyonsville, Mass.

Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

NORTHEASTERN & NEW ENGLAND BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

I. J. STRINGHAM OF 105 PARK PLACE New York

furnishes every thing a bee-keeper uses. Strong colony of bees, with tested Italian queen, in Dov'd hive complete, \$8.75; in a chaff hive, \$9.50. Three-frame nucleus, with Italian queen, \$4.25. Silk-faced bee-veil, 40 cts. postpaid. Italian queens, \$1.00. Catalog of bee-supplies free.

Apiaries, Glen Cove, Long Island.

Hundred Cents on a Dollar is What You Get if You Order Lewis Goods

FRAMES

The frames you sent me were duly received, and they are the best, finest, and nicest frames I have ever had.

H. P. Wilson, Bathgate, N. D.

Received my 100 brood-frames in fine shape, and I am well pleased with them. They are the best I have ever put together.

D. S. Haag, Rock City, Ill.

I find frames, fences, covers, hive bodies and bottoms perfect, and made of the finest lumber I ever saw supplies made of.

D. M. Landenslayer, Mackeyville, Pa.

PROMPTNESS

I would like to thank you for your prompt way of doing business in such a season as this when every one is excited.

E. W. Coe, Aug., 1903, Clarence, Ia.

I wish to acknowledge receipt of the goods ordered from you and thank you for your promptness in sending them.

Claude L. Madison, Alden, Ill.

RESPONSIBILITY

Remembering how well you did with me over 22 years ago on some hives I bought, I hope we may come together again on a small deal.

Leopold Moller, Fremont, Neb.

I thank you for thirty years of friendly dealings.

C. Theilman, Theilman, Minn.

Don't worry about us not handling your goods. I have used and sold your goods for 15 years, and consider them the finest beeware made.

J. Enyhart & Son, McFall, Mo.

I am well pleased with your way of doing business, and satisfied with all goods received from your factory. Can say that they are much better than I can get any place else.

J. F. Nolte, Redfield, Ia.

I received goods o. k. It is a pleasure to deal with a firm like yours

H. Luke, Burlington, Wis.

PACKING

We think your policy of packing goods in first-class shape and a specified number to the crate is a winning card.

The Chas. H. Lilly Co.,
Seattle, Wash.

I consider your freedom from mistakes quite wonderful considering the number and variety of pieces in the various lines of goods you carry.

W. C. Gibson,

National Home, Milwaukee, Wis.

SECTIONS

Received my sections in fine shape and am well pleased with them. They are the best sections I have ever put together.

Arthur Strampe, Paullina, Ia.

I want to say that I consider your make of sections the nearest perfect I have ever had. I have folded packages of 500 without breaking one, and I can not say that of others I have used.

George Brown, Deerfield, Ia.

During the last four years I have bought 10,000 sections from three other firms. Before, I had used yours for several years; but have decided, after a thorough trial, that yours are the best and most perfect sections in every way that I've ever used.

David Foote, Riceville, Ia.

Everybody wants Lewis Sections.

A. W. Swan, Centralia, Kan.

I have used your supplies exclusively for almost 14 years, especially the sections, and I don't want any other kind.

C. H. Harlan, Mora, Minn.

I have received those sections in good shape, and I am well pleased with same. They are all right in every way. I shall recommend your bee-supplies to other bee-keepers. I think you make better goods than any other firm in the world. Accept my thanks.

Geo. B. McDaniels, Grand View, Ia.

HIVES

We note that the Lewis goods for the season of 1906 are finer than ever. Hives and hive parts are without any knots. In fact, they are so nice that we are very much surprised, as we supposed that, as lumber got scarcer and higher, necessarily poorer grades of lumber would have to be used. We are receiving many compliments on the Lewis goods we are shipping out.

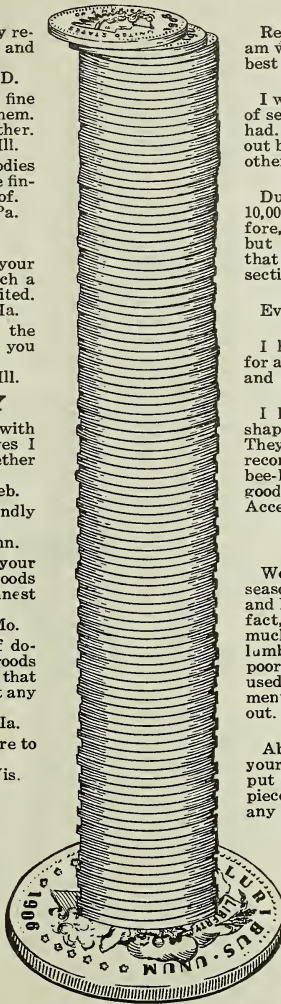
A. G. Woodman Co.,
Grand Rapids, Mich.

About two months ago I bought 25 of your eight-frame Dovetailed hives and I put these together without losing a single piece. I find these hives to be better than any other I have ever used. Although I have a gas-engine and good tools I can buy your hives cheaper, and more accurately made.

E. K. Meredith, Batavia, Ill.

Your hives look as if they had been sandpapered after they are nailed up. I have just finished nailing up 40 two-story hives, and they are as nice as could be.

L. B. Smith, Rescue, Tex.



Extravagance in the Guise of Economy

When you order bee-supplies, don't sit down and write to a dozen or more concerns, pick out the cheapest dealer, order your goods from him, and then think you are being economical. If you do, you only fool yourself. It doesn't pay to buy poor bee-supplies any more than it pays to send for a poor doctor when you are ill. Lewis goods have been on the market thirty years. They ought to be nearly perfect by this time, and so they are. All parts accurately fitted, smoothly planed, going together like the parts of a watch, made of fine, clear, clean white Wisconsin pine and basswood.

G. B. Lewis Co., Watertown, Wis.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

MAY 1, 1906.

No 9



"WE HAVE JUST taken our 240 odd colonies out of our shop bee-cellar," p. 489. What date, please? [April 1.—ED.]

THE CHANGE in making hive-rabbits, shown by R. C. Aikin, p. 500, strengthens "that thin $\frac{3}{8}$ flange," but leaves it still a weak spot. A cleat, reinforcing it the whole length, is the right thing.

J. A. GREEN says elm blossoms before soft maple, p. 496. Here soft maple comes first, sometimes two weeks before elm. But I think I have known the usual order of some honey-plants to be reversed in some years.

THE PLAN given on page 497, of putting frames of brood over sections, has the serious objection in this locality that the sections are more or less darkened. I wonder if Bro. Doolittle has never had any trouble of the kind.

THE PICTURE of J. A. Green's storage-crates, p. 494, doesn't help me to understand what better ventilation they give than T supers piled up. I can't see where there is any chance for more air to get to the sections. Will he please explain?

"THE BEST WAY to get honey out of cap-pings is to let them stand for several days until they can drain dry," p. 517. Quite right; and when the honey stops draining, put them in a damp cellar, and they will drain some more thin stuff to make good vinegar.

QUITE RIGHT you are, Mr. Editor, p. 488, in saying "The use of the wet rag depends largely on the temperature of the atmosphere when the bees are carried out." Let me tell you another thing. If doors and windows have been wide open all night before carrying out, no wet rag will be needed.

IS THERE so much danger after all, from the introduction of Caucasians, even supposing they are poor gatherers? In the average locality will they do any more harm than the blacks or hybrids already there? In any locality, where all black blood has been worked out, there is a bee-keeper that knows his business; he is one, if any, likely to try Caucasians, and he is not likely to let them get beyond control.

"THIS GOING OVER all colonies once every week looking for queen-cells, as many advise, is an endless job," so Bro. Doolittle advises treating all as if they were bent on swarming. Lot of work saved by that. But it has one drawback, at least for me; it gives no chance to spot those colonies that go through the season without any swarming. But perhaps not many will think it worth while to be working toward a non-swarming strain.

MRS. MILLER is asked to pass judgment upon the kind of corpse that A. I. Root has been for the past ten or twelve years, p. 523. It wasn't Mrs. Miller, Bro. A. I., but another inquisitive female who asked that saucy question about your fur cap. But you have full permission from both of them to wear a fur cap, two of 'em if you want to, if you will only keep on being a "lively corpse."

ONE THING not brought out in the discussion between you and Mr. Latham, Mr. Editor, is that location and protection from winds may make an important difference as to size of winter entrances. The entrance to a hive in a location sheltered on all sides

in a region not given to strong winds may be three times as large as that of a hive in a bleak location in a region where winds blow fiercely for hours at a time. [Quite right.—ED.]

I AGREE WITH YOU, I think entirely, Mr. Editor, in your views, p. 488, about getting better stock, unless it be as to increased chances from increased purchases. The chances would be better with 5 queens than with one, and still better with 100; but not by any means 100 times as great. Indeed, with the right care on the part of purchaser and seller the purchase of 100 queens ought not to improve chances 10 per cent over the purchase of one.

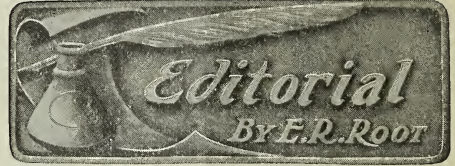
H. H. S. ASKS, p. 507, about drones over excluder, when a weak colony is put over a strong one. Will a colony rear drones so long as it is weak enough to be thus kept over another colony? But in the *American Bee Journal* a man reports using the plan without any excluder at all, and in ten or twelve cases only one queen was lost. Would there be much danger of a queen being killed so long as the cluster in the upper hive did not reach down to the lower cluster?

"LET ALL factory people adopt the plain bar and this method of fastening starters," p. 501. Please don't punish the rest of us, Bro. Aikin, because the groove-and-wedge plan of fastening foundation doesn't work with you. I have never had a failure with it yet, and can work it faster than waxing, although I have waxed thousands of frames. [I do not understand why some of our good bee-keepers are not able to make the double-groove-and-wedge plan of fastening foundation work. Inquiry into the difficulty often reveals the fact that the wedge is not driven *below* the surface of the wood. This is very important.—ED.]

STIMULATIVE FEEDING is, to be sure, practiced in Europe, but it is there called a two-edged sword, and I think I have seen more warnings against it in German than in American bee-journals. [A good deal depends on the locality. One place, as soon as it warms up, will keep warm, while another will warm up to stay that way for a week or ten days, then turn chilly to cold. In such a place a colony that has been induced to rear a lot of brood finds itself at a great disadvantage in taking care of this brood. For this reason, in this locality we do not find it advisable to give artificial substitutes for pollen, such as Indian meal, etc.—ED.]

I WONDER, Mr. Editor, how you got the impression that "the bees did not build over these splints perfectly in all cases," page 487. I am thinking carefully of what I am saying when I say that I do not recall ever seeing a single cell not occupied by brood because of foundation-splints. But truth compels me to say that too many of my combs are not built down perfectly to the bottom-bar because so many of them were built when the bees were half idle, and at such a time the bees enjoy gnawing out a passage-way. [I do not know but we ought to con-

sider the advisability of constructing a machine that will make these splints. The ordinary buzz-saw and table is not suitable for this work, although it *can* make them; but not a few of the splints will shoot down between the saw and the slot in the table, wedging against the saw to the extent that our workmen dislike making them. The saw must be stopped and the splints pulled out. I remember when I was at your place you showed me some very nice combs; but I was under the impression that a few of them were not perfect.—ED.]



It is a good time now to clean out propolis, dead bees, or any mold that may exist, from the bottom-boards of colonies, light or strong. A long-handled scraper with a thin blade on one end can be used to good advantage, even when bees are in the hive, if smoke be used to keep them from "resenting the intrusion."

OUR PENNSYLVANIA ARTICLE.

We had planned for this issue to put in a special Pennsylvania article, but found it would be impossible to do so, owing to the crowded condition of our columns, as noticed elsewhere, and to the lack of some material which has not yet come in. We hope to give this, however, either in the June 1st or 15th issue.

IMPORTANCE OF AMPLE ALIGHTING-BOARDS.

DURING the early spring months it is very important to have either large alighting-boards, or better, perhaps, an inclined runway from the ground up to the entrance, that is free of obstructions. During the chilly days of spring, many bees are lost that might all be saved if they could but crawl into the entrance when they miss the ordinary alighting-board.

E. W. ALEXANDER RAPIDLY IMPROVING.

It was with much regret that we had to chronicle in our last issue the fact that our valued correspondent, Mr. E. W. Alexander, who has given us many helpful hints, was critically ill. We have received two reports from the bedside since then, stating that the danger is past, and that he is rapidly on the mend. He wishes to thank his friends for the sympathetic expressions that have been tendered him during his sickness. Through his wife he reports that he will be able to continue his series. He has some new good things to give, and these will follow in the due course of time.

KNOWING TOO MUCH.

"WHAT'S the use of knowing so much, when so much you know ain't so?" remarked Josh Billings. Perhaps we might vary the question a little by asking, "What's the use of telling so much, when so much you tell ain't so?" Possibly this thought has come to the subscribers of bee-papers after testing some things recommended by editors and correspondents alike.

VENTILATION AND DRYNESS FOR BEE-CELLARS.

THE reports are coming in now at a fairly good rate, proving the value of dryness and pure air, and lots of it, for indoor winter repositories, especially where there is very much variation in temperature. Mr. J. E. Hand, of Birmingham, O., who has just had a very satisfactory experience in his house cellar, says: "Put me down for a warm dry cellar with abundant ventilation."

THE ALEXANDER ARTICLES IN BOOK FORM.

SEVERAL suggestions have come in of late to the effect that we have the entire series of Alexander articles put into book form. We should like to have postal-card votes on this point, from our subscribers. If we can have a sufficient call we will have them put into permanent form for easy reference on your library shelves. Some of our subscribers have said that some single articles from Mr. Alexander have saved them the price of a year's subscription to GLEANINGS many times over.

UNITING WEAK COLONIES WITH STRONG ONES
A LA ALEXANDER.

WE have received quite a number of favorable reports indorsing the Alexander method of uniting a weak colony, with its queen, to a strong colony with its queen. Among the number is Mr. J. E. Hand, of Birmingham, Ohio—a practical bee-keeper who writes as follows:

I heartily indorse what Mr. Alexander says, p. 354, about uniting weak colonies with strong ones, preserving both queens. It simply means one strong colony with two laying queens. It does away entirely with all weak colonies in the spring—no robbing out of weak colonies. It is a system for which my shallow sectional brood-chambers are especially adapted. I had 40 colonies last spring, with two queens in each, laying right along, and they built up very rapidly. J. E. HAND.
Birmingham, Ohio.

TWO QUEENS TO A HIVE FOR REARING BROOD.

MR. E. W. ALEXANDER, in our last issue, and Mr. A. K. Ferris, in this number, both describe two different methods for getting a large amount of brood by combining the forces of two colonies and the egg-laying capacity of two queens all in one big colony. That is to say, they both utilize, by two entirely different methods, the heat of two clusters and the capacity of two queens in such a way as to secure powerful colonies for the harvest when it comes on. Both of these methods should receive the thoughtful consideration of our subscribers. We should be pleased to have reports later on.

DEATH OF J. M. HAMBAUGH.

WE are very sorry to announce the death of J. M. Hambaugh, late a director of the National Bee-keepers' Association, as a result of cancer on the neck.

Mr. Hambaugh was the inventor of the Hambaugh roller for fastening foundation to the top-bar, and a user and an admirer of the Dadant-Quinby hive. He was for two terms Representative in the Illinois legislature, during which time he left the strong impress of his personality on the records of that body. He was quite extensively engaged in bee-keeping, being an old neighbor of the Dadants. Ill health caused him to migrate to California, where he has resided for the last ten years.

He was a man of marked ability, successful as a bee-keeper, and influential in every circle in which he moved. The bee-keeping fraternity will miss a strong man by his death.

CONVENTION AND OTHER MATTER CROWDED
OUT AND AWAITING PUBLICATION.

NOTWITHSTANDING our journal has been nearly doubled in size by additional matter, we have on hand enough good material to fill up three or four issues. It begins to look as if we should have to get out one or two double numbers. These will be larger than any thing we have ever gotten out before. Owing to this congestion we have not been able to publish a lot of good matter for weeks and sometimes months after it has been sent in. The Hershiser and Dr. Miller articles in this issue bear evidence on this point.

For a like reason we have not been able to publish any convention matter, notwithstanding the editor and his assistant have taken notes at the late meetings in the expectation of placing them in these columns. But in justice to writers who sent in communications several months ago, we consider it our duty to give place to these, rather than to some new editorial matter gathered by our editorial staff. It will only be possible to say that the Pennsylvania State and Northern Michigan conventions were not only enthusiastic but successful meetings. At some later time we may be able to give a *resume* of some valuable papers and talks. As it is we have had on hand a full report of one convention for months, and at this rate it may never be published.

OUTDOOR FEEDING.

THOSE interested in this subject will do well to read carefully what Louis Scholl, of Texas, has to say on this subject in the last issue, p. 493. The feeder described seems to be so arranged that bees will not have an opportunity to struggle against each other, otherwise they will wear themselves out prematurely in "scrapping" over the feed. The feeder recommended by Mr. Scholl is 16 feet long. This would make, approximately, a line of bees 33 feet long by about one inch wide. It will take a large number of bees to

cover this feeding-line so completely that it would make it unnecessary for them to struggle against each other. The larger the apiary, the longer, or perhaps more feeders of the kind should be used. At our home yard I should estimate that it would require some three or four such feeders.

But for queen-rearing purposes, and especially where I did not care to fill up the hives for winter, but only desired to keep the bees out of mischief—those bees that are inclined to poke their noses into every thing when a hive is opened, greatly to the annoyance of the bees of the colony or the operator—I should prefer the elevated square can with holes punched in the top. Three or four of these cans will keep all of these stray stragglers busy, and yet there will not be any considerable quantity of syrup fed, because of the fact that it takes these busybodies a long time to get their honey-sacs filled.

I particularly indorse Mr. Scholl's statement that the outdoor feeder should be located remote from the bee-yard. First, I would locate the feeder close to the yard, then when the bees got well started I would move it slowly to a distance of perhaps a quarter of a mile.

COMB-HONEY CANARDS NOT DEAD YET.

THE comb-honey canards continually bob up here and there to disturb the general public mind concerning the genuineness of all comb honey. As I have said repeatedly I say again, I hope our subscribers will either go personally or write to the offending publisher, as a statement from a local bee-keeper will have much more weight than a letter from a manufacturer of bee-keepers' supplies. Some of these publishers imagine that we bee editors and supply-makers are in collusion with the so-called manufacturers of comb honey, and are trying to cover up the fact, and for that reason they take our statement with a grain of salt. We shall, of course, be glad to be advised of any published statement touching on the defamations of the honey business. But the first thing to do is to follow the case up yourself immediately.

PROSPECTS FOR THE COMING SEASON; PRICES ON HONEY FOR 1906.

THE past winter has not been a severe one on bees, taking the country as a whole. Some particular sections have lost heavily; but as a rule there have been no great losses, although the aggregate of colonies that came through will be somewhat lighter in strength owing to the severe March weather that prevailed throughout the northern belt of States. April opened up well everywhere. Brood-rearing, so far as we can ascertain, has progressed finely, and indications are that bees will more than make up for their setback in March. In fact, it has been one of the prettiest Aprils in our locality that we have ever had.

So far as reported, the prospects in Southern California are good, there having been

good rains. In the central part of that great State conditions are likewise favorable although it seldom has a failure.

The prospects for clover and basswood in the Northern States were never better. The warm winter, the large amount of precipitation, and the heavy snows in March, have given the young clovers a great boost.

Prices on honey for this season ought to rule strong, however, even if we do get a good crop of clover and basswood, for we have indisputable evidence now that the year 1905 was about the poorest one for honey on record both for Eastern and Western honey as well. Indeed, we happen to know that one buyer actually cornered the market on Western honey. Save one or two stray cars, he bought all there was in sight. There never was a year before when that would have been possible. This honey has all been disposed of, and the markets are in fine condition for the new crop.

If bee-keepers everywhere will keep up prices, or, I may say, if they will take a bee-journal and know the ruling prices, the market would not be depressed by some small producers dumping in little dabs here and there in quantities just sufficient to create a downward tendency in prices.

It may seem like a selfish suggestion, but it is nevertheless true that those who do take a bee-paper should urge all others in the business to do likewise, if for nothing more than simply to be in touch with the great market centers.

SMALL RETAIL HONEY-PACKAGES.

OUR advertising man, Mr. T. P. Hallock, recently called on Mr. O. L. Hershiser, in Buffalo, and at that time Mr. Hershiser fully explained his method of selling his honey. Mr. Hallock, after returning, read Mr. Hershiser's article and desires to add the following:

What Mr. Hershiser says on p. 575 should be carefully noted by every bee-keeper who is looking for help in solving the marketing problem. This plan of putting up honey in a package just large enough for consumption at one meal by the average family is quite a business scheme. Some people are afraid to have honey two meals in succession, and yet always keep a little of it in the house. By putting it up as Mr. Hershiser does, the consumer must buy immediately after he has eaten. The packer's label and style of jar will be fresh in his mind, and thus the packer will be benefited. There is a good sound business reason in this plan, and it will be worth looking into for you.

THE editor has been "playing with" an incubator. Chickens? Yes, I've got 'em, and some "experience" besides. If I had room I'd tell about it.

SAVE THE STEPS.

IN this issue, in Mr. Doolittle's series of special articles, you will note that he has a definite plan, and every thing has been thought out with the view of *saving steps and time*. Note exactly how he maneuvers in even so comparatively unimportant a matter as mowing grass in the bee-yard. You will see by the diagram in his article how he plans to save steps.

Over and over again we find that there is a great difference in our employees. One will make an intelligent co-operation between his head and hands and feet. Another will make his hands and his feet work like an automaton, without any idea of how those important members may work to the best advantage. It is needless to say, that the one does or will command more wages than the other.

Even when working for yourself, it is just as much if not more important that you plan to save useless walking and useless movements, that you may be able to get the very utmost out of your muscles that are perfectly willing to do your bidding, and can do your bidding better if you plan to economize the reserve force in your body tissue. A workman who is all jaded out at the close of the day's work is not half the man of him who has planned to save his physical self.

That reminds me that it is good economy to sit down when working over a hive whenever you can. This relieves the strain on the legs, and you can do as much work, and more too, by taking it easy. In short, let one part of yourself rest while the other works.

DENATURED ALCOHOL; AN EFFORT TO REMOVE THE GOVERNMENT TAX FROM THE SAME.

OUR readers are, perhaps, aware that an effort is now being made to remove the internal-revenue tax from denatured alcohol. This product, like wood alcohol, is undrinkable, and therefore its use in the arts would in nowise increase drunkenness. It has been estimated that this alcohol could be put on the market in competition with gasoline to produce light, run gas-engines, and heat stoves for cooking. In some respects it is very much superior to gasoline.

"But," you inquire, "what has this to do with bee-keeping?" A good deal. A large proportion of our honey-producers are also tillers of the soil. There is a large amount of unsalable farm produce which could be converted into denatured alcohol, giving the farmer an outlet at a good price for what now goes on the compost-heap, or does worse — is allowed to rot in the fields or orchard, an unsightly mess and a menace to man and beast alike. But this is not all. A good deal of the unsalable honey, partially fermented, could be used for making this new fuel.

It is estimated that this new product could be sold for 12 or 15 cents per gallon, and thus compete with gasoline. Whether true or not, we have been told that the gasoline interests are leaving no stone unturned to prevent action on the part of Congress in removing this internal-revenue tax.

Our readers are requested to write to their Senators (the House has already passed the measure) asking them to vote to remove this tax from denatured alcohol.

Farmers especially, as well as bee-keepers, should fire in the letters by the scores and hundreds and thousands. The Senate

may block us in the game; but if it does, it will be only another spoke in the wheel that will ultimately bring us to the time when we can elect our Senators by popular vote, and not by the General Assemblies of the various States, which Assemblies are often controlled by conscienceless bosses.

OUR JUNIOR EDITOR.

OUR readers have already been apprised of the fact that our editorial staff has been increased by the addition of new and younger blood in the person of Huber H. Root, named after the great Huber of a century ago. The younger Huber, like his great namesake, is of an investigating turn of mind, and an enthusiast on bees. He is fresh from college, and now has thrown his whole heart and soul into the general subject of bee-keeping. Like his father, he is a genius in getting up new contrivances. Indeed, several patents and useful inventions used by the Root Co. are the product of the brain of the youngest member of The A. I. Root Co.

Huber now occupies the position of sifting a large part of the copy that we use for GLEANINGS. The rest I pass on myself, preparing all the footnotes and the editorial matter. It goes without saying, that he is lifting a great load from his elder brother, who, 21 years his senior, begins to feel somewhat the wear and tear of years, but who now, by reason of a lifted burden, is able to devote himself with more intelligent care and thought to the work of getting out a larger and better journal and a better A B C of Bee Culture.

The young man knows nothing of this; and if he did, it is doubtful if he would let me tell my whole story. Our printing force has been pledged to secrecy until such a time as this matter goes to press with his picture on the front cover page, when it will be too late to recall it.

I am glad, therefore, to introduce you to him, just as we see him every day. Now that he is happily married, and living in the parental mansion "upstairs," he and his better half have come to be, I hope, permanent fixtures of Rootville and of the GLEANINGS force.

COLONIES RUNNING SHORT OF STORES THIS SPRING; WHAT AND HOW TO FEED.

IF a colony is running short of stores there is nothing *quite* the equal of a comb of sealed honey or sugar syrup, put right down alongside of the brood-nest. Do not make the mistake of putting it down in the center, if there are only three or four combs of brood and bees in the hive. If the colony is strong it may be put anywhere, but preferably in the center.

Again, do not make the mistake of letting a colony run short of stores. If you have no combs of sealed stores, feed with an Alexander or Boardman feeder. Doolittle makes a splendid point when he says that colonies should be "rich in stores" so

the bees will not have to check brood-rearing for fear of running short of honey. But if stores are scanty they will, just as sure as fate, cut down the amount of brood that will be reared, and this is very expensive at this time of the year.

WHERE SHOULD THE ENTRANCE BE FOR COLONIES WINTERED OUTDOORS?

A VERY strange thing occurred in our apiary. We had some colonies in outdoor winter cases. For convenience the entrance was placed clear over to one side, and not in the center as usual. Instead of using two sticks and leaving a space of two or three inches between them we used one long one, or two inches in length less than the inside width of the hive. The entrances of all of these colonies were $\frac{3}{4}$ inch deep, so that the contracted entrances were from 1 to 2 inches by $\frac{3}{4}$. Quite to our surprise we found that a large percentage of these side-entrance colonies were dead; combs were wet and moldy; bees dead, and signs of dysentery. But colonies that had the entrances in the center were in good condition.

When Mr. Vernon Burt was here I called his attention to this. He stated that he too had found by dear experience that colonies with side entrances were liable to die before spring, while those with openings in the center would come out all right.

If any one can give any philosophical reason *why* this should be so, I should like to have him explain. Heretofore we have always wintered with center entrances; consequently this is our first experience with side entrances, and, I may say, it will be our last.

CLOSED-END FRAME COLONIES AND HOW THEY HAVE BUILT UP IN THE SPRING.

It is a very noticeable fact, says our Mr. Pritchard, that the colonies in closed-end frames, even though in single-walled hives, are building up faster and more satisfactorily than those in open-end frames in double-walled chaff hives. This statement is made in the face of the fact that he has been prejudiced against the Danzenbaker hive (in which this frame is used). He has several times begged to be excused from having any thing to do with closed ends; but now unreservedly he gives this testimony in their favor as to their "springing" qualities. A comb-honey producer might well afford to put up with some degree of inconvenience if he can thereby get more brood at the *right time* of the year.

Father Quinby, the pioneer in closed-end frames in this country, and nearly all the original users of such frames, have made this same claim in favor of their brooding value; and, what is more, those same people seldom or never see fit to change to the open-end style. Some of these adherents claim that they can handle just as many bees on the closed ends as on any other style of frame—that it is largely a matter of "know how" and the elimination of old prejudice.

We have had some very flattering reports regarding the building-up qualities of closed-end frames in the spring; but somehow I have been slow to believe that they had any superiority. Our old friend Danzenbaker can well testify to my unbelief; but when the proof of the pudding is seen in our own apiary I may have to give up.

SWARM CONTROL IN THE PRODUCTION OF COMB HONEY AT OUTYARDS.

DURING the twenty years I have been editor of this journal I do not remember the time when there seemed to be so much good matter on the subject of swarm control in the production of comb honey as now. We have already published several articles, and more are to follow.

