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GLEANINGS IN BEE CULTURE



Prof. H. A. Surface

THE A. I. ROOT CO.
MEDINA, OHIO

North Texas Beekeepers

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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Dallas, Tex.

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We carry a large and complete stock of
The ROOT'S 1906
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All orders filled same day as received, thus insuring for our customers quick service, Springfield freight rates,

FACTORY PRICES

Send for seed catalog, bulb and plant catalog, Cyphers incubator catalog, The A. I. Root Co. bee-supply catalog

SPRINGFIELD SEED CO.
Springfield, Mo.

MR. TEXAS BEE-KEEPER

I would like to talk to you *personally*.

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. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein - San Antonio, Texas

1322 South Flores Street

C. H. W. Weber,

Headquarters for

Bee - Supplies.

Distributor of Root's Goods Exclusive-
ly, at Root's Factory Prices. *o* *o*

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, main or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

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

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

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

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

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

PHILADELPHIA.—The old lots of comb honey are about cleaned up in this market, and the market is ready for new goods. There are not enough sales to give quotations. Some old extracted honey is selling as follows: White, 6 to 7; amber, 5 to 6. Beeswax, firm at 29. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
May 18. 10 Vine St., Philadelphia, Pa.

MILWAUKEE.—The present condition of this market on honey is favorable, looking forward to the new crop as the remnants of old crops of two or three years ago are being worked off; and by the date new crop may be ready for market we think there will be a demand that will make sales lively, and results acceptable to those interested. The continued demand is only for fancy comb and perfect cured extracted, either white or amber and defective qualities, if sent out or offered, are refused, which, in such cases, causes delays in any satisfactory settlement. The consumption of real nice conditioned honey seems not confined to any special season—always to be desired at a fair value; hence we feel justified in encouraging the production of choice honey; and it is appreciated in this market—equal to any other or better. We can quote fancy 1-lb. sections, 16 to 18. Beeswax, 26 to 30. A. V. BISHOP & Co.,
May 17. 119 Buffalo St., Milwaukee, Wis.

BUFFALO.—The condition of the market continues about as last quoted. No fancy A No. 1 nor No. 1 honey offered in our market. Price is 15 to 16, and good stock would sell on arrival; off grades are selling slowly. Much of the trade would rather not buy any than not to have pure white. Some No. 2 white, mixed, and buckwheat is for sale, and brings a good price for what we can sell; not much call for extracted. Beeswax very scarce at 30 to 32. W. C. TOWNSEND,
May 25. Buffalo, N. Y.

CHICAGO.—We are having very little call for honey, either comb or extracted. Fancy comb is bringing 15, other grades from 10 to 14; extracted white, 6½ to 7; amber, 5 to 6. Beeswax, 30. R. A. BURNETT & Co.,
May 18 199 South Water St., Chicago, Ill.

DETROIT.—Very little honey in market, and demand is light; but prices are ruling rather high. Comb honey, A No. 1 and No. 1, 16; extracted, 7 to 7½, with very little demand. Beeswax, 28 to 30c. No prospect of any change until new crop is in. M. H. HUNT & SON,
May 26. Bell Branch, Mich.

ATLANTA.—New honey is arriving more freely, although the demand keeps up with supply. We quote: fancy white comb, 13½ to 15; A No. 1, 12 to 13; white, in cans, extracted, 6½ to 7; amber, in cans, 5½ to 6. Bulk comb in cans, 9 to 10. Beeswax, 28 to 30.
JUDSON HEARD & Co.,
May 22. Atlanta, Ga.

TOLEDO.—There is very little demand for comb honey at this writing on account of the heavy receipts of strawberries. Very little demand for extracted honey for table use. Amber extracted honey in barrels brings 5 to 5¼; cans the same. Beeswax is more plentiful, and we are paying 23c cash, 30c in trade.

GRIGGS BROS.,
May 19. 521 Monroe St., Toledo, Ohio.

ST. LOUIS.—The honey market is about in the same condition as quoted in our last. The demand for comb as well as extracted honey, however, has fallen off considerably. We quote: fancy white comb, 14c; No. 1, 12½ to 1; amber, 11 to 12. Extracted California, light-amber, 6 to 6½; Spanish-needle, 6½ to 7; Southern, in barrels, 4½ to 4¾; latter quotation for new; in cans, 5 to 5½. Beeswax, for prime, 29; all impure and inferior, less.
R. HARTMANN & Co.,
May 21. 14 So. Second St., St. Louis, Mo.

NEW YORK.—There is still some demand for comb honey, mostly for fancy stock, which is selling at 14 to 15; off grades in no demand, and prices are irregular—ranging from 8 to 12c, according to quality; sufficient supply to meet the demand. Extracted is in fair demand, mostly for California, of which there seems to be abundant supply of all grades. We quote white 6½ to 7c; light amber, 6; dark, 5 to 5½, according to quality and quantity. Beeswax scarce and firm at 29 to 31.
HILDRETH & SEGELKEN,
May 20. 82 Murray St., New York.

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, 6¼ 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,
May 10. Denver, Colo.

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

KANSAS CITY.—The market here on fancy white comb honey is \$3.25; extracted is slow at 5½ to 6. New honey would sell well.
 May 19. C. C. CLEMONS & Co., Kansas City, Mo.

FOR SALE.—Fancy California light amber, in new 60-lb. cans, 6c; fancy water-white alfalfa, 7c; Wisconsin basswood in 250-lb. barrels, 7½c; sample, 8c.
 E. R. PAHL & Co.,
 Broadway and Detroit St., Milwaukee, Wis.

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.—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.

JELLY-TUMBLERS AT REDUCED PRICES.

You can double your money from your honey crop by using Jelly-Tumblers of correct style, as containers and keeping your market supplied. No other glass so economical. Write for quotations.
 OREL L. HERSHISER,
 301 Huntington Ave., Buffalo, N. Y.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
 at the World's Fair,
 St. Louis, 1904.



**UP-TO-DATE,
 STRONGEST,
 COOLEST,
 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 enout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

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."
 Grant Stanley, Nisbet, Pa.

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.

F. DANZENBAKER, MIAMI, FLORIDA

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 and Farmers.**

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. The Southern Fruit Grower, Box 1, Chattanooga, Tenn.

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POULTRY SUCCESS CO., Springfield, Ohio.

KEEP YOUR EGGS

all summer while prices are low, and sell next winter at a good profit. Write for our plan; it will interest you.
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GET RID OF LICE.

For 25 cts. we send formula that never fails to exterminate lice. Costs less than 8c per lb. to make. Guaranteed. Used by many leading poultrymen.
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Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

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Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

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

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

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

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

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Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publisher.

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POSTOFFICE.....

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DATE.....

If you want Gleanings discontinued at expiration, check here ()

500 COLONIES

of bees will be under the charge of the editor of the Bee-keeper's Review the coming season—100 colonies at home and 400 in the wild picturesque region of Northern Michigan. A brother of the editor is moving to this region this spring, where, aided by his boys and the Review editor, he will manage a little over 400 colonies for the production of extracted honey. Over 300 colonies will have to be moved there, some by wagon and 100 by rail, accompanied by the editor.

The locations have already been selected, and the Review for May devotes several pages to an account of this initial trip north, giving views and descriptions of that region, showing how to select the most desirable location, the difficulties to overcome, etc.

Next will come the moving of the bees, the establishing of the apiaries, the building of the honey-houses and the cellars, the extracting of the honey, etc. The editor of the Review, accompanied by his camera, will be in the "thickest of the fight," and all will be faithfully described and profusely pictured in the Review.

Send \$1.00 for the Review for 1906, and what back numbers there are left of 1905 (some seven or eight issues now) will be sent free.

If you would like to see the Review before subscribing, send ten cents for three late but different issues, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, Flint, Mich.

HERE'S YOUR CHANCE

to win a prize by doing a little work in obtaining subscriptions for Gleanings in our Second Subscription Contest.

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) | | Fourth Prize | 3.00 queen |
| First Prize | \$10.00 queen | Fifth Prize | 2.00 queen |
| Second Prize | 7.50 queen | 6th to 15th Prize | One cloth-bound A B C |
| Third Prize | 5.00 queen | 16th to 25th Prize | One Junior Cornell smoke |

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."

CUT HERE

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.

I can use sample copies of Gleanings. State

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ADVERTISING TALKS

BY THE AD. MAN.

June—the first summer month—the opening of the summer season for advertisers. What is the outlook for a good season for you? Are you one of those advertisers who hibernate during the warm months and then come back into the field in the autumn? Don't you find it hard to get a new start each year? May be you have never figured how much cheaper and more effective it would be for you to keep your name before the buying public the year round, and then when the real season—the time when the need for your goods is greatest—comes, make a little harder effort to interest prospective buyers? If this is the month when a farmer is using his plow or seeder or drill, this is the month when he will decide to buy a new one. Ask a farmer if he is going to buy a new implement; and if he says yes, ask him what make, if he can tell you. He will not wait until next spring, when he sees your ad., to decide. Now is the time when he is investigating—watching how your drill works on his neighbor's farm. Now is the time when your name should be ever before him.

One of the most remarkable companies in the United States is the Chicago House-wrecking Company, Chicago, Ill. This company has bought and wrecked every World's Fair since and including the Chicago Exposition of 1893. They have also bought, many times, immense stocks at sheriffs' and receivers' sales all over the country. Of course, you will see that, buying in this fashion, they secure an almost unlimited amount of any line of goods. In fact, there is hardly an article of any description for the home or farm, that is not listed for sale in their large catalog. We are very glad that our readers can now secure this catalog free of charge by answering the ad. of the above company on page 761, in this number of GLEANINGS. The Chicago House-wrecking Company has a very high credit rating, and we sincerely believe that they will take good care of all orders received from our readers.

The special State issues which we are getting out occasionally mean more value to advertisers than we are asking pay for. We work constantly and carefully to increase our circulation, and many active bee-keepers are being added each day. Several plans which we have already tried have resulted in great steps forward, and just now the 50,000 mark does not look very far distant.

Building fences this spring?

Getting along pretty late now, and your time will soon be taken up with other matters. A good strong fence, whether it be around your field or around your dooryard, is always an ornament and an investment. The looks of a farm and the character of the farmer are easily judged by the condition of the farm fences. A good strong fence costs but little more than a cheaper one, and in service it will pay great returns on the investment. There is a 32-page catalog issued by the Coiled Spring Fence Co., Box 443, Winchester, Indiana, which you should have. It contains much valuable information on the fence question. Settle the question

for yourself early. You will be glad that you did so, a little later on.

SQUARE-DEAL ADVERTISING.

There is no one who deserves a "square deal" more than an advertiser who risks his money by purchasing advertising in a publication where only a careful trial will prove whether or not his choice has been a wise one. There is an element which enters here, and which corresponds in a way to the "square deal" from the publisher's standpoint. When an advertiser appropriates a sum for an ad. in a publication, especially a publication reaching an agricultural class, and after his ad. has appeared once, stops it and awaits the rolling-in of orders, he has made a mistake in his method of investment. The chances for a paying success from one advertisement in any paper are very small. Any experienced advertiser will back this assertion.

Figure this out for yourself. Turn to some new advertisement in your farm paper—in this issue of GLEANINGS; then, to satisfy yourself that this is a new ad., get two or three back numbers of the journal and see if this ad. has not appeared before. Many times you will be surprised to learn that the first appearance of the ad. was unnoticed. This introduces the reason why one-insertion advertising does not pay.

There are places where familiarity may breed contempt; but in advertising, nothing but familiarity will breed success.

Every publisher owes it to the advertiser to give the very best counsel resulting from the benefit of his own experience in the preparation of paying copy. The chances are that he can almost always tell from the information whether or not the proposition would appeal to the readers of his journal. Any publisher who will comment favorably on a proposition which has been submitted to him, when he really feels that this will not be a lasting success, not only harms the advertiser but himself as well.

One-time advertising pays neither an advertiser nor the publisher; and the conservative advertiser who finds that advertisements appear but once in a publication should make a very careful investigation before giving such a journal a trial.

Have you sent for a catalog of the Lyons engines? The time is fast approaching when you will wish you had some sort of an engine to help out on your farm or in your apiary.

The Lyons Engine Company manufacture a gasoline-engine which we believe to be of the highest quality. If you are interested in this subject, do not let another day pass before you send for their complete catalog. This book is nicely illustrated, and gives much valuable information on farming with power. See the Lyons' advertisement on page 759.

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.

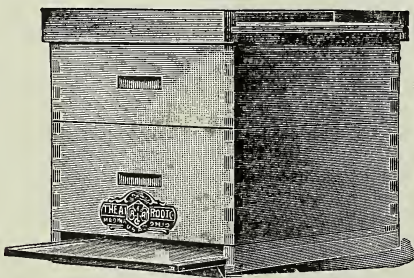
The Danz. hive—the comb-honey hive, is one of our specialties. We would like to tell you more about it if you are interested.

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.

DANZENBAKER HIVES



In this connection wish to say that my ten colonies (in Danzenbaker hives) wintered *perfectly* on summer stands with no other protection than a super of dry sawdust over them, and are building up nicely, although some of them covered only about three frames in the fall. *Score one for Danzenbaker hives.* (Signed)

JAMES M. SOWARDS, Pikeville, Ky.
May 10, 1906.

The Best
Comb-honey Hive
Made or Used

The Best
for Wintering
in Our Locality

THE A. I. ROOT CO., SYRACUSE, NEW YORK



This Offer Good Until July 1st Only!

**DOOLITTLE'S
QUEEN-REARING
BOOK**

For Only 25 Cents

When taken with the Weekly American Bee Journal for One Year at \$1—making \$1.25 for both.

(Book bound in Leatherette cover, otherwise same as the cloth-bound book, which is \$1.)

This offer is open to anybody, either new or old subscribers, but the latter when accepting it must send enough to pay their subscriptions a year in advance, if they are in arrears now.

Mr. Doolittle's book tells in detail just how he rears the best queens possible; also gives His Methods of Comb Honey Production. Every bee-keeper should have this book. (126 pages.)

OUR STANDARD-BRED ITALIAN QUEENS

are unexcelled. Reared by best queen-breeders. Prices—1 Untested, 75c; 3 for \$2.10; or 6 for \$4.00. Orders filled in rotation. Better get your orders in NOW for June delivery.

The Weekly American Bee Journal one year with Untested Italian Queen—both for \$1.50. And to all such who order, and who are NEW subscribers, we will send FREE all the back numbers of the Bee Journal since Jan. 1, 1906, so long as they last. We have quite a few full sets left since Jan. 1. First come, first served.

Sample copy of the Weekly Bee Journal free on request, or a Trial Trip of 3 months (13 copies) for only 20 cents, to a new reader. Better order now, as there are lots of good things appearing in its columns every week.

Address,

GEORGE W. YORK & CO.

334 Dearborn Street, CHICAGO, ILL.

**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.

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.

**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

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 with out 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.,

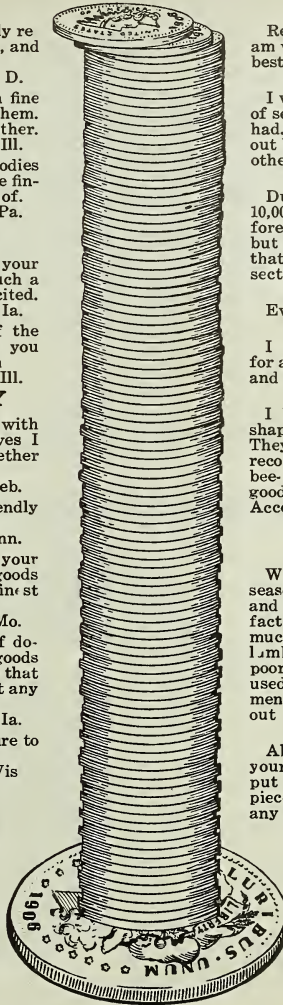
Grand Rapids, Mich.

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.



Nearly 15 Million Sections, Thousands of Hives

Now on Hand in the Warehouses of Our Agents
and Ourselves Ready for Prompt Shipment. . .

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.

JUNE 1, 1906.

No 11



G. M. DOOLITTLE, in shaking a swarm, is careful to avoid deluging the bees with nectar. p 652. Some others, perhaps especially Colorado bee-keepers, think this deluging an important part of the process. I wonder which is right.

PROFESSOR COOK says, page 646, that all wasps are our good friends. Across the water bee-keepers make a special effort to combat them, the books of Cowan and Cheshire giving directions to destroy their nests. But I suspect that on this side we don't have their wasp, *Vespa vulgaris*.

L'APICULTEUR thinks American sections should be replaced by a French article, and advises a trial of pasteboard sections strengthened by removable tin corners. [At present prices, even with basswood timber constantly advancing, that material will be cheaper than pasteboard, especially if we would include the tin corners, which, we will say, can be used over and over again.—ED.]

THE GERMAN CENTRAL UNION of bee-keepers numbers 39,809 members.—*Muenchener Bztg.* [Nearly 40,000 members! Of the half-million bee-keepers in the United States, we ought to have at least one organization that would equal the strength of the one mentioned, at least, if not considerably surpass it. When the National Association reached a membership of 2500 it seemed big.—ED.]

SPEAKING of close division-boards, p. 643, the editor says, "I would go further, and

nail the strip on the top edge also." I never saw that before, but I feel sure that upper closing is more important than any thing lower down. [Our Mr. Pritchard, who has charge of our north yard, says he does not want any strips on the bottom but believes that some on the ends and tops are very important—the top especially.—ED.]

M. DUVAL-TREPIED, as reported in *L'Apiculture*, by neglect put away one extracting-super in the fall without having it cleaned out by the bees. After the following harvest, upon uncapping the combs an odor of fermented honey was at once noted. An examination showed bubbles of air or gas in the sealed honey, and the taste of the honey left no doubt as to fermentation. The fermentation was attributed to the atoms of honey left in the cells by the extractor.

E. W. ALEXANDER, p. 649, says to replace finished sections as fast as five or six can be found in a super, so as to help against swarming. But he limits the number of supers to two. Now, I don't understand that it is the presence of finished sections that inclines to swarming, but the absence of working room; so if I leave a super on until most of the sections are finished, and yet add enough more supers so that my bees have more working room than his, will that not be better? In this locality, in a good flow, the bees will finish all but the corner sections of the super without darkening them, and I think the honey is better.

WM. M. WHITNEY writes that, in using the groove-and-wedge plan of fastening foundation, in some instances the wedge did not hold the foundation, and says: "The trouble in every instance coming under my observation was caused from the groove not being cut deep enough to let the wedge down the full depth, which was remedied by dressing off the thin edge, or bottom of the wedge. I think the groove should be cut deeper than is the present practice." [When we first put out the groove-and-wedge plan

we did not make the groove for the wedge as wide as now and have been doing for some time past. This may explain the apparent conflict of experiences.—ED.]

FOR SOME REASON putting weak colonies over strong ones in spring has not been a howling success with me. I tried it again this year in only one case—a very weak colony over a strong one, no smoke used. Within 24 hours the whole business in the upper story was slaughtered, queen and all. Was it the hybrid blood? [Right you are. You stick to those naughty hybrids or mongrels. Mr. Alexander keeps nothing but the very best gentle leather-colored Italians, and here is where the difference lies. Our Mr. Wardell reports that the plan gives excellent satisfaction. He considers it one of the best tricks of the trade that was ever given in a bee journal.]

POLLEN is not generally assessed at its true value, even by bee-keepers. Many a pound of good pollen is allowed to be wasted or spoiled when the bee-keeper would not for a minute allow the same weight of honey to go to waste. But I protest against accusing the bees of the same lack of judgment. A footnote, p. 640, says, "They will gather pollen when they can not get any thing else . . . when nectar comes in they will spend all their energies in the storage of honey." In early spring the proportion of pollen to honey is larger, as at that time nearly every thing gathered is used up in brood-rearing. Later on an excess of honey is gathered for winter stores, and yet I never saw so heavy a flow of honey that the bees did not do their daily stunt on pollen. [Perhaps my language, taken literally, apart from every thing else, may be a little strong. But I was assuming that the bees already had the hives well filled with pollen; then when a flow of nectar would come on they would gather no pollen because none would be needed. Am I not right under these conditions? I grant that some stray bees will be taking in pollen, even in the height of a white-clover or basswood flow; but is it not a fact that at such times there is no pollen, or at least not enough to take care of the brooding going on in the hive?—ED.]

DESIRING to test the correctness of Mr. Doolittle's belief that there is no loss of heat from the brood-nest when an empty story is put over a colony, I experimented. May 7, in the morning, I put an empty hive-body on No. 66, and covered it, fastening a thermometer to the inside of the cover, having another thermometer outside. An hour later it was 21 degrees warmer in the hive than outside. At 9:35 it was 17 degrees warmer in the hive; at 11:15, 21 degrees; at 12:15, 22 degrees; at 1:40 P.M., 13 degrees; and at 5:10, 9 degrees. [You do not state any conclusions, doctor; but the inference is that, inasmuch as there was a difference all the way from 22 to 9 degrees between the inside and outside temperature, therefore there must have been a loss of heat from

the only source of heat—the ball of bees in the lower hive. Or, to put it another way, you would infer that the crust of bees did not hold all the heat because some of it escaped into the upper hive. Perhaps Mr. Doolittle meant that the brooding heat of the cluster of bees would be the same, no matter what the outside temperature was; and that, in order to keep this heat up, the cluster would either have to contract or eat more honey and thus generate more heat. Possibly bees have other means of raising their own internal temperature; but that would not prove that the outside crust of bees would confine the heat. I give it up, and will turn you over to the "tender mercies" of Doolittle.—ED.]

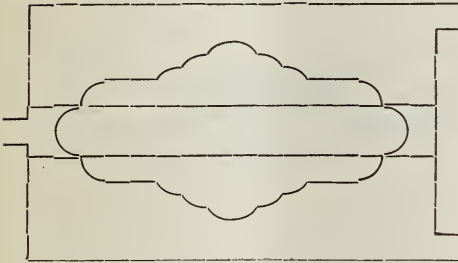
GLAD TO SEE the exact figures for the time of a queen's maturing, from so experienced a hand as G. M. Doolittle, page 647. If three days be allowed for an egg to hatch, his time from the laying of the egg to the emerging of the queen is from 15 days to 15 days 4 hours. Formerly 17 days was taught, and 16 days is still given by some authorities. Fifteen is the time in this locality. [In view of the reported different experiences, it may be possible that the difference in climatic conditions may account for the delay in queens hatching. I have been running an incubator lately, or trying to, and I got 47 chicks out of a possible 130. It took 22 days for most of them to hatch. I am told that some of them ought to have come out on the 20th day. But my incubator man tells me that I kept the temperature too low at the start. Is it not possible that the bees are not able in all localities to control the temperature around the cells, especially some seasons of the year? If so, this would account for the difference in the recorded experiences.]

As I know you will inquire about the fate of those chicks, I might say that I have 6 left. As nearly as I can determine, the temperature in the brooder was not right. I shall try it again, and then later on, perhaps, try artificial incubation of queen-cells and brood. If I do, I will see if there is a difference in the times of hatching when the temperature is below normal slightly.—ED.]

J. RIDLEY has sounded a much-needed note of warning, page 651. Neither are his local conditions exceptional. Those of Mr. Alexander are exceptional, very. I believe Mr. Alexander is a good bee-keeper, and a good man; but if there is any thing like a general attempt at following his teachings it will only be at a loss. [And yet, doctor, we have a large number of favorable reports from those who have followed the Alexander teachings—as much so as from any correspondent who ever wrote for these columns. You will not forget to consider that Mr. Alexander as well as myself have both stated the peculiarities of his locality. His honey-flow is considerably later than most of us have. It is of a different character, and his bee range is decidedly different in that the bees can fly further than they can in

most localities in quest of nectar. Mr. Alexander perhaps assumes that his reader will "read between the lines" more than he does; that is, he assumes that he will take into careful consideration the surrounding conditions as he has given them at different times. Take, for example, Doolittle's non-swarming articles. One must have a locality that will give a surplus of combs filled with honey after the main or general honey-flow; and that locality must have a yield from fruit-bloom much stronger than most of us have or the bees can not be kept "rich in honey."—ED.]

A. K. FERRIS comes to the aid of the editor, p. 670, and wants to get me out alone. All right, Bro. Ferris, I am ready for you. I call your attention to two points. First, in that little picture, No. 1, p. 670, the compartments are about as far as you could get from the right proportions. It may be that, in a construction of that kind, bees ought to cluster just as you picture it. I don't know; I never tried it. But I will try to show you just how my bees do cluster in a hive with three compartments, for I had 50 such hives made, using full-sized frames, and have had experience with hundreds of nuclei in them. Here is a picture drawn to scale if the printer follows copy:



"What was the second point?" Oh, yes! the second point is that a nucleus *doesn't* always cluster near the entrance. Now wait till I catch you out alone. [In your three-compartment mating-hive you have shown the central compartment a good deal smaller than the two outside ones. If you made each division the same size, would you not get a difference very much like that shown in the Ferris diagram? Your bees must be different from ours if they do not show a strong tendency to cluster directly over or toward the entrance. In very warm weather it would not make very much difference.—ED.]

THE EDITOR, p. 641, says, "Honest, now, don't you find yourself clinging to the old, true, and tried more than you once did? Peer again into the archives of memory." I peered. Not getting a very clear view, I tried to find out from my assistant, and asked, "Don't you think I am a little more conservative about trying new things than I used to be?" In a rather listless way she replied, "Yes, I suppose so; why?" "Oh! I just wanted to know." Then she added, half meditatively, "I don't think there is

much improvement, though, I must confess." So I suppose I have improved at least a little. [Your assistant is not a good judge, because she is more conservative than you; but is it not a fact, doctor, that you clung tenaciously to the old T super with loose T tins when all the younger fry had abandoned them in favor of either the section-holder or wide frame? Then you never liked the plain section or shallow hive. You are in good company; but that company are mainly those who got used to the older style of goods. I grant that, for one of your years, you have a young heart, and that you like to try new things. But I repeat, don't you find yourself clinging to the old, true, and tried just a *wee bit* more than you once did? But you ask how about your assistant. I do not know, for when we meet face to face we very often get into an argument and I—I get the worst of it. While we are on "speaking terms" there are some subjects we now studiously avoid. For example, we don't discuss whether holes in hives should be stuffed with rags to keep bees from getting out, nor yet whether there should be "weeds and things" around a bee-yard.—ED.]



A VISIT FROM THE EDITOR OF THE RURAL BEE-KEEPER.

WE had a call recently from W. H. Putnam, of the *Rural Bee-keeper*, of River Falls, Wis. He had just been in attendance at the White Class Advertising banquet held in Chicago on May 22, and before returning was taking a tour among the beekeepers. He left here for Flint, Michigan, where he expected to see the editor of the *Bee keepers' Review*. Mr. Putnam gets out a good bee-paper, and its editor is doing what all editors of bee-papers ought to do—visit beekeepers. We wish Mr. Putnam every success.

PROSPECTS FOR THE SEASON; POSTAL-CARD REPORTS CALLED FOR.

OUR bee weather has been ideal. Hot days and cold nights, with every now and then a shower, has made every thing smile, including the clovers, which are just beginning to show their faces.

We are all expectant as to what the harvest will be, and for that reason I hope our readers all over the country will send us postal cards with one or two sentences on, and no more, telling us what the prospects are, and how clover looks. *Don't, don't*

write long letters. At most, put only one or two sentences on a postal card. It is a tremendous job to review a big pile of correspondence.

If you are writing about other matters be sure to put your bee report on a special slip of paper or card so that our mailing clerk can separate them.

A. I. R. WORKING WITH BEES AGAIN.

You will see by the editorials signed "A. I. R." elsewhere that we have our senior editor working among the bees again. As we are short of help I pressed him into service by telling him that we wanted him to help our Mr. Pritchard to make up 50 baby nuclei and drive back to the north yard. Do not forget to read his story, as it is told with his old-time enthusiasm.

DEATH OF J. C. ACKLIN.

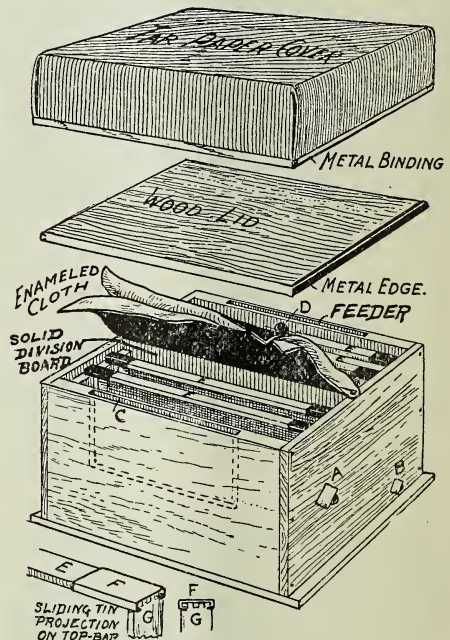
JUST as we go to press we have received sad news of the sudden death of J. C. Acklin at the hospital. No particulars have been received at this writing. Mr. Acklin was one of the most prominent bee-keepers and supply-dealers in the Northwest. He was a lovable man, respected by all who knew him best. His business will be handled by Mrs. H. G. Acklin, as formerly. Further particulars given in next issue.