It has been no great trick to control swarm in the production of *extracted* honey, for practically all that was needed was to give the bees unlimited room in a large hive, or a series of them, one on top of the other. But to control swarming at outyards when running for *comb* honey, aye—that is where we have halted and failed. "Shook swarming," by some of its different methods, has afforded considerable relief, but it has not been altogether satisfactory in some localities and with some bee-keepers. The plan proposed by Mr. G. M. Doolittle, in the series of articles now running, will prove very helpful, I hope, to bee-keepers situated in localities where store combs of honey have been laid aside the summer previous after the main flow.

A UNIQUE PLAN OF SHOOK SWARMING WITHOUT THE "SHOOKING."

The plan proposed by Mr. J. E. Chambers, in this issue, looks as if it might work. It combines the features of shook swarming without the disagreeableness and loss of "shooking" (Dr. Miller will please pardon the expression). Besides that, as Mr. Chamber says, it secures the features of requeening and of swarming automatically into a new brood-nest.

When Mr. Chambers first described this last fall, I really did not catch on to the scheme. In fact, he did not really make it plain as I now look at it; but in the mean time I went back over quite a voluminous private correspondence, gathered up the "missing links" which I did not get hold of in the published article, and welded them all together in the introductory note at the beginning of his article in this issue, p. 582.

I should be glad to have our correspondents test this and report, as there will be time to put it into application, and the expense of applying it will be comparatively light.

A little later on we hope to present some original ideas on swarm control for the production of comb honey at outyards, *whereby as much comb honey as extracted can be secured*. I have seen the manuscript, and am now negotiating with the writer for its use in GLEANINGS.



RAPID INCREASE.

"Good morning, Mr. Doolittle. It is rainy this morning."

"Yes. We are having rain and cloudy weather nearly all the time now — an offset to the clear weather nearly all winter, I suppose. I believe you are from Pennsylvania. How is the weather in your State?"

"We are having a fairly good spring. Have you the bees out of the cellar yet?"

"Only a few colonies we set out the sunny day we had last week, so we could hear their merry hum again. But they have not hummed very much for us, and I am glad no more were put out. This is April 12, and it looks as if it would be very late before we get them out this year."

"You remember you sold me some bees eight or ten years ago, do you not?"

"This is Mrs. Akers, of Johnstown, Pa., is it not?"

"Yes."

"I think I do remember about our correspondence, and sending you some bees. Have you bees now?"

"No. With a large family, so many cares came that I was obliged to give them up; but that dread disease, diphtheria, came and took some of our little ones away, and I, unfortunately, have more time now, so I wished to stock with bees again the combs I have."

"Then you kept the combs?"

"Yes, and have plenty of every thing to stock six hives complete. And I have bought of The A. I. Root Co. a three-frame nucleus with a good queen. Can I stock those six hives with bees from this nucleus by fall?"

"The Roots say in their queen catalog that their three-frame nucleus, properly managed, can be increased to four, five, or even ten full colonies in one year; but I fear that the majority would fail on the 'properly managed' part."

"Well, I want to try it, and came to see you to have you tell me how to do it."

"But it was not I who said it could be done. Would it not have been better for you to have gone to the Roots?"

"I will risk what you tell me, for I had excellent success under your instructions when I had bees before."

"How early do you expect your three-frame nucleus?"

"About the 15th of May."

"That would be in good time for this locality. The first thing to do is to build that nucleus up to a full colony, and with your

combs it should not be a long job, especially if your combs have honey in them. If they do not, you must feed at all times when honey is not coming from the fields."

"Yes, I understand that."

"As soon as your nucleus gets built up to a fair-sized colony, which will be by June 15 to 20, if you are successful, start some queen-cells. You have my queen-book, do you not?"

"Yes."

"Instead of trying to raise the queens in upper stories, as given in the book, as you have only the one colony it will be better to slip a right-sized sheet of queen-excluding metal down in the hive so as to shut off two frames of brood next to one side of the hive from the queen, and raise your queen-cells there. For the few you want, you need only to prepare a few cell-cups, and push these into the comb just above the brood that is in the frames, when the bees will work them just the same as they do when the cups are on bars. In this way you can gain a week or ten days, as the colony need not be so strong as is necessary for rearing queens in upper stories."

"I see, and I thank you for the suggestion."

"I believe you also have one of the big funnels for shaking bees through, and some of the boxes to keep the bees after they are shaken in."

"Yes, I have all those things which you described in GLEANINGS during the past."

"Well, keep close watch of the queen-cells after the expiration of ten days after you started them, and at 10½ to 11½ days you will hear the young queens gnawing at the capping to their cells to get out; and if you hold the cells up before a strong light you will see the queens moving in them before they even commence to bite at their cells. As soon as you see any movement in the cells, get your boxes and funnel (two or three would be all I would try to make at this time), and shake about a pint or quart of bees into each box. If you take the bees from the cell-building combs, they will be more at home in your box than will those from the other combs."

"Why will that be so?"

"Because you are to give these bees one of those cells in which you see the queen moving around, and these bees are expecting that queen more than you are. But don't shake these combs while the cells are on them, for if you do you will be apt to injure the wings of the young queen, especially if you do the work as soon as you see the queens move in their cells."

"Do you think a pint or quart of bees will be enough to establish a colony? Would it not be better to use more?"

"Undoubtedly better for the little colony if we could use more; but not so well for the cell-rearing colony; for this is our principal stock in trade, and we must not do any thing which will reduce this colony too much for its future prosperity."

"Thank you. Having the bees in the box, what next?"

"Take one of the queen-cells in which you see a queen moving about; slip it into a queen-cell protector, close the protector, and by means of a wire hang this protector down in the box so it will come just below the top of the same, having the cell hang point downward. Now provide the little colony with food in some way, and keep them in the box for three days, setting the box in some room which is dark, or nearly so, and which keeps at a temperature of from 60 to 75 degrees."

"Shall I leave the excluder in the old hive all this time?"

"No. I am glad you called my attention to this. When you take the cells out, take out the excluder so the queen can have all the combs again, for we wish her to lay as fast as possible all the while, consistent with our work."

"When the three days are up with the little colonies in the box, what then?"

"A little before sundown go to your colony and select a comb having as little brood in it as any you can find, and one that is in the egg and larva state as far as possible. Put this comb into one of your empty hives, placed where you wish a colony to stand, and put on each side of this comb of brood one of your old combs, having honey in it, if possible. If this is not possible, put in a feeder and feed the little colony, using a dummy or division-board to shut the combs and colony next to one side of the hive. Fix each of your two or three hives in this way, and put combs in the old colony to take the place of those you have taken out. If you alternate these combs with combs of brood you will coax the queen to lay faster."

"Thanks for that suggestion. I might not have thought of it. But what next?"

"Go and get your boxes of bees, and hive one in each hive by dumping them down on the bottom-board of the hive, or any way to get them on the combs you have placed there. I generally arrange so as to dump them next the side they are to occupy, and then draw the combs along the rabbets till they are over the bees. But others hive them the same as they would a swarm. You will have no trouble in this matter, as the three days with their young queen has taken all former notions of their old home from them."

"What next?"

"As soon as the young queens become fertile, coax them along the line of brood-rearing as fast as possible by feeding when no honey is coming in, and by giving combs as needed; or by giving a frame of brood from the old hive, if that can spare it without materially weakening it."

"Yes, but that makes me only four colonies at the most."

"I know; but there is nothing to hinder your going over this same ground again in two or three weeks, if you did not draw too heavily from the old one at first."

"Then you would do that?"

"Certainly. And probably you could make four the next time; and if so, you would have eight colonies in all in the fall, which would use all your combs and some more."

"That is so, and I thank you very much for this talk."

"You are entirely welcome; and should you desire a still greater increase, the series of articles on 'A Year's Work in an Out-apiary,' now running in GLEANINGS, will tell you later on how you can profitably make colonies even as late as September."



THE COLOR QUESTION AND ITS RELATION TO HEAT AND COLD ON HIVES.

On pages 1212 and 1214 of GLEANINGS for 1905 is an exceedingly readable article by Allen Latham on heat radiation of white and black; and while I can not quite agree with him in thinking that there is quite as much virtue in black as he seems to think, I have little doubt that, under proper conditions, it has its uses. It seems quite reasonable to suppose that the color of those animals that have a white coat in winter is quite as much for the purpose of preventing sudden changes of temperature as would result from wearing a dark coat when they would get very warm during the day and again cool down at night, which, continued day after day, would be quite sure to do them harm. While, on the other hand, it might be very beneficial to have our bees warmed up a little in winter so as to dry out the air and combs of the hives and give the bees a chance to change their cluster.

I believe, Mr. Editor, you are quite right in calling attention, on page 85, that, if black can do such good work in keeping a hive cool in summer, it will also keep it cooler in winter when the sun fails to shine on it, which, hereabout, is a good deal of the time. But then, aren't you a little off when you intimate that the color of the snow has any thing to do with its keeping the earth warm? Snow keeps the earth warm because it is very porous and full of air (and air is a poor conductor of heat or cold), the same as leaves, sawdust, or straw, and not because it is white. But it is a good thing the snow is white; for if it were black it would absorb the heat from the sun and soon melt, and then the ground would freeze sure.

Now about the color of hives. Twenty-five years ago I could have told just how they should be painted under any and all circumstances; but now I have somewhat different ideas; for did I not, even with hives painted white, have combs melt down now

and then? but now, with hives of all colors, I do not remember to have had any combs melt down in the hives in twenty years, and most or a majority of my hives are exposed to the sun most of the day. In fact, I have become rather partial to colors. Red seems to absorb heat about as much as black, but rarely seems objectionable; but remember I have heavy double-walled hives almost altogether. These are left packed at the sides during the summer, and during the day absorb a considerable amount of heat, but not so much as to make the brood chamber as hot as in a single-walled hive. As the wall of packing absorbs heat during the day it gives it out during the night to some extent to the brood chamber. I do not even use shade-boards on top of my hives, but instead I raise the roof or cover on one side an inch or so, which seems to answer every purpose. I do not share the feelings of some, that, because bees cluster outside, work inside must be at a standstill. Much of the work of the hive during the honey harvest is reducing the nectar to honey and producing wax, and this work can go on just as well outside the hive as inside. A damp atmosphere often has quite as much to do with bees clustering out as a high temperature.

As to shade for hives, I have hives that scarcely see a ray of sun from January to December, yet they seem to thrive as well as those in the sun. In fact, I have one yard in a pine grove so thick that much of it is always in the shade; but, oh my! didn't they pile in the honey last summer in good weather, and neither shade nor extracting kept them from swarming. So it looks as though I were in favor of hives of color, no shade boards, but shady groves for hives; and really I don't think it makes much difference, where one has double-walled hives well packed between walls; but if I were using single-walled hives I should prefer to have them painted white and use a shade-board, and, perhaps, set them in the sun. Mr. Alexander may be right in preferring no shade-trees for his bees, and thinking the bees do a little better set in the sun; but I know that, personally, I do a great deal better when I can work in the shade of a tree, on an intensely hot July day, when the sun pours down "enough to melt the very stones." A yard of bees sheltered from the wind in extremely hot weather is a pretty hot place, and sometimes I can keep going only by constantly wetting my head in cool water.

DOES A STING PROVE FATAL TO A QUEEN?

Among those very interesting notes from Germany, Dr. Brunnich mentions a worker-bee as being stung by a queen one or more times, and the worker died in a moment, while on the same day he saw a worker sting a virgin queen he had recently given. He actually saw the worker withdraw its sting from the thorax of the queen when it lost the use of the middle left leg. He amputated her useless leg, and afterward she became fertile, and now works in a full colony. These statements bring up some reflections

that are quite new to me. Can a bee be stung, and the sting not prove fatal? or does it always prove fatal to a worker and not always to a queen? Does the greater vitality of the queen enable it many times to overcome the effects of a sting? We all know that there is a great difference in the virulence of the stings of different bees, some affecting us but slightly, while others appear to us as the most concentrated form of poison possible. But it is singular, surely, that the poison should affect only one leg, wholly destroying the use of that member, without doing any other harm, apparently. My attention has been drawn to this subject, more particularly because I have occasionally found queens with one leg defective or useless, and apparently dead, and sometimes the end gone. I have been quite unable to account for it satisfactorily, and never before do I remember seeing the subject mentioned in print. Such defective queens are often fairly prolific, and do good work at egg-laying in spite of their rather awkward locomotion across the combs.

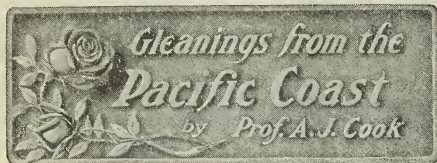
BEEES AND POULTRY.

Considerable interest is manifested in this part of the world in Frank McGlade's somewhat humorous account of his poultry experience. While it shows that the "hen business" was not much of a success with him, it shows even more clearly, that, in order to succeed, one must take a pride in his work and enjoy it. Just look at that photo. Why, he wouldn't be satisfied unless he could have his picture taken with his wife and baby and bee-hives all in one group.

REQUEENING ON A LARGE OR SMALL SCALE.

On page 1139 of GLEANINGS for 1905, Mr. J. N. Cruickshank gives a method of requeening and prevention of increase to those who can be on hand at all times when bees are in the mood for swarming. The method is, briefly, this: Destroy all old queens of first swarms, allowing them to return, and then when they come out again with a young queen destroy all remaining queen-cells, and again return the swarm, when it will be content. This is a very good way when one desires to requeen without any increase, when it works all right. There would likely be but little trouble with a few colonies; but when you try to manage a hundred colonies in one yard in this way your patience will be sorely tried. It is easy to destroy old queens and let first swarms go back the first of the season; but after ten days, when your swarms begin to issue a second time with virgin queens they are quite likely in a large yard to come out at the same time as others with a laying queen, and unite, when the virgin is quite sure to be balled or stung, when the bees will return to their respective hives, or perchance all pile into some one or more hives in a very promiscuous way, only to repeat the circus as long as a virgin queen can be had to cheer them on day after day. It is so uncertain what will happen that I have long since tried to prevent, so far as possible, swarms issuing with virgin queens.

Of course, if they should happen to issue when the air is free from other swarms, all may go well; but if otherwise all may go wrong.



MOTHS AND BUTTERFLIES.

These, the gems of the organic world, are aptly known as *Lepidoptera*, as this word means scale-winged. Indeed, the wondrous beauty of the moth and butterfly depends upon the myriad of tiny scales that cover, as do shingles a roof, the wings and bodies of these "animal flowers." These scales are as varied in pattern as they are beautiful and varied in coloration. They are very delicate and easily rubbed off, and thus we understand why a moth or butterfly loses its beauty when roughly handled or rubbed. A perfect collection of these gems of nature is incomparably beautiful. The mouth-parts of the lepidopteron are fashioned for sipping or sucking; and the tongue, or sucking-tube, which may be nearly obsolete, is, in some of the moths like the "tomato-sphinx," very long. This, when not in use, is closely rolled up, and scarcely visible at all. Of course, these insects all pass through complete transformations as do all the higher orders. The larvæ are known as caterpillars, and are unlike the imago or mature insect, as they have jaws, and eat, as do beetles and locusts. These larvæ have, usually, sixteen legs, the last ten of which are finger-like and without joints. They are known as pro or prop legs. Some moths—one family, *Geometridæ*—have only ten legs, and as these loop or bend up as they walk they are known as "loopers," or measuring-worms. Of course, they are not worms at all, as worms never have any feet, and it were better to call them measuring-caterpillars, as this would be strictly true. Some of these caterpillars—indeed, many of them—are as beautiful as are the moths, and it is a most unfortunate prejudice (shall we say unreasoning abhorrence?) on the part of many that robs them of real pleasure in admiring these exquisite forms of nature's finest handiwork? They may be smooth, or variously decked, and ornamented with fine hairs and spines, often brilliantly colored. In rare cases these spines emit a poison, and so these irritate, much as does the nettle when handled.

All caterpillars, with a few exceptions like the bee-moth and clothes-moth, feed on vegetation, and so all are injurious to our plants; and if the plants are useful, then the caterpillars are injurious to man. Many

of our most destructive insects, like the cabbage-butterfly, the canker-worm, moth, the gypsy and brown-tail moths, belong to this order. As they eat or devour the foliage, they can be poisoned by the use of the arsenites.

If we except the honey-bee, which, in view of its invaluable work of pollinating plants, is the most important of all insects, then we must say that in this order we find the insect that is most valuable to man. Commercially, no insect can at all compare in importance with the silk-moth. The value of the annual silk product, of course, runs away up into the millions of dollars.

The insect that is best known as a universal pest to the bee-industry is the old bee-moth, *Galleria melonella*, the caterpillar of which infests the comb. The wee bee-moth is a much less destructive insect. The informed, cautious bee-keeper dreads not the old bee-moth, as it does serious harm only where ignorance and neglect give it a foothold.

THE GYPSY AND BROWN-TAIL MOTHS.

Of course, all bee-keepers and everybody, the country over, are interested in the fight which now for fifteen years has been carried on in Eastern Massachusetts against the gypsy-moth, and which is now being waged with more energy than ever before against this insect and the equally alarming brown-tail moth. The gypsy-moth is an indiscriminate feeder, and so the great splendid parks and forests, and the so justly famed street-trees of New England, seem doomed unless man's interference puts a stop to the frightful destruction of these two insects. The brown-tail does not feed so generally, but is mostly confined to rosaceous plants like apple, pear, etc., and the oak. It is white, though the abdomen is tipped with red or brown, and hence the name. The female of the gypsy-moth does not fly, while the brown-tail is strong on the wing, so this latter spreads far more rapidly than the other; yet the caterpillar of the gypsy-moth, like canker-worms, has the habit of dropping by a web or silken thread which it spins at will, in the same way that spiders suspend; and, of course, a passing wagon or automobile catches them up, and may hurry them for miles to drop them and their mischief in a new and distant center of invasion and ruin. To-day nearly 30,000 acres of parks and woodlands in Eastern Massachusetts are attacked, nearly half very seriously. Add to this the roadside trees, and we have a picture that may make us tremble. From 1890 to 1900 the great Bay State expended nearly a million dollars fighting the gypsy-moth. She so lessened its ravages that effort ceased until 1904. Now the evil is twice extended, and worse than ever. "Putting the hand to the plow and looking back," was a costly mistake of our hubbitté friends. The brown-tail has now reached about half the State, and has spread to Rhode Island, New Hampshire, and even Maine. As yet the gypsy-moth has reached only Eastern Massachu-

sets and a narrow border of New Hampshire and Rhode Island. Both these moths came from Europe, where they are held in check by parasites, so that only in occasional years do they work serious harm. As I have already explained in GLEANINGS, these parasites are being introduced here in the hope that the devastation may be stayed. In California we have a very effective quarantine, in expert hands, that we may keep such evils from entering our State. Bee-keepers, all of us who love trees and beauty, are tremendously interested in this contest in Massachusetts, and should urge the general government to aid the old Bay State in the fight. It is a matter of vast national importance. We all should also work for more general information and quarantine, that such evils may be kept from coming among us.

Berlin, Prussia.



REARING QUEENS FOR EARLY INCREASE.

How to Utilize Upper Stories and Perforated Zinc for Getting Several Queens Fertilized from One Colony; a Scheme for Getting a Large Amount of Brood; a Valuable and Seasonable Article.

BY E. W. ALEXANDER.

During the past few weeks I have received several letters requesting me to state through GLEANINGS just how we rear our queens so as to have them laying in time to make a large increase early in the season.

First, by way of explanation I will say that, in order to do this, we stimulate our bees by early feeding to early breeding, so we have many strong colonies quite early in the season; and in recommending this I am well aware that some very good bee-keepers prefer to have their colonies only of medium strength until about the commencement of their harvest for surplus. But as we handle our bees quite differently in many ways from some, we try hard to have all the strong full colonies we can as early as possible, and we seldom keep a queen after she is two years old. We supersede them some time during their third summer. This necessitates killing about one third every year.

Now, after taking them from their winter quarters we walk along in front of our hives and count how many we have that are two years old. This is very easily done, for the little tin tag on the front of each hive tells us at a glance the age of the queen in the hive. These colonies we now give especial

attention to, we feed them regularly, and rather more at a time than we do the colonies that have younger queens. We also frequently give them frames of hatching brood from other colonies, and at all times try to keep them as warm as we can. In this way we have no trouble in building them up strong and full of brood early in May; and while we are doing this we insert frames of comb that have some drone comb in near the middle of the two or three hives we wish to rear drones from to mate with our early queens. This should be done about ten days before we start the rearing of queen-cells. Then about May 15 we borrow the bees from several of our strongest colonies for one day to start our queen-cells, as is now practiced by Mr. Pratt, of Swarthmore, Pa., which I consider the finest way to start the rearing of choice queens of any thing I have ever tried, as we have to use these bees only one day, then we can give them their queen and brood, which leaves them in about as good condition as they were in before they were disturbed. When we counted up our old queens we found we had about 200 to be superseded. Now, this will require 400 young queens if we divide each one; then we have about 100 colonies that have younger queens that we wish to divide. They will require 100 more, so we find that we shall need some 500 young queens to make our increase and supersede our old queens. Then we should allow about 50 for those that are lost, so we will start the rearing of about 600 cells. We would much rather have more cells and queens than we can use than to be short only a few. As soon as this is done we go to half the colonies that have two-year-old queens and kill their queens, *also* destroy any eggs or larvæ they may have in any queen-cells. Then we go to the boxes that have our newly started cells in, and take out five or six cells for each colony that has been made queenless. These we insert near the center of their brood, and they will soon build them out into as nice cells as we ever saw. Then about two days before these cells are ready to hatch we kill the remaining old queens; then we tier up with two bives of combs all the queenless colonies we have. But be sure you divide the combs of brood and honey that are in the hive below about equal so each one of the three will have some brood and honey. Then insert one of these nearly ripe queen cells into each one of the hives as they stand on top of each other, and put a queen-excluder between each two hives; also have a separate entrance for each hive that the queen may use when she goes out to mate. You see, aside from the queen the colony has access to each one of the three hives through the excluders. In this way you will soon have three nice young laying queens in nearly every colony that contained your old queens. Then to use up our surplus queen-cells we form nuclei by taking one or two frames of honey or brood and about a quart of bees, and put them into an empty hive, and set them near the hive we take the brood and bees from so as

to give them back to the old colony as soon as the young queen is mated. In this way we have no trouble in rearing and in having fertilized all the young queens we care for to make our increase and supersede all our old queens at the same time.

After you have practiced this method of rearing queens you will have no trouble in having all you want ready to use for early increase some time before there is any harvest of surplus honey in our Northern States.

With us this method of rearing early queens is so easy that we frequently have more than we can use. Sometimes we have 30 or more full colonies in our apiary that contain two or three laying queens each, nearly all summer, until we can find or make a place to use them. They make a fine colony to draw brood from. When there are two or three good queens in a three-story hive the bees all work from one entrance as one colony; for as soon as the young queens commence to lay we close up the entrance that was made for them to fly from, and they all work together.

Some of you may want to know what I would do if my queens were all young and I had none I cared to kill. In that case I would do the same with the colonies as in the case with the old queens, only I would save these younger queens in nuclei until I could use them in making increase.

We manipulate our bees so much through May and June that it is no uncommon thing for us to make 100 or more new colonies, mostly nuclei, to-day, for some special purpose, and then in a few days unite the most of them again with other colonies. We can do this very easily, as we use our common hives and combs for all this work.

In the article I wrote for the Dec. 1st GLEANINGS I made some assertions as to what might be made from 100 colonies in a year providing we gave them the best of care. Since then I have received some letters that show the writers think I am in a tight place, and can not rear the necessary queens in time to make as early increase as I advise. To those doubting Thomases I wish to say that we can rear *twice* as many queens as is necessary to double our colonies before June 10; and I assure you if you handled *your* bees as we sometimes handle ours, all that I have ever claimed *can be done*. Many bee-keepers seem to think that, if they set their bees out of the cellar about April 1, that is all there is to do until they have some swarms and put on their clamps of empty sections. We find about as much to do from the time they are set out up to Aug. 1, when we commence to extract, as we do when we are extracting; and there is no slack time. The bees are kept busy every day, either to rear queens, make increase, form nuclei, draw out foundation, or something that is necessary to be done by them in order to be in proper condition for our August harvest. We usually spend the last week in July uniting all weak colonies and nuclei with stronger swarms so as to have the yard well cleaned up of those that are not in condition to

give us a good surplus. Then we can give all our attention to extracting and caring for our surplus honey.

In conclusion let me assure you that there is not much danger of having your colonies too strong in bees at any time if you will use them as you should, for they are the principal factor in making your business a success. We like them in the spring to rear those nice early queens from. We like them to make our increase from. We like them to get our surplus from. Yes, my friends, and there is a pleasure in putting away good strong full colonies in their winter quarters, as you would put money away in the bank to draw an income from in the future.

Delanson, N. Y.

[I believe I have already stated that, when I was present last summer in Mr. Alexander's yard, he showed me hive after hive where he had two and three queens, all of them doing full service in stacked-up hives. He had no trouble at all from bees killing the queens, and yet all the bees of the colony had access to every brood-chamber, therefore coming in contact with the two or three queens.

Our Delanson friend showed me what a convenience it was to have these stacked-up hives, with queens in reserve that were fresh in their egg-laying, that were not weakened by long journeys in the mails, but were ready to do service in any colony as soon as introduced.

Not every one has been able to make the Pratt cell-starting box, with borrowed bees, a success; but enough have done it to show that it can be done with a great economy of time and bee force. That Mr. Alexander should be one of the first to make the plan a success only goes to show how readily he adapts himself to new ideas.

This whole article is replete with valuable hints; and, coming just at this time, it may be put into application at once.

The reader should not forget that Mr. Alexander's honey harvest really begins about the time that the basswood and clover flows in most northern localities close. He has, therefore, fully a month of time more in which he can get his colonies in shape. This gives him something of an advantage over the majority of bee-keepers in the clover belt. If we could, like him, defer our main honey-flow to the middle of July or the first of August it would be much easier for us to get our bees in shape. But Mr. Alexander explains what can be done up to the 10th of June, which is about the time the main harvest begins in most localities. — Ed.]

SWARMING TIME.

Some General Principles to Think over in Advance.

BY W. R. GILBERT.

Bees up to this time have been kept very closely to their hives since the weather first gave them the opportunity of much-needed

cleansing flights. But, though they have had the opportunity of flying abroad very frequently, they have not, as a consequence of their enforced confinement, been inactive; for if we could see the inside of the hive we should find that the real work of the spring, which is breeding, has been going on uninterrupted.

That will be the condition of things in every hive that is in proper condition as regards the queen, the quantity of bees to support her, and the food supply. Provided all these requirements are granted, the bees will in nowise have suffered through what may appear, to those unversed in bee-lore, enforced idleness.

We shall see, on the first hot day, bees tumbling out of the hives by thousands, and giving evidence of the imminence of swarming time.

Now, the question with most bee-keepers is, how to check the desire bees have to split up by swarming, because, usually, by lessening the numbers in the parent hive, neither stock nor swarm does much honey-storing. The bees do, of course, gather honey; but in one case they have to requeen the hive, or, rather, await the requeening, and mating of the queen, before any more eggs will be deposited in the cells.

From the time the last egg is laid by the queen that accompanies the swarm to the time a bee emerges from a cell in which her successor has deposited an egg, will be a period of about five weeks. If we keep the queen and bees in one hive, the new bees hatching daily more than balance those worn out, and therefore we have a huge colony whose united energies are, to a great extent, directed to the storing of surplus honey.

If swarms leave hives in which supers are progressing it is most annoying, particularly if honey and not increase of stocks is desired. In all such cases the proper course would be to place the swarm in a fresh hive, upon a small number of frames of foundation; give a queen-excluder to confine the queen to the frames, and then remove the supers from the stock, placed in some other part of the garden, and give them to the swarm. By doing this, and setting the swarm on the site occupied by the stock, not only the bees composing the swarm but the flying bees of the stock will unite and make a good working force, because, in the first place, they are mainly honey-gatherers, and, secondly, they have no brood to care for at starting.

The swarm might be thrown down on the ground, and the queen sought for and removed. Being thus rendered queenless they would return to their hive, and for some days swarming would be delayed. As the stock would be queenless the introduction of a young queen and a rearrangement of the brood and surplus chambers might put an end to swarming for the season.

If a swarm is to be treated in an orthodox manner it should be hived on the evening of the day it issues, and given, at starting,

five, six, or more frames according to the size of the swarm.

The question, then, for the bee-keeper will be as to whether he should, for the present, induce the swarm to produce honey in supers or build it up at once into a good-sized stock for a late flow of honey or the next season's work. If it leaves the hives fairly early in the season it might store some surplus, and there would then be time to convert it into a stock of good proportions by the end of the season.

Medicine Hat, Alberta, Canada.

CULTIVATE THE HOME MARKET.

The Best Packages for Extracted Honey at Retail; the Importance of Catering to the Whims of the Consumer Rather than the Convenience of the Producer; a Valuable Article from One who has had a Large Experience in Retailing Honey in Glass.