CAUCASIANS FOR QUEEN-REARING, GETTING BEES FOR "TWIN HIVES," ETC.

I HAVE mentioned elsewhere that I took a daughter of our Caucasian queen, reared last fall in our Medina apiary, up to my place in Michigan. This Caucasian daughter produced pretty well-marked Italians, indicating that she was crossed with an Italian drone. Well, her bees left at Medina not only started a great lot of queen-cells after their queen was removed, but they have been kept starting grafted cell cups ever since, and are now at it to-day, six weeks since the queen that was taken to Michigan was removed. Mr. Pritchard, who has charge of our basswood apiary, says they are the best colony of bees he ever had to make use of every grafted cell cup; and not only that, they are so gentle to handle that he never uses a smoker nor a veil; and I noticed that in his hurry he crushed several bees besides. It seems too bad to injure or mutilate bees that are so good-natured they do not resent it. I know about the plea that a man's time is worth more than the life of two or three bees in a colony of 40,000; but for all that, I would have all my hives and implements so it would not take a good deal of time to avoid injuring even a single bee, especially when I had one of these nice gentle colonies that are such good honey-gatherers.

Let me now digress a little. Just a week ago yesterday, May 18, we purchased, ten miles out in the country, forty colonies of bees. We are to have just the bees and combs—no hives. On the day I have mentioned we further transferred the bees into two-story eight-frame hives, putting the

brood-combs all into the upper story, above a perforated zinc honey-board, and the queen and bees all into the lower story, on frames of foundation. Yesterday (just one week after this transferring), Mr. Pritchard and I went out with the automobile, carrying 24 twin nucleus hives. Our plan was to put bees enough into each little twin hive from this out-apiary. I said that it would be a big half-day's work. My companion thought that, with the arrangements he had made, we could do it in two hours. Now, please note that we did not have to hunt any queens, for they were all below perforated zinc* in the lower stories which were not molested. We just had to take combs from the upper story, and shake off the bees into 24 little hives—two compartments in each hive, re-



TWIN NUCLEUS HIVE.

member. The little hives were first distributed through the apiary, one placed at the side of each full hive. The covers were removed so as to have every thing in readiness; then the enamel-cloth covering was turned back, and a tin tunnel with square bottom (just such as we used to use when we sold bees by the pound) was placed over one compartment of the nucleus hive. A little smoke was puffed into the entrance to drive the bees pretty well into the upper story; then I loosened the cover while a little smoke was puffed in so they would not sting too bad. Mr. Pritchard picked out the first

*The queen excluding zinc honey-boards fulfilled their office so well that only one queen in the forty hives was found in the upper story, and she might have been put in there by some mistake when the transferring was first done. This is a better report from our perforated zinc than I expected.

comb, covered with bees, of course. I quickly took out a second; and just as soon as he could shake the bees off into the tunnel I shook the bees off from my comb, putting the contents of two combs into one compartment.*

Before the bees could fly out, the enamel-cloth flap was thrown back, the tunnel placed on the other side, and two more combs shaken the same way, shaking the bees from four combs in each top story. I then replaced the empty combs, spaced them correctly, and put on the cover. By this time Mr. Pritchard had the next hive open and ready. I said I did not know but we could get through a hive in five minutes. This would take two hours for taking the bees from the 24 hives. But that was theory. I did not think practice could come out as rapidly. Well, what do you think? In just one hour and a quarter we had our bees all in the little boxes, and we might have got home long before Ernest expected us, in good shape, had not two of the nucleus hives got loose and fell out in the road. It was really too bad to see the little fellows tumbled into the dusty road, and really touching the way they tried to rub the dust out of their eyes, wondering why they had been abused in that way. As the mishap occurred when we were less than a quarter of a mile from the apiary, a boy was sent back with some combs of hatching brood in one little hive. He managed to catch enough of the flying bees, including the dusty fellows, to fill one little hive, so only one hiveful was lost.

I believe this is about the most rapid work in an apiary I ever did, even if I am 66 years old.

One reason why we were in a hurry was that Mr. Pritchard had at the basswood apiary, of which he has charge, forty or fifty virgin queens just hatched or hatching out, and something had to be done quickly to get a place in which to put these young queens. Now, the automobile was not only a big help in going ten miles and back so quickly, but it was away ahead of a horse in enabling us to run right up into the very center of the apiary; and when the mishap occurred on the road, there was no worry about the horse getting stung. This old automobile that I use myself does not represent much capital, for I do not suppose it would bring \$200, and may be not more than \$150 in any market. By replacing the parts that have become worn out it is doing service practically as well as it did when it was brand-new. It is now being put to pretty constant use during the fourth summer.

GETTING BEES FOR STOCKING NUCLEI.

Last winter when on the island I fussed quite a little to get the adhering bees for my twin boxes. But they would go back home, and frequently start robbing, until finally I told Mr. Shumard to take the boat

and bring me some bees from his apiary, a mile and a half across the water. As soon as I used those bees brought from a distance my troubles were all ended. When they took a flight they came right back to their hives because there was nowhere else to go; and they did not teach others to rob. That is one reason why we went away some distance to get bees to stock the little hives — A. I. R.

PROF. H. A. SURFACE, PRESIDENT OF THE PENNSYLVANIA STATE BEE-KEEPERS' ASSOCIATION.

THE President of the Pennsylvania State Bee-keepers' Association is Professor H. A. Surface, who is also the State Zoologist of Pennsylvania; Professor of Zoology in the Pennsylvania State College; Ornithologist of the Pennsylvania State Board of Agriculture, and Corresponding Secretary of the Pennsylvania State Natural-History Association; Fellow of the American Association for the Advancement of Science, etc. While his original published matter on insects, birds, and other forms of animal life, averages considerably more than one page of printed matter each day, and he travels hundreds of miles per month delivering lectures and attending to public duties in the Keystone State, and has a daily mail which for some years has averaged more than fifty letters per day, and devotes some time to investigations and making collections, as well as teaching zoology in the Pennsylvania State College, he finds some time each week to spend among his bees, which he says is his only recreation and pleasure, besides that sacred time of only a few hours per week which he has the opportunity to pass with his charming wife and interesting family, consisting of a boy and two younger daughters. By the way, Mrs. Surface proved herself a musician of rare ability at the recent meeting of the Pennsylvania State Bee-keepers' Association by captivating the audience with her delightful instrumental and vocal music. She was one of the best-known schoolteachers in Cleveland, Ohio (*nee* May Bleasdale).

Professor Surface's career has been quite varied, as his preparation for his life-work has taken him to different States and educational institutions. He was born on a farm near Waynesville, Warren Co., Ohio, where he worked until he entered the Lebanon Normal School, going next to the Ohio State University, where he received the degrees of "B. S." in 1891 and "M. S." in 1892. He was then made Assistant in the Department of Geology of the Ohio State University, and also on the Ohio Geological Survey. In preparing the World's Fair exhibit and in other duties he traveled over the Buckeye State until the editor of *The Ohio State Journal* referred to him as "The Stanley of Ohio." He next went to the University of Illinois for special studies in Zoology, and then for two years was Professor of Natural History in the University of the Pacific, California. He received a

* There were no combs nor frames in these compartments. These were put in at the same time we gave them virgin queens after they were placed at the matting-yard.

Fellowship in Zoology in Cornell University, Ithaca, N. Y., where he also taught vertebrate zoology, then for two years devoted his time to the Directorship of Nature Study in the Ithaca public schools. In 1900 he accepted the Chair of Zoology in the Pennsylvania State College, which he is now about to resign in order to devote all his time to his State work at Harrisburg, in which he has been engaged over three years.

In his apiary, which was on the grounds of the State Experiment Station at State College, but has very recently been moved to his new home at Harrisburg, he has all the various races of bees that are to-day kept on the American continent. By the use of queen and drone traps he keeps the different races absolutely pure, or effects such crosses as he desires. He is thus testing them, as well as certain select mated crosses, side by side, in the same region, and the results will be of interest and value to all bee-keepers.

Mr. L. R. White, B. S., who is one of Prof. Surface's scientific assistants at Harrisburg, was recently elected Secretary and Treasurer of the Pennsylvania Bee-keepers' Association, and they are preparing a complete card catalog list of all the bee-keepers of that State, as referred to elsewhere.

Professor Surface has also charge of the Agricultural Zoological Museum in the new capitol building at Harrisburg, and in this are being placed exhibits of various honeys, honey-producing plants, specimens of various races of bees, apiarian supplies of all kinds, including different kinds of hives and tools, and all possible journals and books on bee-keeping. He has recently prepared an illustrated lecture on bee-keeping, and gives this at farmers' and teachers' institutes and elsewhere. He and Secretary White are also giving public demonstrations of methods of transferring bees from old boxes to modern hives, and also demonstration in methods of handling and manipulating bees. He is also doing his full duty as a member of the Press Committee of the National Bee-keepers' Association, and we may soon expect to see results of great benefit to the 28,000 bee-keepers in the Keystone State.

THE BIG FIELD DAY OF THE MEETING OF
BEE-KEEPERS AT OUR JENKINTOWN API-
ARY NEAR PHILADELPHIA ON
JUNE 26TH.

THE field-day demonstration work given at our Jenkintown apiary last September gave such general satisfaction to so many of our eastern readers that we decided to have another one, this time holding it near the close of the white-clover honey harvest, when actual demonstrations can be made showing the various manipulations practiced by expert bee-keepers just as they are conducted by themselves in their own yards in their everyday work.

Last year there was an attendance of between 300 and 400 bee-keepers — as large a number as was ever gathered together in this country at any one place, of persons in-

terested in bees, if I mistake not. Our people in the East, from the advices already received, feel that possibly there will be 1000 bee-keepers present this year. We have issued invitations to Doolittle, Alexander, Pratt, Phillips, Coggsall, Lyon, Bigelow, Morrison, and other prominent bee-keepers, to attend this meeting and show some of the "tricks of the trade." If Mr. Alexander is sufficiently recovered from his illness he will give personal demonstrations of how he does his work. Mr. Doolittle, if he can get away, will do likewise, and so will all the rest whose names have been mentioned. An opportunity will be given, in an informal way, to ask questions at each step of the work. While in one sense of the word this will be like a convention, yet it will be entirely different in that the *actual things* described in the bee-journals and at conventions will be shown step by step with bees in a bee-yard. For example, E. L. Pratt, or Swarthemore, will show some of his difficult stunts that others have failed in performing, such as cell-forming, grafting, forming nuclei with a teacupful of bees, etc., etc. Others will show the different methods of shook swarming, how to hold the frames, how to avoid stings, how to open the hive, how to clip queens, how to put them up for export and domestic mail, besides a lot of other manipulations too numerous to mention. A. I. Root, as well as one or two other members of the Root Company, will be present to help in the work. Mr. W. K. Morrison, lately from the tropics, where he secured two very fine colonies of stingless bees which produce large quantities of fine honey, will be on hand to show these bees, explain their peculiarities, possibility of domesticating them in this country, how to handle them, etc.

In a word, we hope to make it one grand field day where bee-keepers can get together and visit, ask questions and see how others handle bees. They will, no doubt, form in little groups around some Gamaliel of bee fame, at whom they can fire questions and get direct replies by word of mouth. This meeting will differ from a regular bee convention, as there will be little formality, but an unconventional conclave of kindred hearts and souls to meet and show each other little tricks we have learned.

Those who come will be our guests.

While, unfortunately, the date set will be in the busy season, yet in order to demonstrate properly all the different processes it must be held at a time when there will be no robbing, when the hives may be opened up for the accommodation of a dozen bee-keepers at a time if need be.

There will be lunch at noon; and supper in the evening will be furnished, free of cost to all who come and are provided with badges which will be furnished. See announcement on another page with particulars. Reduced railroad rates will be announced later. Those who desire to stay over night can be accommodated at the rate of \$1.50 to \$2.00 at nearby hotels.



PURE ITALIANS VS. HYBRIDS FOR COMB HONEY; A CRUMB OF COMFORT FOR DR. MILLER.

I believe it needs no expert to show that there has been a good deal of improvement in GLEANINGS in the last few years, both in quantity and quality of reading given. But few things have interested me more than Stray Straws, especially the "scrap" between the editor and Dr. Miller. The editor usually at first seems to get the better of the doctor; but while we bee-keepers are standing around with our hands in our pockets enjoying the sport, the doctor shakes him off and comes out of the "scrap" good naturedly smiling, and none the worse for the scrimmage; and we cheer him, I suppose, because we naturally sympathize with the under dog.

Now, while it is not usually good policy for a third person to interfere when two are scrapping, I am tempted to express my opinion in regard to the use of pure Italians or grade bees for producing honey. Many years ago I should have thought just as the editor does to-day, that nothing could surpass pure-bred Italians for storing honey; but later I came to the conclusion that the grade, or hybrid bees, as they are often called, were quite as good.

Thinking I might be mistaken in my conclusions I sent to a prominent queen-breeder, one who had given a good deal of care to improving his stock, and bought one of his choicest queens, paying several dollars for the same.

I did not care to breed from her extensively until I had tested the ability of her queen progeny to produce good stock for business. I confess I was somewhat surprised to find that her workers, as well as those colonies whose queens were reared from her, and mated with my old grade drones, proved most excellent workers, decidedly ahead of my old stock as it seemed to me. Indeed, I knew I was not mistaken, as the difference was so marked. Then I said to myself, "If a cross between a choice pure queen and my grade drones will make such a decided improvement, surely the pure Italians of the best strains must be still better. So I sent for a choice queen of that strain that has since become known as "Superior stock," and much advertised by Mr. Hutchinson, that I might get a cross between two choice strains of pure Italian bees; and I succeeded in getting what I wanted, and found them very choice honey-gatherers and comb-builders; but, alas! they did not come up to my expectations, for not one of them was

equal to some of those colonies whose queen had mated with my old grade drones. To say that I was disappointed is putting it very mildly. I wrote to the breeder from whom I purchased the first queen mentioned above, telling him my disappointment. He replied that my experience was not exceptional, for it was a fact that, for the production of honey, the pure-bred bees would not equal a cross between them and black or hybrid drones, as he had found from such crosses in his outyards.

Facts are stubborn things to butt up against. I have but little doubt that an inferior strain of pure Italian queens crossed with black or hybrid drones would give bees less productive than pure-bred bees from some better strain; but a cross between our best strains of pure Italian queens and black or grade drones, I am satisfied, will give larger yields of honey than it is possible to secure in any other way. I wish it were otherwise, for I like the pure bees much the best, as they are so much nicer to handle, and withal so handsome that it is a constant pleasure to work them.

My present practice is, so far as I can, to breed from the best pure queen I can find, and pay no attention further. My own yards and my neighbors' furnish enough black and grade drones to give vigor to my stock.

A FOUNDATION-STAY.

I have found a single upright thin strip in the center of the brood-frame, placed at right angles to the foundation, ample protection against sagging, and would much prefer it to wire, but have found no cheap way to fasten to top and bottom of frame.

THE LIFE OF WORKER BEES IN THE HARVEST.

Dr. Miller quotes Dzierzon on the age of bees, showing that it does not exceed six weeks. I remember very well how, forty years ago this season, I removed a queen from a strong colony of black bees and introduced a pure Italian queen. Of course, the last black bee had hatched by the 25th of the same month. The first week in September, as I remember, the black bees were nearly all gone, when I observed the Italians of the hive pounced on what remained and killed them—for what reason I can not tell; but I was satisfied from that time, during the working season, we might safely say that six weeks is the limit. V. Butteler-Reepen is quoted in the same Straw as saying that, "In rich forage the bee lives often only two or three weeks." It seems to me that there must be some mistake here. By rich forage I suppose an abundance of honey is meant. My experience has been that bees live much longer when honey is abundant in flowers than when the yield is very light. In a season of scarcity, although there may be a large amount of brood in the hive, the colony will not become strong enough to cast a swarm; while if honey is plentiful they are soon running over with bees.

Again, new swarms, made when honey

is scarce, dwindle away so fast that, before young brood begins to hatch, the old bees are half or two-thirds gone; while if honey is plentiful the colony keeps its strength much better.

COLOR OF HONEY.

Are you sure, Mr. Editor, that those bees that gather amber alfalfa honey found no other flowers to work on? Were there no weeds among the alfalfa, no plants growing along the irrigating-ditches or on the deserts within a few miles? How does that sound—amber alfalfa honey?"

I had an interesting experience last season. The clover honey during most of the season was very white and fine, but that gathered late was dark. I began to wonder if honey gathered from clover late in the season was dark like sugar made from maples late in the season. On tasting it, it seemed to be pure clover honey, only the flavor as well as color was a little off. But when I came to pack I found some where the lower edge of the comb was quite dark, and on tasting I was able to detect a very perceptible buckwheat flavor, which showed that the whole cause of the darker shade of honey was caused by a very slight mixture of buckwheat honey. I do not remember to have had buckwheat stored in my surplus-receptacles but three or four times in the past forty years. Does the darker or amber colored alfalfa have the same flavor as that which is white?

[Since a "third party" has "butted" into this scrimmage I respectfully invite a "fourth party" to help me. It is not fair for two big fat men to jump on to one poor little editor. If I am to be "knocked out" I'd like to have company. Regarding the amber alfalfa, I feel quite positive that there was nothing else from which the bees could gather nectar. The soil and climate are sufficient to account for the color, I think.—Ed.]



Mr. R. V. Murray, of Cleveland, the GLEANINGS artist, sends the following verse which comes in very properly just now:

Let us, then, be up and doing;
Thrift comes to those who strive;
The bee that gets the honey
Doesn't loaf around the hive.

Apicultura Moderna is the name of a new bee-journal published in Bucharest, Roumania. The issue before me is the fourth. This is the first bee-journal I have yet seen in the Roumanian language, and we are glad

to welcome the new exchange. In size it is just like GLEANINGS, but contains only 24 pages. Judging by the headings, the journal is well filled with matter of an up-to-date character.

A writer in a French journal suggested, a few months ago, that in handling queens or cages containing queens the hands should be rubbed over thoroughly with beeswax, as that will prevent any odor from the hand adhering to the cage. He says there is something about beeswax that attracts a bee's attention very strongly, and seems to deprive the bee of its bad temper. I was reminded of this suggestion by the article on introducing-cages in last number.

Paul Schonfeld, whose name has been so long identified with advanced bee-keeping in Europe, and whose fame in that line is about on a par with that of Dzierzon, died on the 7th of April. Like Dzierzon he was a native of Silesia. By profession a clergyman, he drifted over into apiculture owing to some unhappy experience with a man who had charge of his bees. The dispute caused Mr. Schonfeld to resolve to take care of his bees himself, and fortunate it is for the world that it thus turned out. His crowning work from a literary point of view was his Investigations into the Anatomy and Physiology of the Bee. Like Langstroth he made the world his parish, and blessed it, by so doing, for all time to come I am indebted to the *Leipzig Bee Journal* for the above.

I glean from the other German bee papers that father Dzierzon himself is fast failing in health, being now in his 96th year; hence we may expect that great luminary will soon be below the horizon.

I had made some arrangements to translate the following article, but deferred doing so on account of three new departments now occupying the room that Pickings formerly did; but as Mr. Greiner has made a translation of his own, and perhaps a better one than I could, as he is a regular Deutscher, I make place for it here, as I consider it as valuable as any thing else I could find.

THE EFFECT OF HARD WATER ON WAX; BY P. NEUMANN.

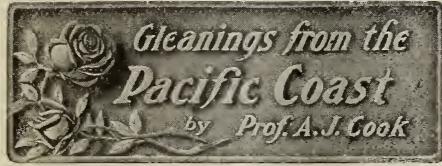
Bee-keepers will have made the discovery that cakes of wax often have a grayish, spongy sediment at the bottom. What may be the cause of this? *Maandschrift voo Bejenteelt* gives the following explanation: Wax is not a chemical combination, but a mixture of different ingredients in varying quantities which may be again separated one from another by boiling in alcohol. The principal ingredients are myricin and cerin. There may be also a high per cent of cerolin present. These three ingredients may be separated in the following manner: Cerin and cerolin will dissolve in boiling alcohol, but myricin does not. Filtering the hot solution, taking care all the while that it does not cool off during the process, there will remain upon the filter the myricin as a grayish matter. When the filtered portion is cooling off, the cerin separates from the cerolin, as it does not dissolve in cold alcohol.

When myricin is heated in water for a long period, a separation and uniting with the water occurs. As a result, we have myricil alcohol and palmatin acid. The lime which is present in hard water favors and hastens this separation, and unites with the palmatin acid, forming a lime salts which does not dissolve in water. This is the chalky and spongy part on the under side of wax

cakes as we often find it. *Wax should never be melted in hard water.* Only soft water or steam should be used for that purpose.

When soft water is not at hand, about one to one and a half teaspoonfuls of sulphuric acid may be added to the hard water. This will cause the lime to settle to the bottom.

To destroy ants, a French bee-keeper says it is not a good plan to put obnoxious substances on their hills, as that only drives the insects to another place. Take a common flower-pot, holding, perhaps, half a gallon. Plug the bottom, and smear the inside with any sweet substance that ants are known to like. Invert the pot on the ant-hill; when the ants have swarmed up the sides of the pot, dip it in hot water.



ORDERS OF INSECTS—CONCLUDED.

In our last article we considered the general characteristics of bees and their congeners, the wasps, ants, etc., and also gave some interesting peculiarities of these highest of insects. As this is the order of our pets of the hive, I will speak more in detail of the various families of this order.

HYMENOPTERA.

The horn-tails are large wasp-like insects with a sharp hard tail-like spine at the end of the body, hence the name, "horn-tails." This is really their ovipositor, a sort of auger which they use to bore into wood when about to deposit their eggs. In this way they deposit in the hardest maple. The larvæ are borers, and thus we have our boring insects in three orders—beetles, three families; moths, two families; and these horn-tails. These are not numerous, and so do much less harm than the others. One, *Tremex columba*, is large, and sometimes it is found with its auger so firmly in the wood of shrub or tree that it is easily captured.

THE SAW-FLIES.

These insects are very interesting. They possess one or two wondrous saws at the tip of the body. These, like the sting of the bee, are a modified ovipositor, and, like the sting, have a marvelous nicety of finish. The finest needle, of most perfect finish, when magnified, shows great roughness and imperfections; but not so these saws. They are of polished smoothness, and exquisite in form and finish. They are really saws, and are used to cut a groove for the reception of the eggs. The larvæ of these are leaf-eaters, and are to be numbered among our worst insect pests. Some, like the dreaded pear and cherry slug, have a viscid covering, hence the name, "slug." Of course, the real slugs belong with the snails, and

are not insects at all. These slugs have from 18 to 22 legs, the number varying with the species. No other larvæ have so many legs, so it is easy to identify the larvæ of this family. Caterpillars usually have 16 legs, never more. Like caterpillars and leaf-eating grubs (*Coleoptera*) these are destroyed by use of the arsenites, Paris green, etc.

THE GALL-FLIES.

I have already described these interesting insects, which, as we have seen, are principally injurious to the oak.

THE PARASITES.

I have also succinctly described the colossal benefit which we receive from the four families of parasitic *Hymenoptera*. In California several very destructive scale insects are wholly held in control by these beneficent parasites. We have even done most wisely in importing very valuable parasites from such far-off countries as South Africa, and have thus received incalculable benefit.

THE COW-KILLERS.

In California and other warm parts of our country we often see red or whitish hairy, ant-like, wingless insects which are known as cow-killers. Probably their very severe sting gives the name. They nest and rear their brood in earthen burrows. They are usually banded with black. The males are much like the females, except that they are winged. They are predaceous, and often kill bees, though they are too few to do serious harm. I figure these in my "Bee-keeper's Guide."

THE ANTS.

These are the brainy insects, and are in the insect world what man is among vertebrates. Their social habits remind us of bees, and they are fond of honey. Their development, anatomically, functionally, and their wondrous habits, more than rival the same in bees, though they can never compete with bees in exhibits of any such incomparable fabric as the immaculate honey-comb. Their slave-making habits, their agricultural proclivities, and their marvelous strength and industry, challenge our sincere admiration. The one in Florida, that works such havoc among bees, is illustrated in the last edition of my book. We can keep them from our houses by the use of strings dipped in corrosive sublimate, and can kill them in lawn or apiary by the use of bisulphide of carbon.

THE WASPS.

There are many families of wasps, and many are social like the bees. They are predaceous, and, like the parasites, do us great good. The paper-making wasps discovered the art of making paper of wood pulp long before man made the discovery. Their paper nests are much like the comb of bees, only they are horizontal, not vertical. Many of the solitary species nest in earthen burrows, in hollow plants, in mud cells. Like bees, the male wasps illustrate parthenogenesis, or agamic reproduction.

Some are very large, can sting powerfully, but are not wont to use this formidable weapon unless disturbed. I am sure we may regard the wasps as man's good friends.

THE WILD BEES.

While the large hairy showy bumble-bees and the equally large though less hairy carpenter bees are social like the honey or hive bee, yet most bees are solitary. In habits they remind us of the wasps, but they feed their larvæ, which, like most larval hymenopterns, are quite helpless, wholly on pollen, while wasps feed their young on other insects. The benefit to man from bees as pollinators of flowers is beyond computation. Our valuable red clover would seed not at all except for cross-pollination wrought by bumble-bees.

Berlin, Prussia.



LOOK OUT FOR EARLY SWARMS.

There is cleome on the desert this year. This means that the bees that have access to it, if they were not too weak on the start, will swarm early and often.

SWEET CLOVER.

For several days I have been staking our cow out in the alfalfa pasture in order to give her a little green food. It would hardly be safe, you know, to let her run loose and eat her fill. Yesterday I tied her to the fence. There is a sprinkling of sweet clover all along this edge of the field. What did the misguided creature do but pick out and devour every stalk of sweet clover within reach before she would touch any of the alfalfa! Surely she ought to have known better! Those who hold that sweet clover is not a fit food for stock are invited to labor with her and convince her of the error of her ways.

EXPERIMENTS.

Doubtless you have in mind some experiments you would like to make in order to test some theory you have formed or heard of. This is right. It is by such experiments, by theory put into practice, that we can gain the most accurate knowledge. Along with this goes the knowledge that is gained by the observation of conditions that arise without pre-arrangement. But do not make the mistake of supposing that experiments or observations that are confined to only two or three colonies are of any great value. Conditions in bee-keeping vary too

much for that. We often hear of experiments that have been made by selecting two colonies of apparently the same strength, and assuming that the different results reached are due to the different conditions under which they have been placed. But if you take two colonies apparently exactly alike, and keep them under conditions as exactly alike as possible, there will often be a wide difference in results. To make an experiment of any value, it should be tried on a number of colonies, say on a row clear through the apiary, excluding any that are plainly much above or below the average. Then, to make it really conclusive, it should be repeated for several seasons.

CLEOME LUTENS.

On page 433 a subscriber inquires what kind of cleome we have that blooms in June. This is the yellow cleome, *Cleome lutea*, which begins to bloom here about the last of April. Unlike the purple cleome, which grows mostly in the creek bottoms and upper mountain valleys, seeming to prefer a cool and well-watered location, the yellow variety is seldom found anywhere except in the desert or uncultivated lands of the warmer valleys. Unless there has been a great deal of rain or snow during the winter or early spring, the seed does not germinate at all but lies dormant in the soil, waiting for favorable conditions, and sometimes there will be but little or none of it for several years. But when there has been enough rain or snow so that the soil is stored with a sufficient amount of moisture it springs up so thickly that sometimes for miles the desert looks as though it were covered with a carpet of gold. In places where the soil does not dry out easily, or where it receives water from irrigation, it may grow to a height of two feet or more, and bloom nearly all summer. Ordinarily, unless there are frequent rains it gets to be only twelve to eighteen inches high, and dies in two or three weeks after it begins to bloom. As the blossoms open in succession it may remain in bloom a long time if it does not dry out, and under favorable conditions it may yield a great deal of honey. Last year a small apiary that I moved to the cleome-fields averaged nearly a super of honey to the colony, while those in the alfalfa and sweet-clover districts gave little or no surplus. The honey is rather dark colored, but the flavor is pronounced good by most people. The greatest value of cleome lies in the fact that it fills in the gap between fruit-blossoms and alfalfa, thus stimulating brood-rearing to the utmost, and getting the bees into fine condition for the harvest of white honey.

STARTERS IN BROOD-FRAMES.

A very common way of using foundation here is to use a strip about three inches wide. Swarms are hived on these and they are used wherever a comb is to be built.

This usually results in a comb that is unfit to rear brood in its upper part, on account of the stretching of the foundation and the consequent elongation of the cells. The queen may sometimes lay in these, but they are generally used only for honey-storing. This results in a double loss—first, by restricting the space available for brood-rearing, already small enough in an eight-frame hive; second, and this is by far the more important, by always maintaining a strip of honey between the brood and the super, which tends to discourage the storing of honey above. The same results follow, in an increased degree, when full sheets, unwired, are used under like circumstances, and to some extent when wired horizontally, with the wires loose. Out of several hundred empty combs which I bought this spring, but very few are fit for brood-rearing in the upper fourth. To use such combs for brood-combs is apt to result in serious loss.