BY OREL L. HERSHISER.

Unequal distribution is the chief cause of the depression and inactivity of the honey market. Apiarists generally have been engaged chiefly in producing large crops of honey and in studying methods whereby bees may be handled in greater numbers. But if apiculture is to remain a profitable pursuit for the bee-keeper actively engaged in the production of honey, much more attention must be given to the distribution and sale of the product. It is true that bee-keepers producing honey by the carload in remote and sparsely settled parts of the country can dispose of but a very small fraction of their product locally; but it is quite otherwise with the great majority of apiarists residing in the more densely settled parts. This latter class of beekeepers have it within their power to improve market conditions greatly by having their honey exposed for sale in the most attractive, convenient, and salable forms in every store within their reach where table eatables are sold. The result would be that less honey in bulk would find its way into the jobbers' hands; there would be less to offer to wholesale consumers; the prices of bulk honey would be stimulated by a more active demand, resulting in a substantial advance in price; and the apiarists, thus disposing of their product in the markets in their own locality, and those who are remotely located, would be alike greatly benefited.

Careful study, and the exercise of sound judgment as to the most profitable containers to use in marketing honey, will be profitable to many beekeepers. There is a certain special demand for glass bottles and jars made and sold especially for honey-containers. They are required where something unusually attractive is needed for fair and exposition exhibits, and to supply the most exclusive trade in a few large cities, where the matter of five or ten cents additional for a fancy container, which will be thrown away when emptied, is of no conse-

quence to the purchaser. Excepting these special requirements the cheaper we can obtain a neat attractive container of the most approved size—one which, after being emptied, will be useful for some other purpose—the more honey can we sell. Pause a moment. Look over the display of table dainties in any first-class grocery. You will notice that the most expensive fruits and vegetables are put up in the cheapest tin cans that will contain them; jellies in jelly-tumblers of little intrinsic value, and some special delicacies, such as orange marmalade and the like, where less than a pound of the contents costs from 25 to 35 cents or more, put up in stone-jar containers of insignificant expense. The packers of these goods recognize the fact that, as the container will be practically useless when empty, it would be folly to put needless expense into it and thus throw a mighty barrier in their own way, preventing the widest possible distribution and consumption of their product, and, consequently, dwarfing the success of their business.

The apiarist who establishes a honey-route, going over the ground periodically, or sells from door to door, or who has an extensive family trade, can profitably use a few 60-pound cans and a considerable number of tin pails of various sizes holding from 5 to 15 pounds. The objection to the use of these containers is that they are of no special value to the consumer when emptied. If we can relieve the consumer from paying for something he does not want, either directly or indirectly, we have overcome a great obstacle. For the 5-pound parcel the half-gallon Mason jar is preferable, and I am inclined to prefer three of them in place of the one 15 pound pail. The value of the jar is about six cents, which amount, in addition to the value of the honey, the housewife is usually willing to pay, since it is very useful when empty. The only objection to this jar for the family trade is that it is too large for ordinary family use when empty, the one-quart jar finding greater favor for canning, pickling, and preserving of fruits.

Undoubtedly the retail grocery trade sells more extracted honey for table consumption in glass containers holding one pound or less than in any other form. Why is this so? Not because the bee-keeper or packer prefers to put it up in this way; not because the consumer gets it cheaper per pound. There is a deeper and more potent reason which we as bee-keepers will do well to recognize; viz., it is just about the amount of honey a customer wants at one time. Some have said, "Use a larger container; and when a sale has been made, more honey has been sold," but there is a boomerang to that argument, as will appear when you consider the great number who will not purchase at all if the parcel is larger than they desire, or costs more than they care to pay at one time. Moreover, the housewife who purchases a small parcel of good honey will be pleased with the quality, and the whole family will have their appetites whetted for more of

the delicious sweet. Such an amount of honey is consumed by a moderate-sized family at one meal, and there is no daubly sticky mess to set away. The canning-factories and the cereal-manufacturers long ago learned the art of catering to the needs and wants of the consumer by putting the goods up in small parcels that could be sold at a popular price. Wholesale grocers and packing-houses which engage in the business of repacking bulk goods into smaller parcels practice the same thing; and many carloads of good honey find their way into these houses. The bee-keeper might have much of the profit from this repacking of his honey if he would but take a tip from these wholesale concerns, and do the trick himself in the manner demanded by the consumer. These concerns use containers holding less than a pound. It is usually some form of cheap bottle with a cork stopper, this form of container being selected, undoubtedly, because shipping of the goods is necessary, and honey well put up in a cork bottle will not leak. Jelly-tumblers also have been largely used by the wholesale grocers in large cities for local trade.

As the result of my experience in putting up extracted honey for the retail trade, covering a period of more than twenty years, during which time I have used nearly every kind of container recommended for the purpose, both the fancy and expensive styles, and those that are more commonplace, I have adopted a jelly-tumbler holding $\frac{1}{2}$ pound of honey, net. It is technically known as the 6-oz. jelly-tumbler. It is neat and attractive in appearance. It has a plain tin cover. The tumbler without the cover makes a handsome drinking-glass for those not too fastidious, as the top of it shows no special construction for the tin cover, as is the case with some makes of jelly-tumblers. It is, therefore, a useful article in every household. It is cheap, being the least costly per given quantity of honey contained, of any of the glass containers, not excepting the Mason jars, and, what is more to the point, this is a case where the *cheapest is the best*.

Personally I had rather use a larger size tumbler, as it would require less time to put up a given quantity of honey, and there would be a saving in cases and some other ways; but the purchasing public thinks differently. A larger tumbler must be sold for more money or I am the loser. The purchaser is stubborn about this matter of not wanting to pay proportionately for a large-sized parcel, and insists on paying a *popular* price regardless of the fact that, in forcing such a condition upon the party who puts up the goods, he is paying more for a given quantity. Very well; let him have his own way. Let us be meek and not oppose stubbornness with stubbornness. It is idle to argue the matter with him; and if we refrain from doing so we shall have saved some energy with which to extol the excellent quality of the goods. Let him have what he demands, even if it costs him a

little more, and we are no better off for having sold more glass than was necessary to hold a given quantity of honey. We as bee-keepers are entitled to a fair price for our honey; and if the purchaser imposes the obligation of furnishing him a given quantity of glass in order that we may receive such price, let us perform that obligation cheerfully. We are engaged in a noble and honorable occupation; but in reference to putting up honey for sale by the retailer, while we should all practice frugality, we shall be wise if we teach that virtue only incidentally.

The 6 oz. tumbler is readily sold to the grocery trade, either directly or through the jobber, at one dollar per dozen. In some markets it would easily bring more; but *under no circumstances* should it ever be sold for less. To go below that figure is but to demoralize your market and admit that you are "playing horse" with your occupation. Selling at one dollar per dozen the honey will net 12 to 12½ cents per pound, after deducting the cost of the tumblers and the packing-cases; and if a pound of good table honey can not be sold for that price, net, put up in such neat attractive form, the fault lies entirely with the salesman.

There has been one objection to the jelly-tumbler. As commonly used, the honey had an untidy habit of oozing out of the tumbler, the tin cover not having been made for the purpose of a sealer. For this reason it was not suited for shipment; and, furthermore, the tin cover, not fitting tightly enough to exclude the air, the honey would candy. I have overcome both these objections by the use of paraffine paper as an inside lining to the tin cover. This was first suggested and used by my brother, R. Hershiser. This inside lining is made by cutting circular pieces of the paraffine paper, which, when laid on top of the tumbler, projects about ¼ inch all around. A medium flexible quality of the paper is used, folding it so a dozen or more of the paper linings may be cut with the scissors at one operation. After the tumbler is filled, the paper is laid on top and the tin lid pressed down over the paper, thus practically sealing it. The filled tumblers are then subjected to a water bath, raising the temperature until the honey has reached about 135 degrees F. Jelly-tumblers so filled and treated will not leak or candy. I make this statement advisedly, having never had a complaint from either of these causes.

There is just one objection to the Mason jar as a container for supplying the retail trade, and that is a serious one, as above pointed out. It holds too much. The capacity of the pint size is 1½ pounds of honey. These jars cost \$5.75 per gross, or 4.8 cents each. Reckoning the cost of the jars and the packing-cases, the goods will have to sell for \$3.00 per dozen in order that the bee-keeper or packer may realize 12 cents per pound for his honey, no allowance being made for transportation or breakage.

Moreover, I have no hesitancy in estimating that any good jobber or other salesman could easily sell over 25 cases of honey in jelly-tumblers to one in pint Mason jars. This jelly-tumbler is the best seller of any and all containers with which I have had any experience.

The strenuous time of active honey production is yet some months ahead of us. There is no better time of year to consider how *best* to dispose of that forthcoming bounteous honey crop about which we are dreaming. Reflection, *planning, doing*, efforts intelligently and properly directed, as to how every pound of that honey may be made to return to the producer its honest and true equivalent, will yield to the apiarist many an easily earned dollar.

Buffalo, N. Y., Jan. 17.

[As will be seen by the date of this article it should have appeared much earlier; but owing to the fact that our space has been so greatly crowded we have not been able to give it to our readers sooner.

Mr. Hershiser is a man who goes down deep into things; and those who do not know him as a successful bee-keeper and as a first-class salesman should be told that his communication above is well worth a careful reading. Some of the things that he emphasizes have been given before, but not all.

The great bulk of extracted honey that is put up in glass goes mainly into Mason jars and jelly-tumblers, because both of these articles have a value of their own when emptied.

If Mr. Hershiser's method of heating and sealing in these tumblers will prevent granulation, he has given us something that bee-keepers have been looking for for a long time.—Ed.]

PLAIN SECTIONS VS. BEEWAY SECTIONS.

Do the Former Run More Uniform in Weight?
Dr. Miller "Jabs" Back at the Editor.

BY DR. C. C. MILLER.

So you had a chance to "jab" me again, did you, Mr. Editor, page 1306? Before you jab me some more, please give me the floor for a little while. You say, "Comb honey in beeway sections will vary considerably in weight, while that in plain sections will run much more uniform." I think that was never mentioned till Mr. Crane mentioned it in that same article to which your footnote is attached. If there is difference enough to be noticeable, why did no one ever mention it before? Neither is there satisfactory proof in Mr. Crane's case. He has more even sections than formerly, but there may be other reasons than difference in sections.

I've just been measuring and studying over a 1¼ two-beeway section. At top and bottom it measures 1½ wide, not differing from Mr. Crane's plain section. (His two-beeway section seems to have measured 1½, unnecessarily wide.) Keep in mind that Mr. Crane accounts for a difference in re-

sults by the fact that the bees can more readily get at all the edges of the comb in the plain section. At the sides I don't see that there can be any difference in the two kinds of sections, for, although the plain section is narrower, the post of the fence comes in to make one kind of section just as wide as the other so far as concerns the bees getting at the edge of the comb. The only difference, then, is that made by the "naughty corners," and they occupy $\frac{1}{8}$ of the entire contour of the comb. Now, ought there to be so very much difference in results if the bees can get at the edge through-out $\frac{1}{8}$ of the contour?

But I don't see how that can make any difference—that is, any difference in the matter under discussion. Remember that we're not considering whether the bees will do exactly the same work in the two kinds of sections, but whether they will do as even work in one kind as in the other. Admit that the bees don't do the same work on $\frac{1}{8}$ of the outer edge in a two-beeway section as they do in a plain section—admit, if you like, that there's a difference throughout the entire $\frac{1}{8}$; whatever that difference may be, is it not the same in all the two-beeway sections, seeing they are all made exactly alike? and, if so, how can they be less uniform in weight than the plain sections?

There are some other things to be considered. The uneven weight of sections is not altogether, nor even in large part, a difference of sections in the same super. There is a difference in bees. Here is a colony that does not fill out its sections as plumply as a second colony standing beside it, each colony having the same kind of sections. Now, do you think that, if you give plain sections to each, you will do away with that difference in the two colonies, making them both fill out alike? There is a difference in seasons, the average weight of sections being greater one season than another. At one period in the same season, owing to a difference in the flow, sections will average lighter than at another time. Do you think that the plain sections will even up the seasons, and the different periods of the same season?

Please don't understand that I'm trying to throw any discredit upon Mr. Crane's testimony. J. E. Crane is a man whom I greatly respect, and his word goes with me, and I don't for a minute dispute his assertion that he has more even weights than formerly. But the reason for it is another thing, and I think it remains yet to be proved that the difference is owing to plain sections. If he had tried the two kinds of sections half and half in the same apiary at the same time, we would have had something a little more conclusive. You say, Mr. Editor, that those who advocate selling by weight are largely beeway men, and the piece-sellers plain-section men. Oh! oh! oh! did you never hear of selling by the piece before plain sections were heard of? Are those Colorado and Canada men,

who not only advocate selling by the piece but who actually do sell by the case, are they mostly plain-section men?

You say you have noticed that old-timers have stuck to the old sections, and beginners take kindly to plain sections. I don't doubt it, but I greatly doubt your reason for it, that is, prejudice on the part of old-timers and the lack of prejudice on the part of beginners. With your powerful influence constantly urging that plain sections are away ahead, and beginners taking every word you say as law and gospel, what can they do but to adopt plain sections?

Admit that "old-timers" grow conservative—prejudiced, if you will—don't you know any among them who are constantly on the lookout for improvements? and don't you know any of them who have tried plain sections only to reject them? If they thought there was money in it, don't you believe they would be prompt to change? Take my own case if you think I'm fairly entitled to be classed with the old-timers. Don't you know that I threw away thousands of brood-frames because I thought something else just a little better, and for the sake of being in line with others, although the change in size was only $\frac{1}{8}$ of an inch? I threw away my whole outfit of surplus arrangements, all as good as new, and at an expense of \$250 changed to something else because I thought it was better. One of the reasons I don't paint hives is because of the possibility that at any time I may want to change to something better. And then you'll go and hint that it's only forbearance on your part that prevents you from calling me "mossback." "Mossback" yourself—and not only to hint, but to say in plain words, that we are "perhaps less able to appreciate the value of a new device." Save the mark! Why, yes; to get any thing fully appreciated, don't go to one who has a lot of experience, and has been on the search for years for some better thing, but go to one so new that he doesn't know of any thing different, for of course knowledge and experience dull one's capability to appreciate, and ignorance sharpens it!

Neither has my prejudice prevented my trying the new plain sections. I've produced perhaps more honey in plain sections than you suppose—shipped a few cases as late as this year—have tried them enough to satisfy myself that there's no money in changing—at least no money for me—and yet I'm ready to make a change whenever I see any thing to be gained by it.

Marengo, Ill.

[I will concede that the amount of beeway in a plain section over that given to an ordinary two-beeway section is only $\frac{1}{8}$ more than the entire contour of the comb. But you overlook two very important considerations—first, that those naughty corners on a beeway section lessen the actual beeway by almost $1\frac{1}{2}$ inches. Or, to put it another way, the passageway to the plain section is almost $1\frac{1}{2}$ inches wider than that al-

lowed by the ordinary beeway section or three inches for top and bottom. This $1\frac{1}{2}$ -inch space is placed right where it amounts to something. If you add half an inch to your nose, it would mean a good deal more than if you added that much to the circumference of your well-rounded body; so that in talking about the difference in beeways we must consider *where* this difference is.

The second consideration you have overlooked is that a fence has horizontal slots through which the bees can pass back and forth. When you take into consideration the fact that a wire-cloth separator (and facts prove it, I think) will give more regular, more uniform, and more even combs than the ordinary solid separator, then in proportion as the fence or wire-cloth separator is more open, in that proportion it will produce more even filling and more uniformity of weight.

Possibly, according to your experience, plain sections in fences are filled out no better or no more uniformly than beeway sections with solid separators. This may be true with your mixed strain of bees: but the plain sections of honey we buy at Medina (and we buy thousands of them) are certainly more uniform in weight, and are better filled than the ordinary beeway section.* I am well aware when I make this statement that there are some who will disagree radically with me; but I am stating what I see and observe.

You will remember there are Texas beekeepers who will testify that the Hyde-Scholl separator—a separator that is virtually identical in principle with the wire-cloth separator when used with plain sections—gives a more uniform and better filling of sections than a solid separator or even a fence, because the bees can pass laterally from section to section. I think there is plenty of testimony on that point, that we can produce if called on.

I admit that there is a difference in bees. But this does not enter into consideration, as I view it, for we are not talking about the nature of bees, but the effect of two different appliances on that nature as we find it in the average strain.

I was aware that the Colorado beekeepers (largely users of beeway sections) and Canadian beekeepers (largely users of seven-to-foot beeway sections) sell by the piece and by the case; but this applies more particularly to Colorado than to Canada, where both the piece and weight methods prevail. But conditions in Colorado are such that there will be a better filling of sections with the beeway or plain section than in other portions of the United States. The principal reason of this is that beekeepers can calculate pretty closely on the length of the honey-flows, and the number of them, provided there has been a good previous

snowfall on the mountains. In Canada the selling-by-the-piece proposition is made the more feasible because the sections are thinner. The thinner the combs, up to a certain limit, the more uniform the weight.

When I made the statement under consideration I had in mind the aggregate of small beekeepers in various parts of the United States. If a plain section is more get-at-able to the bees to the extent of beeways 3 inches wider and more get-at-able by reason of the horizontal slots from section to section, then it seems reasonable to suppose that those sections would be more uniform in weight for the reason that the bees would be less divided off into little rooms, each room of bees building its comb separate by itself; then when we go one step further and use a Hyde-Scholl separator or wire-cloth separator between the sections, where the bees can pass laterally from one section to another as over a brood-comb the results are very much more marked in the way of uniformity of weight. I am not stating this from my own experience, but from what I have actually seen in different yards I have visited.

You may be partly right in your explanation as to the attitude of old-timers toward plain sections; but is it not a fact that, the older we grow, the less inclined we are to adopt new devices?

When you threw aside your old brood-frames and hives because there was a difference of only $\frac{3}{8}$, you did not do it because the new hives, $\frac{3}{8}$ shorter, were actually better for honey or for bees. You did it as a matter of convenience and economy—convenience in getting supplies, and economy because regular goods could be purchased for less money than odd-sized stuff; so that I really do not see that this argument has any bearing on the old-timer proposition.

With regard to the matter of using paint on your hives, did you not tell me once that your unpainted hives would last as long as you lived, and that you preferred them because you thought them warmer?

Dr. Miller's article was sent in shortly after the Dec. 15th issue was mailed; but being crowded at the time for space, I have held it until the discussion would be more timely—toward the comb-honey season.

—Ed.]

STRONG COLONIES FOR THE PRODUCTION OF EXTRACTED HONEY.

Why it is a Mistake to Imagine that Weak Colonies Will Do.

BY E. D. TOWNSEND.

In reading current literature on the production of extracted honey, one is easily led to believe that any old colony, in any kind of condition, is good enough to produce extracted honey. In reading the report of the Texas convention, in the *American Bee Journal*, where Mr. Milam says weak colonies are no good for comb honey, they are

*I have just referred this statement to our honey-man and he says I am entirely correct. He also adds that we very often get from the same man a mixed shipment of beeway and no-beeway sections; that a much larger proportion of the latter will grade fancy.

worked for extracted, I find a sentiment that has gone the rounds of the bee press altogether too long. Let us look into the matter a little. In the first place, I think we can all agree that, to produce a first-class article of either comb or extracted honey, one must have his colonies sufficiently strong so that every part of the hive, including the supers, should have a good covering of bees. It is hard to conceive of any thing more detrimental to the welfare of the colony than the practice of giving a weak colony an upper story when they have only enough bees to work nicely their one-story (brood-nest).

We will now suppose our white-clover season is open. The little colony will not do much in its upper story the first week, they having room in the brood-nest to keep them busy during this time. Now they have their brood-nest full, watch them as they begin to move up into the upper story. The first attempt will be made during the middle of the day, while it is warm; then they go below during the night or cool weather. Now this process of working above, while it is warm, and leaving the surplus receptacle during the night or cool periods, will be repeated more or less, depending upon the weather and the length of time it takes for the little colony to breed up to a normal condition. At any rate, their first upper story will be produced under the conditions named above, where there is a portion of the surplus honey that the bees leave during cool nights or otherwise unfavorable weather.

Now, right here is a point I wish to emphasize; and that is, any part of the surplus honey, while on the hive, if allowed to remain without a good covering of bees, will get poorer every day it is left; for a hive without bees to fill it full, that portion which is without bees is one of the dampest places one can imagine, and, of course, would be the worst place one could store honey. Now, if this is a fact, how could one expect a weak colony to produce good ripe extracted honey?

Then there are the colonies that have cast swarms. Their surplus receptacles should be given to some swarm that is in condition to take care of it; for a colony that has cast a swarm is in much the same condition as the weak swarm mentioned above.

In producing extracted honey the same system should be followed as in the production of comb honey; i. e., it must be finished; for, take my word, the time is coming when the market will demand finished extracted honey as well as finished comb honey, and that means to leave it on the hive until it is *all capped*, and cured before extracting.

The weak colonies can be united at the commencement of the honey season, so as to make all strong, as these weak colonies can be used to make up winter loss, or increase, as one may desire.

Remus, Mich.

[These points are all well taken, and I hope those who have been deluded by the heresy of weak colonies for extracted will

read what our correspondent has to say. Be it known he is one of the largest producers in Michigan.—Ed.]

THE ALEXANDER METHOD OF CURING FOUL BROOD.

Is it Not a Mistake to Suppose that Bees Store Honey in Cells Containing Disease-germs?

BY J. G. BAUMGAERTNER.

The articles by Mr. Simmins and Mr. Gibson, pages 22 and 23, on the possibility of curing foul brood by the Alexander method for curing black brood, have interested me exceedingly, especially since foul brood has been in this vicinity the past season, and is quite likely to make its appearance again this year. Twelve colonies of my bees had contracted a disease which, according to all indications, was genuine foul brood, and had the McEvoy treatment administered promptly. Since I have read the reports of successful eradication of the disease by the Alexander treatment I regret that I did not make at least an attempt to winter some of my diseased colonies so I could have applied this new treatment. For, if nothing more, it would have been a most interesting experiment, and it is by experimenting and putting matters to actual test that the truth is sifted out and knowledge gained. However, my neighbor has still some colonies which were pretty badly infected last summer; and if they outlive the rigors of winter I shall make it a point to obtain permission from their owner to try the new treatment on them.

Now, as to the doubts you express, Mr. Editor, in your footnote to the two articles named above: "Honey is known to be a medium for carrying foul brood. Supposing that the germs of this disease are in honey that is sealed up in combs in the hive under treatment, if the bees clean out the brood-combs containing the dead matter, what is to prevent reinfection of the new brood fed on this honey? We have demonstrated time and again that honey from a diseased hive will carry the infection to another one perfectly healthy." This was the stumbling-block I could not get around when, after reading Mr. Alexander's description of his cure for black brood, I tried to decide for myself, in thoughts, whether or not those twelve colonies, whose combs, brood, and honey I destroyed, could have been cured the same way. After many hours of studying over this question, especially in view of the testimony given by Messrs. Simmins and Gibson, I confess that my faith in the doctrine that the sealed honey in the brood-combs of colonies having foul brood contains the germs of the disease, and will carry the infection further, has become severely shaken. How do we know that reinfection may take place through the honey which is in the hive? And how do we know that it

is the *honey* through which infection is carried from one colony to another?

It is said that, when bees from a healthy colony rob a colony which is diseased, they will carry the disease home. I do not doubt that this is true; but I do doubt very much that these bees carry home the disease in the *honey*. Did not the bees clean the cells before the honey was deposited? I do not believe that bees deposit their honey in cells containing any foul matter. They are too cleanly for any thing like that. Mr. Doolittle supports this when he says, in the *American Bee Journal* for Jan. 4, page 9, "I am confident that the bees always clean all cells, in which they deposit honey, absolutely clean before they store any honey therein." If this is true, will they not also, while ripening and sealing the honey, remove any germs that have entered it?

Instead of the honey carried home by the bees containing the germs, is it not possible that these bees carry home minute particles of the foul matter itself, which adheres to their bodies while they are passing over the diseased combs and over the bottom-board of the diseased hive on to which latter the cappings of the diseased cells which the bees have torn open, as well as parts of the larvæ which the bees have tried to remove and torn to pieces, have dropped?

An old physician of my acquaintance, who has been an extensive bee-keeper for more than sixty years, believes that the disease might spread when bees of a healthy colony visit a flower which has just previously been visited by bees from a hive containing foul brood.

It is further claimed that, if the honey extracted from infected combs be fed to healthy colonies, the disease will be spread; but does that prove that the honey contained the germs *before it was extracted*, or while it was yet *sealed in the comb*? Is it not probable that these germs were carried into the honey by the uncapping-knife, which had just passed through an infected cell, or possibly the foul body of a dead larva in that cell before it entered cells containing honey?

Again, while those combs were whirled around in the extractor to throw out the honey, was it not then that some germs were mixed with the honey running down over the side of the diseased comb? Or possibly the contents of some diseased cells were thrown into the honey. Small wonder if such honey is infectious!

Supposing that the spores of *Bacillus alvei* have really penetrated into the cells containing honey, would not those spores also die after the natural soil of the bacillus, the brood, was all gone, and thus its source of nourishment cut off?

At all events, let us not be content with any thing short of facts established by deliberate experimenting with the new method; and let no prejudice based upon theories generally accepted keep us from giving it a fair chance. "The proof of the pudding is

in the eating;" so in applying this treatment we shall find the proof of its value.

New Memphis, Ill.

[Your points are all very well taken. It is possible that sealed honey in the combs, *before* man has had any thing to do with it, is free from disease-germs. Your attitude of taking nothing for granted is that of a true scientist. I respectfully urge that Dr. Phillips bring this question before the bacteriologist of the Department of Agriculture, Washington, D. C.—ED.]

SOME MORE LIGHT ON SPRING MANAGEMENT OF WEAK COLONIES.

A Case in Point where the Alexander Method of Uniting a Weak to a Strong Colony gave Excellent Results.

BY Q. A. PEARCE.

In March 15th issue there is an article from Mr. E. W. Alexander on the spring management of weak colonies, with some quotations from a former article of mine in the *Review*, in which I state that I had 16 light and 16 very heavy colonies which I united successfully. These, you will observe, were not united till quite late, after I had time to go through the yard and get a record of the bees; but what seems to be wanted just now, and on which even Mr. Alexander himself does not seem to be entirely clear, is whether it will do to unite these weak colonies with the strong as soon as they are taken from the cellar; and as I had some good experience along that line last spring I will relate it.

When I set my bees out quite early in March last year, as is my habit now, it was quite warm and nice, for a few days; so after the bees were all out I went through the yard and lifted the hives to see if there was any dangerously light, and to tuck them up nice and snug against any bad weather that might come later. I soon came to a very light colony which I supposed was dead; but as I lifted the frames out I came to a little bunch of bees, and a queen still alive. She too looked pinched and small. There were less than thirty bees. The hive that I had just looked over before I reached this one was very strong, and lots of bees boiling up through the top, so I just picked this little hive up without the bottom on it, and set it on top of this strong colony, with an excluder between, and I want to confess right now that I did not have much faith that any thing would come of it. The good book says, you know, if we have faith as a grain of mustard seed that we can remove mountains; so it did not require much faith to lift that little clump of bees and their queen on to that strong colony; and as we never know any thing till we try I thought I would try this and see what would come of it. Now for results:

The bad weather soon came on, and I did not do much with the bees for over three

weeks, then I went through to clip the queens, and I found generally two to four frames of brood; but when I came to this little colony I found it the strongest one in the yard. It had five frames of brood, and eggs in two other frames. You see this hive had no honey in, and there was nothing in the way, so this queen went right on and deposited it full of eggs, and the bees from below came up and brought up honey and pollen to feed them, and plenty of heat from below supplied the needed warmth, and it made me a good strong colony for the honey harvest, as also the one below did, as later I set these top colonies off the proper time to do it. You can judge for yourself. If you leave them on too long they will get stronger than the ones below. It is an automatic way of equalizing your bees in the spring. We aim first to put the very lightest colony on the very heaviest one, and so on down. It makes these light colonies safe from robbers and all other calamities. It would be, if you please, like taking a regiment at the front which had been all cut up and depleted, and moving them back behind a strong battery of Gatling guns with the commissary wagons just behind them. They are perfectly safe from all comers; and when they eventually work their way down through the strong and out at the lower entrance, as their own entrance above is closed, they have so acquired the scent of the big colony that there is no fighting, or at least in three years' trial under all conditions I have not detected any. Yes, it is all right to set the light colonies right up at once on the strong ones. It is the best thing in every way for relieving us of this most troublesome problem in our bee-work. It is equal to the cat's trick of climbing a tree to get rid of dogs, which was worth all that the fox had, and more. Long live Alexander, the big-hearted man! and long live the bee-journals for recording these things and getting them to us in such good shape.

Grand Rapids, Mich.

[Yes, this plan of strengthening weak colonies is one of the best things that has ever been given to the public. But it is important to carry out directions in full. The colony below should be a *strong* one or the plan will fail. Uniting two weak colonies will not work. The two clusters will unite in one, leaving the deserted queen high and dry, when she soon dies.—ED.]

MAKING INCREASE.

A Reply to E. W. Alexander's Criticism.

BY F. L. DAY.

I see Mr. Alexander has made a rather scathing criticism, p. 1189, of my report of a test of his plan of making increase, page 1017. I can not blame him for being vexed with the report, even though he is mistaken in part. In the spring, when I divided the four colonies in question it was done June 1, as stated in my report; but the first prepa-

ration was made May 22, not April 22. The error was made in copying from my record of individual colonies. But had Mr. Alexander read my whole report with perhaps a little more care he would have noticed where it said, "Here was 75 per cent of swarming, actual or anticipated, at *nine* days from preparation of colonies." When I stated in the report that three of the upper stories had queen-cells, some of them almost ready to hatch, I was not quibbling on one-fourth or one half of a day, but meant that they would hatch in one or two days. From May 22 to June 1 is ten days—just the time the colonies were to remain after being prepared. The nine days was a part of the old mistake. On the tenth day I divided the four colonies in the forenoon and also had the first swarm from one of the lower stories in the afternoon. If Mr. Alexander will refer to my full report in the *American Bee Journal* for Nov. 2, page 764, he will see where I gave the four colonies treated on his plan credit for producing about 45 per cent more honey than those colonies which were not divided. Is not this a fair showing? He will also notice that all my bees swarmed excessively, which accounts in a measure for the poor success of his plan.

Mr. Alexander speaks disparagingly of my queen-excluders; but I assure him they are all right. In four years I have never known even a virgin, much less a laying queen, to get through one of them.

Detroit City, Minn., Nov. 25, 1905.

NON-SWARMING PLANS; THEIR FAULTS AND FAILURES.

The Chambers Non-swarming Device.

BY J. E. CHAMBERS.

[In explanation it may be well to say that this article is based upon the one by the same author that appears in the Nov. 15th issue, page 1181. It would be well if the reader would turn first to this former article, and then note that, in the one here given, several improvements are described.

As many (and perhaps a majority) of our readers will not have the issue of GLEANINGS above mentioned at hand, it will be necessary, in order to understand how this non-swarming attachment is used, to make an explanation of the method right here. The attachment, consisting of the honey-board and chute, is so fully described in what follows that no further explanation is needed.

HOW TO USE FOR EXTRACTED HONEY.

When a colony shows preparations for swarming it is removed from its stand to one side, and a frame of brood with adhering bees is taken out and put into an empty hive, as at B, the same being placed on the old stand. The space on either side in the hive is filled out with empty combs or full sheets of foundation. The dividing board is now placed on top with the slide (I) shoved in. Over this, again, is placed the parent hive (A) with the queen, brood, bees, and all, minus the frame of brood in B. The wire cloth chute is then attached to the front of both hives, as shown in the illustrations. The operation is this: The bees in the old parent hive now above, as at A, will pass out of the opening at H, down through the perforated metal G, strike the wire cloth, and pass upward at the exit above in block C. On returning they will enter the regular entrance to which they are accustomed, in the lower hive, where they will unite with the bees on the frame of brood. This process will continue until the old bees are all out. The young bees at the first playspell will come out of the upper hive in

like manner and return to the lower entrance, adding their strength to the old bees. This process will continue and would continue on until *all* the brood and the queen in the upper hive is deserted; but before this happens the slide (I) must be opened so that enough bees from below can pass upward through the holes D, D, covered with perforated zinc, to take care of them. In eight days lift off the upper hive; remove the comb of brood from the lower one on which are cells, and cut out all but the best one. Replace the comb, putting back the upper story, with the dividing-board between as before, with the chute. When the virgin below is hatched out and laying, remove the dividing-board; and the young queen, if the old one is of no value, will "settle the old one," so Mr. Chambers says.

A colony so treated, he explains, will not swarm. Every bit of brood has been saved, and added to the parent colony after it has hatched, thus giving the "swarm" the strength of both the new and the old force of bees.

HOW TO USE FOR COMB HONEY.

When running for comb honey the process is varied somewhat. Use starters in the lower story, but give no frame of brood. Shake the old queen in front of the entrance of lower hive, and put the case of sections directly on top of hive B. On top of the super place the dividing-board and then the hive A with its brood and bees minus the queen, which is now in hive B with frames of starters, but no brood. It will be necessary to have in hive A a mature queen-cell, as the constant accession of bees from the upper to the lower hive will leave the upper one in poor condition to rear good cells. Although Mr. Chambers does not say so, I suppose when the upper hive has hatched out all its brood it is removed.

Mr. Chambers feels that any modern hive can be made perfectly non-swarming by the use of these two simple attachments—a dividing-board and a chute in front. Personally I am inclined to think Mr. Chambers has a good thing, and I should be glad to have our readers try it and report.

With the explanation that has already been given, the reader will be fully able to understand what Mr. Chambers *now* has to say.—Ed.]

During the past seven years there have appeared quite a number of non-swarming plans, some possessing real value, but all more or less uncertain at different times and under different conditions. In the hands of the novice these several plans failed very often because of the multiplicity of advice regarding the time and method of manipulating. One said, manipulate only when the bees are ready to swarm; another said the right time is when there is a honey-flow on. One said shake, another said brush; and still another said drive, and the novice was at a loss to know which to follow. Many times *he* did not follow any one very closely, perhaps, and scored a failure or concluded that no one knew much about it any way. Many of these plans were failures because of inability of the operator to comprehend the small details and their relation to the natural instinct of the bees. But more often they were failures because, as I suspect, there was too much tedious work and too much complication ever to be faithfully carried out by the average bee-keeper.

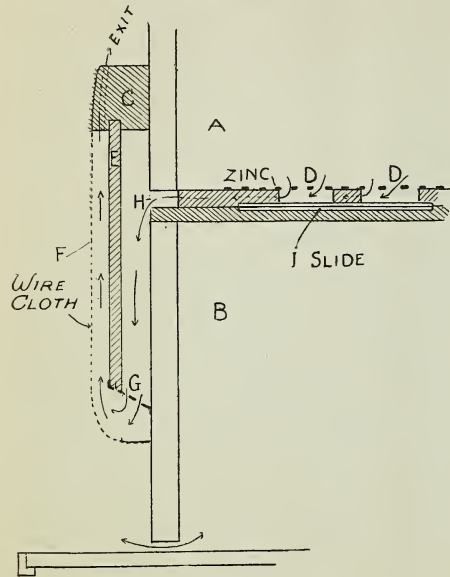
Among the most meritorious of these plans I have no hesitancy in saying was the Stachelhausen, or brushed-swarm plan. I was very familiar with this plan from the start, and it always worked satisfactorily in my hands. However, I always considered it weak in some features; and one of its objectionable weaknesses was that it did not allow of requeening at the time of the other manipulations, and this I consider a most serious weakness; for to the man who wishes to produce honey nothing is of as much

importance as thrifty young queens; and while I do not maintain that all queens should be replaced by young ones every year, still I fully believe that more honey would be produced if this were the universal practice. Another weakness of the Stachelhausen plan was that every comb had to be handled unless the operator was fortunate enough to be using the shallow hive, in which case he could handle parts of hives instead of combs. Still another weakness was that honey was shaken out to such an extent that robbing was invited, and at times this was not desirable; in short, the undesirable features were so many that I could not enumerate them all, and this was the best by all odds of the plans brought forward during the past eight years.

Now, the Chambers non-swarming plan and mechanical device, as described in GLEANINGS for Nov. 15, 1905, is entirely free from any and all of these faults, and, besides, possesses many desirable features that none of these earlier plans ever had—first to recognize the value of requeening; first to realize that the entire force must be diverted to the working hive, if the greatest amount of surplus is to be secured, and first to make possible a non-swarming manipulation without the handling of all combs or shaking-out of honey. All these advantages, with the certain and sure control of all swarming, the rapid and up-to-date manner of manipulating, and the simplicity and ease of operating the device and plan, together with the trifling cost of the device, render the plan one of the most advantageous ever brought out, especially for the specialist, who needs something that will do the work systematically and surely, and with business speed.

I also want to call attention to the fact that this plan, unlike many of the so-called non-swarming plans, entirely carries out the desire of the *bees* to swarm and requeen, and thus satisfies that primary instinct of bee nature. This prevents all sulking and failure to enter the supers; and during the entire time or period of manipulation there is no loss of brood, nor has the old queen ever entirely stopped laying until the young queen is in full egg-laying sway; and all must admit that this gets very near to nature's way, and, as I know, is always safe and sure. Since my article appeared in GLEANINGS I have received many letters from all parts of our country, asking for additional information regarding the operation of the device on hives of different construction. In answer to all such inquiries I wish to say that this device can be used successfully on any kind of modern hives, but will need to be slightly changed or modified to fit the different widths and depths, otherwise the principle remains the same. The article describing this device was sent in early in the spring; but it was some time before Editor Root and Mr. Murray could thoroughly understand its construction so that drawings could be correctly made. Since the article describing it was used,

Nov. 15, 1905, I have all along been experimenting with a view to further improvement, and have, I think, nearly perfected it. In the illustrations the improved device is shown in perspective and cross-sectional views, and a close examination of these will aid very materially in arriving at a clear understanding of every part of the device.



At D, D, in the sectional view, a very clear idea of the relative position of both zinc-covered holes and tin-slides is obtained; and at I the opening through the side rail of the dividing-board is shown, though not very

ward against the wire cloth F, going out at the final exit at the top near the beveled head-block C. This view also shows how the wire cloth is attached to the bottom of the end-post, and drawn upward over the partition-board E, and fastened down over the beveled head-block or end-post.

In the other illustration, A represents the top and B the bottom hive, and C is the chute, or trap, in correct position on the hive. The dividing-board is clearly shown with the zinc-covered holes at D, D, and the tin slides at I. The slides are drawn out to uncover the holes. The exit from the upper hive, A, through the front end of the dividing-board, is shown at H, and the zinc-covered slot on the bottom of the partition E is seen at G. The partition-board E is grooved into the end-post in such a manner as to form a $\frac{1}{4}$ partition between the board and the front end of the hives. Through this partition or channel the bees travel in their downward flight, one inch below where they go through the zinc G. They strike the wire cloth F, which is drawn upward and forms the half-inch outward partition, or escape. One inch from the top the side or end posts are beveled down so as to form a fourth-inch opening or escape. This bevel is shown only at C in the cross-section of the head-block, though a close examination will show the end-blocks to be beveled; and the arrow at the exit indicates that the opening has been narrowed down considerably.

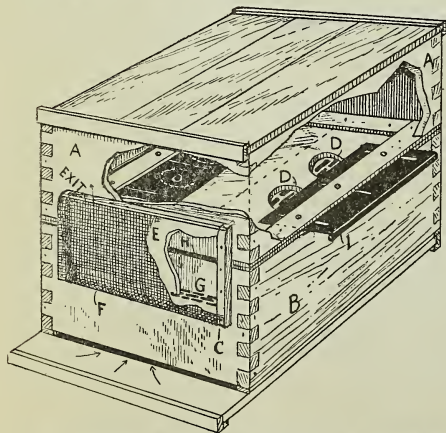
DIRECTIONS FOR MAKING THE CHUTE OR TRAP.

Take two pieces of timber 6 inches long, $1\frac{1}{2}$ inches wide, and $\frac{7}{8}$ thick. Half an inch from either edge of these pieces make a groove and slip a thin board into it. This board should be $15\frac{1}{2}$ inches long, $\frac{1}{8}$ thick, and 5 inches wide. This is the partition-board E. At the bottom of this board saw into the end-post $\frac{3}{8}$ inch, and fit the strip of perforated zinc into this saw-kerf. Nail to the edge of the board with fine nails.

Now, as will be seen by reference to the cross-sectional view, the end-post extends one inch below this zinc slot, and here is where the wire cloth is first fastened with small nails to these end-posts and drawn upward and fastened again at C, where the tops of the posts are beveled down to $\frac{1}{4}$ inch. Across the opening at the top, between the partition E and the end of the hives, fit a piece of timber $\frac{7}{8} \times \frac{7}{8}$, 16 inches long, by sawing and mortising out a shoulder, allowing it to drop down $\frac{1}{2}$ inch below the top edge of the partition-board. Nailing through the upper edge of the partition-board completes this part of the device. The construction of the dividing-board can be seen so plainly that it needs no explanation.

With reference to the system of manipulation to be used in conjunction with this device I will say that the article in GLEANINGS, Nov. 15, 1905, page 1181, gives full details, and all interested parties are referred to it for the required information.

Vigo, Texas.



J. E. CHAMBERS' NON-SWARMING ATTACHMENT.

distinctly. The exit, H, is shown with the arrows pointing the downward flight of the bees through the zinc-covered slot G, at the bottom of the partition E, and turning up-

PROF. GRIFFIN'S CLASS IN APICULTURE.

Advantage of Tall Hive-stands; Avoiding the Killing of Bees.

BY E. R. ROOT.

The class in apiculture under Prof. Griffin, at the Missouri Valley College, here shown, have been studying insects of all kinds during the summer; and the proximity of an apiary belonging to a practical up-to-date bee-man, Mr. M. E. Tribble, makes it possible for the students to get some personal and practical knowledge concerning the life-history of the most useful insect known to man—namely, the honey-bee.

It is getting to be quite the fashion to give practical demonstrations to students in entomology at several of the modern progres-

sired to show to the world their entire confidence in the bees.

The little that shows in the picture proves that Mr. Tribble is an up-to-date bee-keeper. He has modern hives, modern hive-stands that raise the hives high enough from the ground to make manipulation a pleasure and a convenience. The only possible objection that can be urged against having hives so elevated is that, early in the spring, some bees will be lost owing to their inability to rise in flight from the ground high enough to gain the entrance; but where the alighting-board projects well out in front as shown, this objection will be largely overcome, because the bees will alight on the board without missing it.

As another evidence of Mr. Tribble's up-to-dateness may be mentioned the fact that, when he lifted the upper story off from the



PROF. GRIFFIN'S CLASS IN APICULTURE; PHOTO BY M. E. TRIBBLE, 3D PRIZE, CLASS A.

sive colleges. Bee life is always interesting to an outsider; and when the student sees what can actually be done, his whole interest in the study of insects in general is aroused as never before.

Referring to the picture, Mr. Tribble, the apiarist, stands at the edge of the group, with a globe bee-veil on. Strangely enough, the students have lifted their face-protectors while the owner himself stands as if he were afraid to take his off. Of course, this is not true; but it is a good joke on our friend. At the time the photo was taken he probably did not observe that all but himself de-

lower one, instead of setting it flat on the ground, and killing bees, he put one edge over the cover. I know this is a small thing; but when I see a bee-keeper deliberately smash bees, causing the whole colony to be angered by the cries and the blood of their mangled comrades, I always feel that *that* bee-keeper has something yet to learn. While I do not believe it is necessary to go so far as to waste valuable time to save the lives of two or three bees, yet, if one manages rightly, scarcely a bee need be killed; and the time lost will hardly be worth figuring.

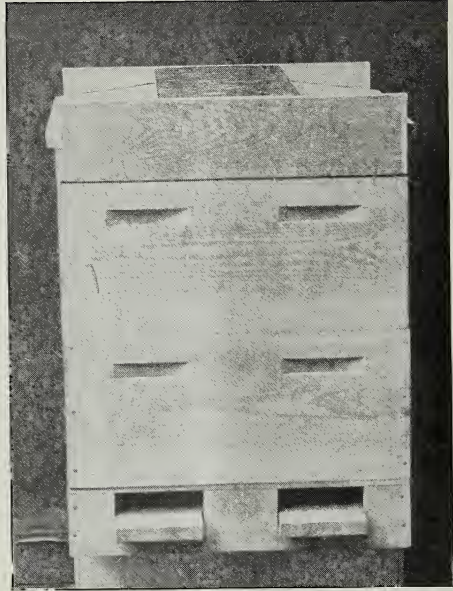
THE HIVE ADAPTED TO THE TWO-QUEEN SYSTEM.

Reasons why the Ten-frame Hive is Unsuitable.

BY A. K. FERRIS.

While the ten-frame hive of standard style can be used for this system, yet there are some serious objections to it. Foremost of these is the fact that, when a colony is as large as they invariably become during a good honey-flow, tiering up has to be practiced so extensively, and they fill the stories so quickly, that the hive reaches too great a height to be easy of operation, and the honey has to be extracted unripe in order to give storage room. I have had such a colony fill the available space in five stories in seven days. The past season, though a very poor one, they attained five and six stories before I could commence extracting; therefore, in order to have well-ripened honey I was forced to adopt a larger hive, taking the standard frame, for I could not tolerate two sizes of frames, and I hated to change hives; but I concluded to accept the lesser of the two evils, and so adopted the hive shown. It takes twelve of the standard Hoffman L. frames, two followers, and a $\frac{7}{8}$ -inch center division, or fourteen frames when followers and division are out. It is a perfect square—21 inches outside, and two of these stories make a perfect cube.

The bottom is so arranged that the entrance to each set of frames can be enlarged automatically, from entirely closed to $1\frac{1}{2} \times 5\frac{1}{2}$ inches; thus when the flow is on you can have a combined entrance $1\frac{1}{2} \times 11$ inches, and can diminish it at any time as much as desired, without disturbing the bees. The alighting-board and bottom of the hive are one; and raising the front end up or down controls the entrance—see cut. In transferring to the cellar, double tongs fastened to a pole are used, each hook of the tongs entering under the alighting-boards and in kerfs at the back. In this hive we can winter two good six-frame nuclei; and as there



A TWELVE-FRAME HIVE ADAPTED TO THE FERRIS SYSTEM.

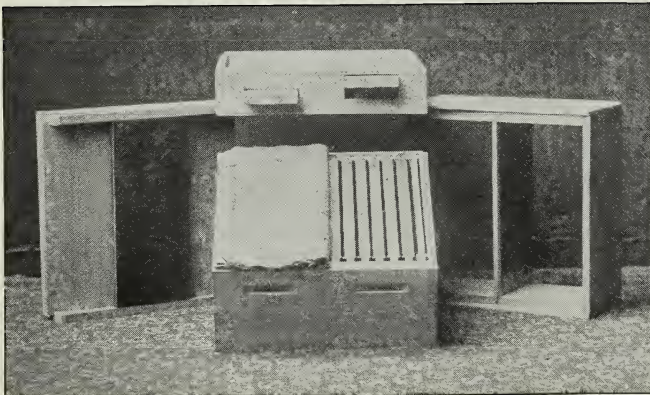
is $1\frac{1}{2}$ -inch wood at the ends, and a $\frac{3}{8}$ -inch airspace on the sides formed by the follower, it makes practically a double walled hive.

When each queen has her six frames well filled with brood, another story is added; and as the division-board in the center slides in a $\frac{1}{2} \times \frac{1}{2}$ -inch groove, and can be slipped in and out easily, the one having the quilt tacked on can be exchanged with one not having a quilt, and the second story added, still keeping both queens and their bees separate; yet one colony receives the benefit of the heat of the other.

I find that, if I wait till there is brood in all the combs, I can alternate them with the ones given, to a profit. This gives 12 frames to each queen, and this is generally all that will be needed till the flow begins on clover, except, perhaps, where there is quite a flow on fruit-bloom.

When the flow begins, this colony can be dequeened by making a one-frame nucleus with each queen, or by destroying the queens.

In a day or so take out the division-boards and you have only one colony to deal with all through the flow. By placing a queen-excluder over the first story, and, adding two empty



THE TWELVE-FRAME HIVE OPENED TO SHOW CONSTRUCTION.

combs, we have the queen confined below on fourteen frames. In this case the queen will seldom become crowded, and we can tier up as high as we choose without fear of wind, and our honey can be well ripened before extracting. I believe one of the worst evils the bee-keeper has to meet is the effects of unripe honey on the market.

¶ About Aug. 1st, in this locality, replace the central divisions, give another queen, and you will get plenty of brood of the right age for wintering.

In this we have a unique system of controlling swarming, yet producing more than double the average amount of honey with only one hive to operate. This greatly reduces the cost and enlarges the income.

Madison, Wis.

MARKETING HONEY.

How to get Permanent Customers.

BY T. P. HALLOCK.

At the last National convention of beekeepers the subject of increasing the demand and sale of honey was discussed. This topic seemed to have become the foremost one of the whole convention. Indeed, it is the all-important problem which confronts you, Mr. Beekeeper. You know what a perfect food good honey is—how pure, how indispensable in your home; but how about the people in your home town? Do they all use honey? How many families in your community do not buy twelve pounds of honey a year? How many not one pound? Many? Yes, I dare say there are, and your community is no exception. The same condition prevails nearly everywhere. Now for a remedy:

I suggest education. If people can be educated to buy crackers in a sealed paste-board box because they are told that in this way handling the crackers is eliminated, and that this is the only clean way in which crackers can be bought, why can they not be taught to buy pure delicious honey instead of jams and jellies? extracted honey instead of diluted maple syrup? They can. Just demonstrate to some family who has never used extracted honey how much better it is for buckwheat cakes than syrup, and you have a convert for life. Education spreads. Were this not true, savage races could never be civilized. If personal solicitation were necessary, the force of missionaries in the foreign fields would have to be increased thousands of times. One family, learning of the purity and deliciousness of honey, the many uses which can be made of it, will tell others. Thus the education will spread.

HOW TO EDUCATE RAPIDLY.

The best way to reach a majority of the people in a community is, of course, through the press. Now, Mr. Beekeeper, you did not know it would be possible for you to get free advertising in your local paper, did you? But you can, to a certain extent. You sit down and write an article on honey as a pure

food; tell the people what honey contains. Tell your story in a plain, simple, and unprejudiced manner; do not use your name in the article; do not try to advertise your apiary. Just tell the people that honey is good to eat, and some of the many ways in which it can be used. Write as you would talk to a friend whom you wanted to convince of the value of honey in the household, but whom you would not ask to buy. Take this article to the editor of your local paper, and ask him if he will kindly publish it. The chances are many in your favor that he will. Write something new every once in a while, at least once a month, just as long and as often as you can get them published. Tell every thing you know about honey.

Then there is another way to educate. If you have an observatory hive, take it to your local school—all the nearby schools, show how the bee lives, tell the pupils the story of the honey-bee. You can do it. Do not be bashful or afraid. That's why honey is not the marketable product it should be. Bee-keepers do not talk enough about honey. Remember that it will take a boy or girl who sees such a demonstration made—who learns of the purity of honey—a lifetime to forget the lesson. Remember that the boy and girl of to day will be the heads of the household of to-morrow.

There is still another way which will help to boom honey in your locality. Invite people to visit your apiary—put an ad. in your local paper, stating that at such a time you will conduct through your bee-yard all who choose to come; invite the school-children to come and learn more about the bee in its home.

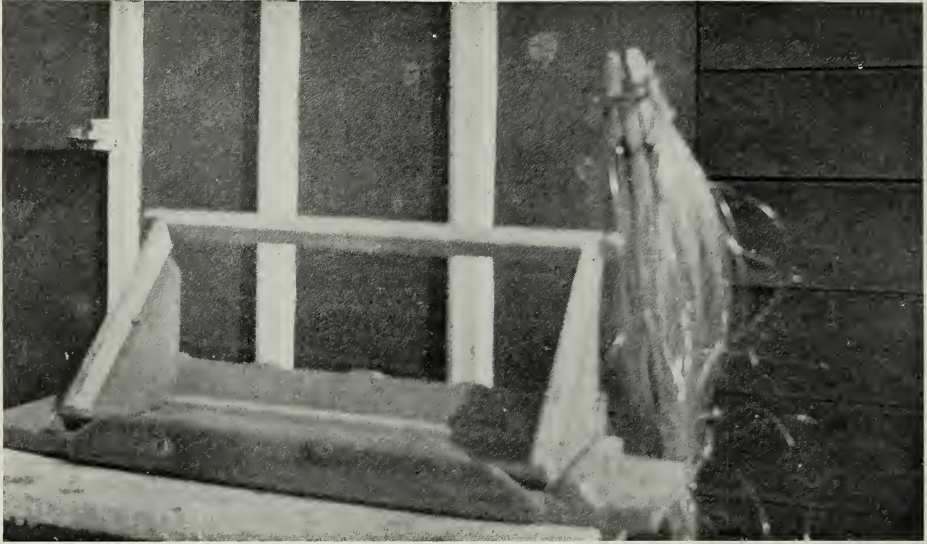
Talk of the purity of honey at all times. The country is aroused on the pure food question, and you can easily set honey as the standard of pure foods. Demonstrate, whenever you can, how it is impossible to make artificial comb honey. Market just as much of your honey as you possibly can in your home town. You will profit. Figure up how much honey you sold last year in your own community. Then conduct a vigorous campaign for this season, and figure up again. If the sales have not doubled or quadrupled it will be your fault.

BEE-KEEPING IN IDAHO.

Some Conveniences About the Apiary; Wiring Frames; How to Cut the Wires; the Acme Lid.

BY E. F. ATWATER.

Among the conveniences of a well-equipped shop are suitable arrangements for wiring frames, and for holding covers or bottom-boards while being painted. The cuts show fairly well our wiring gauges on which the frames rest while the wire is being threaded through the frames and fastened to tacks at the ends. We use three wires in the standard frame, with medium brood



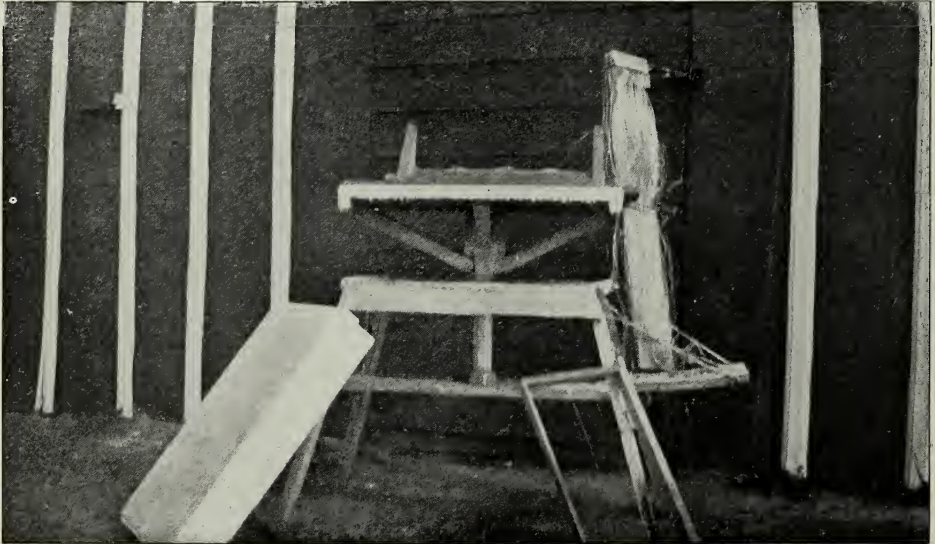
A RACK FOR HOLDING FRAMES IN A CONVENIENT POSITION FOR WIRING.

foundation. The frame is wired as though we were to use four wires—that is, the first wire $\frac{3}{4}$ inch from the top bar, and the next wire $1\frac{1}{4}$ to 2 inches lower, and the third wire $1\frac{3}{4}$ to 2 inches below the middle wire. Most of the sag is in the upper half of the frame, so that is the place for most of the wires.

Do not begin with one end of the wire, and thread that end through all the holes, but begin at the upper right-hand corner, cross to the upper left-hand corner, and fasten the

end of the wire to the tack. Now take the other end of the wire and thread it through the middle right-hand hole, across the frame and through the middle left-hand hole; then through the third left-hand hole, across frame, and finally through the third right-hand hole, then fasten to the tack. This saves time, and one is not handling so long a piece of wire at once, so there is less trouble from kinking.

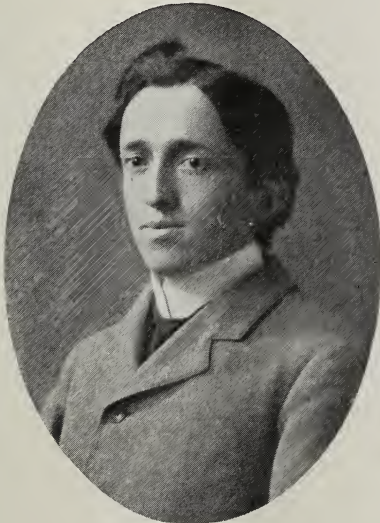
Notice the $\frac{1}{2} \times 4 \times 30$ inch board covered



ATWATER'S REVOLVING TABLE USED WHEN PAINTING COVERS AND BOTTOM-BOARDS.

with wires, especially the upper end where two $\frac{1}{2} \times 4 \times 4$ -inch blocks are so nailed as to leave an opening between to insert tin snips or shears to cut all the wires at once.