These facts, which I have observed for a number of years, have led me to use foundation in the brood-frames in only two ways—first, as a narrow starter, not over an inch wide; second, in full sheets carefully wired. I once thought that I could not afford to use any thing but full sheets of foundation; but I have been compelled to change my mind by finding that I could not get the best results in honey-production except by hiving swarms in a contracted hive with only narrow starters. Too much drone comb built, did you say? Well, sometimes. But I can sort those combs out, use them for extracting-combs, cut out the patches of drone comb and replace with worker, or even melt them up into wax and still come out ahead.

LIGHT-WEIGHT SECTIONS.

Mr. G. C. Greiner has given us some valuable and interesting articles on the section question; yet on page 213, while fully cognizant of the fact that the tendency is toward selling all articles by the piece rather than by weight, and admitting that this tendency is likely to increase, it seems that he can not get rid of the unfortunate old idea that there is such a thing as a "one-pound section." A one-pound section by size, he calls it. Will he be so good as to tell us what the size of a one-pound section is? It is almost universally agreed and admitted by practical honey producers and dealers that the sections in general use do not weigh a pound, and that it is impractical to have them of any definite fixed average weight, year after year. Then why foster this idea of "one-pound sections" by such talk? Apparently Mr. Greiner has had no experience with more than one size of section, and he assumes that any section that falls much below his maximum in weight is necessarily defective. Thus he says, "A one-pound section of honey that weighs four ounces less than a pound can be of two kinds. It is either from two-thirds to three-fourths built out, and all finished capped honey, or it is

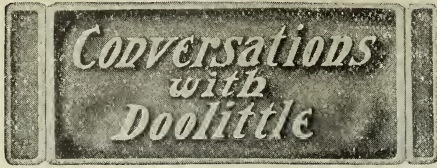
all built out and very little capped, and yet may contain quite a little loose honey." Furthermore, he says of such sections that "they could not be shipped on account of their frailty. A good share of them would be broken from the wood in transit."

Now, I want to say that I have produced tons of honey in sections $4\frac{1}{2}$ square that did not weigh over 12 ounces to the section. So far from its being impossible to ship them without breakage, I was so uniformly successful in shipping them without damage that it was a great surprise to me, when I came to buying honey of others, to find their heavier sections very much more damaged in shipping than mine. For years I had customers who bought my honey with the distinct understanding, specified in nearly every order, that the sections were not to average over twelve ounces each. One man who bought a great deal of such honey of me to sell again by the case frequently complimented me on the good condition in which it always arrived, no combs broken.

I received, only two or three weeks ago, the gold medal awarded me for the finest display of honey at the St. Louis World's Fair in 1904. The award was made on ten cases of honey, 24 sections to the case, each case weighing exactly 19 lbs. net. Besides receiving this award I was informed that one of the principal honey-dealers in the United States said that it was the finest lot of honey he had ever seen.

All of the honey of which I have been speaking was in sections $4\frac{1}{2}$ square, seven to the foot in width, regular bee-way style, and built between tin separators. I prefer sections of this width because they are so much more uniformly well built out, more uniform in weight, making them more acceptable to both retailers and consumers; and last, but by no means least, because I think I can get more honey by using them. It does not by any means follow that the man who buys a twelve-ounce section of honey is either cheated or deceived, nor even dissatisfied. He buys a box of honey. If the dealer is wise he will not create or countenance the impression that he is getting a pound of honey. A pound of honey of equal quality would cost him more money. The dealer, in fixing his selling price, seldom knows or cares any thing about the market price of honey per pound as quoted in the market reports. In most cases his selling price is based on the cost to him; and if we will give him honey on which he may calculate his percentage of profit with the same ease and certainty that he can on most other articles he will usually be glad to buy by the case instead of by weight. With most grocers it has become a practical necessity to sell by the piece.

[Mr. Green does not differ so much from Mr. Greiner as he does from Dr. Miller. Say, my good doctor, it does me good to see Mr. Green jab you in the ribs. Feel sorry for you? Ye—s—s—s, but you can stand it. —Ed.]



FINDING QUEENS, ETC.

"Is this Mr. Doolittle?"

"Yes. What may I call you?"

"My name is Miller. I live in Pennsylvania, and I came to see you about finding queens, and to have a little talk with you about how I can manage my bees during the swarming season. But how it rains!"

"Yes, we are having lots of rain again this spring, and, what is worse for the bees, lots of cold; been but very few days since the bees were set from the cellar that they could fly, and it is now May 14."

"Then you are worse off than we are, for our season has been about an average one thus far. I have been trying to find my queens to clip them, but do not have good success. Can't you tell me how to find queens? I am a beginner with the bees, and take GLEANINGS. It seems to me if you could only tell me how to find a queen as plainly as you tell about other things in your 'Conversations' I could find a queen at once."

"Well, it is hard work, often, for the expert to find a black queen; but with all of the other races there is not much trouble, and especially with the Italians. If you jar the hive too much, or use too much smoke, so that you set the bees to running, it will be very difficult to find the queen of any race. Why it is more difficult to find a black queen is because black bees have a greater habit of running and stampeding off the combs than any other bee that I know of; and why it is easier to find an Italian queen is that her color is generally different from the worker bees, and, also, because it takes much abuse to start these bees so they will appear any thing but natural on the combs."

"Well, I guess part of my trouble was that I jarred the hive too much. I use the Danzenbaker hive, and the end sticks and springs seem to stick in the hive as if they grew there."

"Your bees may use lots of propolis, thus causing things to stick. But if this is the case you will have less trouble the next time you open the hives. Where things are badly glued in any hive, it is best, in opening the hive the first time in the spring, to pry all the fixtures loose, then close the hive for an hour or two, when by using care you can open it up, almost without a jar or any disturbance to the bees."

"That is something I had not thought about, but I know it is so, now you mention it, for the next time I opened the hives I did not have so much trouble."

"It is always best to take an empty hive

or a light box of the same size of the hive with you when you go to find queens, as it helps very much in the matter, giving you a chance to look the combs over twice, nearly or quite as quickly as you would once, did you have no empty hive or box along in which to set each frame in order, as you take them from the hive."

"That is right; tell me just how you do it."

"Having your lighted smoker, empty box or hive, and a stool or box of convenient height for a seat, go to your hive and open it as carefully as possible. Having the hive open, you are next to put down your seat so you can sit with your back to the sun, this allowing the sun to shine on your work and at the same time keeping your eyes in the dark, so that you can see things twice as well as you would under other circumstances. Now carefully remove the first frame from the hive on the side next to you, and hastily look it over for the queen. If she is not seen, set this comb in your comb-box, putting it on the furthest side of the box from you."

"Why should I put it over there instead of next to me, as it was in the hive?"

"So that, when you come to putting the combs back in the hive, you can look them over for the queen, should you not find her the first time over, with the same chance of finding her that you had at first. Having the first frame in the box, lift the second one from the hive; but instead of first looking on the frame you are now lifting, glance at the side of the frame next to you, still remaining in the hive. If you do not see her there, then look on the side of the frame you have in your hands, that is away from you."

"What is that for?"

"As a rule, the first thing a queen will do, when the strong sunlight strikes the comb she is on, is to run around to the dark side of the comb; and as soon as you lift the second comb from the hive, there is enough empty room so that the sunlight can strike on the combs, and you see the whole of the 'face' side of the comb next to you. If the queen is on this sunlit side of that comb, you will see her very easily as she starts on her way to go around to the dark side of the comb, when you will at once set the frame you have in your hands in the box, and pick up the frame she is on before she can have time to leave it. If you do not see her, you may know that she is on the opposite side of the frame you are holding in your hands, or else in the hive."

"Ah! I begin to see."

"After you have gotten started in this way it is of no use to look at the side of the comb next to you, after you have taken that frame in your hand. Simply look on the side of the comb next to you which remains in the hive, as soon as you raise each frame; and if you do not see the queen, then look on the opposite side of the frame you are holding in your hand, setting each in the box, one after the other as they come from

the hive, putting the first one in on the side of the box furthest from you, and setting the next one up to it, and so on, till you find the queen or all of the combs are out of the hive and in the box."

"That is simple."

"Yes; and if you failed to find the queen, and do not see her on the sides of the hive after all the frames are out, turn the box of combs and bees so that the sun will strike on the combs the same as it did when they were in the hive, and commence to put them back in the hive from the box, looking at them in the same way for the queen that you did before, you having just as good a chance to find her this time over as you did at first."

"What proportion of the queens hunted for do you find in this way?"

"I find nineteen out of every twenty looked for before the combs are all in the box; and the twentieth one, before the combs are all back in the hive again."

"What! don't you ever miss finding any queen?"

"Perhaps once in two or three hundred such hunts I fail to find the queen. But it is a rare thing to fail, and I can generally find a queen much sooner than I have been telling you this. The knowing how to have the light just right, and that the queen will always be between the 'dark' sides of the combs, will help all to find queens quicker and easier than they have been doing if they have paid no attention to this matter."

"Well, I thank you much; but before I go I wish to ask you about turning the parent colony one way and the other after swarming, as you spoke of in GLEANINGS, p. 521."

"Oh! that is the Heddon plan of preventing after-swarms"

"I don't care a fig whose plan it is, I want to know about it"

"All right. When a colony swarms, put an empty hive in its place and hive the swarm into this empty hive, putting the supers from the old or parent colony over the hive the swarm is in. When all are settled, place the parent colony about a foot away, and a little back from the hive the swarm is in, allowing it to remain thus for five or six days, when you will pick it up and carry it where you wish a colony to stand, and leave it there. This causes all the flying bees to return to the swarm, and so weakens the parent colony that they will destroy all queens but one, which prevents all after-swarming, and gives an increase of only one colony for each old one in the spring."

"But I do not want any increase. I want to let my bees swarm naturally once, then put the swarm in a new hive on the old stand, and get all the bees of the parent colony in with the new swarm, just as fast as I can, as they hatch out, so I will have no increase; then when all are out I can put the parent hive away."

"In that case all you will have to do will be, at the end of five or six days from the time when the swarm issued, to set the parent colony over on the other side of the

hive, setting it in about the same position relative to the hive the swarm is in that it occupied before this last moving. This will put all the flying bees in with the swarm, and stop after-swarming, the same as if you had carried the parent hive several rods away. In five or six days more, set this parent colony back on the other side of the hive again, and so keep on till all the brood has emerged, at which time you will shake all the bees off their combs in front of the hive containing the swarm, smoking the swarm at the entrance so they will not kill these young bees you are now shaking in."

"What about the queen-cells? Shall I cut these off?"

"The bees will tend to this matter, and destroy all but one of these cells or the queens which emerge from them. This is the part the plan was invented for, mainly, as it does away with all hunting for queen-cells."

"But what about the one queen they allow to remain?"

"Unless you have a choice in the queens (the one with the swarm and the one that the parent colony raises), you need pay no attention to the matter. One of them will be killed after the bees run into the swarm. As a rule, however, it might pay to hunt out the old queen and kill her a day or two before you are to shake the bees off their combs, providing you are sure the young one is laying, when the young one will be mistress of the now one colony."

"I see. Good by."

"Just a moment. What are you going to do with the beeless combs?"

"Store them away for future use."

"You know you will have to fumigate them or the larvæ of the wax-moth will spoil them."

"I had not thought of it; but now I know I will."



ALEXANDER AND HIS CRITICS.

What Constitutes a "Fairly Good Locality"?
Is it Best to Allow the First Honey to
Fill the Brood-chamber?

BY E. W. ALEXANDER.

In answer to Mr. Byer's criticism, page 217, of some of the articles I have written, I must say that I was not aware that a whole lot of my teachings through the columns of GLEANINGS were not adapted to the majority of localities. If Mr. Byer had told whether he produced comb or extracted

honey it would be easier to answer him on some points; but in regard to what he says concerning this location I can say that it never was considered any more than ordinary until we commenced to have the large yields of surplus of the past few years. Before black brood destroyed nearly all the bees in this location there were several parties who kept from twenty to a hundred or more colonies in this vicinity, and on inquiry I find they seldom got more than 40 or 50 lbs. surplus per colony, and frequently not half that amount. Before I came here I kept bees in five different counties in New York, three of which were better localities for surplus honey than Delanson has ever been.

Now, as it has become almost a byword among some bee-keepers, "Alexander's fairly good locality," it may not be out of place for me to describe what I consider a fairly good locality. It is this:

Any place, after June 1, that will furnish a harvest for 35 days, sufficient for one colony of Italian bees of a good honey-gathering strain to gather a surplus of 100 lbs. of extracted honey, is what I call a fairly good location, and is as good a locality as this is; and all that we have been able to secure more than that has been done by adapting certain methods which the majority of bee-keepers have known but little about until recently.

Now as to the number of colonies that this or any other fairly good location can furnish a good surplus for. That is a problem that no one has ever been able to solve. I know that this location has furnished and can furnish a surplus of just as many pounds of honey per colony for 750 colonies in one yard as it ever did for a less number, and I think the same will yet be proven true of any fairly good location.

In regard to breaking up good colonies just previous to the main honey-flow, I can say that I have never advised any one to do this except where *increase was preferred to surplus honey*. I have always advised doing every thing possible to build up the colonies so that they will not only be strong in bees but have their hives well filled with brood in order to keep them strong during the whole honey-flow. Either make the increase long enough before the harvest to enable all colonies to become strong in time for it, as can very easily be done in a buckwheat location, or make no increase until the harvest for surplus is over.

In regard to the part of my article in Jan. 1st GLEANINGS, page 26, which Mr. Byer calls a "stunner," I wish to say if he had ever produced much extracted honey he would have learned the necessity of having his hives well filled with honey, and a large percentage of that capped before he put the extra hive of combs on top to extract from. Although we always put a queen-excluder between the hive and extracting-combs, it is no uncommon thing for us to have many of our colonies short of stores in the under hive before the season is over, and we usually

take off the extracting-super several days before the close of the harvest, in order to give the bees a chance to fill their hives again for winter. With a good young queen in the hive below, it makes but little difference how much honey there is in the under hive unless it is capped, and even then the bees will carry a large part of it above. So I repeat, see that your hives are well filled with honey before you put on your super of empty combs to extract from.

As to the quality of our extracted honey I think I have given all the evidence on that line that any *reasonable* party can ask for.

In regard to Mr. Byer's experience in a locality where his bees got a little buckwheat surplus, it is strange he does not know it to be a fact that, in any harvest where bees get only a little surplus, they will fill up the brood-nest with twice the honey, and cap it over, that they will in a good harvest, providing they have a place above to store it.

I have never advised sacrificing a full brood-nest in order, as Mr. B puts it, to have the brood chamber "plugged with honey." I will admit I took it for granted that, if the hive contained a good young queen, as I have always advised, there would be at least one-half or more of the combs filled with brood. I can see wherein it would be better for the inexperienced if I were a little more explicit sometimes; but to the man of experience I hardly expect him to catch at these omissions, although I sometimes take it for granted that they know more than they seem to know. If Mr. Byer's theory were true in regard to bees storing a larger amount of surplus in two extracting-supers than one, then certainly we all must miss it very much when we don't put on several supers at once, both for extracted and comb honey, in order to secure a large surplus.

No, Mr. Byer, you are away off on that point, and you should know that bees work much better when we give them only enough room so that they are a little crowded and can keep their surplus-apartment nice and warm.

It can not be possible that you have not seen the importance of contracting our hives and supers in order to secure the best results.

LEAVING THE WELL-BEATEN PATH, AND THE CONSEQUENCES.

In regard to the wisdom of cautioning beginners about leaving the "beaten paths too far, and following what may in their localities turn out after all to be a phantom," I wish to say that, when I was a boy, a very small minority of bee-keepers left the well-beaten path of setting their best colonies over a brimstone-pit in order to get a little honey, and adopted the more humane way of cutting a little out of the sides of their hives in order that they might save their bees for another year; and I could never see any phantom about that. I can well remember, many years ago, of a small minority that

left the well-beaten path of box hives, and in their place adopted movable-comb hives. There was no phantom about that either. Also a small minority that left the well-beaten path of keeping black bees, and in their place keep only good strains of Italians—no phantom about that. Yes, and a small minority that left the well-beaten path of squeezing their honey through a bag, and in its place adopted the improved honey-extractors of to-day. No phantom about that; and it has so happened that a small minority at one time left that well-beaten path of producing their surplus comb honey in coarse hemlock boxes holding 15 or 20 lbs. apiece, and adopted the nice attractive section of the present day—no phantom about leaving that beaten path, that I can see. I might continue to cite many more cases where a small minority have left beaten paths in all lines of business and become the leaders of progress. History shows us, in thousands of instances, where minorities have been in the right, and were a target for the arrows of critics who only followed in their wake and drifted with the masses.

In conclusion I will say that I expect to be criticised as long as I represent a small minority of bee-keepers, especially while my ideas and experience become a part of GLEANINGS, and through that journal they go to many parts of the world, and are read by tens of thousands of bee-keepers.

Delanson, N. Y.

WHAT IS TO BLAME FOR THE PRESENT STATE OF THE HONEY MARKET?

The Manufactured-comb-honey Story from the Standpoint of a Traveling Man who is also a Bee-keeper; Exhibitions of Bees and Honey.

BY GEO. SHIBER.

There has been considerable discussion of late in GLEANINGS as to why the honey market is so dead, and the demand seemingly decreasing. The market price is no better the past fall and winter with, apparently, but half a crop. Of course, there is a reason for all this; and that is what we should all like to find out. Everybody has a theory. Some think the manufactured-comb-honey story is the cause; more think this the reason, may be, than any other one thing. There are other theories, but we will not consider them just now. We will let them crop out in the course of this article.

Let us consider the question in all its bearing. For a number of years I have been "on the road" selling goods at wholesale to grocers; and, being a producer of honey as well, it has given me an exceptionally good chance to dispose of my own crop at good prices. I have never had enough to supply my demand yet. It has given me a good chance to study the honey question with the retailers.

Now, then, honor bright, how many or

what percentage of the people, retailers and consumers, believe that comb honey is manufactured, or that there is something crooked about its production? Well, I will try to be conservative; and from my experience I would say fully ninety per cent! As a corollary, then people ought to believe that eggs, potatoes, peaches, apples, etc., are manufactured; but we know they do not. Why, the city-bred man, the most ignorant of agriculture, would smile at the idea, and why? Because they have been educated on the chicken question by reason of the great poultry shows held in every city and small town in the land; and the more they hold the shows, and the more people engage in poultry culture, the higher goes the price of their products. What would poultry-keepers think of some smart reporter printing a story about manufactured eggs? None of the poultry journals would give it any notice at all unless it was a passing laugh, and people would keep on eating eggs.

It's astonishing the number of poultry shows held in the United States in a single season. The smallest towns are having them. Within fifty miles of my home, the past season, shows were held in Corry, Pa.; Salamanca, N. Y.; Olean, N. Y.; Dunkirk, N. Y.; Bradford, Pa., five shows. Suppose, as Mr. Morrison says, we could have a few bee shows next season—what would happen? And, by the way, a bee and honey show with a large class of the different varieties of bees on exhibition in commodious cages would cap the climax over all shows. One or two hundred colonies and nuclei would create more talk and comment among the public and newspapers than the dog, horse, or poultry shows, because of its very novelty, and the honey-bee would receive pages of free advertising, that it is entitled to. Then let the newspapers print comb-honey lies. No one would swallow it. Then they would stop printing them. Comb honey has to be sold on its looks and appearance. It has to carry its own story with it to the consumer. The only trade-mark or brand to identify it is its own white face, as the commission man will not allow any name of producer upon it—just the bare white wood—nothing in its appearance to refute false assertions about it—a thing not so likely to occur if it were plainly marked with the name of the producer and location of apiary.

This country is the greatest market in the world. I mean for every thing except honey. If there were one pound of honey consumed a year per capita, that would mean about 75,000,000 pounds. I have not got the statistical number of pounds produced in the United States by me; but look at what a market we ought to have. I can not see any way to obtain that market except through education; and education, in my opinion, can be the most cheaply obtained from the show.

I can conceive how a colony of bees might be exhibited on the eight frames only, no hive-body being used at all. Simply suspend the eight or any number of frames upon a

horizontal frame, this to be placed inside of a wire-cloth cage; then people could see the whole inside of the hive, practically. I believe that we can refute comb-honey lies until the end of time, and it will make but little difference as to increasing its sale. You see, a letter to an editor who has printed a canard almost seems to take the semblance of a petition, or, if you please, a half-apology to the editor for asking him to contradict himself. Editors are human, and they don't like that sort of thing, considering the fact that the canard itself made "mighty interesting reading" for the ignorant public, and the petition *doesn't* make "mighty interesting reading."

A good many think so many new bee-keepers being made is the cause, or one of the causes, why honey is not more in demand; and it has been hinted, in one of the journals, that a great effort was being made by a large supply house, giving a very rosy hue to apiculture in its advertisements. I presume The A. I. Root Co. was the party the writer had in mind, or one of them, for I have seen its advertisements in the farm papers. It is claimed that this advertising makes more bee-keepers, thereby depressing the market. Now, I for one don't believe that it does depress the market. I believe The A. I. Root Co. ought to be commended by the larger bee-keepers for thus increasing the number of bee-keepers. Why, the more bee-keepers we have, the more mouths there will be to tell the truth about honey, even if the proprietor of that mouth owns but one colony of bees. I believe if it were not for the many small bee-keepers (and they are not so frightfully numerous yet, either) that more people would believe the comb-honey stories. The public wants all the honey, and more, that is produced; but it wants the satisfactory knowledge that what goes down their throat is the simon-pure article, and there you are back to the old question again.

I remember that, a year or so ago, a fellow traveling-man and I were taking a rather long jump on the train (traveling quite a long distance), when we got to talking about bees. He said he was very fond of honey, as was his family; but he had read and heard so much about honey being made by machinery, and that there was something crooked about it (there you are again) that he had not bought any in some time. Well, we had, he and I, a heart-to-heart talk about the habits of bees, and, of course, the production of honey. That it had its effect is certain; for when I saw him a few weeks ago he said he had been buying comb honey now by the case instead of by the section, and said his family consumed about fifty pounds last year.

Randolph, N. Y., March 21.

[Your ideas seem very sound. I know that the manufactured-comb-honey stories are believed by a larger percentage of the public than most bee-keepers have any idea of.

I have never been able to see why the

mere fact that bee-keeping is recommended as an occupation should have any thing to do with the honey market. If the market is injured at all by the small producer I should say that the one to blame is the man who keeps bees in the old-fashioned way, and who will sell honey in any kind of shape, at any kind of price, because he is not up to the times and knows nothing concerning either modern methods or prices. It certainly does the industry good rather than harm to get hold of such a man, and teach him modern methods. Why is not the market value of the poultry products lowered because of the amateurs who are encouraged to go into the business?—ED.]

IF I WERE TO START ANEW, WHAT STYLE OF FRAMES, SUPERS, AND APPLIANCES WOULD I ADOPT?

Standard Eight-frame L. Hives with Hoffman Frames and Beeway Sections Preferred; the Opinion of a Veteran of the East and the West owning a Thousand Colonies.

BY M. A. GILL.

[Perhaps it would be well to state that Mr. Gill was not among the original number selected to discuss this subject, else it might appear that he was chosen because of his endorsement of the eight-frame Dovetailed hive and the short-top-bar Hoffman frame, originally put out by the publishers of this journal. As Mr. Gill is a man of large experience we are glad to have him join the number. What he says will be an encouragement to the user of standard goods obtained at *any factory*.—ED.]

Dear Mr. Root:—Your remarks with regard to what kind of appliances to use if just starting in bee-business interests me to such a degree that I feel like writing my personal experience and ideas upon that subject.

I will say, first, I have been a constant subscriber to GLEANINGS for twenty-six years, and have always been an admirer of the Roots and Root's goods, but not to the extent that I wanted *every* thing they made just because they offered it for sale—for instance, your old Clark smoker and your old (so-called) Simplicity hives with their beveled corners and edges, with a flimsy slatted honey-board to go under those half-inch T-tin supers, and covered over by an outer shell. Those hives should have been named "Complexity;" and what an abomination they were as compared with your modern Dovetailed hive and supers, and your new Corneil smokers!

You know there are many writers who, for some unknown reason, have always tried to down the Langstroth hive and Hoffman frames, and have blamed manufacturers for their being so universally in use.

Now, is this not a left-hand compliment to practical bee-keepers who should, and I believe do, know what they want, and will insist upon having what they want, irrespective of what the manufacturers have offered in the greatest bulk upon the open market?

I have never seen the time when I could

not buy some outlandish fixin's to handle bees in if I chose to; and is it not a fact that the reason there are more Dovetailed (or plain Langstroth) hives with Hoffman frames in use is because the practical beekeepers require them, and not because you would any sooner sell them? And is this not the case why you sell more eight-frame hives to comb-honey men than ten-frame, because the practical comb-honey men demand them, and not because you insist on putting them upon the market?

In my thirty years of experience with bees I have handled them in nearly every kind of hive or receptacle known to the craft, from a coyote-hole to the divisible brood-nest; and I want to say that, for handling bees in large numbers, and producing comb honey alone, there is no hive that gives me the pleasure and profit that the simple eight-frame Dovetailed hive and Hoffman frame with short end-rests do.

There are a few other hives and systems that a man could handle on a large scale, and keep all of the ten commandments; but there are some in which I think it would be an utter impossibility. I won't name any of them, for I don't want to tie the grass across any one's path to prosperity; for you know there are those who for years have expected to perfect a hive and system where they could touch an obscure button, and take a different-sized section from any one else, and out of a different hive from any other used, and put it on the market at a different price from what any one else could get; and to these people I think the horoscope of time still indicates a vast field of unexplored territory.

So, now, if I were just starting in the bee business, and wanted to take advantage of the market for carload lots of comb honey during the interim, and before the many inventors put their odd-sized sections upon the market at such high prices, which would be odd to us, I would adopt the old standard eight-frame Langstroth hive (Dovetailed), and with Hoffman frames with short rests.

I would also adopt the old $4\frac{1}{2} \times 4\frac{1}{2}$ sections, because it doesn't take any talking nor explaining to sell even a carload of them.

The supers, such as are sent out for the Dovetailed hives, are not practical where one is doing much hauling around the country; the loose feature of the section-holders is never used, but it is a decided nuisance many times, and the $\frac{1}{2}$ -inch-thick bottom slat is too light, and nearly always sags, cutting off the bee-space.

My supers are made by nailing a thin board, occupying the same place and space as do the end blocks to the section-holders; and to the bottom edge of these are nailed pattern slats $\frac{3}{8}$ inch thick, which never sag. The pattern slats are sawed $\frac{3}{8}$ wider than sections, so that when two are put together it takes just a $\frac{1}{8}$ -inch separator; and when these supers are filled they can be hauled about or set down anywhere without rattling out their contents. This super is the only change I would suggest from the regular

goods offered by the trade. I would have every hive in a thousand just alike, and every cover and every super and hive-frame.

I see some one has offered you an appliance for working over Hoffman frames into loose hanging frames. Please don't accept his kind offer. Somebody might be tempted to do so, for every frame so changed is, to my mind, a step backward.

Now, I have not adopted these simple and uniform fixtures from any ulterior reasons, but have had their adaptability forced upon me by actual tests alongside of nearly every invention, and I have passed through as many periods of obstinate ignorance and experimentation as the average man; the same with regard to the choosing between the eight-frame and ten-frame hives. I surrendered to the eight-frame only after they had repeatedly outstripped the ten-frame, and then not willingly.

All this was after years of handling all the different frames such as the end-spaced standing frames, reversible, Heddon, V-shaped hanging, finger-spaced, etc., and I still have an apiary in old Wisconsin, of Watertown hives, with the top-bars dropped into a notch with no possible way of moving a frame except straight up. I don't know the inventor; but if I were on a jury to try his case I would convict him of malice aforethought; and yet that grand old veteran, Stachelhausen, prefers that frame, and our mutual and good friend Hutchinson has gone wrong on the frame question.

Why, if I had to use such frames and hives with my thousand colonies, and lacking the patience of the above-named gentleman as I do, I fear suicide would stare me in the face.

And now, Ernest, I would advise that you keep offering to the trade these splendid standard goods that you are now making; for in my opinion the man is yet unborn who will give to the world a better hive and system than the Langstroth-Root-Hoffman combination.

Longmont, Col.

HOW TO USE A SECTIONAL HIVE.

Why such Hives give a Greater Range of Management, and hence Better Control of the Bees.

RY R. C. AIKIN.