In a recent number of the *American Bee Journal* Mr. Getaz objected to winding the wire from a spool on to such a board because of the subsequent trouble from kinking when using the short wires so prepared. But by standing off about fifty feet from the spool when winding the wire on the board, and with tension on the spool, the wire is stretched slightly, taking out the tendency to kink and curl. We have never been able to do any thing with the 5-lb. coils of wire. They will curl and tangle when unwinding in spite of every precaution, and in spite of various reels, etc., on which we have mounted them. I have had my temper tried more by the 5-lb. coil of wire than by almost any thing else; so I am sure that the 5-lb. coil of wire is an invention of the evil one. Don't use



E. F. ATWATER.

them. Use 1-lb. spools. When we have about $\frac{1}{2}$ lb. of wire on our board we tie a stout cord around each end, and one in the middle, then cut all the wires at the place provided, when we can draw one at a time, limp and straight, just enough to wire a frame. We mount the spool of wire in a little reel and produce any desired tension by a flat super-spring pressing against the spool on the flange at one end.

We consider the old rocker Easterday wire-imbedder to be "1000 miles" ahead of the spur, as the spur nearly cuts the wire in two, and does not then do a good job of imbedding. When one hauls wagonloads of extracting-supers and hives full of wired frames and full sheets of foundation over all kinds of roads to outyards he soon learns the reliable methods. When we are not pressed for time we find it much more satisfactory, with

either Easterday or spur imbedder, to run over the wire, after imbedding, with a small brush dipped in hot wax, or with an Onderdonk spoon with a small notch in the end to follow the wire. This effectually waxes the wires in place, and makes the foundation strongest where the wires run. If this latter method is used the spur is quite satisfactory.

In the photo the wiring-gauge is resting on the revolving table, on which we paint our lids and floors, as illustrated by Rambler several years ago. This revolving table is a great convenience in painting lids and floors; but for supers and bodies we prefer to pile them on a ladder resting on the ground its whole length, in piles about five feet high, and paint each pile instead of handling each super or body separately.

Leaning against the revolving stand is one of our "Acme" lids, covered with tin painted white. This lid has a rim $2\frac{5}{8}$ inches deep to telescope the hive or super, and rests on two cleats $\frac{3}{4} \times 1 \times 14$, nailed across the ends inside, and next to the top. It is equally good, either to use with an inner cover or with a quilt. This lid is somewhat similar to your shallow metal-covered telescope lid, but much more substantial. It is also similar to the Alexander telescope cap. We made 200 of these lids last year to use on our comb-honey hives, and we are beginning to think that a telescope lid is the only lid fit to put on a hive. They shed all water away from the hive, obviate need of shade, are best when a new swarm is hived, and if any colony is a little short of stores there is plenty of room, by raising the quilt, for a full comb of honey lying flat on top-bars, or for a large cake of candy.

Meridian, Idaho.

DO BEES STORE WATER?

A Report of an Interesting Experiment.

BY DR. PHIL. MAX BOELTE.

There is in GLEANINGS for April 15, 1905, a short article by Prof. A. J. Cook on this question, with reference to a suggestion by the editor. When I first read Prof Cook's remark I was much surprised to see that a man of such unquestionable learning could make such an assertion. I wish to state only what I have seen. We all know that bees need water, and at some seasons of the year they need it in great quantities. Now, in order to arrive at a conclusion for my own satisfaction, as well as to see if Prof Cook was correct or not in his assertions, I decided to make a few observations. My apiary is about 120 yards from house and well. There is generally water running in a gulch up to about the middle of May. In order not to be bothered by the bees around the house and well I have trained them to two watering-places. It was then an easy matter to make my observations, which have been conducted, off and on, for the past

seven months on rather hot and dry days, and also, later on, on damp and cool ones.

Provided with a small long-handled paint-brush and some white paint, I sat down near one of the drinking-places and put some little dabs of paint on sundry bees. After having thus spotted some twelve or fifteen bees I waited to see if those same bees would come back. In from five to twelve minutes, there they were with their paint. I have repeatedly tried this experiment on cool as well as on hot and dry days. Of course, the quantity of bees coming to the watering-places was much larger on dry and hot days than on cool and damp ones; yet I have seen them every day, even when the temperature was only 50, and snow clouds passed overhead.

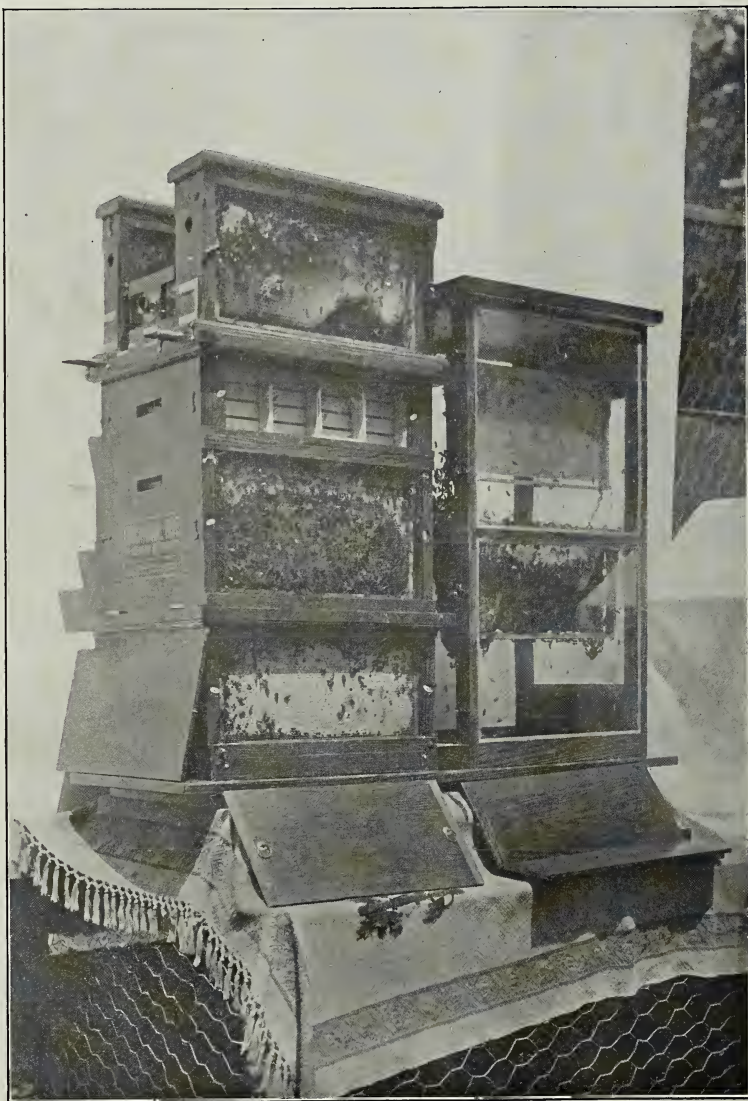
Now, what have we to deduct from these observations?

1. That the same bees make repeated trips to the water.

2. That not all the flying bees come for water, but, as I have convinced myself, go to the fields. Have we to conclude that the bees that come for water are nurses, or especially chosen bees for this water-carrying? I have seen these spotted bees going into the hives, without any attention being paid to them. Only a few times I have noticed that a "guard" had, apparently, a "confab" with such water-carrier; but I can not be sure whether the

guard got water from the river; neither have I been able to ascertain whether these water-carrying bees are only nurse-bees, but I incline to that belief.

I am much interested in this matter, and shall follow it up the coming season with one or two observatory hives. From what I have seen so far I feel confident that the bees carry the water in their honey-stomach into the hives; but, of course, I do not know they store it. Perhaps they use it for diluting the honey, etc.; during the time when



THE BIGELOW EDUCATIONAL HIVE.

Complete hive with shields removed. Main hive in front consists of base, observation chamber, super with four sections, and two "traveling hives" at top. In the rear is the flying-cage.

there is not enough nectar in flowers to be found. During the bloom of certain nectar-bearing flowers the number of bees at the drinking-places has decreased to an astonishing degree.

Lilac, Cal.

AN EDUCATIONAL BEE-HIVE.

BY EDWARD F. BIGELOW.

From The Nature-Study Review, Sept., 1905.

In a booklet recently published and distributed free of charge to those who ask for it, I have explained why a bee-hive seems to be needed for educational purposes, a hive that shall be worthy of the interest sure to be aroused by the instructive and often unknown or unappreciated habits of the honey-bee.

In that booklet I have briefly set forth the main points of this special hive. What I have there stated regarding its advantages I trust will be made clearer by the accompanying illustrations, their subjoined legends, and this additional description.

The structure is not so much a hive, which is a mere home for the honey-bee; but rather a complete, elaborate, handsome apian apparatus or laboratory supplied with every facility for observation, instruction, and experiment. I have long been of the belief that full justice—if not more than justice—has been done to cheap, homemade, simple contrivances for keeping and observing these most fascinating and useful members of the insect world. That it is an expensive hive I admit. That I have purposely made it so, I also admit; and I strongly advise that it be ordered only in oak or in ash, the wood to be as highly polished as possible. No patent has been put upon the hive, and the purchaser pays only for the material and the labor. I have made such arrangements with the company which manufactures and places it in the market, that I am convinced they are doing it without any pecuniary profit, trusting for that to come from an increasing interest which this hive will excite in bees, and therefore an increase in orders for the ordinary apian goods.

The Complete Hive.—As set up in my laboratory, there are placed in the entire hive ten frames in base, ten in observation chamber, three in "traveling hives" (at top) and twelve in flying cage—thus a total of thirty-five. The flying cage holds twenty frames, but it is preferable to put in not over twelve—two sets of three each on each support. It

would be even better, perhaps, to put fewer frames in the flying cage when it is used in connection with the rest of the hive.

It is also intended that usually only one frame shall be put in each half of the two observation chambers. This arrangement brings under full observation the outsides (half of whole frame) as follows—two in base, two in observation chamber, four in traveling hives, four in flying cage. There will also be seen fairly well the inside surfaces of the four frames (one of each set) nearest the center of the flying cage. Thus there are visible sixteen sides of frames or an equivalent in sides of an entire eight-frame ordinary hive. But in actual practice, this Educational hive gives an equiva-



Side view of the Bigelow Educational hive, showing storage of honey in outside frame at base, three rows of developing queen-cells in observation chamber, four full sections of honey in super, and brood, honey, and bees working in "traveling hive" at top.

lent of two eight-frame hives, fully under observation, because as the two sides of any one frame are usually about the same, a full observation of an ordinary hive would show eight different combs, or stages of progress in the work, while this Educational hive shows sixteen different frames under observation at once. And, as has been previously explained, if it is desired to crowd the hive to fairly full capacity, there would be a storage or "base of supplies" in nineteen

additional frames (not visible), a total of thirty-five. Thus it will be readily seen that the hive is of enormous capacity for observation or work, and admits of a great variety of combinations and arrangements, to meet the needs of experiment, or to suit the fancy of the operator.

The entire structure full of frames would hold forty-three, of which twelve sides would be easily under observation at one time. (When the flying cage is filled with frames, of course no interior surfaces are visible. When fewer than twelve frames are put in, if separated, more than four interiors may be seen.) This is in addition to eight outside sections in super, and gives full facilities for exhibition of the stages of comb-making, the storage of honey, the cell structures, the queen, the drone and the worker brood, and a variety of novel experiments.

There is ample room under, above, and between the two tiers of frames in the flying-cage for any form or for several forms of base feeders such as the Page or the Miller.

Between the one-frame and the two-frame hives at the top of the main division are two glass-jar feeders, in which the bees are sucking downward (or feeding from under side) the syrup. In all others they are sucking it upward (feeding from top). The hive as a whole is designed to be set up at some distance from the window or other exit through the wall of a building, for temporary exhibition at a fair, a museum, or for special visitors' day at a school (when it is not convenient to take a large number of visitors to the regular location of the hive in another part of the building).

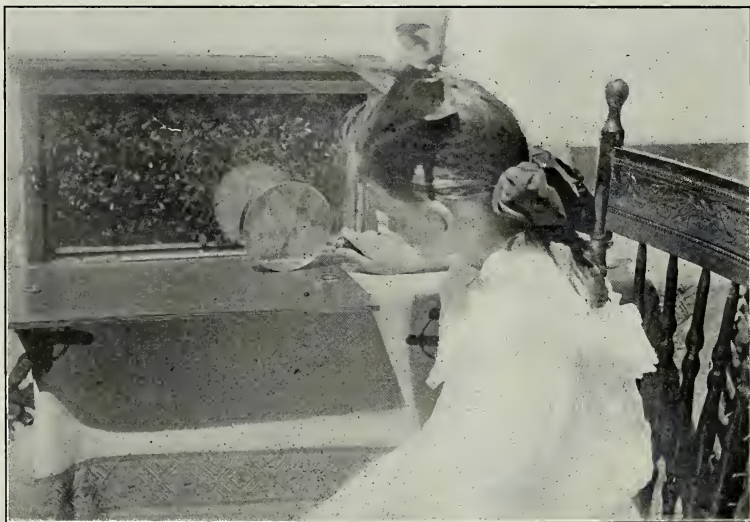
In devising this form, I have had in mind also an exhibition in the center of large stores. To the storekeeper this would be a novel and excellent advertisement to attract people to the store, to the apiarist a source of income for the placing and the renting of the hive and contents, and to the advancement of bee-keeping, because producing an increased interest on the part of the public.

Body of Hive.—This holds ten regular frames, a "base of supplies," a brood-chamber and force of bees. One side of each of

the two outside frames is visible. It is recommended that stored honey in full (as in the illustration) be shown in this.

Observation Chamber.—Designed especially to show processes of queen-rearing. This chamber is of extra depth, and the glass (as in body and super) is readily removable. Frames may be taken out or put in at the side. These chambers (two made by an especially deep padded division-board) are automatically filled or emptied (as are the one-frame and two-frame "traveling hives" above the super). This is done by a system of slides—a long slide covering plain slot and a Porter bee-escape slot in base of chamber to be filled, and a long plain slot corresponding in length to both above it, in the base below the operating-chamber.

When the slide in the base of the operating-chamber is out, bees go in or out. When the slide is half way in, bees go out only;



A large reading-glass, preferably one five inches in diameter, makes more interesting and easier to observe all the activities of the hive.

and by pushing the slide fully in, bees go neither in nor out. Thus one or more brood-frames in either chamber may be isolated or emptied of bees by manipulating this slide. The same principle is applied to the bases of the one-frame and the two-frame traveling hives and to the magnifying feeder.

Super.—This has thirty-two full sections, each four by five inches, the entire one side of eight being plainly visible.

One-Frame and Two-Frame Traveling Hives.—These have the automatic filling, emptying, and isolating devices by a system of two slots, two slides and bee-escape, as explained under the head of observation chamber. They are fastened by hooks to the super cover, and are easily isolated or carried to any distance. I have carried a one-frame with the queen, and about five thousand workers and one hundred drones,

to the four normal schools in the State of Michigan. I spent a week at three of these schools and a day at the fourth. When the frame was not in use before public audiences, the bees went out to view the country and to gather material. The hive was placed on the lawn, or by an open window in school-room or in my room at the hotel, and the sliding wire net before the entrance at the lower part of one end was drawn out. When I arrived home the entire swarm was in better condition than it was when I started.

Magnifying Feeder.—This is regarded by many persons as the most original, novel, and interesting part of the hive. It is fully described in the booklet previously mentioned.

Flying Cage.—Three sides of this are of glass, the fourth being of wire netting. Ordinary frames may be placed in it, but it is made of special depth so that rustic sticks may be placed on supports, so that the bees may build natural combs, and not the shallow, square-cornered combs of the artificial frames. When thus used separately with the exit open into the free air (not into the main portion of the hive) it becomes an observation box hive, or the interior of the original bee-tree, with combs on any sort of sticks, and of any length that the bees see fit to build. By having a hole in the center of the cover board, a super or any other apparatus may be placed above it. But for this purpose the writer prefers the original straw hive, and thus in one complete structure would be shown the interior of the original bee-tree, the first steps in hive-making (the straw hive above it) and at the left a complete modern hive with most improved experimental apparatus and accessories.

The use of a hand-lens five inches in diameter makes any part of the hive, or of any structure, or the movements of the bees more readily and effectively seen, and is strongly advised.

I believe this hive to be worthy of the subject. It is a great and unusual convenience. Its facilities are unlimited, and it will soon become a joy to the purchaser, especially if he will use it for the study of the *Apis mellifica*.

My best wish to you, my reader, is that you may obtain as much instruction and enjoyment in the use of this hive as I have found. I own three complete with about forty-five sides of frames under constant observation.

If you can't get the whole, start with the one-frame traveling hive. Watch the two sides, and be happy—and dream of getting more hives and more happiness.

Is sweet-clover honey very good to winter bees on?

Brighton, Colo.

A SUBSCRIBER.

[Sweet-clover honey will make an excellent bee-feed for winter.—ED.]



TWO QUEENS IN A HIVE.

During the season of 1905 I received four queens from a breeder, two of them worthless. One of these was much deformed, and laid very few eggs, so I paid little heed to her small colony. I opened the hive on a warm October day, expecting to find her dead; but on withdrawing the middle comb I found on the side next to me a well-formed and good-sized queen, doubtless fertile. A small patch of brood was present. Turning the comb about I saw the worthless crooked one—no guesswork. I am sure of it, for I was surprised, and looked times enough to make certain.

Sylvania, Pa.

RICHARD SIMMONS.

[The case you report is quite a common one—so common, indeed, that usually in an apiary of one or two hundred colonies there is liable to be one or two cases of dual queens in a hive in a season. The cases are most common where the old queen begins to fail, and a young queen comes on to take her place. Though contrary to the general rule that applies in all such cases, both queens are permitted to do service at the same time. The old queen very soon turns up missing, *as a rule*.—ED.]

A PLAN FOR PRODUCING COMB HONEY WITHOUT INCREASE.

I should like to submit the following plan for producing comb honey without increase: When a colony swarms, set the old hive to one side and put a new hive with full sheets of foundation on the old stand. Take the supers off the old hive and put them on the new one. Over this put a bee-escape board. Finally, set the old hive on the bee-escape and put on the cover. As the young bees hatch they will go below. In six days cut out the queen-cells so as to prevent them from raising a queen in the old hive. This work should be done while the swarm is in the air, and then give them on the returning plan. The queens should, of course, all be clipped.

Do you think this plan would work? I have tried hiving swarms. I have tried this method all but using the bee-escape board; but by having the old combs above, the sections were capped over with pieces of the old comb, making them quite dark or travel-stained. By using the bee-escape the coloring of the honey in the supers would be prevented.

Fulton, Mich., Nov. 10, 1905.

G. O. EVANS.

[Your plan, in connection with the Porter bee escape, would be liable to result in the

desertion of the brood in the upper hive. The young bees to a great extent would remain above, but all the older ones would go below. The loss of this body heat from the older bees and the loss of the body heat from some of the younger bees going down might prove to be disastrous to the brood left above, especially if any of it were left unsealed. Your better way is to set the parent hive to one side (entrance pointing same way) and allow sufficient time to elapse until all or a large part of the brood is hatched out; then shake all the bees in front of the hive with the swarm, removing the parent hive. You will secure the same effect precisely without the loss of brood, and without the danger of soiling the combs of the sections from the old brood-combs above. This plan has been used to quite an extent, and I would urge it instead of the one you propose. But it would be advisable, before shaking, to put perforated zinc in front of the entrance of the swarm to catch any virgins that may have hatched. If the queen of the swarm is not valuable, let the virgins run in with the rest. They will fight it out on the principle of the survival of the fittest.—Ed.]

THE DANGER OF A MONGREL AMERICAN BEE.

I don't think I've seen anything published against the possibilities of a mongrel American bee. As long as the Italian was, *par excellence*, the standard, we had a high and reliable type. What will be the result of a general mixture of Italians, Cyprians, Caucasians, Carniolans, German, etc.? While they can be kept "pure blood" or properly crossed, the benefits of any one race or cross are apparent; but is there not great danger that the high value of each, which is due to its distinctiveness of certain characters, may be lost by careless or unpreventable cross-breeding and mixing?

With *intelligent* crossing, certain undesirable features may be eliminated—i. e., the temper of the Cyprians; but we must be constantly alert to prevent a slump in quality; and I fear that, the greater the number of races of bees in any one community, the greater will be the chances and dangers of such deterioration. H. A. SURFACE.

Harrisburg, Pa.

[I do not believe it is advisable to introduce into one locality too many different strains of bees, just for the reason pointed out by Prof. Surface. It is well enough, however, to bring in these new strains, but let each strain have a locality of its own.—Ed.]

THE CELLS IN THE TWIN MATING-BOX COMBS SLANT THE WRONG WAY.

The twin mating-box which you described in the Jan. 1st issue is almost perfection; but from the description given, the small frames are put in the large frames lengthwise; and when taken out to put into the mating-box the cells, instead of slanting upward, are slanting sidewise. Will the queen

lay with the cells in that position? and will the bees be satisfied? W. M. PARRISH, Lawrence, Kan., Jan. 6.

[You will find no trouble by turning the cells around at right angles to their former position. As a matter of fact combs can be turned upside down, and young brood will be reared just the same. Years ago, when reversing had grown to be quite a fad, the combs in all reversible hives or frames were turned bottom upward once and sometimes twice in a season. No difficulty was ever experienced to the effect that the queen refused to lay nor that the bees refused to rear brood in them. For years the United States Department of Agriculture, under the direction of Mr. Benton, has been using just such combs in little mating-hives. Three of them just fill out the inside of a standard frame. When taken out and put into a mating-box they are turned at right angles.—Ed.]

THE WOODWARD SELF-SPACING FRAME; A CORRECTION.

Mr. Root.—You do not seem to have gotten my form of frame. I do not see how any one could have obtained a patent on such a frame as you described on page 1249. In fact, I would not take such a frame as a gift. In the first place, my frame has spacers one inch from the top-bar, the same as at the bottom, and no spacer whatever on the rabbet. Why I placed the space one inch from the top of the frame is because the bees do not glue frames very badly one inch below the top-bar. It is always the top of the frames that gets the glue.

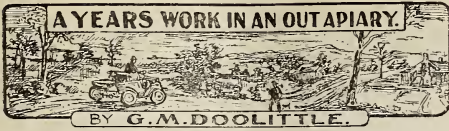
Matanzas, Cuba. C. E. WOODWARD.

[Thanks for the correction; but even using spacers as you now describe, one inch from the top-bar, do you not find that, when you crowd over three or four frames by pressing on one top-bar of the frame, this frame will be tipped, smashing bees both at top and bottom? We tried spacers one inch down as you describe, but abandoned them almost as soon as we saw how they worked.—Ed.]

BENT WIRES FOR HOLDING TRANSFERRED COMBS.

Here is a diagram of bent baling wire used by me for many years to hold transferred combs in the frames until fastened by the bees. I can use them and put all sizes of combs in the frames, and make almost perfect sheets of comb of them. I think the wires are better, and quicker put on or taken off, than strings or sticks or tin. The wires can be taken off the frames without taking the frames out of the hive; and when once made they are good for years. The wires hook over the top and bottom bar. They have probably been in use by bee keepers for many years; but I do not remember having seen them mentioned anywhere, and do not know of any bee-men using them before I introduced them here. F. P. WHITE.

Lemon Grove, Cal., Dec. 14.



CHAPTER 4.

HOW TO CONTROL SWARMS WHEN RUNNING FOR COMB HONEY.

It is now the 16th of June, many heads on the white clover are fully in bloom, while the black locust, from which the bees obtained quite a little honey, has just gone, and two of my bee-keeping neighbors report "swarming commenced." Half-past three o'clock A.M. finds me in my auto, with the scythe done up in a blanket (to keep it from cutting and marring something it was not intended for), occupying the "other seat." Those who have never ridden in an auto at the "peep o' day" can not even imagine my delight that morning. Birds were singing from every branch, the barnyard fowls were out after the "early worm," while now and then the smoke from the chimney of an early, enterprising farmer was rising up in wavy circles as it ascended toward heaven. The eastern sky soon became all aglow with its "gold and carmine," telling of the advancing sun, while the cattle and sheep on a "thousand hills," were securing their morning repast from the grass made so pleasant and palatable from the "dew of the morning." When nearing the apiary, a jolly, fun-loving farmer, who had "just pulled out" for his cows,

yard mown before the bees got "waked up" by the rising sun.

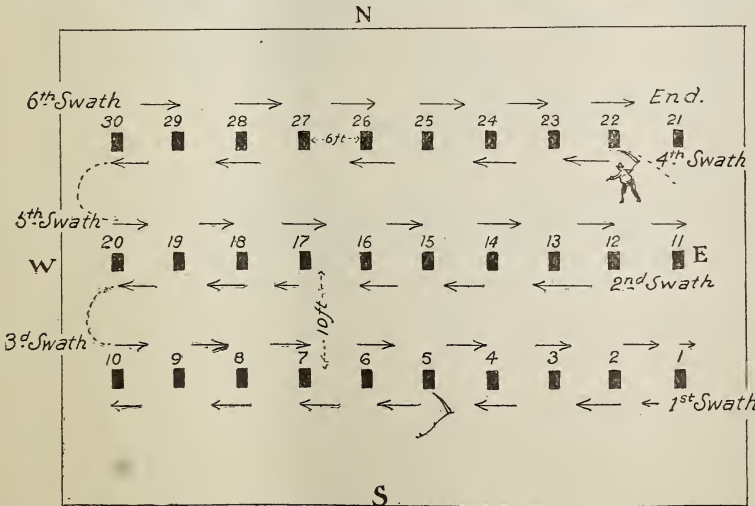
Arriving, the scythe was hastily unwrapped, and, going to the front or south side of row No. 1 (hives face south, rows run east and west), I begin at the east end and mow a swath toward the west, allowing the "pointing in" to come as near each hive as is possible without hitting any of them. By thus mowing, the swath of grass is carried out and away from the entrances to the hives so the bees need not be disturbed when I come to the raking-up part, later on. Arriving at the west side of the yard, I quickly go back to the east or "beginning" end, and mow through again, immediately in front of row No. 2, but instead of coming back "empty," as before, I mow back at the rear of the hives on row No. 1, cutting as close to the backs of the hive as is possible without hitting them enough to disturb the bees materially. In this way the double swath of grass is left in the center, between the first and second rows of hives.

I now begin in front of row No. 3, coming back at the rear of No. 2. Next, I go to the west end of No. 3 and mow at its rear, turning the swath away from the rear of the hives against the fence at the rear of the apiary, the same as I turned the first swath away from the entrances, or fronts of the hives, against the fence in front of the apiary. I now go to row No. 1 and cut the grass between hive No. 1 and hive No. 2, and so on till the grass is cut between all the hives in each row.

After years of practice and experimenting, this is the best and quickest way to cut the grass in any bee-yard

laid out in rows, that I know of; and, after a little practice, very little grass will be left about any hive to cut with a knife, shears, or sickle. At half-past six the grass is cut, raked up, and put in a pile outside the bee-yard fence, for the farmer who owns the land to use, if he so desires, and I am ready for my breakfast lunch, which I eat sitting in the auto.

That the reader may better understand, I will say that the fence enclosure is calculated for 30 col-



DOOLITTLE'S METHOD OF MOWING THE GRASS IN A BEE-YARD.

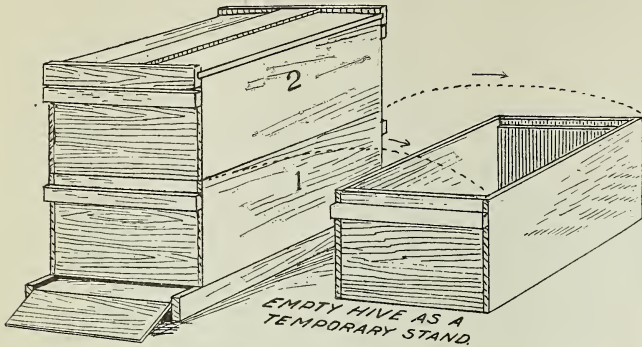
accosted me, while pointing at the wrapped-up scythe, with, "Taking the sick one in your ambulance to the hospital?" "Yes," I replied, without stopping, as every moment was precious, if I was to get the bees

onies, three rows with ten on each row. The rows are ten feet apart from center to center, and the hives are six feet apart in the row, which distance I prefer to any thing else, after having tried distances both

less and greater. When I bought this out-apiary it had only 22 colonies in it, and as I thought at that time that I did not care to increase the number to more than 30 col-

I consider it money well spent when paid for help to do this carrying part.