For years I have been an advocate of a large hive. I am also "in love with" the sectional or divisible-brood-chamber hive. Most people, when we speak of a sectional hive, think of it as a small one, while we advocates of them claim their advantage to be in their adaptability. So, Mr. Editor, when I discuss the sectional hive, because it can be made into a very small brood-chamber that is no proof that I favor small hives. In many localities, and in the hands of many people, the ten-frame Langstroth hive is none too large. A hive that is just right at one time is not at another; and when it comes

to using a divisible-chamber hive it should be larger than the common styles in use.

Mr first experience, and it was not a very limited one either, both as to years and number of hives in use, was with a hive about a foot square and 14 inches deep. I even transferred from Langstroth frames to this. Then I used a little deeper frame, and later a shallower one only ten inches deep. The largest frame I ever used was about twelve inches wide, and fifteen deep; then this cut to ten, then the Langstroth frame.

After this I made frames $4\frac{1}{2}$ deep and 17 long—have used some of them for several years, and still have one or two colonies on them in ten-frame chambers two sections to hive. Last of all I came to use my present frame, 16 long and 5 deep, 8 to the body, and as many bodies as necessary, as will appear later.

As to supers and their relations to the brood chambers, I have used all the way from 15 to 48 sections to the super. Before the days of tiering up we wanted a large upper surface over which to put section supers, as we used only one section deep. This called for a large hive laterally, and the ten-frame hive was the compromise as being broad enough to take a large super, yet not so very broad but that the bees did fairly well in wintering in it.

DEPTH, NOT WIDTH.

Since supers have been made to tier up, the tendency has been to use smaller ones. 'Tis well. A 28 or 32 section super makes a wide one, and naturally is not quite so well worked at the corners and ends. The 24 size is better, and gives us an opportunity to manipulate so as to have fewer unfinished sections. I consider, as already stated, that, in very many localities, a ten-frame Langstroth hive is not any too large. And, more than this, I expect to prove that even a larger hive can very often be made more profitable than a smaller one. An eight-frame is often too small.

Supers now are so easily and satisfactorily tiered that the old ten-frame Langstroth hive is no longer in demand simply for super-room surface; we place more supers over or under those already on, and get all the necessary storage room, and get it in better shape too. Bees will store surplus better in a pile of supers five or six feet high than in the same space less than half that high; and if they will store honey they will also brood in a like deep brood-nest. A colony between two studs in a wall where the space is but 4×14 inches, and any depth, possibly to ten or more feet, will string up and down that narrow place and do well; but just lay that same room down on its side, and what can you get done in it? Yes, they will work in it building horizontally, and do fairly well in warm weather, but do not like to do so; and when winter comes the perpendicular hive is far ahead of the horizontal. I think but very few will dispute these conclusions—possibly no one will.

If my reasoning is correct, a hive may be made narrow and deep and yet conform to the habits and instincts of the bees, with no loss in results. I claim that a hive a foot square—yes, even so small as ten inches square, and deep enough to supply all the room a queen can use—will get just as much honey stored above with the same effort on the part of the apiarist as can be done in the same number of cubic inches in a wide shallow chamber.

One of the great difficulties in a very deep and narrow chamber is when storing begins at a time when the colony is not strong enough to get very far above the brood nest; they fill a considerable space over the brood until the store space yet above this is so far out they will not cross it to reach space above.

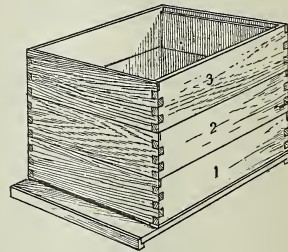


FIG. 1.

But such a condition does not or ought not and will not, with proper management, obtain. Take, for instance, my divisible-chamber hive. Suppose the colony winters in and occupies three sections up to the opening of the flow. Any honey in the hive is almost sure to be at the top in section No. 3. See Fig. 1. When the time comes to put the super on, place No. 3 on the bottom and you have the order 3, 1, 2, instead of 1, 2, 3, and two should have the bulk of the brood; and this alternating leaves brood clear up to the very top edge of the upper set of brood-combs. Put a super on this; and when it is filled, or nearly so, put another under. We keep on raising the full ones, or taking them off, and the bees are never required to pass up over a great space of honey to reach new store room. It is put close to the brood, always.

FACTS WORTH REMEMBERING.

Keep in mind now that we started with the hive three sections deep, and numbered from the bottom 1, 2, and 3. As the flow started we changed to 3, 1, and 2, putting brood at the top and brood and honey next the floor, with the middle probably brood and empty comb. Arranged thus you put a super on. Suppose there is one bait section in the center of that super. Suppose, also, the colony is strong, and can easily send a force to the super, especially since brood is immediately below that super. That honey in No. 3 is too close to the entrance, and must be moved, and will be in most cases. Following nature (instinct) they hike to the top of the hive with that honey, to get it

above the brood; they find that bait section, and there it is stored, super work started—a great gain. The moving of that honey makes more empty comb below; that stimulates the queen to lay to fill it, and there is another gain.

This is not dealing with the swarming problem. I am analyzing bee nature, getting before the mind *principles*. To understand principles, and have the necessary machinery (hives and appliances) puts the apiarist in control—makes him master.

Now if these statements are true, then much more can be accomplished. I have supposed a hive full of bees at the opening of the harvest flow; but if they are weak—so weak that they will not use that super with any sort of arrangement of the three sections of brood-chamber, all the brood usually will be in 2 and 3, with No. 1 empty dry comb, or possibly may have a little honey. We will try some more manipulation.

Take off the cover, smoke from above, and drive the bees down. You do not need to drown or suffocate them with smoke to do it; and when you are sure the queen has run down from No. 3, if she should have been there, lift it off; put an excluder on top of 2; over this your super, and on top of that No. 3. This puts brood both above and below the super, and plenty of empty brood comb in No. 1 at the bottom. If the colony has both 2 and 3 about half filled with brood, and many bees hatching, with some honey being stored, they will soon be drawing the foundation in that super and begin storing there.

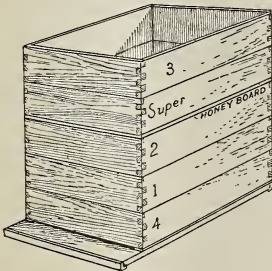


FIG. 2.

Under some conditions that super may be left there until filled and finished, such as when the brood-combs of 2 and 3 are comparatively new, and nectar free. If combs are old, or if much pollen is being stored, it should be changed as soon as they get nicely started on the foundation—at least as soon as storing begins in it. No. 3 may be removed to a new stand for a nucleus, or to help some weaker colony, or placed at the bottom, where much of its stores (it would have been getting much of the daily gathering as the bees hatching leave empty cells) will be moved up to the super. I have had many supers started in this way in colonies that would not have touched them if put on top, but they would have filled jam full the brood-combs, and loafed or swarmed.

USE OF LARGE BROOD-CHAMBERS.

Go back again to the hive as it stood at the beginning of the flow arranged 1, 2, 3, and well filled with bees and brood. Take a fourth brood-section and arrange the hive 4, 1, and 2; on this put an excluder; next a super and No. 3 on top, Fig. 2. No. 4 should be filled with either dry comb or foundation. If starters only it will be largely filled with drone comb. As each section of this hive has the capacity of four Langstroth frames—you now have a sixteen-frame capacity—twelve below and four above the super. Now I will tell something most bee-keepers do not know. Listen!

That set of dry combs below *will not* interfere with storing in the super. Instinct almost compels the storing of honey *above* the brood, so it goes into No. 3 in Fig. 2, and into the super. The queen having plenty-of laying room *below* her present brood-nest keeps right on with business, and again swarming is much reduced if not entirely prevented. If the swarm conditions are so strong that even this will not prevent their swarming, make the arrangement 4, 1, super, 2, and 3, always keeping the queen below and the excluder over her but under the super. In extreme cases, as very strong colonies with rapid flow, or where it would seem they will still prepare to swarm with the above arrangement, put two supers in between 2 and 3, or take 3 entirely away and make it 4, 1, supers, 2.

THE SECRET OF IT.

All colonies should have a large brood-chamber, especially when there is any likelihood of a notion to swarm; and in that chamber the brood should be at the top with empty brood-comb below. When time to put the supers on, you can have almost any amount of brood above a super, temporarily; but where the queen is, there should be only a limited amount; but, most important of all, is that the brood-chamber have its brood up close to the super, and empty brood-comb between that and the bottom and entrance.

In a rapid flow, *nectar* will be dropped into empty comb below the brood; but there it is *rarely* left to ripen or be sealed. They elevate it the very first chance, and put it above the brood. So true is this, that, with a sectional hive, where it is so easy to get a chamber of brood, one almost solid full of brood just under the super that, even with two sections of dry combs (eight Langstroth-frame space) placed *under* this brood, super work will still go on nicely above when once they have made a start there.

The reader can now see how it is so much easier to control swarming in a sectional hive. Also how easy to get the super work started. Those chambers of brood put above can be used to start new colonies, strengthen weak ones, be placed over a super on another colony to get them into the super, etc. Increase is under control as well, and no easier way can be found to make new colonies or nuclei than with these extra chambers of brood.

EXCLUDING HONEY-BOARDS.

Every hive composed of two or more parts to the brood-chamber should have an excluding honey-board. When a queen is put below she must stay put. Again, when brood is above a super, sometimes cells will be started there, the further removed from where the queen is the more likely to have cells built. With a large and properly arranged brood-chamber below, and brood away up over two or three extracting-chambers, often one may have young queens mated, though I do *not* recommend this. There is too much bother lifting these chambers off and on with the other necessary work. I call attention to the fact more to show what *may* be done, which gives us a clue to a better understanding of what is necessary in management to obtain control and get results.

APPLYING TO REGULAR HIVES.

These principles may be used in the manipulation of the regular eight-frame Langstroth hives by using them two-story. A two-story eight-frame hive in which the colony was given the second story *underneath* at or before the removal of the last super, and so left that way until the opening of the next honey-flow the next summer, will get enough more bees to store enough more honey to pay the cost of that extra chamber in just one fairly good season. And while this is being done the apiarist has had less labor and attention to bestow upon them.

When the flow does start, the extra chamber may be used to make a new colony, as with the regular sectional hive.

But so large a chamber as an eight-frame Langstroth is too large to put over a super; but we can take one chamber away, and the queen with it, to a new stand, leaving her main force on the old stand; and if the flow is strong enough, or if bait combs are used, the colony can be made to work the super while cells are maturing. Before the cells are *ripe*, all but one must be removed. Ripe cells and piping queens will demoralize a colony and stop honey-gathering almost beyond any other condition.

A large sectional brood-chamber with the individual sections small; the horizontal measure of the hive, both its width and length—no more than is necessary to get a 24-section super on it nicely—these are the main features in the most easily managed hive. By a system of alternating, etc., as described herein, lies the road to control of swarming and best results in honey.

Loveland, Col.

BEE-KEEPING IN PENNSYLVANIA.

BY PROF. H. A. SURFACE.

Pennsylvania is an empire in her extent and resources. Few States in the Union have greater diversity of soil, elevation, climate, and drainage systems. This means that her productions, both natural and cultivated, are various; and as the plants differ widely, so are the possibilities for success-

ful bee-keeping varied. In the northern part of this State is the great buckwheat region where the bee-keepers have the opportunity to market all of the white-clover flow, and also get an abundance of honey from the later buckwheat-fields for the cheaper trade, domestic purposes, and winter stores. In the southeastern portion of the State the great fall flower, producing an abundance of honey and pollen, is the Spanish needle (*Bidens*), locally called "yellow flower," wild chrysanthemum, and fall flower. Along certain streams of the State the basswood is to be found in abundance, yielding first-class honey, and in some portions of the commonwealth the black locust or yellow locust is planted in large groves, especially along the lines of the Pennsylvania Railroad, and these trees are now large enough to yield considerable honey in their season. Pennsylvania was rapidly becoming known as a fruit-producing State before the San Jose scale cast a temporary blight over her prospects in this direction; but, thanks to successful use of boiled lime-sulphur wash, the scale is held in good control, and the fruit-blooms will again have their due influence in building up colonies preparatory to the white-clover yield, which is practically to be found all over the State.

The chief plants for the bees are (in order of blooming), the elm, soft maple, poplars, alder, willows, peach, plum, cherry, pear, and apple; raspberry, blackberry, locust, basswood, the mints, white clover, alsike; alfalfa where grown; buckwheat, the Spanish needle, goldenrod, and the asters. In the southern portion of the State, and in the mountain regions, a fine-flowered aster is the most important late-blooming plant, providing winter stores.

This State has many prominent bee-keepers, such as E. L. Pratt, the famous queen-breeder, of Swarthmore; F. G. Fox, who has made famous records in his fields of extracted honey; W. A. Selser, of Philadelphia, who has charge of the famous exhibition apiary of the A. I. Root Co. at Jenkintown. Mr. Selser is the largest individual bottler of extracted honey in the United States, having five wagons, and driving as far as Boston, selling his bottles in five of the principal eastern cities—New York, Philadelphia, Boston, Baltimore, and Washington, putting it up in the small sizes, principally 10 and 15 cent size, and a small percentage of the 25-cent size. In this way he puts up an aggregate of 50,000 lbs. of honey, using two carloads of glass bottles. Besides these persons mentioned, there are many others.

Among the active local bee-keepers' societies in this State is the Philadelphia Bee-keepers' Association, which is one of the largest and most active and successful known in any country; the Potter County Bee-keepers' Association, and the Harrison Valley Society, which are in the northern part of this State, and are doing good work there for the man who cultivates the acquaintance of the little "busy bee."

Although the Pennsylvania State Association is only two years old, it is doing good work, and already reaping results. The writer was made its President at the organization meeting in Williamsport in the spring of 1904; and, although he has asked to be released from the duties of the office, the Association re-elected him at the recent annual meeting held at State College, and also elected Mr. L. R. White as Secretary and Treasurer. Mr. White is one of my scientific assistants in my office at Harrisburg; and from the vantage point of a State office these two persons are trying to help all Pennsylvanians interested in bee-keeping, and to build up the State Association, but they need further help. They are now engaged in making a complete card catalog or list of all bee-keepers in Pennsylvania, giving the following facts for each person; 1. Name and address; 2. Number of colonies; 3. Kind of bees; 4. Kind of hives; 5. Amount of comb honey produced in 1905, in 1904, in 1903, and in 1902; 6. Amount of extracted honey produced in 1905, in 1904, in 1903, and in 1902, and the number of colonies each season that were engaged in the production of the above-mentioned; 7. What periodicals or journals on bee-keeping are taken? 8. Chief honey-producing plants, with date of blooming of each; 9. Membership in State, national, and local bee-keepers' associations.

All persons in Pennsylvania who keep bees or know bee-keepers are requested to furnish Mr. White with such information, and in return for this the publications which the State is issuing upon these subjects will be sent. The State Association has just prepared in bulletin form the papers presented at its first annual meeting, and these will be sent free to all its members, who have also recently arranged to buy their supplies in a co-operative manner, and receive a special discount that is granted only to the members. They are also working toward legislation at the next session of the legislature for checking the foul brood which is starting in some parts of the State, and for otherwise protecting the interests of bee-keepers.

The president has just erected a wire enclosure, of 30 feet cube, for mating, crossing, and testing with certainty in the manner he desires, the different races of bees that are in his apiary, representing all races now kept on the American continent. Good results are expected from this work, and these will be published first in the President's annual address, and afterward in the reports of the Association, which are to be sent to members. The membership in the Pennsylvania State Bee-keepers' Association is but one dollar a year, and this includes membership in the National Association without other charge, and also the publications of both the State and National Association free. All persons interested should write to Secretary L. R. White, Box 756, Harrisburg, Pa.

I have just obtained a demonstrating-tent for giving demonstrations of methods of

handling bees at fairs, farmers' institutes, bee-keepers' meetings, etc.; also I have had a full set of lantern-slides made by the Root Co., for illustrated lectures on bee-keeping, first of which was given at the annual convention of the Pennsylvania State Farmers' Institute Workers, at Clearfield, Pa., on May 30, 1905.

Harrisburg, Pa.

THE CONTROL OF SWARMING.

Using High and Low Double Stands Alternately Across an Apiary to Secure Individuality of Location.

BY E. F. ATWATER.

In the production of fine comb honey in a locality subject to poor flows, short flows, or very cool nights, the bee-keeper who puts a super on a hive containing the average progeny of one queen, especially if bred in a small brood-nest, is not "taking advantage of his advantages."

As the flow opens, take one hive of each pair and shake a large share of its bees into its neighbor, having the younger queen, and add the super or supers to hold the immense force.

If you prefer to follow Aikin and Stachelhausen, using the forced-swarm method on practically an entire yard, without waiting for preparations for swarming, then shake the bulk of the bees from both colonies into one hive, with the younger queen, on either seven frames of starters and one frame of brood and honey, or six starters and two frames of brood and honey. With this management I have not found a queen-excluder to be necessary. If you prefer the plan usually used by Mr. Gill and myself, you must inspect each brood-nest every six days; and, if queens are clipped, never more than nine days; and when queen-cells are found, shake as above. In this or any modification of the forced-swarm method, always have the pairs of hives seven to ten feet apart. This makes a yard cover more ground than is otherwise desirable; but if the pairs of hives are nearer, the bees of the forced-swarm will too often drift into nearby hives, leaving the forced swarms too weak for good results.

Here is where many fail, for at this time bees are readily accepted anywhere, and a nearby hive containing a normal colony must look more like home than the empty hive on the old stand.

If you have not enough room to arrange a yard as above described, there is another plan which is fairly satisfactory. Your first pair of hives is to be on a low stand; then as much room as you can allow; then a pair of hives on one of those Callbreath-Root stands, 12 or 13 inches high, and so on, with high and low stands alternately across the yard. This arrangement gives each hive and each pair of hives a distinct individuality of location greater than can be secured in any other way in a very limited space. The

forced-swarm method, with inspection of each brood-nest every six days during the swarming season, is a great step in advance over older methods; but I may say, quite positively, that we shall yet control swarming with as good or probably better results, without inspecting the brood-nests during the flow, and, quite possibly, without compelling any of the colonies to build a new brood-nest if we so desire. Nor do I think that we must adopt a non-swarming hive, but that a satisfactory *method*, adapted to any hive, will soon be developed. Perhaps ten years or even five will see the problem mastered. But if any one develops such a method only to keep it to himself, and to gloat over his less fortunate fellow bee-keepers, I should prefer that his "gloat" be refused admission to the columns of our journals as of interest to none.

Meridian, Idaho.

THE ALEXANDER CURE FOR BLACK BROOD NOT RECOMMENDED FOR FOUL BROOD.

Foul Brood Sometimes Disappears Without Treatment.

BY WM. W. CASE.

Please go a little slow on the Alexander treatment for foul brood, or I terribly fear you will sow seed that will give you a very unsatisfactory crop at harvest time. I will not say that, under certain conditions, the treatment will not be effectual; but I do say, and say emphatically, that, under such a reign of foul brood as we have and have had here, the treatment will fail in nearly all cases. The treatment will sometimes effect a cure at certain seasons of flow, and will be entirely ineffectual at others.

The treatment is not new. I do not claim nor wish to claim it as originating with myself, although I used it some ten or twelve years ago—in some cases successfully—in others (and by far the most of them) not, and have not and will not attempt any further experiments in that line.

Taken in anticipation of a heavy flow of buckwheat, or any other honey that contains a large per cent of acid, it will sometimes effect a cure; but frequently, under such conditions, foul brood will disappear of itself and never reappear, especially if there is little or no honey in the brood-nest; but you may set it down as an absolutely sure thing that if, at the beginning of such flow, there is any appreciable amount of clover or basswood honey, which will for ever hold infection, in the brood-combs, colonies treated *a la* Alexander will show reinfection, frequently in a very short time after such treatment.

Only a few years ago, when foul brood was at its height here (it is now on the wane, and losing much of its former virulence in obedience to the laws governing nature's balance), in conversation with a fellow bee-keeper concerning foul brood he said, "Pooh! foul brood is nothing. When I see bad

brood I just requeen;" but in less than six weeks afterward he came to me in despair as to what to do with his "rotten apiary."

Until that time he had never known what real foul brood was; and when he came face to face with the genuine article his theories fell flat.

The whole trouble is, there are too many experts and theorists who have never seen real foul brood in their lives, although I do not say that this is true of Mr. Alexander.

Both the microscope and experience show that foul brood is caused by a virulent germ—an active, living principle, destructive to life in the larval form of *Apis mellifica* at least, and that this virulent germ, this active principle, has got to be eliminated from all honey fed to the larvæ, otherwise the disease is bound, sooner or later, to reappear, and there is nothing whatever in the Alexander treatment to destroy this germ life in the honey stored in infected combs unless it may chance that the larvæ are fed on honey freshly gathered, that in itself is destructive to *Bacillus alvei*, as seems to be the case with buckwheat. (Any one doubting the effect of buckwheat honey on the economy of the bee has but to visit an apiary in a buckwheat flow and witness the ferocity in general of the bees, and endure the agonizing stings then offered in good faith and "heaps a plenty.")

From observation and experience I do not believe that any form of treatment will or can ever be trustworthy that will allow any honey from an infected brood-nest to be in possession of the bees when young larvæ are being fed by the nurses. Such a theory is not scientific, neither is it borne out by common sense nor the results of practice; and if local conditions render it efficacious at Alexander's apiary it is exceedingly doubtful whether such conditions exist elsewhere.

Frenchtown, N. J.

[Mr. Alexander never recommended his special treatment for any thing but black brood—the disease which, during the last few years, has manifested itself in New York. The bacteriologist of the Department of Agriculture, Washington, D. C., as well as those at Cornell University, have shown there is a marked difference between the foul brood of Ohio and Wisconsin, and the black brood of New York—or, rather, that there are *two brood* diseases. Strangely enough, the black brood of New York, according to the bacteriologists, is the *Bacillus alvei* of Europe. The regular foul brood which we have had in this country they find to be something else. What Mr. Alexander was talking about was the *same* foul brood that probably exists in Europe; and it will be remembered that Mr. Samuel Simmins, in his book, gives a description for the treatment of this same disease, that is not unlike the treatment recommended by Mr. Alexander.

It must be remembered that Mr. Alexander never claimed that his treatment would

cure the foul brood which has been found in Canada, Wisconsin, Ohio, and Cuba. When questioned about it he did not know what effect it would have on that disease. But the suggestion was made by me in a footnote, that *possibly* the treatment might apply to the foul brood with which we are familiar.

I offer this explanation as it may harmonize differences in experience. For the present, at least, those who have the regular foul brood of the United States had better not waste any time on the Alexander treatment unless they can isolate the colony or colonies where it will do no harm to the other bees.

You are exactly right when you describe the conditions in the midst of a heavy buckwheat honey flow. One must really see it

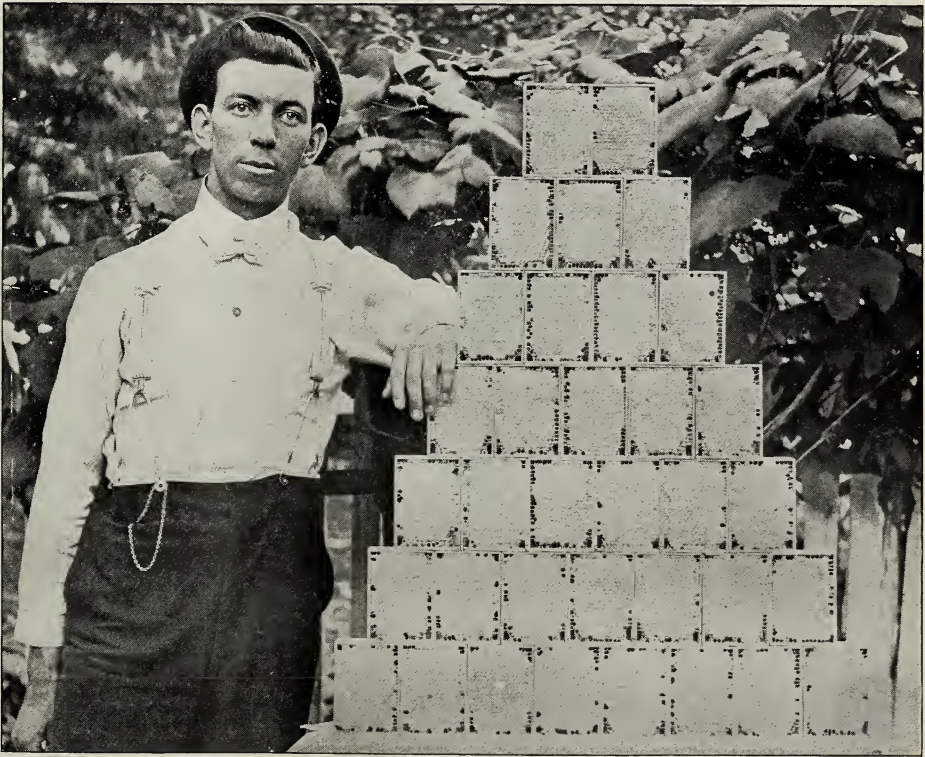
SOME FANCY HONEY.

Winter Cases for Ten Cents Apiece.

BY C. F. ECKLER.

I send you a picture of myself beside some of my first honey. This colony produced 70 lbs. of comb honey in 27 days, all from white clover. I wintered 25 colonies, and did not lose one. I have them in ten-frame Dove-tailed hives, as I like them best. I made me some winter cases of store-boxes. They cost me 10 cts. a case, and I packed them in planer-shavings. They answer nicely. I looked at my bees on the 27th of March, and I found lots of brood and eggs, and more honey than I expected. I call the honey in the picture No. 1.

Hegins, Pa., April 1, 1906.



SEVENTY POUNDS IN 27 DAYS, ALL FROM CLOVER.

to be able to comprehend it fully. But how do you *know* that buckwheat contains more acid than other honey? Why should it be more potent in curing any disease? A *rapid* flow of honey from *any* source (and buckwheat is a rapid yielder of honey) would check almost any disease—black or foul brood—and sometimes cure it altogether. I should say it was rather the *strength* of the flow than the *character* of it.—Ed.]

[Unfortunately a photo never does a pile of nicely filled sections justice. The unsealed cells always show black, which, in contrast with the white, makes the unfinished portions seem much more prominent than they really are. Comb honey in a photo never really looks fine unless nearly every cell is sealed. I do not speak of this by way of criticism of the picture above, but would only draw attention to the fact that

this honey is really better-looking than it appears here.

Very serviceable winter cases can be constructed out of drygoods-boxes; but one must be sure to have dry covers, using building or roofing paper, or something of the sort.—ED.]

AN APIARY IN SOUTH FLORIDA.

A Locality where Swarming Began Feb. 14.

BY R. ADDISON.

I have an apiary of 22 colonies, a picture of which is shown herewith. It is situated under a scuppernong grapevine.

Swarming commenced Feb. 14—eleven to date. I hope it is over. All young queens have made a successful flight, and are laying. Last season many queens were de-

stroyed in the same fashion, with a grapevine running on trellises overhead. But in our northern climate he soon saw that it would be better to have a shade that would protect the bees only in the heat of the day, giving the hive the full benefit of the morning and afternoon sun. With a small trellis on the south side of the hive, not over six feet high, this result is accomplished very nicely.—ED.]

SHADE.

Its Advantages in Apiaries; Apiaries Protected from the Wind

BY E. H. HANSELMAN.

My bee-yards are protected from chilly winds by groves of red-oaks, the out-yard being completely hemmed in on all sides. People often ask me whether so much shade



A SOUTH-FLORIDA APIARY.