I always begin any work with bees, where I can work in rotation, at hive No. 1, row 1, for this reason: If any colony becomes unduly disturbed at any time during any manipulation or work about it, I am soon behind and away from their range of flight, so am less liable to be tormented by angry bees; for if the object of their anger is out of sight of the entrance of their hive, they soon forsake the following of that object. Any colony after being worked at, or after having work done about its hive, is much more liable to resent having a moving object in front of them, and in line with their flight, than they are before being disturbed. Here is also "another something" which is well worth "pasting in the hat."

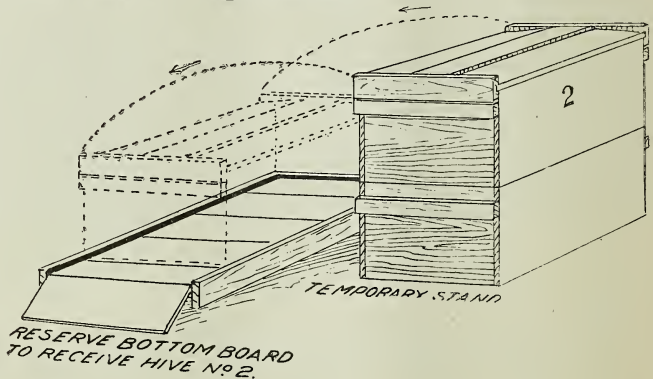


USE OF HIVE AS TEMPORARY STAND; HIVE 2 ABOUT TO BE TRANSFERRED THERETO.

onies, it was laid out and planned for that number. And as, later on, I was overworked to an extent that retrenchment was considered rather than enlarging it has remained the same as when first laid out. My first object when buying this apiary was, the forming of nuclei for queen-rearing at the home yard, as bees, no matter what their age, brought four or five miles from home, do not return so as nearly or quite to spoil a nucleus newly made, as do the bees taken from the same apiary.

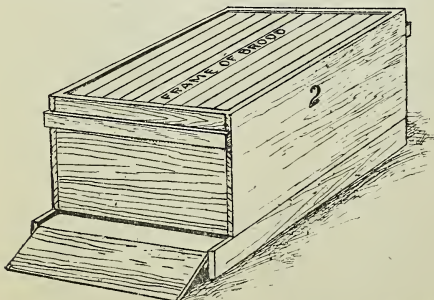
My experience, based upon the time taken to work this 30-colony apiary by the plan here given is, that from 60 to 75 colonies would be the right number for each out-apiary to be worked by one energetic man, in a fairly good locality, without any help from others, except in setting in and out from the cellar. One man can do this, but

fore being disturbed. Here is also "another something" which is well worth "pasting in the hat."



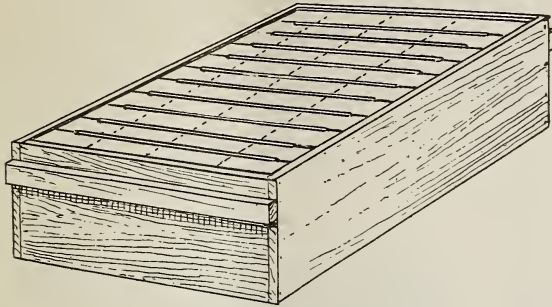
RESERVE BOTTOM BOARD TO RECEIVE HIVE NO. 2.

Lunch over, I take an empty hive and go to hive No. 1, this being one of the 13 having an upper story put on during the third visit. The empty hive is put down on the ground, close by the side of the colony, as a temporary stand, so that by a lifting, swinging motion, the upper story can be easily set on it with scarcely bending the back, which is now done, after prying it up at the back side and sending a few puffs of smoke under it to quiet the bees. From the strength it takes to "swing" this upper hive, I judge there is some 50 or more pounds of honey in it, which is more than I expected from the poor season we have had so far. The lower hive, bottom-board and all, is now set off the stand, and a reserved bottom-board placed thereon, when the upper story of 50 pounds or more of honey is set on this new bottom-board and a center frame of honey taken out, which is taken to one of the weaker colonies and exchanged for a frame one-fourth to two-thirds full of



CENTER FRAME IS TAKEN OUT AND A FRAME OF BROOD PUT IN ITS PLACE.

brood, with the rest of the cells nearly empty, after the bees have been brushed from each into their respective hives. This one-fourth-full frame of brood is now set in the hive on the new bottom-board, to take the place of the frame of honey.



DOOLITTLE SUPER CONTAINING FORTY-FOUR $3\frac{1}{4} \times 5\frac{3}{8} \times 1\frac{1}{8}$ SECTIONS.

Such a comb seems to be quite necessary, where the upper hive contains much honey, as it establishes the brood-nest in the center of the hive, where it should be, and also allows the queen to keep right on laying without interruption, the same as she has been doing. If the queen is checked in her laying at this point, as she would be in a hive thus filled with honey, if no frame having empty cells was given, it is quite apt to result in an effort being made at swarming, which is not consistent with the immediate moving of the honey in these combs to the supers above, and the success we wish to obtain, although, even in case of such swarming, better results are obtained than by any other plan of "shook" swarming which I have tried; for after a fruitless effort or two (the queen having her wing clipped so she can not go with the swarm), and a few days of sulking, they will go to work with a will, thus showing their acceptance of the situation. However, if treated as here given, not one colony in 50 will do aught but accept the situation, and go to work at once in the sections, especially if there is any honey coming in from the fields.

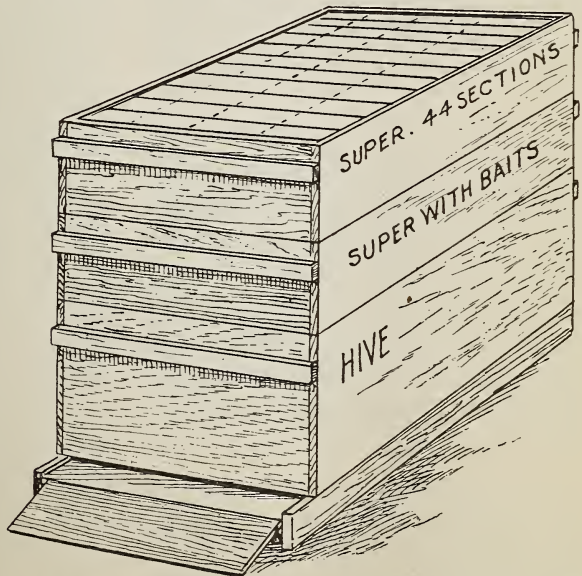
I now get two supers of sections, from the pile which has been brought, 8 to 12 supers at a time, each time I have come to the apiary, either with the horse or auto, each super containing 44 one-pound sections, as this is the number of $3\frac{1}{4} \times 5\frac{3}{8} \times 1\frac{1}{8}$ sections my super covering a ten-frame Langstroth hive contains. The sections in one of these supers contain only full sheets of foundation, this foundation being of the extra thin kind for sections, as

manufactured by The A. I. Root Co., while the other super has 12 of the 44, full or nearly so of comb, left over from 1904, as "unfinished" sections, they having been put in the super when it was prepared for the season of 1905, with the 32 other sections (filled with extra thin foundation) as "baits."

The baits are very valuable with this plan, as these bait-combs give a chance for the bees to be storing the honey at once, or immediately after its removal from the combs below, to give the queen room for her eggs—this being done while other bees are drawing out the foundation in other sections, so that work along all lines progresses as one great whole, without any interruption.

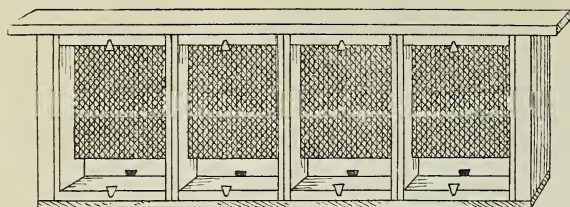
This super with baits is put on first, top of this prepared hive, and the other with sections of foundation on top of this. This second or upper super is put on to give plenty of room for any overflow of bees or honey which may come before our next visit, so that the bees may not at any time feel crowded for room. I have sometimes put the super containing the baits at the top, but the bees do not so readily get to them there, and hence slower work all around on the start, which is against the greatest success. An immediate start in the sections is a great advantage at this stage of proceedings.

Some seem to think that the bees carry



very little if any honey from the brood-nest up into the sections, and for this reason feed the bees, between apple and clover bloom, sugar syrup or inferior honey till the combs and all cells not occupied with brood

are solid full of sealed honey, claiming, for this plan, yields in excess of others who do not so feed, arguing that, by such a plan,



DOOLITTLE'S WIDE FRAME WITH SECTIONS.

all of the clover honey is put into the sections. I believe they make a mistake. The greater yield comes from this fed honey or sugar going up into the sections, together with that gathered at this time from the clover bloom; for I have repeatedly seen such combs of sealed stores all emptied or nearly so, two weeks after the clover began to yield honey, eggs, larvæ, and sealed brood taking its place. And another thing which proves to me that very much if not all of the honey which is now in this prepared hive goes into the sections, is the color of that stored therein during the time the queen is filling the hive below with brood. Quite a little of the honey left over from the year before, which is given to the bees for stimulative purposes, so that they may think there are "millions of honey at our house," was gathered from buckwheat. Of course, the most of this goes into brood; but often there is enough left, so that, when mixed with the other honey which has been accumulating since these combs were put in the hives during the spring, together with

up and looking through them toward the light) are preferred to any of those which are filled with only clover or basswood honey, and coming off later, they often selling for a cent or two more a pound than the white, to those knowing about them.

Having every thing now in readiness, the hive is closed by putting on the cover, when the queen excluder is taken off the hive of brood, and I at once proceed to shake and brush the bees off their combs of brood in front of this prepared hive.

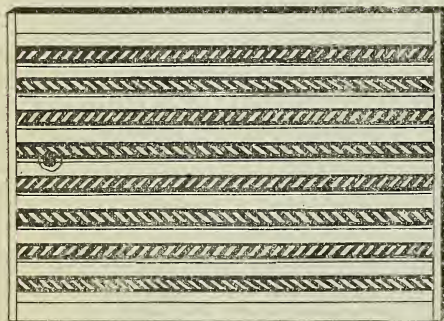
To be continued.



OUR TRIP HOME FROM THE ROBINSON CRUSOE ISLAND.

At seven o'clock on Monday morning, April 9, Mrs. Root and I stepped into a sailboat belonging to one of the Shumard boys, to start on our trip for the North. At Sarasota we checked our baggage home, and then took a trip among the bee-keepers and orange-growers in that vicinity.

Our first stop was at Reasoner Brothers', whom I have mentioned before. This celebrated tropical nursery had things in extra nice shape for the spring trade, and packages of rare and valuable trees and plants were being shipped, not only all over the United States, but to foreign countries. On my previous visit I mentioned the Reasoner Brothers' plan of shipping potted trees as well as potted plants. On this visit I got hold of another wrinkle that was new to me. There are some rare and valuable tropical fruits that are very hard to bud or graft. The avocado pear (generally called "alligator pear" for short) is one of these. Some of the new and rare varieties are valued so highly that fruits have sold in cities at half a dollar each. Well, in order to propagate these valuable varieties they practice a method that I think is called "in-arching." They sow the seeds of the avocado, of some good and thrifty variety, and grow little trees in pots. When they are a foot or two high these little pots are placed on a shelf up in the branches of a pear-tree. The little tree is put against a thrifty branch so the two cross, X fashion. Then they are tied firmly together and wet moss is kept over the junction. After they are united, the top of the little tree is cut off just above the juncture. A little later, the limb of the pear-tree is cut off just below where they



DOOLITTLE'S QUEEN-EXCLUDER WITH DRONE-HOLE.

that coming in from clover at this time, it will give the honey in the sections from the first super filled a very delicate pink hue, and a taste not quite like clover in its purity. I thought at first that this part would be against my worked-out plan, but I find that these pinkish-colored sections (the same being detected only by holding them

unite. This gives us a top of the valued variety. It amounts to the same thing as grafting, but it is possible where grafts could not be made to grow. The little tree is then removed, and treated like any grafted stock. We saw great numbers of little trees that had already been grafted by this process, or were in process of grafting or in-arching. A small potted plant can, by reversing the process, be put in the top of a big tree, so as to get fruit very much quicker than could be obtained by waiting for the young tree to grow full size. Mr. Reasoner was rather crowded for time that day because he had just got a new Cadillac automobile, and he was preparing to take some of his neighbors out to ride. By the way, there is not much trouble in running autos in Florida, because there are almost no horses to get frightened. The gasoline-launches and sail-boats I have told you about do not "scare" worth a cent.

Our next stop was at Mr. W. B. Collins', Ocala. While Mrs. Root was chatting with Mrs. Collins, and admiring the beautiful tropical flowers surrounding their southern home, Mr. Collins beckoned to me and said he had something I would be glad to see, in the back yard. Well, I *was* glad. On account of the excitement of getting ready for our long trip, or something else, I had kind o' lost my appetite, and was not feeling just right. When we got through the house into the back yard, there was a tree loaded with the biggest black mulberries I ever saw in my life. They were fully as large as my thumb, and two inches long, and the most luscious berries, it seems to me, I ever tasted—at least it looked that way just then. The trees were covered with berries dead ripe, and the ground was pretty well covered. When I picked some off the ground to see if they were just the same, he protested, and said there was a great plenty on the tree. While I ate I talked

"Why, my good friend, I have heard these were splendid for chickens. Why don't your nice-looking fowls turn in and utilize them?"

"Why, the chickens do eat all they want, every day; but there are more than enough for the chickens and our family besides."

I thought if that was the case I would have all I wanted. As I hustled the big ripe berries into my mouth it seemed as if they hit the "spot" to a dot. They filled the traditional "long-felt want;" at least it was the long-felt want on that particular hot day. Some sort of intuition told me they would not hurt me a bit, but that they were just the medicine I needed—God's medicine—and so it proved. They just made me well. I suppose this large luscious mulberry will not grow in the North, and it is really too bad. I inquired if I could get this kind of mulberry at Reasoners' nursery, almost next door. Mr. Collins replied, "I do not know the name of this particular mulberry; but Mr. Reasoner has not any like it, because I have bought trees of him and they are not nearly as large nor as early. But you do not need to buy any trees—you can have cuttings from this one—all you want."

Then I noticed that the long branches were loaded with fruit clear up in the air, twenty feet in every direction, some of them running away up above the house. Let me digress a little.

Not many days before, Mr. Shumard said he would like to have me go with him and show him how I would trim his two mulberry-trees. They had been growing just one year from the cuttings, and had sent out branches eight or ten feet long. After we had decided how much of the new growth would better be cut off, he took these limbs and cut them up, one bud to a piece. There were just 22 pieces, some as large as your finger, and some smaller. He put them in the garden in a row with so little care that I made up my mind he would not get a tree from one of them. Now, this was the decision when there was not very much rain; but in two or three weeks every mulberry-cutting had sent out a long green shoot; and just as I came away, several of these shoots had got fair-sized berries on them. Mr. Shumard remarked he would have to cut the berries off, as they would do better if not allowed to bear. I mention this as a sample of the way certain tropical fruits grow in Florida.* We had such bad luck with corn and potatoes and some other things that will grow up here in the North Mrs. Root came pretty near deciding that *nothing* would grow in Florida. After she had been to visit the Reasoner Brothers and some other people, she changed her mind. It is true that some things do not seem to grow at all down there in the tropics. Then before you know it they will begin to shoot up and show such an astonishing growth that you get one of those "happy surprises."

After I had satisfied myself from that mulberry-tree, friend Collins showed me a raspberry-bush. Now, it has been pretty well established for years past that currants, raspberries, and many of our northern fruits would not grow at all in Florida; but just now they have got hold of a new raspberry that looks very much like the wine-berry offered for sale in the North a few years ago. This new raspberry grows and bears fruit in Florida all right. Yes, you would think so if you saw that raspberry-bush there at brother Collins' place. Some of the shoots were away up in the air ten or twelve feet, and pretty nearly the size of a hoe handle at that, and the fruit was strung along the old bearing wood like currants on a currant-bush. They were not ripe at that time, so I could not judge of the size or qual-

* I have before mentioned the peculiar greed with which the Florida poultry take to all sorts of garden stuff, fruit, etc. Well, these mulberries, with their wonderfully luxuriant growth all over Florida, seem to supply this need of the poultry. In many places they said they grew them expressly for the chickens. The whole feathered tribe is fond of fruit. Some of us know this to our sorrow. Well, these mulberries in Florida are easily raised, but are so perishable as soon as they are dead ripe, that they are seldom found in the markets; but they are just the thing for the chickens, and I am sure they will be conducive to their health along with their grain feed. They help to make a balanced ration with fowls as well as with mankind.

ity of the fruit. This raspberry is advertised by Reasoner Brothers at Oneca, Manatee Co., Fla.

In the afternoon we visited friend Rood, and found him *still* picking strawberries. The mulberry-tree I mentioned on my former visit was bearing ripe fruit; but in size and quality it bore no comparison to the tree I have mentioned.

Next day Mr. S. C. Corwin, of Bradentown, took us over to Terra Ceia island on a visit. This island is celebrated for its high-pressure gardening. Oranges and other tropical fruits flourish here; but the principal crops are celery, cauliflower, tomatoes, and other garden stuff. I will describe a visit to only one farmer or gardener, whichever you may choose to call it, for illustration. The tomatoes in one field were two feet high or more, standing not more than three or four feet apart, and every tomato-plant was an exact duplicate of those all around it. The thrifty stalks were fully the size of a hoe-handle. They had not yet commenced bearing; but the picture was beyond anything I ever saw in the way of a tomato-field. This wonderful growth and luxuriance were the result of sub-irrigation. There are artesian wells all over the island. They get the water by going down, if I am correct, from 75 to 200 or 300 feet. Mr. Clytt says this artesian water will not answer if run on top of the ground in furrows. The action of the chemicals under the scorching rays of the sun produces an incrustation that makes trouble. He runs the water in tiles laid a foot or two under ground. He can stop up these tiles so the water will soak through the ground from one line of tile to the other. I think they are two or three rods apart. It requires much care and experience to get, the amount of water just right. All the soil on this island is so porous that an excess of water gets away very quickly. The tiles help to take away the surplus during heavy rains, providing, of course, the outlet is all open. To make a success of this kind of irrigation, the proprietor needs to be constantly on hand, you might almost say 24 hours out of 24. Any mistake in leaving the tiles open when they should be shut, or shut when they ought to be open, might ruin the crop. I saw a crop of onions ready to pull, that, from some figures we made on the spot, will yield over 2000 bushels to the acre. The ground had been heavily fertilized for cauliflower before the onions were planted; but there was no fertilizer put on the onions. The onions were all transplanted. Every thing is transplanted here on this ground that is so very valuable. I almost dislike to tell you how much land is worth an acre on this island; but I can give you an idea by mentioning the fact that a man paid \$200 per acre rent for fifteen or twenty acres; and he made money enough after renting the ground for two or three years to buy the land outright. This man I have mentioned, Mr. Clytt, grows three crops in a season right straight along on the same ground; and it is no un-

common thing to get from \$1000 to \$2000 per acre for his crop. He frequently uses a ton and a half of fertilizer that costs \$35.00 a ton for a single crop on one acre.

Now, please do not misunderstand me that Terra Ceia yields all over at this rate. I have never been in a locality in my life where there were not good farmers as well as poor ones, and I am afraid I saw more acres of poor farming on this island than I did of the high-pressure gardening. Where crops have been neglected, enormous weeds shot up almost like trees. Mistakes in irrigation ruined other fields; and various insect enemies required careful watching almost day and night to produce the great successes.

ORANGE-BLOSSOM HONEY.

There has been quite a little discussion in regard to this honey. It has been called of poor quality; and some have even gone so far as to say there is no such thing as orange-blossom honey. Now, I think I have got the truth of the matter, or pretty nearly so. The bees do not *always* get honey from orange-bloom; but some seasons they get a good deal. There was an unusual yield during this present spring. Friend Rood has secured something like 1000 lbs.; and while the quality is not, perhaps, equal to our best clover honey here in the North, in my judgment it comes very near it. If I remember correctly, friend Rood had as much as 8½ lbs. a day from a single colony on the scales. Mr. J. D. Forsyth, at Orlando, Fla., has had a wonderful flow of orange-blossom honey. No wonder, for there are something like 200 acres of orange-trees within three miles of his home. I saw a three-story hive on the scales, that had given 12 lbs. a day, of orange-blossom honey, for three days in succession; and the day I was there a 9-lb. swarm came off from that hive. Of course, this was extracted honey.

At dinner-time I saw on the table the prettiest display of honey that, I think, ever met my eye. He took some very nice orange-blossom sections and cut them up diagonally from one corner to the other. This plan has been mentioned before in GLEANINGS. Each strip of white basswood section contained a three-cornered piece of honey. It stuck out from the section something like a saw-tooth. These chunks of honey attached to the wooden section were skillfully arranged on a glass dish. As the dish was passed, each guest was expected to take hold of the wood and lift up one of the luscious three-cornered chunks. I wish I had a picture of that dish of honey on the dining-table. Well, when I came to taste it I uttered an exclamation of surprise. I suppose you know, friends, of course, I often do that. I do not always say it out loud, but I do often say it to myself. When these wonderful gifts of God are brought to my notice I can not help saying mentally, "May the Lord be praised for all this beauty." I would give a lot of money to have every reader of GLEANINGS taste some orange-blossom hon-

ey like that. He said he was getting 20 cts. a section at retail in consideration of the extra quality. But if he had such sections of honey in some big city, and could give the people a taste before purchasing, I should not wonder if they would bring half a dollar instead of 20 cts. Mr. Forsyth is a boy of only 19, and is comparatively new in the honey business; but in the neatness of his apiary and the quality of his honey I do not know but he is outstripping many of the veterans. May God bless the boys for what they are doing and for what they have done for the cause of improved bee culture.



TOMATO-GROWING ON THE FLORIDA KEYS.

When we came on our island in the fall, Mr. Shumard had, perhaps, a quarter of an acre of tomatoes. They were bearing a little. While there was no frost during the winter to injure them, the cold storms did have a depressing effect, and the tomatoes seemed much disposed to send out long shoots or vines, sometimes crawling on the ground ten feet or more instead of bearing fruit. Some time in April they commenced to do a little better, but nothing very satisfactory. Along in March he planted about an acre, of different ground, with plants from three to six inches high, grown in a seed-bed. I never saw tomato-plants take hold and grow, even here in the North, as did these plants, and in two or three weeks they were great handsome symmetrical tomatoes. It was hardly time for them to bear fruit when I left; but some of the same kind in my little garden made a tremendous growth but bore no fruit. I was so much pleased that I trained them on stakes and let them run up nearly as high as my head.

Well, during my visit to Mr. Clytt, at Terra Ceia island, I got a suggestion. After his tomatoes were two or three feet high, tied to stakes, he commenced a severe pruning. He told me there would be no fruit at all if the young shoots, starting out in different places, usually near the ground, were permitted to take the growth away from the old plant. You know how it is in an apple-orchard. If you let sprouts grow up around the base of the tree they will take all the growth, and the tree itself will die. This same thing has happened in our bass-wood orchard. Where a tree is not grafted it may be well, sometimes, to let one of the sprouts make a new and better-shaped tree. I have not had experience in this matter. But now to get back to the tomatoes.

Mr. Clytt said that, in order to get fruit, especially where the ground is so highly fertilized, these thrifty bright-green shoots must be constantly pruned off. There is something of this kind in our tomato-book, but it has not been emphasized as strongly as he gave it. He is probably one of the most successful tomato-growers in Florida, and perhaps in the country. While he gets three crops from his ground every year, no resting or letting up, each crop sells at a price per acre not only up into the hundreds but into the thousands, oftentimes. Celery is usually grown during the winter season in the coldest weather. After celery they put in tomatoes, egg-plant, cabbage, snap beans, cucumbers, or whatever seems to be in the greatest demand. Where it is possible, the second crop is started growing before the previous crop is harvested. In that way the ground is constantly "kept busy." I asked him if he could secure such crops without being constantly on the ground personally. He said he could not. At one time he ventured to take a vacation of about six weeks; but in spite of the best men he could get to put in charge during his absence, every thing went wrong until he got back on the ranch.

A stream of artesian water from a four-inch pipe is constantly pouring forth more than is ever needed to water his ground in the very driest time. But this very water that is such a splendid servant will work a world of mischief unless some one with long experience handles it *just right*.

He gave us a big bunch of onions to take along when we left—some of them almost the size of dinner-plates. His ground is kept absolutely clean, and it is also kept constantly stirred so as to let the air go down among the roots of the plants.

Perhaps I might mention right here that Mr. Rood, in his strawberry-growing, has never used irrigation at all. He has found that a constant stirring of the ground is easier for him than it would probably be to use the water, even if he had it. He showed me one patch of berries where he had tried to make a mulch take the place of constant cultivation. The ground that was stirred every day between the plants, and kept hoed up mellow, gave very much better results than the mulched part did. Of course, this constant cultivation during the bearing season gets sand and grit on the berries; but, as I have mentioned before, his berries are all washed, and taken right to his customers, to be used immediately. In this way the berries are just as fresh as if you picked them in your garden and took them direct to the table; and as Braidentown is rapidly growing, the prospects are that his local market will take all the berries he can raise for quite a spell, especially if he continues to care for *five* apiaries of bees. At the time of our visit he was getting that beautiful orange-blossom honey from all or nearly all his apiaries, and at the same time he was harvesting his strawberries daily. No wonder he is *busy*.

STRAWBERRIES ON THE FLORIDA KEYS.

The soil on our island is peculiar, and not every thing succeeds on it. I was quite anxious to see strawberries tried, and sent to Hastings & Co., Atlanta, Ga., for 100 Excelsior plants by mail. The plants were good-sized roots, but they looked as if they had been some time out of the ground, and I did not expect very much of them. I planted 50 in my own garden, and let our neighbor, Mr. McAuley, have the other 50. I was surprised at the way the plants started to grow, and let a few of them bear berries; but mine were not of much account, and I did not expect they would be, so soon after planting. Well, you can imagine my surprise when the little girls this morning (April 6) brought me about as fine a strawberry as I ever saw, picked from the plants Mr. M. put out the last day of February. They had a few fair berries in just 30 days from planting, and quite a handful this forenoon, 36 days from planting. Although I had kept track of the plants pretty well I was so much astonished I made tracks at once for his place. I could hardly believe my eyes. There were 50 beautiful luxuriant plants full of bloom and green berries, and sending out runners in profusion. The great glossy-green leaves, without a trace of rust or blight, made my heart bound with the possibilities of "our island."

Mr. Shumard thinks, however, that this may be a spot of soil especially adapted to the strawberry, and that they may not do so well on much of our ground; but the matter is one easily tested. The only fertilizer used was a slight dressing of E. O. Painter's vegetable fertilizer, not over at the rate of 300 lbs to the acre. The ground is some of the first cleared up on the island, and I believe it is true that the old land is better for many things than the new. Had we planted one-fourth acre, instead of only 50 plants, on ground all like this, there would have been quite a picking of nice berries in only five or six weeks after the plants were set.

Things are so different here from the North, a *new comer* is often tempted to say this ground is "no good" for any thing; but one who is watching for "God's gifts" will often meet with "happy surprises" like the one I have mentioned.

A STRAWBERRY ALMOST A FOOT IN CIRCUMFERENCE.

Now, friends, this is not a fish story, but it is an honest truth that comes from a man who has a national reputation in originating new varieties of strawberries. I have visited his place, and am personally acquainted with him. Read what he says:

It has been a long time, Bro. Root, since we have had a strawberry talk. I will fruit next June 900 seedling strawberries. As each has a label, and six runners taken off each, and separately described in a big book, you can imagine the work, and no one helps me. One of my seedlings took the first-medal award at St. Louis last year. The judge said they were *far* bigger than any others shown there, although the largest was not quite 2½ ounces. This year I had one within a fraction

of 5 ounces, breaking my own record of three years ago, and the world's record by ¾ of an ounce. A common quart box holds 18 ounces. Good Gandies and Brandy-wines run from 25 to 30 in a box. Four of my berries would have filled a box and almost two ounces to spare. The weighing was witnessed by three officials at the government pomological department, and the berry photographed, and modeled in wax for their show-case. It was 11 inches around, and 3¼ inches in diameter. I will mail you a photograph of it.

ARTHUR T. GOLDSBOROUGH.

Wesley Heights, Wash., D. C.

SWEET CLOVER; WILL IT GROW IN FLORIDA? YELLOW SWEET CLOVER, ETC.

In reply to Dr. Miller's Straw I would say that I tried seeds of all of our honey-plants in my garden on the island. Rocky Mountain bee-plant and spider-plant came up promptly, and will probably do all right. Sunflower grew very well, but borage was the most luxuriant of the seeds in our catalog. Crimson clover seemed to start out nicely. Sweet clover was sown outside of my poultry-netting inclosure; but the little chicks I have mentioned nipped it off as soon as it came in sight. I tried some more, fencing off the chickens, but it was not up when I left. Globe thistle started out luxuriantly; and, by the way, there is a common thistle covering a great part of the island, that grows larger than I ever saw any thistle in the North, and the bees were all very busy on it, getting both pollen and honey, during February, March, and April. While we are talking about sweet clover, below is a letter giving one advantage that yellow sweet clover has over the white:

Please save me 10 lbs. of the yellow variety of sweet clover, and do not fail me. I see that the yellow variety comes up first in the spring, and I have about four acres of it. My cows and horses are crazy to get on it; but as I want to save it for seed and early blooming I do not want them on it. I also have about nine acres of the white variety; but it is a little slower to start in the spring.

R. L. SNODGRASS.

Gordon, Kan., April 12.

The above letter reminds me that we are not only sold out entirely of yellow-sweet-clover seed, but the constant call for sweet-clover seed of every kind is coming in from every direction in a way we never knew it before. It seems that the world generally is beginning to discover that none of the clovers should ever be called noxious weeds. If there are horses or cattle anywhere that have not learned to eat tender sweet clover when it first comes up, they are certainly lacking in education.

SWEET CLOVER AND NITROGEN BACTERIA.

The following from the *Rural New-Yorker* explains itself:

Mr. Jamison, of Southern Ohio, finds it hard to understand why farmers in other sections should go to such pains to get a stand of alfalfa. Inoculating, using lime and fertilizers, and all the petting and fussing which some writers advocate, seem useless to him, for in his locality all one has to do is to fit the land and sow the seed. In that section sweet clover grows in abundance, therefore inoculation is not necessary.

Where sweet clover grows, there is no use in sending off for inoculated soil or inoculating bacteria. Sweet clover does the business, works for nothing, and boards itself.

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It costs nothing.

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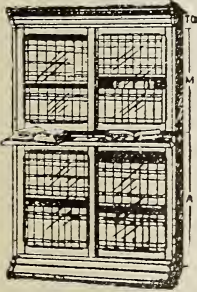
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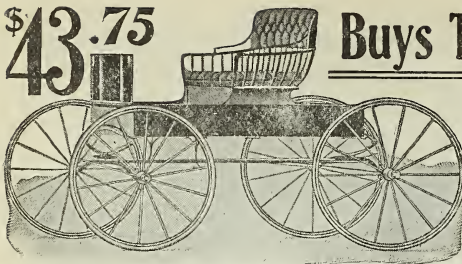
Every reader of GLEANINGS who is interested in farming or gardening, in the growing of fruit or of flowers, is invited to send for a free copy of our 80-page catalog and full information in regard to the Home Study Courses in Agriculture, Horticulture, Landscape Gardening, and Floriculture, which we offer under Prof. Brooks, of the Massachusetts Agricultural College, and Prof. Craig, of Cornell University. Home Correspondence School, Dept. 12, Springfield, Mass.

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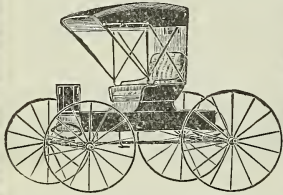
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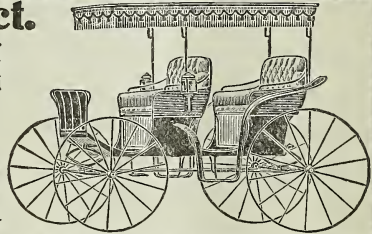
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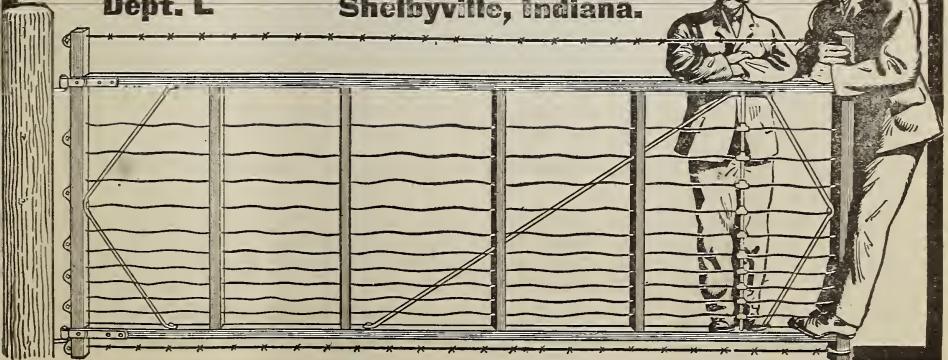
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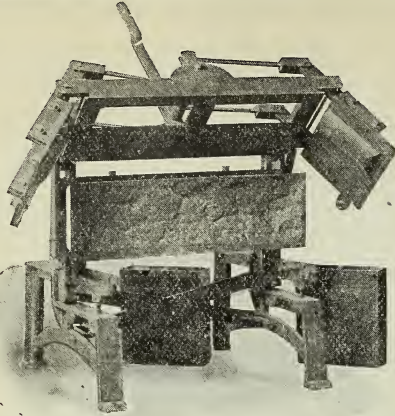
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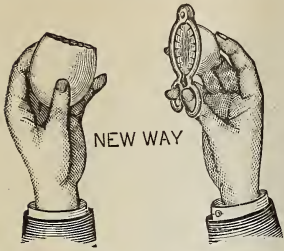
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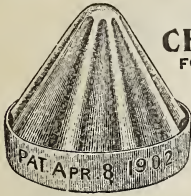
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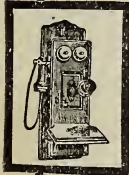


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The only sure way of preserving eggs; to sell at high prices. Pure water glass. Cost, about 1c per dozen. Pint, 15c; quart, 25c; gal. \$1. Circulars free for postal.
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Box 63, Anderson, Ind.

BANTA Incubators & Brooders

Backed by 14 Years of Successful Use by



poultrymen all over the world. No guesswork. They are automatic in regulation and ventilation. Fully guaranteed to give YOU satisfaction. Send for free book. BANTA-BENDER MFG. CO., Dept. 23, Ligonier, Ind.



Take Your Choice.

Guaranteed Self Regulating Incubators RENT rent pay for it. We pay freight. Buy on 40 Days Trial or buy parts and plans and build one. Prices, ready to use: \$5.00 up. Free catalog—tells all.

BUCKEYE INCUBATOR CO., Box 64, Springfield, O.

HOW TO BUILD INCUBATORS AND BROODERS

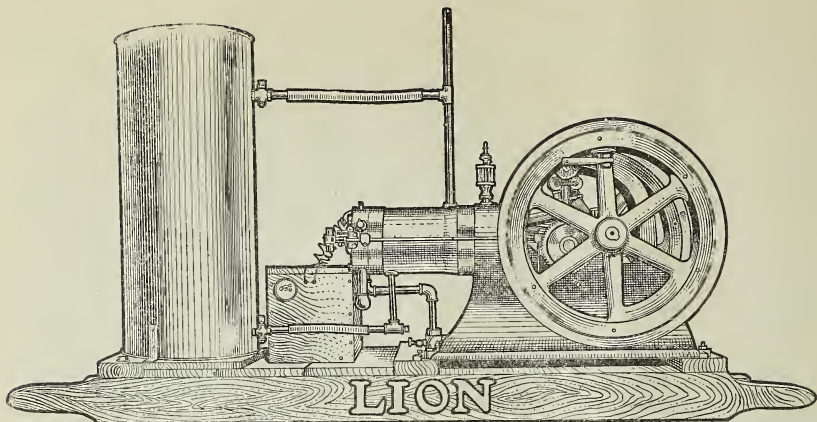
A 10-year-old boy can do it with Peerless plans. Anyone can build successful machines and make money making them for others. These illustrated plans complete, showing every step of construction, are free with every request for our new Incubator and Brooder Supply Catalog. It tells all about the New



ACME COMPOUND WAFER REGULATOR and AUTOMATIC LAMP

Combined damper and flame regulation, saves 1/3 the oil, will fit any machine. Write for catalog.
H. M. SHEER CO.
Dept. 33, Quincy, Ill.

PLANS FREE



IT'S READY TO OPERATE

There's no firing-up—no waiting for steam with a **Lion** Gasoline Engine. It is **always ready to operate**. Easily started—no engineer necessary—a boy can operate it. Can be used with perfect safety in any building and is very **economical** in the use of fuel. If you want a reliable, practical, durable and powerful power producer get

The Lion Engine

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

We sell direct from factory to buyer, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion** engine and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion** engine. It is free if you mention this paper when you write.

Lyons Engine Company
LYONS, MICHIGAN





“The Best Gift of All”
—Her Diamond Engagement Ring.

Diamonds As An Investment. Are a better and safer investment than real estate, banks, insurance, stocks, etc. Diamonds have advanced in value 20 per cent annually in recent years, and their scarcity indicates a still further increase in the near future. Diamonds are the universal currency and can be immediately converted into cash. It pays to look prosperous; to be successful, look successful—wear a Diamond.

Loftis System DIAMONDS On Credit

Our Prices are 10 to 15 per cent lower than the ordinary spot cash retail jeweler. We are direct importers, buying our Diamonds in the rough, which we cleave, cut and polish in our own work shops. In buying from us you save the profit of broker, jobber, wholesaler and retailer.

The Loftis System. The credit of the honest employee is just as good as that of his more fortunate employer. Confidence in the honesty of the people is the key-note of our success. Let us send you our new illustrated Catalog, 66 pages, 1000 photographic reproductions of the latest and most fashionable in jewelry art; you can make selection in the privacy of your own home and the article selected will be sent on approval without expense to you. If you decide to purchase, you pay one-fifth of the amount and pay the balance in eight equal monthly payments.

Our Guarantee. We give you our written guarantee certificate as to value and quality of Diamond purchased, and the privilege of exchanging same at any time for any other article of Jewelry from our Million Dollar Stock, or for a larger stone, allowing you full credit for what you have already paid. Our Guarantee is backed by higher bank and commercial ratings than all our small imitators combined—consult your local Banker, have him refer to his Dun or Bradstreet book of commercial ratings.

Strictly Confidential. Every transaction with our customers is strictly confidential, for even your own family need not know that you are not paying spot cash—unless you tell them. The Diamond your friend is wearing was probably bought on the Loftis System.

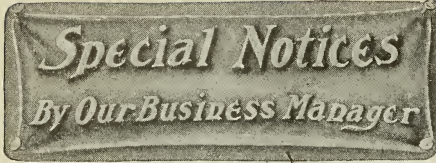
Your Credit established with us is a valuable asset elsewhere. Other standards of value may rise or fall, but Diamonds, the universal currency, will continually increase in value.

The Old Reliable, Original Diamonds on Credit House. Established in 1858, with a continuous record of success, we are the oldest, the largest, and most reliable credit retailers of Diamonds, Watches and Jewelry in the world.

“Save a Diamond.” Let us act as your bankers and help you make and save money. Send today for our latest Catalog and Diamond Souvenir, showing “How easily you can wear and own a Diamond by the Loftis System.” Remember Diamonds win Hearts.

DIAMOND CUTTERS **WATCHMAKERS** **LOFTIS** **Diamond Importers**
Dept. E637 92-96 State St. **BROS & CO. 1858** **JEWELERS**
Chicago, Illinois, U. S. A.

Illustration courtesy Chicago Record-Herald Sunday Magazine.



BEESSWAX WANTED.

We are in the market for all the beeswax we can get, and will pay, till further notice, 29 cents cash, 31 in trade, delivered here. We hope the price will not have to go any higher, for if it does we shall have to increase the price of comb foundation as well, and we want to avoid changing the price of that during the season if we can.

ALEXANDER FEEDER.

We are prepared to furnish the Alexander feeder spoken of in an article in this issue. We make them 19 inches long, so they may be used with either an eight or ten frame hive. With a ten-frame hive they will project three inches beyond the hive for feeding, and the block may be laid crosswise of the feeder or be cut off as preferred. With the eight-frame hive the feeder projects five inches, and the block lies lengthwise. We soak the feeders in oil to preserve them, and fill the pores to prevent the feed from soaking in. Price finished, including block, 25 cents each. Ten for \$2.00; 50 for \$9.00.

GERMAN BEE-BRUSH.

Some months ago Mr. R. F. Holtermann called our attention to a bee-brush which he received from Germany, made of genuine bristle or horsehair. He had used one a whole season, washing it out often, and it appeared to be as good at the end of the season as at the beginning



He considered it so far ahead of any thing he had ever seen or used that he wanted no other. We concluded if it was so good for him it must be equally good for others. We are now provided with a stock which we offer at 25 cents each; by mail, 30 cents. The bristles are black, and about two inches long, extending eight inches on the handle. Made of white bristles it would cost 5 cents each more.

BIGELOW EDUCATIONAL HIVES.

We have arranged to supply the trade with these hives on short notice at the following prices:
Bigelow educational hive complete, as shown page 590, in pine, nailed and varnished.....\$20.00
Same, in oak..... 25.00
Either of the above furnished, with glass only omitted, at a reduction of..... 1.50
The feeding-board and one and two frame hives may be omitted if desired, and price reduced by 5.00
Flying-cage in pine, no wire or glass..... 3.00
Same, in oak..... 4.00
Mahogany feeder, with lens, in pine..... 4.00
Same, in oak..... 5.00
Samples of these hives may be seen in our New York and Chicago offices, at 44 Vesey St. and 144 Erie St., respectively. Fuller particulars on application.

HOTBED SASH.

Cypress lumber has been advancing in price as well as other kinds, and the 1½-inch shop grade used in making hotbed sash can not be had at all of any of the mills, so far as we can find. We were fortunate in finding some in the hands of a dealer, and have kept our orders up. We have had a car ordered since last De-

ember, which has not been shipped yet, and we can not tell how soon it will be. We have another car ordered from another dealer, so we may hope to be in shape to care for our orders, as well as any one can. We have one car on hand which will make several hundred sash. Prices will be 5 cents each higher—i. e., 85 cts. each, \$4.00 for 5; \$7.50 for 10.

Special Notices by A. I. Root.

RUNNING WATER; ITS MEASUREMENT AND SERVICE.

The above is the title of a little book by one of our bee-keepers. The tables in it, I should think, might be exceedingly valuable to many of the friends in the arid regions where water is used for irrigation. Price 50 cts. By David S. Gray, Dolores, Col.

TOBACCO DUST.

We have furnished many tons of tobacco dust to those who grow lettuce, cucumbers, melons, etc. It is used as an insecticide and fertilizer. We are prepared to supply it in quantities large or small—10-lb. lots, 25 cts.; 100-lb. lots, 2 cts. per lb.; 150 lbs. for \$2.75. Cases of 300 to 400 lbs. each, at 1½ cts per lb. Can ship from here or from Marquette, Mich.

BUCKWHEAT FOR BEE-KEEPERS—SILVERHULL, JAPANESE, ETC.

Once more buckwheat for seed is rather scarce. We are nearly sold out of Japanese. But we have quite a nice stock of silverhull. This has been grown by bee-keepers for twenty years past, and quite a few claim it yields more honey and more bushels of grain than the Japanese. The silverhull is also known as the "gray" buckwheat. In 1882 we sowed four acres of silverhull as late as the 15th of August, and got 92 bushels of nice seed in 65 days from the date of sowing. I do not mention this to encourage sowing as late as that, for that year the frost held off unusually. It is true, however, that the best yield of grain usually comes when the buckwheat is sown as late as it can be without being caught by the frost. Ordinarily, in our locality, it is considered unsafe when sown later than the latter part of July. At the present prices it seems as if it ought to be a good crop for bee-keepers, not only for the honey but for the grain, especially when the price is more than \$1.00 a bushel.

Just now the best price we can make is \$1.25 per bushel, bag included; half bushel, 65 cts.; peck, 35 cts.; pound, 8 cts.; by mail, 15 cts.

Be careful about ordering small quantities of buckwheat by express to be sent long distances. The express charges may be more than the value of the grain. Better order a bushel or more and have it sent by freight.

Convention Notices.

The semiannual meeting of the Western Illinois Beekeepers' Association will be held in the county court-room, in Galesburg, on Wednesday, May 16, beginning at 9 A.M., and lasting all day. C. P. Dadant and J. Q. Smith have promised to be present and contribute to the success of the meeting. Our meetings have been good, but we hope to make this one better. Galesburg has good train service, and all bee-keepers in this part of the State should avail themselves of the opportunity. Come, and bring your wives. E. D. WOODS, SEC.
Galesburg, Ill.

California Sage Queens

Old reliable Italian stock from well-known breeders. Bees that get the honey if it's in the field. Give them a trial. Send postal for circular.

J. W. GRIFFIN
528 Gladys Av., Los Angeles, Cal.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

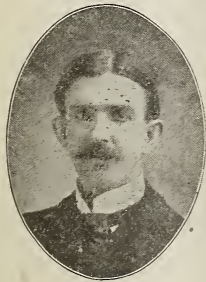
BEE-KEEPERS' SUPPLIES

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.



**New Metal-spaced
Hoffman Frames
are Here in Stock**

Conversation with Wilson

"Hallo, Mr. Wilson, how are you to day?"
"Quite well, thank you, but I am a little tired. It is very warm to-day, and I mowed the lawn and all around the bees while it was cool. I thought I'd come over and chat with you while I rest a little. We were talking about Pouder's idea of doing all feeding in the fall. How does he feed?"

"Some time in September he removes the supers, examines each hive carefully, and marks on each hive the amount of feeding necessary. Then he places a Porter escape board on each hive, placing the bee-space down, which makes a double bee-space. This is to be left on all winter, and by placing it in position early it will be securely waxed, and he places an empty super on this. Now this makes an excellent place to set a Miller feeder, allowing the bees to come up through the opening for the escape. After removing the feeder he places a piece of section over the escape opening and fills the super with dry sawdust or any dry packing."

"How about the Hill device and the bur-lap?"

"Pouder is awful bitter against the Hill device. Says that method was put in type twenty-five years ago and has just stood that way, and he thinks the method has caused the loss of many a good colony. Says that with a board, sealed air-tight and with no upward ventilation, every thing will remain perfectly dry; while with burlap instead of a board every bit of packing will become white with frost in zero weather, and then when it moderates every thing becomes wet. I have noticed that when looking in the upper story of such a hive I thought the snow had drifted in, but further investigation showed that it was the condensed moisture from the bees."

"I had the impression that Pouder wintered his bees in the cellar."

"For two years he has wintered in the cellar, but he says he would prefer outdoor wintering if the boys would not molest them. He is located down town, and investigative boys will pry into things. Says he places them in the cellar on his birthday, December second, and sets them out on St. Patrick's day, rain or shine."

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight; always be sure to attach name to package.

CATALOG FREE

WALTER S. POUDEr,
513--515 Massachusetts Ave., INDIANAPOLIS, IND.

Bee = keepers!

Are you aware that we are manufacturers, and can supply you with every thing you need in the apiary?

Good Goods, Low Prices and Prompt Shipments

are the POINTS in our favor. Our customers say so. Convince yourself by sending us your order. Ask for our free Illustrated Catalog and Price List.

Page & Lyon Mfg. Co., New London, Wis.

Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

BEES AND QUEENS—Orders booked now for spring delivery.

HONEY AND WAX—We handle honey and wax. Write for particulars.

The A. I. Root Co.



Northwestern Branch,
1024 Mississippi Street,

J. C. Acklin, Mgr., **St. Paul, Minn.**

Do you want Results?

The Best Results will
be Obtained by Using

Dittmer's Foundation

Now is the time to get your bee-supplies and make them up for the coming season. We make a specialty of working beeswax for cash.  Beeswax always wanted.  A postal card will bring you our catalog, which also contains valuable information for beginners.

Retail - Wholesale - Jobbing

Our warehouse is well stocked with bee-supplies of all kinds.

Gus Dittmer, Augusta, Wis.

BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

Kretschmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.
Trestler Supply Co., Lincoln, Nebr.

Shugart-Uran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.



Michigan Distributors

—FOR—

**G. B. Lewis Co.'s Beeware,
Dadant's Foundation.**

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service.

ADVANCED BEE-VEIL. Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

A. G. Woodman Co., Grand Rapids, Mich.

Dear Sir:—Your Advanced bee-veil just arrived, and is, as advertised, the best on the market. Find enclosure for ten more veils. Platteville, Wis., April 14, 1906. N. E. FRANCE.

A. G. Woodman Co.,

Beeswax Wanted.

Grand Rapids, Mich.

Bee-keepers' Supplies!

Lewis' famous "Beeware," Root's Smokers and Extractors; Dadant's Comb Foundation, etc.; Queens and Nuclei in Season, Large and Complete Stock; Prompt Service. We will meet all competitors who handle first-class goods. Catalog with practical hints free.

"Mandy Lee" Incubators and Brooders!

Whether you are experienced in artificial incubation or not, these incubators will give you gratifying results. The "Mandy Lee" brooder is the only brooder made which applies direct contact heat to the little chicks' backs. Our free incubator catalog describes them. Prompt shipments.

C. M. Scott & Co., Indianapolis, Indiana

1004 East Washington Street

Bees, Queens, and Bee Supplies.

We manufacture standard dovetailed bee-hives and supplies cheaper than you ever bought before. Our queens and bees stand at the head in quality. Untested, 75c each; \$4.25 for 6, or \$8.00 per dozen. Tested, \$1.25 each; \$12.00 per dozen. Select tested, \$1.50 each. Special prices to dealers in large lots on application. State agents for Dittmer's foundation. Catalog free.

THE BEE AND HONEY CO.,

Will Atchley, Prop., Beeville, Bee Co., Texas.

**If You
Want
Root's
Goods**

I have them at Root's prices. Also A B C of Bee Culture—one of the best books printed on bees. Catalog free. Address as below.

D. Cooley, Kendall, Michigan

Increased Business Compels Larger Space!

So we have just doubled our capacity in the building at 141 Ontario Street, where we carry a full line of

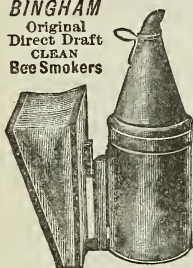
Poultry-supplies and Lewis' Popular Beeware

Catalogs on application. ORDERS FILLED PROMPTLY AT FACTORY PRICES.
SPECIAL OFFER ON BEE-SUPPLY ORDERS.—Until June 1, 1906, we will GIVE FREE on each order for bee-supplies amounting to \$10.00 or over, a choice of ONE of the following: A Bingham Doctor Smoker, a Bingham Honey-knife, or a year's subscription to the Weekly American Bee Journal.
BEEWAX WANTED.—28c cash or 30c in trade.
ITALIAN BEES in modern hives with select queens for sale; also pure Italian queens.

York Honey and Bee Supply Company Not Inc.

H. M. Arnd, Mgr. 141 Ontario Street, Chicago, Ill. Phone North 1559

BINGHAM
Original
Direct Draft
CLEAN
Bee Smokers



Pat'd 1878, '82, '92 & 1903

Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and last; don't spit fire; don't go out; don't *dash* themselves all over. We are the most extensive *exclusively* bee-smoker makers in the world.

T. F. Bingham - Farwell, Mich.

Chico, California, October 28th, 1905.

Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.
 J. M. RANKIN.

A Prosperous

Season is yours....

if you take time by the forelock, and be prepared for the season when it comes. DON'T put off ordering your supplies until you need them. Order now, and get the discounts.

I have a full line of Root's Goods, and sell them at factory prices and discounts. Send me a bill of what you want and let me tell you what I will deliver them at your depot for. Send for my 36-page catalog—it will be sent free—also a full description of the Hilton Chaff Hive and Supers, with a comparison made by the Michigan State Agricultural College between the single and double walled hives. All free for the asking. Cash or goods in exchange for wax.

Geo. E. Hilton, Fremont, Mich.

WISCONSIN BASSWOOD FOR SECTIONS

We make them and the very best of Dovetailed Hives, Shipping-cases, and a full line of Bee-keepers' Supplies always on hand. We make very prompt shipments. Let us hear from you.

Marshfield Mfg. Company
 Marshfield, Wisconsin

Ask Lathrop

for Root's Goods
at Root's Prices

All kinds of Bee and Poultry Supplies.
Catalog, etc., on request.

Lathrop Mfg. Co., Rochester, New York
27 East Avenue

If You Want the Bee - book

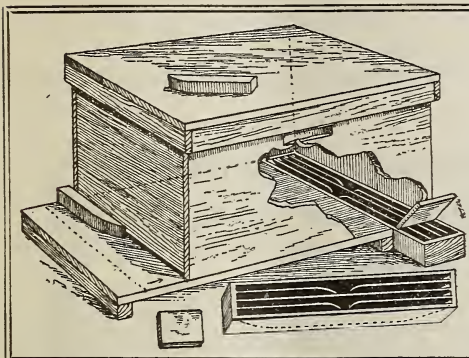
that "covers the whole apicultural
field more completely than any other
published," send \$1.20 to :: ::

Prof. A. J. Cook, Claremont, Calif.

FOR HIS

"Bee-keepers' Guide"

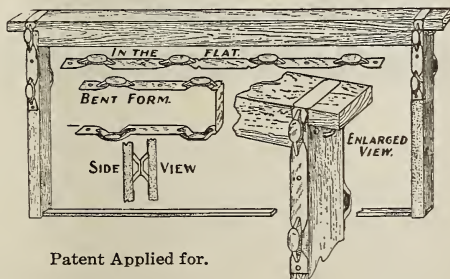
Liberal Discount to the Trade.



Alexander's Bee-feeders

are now manufactured by The A. I. Root Co., Medina, Ohio, and by Charles Quackenbush, Barnevill, Schoharie Co., N. Y. These are the most practical bee-feeders that have ever been used in feeding bees, and why? Simply because you can feed a colony in less than 20 seconds, either in the winter or summer; and although the colony may be very weak and the weather cold the bees will empty the feeder at once. There is no danger of robbing, neither will there be any heat lost from the colony, nor a bee killed nor a drop of syrup wasted. The above advantages can not be said of any other bee-feeder. Try them this spring and build up the working force of your colonies so you can have twice the surplus honey in the fall that you would have if you lost the best of your clover harvest in rearing bees that mature only when the harvest is over. See article on Spring Feeding in this number. E. W. ALEXANDER, Inventor, DELANSON, NEW YORK

Metal-spaced Hoffman Frame IN GREAT DEMAND.



Patent Applied for.

Has come to stay. Can be used interchangeably with regular Hoffman frames. Has all the advantages of the regular Hoffman. Is not affected by propolis. Can be handled without pry or screwdriver. Has no rights or lefts, and, therefore, can not be put up wrong. See full description in 1906 GLEANINGS, page 16.

PRICES.—Metal-spaced Hoffman frames—100, put up, \$4.50. In flat—10, 35c; 100, \$3.00; 500, \$14.00. Metal spacers only—30c per 100; \$2.50 per 1000. Hives with metal-spaced frames, 5c extra each body, 8 or 10 frame, put up or in the flat.

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

A Good Bee-hive!

is made of the best grade of white pine, accurately cut, so it will go together without the use of tools, except a hammer. Such is the kind of hives we make, and such is the kind you get when you buy from us. It is a cinch that we can make lower prices than you can get from any dealer, as you can save the middleman's profits when you buy direct from the manufacturer. We are manufacturers, and sell direct to the consumer. Send us a list of your wants, and let us make you prices. We guarantee every thing we sell to be satisfactory, or refund the money. We have large stocks of Dovetailed Hives, Sections, Shipping-cases, Foundation, Veils, Smokers, etc., on hand, and can ship promptly.

Minnesota Bee-supply Company

John Doll & Son, Proprietor

Power Building No. 20, Minneapolis, Minnesota



Everything for the Bee Keeper

will be found in our Illustrated Catalogue No. 40. It contains a full line of Hives, Supers, Followers, Sections, Section Holders, Frames, Extractors, Smokers, etc. All these and many other essentials are manufactured by us. Everything is guaranteed to be right and of best quality. Our prices are so reasonable that any bee keeper may afford the best supplies.

We cannot tell you here of all the good things in this book.

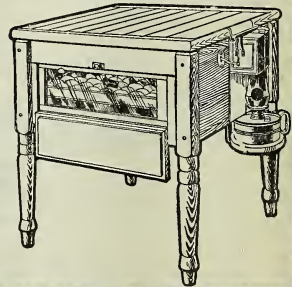
Better send for a copy today. We mail it free, together with a copy of the *Progressive Bee Keeper*, a splendid monthly publication devoted to bee interests. It will help you start right and keep you right after you are started. It is invaluable as an aid to every bee keeper. Ask for the paper and the book.

We Sell the Best Incubators and Brooders.