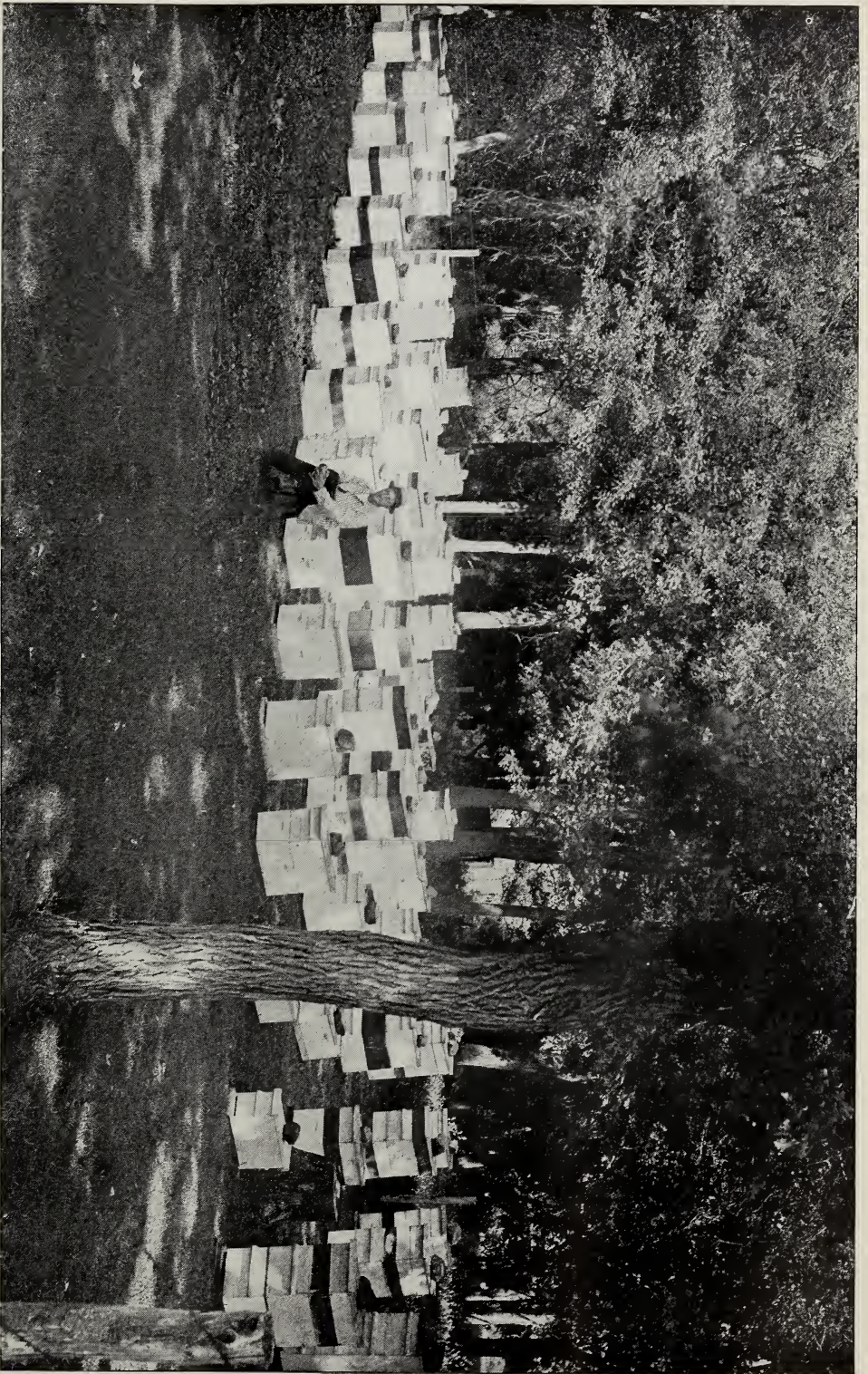
stroyed by mosquito-hawks. The honey-flow seems to be promising. I have taken off two supers to date. I hope you will interest some of the veterans of South Florida to help us beginners.

Loughman, Florida.

[It will be noted that in this small beeyard here shown, Mr. Addison has driven stakes into the ground, then sawed them off to a level to accommodate the bottom-board of the hive. In a climate like that of Florida, such a hive-stand is very serviceable and convenient, as well as cheap.

Here, again, shade is a great convenience if not important. The old beeyard that A. I. Root had was shaded a good deal after

is not detrimental to the bees, to which I always have an emphatic no. If my beeyards were located in the open I should not want any shade at all, as there is always a little breeze to keep the bees cool and combs from melting. But in my case the wind is nearly shut off from all sides, and on a hot day there would be a tendency for bees to loaf and comb to melt, especially if there are frames in the hives filled with full sheets of foundation. I have often noticed that, on a hot day, bees in the shade work better than those standing in the sun. It keeps the bees in the hives a little longer in the morning, while if they were not shaded they would fly out before the air in the open is sufficiently warm, then get chilled and die.



A COOL, COMFORTABLE PLACE TO WORK ON HOT DAYS; 1ST-PRIZE PHOTO, CLASS A; APIARY OF E. H. HANSELMAN, AUGUSTA, WIS.

Of course, I don't wish to be understood as saying that the shade is very dense, for then it surely would be detrimental, but only enough to shade them a little in the morning and during the hottest part of the day; and right here I wish to say that the colonies partly shaded average a little better than those not shaded; and it is quite a treat to ourselves as well, after working hard, to take a rest in the shade on a hot day, and I think the bees appreciate it too.

Augusta, Wis.

[A short time ago Mr. E. W. Alexander made the statement that he had noticed that those colonies that were in the shade did not do as well for honey production as those out in the open. In view of what is stated above, there might *appear* to be a

As Mr. Alexander's bees are exposed it follows that these two men quite agree.

But there is something very attractive, cool, and inviting when a bee-yard is protected on the exposed sides from the prevailing winds, and has a nice shade over it to shield the operator as well as the individual hives during the heat of the day. It would be a pleasure to work in a yard like that shown here.

Mr. Hanselman would never have occasion to be ashamed to entertain distinguished visitors at this yard, as it looks so nice, neat, and clean; and after all it does not cost very much more to have a yard look right than to be disorderly. One or two of the Root Co.'s yards are not models of neatness; but we are endeavoring to make them all attractive, and even park-like.—ED.]



A FAMILY THAT CONSUMES THREE POUNDS OF COMB HONEY EVERY DAY IN THE YEAR.

conflict of statement between two good authorities. But the lay of the land and the prevailing wind exposure has much to do with the matter. Mr. Alexander's bee-yard is situated on top of one of those high hills that are so numerous in that part of New York. I do not remember the exact elevation, but it is some 150 or 200 feet above the level of the valley below. If there were any wind stirring at all, the colonies in his yard would be sure to get the full strength of it. Therefore it follows that *combination* of wind and shade would be too much of a good thing.

You will note that Mr. Hanselman says that, if his bee-yards were located in the open, he would not want any shade at all.

HONEY AS A FOOD.

Prevents Doctors' Bills; an Average of Three Pounds of Comb Honey Eaten a Day for Years.

BY J. E. GAUL.

Seeing the letter of A. C. Armstrong on p. 299, I thought I would send you my family's honey-record, year in and year out. There are in my family myself, wife, and eight children. We have comb honey on the table three times a day and 365 days in the year, and we easily average a 1-lb. section to the meal, or three a day. The children are all healthy and hearty, and ready for their three meals a day, and we have

never paid five dollars on a doctor's bill for the whole eight. Their ages range from 17 last November to five this April. I will send a photo entitled "Under the Kieffer Pear-tree." It shows the whole family, including the pet sheep. The boy at the extreme right tried to get the little dog in too. You can see just a part of its back by the chair-leg. The sheep moved its head.

Marienville, Pa., March 15.

[It is said the proof of the pudding is in the eating of it. If any one doubts the value of honey as a food and as a health-giver, he will only need to study this picture of the Gaul family.

We send congratulations and our best wishes; and as a slight token of our good will we are sending GLEANINGS five years with our compliments. If there is any other family that can show as good a record it will give us pleasure to duplicate this offer. The only condition is that such family is to send us a photo—one that is clear and sharp—so that we can use it in GLEANINGS.

We believe it to be our duty to preach the doctrine of eating honey in preference to any other form of sweet; and the editor hereby offers his sincere congratulations to both papa and mamma Gaul for their bright happy healthy-looking lot of children. Certainly our beloved President would have no fault to find with the size of this family.—Ed.]

THE DIFFERENCES OF OPINION ON THE FRAME QUESTION.

A Device for Holding Frames While Nailing.

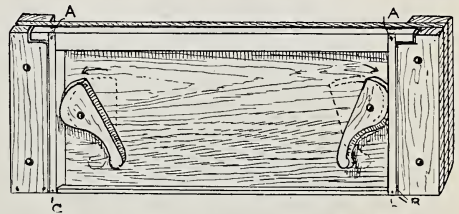
BY J. A. BEARDEN.

It may seem to some that the subject of frame hives has been discussed almost enough; but as frames play so important a part in our bee-keeping I for one say let's have the best frame, hive, etc.; and if Mr. A has a better one than mine, tell me why and I will try for myself. Now, Mr. Alpine McGregor, on page 1127, takes the editor to task for recommending the Hoffman frame, and he seems to think that The A. I. Root Co. has been endorsing a curse, and hints almost that Editor Root knew better than he did that such was the case.

Now, I am no lover of the Hoffman frame myself; but that is no sign that the other man would be like me, and I am glad that he is not; for who would strive for any improvement in almost any line if it were not for opposition and competition? I am of the opinion that bee-keeping offers more range for differences of opinion than almost any other pursuit, as no two men handle bees alike, neither are the bees alike, nor the flora all of a kind; the seasons are unlike, and last, but not least, is this: Some men know it all—almost. I don't like criticism that is too flagrant; but be kind, and slow to condemn; "for what I once loved I now hate" is coming to us every day, or at least

it is so with me, not only in a spiritual but in a bee-keeping sense.

I should much prefer the Hoffman to Dr. Miller's nail-spaced frame; but that is Dr. Miller's job, and I do not doubt they are the best for his locality. I haven't a new frame to offer, but wish to suggest another way of holding frames while nailing. Let us look at Mr. A. J. Wilhite's article on page 1132 for a moment, and see if my way is not better. The editor of GLEANINGS thinks such a board is not necessary; but I don't agree with him; but here it is. Take a good smooth board one inch thick, and cut the same to a width of $9\frac{1}{8}$ inches, and $21\frac{5}{8}$ inches long. Now put a cleat on each end of this board, or, rather, the side of the board at each end, of $1\frac{1}{4} \times 2$ -inch stuff, having four of these



NOTE.—By putting a cleat on both sides of the board it will stand alone on edge to nail, as I nail through the face of the top-bar into the end of end-bar at A, nail crosswise at B, and also at C, through bottom into end B.

cleats, each as long as the board is wide, less $\frac{3}{8}$ inch, which allows the top-bar projections to extend out on the ends of these cleats. Now take four $\frac{3}{8}$ -inch carriage-bolts and bolt these cleats on the side of the board at each end, placing the two inch side of the cleats next to the board. This leaves a space of $17\frac{5}{8}$ inches between the cleats on the inside edges, and put these cleats with the lower end even with the bottom edge of the board. Now make a couple of wooden cams, and bolt with $\frac{1}{4}$ -inch machine-bolts on the face of the board, just far enough from these end-cleats on the inside so that, when the cam is loose, a frame end-bar can be dropped in edgewise between the edge of the cam and edge of the end-cleat, then tighten the cam and set the board up on a work-bench on edge, and you are ready to nail through the top-bar into the end-bar; but if you don't nail that way, then you must make your end-cleats 1 inch or $1\frac{1}{4}$ inches shorter, so you can nail through the end-bar into the top-bar—see drawing.

BINDER TWINE FOR TRANSFERRING.

I have done quite a lot of transferring bees from box to frame hives, and I am like Mr. J. A. Green as to wrapping strings around and around the frame. I don't like that at all, nor do I want wire either. The best thing I have found is binder twine cut into such lengths as will reach around the frame well and tie; as it is strong it can be drawn taut, and the bees seem to cut it out better than cotton twine if you should happen to be too busy to take it off at the proper time.

Harms, Tenn.

[The editor does not object to having his opinions assailed. If he can not stand a little criticism he had better step down and out of his position. But there is a kind of criticism that might better be modified; for, instead of correcting, it stings and antagonizes. One who criticises in this spirit, to pay back a score or "to get even," never helps but retards progress. Honest criticism should be made for the sole purpose of correcting a mistake or fault.

I have long ceased to think that one frame could be adapted to all localities and to all kinds of men. Personally I have preferred the regular Hoffman frame with shortened top-bars for our locality; and most of the boys who come to work for us, although prejudiced in favor of some other frame,

palmetto trees is good to eat cooked, the same as cabbage, and that is what Mr. Poppleton is after with ax in hand. The palmetto-leaves fell right and left, and we secured three cabbage-heads and brought them home with us.

West Groton, N. Y., Feb. 24, 1906.

HOW MANY COLONIES SHALL A MAN KEEP?

The Question of Handling Men.

BY HARRY LATHROP.

On page 372 of the *Bee-keepers' Review* for December, Editor Hutchinson answers a letter of mine on the subject of his advice to bee-keepers to keep more bees. I feel



AMONG THE FLORIDA PALMETTO-TREES.

gradually grow to like the Hoffman; and when they go elsewhere that seems to be the frame they adopt. The new metal-spaced Hoffman, so far as they have tried it, they like even better.—ED.]

CABBAGE-PALMETTO TREES OF FLORIDA.

BY D. H. COGGSHALL.

Last January Mr. Wm. A. Selser kindly invited my wife and me to go with him up to White City through what I call one of the jungles of Florida, and I inclose a picture of Mr. Selser and Mr. O. O. Poppleton harvesting cabbage in this jungle. Mr. Selser is a little timid, so he hid behind one of the cabbage-leaves. My camera tells it to you better than I can.

I might say that the heart of cabbage-

that he has treated me very fairly in his reply, and, to tell the truth, I don't think he could treat any one any other way if he tried. I wrote that letter just to stir up the giant and see what he would say. I think I have the laugh on him because he practically admits that his advice is good because "only a few will take it any way." In his last talk, page 20 of this journal, Mr. Doolittle comes out squarely against the custom of booming the bee business and always giving the inexperienced public the rosy side. I think he has hit the nail square on the head; but probably this thing will go on in the future as it has done in the past, and people will learn only by experience that bee-keeping is no easy road to wealth.

There is one phase of the question that has not been mentioned that I know of. That is the question of a man's ability to stand

the work after greatly increasing his plant. When a man increases to the extent of hundreds of colonies, as advised by Editor Hutchinson, it becomes not so much a question of bee-keeping (handling bees), but one of handling men. There is many a competent bee-keeper who can care for a certain number of colonies and do the work properly, but he can't employ profitably hired help in the apiary; and if he tries to do too much alone he may end up by taking the wooden-overcoat route to another country.

I could and would increase my apiaries if I could secure and hold competent help, but it is a hard thing to do. I think one of the Cogshalls, after many years of experience, has said that this is the great problem. Take the officers of The A. I. Root Co., for example. They are not occupying their positions because they are skillful bee-keepers, but because they can handle men. That is the test of a man's ability to increase his business greatly. Such ability will come only by practice, and I have launched far enough in that direction to know that it entails trouble and vexation of spirit. The man who has just what bees he can handle properly himself is liable to be as happy as the next one.

I am not writing this to block the game, but only to call attention to the fact that increase of colonies means increase of work, and, beyond a certain point, requires outside help.

Bridgeport, Wis., Jan. 17.

[Mr. Lathrop has struck at the real solution, and the only solution, of the successful management of many bees or many apiaries. When one goes beyond 300 or 400 colonies or three or four yards, he must then employ a competent man. If he can't find one he must select raw material and train one. Possibly his choice of man is unfortunate. Perhaps he himself is a poor trainer. In either case he suffers. Where one can't get good help he had better by all means keep the number of his bees down to a point where he can take care of them without slighting his work. It should be understood that *competent* bee help is hard to get. The best men find it more profitable to work for themselves.]

The same principles apply in the management of *any* business. If an employer can not get along with his men, is a poor judge of human nature in his selection of men, is arbitrary in his management, he is liable to run his business into financial difficulties. The old adage, "Don't bite off more than you can chew," is a very homely way of saying the same thing.

In this connection I might state that an acquaintance of ours made a grand success off from a single acre of onions. He cleared over \$1000. This so elated him that he purchased or leased ten more acres, employed help, and endeavored to secure a proportionately large crop from the ten acres. While he himself was a good workman he couldn't manage his men, and the whole venture

proved to be a most ignominious failure. Instead of making ten or fifteen thousand dollars, as he had planned, he was several thousand dollars "in the hole," but a sadder and a wiser man, and in just the right frame of mind to appreciate the saying of Josh Billings, that "Experien's teeches a good skule, but the tuishun comes pretty hi." —ED.]

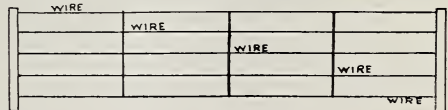


WIRE-CLOTH SEPARATORS; A MODIFICATION.

A few years ago, convinced that the bees hated to work in so close quarters as those given by sections nearly shut up by plain wooden separators, I purchased two kinds of wire cloth—one with four and the other with three meshes to the inch. I got them cut to suit $4\frac{1}{4} \times 4\frac{1}{4}$ sections, and tacked them in place of wood separators. At the end of the season the four mesh pieces were badly lined with propolis, just to make one believe that the bees wanted an even face like wood separators. Some had no propolis, but, still worse, were fastened to the honey.

Such experience brought me back to the plain separator, which I have since discarded for our present frame.

Now, when, March 1, page 278, I read the words appropriated to Mr. Betsinger, my old wire-cloth device came anew to my mind, but with an idea of an improvement in the



way of the following as seen in the cut. As you will see, the wood of our present fence is simply replaced by strong wire, which forms a regular fence.

F. BENOIT.
Notre Dame des Neiges, Canada.

[A fence could be made, substituting wire of about No. 8 gauge for the wooden slats; but I feel pretty certain that the honey built on either side of it would be badly ribbed. I do not understand that you have tried this wire separator built in the form of a fence.—ED.]

A PLAN FOR REQUEENING AN APIARY.

I have 35 stands of cross hybrid bees which I wish to requeen from queens of my own raising to improve both stock and temper. I wish to do this in a manner that will interfere with the honey crop as little as possible, and I have thought of trying the

following plan, which I submit to you for criticism:

Let the colonies come down to swarming-time, feeding where necessary. Just before the swarm is to issue, shake nearly all the bees on to starters in hive No. 2, taking frames of No. 1, with enough young bees clinging to them to protect brood, to a new stand, placing hive No. 2 on the old stand. Divide brood (in frames of hive No. 1 on new stand) into two equal parts by placing a queen-excluding board (such as is used in queen-rearing) between them. Place a ripe queen-cell in each division. When these cells have hatched, and the queens are laying heavily, remove the excluding-board, take out one of the queens and introduce her into hive No. 2, which has the old queen that I wish superseded. ED. WRAY.

Norton, Kan., March 1.

[I think the plan you describe would work satisfactorily.—Ed.]

CURVED ALIGHTING-BOARDS.

I am sending you a picture of an alighting-board which is simply a short piece sawed from some very wide barrel-staves. If sawed right, the angles will come just right to fit closely against the hive and



strike the ground so as to keep it from slipping. They can be used with hive near the ground, or ten or twelve inches high. I find them a very nice thing. C. S. BLACK.

Ashby, Mass.

ALEXANDER'S BEE-HAT; MAPLE SAP FOR THE BEES IN SPRING.

I have seen in GLEANINGS an account of a new (?) bee-hat. I have used the same style of hat for over forty years, and consider it the cheapest and handiest hat in use. I have carried out sixty colonies of bees from the cellar. They have wintered well, and are carrying a good deal of sap from the maple-trees. Just take a knife and slit the bark so the sap will run out. G. BRIGGS.

New Sharon, Ia., March 8.

[The Alexander bee-hat is a modification of the one described in the first edition of Langstroth's bee-book issued in 1853. Mr. Alexander never claimed it to be entirely

original, although it is true that he made some important changes that made it a more practical working head-gear. It is an "ornery-looking" thing, but is cool and convenient, as Mr. Alexander's men all testify.—Ed.]

MOVING BEES; HOW TO PREVENT THE LOSS OF FIELD BEES.

To avoid the loss of bees when moving a colony a short distance, leave the alighting-board in such a position on the old location that the returning bees can cluster on it, which they will do toward sundown. The cluster can then be carried back to the new stand. E. B.

Seguin, Texas, March 27.

[What is better than an alighting-board is an extra hive with one dry comb in it to catch the bees.—Ed.]

A GOOD RECORD IN MOVING BEES, BY ONE OF THE LARGEST BEE-KEEPERS IN THE WORLD.

I am a little tired to-night from moving 100 colonies of bees, four in each chaff hive, a mile without any mishaps. I feel now like *patting* myself a little. In all the bees I have moved, I have not had \$1.00 lost by accident with team or men. This may sound braggish for a man who has the name of slighting things. I move from 200 to 500 colonies a year. All is well that ends well. Caution and experience will do it, and that alone. W. L. COGSHALL.

Groton, N. Y.

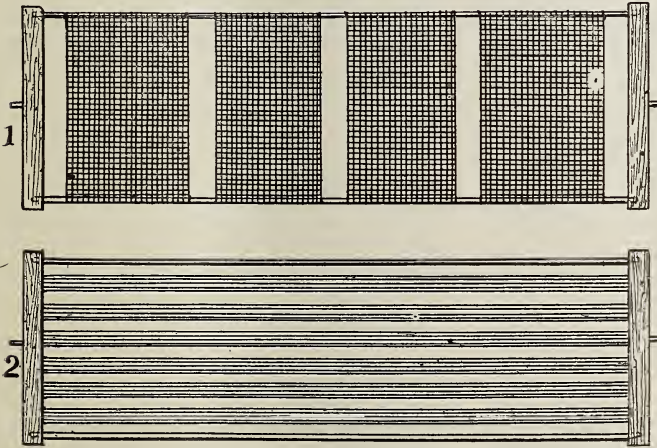
EARLY-REARED QUEENS.

In *Stray Straws*, April 15th issue of GLEANINGS, Dr. Miller says that queens raised at his place before the middle of May turn out poorly, but he says he does not know why. Years ago, when we first engaged in the queen-traffic, we had similar experiences with very early queens. The doctor says the queens may appear nice, and look all right. Now, the trouble is not with the queens, but with the drones with which the queens mate. As a rule in most yards, early in the spring there are but few drones, and generally these which are on hand are puny, runty fellows raised by fertile workers or by drone-laying queens, the latter raising them in worker-cells. We have overcome this difficulty with early queens by watching the best colonies at our outyards, and inserting several frames of drone comb fairly well filled with honey (this must be done in the fall), then in the early spring at our first visit we generally find plenty of drone brood and sometimes drones already hatching. This we gather up, and sometimes get a whole hiveful of drone brood at each yard. This is hauled home at or to our queen-rearing yard, and distributed among such colonies as will harbor and take care of drone brood. By the time we have made several trips to each outyard, and gathered up the drone brood, things begin to get pretty noisy at the home yard, where

the queens are fertilized. In order to have our queens turn out all right, plenty of drones are quite necessary; and the more you have the better (especially in a queen-rearing yard). We have noticed when there are bushels of drones present in a yard the young queen becomes mated much sooner, and with fewer flights, which means less loss of virgins. H. G. QUIRIN.
Bellevue, O.

MODIFICATIONS OF THE WIRE-CLOTH SEPARATORS.

Noticing that the matter of wire-cloth separators is being quite fully discussed in GLEANINGS of late, I take the liberty to submit two forms of separator which I hope to be able to test carefully the coming season. Referring to the adjoining sketch, No. 1 consists of two end supports of wood held together by $\frac{3}{16}$ iron rod, which forms top and bottom-bars. Strips of netting wide enough to cover about $\frac{3}{4}$ of the comb surface are stretched between these rods. This separator will not buckle, and the spaces will encourage the bees in filling the sides.



No. 2 is the same except that horizontal wires $\frac{1}{4}$ or $\frac{1}{2}$ inch apart are stretched here in wiring brood-frames. The illustration as is not quite correct.

Just how far apart these wires may be placed and yet serve the purpose I have yet to learn. C. T. WILLSON.
Amenia, N. Y., March 26.

[Your separators are all right in theory, but it would be practically impossible to make the one of stretched wires, as some wires would have a tendency to be tauter than others. Even if this were not the case, the expense of making and the difficulty of shipping would be practically prohibitive. The same thing might be said of the other form, wire-cloth squares secured to the two top and bottom rails. If the strands of the wire were folded over, this would be a slow and tedious job. To solder them on the top and bottom rails would be equally expensive. —Ed.]

BURR-COMBS IN DANZENBAKER HIVES.

When the Danzenbaker hive is crowded with bees, as when working for section honey, do the bees not occupy the space at the ends of the frames above the supporting cleat, building brace-comb and daubing with propolis? F. H. JONES.

Westholme, B. C., Dec. 1, 1905.

[We have had no trouble from burr-combs being built back of the end-bars. No difficulty need be apprehended if the end cleats are used to close up the space; but we have never found it necessary to use them. —Ed.]

FOUNDATION STRETCHING; ANTS, TO CONTROL.

I have an apiary of six hives, and a shed, about four miles from home. I wish to ask, why is it, if you put in worker comb, the bees sometimes change it to drone? What is the best way to get sections full? I have left sections in a hive six months, and the bees would not fill them. Dozens of cells are empty. We do not have foul brood in South Africa, but I hear that a man in Transvaal has imported some queens. In this case it will not be long before we shall have it. I for one will try to prevent bringing in the Italian bees, so as to keep the country free of foul brood. I have only three of your hives, which I intend to increase; but in this country, where it is sometimes 100 to 112 degrees and over in the shade, do you not think it would be better if I had ventilation on the cover, something like the English super-cleaner or bee-escape?

I have been troubled with ants in the hives. What is the best means to keep them out? Would it be good to put some salt around the legs of the hives? Our honey-flow is from October to May. A. W. OOSTERBERG.
Mount View, South Africa, Oct. 8, 1905.

[Worker foundation is sometimes worked over into drone comb because the foundation stretches in the process of building. Such elongated cells will be built near the point of attachment. In rearing queens, bees will sometimes reconstruct worker cells into drone, as they seem to feel the necessity of rearing drones.

Your inquiry as to how to get sections filled out is one that requires a more elaborate treatment than we can give here. I may say briefly, however, that the honey-flow should be strong, and there should be a large force of bees working in the supers. As the season begins to ease up, give no more sections, but compel the bees to com-

plete the work that they have begun rather than new work in new sections. It is wrong in theory and practice to leave sections on the hive for six months, as it is presumed you would not have a honey-flow running continuously for that length of time. When the bees are not gathering honey beyond their daily needs for direct consumption and brood-rearing, they will not, of course, do any work in the supers.

You need have no fear that foul brood will be transmitted through the queens sent by mail. We have had no reports, so far as I know, of the disease being carried in that manner. When we had foul brood in our yard many years ago, for the purpose of experiment we purposely took queens direct from hives that were badly diseased, and placed them in healthy colonies; and in not a single case was the disease transmitted through the queen.

Doubtless in your climate it would be advisable for you to have a cover with ventilation between the two thicknesses, or, perhaps, better still, a shade-board projecting over the front and back of the hive, and pretty well over the south side. It would be better still to put the hives under a bushy overhead trellis, on the Arizona plan. For hot climates this is the best of any thing I know of.

In a locality as far south of the equator as yours, the projecting shade-board should, of course, be on the *north* side.

The question of the control of ants depends entirely on the species and the locality. In the northern part of the United States very little trouble is experienced; but in some of our Southern States, notably Florida and Texas, one or two species prove to be quite destructive. In the West Indies, South America, and the tropics, and very possibly in your locality, it may be necessary to put the hives up on trellises or posts smeared with tar.

Mr. W. K. Morrison, who visited us a few days ago, said he had often been compelled to close the entrances of his hives at night, and then open them in the morning. In this case a fine-mesh wire screen ventilator must be provided somewhere in the hive. We have asked Mr. Morrison to prepare an article or two on this subject, describing the ants of warm countries, and the means of holding them in check. This he will do later.—ED.]

HORIZONTAL VS. VERTICAL WIRING; THE VERTICAL PREFERRED.

I have concluded that horizontal wiring for jumbo deep frames is somewhat of a failure. Another defect of wire is that it rusts out. The Dr. Miller splints of wood are rust-proof, but are too fussy to work with.

I think that your suggestion of wiring the foundation in manufacturing is the solution of the difficulties; but instead of using wire I would use light zinc splints, which could be used the same as wire. After the foundation is cut the zinc strips would be splints.

The zinc ribbon could be stamped the same as the foundation, and then imbedded in the same manner.

It may be possible to improve the manner of fastening foundation to the top of the frame. Instead of two saw-kerfs, make one $\frac{1}{4}$ or $\frac{3}{8}$ in. wide; turn the edge of the foundation $\frac{1}{4}$ inch to a right angle; drop it into groove, and fill with strip or wedge. The outer edge of the groove could be made flaring, also one edge of the strip or wedge. When it is to be pressed to the bottom of the groove it should pinch the foundation, and be nailed at every splint or rib.

The wedges that you make for the double-saw-kerf manner of fastening are made (or were) too small. After seasoning they work loose, no matter how tight they were driven down.

I think that, with a perpendicular rib of fine flat zinc securely fastened at top, there would be no buckling, sagging, nor rusting out, caused by frost and dampness.

Basco, Ill., May 9. WM. FINDLAY.

[The zinc splints would be far too expensive. Very fine iron wire or wooden splints would be the only stay feasible. Our saw-kerfs for holding the wedges are made wider and deeper, and I do not think there will be any trouble now.—ED.]

HOW TO DIVIDE AND NOT LOSE BEES.

In dividing a swarm, for introduction of new queen into one part, how many frames from the ten-frame hive do you advise carrying to the new stand? and is it best to leave the old queen in the old home or take her to the new one?

EDWARD F. BIGELOW.
Stamford, Conn., May 11.

[A great deal will depend on the quantity and the stage of growth of brood in the various frames. Very young or unsealed brood should be left largely in the old colony, and most of the sealed brood with the old queen should go to the new hive or new location. Sometimes the division will be about a half in each hive, and at other times the division may give a couple more frames to the one than the other.