Delivered at your station, prices the lowest. Write us at once and save money. Address

LEAHY MFG. CO., 15 Talmage St., Higginsville, Mo.

Branches at Omaha, Neb. and East St. Louis, Ill.



BEST'S MORTGAGE-LIFTER BEES

are the gentlest, the strongest honey-gatherers, and by far the most rapid breeders, and beautiful, of any bees you will find. I have been among bees for 35 years, and have never found their equal. All tests show them to be better than any other strain. Price for the opening of the season: One warranted queen, \$1.50; tested, \$2.00; select tested, \$3.00; breeding queen, \$5.00; select breeder, \$8.00. Please send orders at once for delivery in 30 days.

BEST-THE-BEE-MAN, : : : : Slatinton, Pennsylvania

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. **OUR MOTTO**—"Whatsoever ye would that men should do to you, do ye even so to them."

MALAN BROTHERS, Luserna, San Giovanni, Italy.

3 GOOD L. FRAMES of brood, with queen and plenty of bees, in May, \$2.50 each.
G. W. GATES, - BARTLETT, - TENNESSEE

A. H. Reeves, Perch River, Jefferson Co., N. Y.

DISTRIBUTOR OF ROOT'S GOODS FOR

NORTHERN NEW YORK BEESWAX WANTED

65c for 25 NAMES—For names and P.O. of 25 farmers and 15c (stamps taken) we will send for 2 years the *Farmer's Call*—regular subscription price, 40c a year. F. C. is a weekly, 25 years old; 1300 pages a year; sample free. *Farmer's Call*, Quincy, Ill.



DESCRIPTIVE PRICE LIST

—OF—

QUEENS



None Better Very Few Equal.

The stock of Queens which I offer, are all bred from selected mothers, proven by their workers to be far superior to common stock in gathering and storing honey. The young Queens are bred in extra strong colonies. To make it certain to produce only vigorous ones, same are reared and bred on my Roof Apiary, when hatched, and the young queen has made her appearance, taken out to the out apiaries of each variety, to become mated. These out apiaries of each variety are so far apart, to make it most certain, that the young Queens become purely mated. The good qualities owned by each variety, I shall describe in the following

THE GOLDEN ITALIANS are certainly beauties, besides being very good workers, they have proven in the past, that they will take care of the nectar of Red Clover blossoms as well as the white, if same only yields.

THE LONG-TONGED RED CLOVERS have become the last few years, rapidly to the front, they have broken all records in gathering and storing honey, they are not so easily excited, are very easily handled and stick to the combs, do not fall off.

THE CARNIOLANS are undoubtedly the most prolific breeders, winter well and breed up very rapidly in the Spring. They are very gentle in handling, make very little propolis, and are exceptionally good comb builders. They finish and cap their combs very white, and as their good qualities are more known, they are becoming one of the most favorite varieties.

THE CAUCASIANS are noted for their extreme gentleness. The stock I will breed from, will be furnished by the United States Government, so that, they will be as fine and pure as can be obtained. Think I will be able to furnish young Queens bred from this stock by June 1.

PRICE LIST.

Beginning middle of April to June 15.

	Golden Yellow Italians	Red Clovers	Carniolans	Caucasians
Untested	1.00	1.00	1.00	1.00
Select untested	1.10	1.10	1.10	1.10
Tested	1.25	1.25	1.25	1.25
Select tested	1.50	1.50	1.50	1.50
Untested per doz.	10.00	10.00	10.00	10.00

After June 15th to October 1st.

	Golden Yellow Italians	Red Clovers	Carniolans	Caucasians
Untested	.75	.75	.75	.75
Select untested	.85	.85	.85	.85
Tested	1.00	1.00	1.00	1.00
Select tested	1.25	1.25	1.25	1.25
Untested per doz.	8.50	8.50	8.50	8.50

Price List of Nuclei Furnished from June 1 and Later.

One frame nucleus without Queen \$1.00
 Two frame nucleus without Queen \$1.50
 Three frame nucleus without Queen \$2.25

Queens will be charged extra, according to quality.

C. H. W. WEBER, Cincinnati, Ohio.

Office & Salesrooms
 No. 2146-2148 Central Ave.

Warehouses.
 Central & Freeman Aves.

Queens.

Quirin-the-Queen-Breeder

is, as usual, again on hand with his SUPERIOR IMPROVED strain of ITALIAN BEES and queens. The editor of GLEANINGS, in observing the handling of our bees last fall, remarked that "such stock is in great demand." Years ago we used to be obliged to buy bees each spring to keep us agoing; but now we sell perhaps a carload each season; get tons of honey, and raise thousands of queens. We have bred our bees for business; they have no superior either side of the ocean. For a dozen testimonials see our full-page adv't in the Dec. 15th number of GLEANINGS, or ask for circulars.

Prices of Queens before July 1	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
Full colonies on eight frames.....	6 00	30 00	

Add the price of whatever grade of queen is wanted, with nuclei or colonies, queens ready in April, nuclei about May 10; 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 Northren-bred bees are hardy, yet gentle; they will give you results. Address all orders to

Quirin-the-Queen-Breeder, Bellevue, Ohio

The Deciding Factor

of your season's success almost always depends on the quality of your queens.

Extra Honey Queens

are stock that has been selected from all others as being the stock that gives the best results.

Prices

One.....\$1.00 Six.....\$5.00 Twelve..\$9.00

Francis J. Colahan
Bernardo, San Diego Co., Calif.

COLLINGDALE APIARY

J. R. Rambo, Collingdale, Delaware Co., Penn.

Breeder of Caucasian and Golden Italian queens; Italians bred from stock received from Swarthmore; Caucasians bred from an imported queen. Queens reared and mated in separate yards, six miles apart. Satisfaction and safe arrival guaranteed. Prices furnished on application. I am booking orders now for the coming season, and will fill same in rotation as received.

Yellow from Tip to Tip!!!

My Adel bees and queens are yellow all over. Every queen a breeder, and guaranteed to produce all golden queens and bees; non-swarmers, gentle, great hustlers; \$1 each. Catalog ready. **H. Alley, Wenham, Mass.**

Tennessee-bred Queens

From Extra Select Mothers

Three-band from dark leather imported; Moore's long tongue or my own; Golden from Laws, Doolittle's, or my own; Caucasians and Carniolans from direct imported. No disease. Contracts with dealers a specialty. Apiaries from 3/4 to 7 miles apart. Write name on postal, and get circular and what others say.

JOHN M. DAVIS
Spring Hill, Tennessee, U. S. A.

TAYLOR'S ITALIAN QUEENS FOR 1906

Leather-colored and golden Italians. I have made it a specialty for 18 years to breed for the best honey-gatherers of these races, and I have not been able to get any other stock that will store as much honey as my strains, gentle and beauties. Untested, 75 cts. each; \$8.00 per dozen. Tested, \$1.00, or \$11.00 a dozen. Select tested, \$1.50. Breeders, \$3.00 to \$5.00 each. I guarantee safe arrival on all queens. Untested Caucasians, queens, \$1.00 each. Send your orders to

J. W. Taylor, Beeville, Texas

VIRGINIA QUEENS

Ready to ship by May 15. Untested, \$1; tested, \$1.25. Safe arrival guaranteed. Samuel Click, - Route 2, - Mt. Jackson, Va.

Queens! Three and five band queens; perfect satisfaction and safe arrival. Untested, 60c; select, 75c, or \$8.00 per doz.; tested, \$1.00, or \$10.00 per doz. **R. O. COX, Route 4, Greenville, Ala.**

CARNIOLANS our SPECIALTY

WE HAVE bred this race of bees for twenty years, and find they are among the gentlest bees known. Very hardy and prolific, and the best of honey-gatherers, and their combs are of snowy whiteness. We are wintering 50 select imported and 200 best select tested Carniolan queens for early orders.

Also breeders of Golden and Leather Italians. One untested queen, \$1.00; six for \$5.00; twelve for \$9.00. Tested, \$1.50. Best breeder, \$3.00. Best imported, \$5.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in U. S. or Canada. Descriptive list free.

F. A. Lockhart & Co.—Mr. T. C. Stanton won first premium at the New York State Fair with the Carniolans you sent him, and I will add that your strain of Carniolans has won all the first premiums at the New York State Fair for many years. Where I showed your strain of Carniolans I won, and where I showed some other strains of Carniolans I lost.

Camillus, N. Y., Sept. 22, 1905.

S. D. House.

F. A. Lockhart & Co.,

Lake George, New York

Finest Italian Queens

ALL SEASON I will offer choice Clover Queens and Nuclei, bred from a strictly three-band strain of bees, unsurpassed as honey-gatherers and for prolificness, etc. As to hardness, my strain of bees is simply wonderful. My entire apiary passed this winter on their summer stands, without the loss of a single colony.

Untested queens...50c Select untested...75c Tested queens...75c Select tested...\$1.00
Two-frame nuclei, \$2.00. If with queen, add price of queen wanted. Ask for my circulars.

James W. Bain,

Marion, Ohio

DOOLITTLE & CLARK

are booking orders for their famous Italian queens. Now is the time to order breeders. Send for circular.

Grade.	One	Three	Twelve
Untested	\$1.00	\$2.50	\$9.00
Select Tested.....	1.50	4.00	14.00
Tested (1905 rearing).....	2.50		
Select Breeding.....	5.00		
Extra Select Breeding	10.00		
Two-frame Nuclei	2.50	7.00	25.00

DOOLITTLE & CLARK

Borodino, Onondaga Co., New York

Quality Queens

Are the Best Italians yet.

Send for circular.

H. H. JEPSON,

182 Friend St., - Boston, Mass.

Every Bee - Keeper Knows the Worth of a Good Queen

Knows the worth of a good strain of bees, and also knows how worthless is a poor queen and inferior bees. Try our strain of three-banded Italians. They are bred for business, and will not disappoint you. Home-bred and imported mothers. Tested, \$1.00 each; untested, 75 cts. each; \$3.00 per dozen. Send for price list.

J. W. K. SHAW & CO.

Loreauville, : : : Louisiana

Italian and Caucasian Queens

ITALIANS.—Golden or leather-colored or honey queens. Before July 1st: Untested, \$1.00 each; 6 for \$5.00; 12 for \$9.00. Warranted, \$1.25 each; 6 for \$7.00; 12 for \$13.00. Tested, \$1.50 each.

CAUCASIANS.—Untested, \$1.20 each; 6 for \$7.00; 12 for \$11.00. Warranted tested, \$1.50 each.

TWO-FRAME NUCLEI.—No queens, \$2.50; 6 for \$14.00; 12 for \$27.00. Add price of any queen wanted. Nuclei ready by June 1st. Queens ready in May. Breeders from \$5.00 to \$10.00. Book your order now. Safe arrival of all stock guaranteed.

D. J. Blocher, Pearl City, Illinois

Do You Want to Improve Your Stock?

Are your bees cross? Do they make a good surplus? Do you want a nice queen—one that will please? If so, write for circular

A. W. Yates 3 Chapman St., Hartford, Connecticut



RED-CLOVER QUEENS AND ITALIANS BETTER THAN EVER.

Average queen, 75 cts. Untested, \$1.00; tested, \$1.25. Guaranteed to work red clover.

"Our red-clover fields are swarming with your bees," says G. W. Slaybaugh, York Springs, Pa.

Laying queens ready by return mail. Guaranteed to work red clover as well as white.

Send for my new circular; it's free. Root's Bee Supplies for sale. G. ROUTZAHN, Biglerville, Pa.

Queens - Italian - Queens

and bees from Root's Red-clover stock and Golden Italian queens. Better than ever.

Untested60c each; six, \$3.50
Selected untested.....75c " " 4.00
Tested.....\$1.00 " " 5.00
Selected tested.....1.25 " " "

Two-frame nuclei with untested queen. 2.00
Orders filled in rotation. Send orders to

E. A. Simmons, Greenville, Ala.

Now is the Time to Plan

for the coming season, and you are bound to need queens to replace those that are old and worn out. Many of my customers have written me that the queens bought of me were the only ones that gave any surplus the past poor season. You had better plan to supply yourself with a lot of those fine young queens from the Laws apiaries, and double your crop of honey.

I AM BREEDING THE LEATHER AND GOLDEN ITALIANS,

also the Holy Lands. So many calls have come for Carniolans that I have added this splendid race to my list, and there is no doubt that the Carniolan, or the Carni-Italian cross, will cap their honey whiter than any of the Eastern races. I am not only prepared to furnish you with the best bees and queens in existence, but in any quantities, large or small, from one to a thousand queens. Nuclei and full colonies in season. I also offer another car of bees the coming season.

PRICES: Queens, each, \$1.00; six for \$5.00. Breeders, each, \$3.00. Write for quantity lots.

W. H. LAWS, BEEVILLE, BEE CO., TEXAS.

Caucasian - and - Italian - Queens

from California

Prices: CAUCASIAN— One tested, \$3.00; one best breeding, \$6.00; one imported from Caucasus, \$7.00. ITALIAN—One untested, \$1.00, six for \$5.50, 12 for \$10.00; one tested, \$1.50; one best breeding, \$5.00. Caucasians bred from the best imported breeding queens; Italians bred from breeding queens we procure from principal breeders of this country who have the best honey-gatherers. Nuclei and full colonies of bees. Send for particulars, and see our adv. in GLEANINGS, February 1st.

A. E. Titoff, Ioamosa, San Bernardino Co., California

CAUCASIAN QUEENS!

For beginners, the timid, and the city bee-keeper Not stinging, but gentle. With this race many will master the art of handling bees I breed HIGH-GRADE ITALIAN QUEENS also. The demand for these queens is great; the supply is limited. Write for particulars today. Address

Robert B. McCain, Yorkville, Ills. R. F. D.

Rose Lawn Queens

Italians Caucasians Carniolans

Bred in the purple. No finer on earth. Try one of our pure Gold strain, line bred for color and gentleness. Three banders of the "pat-'em-on-the-back" kind that will eat out of your hand. Caucasians from imported breeders direct from the Caucasus. Separate mating yards. A strictly modern plant. Standard prices and honest treatment. Ask for our catalog.

Rose Lawn Apiary, Lincoln, Nebraska

Frank G. Odell, Proprietor

Superior Stock

I make a specialty of long-tongue
Italian, Carniolan, and Caucasian,

Rearing only from best stock obtainable. My Italian queens are unexcelled; my Carniolans and Caucasians from best imported queens All races bred in separate yards to insure purity A postal will bring my price list for 1906.

CHARLES KOEPPEN

Fredericksburg, Va.

It won't Pay You

to keep those poor colonies when young vigorous queens given to them now will increase your honey crop many times. Italian queens only. I rear my queens carefully, guarantee them good and purely mated, or replaced free on notice. You will find my queens will give you satisfaction. No bee disease here. Prices: Untested, \$1.00; six, \$4.50; dozen, \$8.00; tested, \$1.50; six, \$8.00; dozen \$14.50; breeders, \$5.00. For larger quantities write for prices.

M. D. WHICHER, Los Olivos, Cal.

GOLDEN ITALIAN QUEENS.

Untested, ready to mail. Select, \$1.00; six for \$4.50. Same old place, same treatment. Write for circular.

J. B. Case, Port Orange, Fla.

Italian and Caucasian Queens and Bees



Choice homebred and imported stock. All queens reared in full colonies.

PRICES FOR APRIL

ITALIANS

One untested queen	\$1.10
One tested queen	1.50
One select tested	1.65
One breeder queen	2.75
One comb nucleus, no queen ..	1.15

Untested queens in May. Safe arrival guaranteed. For prices on quantities, and description of each grade, send for free catalog.

J. L. Strong, Clarinda, Iowa, U. S. A.

204 East Logan Street

1906 Italian and Caucasian Queens Price list now ready. Write E. E. LAWRENCE, Doniphan, Mo.

BEEs and QUEENS

The Three-banded
Long-tongued Strain
of Italians.

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

Superior Qualities.

Honey-gathering, size of bees, non-swarmer, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price.

Quality Our Motto.

1300 colonies to select from.

Untested queens.....	\$1.00; 6,	\$5.00; 12,	9.00
Select untested queens....	1.25; 6,	6.00; 12,	11.00
Tested queens.....	1.50; 6,	8.00; 12,	15.00
Select tested queens.....	2.00; 6,	11.00.	
Breeding queens,	\$3.00 to \$5.00.		

Yours for best service,

The Victor-Knolle Apiary Co.,
Hondo, Texas.

Red-clover Queens from Westwood Apiary

will convince you of their superiority over all others. One, two, and three frame nuclei a specialty; also full colonies. Price list sent on application.

Henry Shaffer Westwood, Ohio

MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, \$1.00; six, \$5.00; twelve, \$9.00. Tested, \$1.50; six, \$8.00. Best breeders, \$3.50. Safe arrival guaranteed.

W. H. Rails, - - - Orange, Calif.

H. C. Simpson, Catawba, S. C.

Dealer in

BEE - KEEPERS' SUPPLIES!

Breeder of Italian bees and queens.
Root's Goods a specialty.

ITALIAN QUEENS AND GLEANINGS.

For \$1.10 I will send GLEANINGS one year, new or renewal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

W. T. CRAWFORD, Hinston, La.

"BAUMGAERTNER'S PRIDE" QUEENS stand on their merits. Give them a chance. Red-clover Italians, Carniolans, Carnio-Italians. Selected queens, 85c; six, \$5.00; 12, \$9.00; warranted queens, \$1.00; tested, \$1.50. Also Caucasians. Prompt delivery. Satisfaction guaranteed.
J. G. Baumgaertner, New Memphis, Ill.

CARNIOLAN and ITALIAN QUEENS!

Ready to mail by April 15th. Quality of the highest, prices the lowest. Write me.

Grant Anderson - Sabinal, Texas

Boston Headquarters — FOR — Bees-Queens-Supplies

H. H. Jepson - 182 Friend St.

Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices:

Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

H. M. PARKER, Jr.

James Island, South Carolina

From Long-tongued Imported Italians.

Trial queen, 60c; only one at this price. Untested, 75c; \$7.50 per doz. Tested, \$1.25; \$12.00 per doz. Breeders, \$2.00 to \$3.00. Send for particulars.

E. E. MOTT, Glenwood, Mich.

Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,

Box 18, Beeville, Bee Co., Tex.

Queens! Select three or five banded, \$1.00; tested three or five banded, \$1.25. Ready for delivery April 1st. Write for circular. Daniel Wurth, 1111 No. Smith Street, San Antonio, Texas

GEORGIA QUEENS.

Standard breed, from our superior golden leather-colored Italians, gray Carniolans. Untested, \$1.00; 6, \$5.00; 12, \$9.00; tested, \$1.50; select, \$2.50; best, \$5.00. For bees, see free circular.

T. S. HALL, Jasper, Pickins Co., Ga.

QUEENS.

Italian, Carniolan, and Carni-Italian Cross.

Can supply select untested queens at 75c each; three for \$2.00; six for \$3.50. I am now booking orders for early delivery.

George W. Barnes,

133N. Pleasant St. Norwalk, Ohio.

TRY ONE OF MY \$100 RED CLOVER BREEDER'S DAUGHTERS.

After May 1st, untested, 50c; 13 for \$6.00. Select untested, 75c; 13 for \$9.00; tested, \$1.00; 13 for \$12.00; select tested, \$1.50 each. Breeders, \$2.50 each. Extra select breeders, \$3.00 each. Nuclei, \$1.75 per frame without queen.

H. A. ROSS,
1709 UPPER 2D ST., EVANSVILLE, IND.

QUEENS FOR SALE.

Golden and three banded Italians. untested, 75c; tested, \$1.50. Hardy and healthy. Orders booked now. Write for circular. Mennie & Fenton, Pine Island, Minn.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Hives of bees. Write us full particulars. We pay cash.
Vinemont Apiary, Marshfield Hills, Mass.

WANTED.—Second hand typewriter, Oliver preferred, for bees or supplies.
"Bee Man," Williamsport, Pa.

WANTED.—Good colonies of bees for cash. State price and quantity.
F. H. FARMER, 15 Chardon St., Boston, Mass.

WANTED.—To exchange 200-egg Reliable incubator, cost \$40.00, for Remington 12-gauge, 32-inch, double gun.
LORENZO CLARK, Winona, Minn.

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

WANTED.—For delivery by May 1st six five-banded golden breeding queens, for a special customer. These must be extra-fine breeding stock, golden to the tip. Mention price and full particulars.
THE A. I. ROOT CO., Medina, Ohio.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.
H. F. HAGEN, 1632 Blake St., Denver, Col.

WANTED.—To exchange 500 chaff hives, also Carniolan queens, for honey (hives in flat). Both are as good as can be produced. I have a good market for best quality of white-clover honey and a little buckwheat, but can not raise profitably. Will allow Chicago price for honey. No poor grades of honey wanted.
W. W. CRIM, Pekin, Ind.

Help Wanted.

WANTED.—An experienced bee-keeper. Give references and state wages wanted.
W. J. STAHRMAN, Bruce, Wis.

WANTED.—A young man farm-raised, temperate, willing to work at bees on farm. Address
W. L. COGGSHALL, Grotton, N. Y.

WANTED.—Nurses. The Western Pennsylvania Hospital and Eye and Ear Hospital offer exceptional advantages for training. References required. Apply Superintendent's Office, 1945 Fifth Av., Pittsburg, Pa.

WANTED.—Man to work with bees. State age, experience, and wages desired. An opportunity for the right man to secure a steady situation.
W. HICKOX, Berthoud, Colo.

For Sale.

FOR SALE.—Pedigreed red Belgian hares. Write
A. ZIEGLER, Bippus, Ind.

FOR SALE.—About 60 colonies of bees and all my fixtures cheap.
H. C. GILSON, Burr Oak, Mich.

FOR SALE.—Forty colonies bees in eight-frame Dove-tailed hives at \$4. CLYDE CADY, Grass Lake, Mich.

FOR SALE.—Forty colonies of bees in eight-frame hives cheap. ALBERT TIEN, Falmouth, Mich.

FOR SALE.—Three-frame nuclei, with Italian queen, at \$2.25. WM. H. STANLEY, Dixon, Ill.

FOR SALE.—Full colonies of bees at \$4.00 a stand in lots of 10. J. GOBEL, Glenwood, St. Croix Co., Wis.

FOR SALE.—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog. F. R. DANIELS,
117 Florence St., Springfield, Mass.

FOR SALE.—Leather-colored Italian queens, fine honey-gatherers, reared with great care, untested, 75c. D. C. GULLEY, Rt. 8, San Antonio, Texas.

FOR SALE.—My apiary complete in the great irrigated alfalfa belt; no failure yet. See GLEANINGS of Dec. 15, 1903, page 1051. C. K. C., Lovelock, Nev.

FOR SALE.—Best land for bee-keepers, farmers, dairymen. Cheap. Write us.
WRIGHT-ROBINSON, Cumberland, Wis.

FOR SALE.—The Alexander wire bee-veil. The best face-protector on the market. Try one and be convinced. At 75c each postpaid.
FRANK C. ALEXANDER, Delanson, N. Y.

FOR SALE.—Root's bee-supplies at factory prices; full colonies Italian bees; queens in season (catalog free); Plymouth Rock chickens and eggs; incubators, brooders, poultry food, etc. H. S. DUBY, St. Anne, Ill.

FOR SALE.—About 300 sixty-pound cans; mostly new, good condition, new cases, two cans to a case; 40 cts. per case, f. o. b. Preston. M. V. FACEY, Preston, Fillmore Co, Minn.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to
FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Thoroughbred Italian bees and queens; no better in existence. Full colony bees, \$5.00; queens, untested, 65c; tested, \$1.00. Please write.
F. M. MAYBERRY, Obelisk, Pa.

FOR SALE.—Bees; the right kind, right prices. Safe arrival and satisfaction guaranteed. Ask for illustrated Outfits for Beginners, price list, and our hints on buying bees. MASON SUPPLY CO., Mechanic Fs., Me.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season.
W. N. CANNON, Greenville, Ala.

FOR SALE.—A 40-acre tract of land in the Grand Traverse country, the raspberry region of Michigan, about 25 acres of which are cleared and fenced; a house, barn, bee-cellar, root-cellar, poultry-house, etc. About 350 fruit-trees, 60 of which are bearing; about 75 colonies of bees, and hives for 75 colonies more; also many supers and fixtures, making a complete apiary, in a choice location.
CLINTON F. PULSIFER,
1022 S. Main, Mount Pleasant, Mich.

FOR SALE.—My home and apiary, ten miles from Dubuque City, Iowa, just across the Wisconsin line; 25 acres good land, nearly all fenced; two springs good water, one close to house; located on main road. House is a two-story frame dwelling; good cellar in which bees have been wintered successfully for the last 16 years; an orchard of about 40 apple-trees. Most of land good meadow, balance for plow and pasture. Nice hard maple, basswood, walnut, and cedar timber growing in the pasture. R. F. D. to house. Apiary consisting of 100 ten-frame Simplicity hives; 65 colonies Italian bees—bees now working on combs. Good honey-house; almost new Cowan extractor; variety of supply and bee tools too numerous to mention. Undeveloped lead-mine on land. Reason for selling, old age and failing health. Price \$1650.00, or will sell bees and apiary alone. Write for prices, or come and see me at once, as this ad. probably will not appear again. Address
JOS. M. WOODHOUSE, Route 35, Durango, Iowa.

Poultry Offers.

B. P. ROCKS.—Eggs, \$1.00 per setting; 14 chicks guaranteed. MRS. EDITH CHELTON, Landonville, Md.

FOR SALE.—24 Wh. or Br. Leghorn eggs for \$1.00; also other varieties. J. A. RUBRECHT, Telford, Pa.

FOR SALE.—S. C. W. Leghorns, 15 eggs, 75c; 100, \$3. Cockerels, \$1. Meadow Poultry Farm, Coulterville, Ill

FOR SALE.—Choice White P. Rock eggs from farm-range stock, \$1.00 per 20; \$2.00 per 45; \$4.00 per 100. F. E. SCHRIVER, Rt. 2, Forest, O.

FOR SALE.—W. P. Rocks exclusively; eggs from choice matings, \$1.00 per 15; \$3.50 per 100. A few trios at \$5.00. MRS. J. H. HAUGHEY, Berrien Springs, Mich.

FOR SALE.—Fifteen Silver laced Wyandotte eggs for Good layers, excellent broilers. J. G. BAUMGAERTNER, New Memphis, Ills.

FOR SALE.—EGG machines. S. C. Leghorns, \$1.00 per setting (15); \$3.50 per 100. Thoroughbred Blatchard stock. G. ROUTZAHN, Biglerville, Pa.

FOR SALE.—When you can get M. B. turkey eggs at 25c each, and get \$2.00 to \$3 00 for turkeys at Thanksgiving, it is time to go into the turkey business. Women here are getting from \$100 to \$200 per year for their turkeys. A. P. YOUNG, Cave City, Ky.

FOR SALE.—Rhode Island Reds, White and Barred Rocks, White Wyandottes and Leghorns, Light Brahms. Farm bred, pure stock. For birds, (moderate prices), or eggs to hatch, at 8c each, write WALTER SHERMAN, No. 100 Boulevard, Newport R. I.

FOR SALE.—15 White Wyandotte eggs, \$1.00; nice cockerels, \$1.00 each, Duxton strain; seed corn. Circular. J. F. MICHAEL, Winchester, Ind.

FOR SALE.—S. C. White Leghorns, choice stock, winter-laying strain. Chicks mature early large birds. Eggs from carefully selected matings at \$1.50 for 15; \$5.00 per 100. F. H. PARDEE, New Berlin, N. Y.

FOR SALE.—Fifteen Buff Plymouth Rock eggs for \$1.00 Stock for sale. Burdick strain; prize winners. Circular free. Queens taken in exchange. F. A. BECKETT, Penfield, Mich.

Blacks and Hybrids.

Notices in this column are inserted free, and the publishers assume no responsibility for sales made. We believe, however, that every advertiser will do just as he promises.

FOR SALE.—About eight hybrid and mismated queens at 25c each; also a few Italians at 40c; all last year's raising. Delivery between May 20th and June 10th. A. A. HUMMEL, Kratzerville, Snyder Co., Pa.

FOR SALE.—A limited number of hybrid queens—most of them from red-clover stock—one queen, 30c. YOUNG'S BEE-SUPPLY HOUSE Boonville, Mo.

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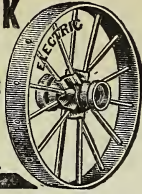
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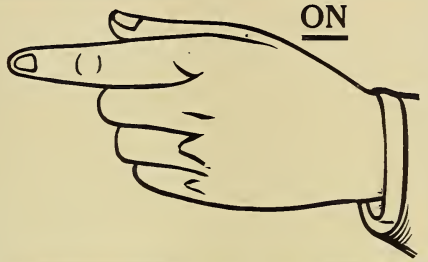
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