The object of using young or unsealed brood in the old hive is to make sure that it is not deserted by the flying bees, as it might be if put in the new quarters. Then putting the queen in the new location has a tendency to hold the bees somewhat. She will lay eggs no faster than the bees can take care of them.

In case the brood is largely young, very little sealed, and there are a good many young bees on the combs, pick out three or four frames, giving each frame a slight shake. This will dislodge the old bees in a greater proportion than the young. These latter will cling to the comb, and can be taken to a new location where they will stay.

When working on either plan put two-thirds of the bees in the new location, and a

good portion of the flying bees will go back to the old one; but when doing this, be careful not to make the division in cool or chilly weather. The brood left at home with two-thirds of the bees in the new location would be neglected and chilled, for the flying bees that were moved might not return until the second or third day.

If one has an outyard he can make the division just as he chooses, carrying the moved bees and the brood to another location one and a half or two miles away. Both lots will then hold their relative strength in bees.

But whenever dividing is practiced in the same yard one should always be careful to take account of the flying bees that will go back to the old location in 24 hours if the weather is warm. If there should be very few young bees in the hive at the time the division was made, one would have to figure that most of the bees would go back to the old stand.

Many more bees will stay in a new location if the entrances of the moved lot of bees be stuffed with grass so they will be confined three or four days. As the grass withers, the bees will push it away. The confinement of several days will cause them to mark their location so a much larger percentage of the flying bees will stay, although even then quite a lot of them will probably go back to the old stand.—Ed.]

WHAT CAN BE EXPECTED FROM BUCKWHEAT; INBREEDING.

1. How many colonies will 60 acres of buckwheat support, or how much honey can be gathered from it?

2. In using a queen for a breeder, does it make any difference if her virgins are mated with her drones?

3. If so, what effect does it have on the progeny?

4. In selecting a queen to breed from, is it advisable to trap all of the drones from the other colonies?

WM. MAAG.

Dover, Del.

[1. It would be impossible to give an exact answer, as very much will depend on the locality, that is, soil and climate. In New York, especially the eastern portion, buckwheat grows much more luxuriantly, and yields much more honey per acre, than it does elsewhere in the United States. We may have several acres of buckwheat in Ohio, and the bees will work on it only a little while in the morning and a short time toward night. While this is true to a certain extent in York State, the plants seem to yield nectar longer, and consequently more of it. But there is such an immense acreage of buckwheat that there are times apparently when there are not bees enough to exhaust the nectar from the flowers.

To answer your question, it *might* take 100 acres of buckwheat to keep 25 colonies going in Ohio. In New York I should *guess* that the same acreage would take care of 50 or even 100 colonies.

Mr. Alexander could possibly answer this question pretty closely, as nearly all of his bee range is in sight, and he could count up the acreage and place that over against the number of colonies in one yard. If he regains his health sufficiently we should be glad to have him take up this question.

2. No; and on the other hand it is quite an advantage to use such drones; for in order to accentuate certain very desirable qualities, inbreeding has to be practiced to a certain extent. To prevent deterioration, this stock is then bred with other stock having the same or similar characteristics.

3. This question is already answered in 2.

4. Yes, indeed, if you would improve the quality of your stock; but in doing so you must make sure that there is a sufficiency of drones or many of your virgins will fail to mate. In order to get regular and successful mating there must be a good many drones in the yard—a good many times more than the number of queens to be mated. There may be a large number of drones in the yard, but only a few of them of the right age, and possibly only a small part of the ones of the right age in the air at the time the queen is out for a flight, and she may even then fail to find a mate. Sometimes it is not practicable to breed from the drones of some particular queen because it is difficult to get that queen to lay in drone-cells; and even when the queen does lay drone eggs the bees themselves may be indisposed to take care of them. Where many queens have to be mated in a large yard it may be necessary at certain seasons of the year to have drones from several queens, so this is a matter that hinges somewhat on the time of year. Any colony will tolerate drones in a good honey-flow; but after that time, unless that colony is queenless, has a virgin, or is trying to supersede, the drones will be unceremoniously pushed out of the hive and die.—Ed.]

MANIPULATING HIVES INSTEAD OF FRAMES; THE ADVANTAGE OF THE HEDDON SYSTEM.

The handling of hives instead of frames is a subject that is not being discussed in the bee journals of late years. I have often wondered why bee-keepers were so slow to see the advantages of this system. There seems to be a sort of fascination about the handling of frames in a hive, especially among beginners. I well remember the time when I thought it necessary to go through my bees nearly every day, handling the frames separately to see if the queen was all right and that every thing was as it should be.

I soon found that this was not only a useless waste of time but a positive detriment to the bees, causing them to consume an extra amount of stores, often at a time when they could ill afford to store them.

Some twenty years ago I adopted the Heddon system of handling hives instead of frames, and there has never been a time since that when I have had any desire to go

back to the old tinkering system of handling frames. By this system more bees can be kept, or the extra time saved can be put to other and better use than to be wasted in the useless handling of frames.

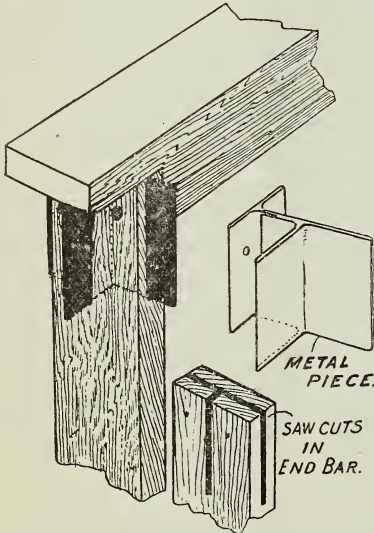
That this system calls for a radical change in hive-construction is perhaps the reason why it has not come into more general use among honey-producers.

But any implement or system of manipulation that does not help to cheapen the cost of honey production is not worthy of consideration by the honey-producer.

Birmingham, O., Feb. 22. J. E. HAND.

A METAL SIDE AND END SPACER COMBINED.

The mention of metal spacers in the Dec. 1st GLEANINGS revived a recollection of an attempt I made last season to accomplish something to that end; but I soon found that I lacked the mechanical ability and tools



necessary to accomplish the idea, though, perhaps, not a very brilliant one. I send by this mail a rather crude survival of the attempt aforesaid. I think that, with the use of a fine saw to make the kerf, and the tins made by the right implements known to the tinning trade, a neat and substantial frame would result—metal sides and ends.

It may not be new, novel, or practical; but it will at least compare favorably with some of the absurd things I see exploited by some.

JOHN HECKSON.

Washington, D. C., Dec. 6.

[Your form of spacer and its manner of insertion in the end-bar is not a bad one. There would be danger, however, that the knife-edge strips of tin would get bent out of shape, because one frame-spacer has to reach the whole distance from one frame to the other; while in the case of the Hoffman or metal-spaced Hoffman the projection reaches only half the distance.—ED.]

UNFAVORABLE REPORT FOR THE FENCE AND PLAIN SECTION IN COLORADO.

Hold on, friend Ernest. Please remember that Mr. Crane is possibly good authority on his own location, and I notice that locality has only recently been taken seriously into consideration, and for this very reason it is not policy to sit still. As you called for reports, let it hit where it may, so here it is. By ordering early my fence and plain sections arrived in due time. I loaded up 20 supers; and when the time arrived I carried them out and placed them on just as they happened to come. That was a very good season, some hives filling 9 supers apiece; but I got only three cases of plain sections. The foundation was mostly drawn, so I said to myself I will put these 17 supers away and try again. The next year I got one case of plain sections. The remaining 16 supers would average about 4 ounces of honey per section, while that season several hives filled 8 supers apiece in beeway sections. The next season, with the same plain sections, I got 4 supers that were full of honey; but every section was fastened to the fence, so I cut the honey all out and burned the sections. But we were advised to put the fence at the sides of the supers for follower boards, so I fit up 100 supers in that way; but my bees absolutely refused to work next to the fence, so I made another bonfire.

F. D. ANDREWS.

Walsenburg, Colo.

[That's right. Let the reports come in, hit where they may.—ED.]

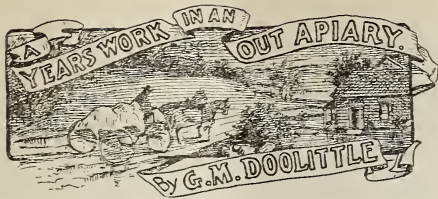
COMBS MELTING DOWN IN HIVES PAINTED A DARK-BROWN COLOR.

Some time ago there was some discussion about light and dark colored hives. In 1904 I had white, red, blue (dark and light), green, yellow, and dark-brown hives, and some not painted. In No. 35, with one super, seven sections melted; No. 39, with a super and a hive-body on top of that, melted some of the honey in the frames in the top hive so that they fell down. Both were dark brown. In 1905, No. 28 melted 17 sections in the top super, which were almost all sealed. The bottom super was about a quarter full at the time. So much honey ran down that it drowned a great many bees, and they dragged out about one quart of full-sized brood. That colony did not do any more work that season. One other started to melt, but I noticed it and gave it air. Now all of those hives were dark brown, and had dark-brown caps on them. My hives are the old-fashioned Langstroth, telescope caps, with room for two supers under the cap.

C. W. SAGER.

Belma, Wash., Feb. 12.

[It is my opinion that our friend Allen Latham would not find any thing in the foregoing that conflicts with the principles he enunciated in a recent article on dark color for hives. He did not claim that such hives should be out in the open, exposed to the sun.—ED.]



CHAPTER V.

A SIMPLE AND RELIABLE PLAN FOR MAKING INCREASE.

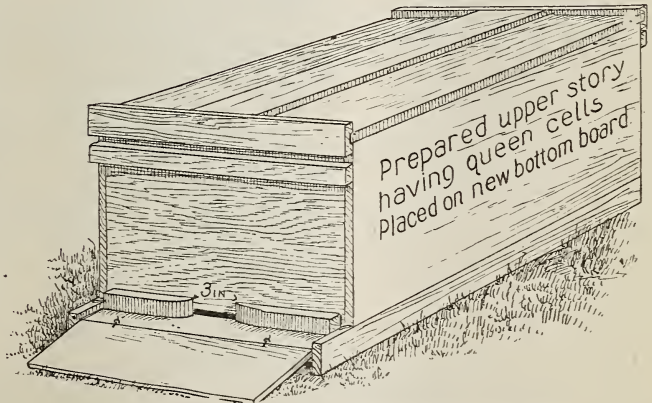
Just ten days have elapsed since I started on my fourth visit to the out-apiary, and I am getting ready to go again; but this time I am obliged to go with the horse, on account of its raining seven days out of the ten. So much rain has caused the roads to become almost impassable on account of the mud; and the almost constant rain at this time has caused the bright prospects of an abundant harvest of honey from white clover, which has been more plentiful than usual, to fade nearly out of sight. It does not rain this morning; but it is cool and cloudy, with a fine mist in the air. Such a day is not adapted to working with the bees to the best advantage; but it is necessary to go today, if I am to save those nice queen-cells, which are of much advantage to me just at this time. After a steady splash, splash, splash of the horse's feet in the mud for nearly an hour (as I can not drive "off a walk"), we arrive at the apiary.

Having put the horse in the farmer's barn I now proceed to place nine of the reserved bottom-boards, and as many covers on as many unoccupied stands, when I go to the hive having the brood from the best breeding queen that had the queen-cells with the little larvæ in them at the last visit, and, upon examination, I very luckily find that six of the ten combs have one or more fine, nearly ripe, cells on them. From one frame having four cells on, and two others having five, I cut two cells from each, and "graft" them into three of the frames having none, putting the frames back in place again. The clouds are now "breaking" in the sky, with the sun peering occasionally through the mist, which tells me I am to have a fairly good day for my work, after all—far better than I had even hoped for. I now take one of the frames having queen-cells on it, together with the bees on the same, and carry it to one of the hives having the tiered-up brood, taking from this a frame (bees and all) and putting the one with the cells in its

place. In all this work with tiered up brood, when changing the same from one hive to another I do not disturb the bees on them, as bees above a queen-excluder are, to all intents and purposes, queenless, so make no trouble by putting them in different hives. It is best generally to put the frame having queen-cells on it near the center of the hive, as this seems to give the better results.

Having the frame with queen-cells in the hive, I next take the frame of brood and go back to the hive having the cells, when it is put in the place left vacant there. In this way I keep on until the five colonies having upper stories of brood have a frame with queen-cells on it from the best breeder.

I now take off these five prepared upper stories, setting each on one of the bottom-boards previously placed where they are to stand, putting on the covers and adjusting the entrance to about three inches in length. The setting-off of these hives paves the way for using the other four frames having queen-cells on them in four more hives of brood, following the same plan in treating them which was used with the five now fixed on new stands, for the making of that many new colonies, so I have nine more colonies than I did when I entered the apiary an hour or so before. As the brood in these combs is all sealed now, and the bees on them are nearly all young bees, with more emerging every minute, there will be no setback to this colony from the bees returning to the colony they came from, as is generally the case with the most of the ways used in making colonies by the



ENTRANCE CONTRACTED TO THREE INCHES.

"setoff" plan. And this is the best, quickest, and easiest way of making colonies with which I am familiar; and this I say after using it for more than ten years, and after having tried nearly all the plans given by others.

If for any reason I wish a greater number of colonies than can be made as here given, and wish them for the purpose of taking care of beeless brood, I make as many as I think I shall need, during my third visit to the apiary, in the following manner: I take two

frames of emerging brood from the colonies having eight frames, and, instead of giving them to the colonies having the six combs of brood, as I told about in giving an account of that visit, I put them in a hive, after having brushed the bees off, together with two or three of the reserved combs—one, at least, of which should contain honey. The space left vacant where the brood was taken from, in the strong colony, is filled with two combs from the reserve pile, thus giving the queen in this colony room for more eggs. I now go to another of the stronger colonies and put a queen-excluder on it for the time being, when this prepared hive, having the two combs of emerging brood, is set thereon, where it is allowed to remain two or three hours, during which time the young bees come up from below sufficient to care for the combs and brood, after which it is placed on the stand I wish it to occupy. When I expect to make colonies in this way, if I have no laying queens thus early in the home yard I send south for them, if it is possible to get them from there. A queen-cell *will answer*, but the laying queen is much better.

By the way, full colonies can be made in this way at almost any time of the year when there is plenty of emerging brood by taking two combs of such brood from three or four strong colonies and adding to these, frames of honey. I have made such with perfect success as late as September first, using six combs of brood and four of honey. It is so easy—no hunting of queens nor any thing of the kind; and the best part of the whole is, enough of the young bees *always* stay to make it a success. No need of natural swarming for increase when we can make as many colonies as we desire in such a simple, easy way. The advent of the queen-excluder was a great blessing, and one of the needed helps in giving us the "modern apiculture" we now enjoy.

With the making of the nine colonies, as above given, I have the desired number for the year 1905, as I have house-building and other work going on, so I have no desire for further enlarging this year. I still have four colonies with a hive of brood on each, the one having completed the queen-cells being the stronger. As I wish to work 16 colonies for section honey, and having shaken only 13 at my last visit, I now prepare to shake three more. To do this I pick from the reserved combs enough to fill three hives, using those the nearest full of honey. One of

these hives is now carried to the colony completing the queen-cells, a reserve bottom-board placed on its stand, after it has been set off, and the hive with combs of honey set thereon.

A comb only partly full of brood is now selected from the upper story, one from which many young bees have emerged, and more rapidly gnawing from the cells, this being set in the center of the combs of honey; then two supers are set on in the way those were at the fourth visit, when I proceed to shake and brush the bees off from the whole of the 19 combs still remaining in the two hives; then from the hives and the bottom-boards, thus giving this colony all the bees from two hives of brood, or, as a rule, very many more than those had that were made at the fourth visit. After two more of the strongest colonies have been treated in the same way the beeless brood is tiered up on those remaining, when a moment of taking an inventory shows that I now have 16 "shook" colonies, two others containing three hives of brood and one of four hives, the queens of which are confined to the lower hive by the queen-excluder, and nine colonies just made, having queen-cells ready to hatch, together nine frames of brood, which will all emerge in 11 days, making 28 colonies in all. In order that the remainder of the reserved combs may not be destroyed



by moths they are now placed, ten in a hive, and one set on top of each of the 12 hives not having sections on them, a queen-excluder having first been placed over the nine just made colonies not having any on. The year 1905 was an exceptional one, in that the colonies in the apiary had been allowed to become so few through overwork.

When the whole 30, 50, or 75 stands (or

whatever number we decide upon for an out-apiary) are occupied at the time of setting out in the spring, there is no need of making colonies as here given. When we have the full number, four-fifths of the best colonies are worked for section honey, while the weaker one-fifth are to care for the beeless brood, and combs, which become the "reserve combs" in the fall, for the next season. That the reader may understand more fully, suppose that the out apiary is laid out for 75 colonies, and that we have that number in the spring; then we shall want 60 hives of reserve combs to go on to the four-fifths of the stronger colonies, which in this case would be 60, the work with each being done as given in chapters three and four.

In thus working, these 60 hives of beeless brood will be stacked on the one-fifth, or 15 colonies, where they will remain till the end of the honey season, when they are taken off and stacked away for reserve combs for the next year, as will be given later on. This will make each of the 15 colonies have five hives of brood, the queen being confined to the lower hive by the queen-excluder. At first glance it would seem that some of this brood would be neglected through the giving of so much to one colony; but repeated examinations prove that all is well cared for.

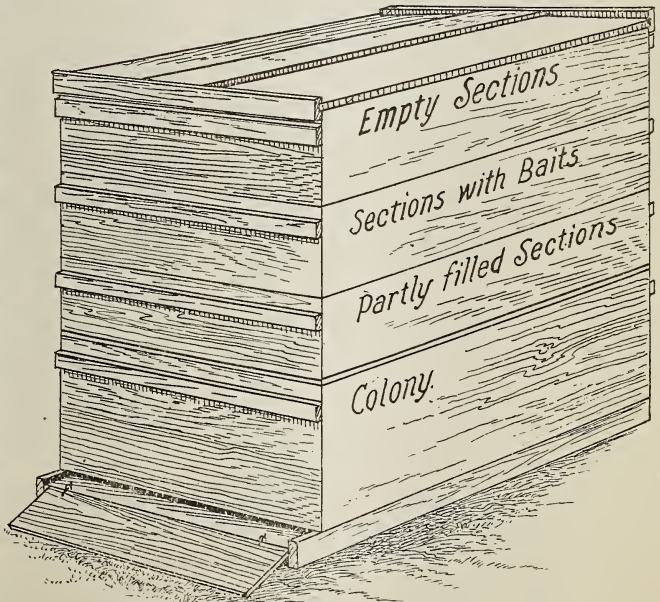
As the weather is warm at this time of the year, and as many young bees are emerging from these combs every hour, a few bees on the start can hold things in a perfect condition till all danger is past. When this brood has all emerged, such hives have an army of bees, which, in a good season, often fill all the hives with honey, thus giving us an insurance for the next year when that needed for brood is so used, and the rest of it carried up to the sections, so there is no loss. It will be noticed that, by this plan, *all the honey* not used in the *actual production* of bees goes into the sections, that the bees and queen are stimulated to their utmost in early spring by this large amount of honey telling them "*millions of honey at our house,*" so that there is not only no loss by having these combs stored full after the brood emerges, but a positive advantage through the stimulating effect they have the next spring. If all of the 60 colonies were not ready for treatment on my fourth visit, then I put one or two hives of beeless brood on top of those not quite strong enough in bees to shake, setting this brood under the hive of reserve combs they have, so the brood will all be

together. This gives such a colony so much extra room that they will not think of swarming during our next ten days' absence, notwithstanding the vast numbers of bees emerging from these two or three hives of brood.

LATE SHOOK SWARMS FOR COMB HONEY.

When I go to make the fifth visit the reserve combs are set down on the bottom-board, and the bees from all three hives are shaken out. This gives rousing "shook" colonies; and if a heavy yield of honey is on just at this time, these later-made colonies will even surpass those shaken at the fourth visit, in section-honey production; and it sometimes happens that the yield of honey will make it profitable to shake colonies having three and four stories of brood, right at the beginning of the basswood flow, thus bringing nearly or quite 100,000 bees in one of these hives of reserve combs, quite well filled with honey, in which case three and four supers of sections are used to give the proper amount of room for their working to the best advantage. However, this requires an extra visit, which may not be convenient when we are working a long string of out-apiaries.

After having tried this way two or three times I often think it is just as profitable to



A HIVE PREPARED ON THE DOOLITTLE PLAN.

let the honey go into the reserve combs. But the section honey stored by such a rousing colony, right in the height of basswood bloom, is so perfect and handsome in appearance, that my mouth often "waters" for such, and the eagerness of consumers for the same makes it very profitable for market. When it is thought desirable to use this late plan of shaking, colonies can

be formed by the plans given, which will care for the brood, and if desired they can be wintered over to take the place of any that may die during the winter. Then if none die they can be united with others, so that the number may be kept at the 30, 50, or 75, decided upon when the yard was laid out.

WHY AN EMPTY SUPER OF SECTIONS SHOULD BE PUT ON TOP OF RATHER THAN *under* SECTIONS PARTLY FILLED.

It is now nearly noon, with the sun shining brightly, and the air becoming warm and balmy. To see the army of bees rushing in and out of the hives containing the "shook" colonies is a sight to gladden the heart of any bee-keeper; and those returning from the fields seem quite heavily loaded, though the nectar is very thin on account of so much rain. I tried to count those coming in loaded during one minute, but they dropped down so fast in almost bunches of threes, fives, and sometimes ten or more, that it was impossible to do it. I counted two hundred, and estimated that fully twice that number went in without counting. Such colonies as these will do something at securing nectar, even if it does rain the larger part of the time.

I now take a little time to look at the supers of sections, and a glance at them shows the honey being sealed in the bait sections, with the most of the other sections in the lower super, having the foundation fully drawn out, and the honey sparkling in every cell, nearly ready for sealing. With all but two colonies the bees are well at work in the upper super also, drawing out the foundation, with now and then a section having quite a little honey in it. Those that are as far advanced as this have their supers exchanged—that is, the upper super is set directly on top of the brood-chamber; and the lower one, having the baits, now nearing completion, is placed on top, after which a super of sections, filled with the extra-light foundation, is placed on top of the whole, so that in no case shall any colony lack for room.

In all of my working with the bees I have not found that the placing of an empty super over one in which the bees are at work is any detriment, as the bees seem capable of clustering in the openings at the tops of the sections they are at work in, thereby forming a crust of bees that holds the heat in the super they are at work in, to such an extent that the work goes right along.

This is done on the same principle that a colony in early spring is able to maintain a temperature of 93 to 98 degrees inside of the brood-nest (which is the proper temperature for brood-rearing), when the temperature of the hive all around the crust bees does not rise above 45 to 50, when we have a spell of freezing weather. A colony of bees seems to be capable of holding almost any degree of temperature it desires, simply through a crust of bees which often does not at any point touch the hive. How this is done I do

not know. But I *do* know that a handful of bees, less than 1000 by count, kept the temperature where their brood was, between two combs, at 93 degrees, when the mercury outside stood at from only 18 to 26 degrees above zero during a cold spell in April. And I have known (many times when experimenting) of good work being done in the sections, fixed as above, when it was so cool that not a bee would be seen anywhere from or in the upper super, except the crust between the tops of the sections in the super below.

Since these experiments I have always kept these reserve supers on top, ready to catch any overflow of bees or honey. But the placing of such a super under one in which the bees are at work often proves a great damage, especially in a poor season. Therefore, as a rule, during late years I never raise a partly full super up from the brood-chamber unless I can place one underneath it, in which the bees have commenced to work more or less.

Those colonies which have not yet commenced work in the upper super, or have only just begun, are left as they are, as such have all the room they will need until the next visit. In changing these supers I can not resist the temptation to look into the brood-chambers of two or three of the colonies, and in doing so I find the comb given them as a "starter," which was from one-eighth to one-fourth full of brood when placed in the center of the hive at time of "shook swarming," ten days ago, is literally filled with brood, two-thirds of which is sealed over, while six of the remaining nine frames, which were nearly full of honey at that time, have three-fourths of the honey removed from them, while the emptied cells are teeming with brood from the egg to larva in all stages of growth. This shows that the colonies are in a very prosperous condition; and should favorable weather come, a good harvest of white honey may yet be obtained. After a careful looking-over to see that all things are in good shape for leaving I say good by to the pets at the close of this my fifth visit to the out-apiary; and in the above the reader has a record of what was done at this visit.

AN ERROR CORRECTED.

Mr. Root:—In your issue for April 15, p. 509, you will note that your writer speaks of stamens and anthers as different organs, whereas they are the same. The stamen comprises the anther with its supporting filament; the pollen granules are shed from the anther, which is fecundating dust. The pollen is carried by the insect to the stigma and supporting pistil, which connects with the ovary of the flower, and in which are the ovules to be ripened. J. P. LOUGH.

New York, N. Y.



In the sweat of thy face shalt thou eat bread.—GEN. 3:19.

Thou shalt love thy neighbor as thyself.—MATT. 19:19.
 "Lord, lift me up and let me stand
 By faith on heaven's tableland."

I want our readers to take a jump with me from Southwest Florida to Northern Michigan, back to the old "cabin home." I reached there when the cherry-blossoms were just opening. I took along with me two queens, daughters of the Caucasian on the island. To care for them I got a colony of hybrids and divided it into three parts, making an equal division as nearly as I could. The colony was in an eight-frame Langstroth hive, so that two of the three nuclei had three Langstroth frames each. The third was in a twin hive with the division-board removed. I made this arrangement in order to see which nucleus would do best—the one in the twin hive or the two with full-sized Langstroth frames. Just as I got the bees nicely arranged and well to work, so that each nucleus would fix its locality, a snowstorm, together with a hard freeze (the first week in May), came on. The nucleus in the little hive contained so many bees they could hardly all get inside when it was a warm day. I put enameled cloth on top of the frames, with the Neponset cover to keep every thing warm and dry, and the result was these bees were out an hour earlier gathering pollen. Of course, the conditions were better to economize the animal heat of the cluster; for the other two on three Langstroth frames each were in full-sized hives, and I had no arrangement in the way of a tight-fitting division-board to keep them tucked up. I think there is no question that bees will gather honey and rear brood to much better advantage, especially in the cool spring months, by having their hives as nearly air-tight as we can make them, and *just large enough* to contain the bees.

After the cold snap was over I made the little hive two-story, and right here I want to tell you all that that twin nucleus hive, two stories, with *Caucasian* bees, would make the prettiest plaything for a child that could well be imagined, or for older people who wish to get a start in bee-keeping. With such a small hive you could get some very nice honey in the little frames in the upper story. On pages 665 and 666 Prof. E. F. Bigelow has suggested the same thing. The hive would be more simple and more easily handled, it seems to me, by having the honey stored in the frames instead of using section boxes, separators, etc.; and I think it would be a splendid adjunct to the

garden or dooryard of any one who wants to keep just one little hive for the fun of it.

Near the cabin are five beautifully shaped early cherry-trees. One called the Ohio is about the handsomest tree I ever saw. The head is trained so low that, while standing near the trunk, my face was just about in the center of the mass of bloom; and the perfume from its blossom, together with the music of the humming of the bees—my own bees—gave a combination that actually made me say out loud, "Praise God, from whom all blessings flow."

Mrs. Root was not with me on this trip; but with the new "uncooked food" for a regimen I got along very well indeed. It is true that, after three or four days, I felt a longing for meat of some kind; but a can of chipped dried beef, from the country store near by, made a ration completely to my notion; and when one of the neighbors sent in a plateful of fried fish, smoking hot, I think I never tasted any fresh fish before equal to it. You see I have not yet got quite down to so rigid a diet as my friend Terry has. Now, here is another advantage of this "uncooked" plan that I had not thought of before. There are no remnants to be given to the chickens, nor wasted. Your rolled wheat, nuts, and fruit can all be saved over for another meal, and there is nothing untidy about it. You can get dinner in about four minutes, and you can also have every thing out of the way, and the "dishes washed" in about four minutes more.

Well, I was getting along swimmingly until one day in working with the bees, setting out my new trees, flowers, etc., I took off my coat (and fur cap), and worked in my shirtsleeves. It is true I did begin to feel a little warning from the way the cool breeze was taking hold of me; but my coat was some distance away, and I was almost through with my work in that location; so I kept on working in the wind after I had been perspiring quite a little. When the snowstorm came, however, and that cold night after, I was warned by a pain in my throat that I had caught cold. I suppose I had not been on the new diet long enough to be "immune" to catching cold, like neighbor Terry. I was alone in the cabin in the woods, with no neighbors nearer than a quarter of a mile. It was no use to groan, because there was nobody to hear me if I did. I kept a good fire all night in the drum stove; but before morning I felt pretty sick, and my throat was swollen to such an extent that I could hardly take even a drink of hot water. Had I kept on my fur cap and warm coat, all this might have been avoided. But there was nothing to do but to make the best of it. For two days I was scarcely able to work at all; and at the end of the third day, although the swelling in my throat had gone down I felt bad all over. I had arranged to have the county surveyors come and run a line through the woods around my forty acres; and I had purchased some wire to stretch along the

line after their survey. You see, timber is getting to be so valuable now that the neighbors are all cutting logs and firewood pretty close to the lines; and I felt as if I wanted to know just which trees were mine and which belonged to somebody else. The train whistled, and I knew it was time for me to be on hand to meet the surveyors and set them at work. I started off along that beautiful path through the woods which Mrs. Root and I made. The wild flowers were so abundant that the whole forty acres was one great "posy-bed." It was a beautiful warm morning, and the birds were doing their best, and I ought to have been happy, but I was not. I ached all over, and it was hard work to drag one foot after another, even on level ground; but when it came to climbing the steep hills through the woods I felt as if I could not go another step. I got to thinking I was too far along in years for such active work; that my joints were getting old and stiff, and my enthusiasm began to wane. I did not care much for the beautiful flowers nor for the woods, nor even for the surveying. I had studied surveying forty years before, and practiced it a little when I was a young man. As I came to a steep place where I had to reach ahead and grasp the maple saplings to hold myself up, almost involuntarily I repeated a line of that beautiful hymn, "Lord, lift me up," and then I began to pray. My prayer was something like this:

"O Lord, thou who hast been my ever present comfort and helper during the years that are past, help me now. If I have been overtaking my strength and am really worn out, help me to accept the condition of things and to try to say, Thy will be done. If, however, it is consistent with thy holy will that I may once more have strength and energy and ambition and enthusiasm, then help me to use this strength in a way that will be pleasing in thy sight. Thou knowest, O Lord, it is not altogether from a selfish motive that I ask, but it is because I want wisdom and understanding to teach others, especially in this matter of *how to get well and how to keep well*. Help me, O Lord, to get through the duties and tasks of this day that seem to me now so great a burden."

I managed to get to the top of the hill and over to my neighbor Wilson's. He had promised to go along and help cut a path through the thick brush and underwood for the survey. While he sat down to sharpen his ax I started off in the direction the men were to come. When I told them there was only one man available they said it really needed two men. I explained that I had been about sick with a sore throat, and hardly felt able to do any thing; but as everybody was busy in that locality, and no one near by at that, we decided we would try to get along with what assistance I could give.

I soon began to be greatly interested in the new and up-to-date apparatus for measuring land. Instead of the old iron chain we formerly used, these men had a steel tape;

and the new theodolite with its vernier scales, micrometer, etc., was intensely interesting.

It was hard work for some time to climb up and down those steep hills, get over logs, through tree-tops, and crawl through the underbrush; but when I began to feel a little better I took courage. Pretty soon I noticed something dripping on the leaves, and I was wondering if it was really going to rain. Then I discovered it was the sweat dripping from the end of my nose, and a little later the perspiration seemed oozing from every pore in my body. My fur cap and coat were burdensome, but I did not dare to take them off; for when we reached the summit of the hills there was a delicious cooling breeze. The surveyors said my sweating would be the best thing for my malady if I did not catch cold afterward.

Now I want to say a word about my good friend Mr. Wilson. I had known for some time past that he was an expert with an ax. We have men who are expert with all kinds of tools; some who are expert with a gun or revolver; others who are expert in different sorts of games; but how many do you know nowadays who are expert with *an ax*? Friend Wilson said, when he was a boy he used to feel bad because he could not keep up and hold his own with the men who handled axes. Finally one day he got hold of an ax that suited him better than any he had ever found before. With *that ax* kept keen and sharp he *could* hold his own with the men; and I noticed on this trip that, when the engineers stopped to make computations, he sat down on a log and took from his pocket a beautiful little oilstone incased in a mahogany box. Very likely this stone was corundum. I am sorry I did not ask more particularly about it. With this nice little stone he kept on his ax a razor-like edge; and he had learned by long practice just *how* to take every little tree that stood in the way with a sloping cut that took it off with one clip. One of the surveyors said:

"Why, that man with that keen ax of his is worth *two* ordinary men. Then another thing, he has a *remarkable* faculty for striking off at a clip the very trees that are in our way, without marring the others."

The surveyors came in on the nine-o'clock train, and said they must positively get back on the four o'clock, going the other way; and it was of the utmost importance to economize time in order to get the work done. Just before dinner we had finished half our job. The beautiful new instruments with their wonderful accuracy helped us to locate the exact corner in an instant; and as we stopped a little at the corner, all of a sudden it occurred to me I had not an ache or pain, and was feeling about as well as I ever did in my life. My prayer had been answered, and I had actually forgotten to give thanks. "O thou of little faith! wherefore didst thou doubt?" How many times this has happened in the past! I thought I would have to give up my afternoon nap for once, for the work was so ur-

gent. But they were getting along so well I decided to go down for the wheelbarrow and the wire, for they were almost ready to put it up. As I went into the house I decided to change my fur cap for a lighter one, and get rid of some of my heavy clothing. The bed where I had my accustomed nap was right before me, and I began to feel as if it would be a very *great* help if I could sleep just ten minutes. I did not think the men would get over to the corner anyhow for twenty minutes or more. Pretty soon I awoke with a start. I had slept something like an hour. By the time I wheeled my wire over where they were at work it was ready to be drawn up taut right on the line. My neighbor and I were going to put it up. Right close to the line were about half a dozen beautiful large maple-trees. When I was running my sugar-bush, I could not really decide which trees were his and which were mine. My neighbor told me, however, to go ahead and tap the whole lot, it did not matter whom they belonged to. The wire was fastened to a stout old gaspipe driven in deep where the surveyor had located the corner. Then we went to stretching the wire, and I began to think of those big maples. Dear friends, I hate to acknowledge it, but I can not make my point very well unless I do. Almost unconsciously I began hoping the wire would leave the trees on my side. May God forgive me for allowing that greedy spirit to find a lodging-place in my heart. My good neighbor who had been so kind and obliging ever since I knew him was a young man, comparatively, just starting in life. He has a wife and a baby boy to look after, and yet here was I, hoping those trees would come on *my* side of the line. God knows I have more maple-trees already than I can, in all probability, ever make use of. I felt disgusted and ashamed of myself. If I did not say mentally, "Get thee behind me, Satan," it was something pretty near it. As we started off with the wire I uttered a mental prayer in the words of that hymn I have quoted: "Lord, lift me up;" and right away after I said aloud, "Friend Wilson, I do not know just where this wire is going to run; but I shall be just as happy to find those nice trees on *your* side of the line as if they were on my own," and I *told the truth*. God helped me to *make it* the truth just as soon as I decided to utter the words. Jesus said to that lawyer, "Thou shalt love thy neighbor as thyself;" but I tell you, friends, it is sometimes harder to do than climbing hills through the woods over brush-heaps, tree-tops—yes, and *blackberry-bushes* thrown in. Let me digress.

Years ago some men were drawing heavy flagging for sidewalks and road-crossings. They unloaded the great flat stones; and to make them easier to handle they propped them up at an angle with a piece of wood two or three feet long. Some of these sticks of wood were set at such an angle that almost a touch might cause them to slide along the smooth stone and so let it fall. One day in coming home, and when quite a piece

away from these stones, I noticed some children making mud pies, or amusing themselves in a similar way in the shade of one of those heavy pieces of flagging. The back of one of the children was close to one of those pieces of wood. He might have easily loosened the stick and let the flagging down, making a terrible deadfall for the thoughtless prattlers. I thought at first it was our own children; and as I started on a run, the blood almost froze in my veins to think what might happen. As I came near, however, I discovered they were not *our* children at all. I stopped running, and came pretty near saying, "Thank God." Had I said so it would have meant I thanked God it was my neighbor's children and not my own that were in such danger. Was that loving my neighbor as myself? Not much. This incident often occurs to me, reminding me of how hard a matter it is to fulfill that command—"Thou shalt love thy neighbor as thyself."

An hour before train time the surveyors had finished, and Mr. Wilson and I put up the wire. At the close of the day's work, all my old strength and springiness seemed to have returned. My prayer was answered. But the perspiration from my body pouring out so profusely actually had an unpleasant smell. I hope you will excuse me for speaking thus plainly; but I know that many grievous pains might often be saved by taking a tremendous sweat from hard exercise in the open air. The pains and aches and feverish feelings I had were caused, I think, by impurities. These impurities, perhaps, retarded the circulation; and it seemed as if there was no way to get rid of them speedily, except through the pores of the skin. As soon as I could I had a delicious cleansing bath, and I have felt perfectly well ever since. This, dear friends, is "God's medicine," and it is one that produces no reaction. I had taken a bath not more than three days before, and I thought a very thorough one; but for all that, the pores of the skin seemed to have been stopped up, and the circulation clogged, and nothing but this profuse perspiration caused by brisk and almost painful exercise would bring about such an immediate cure.

While climbing that hill in the morning so painfully by the aid of the saplings, I prayed that God would help me to use the strength, should it be given, in a way that would be pleasing in his sight. After we had finished our work my neighbor and I sat down on the wheelbarrow and had a little talk. I knew he had been attending the meetings quite regularly that had been kept up since the revival about a year ago. I had talked with him somewhat on the subject before; and as we sat there I tried to tell him how much encouragement it would give a lot of the boys in that neighborhood if he would get right into the harness with them and help pull, for Christ Jesus. He said he did not know that there was any thing particular to hinder, except that he had not as much feeling in regard to the matter as he thought

one ought to have to take such a step as that. I tried to tell him I was sure the kind of feeling he had in mind was not needed. I said something like this:

"Mr. Wilson, the start these boys have taken during the past year is really a turning-point in their lives. It is going to be to some of them a turning from darkness into light. They are going to grow in wisdom's ways, and make true and honest men. Your sympathy is certainly with them. Let me use an illustration. Young people will get together and have fun. If it is not some sort of religious meeting it is likely to be a dance—such a one as they used to have in the hall over the saloon, or may be such as they have now. Young men often get together and learn gambling. Very likely you yourself have seen a lot of boys get together, and may be some poor fellow would lose the entire wages he had earned during the week. People around here work hard for their money. Now, sometimes young men who work hard get the gambling craze, and on Saturday night lose all their earnings, without leaving enough to pay their boardbill. Have you known such things to happen?"

He nodded his head, and said he had known just such cases.

"In the same way they get to drinking, and spend their money for drink. Now, these meetings and the revival are all in another direction. The teachings of the Bible are directly opposed to every thing that encourages selfishness or greed. What do you think of a man, young or old, who, just because he could beat his opponent in playing cards, would take all his hard earnings? This is supposing it to be a fair and honest game (if a game at cards *can* be honest), to say nothing about cheating and trickery. Now, my good friend, you certainly have feeling and enthusiasm in wanting to see these boys grow in wisdom and righteousness instead of taking the downward path. The gambling, the drinking, the licentiousness, all lead down, down, down. The Bible expresses it in this way: 'Her house is the way to hell, going down to the chambers of death.' But the spirit of *these meetings* is well exemplified in that little hymn I have been quoting—

Lord, lift me up and let me stand;
By faith on heaven's tableland.

"Mr. Wilson, you have a bright little boy who begins to follow you all over the farm, and even when you go quite a piece to the neighbors'. He is going to *keep* following. To him, whatever his father does is right; and he is going to follow in his father's footsteps."

In closing I mentioned some of the boys who are making such excellent progress in the Christian graces. I spoke of one we will call John Brown. "Yes," said he, "John Brown is doing grandly. He is the sort of young man I like, and I am glad to see him get up and read his Bible and take part in the meetings in the manly way he has been doing right along."

I went home and worked hard to make preparations to get back to Medina the next day. It was just getting dark when this same John Brown came over to bid me good by. Of course, we had to talk over church matters, etc. Finally, just before he went away he said something like this:

"Mr. Root, it is true I have been attending the meetings right along, and I think they are doing a lot of good; but sometimes it troubles me to think that I have not more feeling or enthusiasm in the matter. Now, to tell the honest truth, I do not believe I get the enjoyment out of the meetings that I used to get in going to other places that I can not go to now because I am a member of the church, and I am afraid there are others who are not honest about the matter. They think it is their duty to get up and read something in the Bible or tell their experience, but do they always *really mean* just what they say?"

I replied something like this:

"John, I am glad to have you come out square and honest in this way. Many a man has had something of the same feeling that you express, but only a few are honest enough to own it as you do. Even away back in old times we read that God's people got tired of well doing. We read in Malachi that some of them said, 'What profit is it that we have kept his ordinance, and that we have walked mournfully before the Lord of hosts?' The reply was, 'Prove me now herewith, said the Lord of hosts, if I will not open you the windows of heaven and pour you out a blessing that there shall not be room to receive it.' And again comes the exhortation, 'Be not weary in well doing,' etc. Now, John, you keep right along in the straight and narrow path, whether you feel like it or not. In due time God will give you happiness—all anybody ought to have."

Then I told him what Mr. Wilson said of his Christian character, which seemed to please him very much. Then I added, "Look here, John, I do not think it will do any harm to tell you that I know all about some of the enjoyments that church people can not consistently participate in. Why, if it would not be *wicked*, I should greatly enjoy helping to buy a keg of beer and help to drink it. I do not know but I would give a dollar for the fun* I could get out of a keg of beer with a crowd if I could do it with a clear conscience. But it can't be done. Just a short time ago a keg of beer caused the death of two men not far from here. Now, because I still have a hankering occasionally for this same beer that I have not tasted in forty years, suppose when I am off alone in a strange crowd I should indulge, and that nobody should ever hear of it. What would you think of me, and what would I think of myself if I should stand up in your meeting as I have been do-

* This kind of "fun" reminds one of the fable about the old frog that stood up and said to the boys who were having fun in stoning them, "Boys, this may be fun for you - no doubt it is; but please remember that what is fun for you is death to us."

ing, and exhort young boys to temperance, purity, and righteousness? Why, I should be one of the worst hypocrites that ever lived. I would not touch this beer, because it means ruin and death. The dance-hall down over that saloon at Bingham is tending the same way. Do you feel no thrill of happiness and joy when you are helping this crowd of boys to break away from every thing that is lowering and degrading, and to hold fast to righteousness, temperance, and purity, things that lead from earth and all things earthly up to heaven? Does it not rejoice your heart to realize that you are with a crowd that is 'stepping heavenward' instead of encouraging that which would rob your neighbor, take his hard-earned wages just because you could beat him in card-playing and all that? Why, I am sure, my young friend, that you do not belong to the crowd that 'love darkness rather than light because their deeds are evil.' May God help you on in the way you have started. May he help you never to think of turning back."

Out under the stars I bade him good by and went to bed happy, because I really had been using some of the strength God gave me in answer to my prayer of the morning in spiritual work as well as physical work. My prayer of the morning was, *in fact*, something after the fashion of that celebrated one of David, where he says, "Create in me a clean heart, O God, and renew a right spirit within me. Cast me not away from thy presence, and take not thy Holy Spirit from me. Restore unto me the joy of thy salvation, and uphold me with thy free Spirit. Then will I teach transgressors thy ways, and sinners shall be converted unto thee."



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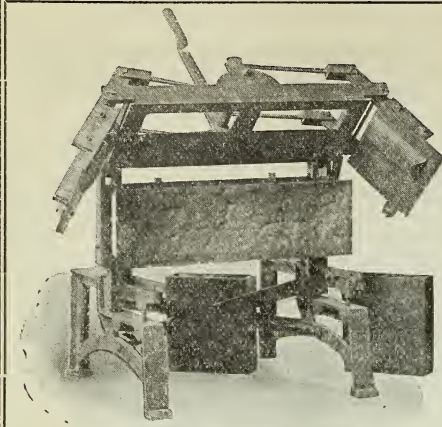
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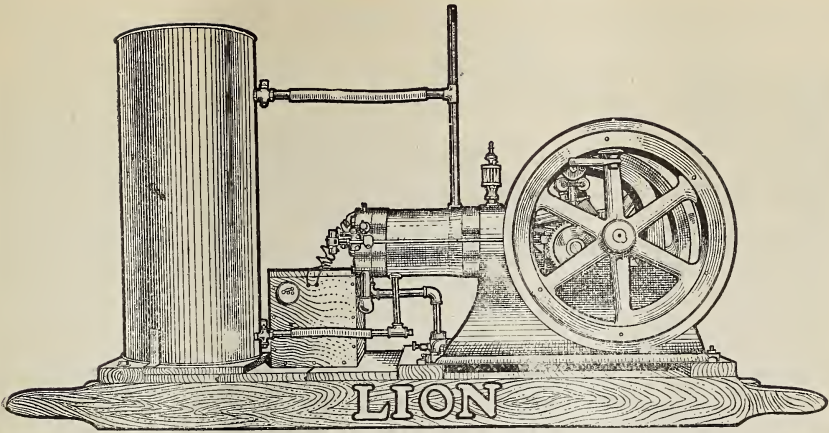
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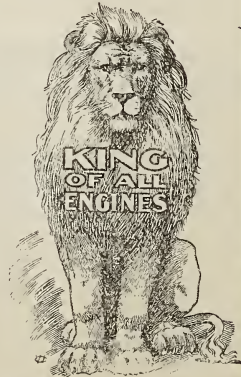
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except Oklahoma, Indian Territory and Texas. Prices to other points on application. Send in your order for as many squares as you may need to cover your new or old Building. Time has proved its enduring qualities. Thousands of Barns, Houses, Residences, Poultry Houses and Buildings of every kind are covered with this superior material. We guarantee satisfaction. Money cheerfully refunded if upon receipt of the material you do not find it all we represent it, or if you are not perfectly satisfied in every way just send the material back at our expense, and we will refund the purchase price. If you want quick delivery, now is the time to place your order. Send us diagram of the Building you have to cover, and we will quote you a Freight prepaid price on such Covering as we deem best suited for your purpose.

Ask For Catalog No. W688. Lowest prices on Roofing, Eye Trough, Wire, Pipe, Fencing, Plumblings, Doors, Household Goods and everything needed on the Farm or the Home. We buy our goods at sheriff's and receiver's sales. **CHICAGO HOUSE WRECKING CO., 35TH & IRON STREETS, CHICAGO**

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro., Ashland, Ohio.



ASHLAND PUMP AND HAY TOOL WORKS

JOSEPH HORNE CO.

Pittsburgh, Penn.

Lawn and Porch Swings

In the good old summer time lawn and porch swings and all other outdoor furniture are in great demand. We have a generous collection of this class of furniture marked at very low prices. For example:

- Eagle Lawn Swings, made of steel, with canopy, \$12.50.
- Rockaway Steel Lawn Swings, nice gliding motion, hold four people, \$17.50.
- Large Wooden Swings, painted red, particularly strong, \$6.00.
- Porch Swings, hung by chains, very strong, \$5.75.
- Gliding Settees, can be used on porch or lawn, hold four people, \$10.50.
- Swinging Chairs of steel, canvas seat and back, \$4.
- Croquet Sets—Single sets, \$1.25 to \$4.00; double sets, 85c to \$7.00.
- Tennis Goods—Rackets, \$1.50, \$2.00, \$3.00, and up to \$10.00.
- Balls: Wright & Ditson's, \$4.00 dozen; Ayre's, \$4.50 dozen; practice balls, 25c each. Nets: 75c, \$1.25, to \$4.50. Racket-presses, \$1.00 each. Tennis-markers, \$1.00 and \$2.00. Tennis-poles, \$2.00. Marking-tapes, \$3.60 and \$4.00 set.

THE "BEST" LIGHT

The only light that makes and burns its own gas at the extremely low cost of 2c per week and gives perfect service with **NO GREASE, DIRT, SMOKE OR ODOR.** Every burner equal to 100 candles burning at one time. Think of it—brighter than electricity or acetylene and cheaper than kerosene. You cannot afford to be without it. Over 100 styles. Every lamp warranted. Agents Wanted Every where.

THE BEST LIGHT CO., 306 E. 5th St., Canton, O.

FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at **factory prices on 30 days free trial.** We pay all freight. Catalog shows 37 styles and heights of farm and poultry fence. It's free. Buy direct. Write today **COILED SPRING FENCE CO., Box 101 WINCHESTER, INDIANA.**

BROWN PAYS THE FREIGHT

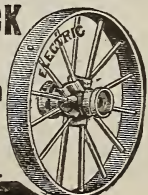
HEAVIEST FENCE MADE

All No. 9 Steel Wire, Well Galvanized. Weighs 1/2 more than most fences. 16 to 85c per rod delivered. We sell all kinds of fence wire at wholesale prices. Write for fence book showing 110 styles. The Brown Fence and Wire Co., Cleveland, Ohio.

SAVE YOUR BACK

Save time, horses, work and money by using an **Electric Handy Wagon**

Low wheels, broad tires. No living man can build a better. Book on "Wheel Sense" free. **Electric Wheel Co. Bx 95, Quincy, Ill.**



EXTENSION AXLE NUTS CURE WABBLES. Make old buggies run like new. Quick sellers. Very profitable for agents. Exclusive Territory. Hardware Specialty Co., Box 535, Pontiac, Mich.

Special Notices by A. I. Root.

THE ACME HAND POTATO-PLANTER.

I suppose everybody knows how to use these by this time. We have only three or four dozen left, and do not expect to handle them after these are sold. In order to close out, we offer what we have at the very low price of 50 cts. each. They can be sent by mail at an additional expense of 45 cts. But a better way is to have them go by express, or, better still, by freight with other goods. Full directions accompany every machine. Circulars in regard to the potato-planters or sprayers will be furnished free of charge; also our catalog of honey-plant seeds.

THE FAULTLESS SPRAYER FOR POTATO-BUGS, CURRANT-WORMS, LICE ON STOCK, POULTRY, ETC.

As we are about closing out on these goods we offer what we have left, at the low price of 25 cts. each for the tin sprayer, and 35 cts. for the galvanized iron tank. If wanted by mail, either kind can be sent for 25 cts. additional. I am sure no one in the country can afford to be without these sprayers, especially as they cost so little. You can often save the price of a machine in a very few minutes if you have it handy and keep it "loaded." With every machine there is a stout linen tag with full directions how to use it. It will do for fruit-trees if you get up on a ladder so you can get the spray where it is needed.

CAUCASIANS ON THE ISLAND UP TO MAY 4.

The following came to me at the "cabin in the woods:"

Friend Root:—Your letter and cages came to hand today. I will mail you a queen to-morrow.

We have a good honey-flow this week; extracted two combs from each of four hives, Caucasian one of the four. They are holding their own as honey-gatherers, and gentle hardly expresses it. We shook and brushed the bees off the combs without smoke; not a bee offered to sting. Florence never uses smoke when opening their hive, and not a Caucasian has ever stung any of us. Osprey, Fla., May 4. J. T. SHUMARD.

I will add that the daughter of our Florida Caucasian is now a two-story twin nucleus (full of bees) up here at the "Old Cabin Home" in North Michigan. The snow-storms and cold weather of the first week in May seem to be over, and it is hard telling who is the happiest this beautiful May morning—the bees or myself. A. I. R. Traverse City, Mich., May 11.

THE ART OF ATTRACTING AND CATCHING SWARMS OF BEES.

Letters are coming in almost continually, asking if we advise sending a dollar to T. W. Bryan, Ficklin, Ill., for his secret in regard to catching swarms of runaway bees. We showed up his swindle on page 732, last year, and also on page 923, Sept. 1, last. As soon as Mr. Bryan began advertising we sent a dollar for his book. He returned the money promptly, saying he would send the book as soon as he got a new edition. No new edition came, however, but he kept right on advertising, and getting people's money. But one of our subscribers sent for the book and promptly forwarded it to us. Let me repeat what I have said before. This dollar book contains five very small pages, coarse print; but the wonderful secret is all told in just a few lines on one of the small pages. There are two things you are to do to attract the bees. Put a little bright-red flag on one corner of the hive. The second thing is to attract the bees by the scent of the oil of anise. Now, there is no doubt that a hive fixed in this way will occasionally catch a runaway swarm; and so will an empty hive without any red rag or anise; and because the bees sometimes locate in such hives he gets his material for testimonials. The use of the oil of anise is not at all new. The "red" rag may be new, but I think every intelligent bee-keeper will decide that it has nothing to do with attracting the bees. Will other bee-journals please help us expose this man and his swindling operations? One of the worst things about Bryan's operations is that he is employed by the *Missouri Valley Farmer* to conduct a bee-keeping department in that paper; and in every issue he takes pains to boom his dollar secret. Let me give you a specimen of his "instructions" to bee-keepers, clipped from the journal named above, for April, 1906:

"Well, after many attempts and failures I at last succeeded in perfecting a hive which caught the eye and scent of the home-seekers, and they have no trouble in locating it at once. To-day I hold the key to the situation, and can teach any person just how to prepare empty hives so they will attract bees for miles, and thus catch all the swarms they want for practically nothing. So far as I know I am the only bee-keeper in the country who has ever succeeded in doing this. My booklet, which was copyrighted in 1904, is the only work that teaches this science, and can be had only from me."
"T. W. BRYAN."

"A POCKETFUL OF WHEAT."

When I said last winter that a pocketful of wheat was the best medicine for little chickens, why did not somebody among our 30,000 readers tell me that a pocketful of wheat is the best medicine in the world for the human family as well as for chickens? For six weeks or more I have been having raw wheat (Pettijohn's rolled wheat) three times a day, and I like it just as well now as I did at the start; and it is worth more than all the medicines for troubles with digestion I have ever gotten hold of. I have tried different kinds of nuts, and have about settled down on fresh nicely prepared salted peanuts; and after having had a satisfying meal of "grains and nuts" I eat all the fruit I care for, of any sort that comes handy—dates, figs, apples, bananas, oranges, etc.; also all kinds of dried and canned fruits, avoiding sugar as much as possible. The sugar in fruits—dates, for instance, the sugar that God makes—is much better for me than manufactured sugar. A little honey, also, seems to be very much better than any kind of refined sugar. Now, in order to get this excellent result I never taste any thing between meals, and drink no liquid of any sort at mealtime. Of course, the apples and oranges furnish some liquid at the close of the meal, and this seems to be all right.

BUCKWHEAT FOR BEE-KEEPERS, ETC.

We have for years past been sending out a pamphlet giving what information we could gather in regard to the buckwheat crop for bee-keepers. The Cornell University, Ithaca, N. Y., has just sent out a bulletin (No. 238, April, 1906), which is for free distribution in York State. I can not gather whether other people can get it or not. This bulletin contains much valuable information, and we clip as follows from the concluding summary:

Formerly the flouring qualities of the Japanese variety were pronounced by many millers to be inferior to the other sorts, and not infrequently the price of Japanese buckwheat was five or ten cents per bushel less than the others. In some localities this condition still prevails; in others the reverse is true. In parts of Seneca Co., N. Y., in recent seasons the millers have offered a bonus of five cents per bushel for the Japanese variety. Whether this change in the estimate of the variety is due to improvement in the quality of the grain due to acclimatization, or to better adaptation of the milling methods to the variety has not been ascertained.

ENEMIES.

The buckwheat crop is unusually free from interference from weeds or plant-diseases. It starts so quickly and grows so rapidly that most weeds get no chance to make headway against it. In fact, buckwheat is one of the best crops for cleaning land by smothering out weed growths. Wild birds as well as domestic are fond of the grain, and, when abundant, sometimes cause considerable loss. No insect or fungous troubles have been sufficiently destructive to attract much attention.

BUCKWHEAT AS A SOILING CROP.

A number of farmers have reported favorably upon the use of buckwheat as a soiling crop, but its use for this purpose has not been sufficiently extended to establish its value.

BUCKWHEAT AS A GREEN-MANURE CROP.

The use of buckwheat as a green manure has been much more extended. It possesses several characteristics that adapt it to this purpose. It thrives on quite poor soil. It grows rapidly. It smothers out weeds, thus helping to clean the land. It leaves hard soils in a remarkably mellow condition. It decays quickly when plowed under.

VARIETIES.

There are three principal varieties of buckwheat grown in America—the common gray, silverhull, and Japanese. The seed of silverhull is slightly smaller than.

the common gray—the color is lighter and of a glossy, silvery appearance. The Japanese is larger than the gray, of somewhat darker color, and there is a tendency for the angles or edges of the hull to extend into a wing, making the faces of the grain more concave. The plant of the Japanese variety is a somewhat larger grower than the others; the fresh stem has a green color, and the flowers seem not to be quite so subject to blasting as the others. On this account it is recommended in some localities to sow the silverhull and Japanese varieties mixed, it being said that the later and harder Japanese will shade and protect the others from hot sunshine, thus avoiding blasting, and securing a larger zone of seed-bearing straw than is furnished by either sort alone, a larger yield resulting. The silverhull variety has a red stem, and branches more freely than the others. The leaves also are smaller.

ST. PAUL AGENCY.

After our forms had gone to press we received further particulars regarding the sudden death of Mr. J. C. Acklin, our agent in St. Paul. While delivering some bees to a customer in one of the St. Paul suburbs he was stricken with apoplexy and was taken to the hospital, where he died next morning without regaining consciousness.

This sudden ending of his labors in this world is a crushing blow to Mrs. H. G. Acklin and her daughter Ethel, but they are determined to carry on the business as usual. For this she is thoroughly competent, having had active charge for years. Only last January was the name of the manager changed from her initials to his. She has a faithful helper, Robert, who has been with them for years, and has taken entire charge of the business for weeks at a time. All orders for bees and supplies will receive their usual careful attention.

Kind Words from our Customers.

"IN ALL THY WAYS ACKNOWLEDGE HIM."

For some years past my health has been rapidly failing; and my occupation being that of carpenter and builder I saw I was not going to be able to do hard work much longer, and so my wife and I began to ask the Lord if I should not make a change and try something else. She spoke of bee-keeping, it being on her mind for some time. At first I did not approve of it, for many had tried them here and all failed. But still my wife was anxious to try them, so we got one colony in the fall of 1901, and laid the matter before the Lord to show us if it was his mind that we keep them or not, for neither of us knew any thing about them. I sent for the *Canadian Bee Journal* and the A B C book, and we packed the bees as well as we could outside on their stand, and in the spring the box was full of bees, and in August we had six good swarms, and not one got away. But they were black bees, and we wanted Italians, so we sent \$5.00 to the Root Co. for two queens, and divided two of the largest colonies, making four, and introduced your two queens, and you may depend on it they were a matter of much prayer to the Lord. I packed them outside as well as I could, giving more attention to the new queens; but in the spring when I examined the hives I found the rain had got into the outside box of our \$3.00 queen, and the stuff was all wet around the hive; and when we looked at the bees they were all dead but the queen and a handful of bees. I don't think there were more than 100 at the outside. Oh, I was so disappointed and vexed at my carelessness not to notice the plan in the lid! But all we could do was to tell the Lord about it, and go on and make the best of it. And, just think I before the season was over that colony cast the biggest swarm in the yard, and both queens proved to be excellent breeders.

Last spring, 1905, we started with 12 colonies—7 good ones and 5 weak ones, and they made nearly 1000 lbs. of honey, and increased to 32 good ones in August, and I had no trouble to sell the extracted honey at 15 cts. per lb., and 20 for comb; so this spring we have 27 to start with; lost 4, and sold one. The reason of our loss was, two of them, I think, were queenless when put away, and two were robbed.

This spring my wife had no trouble in learning to clip the queens' wings by looking at the picture in GLEANINGS. I must say that journal has been a great thing to us. How I came by it was this: I saw an advertisement in the *Canadian Bee Journal*, 1902, that if one sent you the names of six bee-keepers you would send a

copy of GLEANINGS six months on trial. I could not send that many, for there were no bee-keepers in this part of the country; but I sent the names of a number who said they would like to get bees, and got it. The man I sold the colony to last fall gave me his subscription for it the other day, so the folks around are much interested in our bees now.

But what I want to say to my fellow Christians, those who love our Lord Jesus, is this: No matter what you go to, consult the Lord about it; don't be in a hurry starting—just as Moses said to the Lord, "If thy presence go not with me, carry us not up hence." Then if you see he has opened the way, and made the matter clear, and you have made a start, be sure you honor the Lord in it. See Proverbs 3:9, 10. I have proved this to be true at all times and in all my business.

While we can not lay down a straight rule in the matter of giving, I believe in having a separate purse for the Lord; and every time I sell anything I put so much of it away in that purse for him for the poor and the spreading of the gospel. The Lord does not reckon from the amount that is given, but from the amount that is kept back. How beautifully we see that in the widow with the two mites! and the more the Lord is honored in that way, the more he will bless you. But how often our gracious Father has to cut off our supply like a doctor in a hospital, who gives only food enough to keep the patient alive till he gets better of the disease. The same thing happens with us. We have a loving Father who would be pleased to give us good things, but our spiritual health will not stand it. For my part I can look back and thank the Lord for every hurt, sickness, and loss, for I know it was in love he permitted these things to happen.

Little Rapids, Ont.

JOHN LAMONT.

The Ideal Specialty Co., 141 S. Clinton St., Chicago, Ill., have an ad. on page 776 of this issue of GLEANINGS. This company manufactures scrap-books, photo-albums, post-card albums, and invoice-books of the latest and best designs. Their self-gummed Ideal scrap-books, same as shown in their ad., are the neatest scrap-books we have ever seen. They do away with disagreeable gluing, and do not make it impossible to remove a clipping which has been preserved. It will be well worth your while to send for a copy of their catalog No. 8, which shows every style of these fine books. There is no charge for their catalog.

Best's Mortgage-Lifter Bees

My bees are of a new strain, bred by careful selection from the best imported and domestic stock. They are the gentlest, the strongest honey-gatherers, and most rapid breeders of any bees you will find. Have been among bees for 35 years and never found their equal. Price for immediate delivery—warranted queen, \$1.50; tested, \$2.00; select tested, \$3.00; breeding queen, \$5.00; select breeder, \$8.00. Purity of strain guaranteed.

BEST-THE-BEE-MAN,
Slatington, Pa.

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.

Prices: Select tested Albino queens for breeding, \$4.00; tested Albino queens as they run, \$2.50; untested, \$1.00. Italians, tested, \$1.50; untested, \$1.00.

S. VALENTINE,

Rocky Ridge, - Frederick Co. - Md.

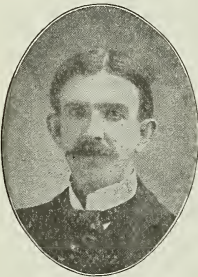
65c for 25 NAMES—For names and P.O. of 25 farmers and 15c (stamps taken) we will send for 2 years the Farmer's Call—regular subscription price, 40c a year. F. C. is a weekly, 25 years old; 1300 pages a year; sample free. Farmer's Call, Quincy, Ill.

----"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! Have you been to dinner?"

"Yes, thank you, Mr. Smith; just got up from the table, and thought I'd come over for a little talk while the horses are feeding. Say, Mr. Smith, I am going to have a big crop of honey, and I have a notion to send it to Pouder as soon as I take it off the hives. What do you think about it?"

"Well, Pouder will buy your honey if you wish to ship it to Indianapolis; but I believe that you can establish a home trade for every pound that you can produce. I get 20 cents for every section of my comb honey, and 15 cents a pound for all of my extracted. Of course, where my neighbors want a little for sickness I never charge any thing; but do you know, Mr. Wilson, that I do not have enough to go around, and I had to send to Pouder myself for several cans to supply my home trade? It is a long time till honey comes again, and you will be surprised how they will come for miles when they once learn that you have it on hand."

"I am aware that the market is now almost bare of honey; but don't you think there will be a big crop of honey this year? It looks as

if California would have a big crop of honey this year, and won't that affect the price of honey here? The other evening Bob was reading in the Indianapolis *News* about one of those big prizefights being postponed on account of a down-pour of rain. Bob will read all that stuff in spite of all I can say. I just thought that, when California has those heavy rains, it means lots of honey."

"I'll tell you about that, Mr. Wilson. You and I need never fear any thing about any overproduction. This is a great country, and we shall have a demand that exceeds our supply every season. Haven't heard of any one having any more corn than he could dispose of, have you? Another thing, considering the modern hives and equipment that we now have, we could even afford to reduce the price on honey, for we get twice as much honey now as we did ten years ago from a single hive, and at the same time honey is growing in better demand every day."

"I guess you are right about this matter. I must be going. Let me know when you are ready to send your order to Pouder again, and I will have some brood foundation and some of those new metal-spaced Hoffman frames included with your order."

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. POUDEUR,

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 KNOW

That the sale of Dittmer's Foundation has increased so much that we were forced to double our melting capacity in order to fill orders promptly?

There is a Reason for This

It is because Dittmer's Foundation is tough, clear, and transparent, and has the natural color of beeswax.

AGENTS FOR DITTMER'S FOUNDATION:

W. D. Soper..... Jackson, Mich.
Bee and Honey Co..... Beeville, Texas
E. H. Taylor .. Welwyn Sta., Herts, Eng.
E. Grainger & Co..... Toronto, Ont., Can.

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

Beeswax always wanted.

Gus Dittmer, Augusta, Wis.

BEE-SUPPLIES

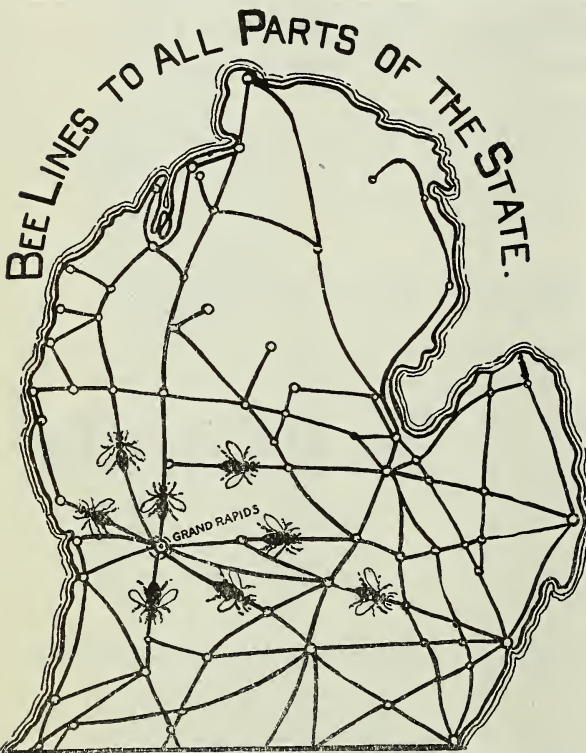
We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time 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-Ouran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.



Over a Million Lewis Sections

in stock since Jan. 1st, 1906.
Dadant's Foundation and all
other goods in proportion. Im-
mediate shipments.

Get your goods in a hurry—
before the ink on your order
gets dry—by sending to

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GRAND RAPIDS, MICH.

DAILY EXPRESS TRAINS:

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M. C. System.....	6
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G. R., H., & L. M.....	10

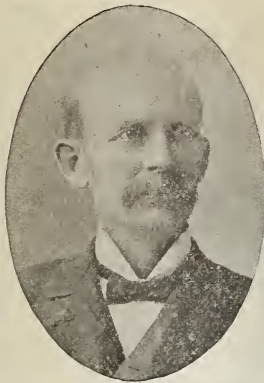
Bee-keepers' Supplies!

Lewis' famous "Beeware," Root's Smokers and Extractors; Dadant's Comb Founda-
tion, 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



Established 1881

YES!

Same Place 1906

THIS IS THE MAN

WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year.

Geo. E. Hilton, - Fremont, Mich.

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.
 BEESWAX 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 daub 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.

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 :: ::

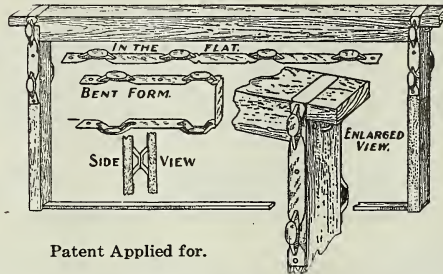
Prof. A. J. Cook, Claremont, Calif.

— FOR HIS —

"Bee-keepers' Guide"

Liberal Discount to the Trade.

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, 3 or 10 frame, put up or in the flat.

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

PENNSYLVANIA

Ours is the largest bee-supply house in the western half of the State. Every thing which the bee-keeper will need is in stock awaiting your order.

ROOT'S GOODS AT ROOT'S PRICES

You can save time and expense by ordering from us. . .

Best shipping facilities. . .
Complete stock.

Do not put off ordering today what you will urgently need a little later on in the season.

Frank W. Prothero

Successor to Prothero & Arnold

Dubois, Clearfield Co., Pennsylvania

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

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.

QUEENS OF MOORE'S - STRAIN - OF - ITALIANS

produce workers that fill the supers and are not inclined to swarm. . . .

Stewart Smillie, Bluevale, Ont., Can., says: "They fill the supers and are not so much inclined to swarm as others. I have been buying queens for fifteen years, and your stock was the only one that was any good to gather honey."

Untested queens, \$1.00 each; six, \$5.00; dozen, \$9.00. Select untested, \$1.25 each; six, \$6.00; dozen, \$11.00. Safe arrival and satisfaction guaranteed.

J. P. MOORE, Morgan, Pendleton Co., Ky.

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.

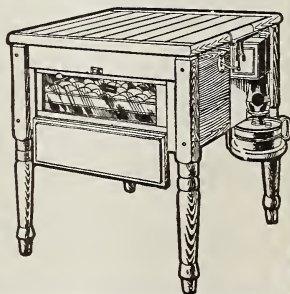
Better send for a copy today. We mail it free, together with a copy of the *Progressive Bee Keeper*, a splendid monthly publication devoted to bee interests. It will help you start right and keep you right after you are started. It is invaluable as an aid to every bee keeper. Ask for the paper and the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



CAUCASIAN QUEENS.

Try one or more of my gentle Caucasian queens, said to be the gentlest race of bees in the world, having a sting. The demand for these queens is good; in fact, orders are rolling in now. All orders filled in rotation, as received. Special prices on large orders. Untested, \$1.50 each; warranted tested, \$3.00 each. Ready in June. I control all bees within three miles of my apiary, and can promise pure stock. A few choice nuclei can be furnished with a fine queen, when wanted.

Money-order office, Olive Branch, Mississippi.

W. T. LEWIS, Lewisburg, Mississippi.

From Long-tongued Imported Italians.

Trial queen, 60c; Untested, 75c; \$7.50 per doz. Tested, \$1.25; \$12.00 per doz. Breeders, \$2.00 to \$3.00. Postal orders drawn on Decatur, Mich.

E. E. MOTT, Glenwood, Mich.

QUEENS DIRECT FROM ITALY

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

MALAN BROTHERS, Luserna, San Giovanni, Italy.

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.



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.

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 Northern-bred bees are hardy, yet gentle; they will give you results. Address all orders to

Quirin-the-Queen-Breeder, Bellevue, Ohio

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.

A RECORD

of the work and results of each colony in our apiaries is kept, and from the best of these is chosen the colony from which are bred

Extra Honey Queens

Is it any wonder then that they are noted for their honey-gathering qualities. . .

Prices

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

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

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**

Queens - Italian - Queens

and bees from Root's Red-clover stock and Golden Italian queens. Better than ever. Untested.....60c each; six, \$3.50 Selected untested.....75c " " 4.00 Tested.....\$1.00 " " 5.00 Selected tested.....1.25 " " 5.00 Two-frame nuclei with untested queen. .200

Orders filled in rotation. . Send orders to **E. A. Simmons, 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.,

"\$100 Offered for a Carniolan Queen"

We will pay the above sum to any queen-breeder or bee-keeper who can furnish us with a breeding Carniolan queen that is not over one year old, and can prove that she is in no way related to our strain of Carniolans. This queen must be in color a light bronze, large and prolific; her bees very gentle, and every one to have silver-gray bands. Our breeding Carniolans are as described above, and we are willing to pay a good price for a queen that will produce stock in every way equal to our own, and not in any way related.

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 hardiness, 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
Two-frame nucleus, \$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; \$8.00 per dozen. Send for price list.

J. W. K. SHAW & CO.

Loreauville, : : : Louisiana

CARNIOLAN and ITALIAN QUEENS!

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

Grant Anderson - Sabinal, Texas

Queens! Three and five band queens; perfect satisfaction and safe arrival. Untested, 60c; select, 75c, or \$3.00 per doz.; tested, \$1.00, or \$10.00 per doz. R. O. COX, Route 4, Greenville, Ala.

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.

Red-clover Italian Queens Exclusively !!

No better honey-gatherers in existence. Select untested, 75c; tested, \$1.00; three-frame nucleus with queen, \$2.00. To prove the quality of my stock I will send two trial queens for a \$1 bill. F. M. Mayberry, Obelisk, Pa.

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.

GRADE ITALIANS in June. Three Lang. frames of brood, fine laying queen, and lots of bees, \$1.50.

G. W. GATES, Bartlett, Tenn.

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

Dealer in

BEE - KEEPERS' SUPPLIES!

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

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

DISTRIBUTOR OF ROOT'S GOODS FOR

NORTHERN NEW YORK

BEE SWAX WANTED

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 stingless, 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

\$25.00 IN PRIZES.

For the largest number of sections No. 1 comb honey produced by a colony headed by one of our "Pure Gold" queens before September 15th, 1906, \$10.00 cash. For the second largest, \$7.50 cash. For the third largest, \$5.00 cash. For the fourth largest, \$2.50 cash. In addition to the above offer we will pay 20 cts. per pound for all prize honey for exhibition purposes.

Select untested "Pure Gold" queens, \$1.00. Select tested "Pure Gold" queens, \$2.00. Select breeding queens, \$6.00. Our very finest extra select tested breeders, in 2-fr. nucleus, f. o. b., Lincoln, Neb., \$10.00. We ship in June, 200 "Pure Gold" queens to one customer. Caucasians  Carniolans  Red Clover Italians  Rose Lawn Apiaries, Station C, Lincoln, Nebr.

California Sage Queens

Old reliable Italian stock from well-known breeders. Bees that get the honey if it's in the field. One select untested, \$1.00; six, \$5.00; tested, \$1.50. Write for a circular.

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

The Best Stock

Nice three-banded Italians that are guaranteed to please, or money refunded. The Robey queens now go to nearly all parts of the globe. They are being used by many of the largest honey-producers of this and other countries, who pronounce them to be very superior strain of bees. I have spent 21 years in building up this strain of bees. Warranted purely mated, in any quantity, 60 cts. each; selected warranted, 75 cts. each.

L. H. Robey, Worthington, W. 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. Brices: Untested, \$1.00; six, \$4.50; dozen, \$8.00; tested, \$1.50; six, \$8.00; dozen, \$14.50; dozens, \$5.00. For larger quantities write for prices.

M. D. WHICHER, Los Olivos, Cal.

Untested Queens!

Golden Italian

75 cts. each; six for \$4.00; an extra fine one for \$1.00. Warranted purely mated and good queens. . . .

J. B. Case, Port Orange, Fla.

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

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.

BEES and QUEENS

BY RETURN MAIL.
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-swarming, 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.....	75c; 6,	\$4.25; 12,	8.00
Select untested queens.....	1.00; 6,	5.00; 12,	9.00
Tested queens.....	1.00; 6,	6.00; 12,	11.50
Select tested queens.....	1.50.		
Breeding queens,	\$3.00 to \$5.00.		

Yours for best service,

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

Italian and Caucasian Queens and Bees



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

PRICES FOR JUNE

ITALIANS

One untested queen	90
One tested queen	1.10
One select tested.....	1.40
One breeder queen.....	2.20
One-comb nucleus, no queen...	95

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

I can Now Furnish You

with the best of queens at 70c each or \$7.00 per dozen. I breed only from imported stock, Leather-banded Italians and Gray Carniolans. I want your orders, and guarantee safe arrival and satisfaction. Write for prices on large orders. Money-order office, San Angelo, Texas. Postoffice, Vigo, Texas.

J. E. Chambers.

You are

Losing Money

by not introducing
Our Queens through-
out Your Apiary. . .

They are bred from pure Italian stock, red-clover strain; hardy Northern grown. Prompt shipments at these prices:

Untested.....	\$1.00; \$5.00 for six
Select tested.....	1.50; \$7.50 for six

For prices in larger numbers and breeders write us. Orders for delivery after May 15th now being booked. Get your order in early. Handsome booklet mailed free upon request.

B. C. Terry Co., Hinsdale, Ill.

MINNESOTA-BRED QUEENS.



Try our Northern-bred queens—nothing finer; three-banded and golden Italian queens, untested, 75 cts.; tested, \$1.50. Hardy and prolific. We want your orders, and will fill them by return mail, and guarantee safe arrival and satisfaction. Write for circular to
MENNIE & FENTON,
 Pine Island, - Minnesota.

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

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

Italian Queens

Northern-bred; originated from best long-tongued "red-clover" breeders in the United States; bred in full colonies; excellent honey-gatherers; winter well, and gentle.

Untested, \$1.00; six, \$5.00. Tested, \$2.00; six, \$10.00. After July 1, 75c, \$4.00, \$1.50, \$8.00. Write for descriptive circular. Satisfaction guaranteed.

ISAAC F. MILLER,
 Brookville, (R2), Pennsylvania.

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

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.—To exchange for cornet, offers, or cash, a large watchdog. ADAM MCQUEEN, Baltic, O.

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

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—You to own good queens; no delays; satisfaction. See my ad. on page 696

M. D. WHITCHER, Los Olivos, Cal.

WANTED.—For delivery by June 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.

Help Wanted.

WANTED.—An experienced bee-keeper. Give references and state wages wanted.

W. J. STAHLMAN, Bruce, Wis.

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.

For Sale.

FOR SALE.—400 cols. pure Italian bees in lots to suit. Write for prices. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Excelsior printing-press (chase $7\frac{1}{4} \times 13\frac{1}{4}$) and 15 cases type; fine shape. Box 95, Medina, Ohio.

FOR SALE.—Bees and bee-supplies. J. GOBELI, 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.—My apiary complete in the great irrigated alfalfa belt; no failure yet. See GLEANINGS of Dec. 15, 1908, page 1051. C. K. C., Lovelock, Nev.

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.—About 800 sixty-pound cans; mostly new, good condition, new cases, two cans to a case; 40 cts. per case, f. o. b. Preston.

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

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FOR SALE.—Bee-supplies, berry-boxes, etc.; best polished sections, \$4.50 per M. Catalog free.

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FOR SALE.—Untested Italian queens at 60c, two for \$1.00; tested, \$1.00 each. MRS. J. W. BACON,
Waterloo, Seneca Co., N. Y.

FOR SALE.—Virgin queens from superior Italian stock, virgins, 30c; untested, 60c; tested, \$1.00; by return mail.

YOUNG'S BEE-SUPPLY HOUSE, Boonville, Mo.

FOR SALE.—50, or less, 1 $\frac{1}{2}$ -story 8-frame hives, supers, holders, fences, complete (no sections), painted, and in perfect condition; been used one season, good as new; \$1 per hive; changing to 12-frame extracting-hives. A. W. SMITH, Birmingham, Mich.

FOR SALE.—Special sale of sections—Wisconsin basswood—equal to the best, No. 1, \$4.20; No. 2, \$3.70 Root Dovetailed and Danz. comb-honey hives, and all kinds of supplies on hand. Italian queens and bees.

H. S. DUBY, St. Anne, Ills.

FOR SALE.—200 eight-frame L. hives nailed and painted, some used a little, 75c each; 400 supers to match, nailed and painted, with best hive-ventilator known, 25c each; section foundation, 50c per pound.

F. H. MCFARLAND, Hyde Park, Vermont.

FOR SALE.—Second-hand empty sixty-pound honey-cans, two in a crate; in lots of 10, 40c per crate; 25 or more crates at 35c per crate.

THE FRED W. MUTH COMPANY,
51 Walnut St., Cincinnati, O.

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,
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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.

Poultry Offers.

FOR SALE.—W. P. ROCK EGGS, \$1.00 per 15; Fishel strain. J. F. SMITH, Waynesville, Ill.

FOR SALE.—S. C. W. Leghorn, also S. C. B. P. Rock eggs, 75c per setting. Homing pigeons, colors to suit, 75c per pair. R. H. COLEGROVE, Remus, Mich.

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

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.—50 black queens, 25c each; 50 hybrids, 35c each; 100 fine, bright yellow (warranted pure stock) Italian queens, 75c each. Order now.

W. L. WOMBLE, Raleigh, N. C.

Bee-keepers' Field Day!

Tuesday, June 26, 1906.

Jenkintown, Pa.

So great was the enthusiasm at the meeting held at the Jenkintown exhibition apiary last September, and so numerous were the calls from different parts of the United States, asking us when we would have another such meeting, that it has led us to plan for even a larger and more complete demonstration than was ever held in this country before. The kindergarten method of seeing as well as reading is up-to-date, and we now desire our readers to see these expert writers demonstrate what they say.

THE MEETING will be held at our exhibition apiary all day, commencing at 9:30 A. M., and continuing until 6 P. M., gathering under the trees, with the operators on elevated platforms; also several large circles roped off around the hives in different parts of the apiary, giving the opportunity for a large number of people to see the manipulations around each circle at one time. From the advices we have already received, there is prospect of a much larger attendance this year than ever before. We have also engaged a large hall in the town, within a few minutes' walk from the apiary, where we will meet should it rain, and also hold an evening meeting. Dr Lyon will exhibit here live bees on the screen, moving pictures, etc. The evening session will give a fuller time for discussion and review of the work of the day.

PROGRAM.—At this date we can not make up the full program, but the following is an outline of just a few of the features:

Mr. E. W. Alexander, Delanson, N. Y., is expected to demonstrate his advanced method of increase, cure for foul brood, and other features. We have received more inquiries for fuller explanations and more satisfaction expressed regarding this writer's articles than any thing we have heard of for a long time.

Mr. E. L. Pratt, the queen-expert—his method in full of breeding queens, comprising nursery hives, baby nuclei, swarming, increase, and his way of caging queens, etc., showing how queens can be handled from the thorax without injury.

Dr. E. F. Bigelow, Stamford, Conn., with his Educational hive and the Pearl Agnes hives, will explain fully the instructions to educational institutions, the best method of making science practical.

Prof. H. A. Surface, of the Department of Agriculture of the State of Pennsylvania, will tell of the best ways to interest beginners in bee-keeping, and assisting in transferring wild bees from box hives to standard frames.

Mr. W. K. Morrison, who has traveled thousands of miles in the west Indies and South America since leaving this country twelve years ago, will be present with a colony of the wonderful stingless bees from South America; will show their habits, mode of constructing

their cells, honey-receptacles, mud-wax enclosures of their houses, and their attitude of defense without stings; (this alone is worth coming a long journey to see); to give a description of the various bees of the world, with their local conditions and environments.

Mr. W. L. Coggshall, of West Groton, N. Y., showing his celebrated rapid method of extracting honey and handling bees (getting lots of stings); extracting stings with forceps for medical purposes.

Queen-hunting contest by experts.
Forcing a swarm of bees to alight on the naked arm.
Demonstration by actual results of the different plans of hive construction for comb and extracted honey; tiering-up, etc.

A miniature baby-nuclei apiary, showing queens in the different processes of development; their care, etc.; and many other features too numerous to mention.

PLACE.—Jenkintown, Pa., a delightful suburb, ten miles from center of Philadelphia, and the home of Mr. Wm. A. Selser, is reached by the Baltimore & Ohio R. R. from the south; L. V. R. R. from the north; New Jersey Central R. R. from the east, and the P. & R. R. R. from local points. Parties coming through Philadelphia can take a Willow Grove trolley on either Eighth or Thirteenth Sts., and for 10c can ride direct to the field, getting out at the Jenkintown toll-gate.

ENTERTAINMENT.—Arrangements have been made by the Root Co. to provide, free of cost to the visitors, lunch at noon and evening; and for those coming from a distance, arrangements will be made at one of the good hotels for accommodations to stay over night, at the rate of \$1.50 to \$2.00 per day. Reduced rates on the railroad can be had by writing any of the undersigned. We are negotiating with the railroad to run a special train from New York city to the apiary, costing each one \$2.40 for the round trip, and a special train from Washington (details to be given later).

HONEY EXHIBIT.—Bee-keepers are asked to bring samples of their 1906 comb and extracted honey. A prize will be given for the best exhibition of each. We also desire to give a part of the meeting to a general discussion on the 1906 honey crop thus far compared with the last ten years.

Further information and particulars will be given by writing to

The A. I. Root Co., Medina, O.
L. W. Boyden, 44 Vesey St., New York. Phone—543 Cortlandt.

H. G. LaRue, 1100 Maryland Ave., S. W., Washington, D. C. Phone—6021-M.

Wm. A. Selser, 10 Vine St., Philadelphia, Pa. Phone 2443-A Market. Jenkintown. Phone—19-A Ogontz.

Gentlemen:—

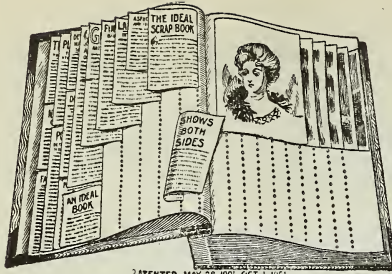
This will advise you of my intention to be present at the Bee-keepers' Field Day, June 26.

NAME _____

ADDRESS _____

If others attend with you, state number ()

(The above, if filled out and sent us *at once* will greatly assist us in laying our plans for your entertainment.)



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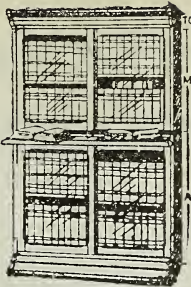
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GOLDEN

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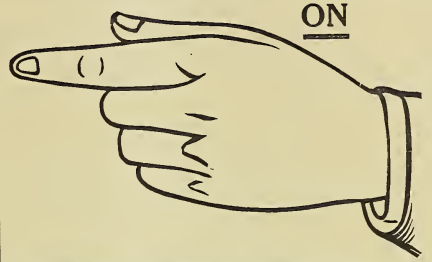
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Carl F. Buck

Augusta - : - Kansas



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