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CHRISTMAS - 1905

A detailed illustration of a clover plant with several large, pink, spherical flower heads and green leaves. Several bees are depicted in various positions: one is on a flower head, another is flying above, and others are scattered throughout the scene. The background is a light, neutral color.

GLEANINGS
IN BEE
CULTURE

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

WESTERN EDITION

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Catalog Free

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Headquarters for

Bee - Supplies.

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

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Seven per cent Discount For Cash Orders Received in December

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, and CARNIOLANS. Can furnish NUCLEI beginning of June. For prices refer to catalog, page 29.

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-rail 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.

CINCINNATI.—The demand for comb honey is relaxing to some extent, owing to the majority of the trade being well supplied. All fears of a comb-honey famine have been allayed. We quote fancy white comb honey at 14 to 16. Extracted honey is in fair demand. Quote amber at 5½ to 6½, according to the package and quality. Fancy white and white-clover extracted honey brings 6½ to 8½. We are paying 28½ delivered here for choice yellow beeswax. We wish to call the attention of the producer to the above quotations, who mistakenly expects to receive these prices for his product. The above are our selling prices for honey.

Dec. 5.

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

MILWAUKEE.—The supply of fancy comb honey is very moderate on this market at this time, and some old crop is yet on hand, and is hard to sell; but it will work off in the absence of a full supply of new crop, which demands much better values, and also sells slowly in consequence. Extracted is in fair demand, and has sold well on this crop, and will sell from this on. We think shipments will do well, especially for white clover or linden, although a demand exists for all grades. We quote: Fancy 1-lb. section, new, 14 to 16; fancy 1-lb. section, old, 10 to 11; inferior, white or dark, old, 8 to 9; extracted in barrels, cans, pails, and kegs, white, 7½ to 8; dark, 6 to 7. Beeswax, 28 to 30.

Dec. 1.

A. V. BISHOP & Co.,
119 Buffalo St., Milwaukee, Wis.

ATLANTA.—The shortness of the honey crop is beginning to be felt rather sharply in this section, and we are feeling some difficulty in filling orders. We quote: Fancy white, 12½ to 14; A No. 1, 11 to 12½. Beeswax, brisk at 27½ to 30.

Dec. 6.

JUDSON HEARD & Co.,
Atlanta, Ga.

KANSAS CITY.—The honey market is rather dull here on account of being well supplied with California honey. Fancy white comb honey, 24 sections, is selling at \$3 25 per case. Fair demand for extracted at 6 to 6½. Beeswax, 25.

Dec. 7.

C. C. CLEMONS & Co.,
Kansas City, Mo.

NEW YORK.—The demand for comb honey continues to be fair for all grades. Prices practically remain the same. We quote fancy white at 14 to 16; No. 1 at 13; No. 2 at 12, and buckwheat at 10. Extracted honey is in good demand, especially California, with large supplies. We quote white at 6½ to 7; light amber, 6; buckwheat extracted, 5½ to 6; Southern at 50 to 60 cts. per gallon, according to quality. Beeswax is firm and steady at 29 to 30.

HILDRETH & SEGELKEN,
265-7 Greenwich St., New York.

TOLEDO.—The market on comb honey remains firm, and the receipts are not quite equal to the demand. We quote fancy white comb, 15 to 18; No. 1, 14 to 14½, with little demand for amber. Extracted white clover, good demand at 6 to 6½; cans, 7 to 7½. Amber in barrels, 5 to 5½; cans the same. Beeswax, firm at 28 to 29. The above are our selling prices.

Dec. 7.

GRIGGS BROS.,
Toledo, Ohio.

BOSTON.—We quote: Fancy white, 16; A No. 1, 14 to 15; No. 1, 14; No. 2, 12 to 13. Extracted, 6 to 8, according to quality, with a fair demand. The very large quantities of honey carried over from last season are undoubtedly affecting the sale and prices.

Dec. 9.

BLAKE, SCOTT & LEE,
31-33 Commercial St., Boston, Mass.

DETROIT.—Honey in good demand, and very few or no large lots are offered. Fancy and A No. 1, 14 to 15; No. 1 and No. 2, 12½ to 13; dark, A No. 1 and No. 1, 11 and 12. Extracted, 7 to 7½ for white. Beeswax, 26 to 28.

Dec. 9.

M. H. HUNT & SON,
Bell Branch, Mich.

ST. LOUIS.—There is a brisk demand for all grades of new comb honey, as this market is almost bare. We quote: Fancy white, 15 to 16; No. 1, 13 to 14; amber, 12 to 13. Extracted: The arrivals have been very liberal from California. Light is quotable at 6 to 6½ in five-gallon cans; white, 7; Southern, 5 to 5½ in barrels, and 5½ to 6 in cans. Beeswax, 28. R. HARTMANN & Co.,

Dec. 7.

14 South Second St., St. Louis, Mo.

SCHENECTADY.—Up to present time the demand for both comb and extracted honey has been good; but we expect the usual falling-off during the holiday rush. We quote fancy white, 14 to 15; No. 1, 13 to 14; mixed grade, 11 to 12; buckwheat, 11. Extracted, light, 6½ to 7½; dark, 6 to 6½. The latter is in best demand.

Dec. 6.

CHAS. McCULLOCH,
Schenectady, N. Y.

CHICAGO.—The trade in best grades of white comb honey has been fair, yet retailers take only small amounts at a time. This honey brings 14 to 15; other grades are difficult to place at from 1 to 3 cts. per lb. less. Extracted is selling at 7 to 7½ for white, and amber 6½ to 7; dark, 5½ to 6. Beeswax, when clean and of good color, 30.

Dec. 6.

R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

FOR SALE.—500 cases of light amber extracted honey, at 5c, f. o. b. Selma, Cal. Gathered mostly from alfalfa.

O. L. ABBOTT, Cor. Secretary
Cal. Bee-keepers' Association.

FANCY WHITE EXTRACTED HONEY

CRATES 2-60 LB. CANS; 8c

TWO OR MORE CRATES; 7½

LARGER LOTS; WRITE FOR SPECIAL PRICES. ALL
F. O. B. CINCINNATI. CASH WITH ORDER. SAMPLES 10c
TO PAY POSTAGE.

THE FRED W. MUTH CO.

No. 51 WALNUT STREET, CINCINNATI, OHIO.
SEND FOR CATALOG OF BEE SUPPLIES WITH SPECIAL DISCOUNT.

FOR SALE.—Three barrels of buckwheat extracted honey; new barrels; weight, 390 lbs. net each, at 6c on car. Sample free. E. D. TOWNSEND, Remus, Mich.

FOR SALE.—Clover or buckwheat extracted honey. Write for price, and quantity desired. Sample, 10 cts. Comb honey all sold. C. B. HOWARD, Romulus, N. Y.

FOR SALE.—Buckwheat honey, in 60-lb. cans, at 6 cts. C. J. BALDRIDGE, Homestead Farm, Kendaia, Seneca Co., N. Y.

FOR SALE.—Extracted honey—fancy white, 7 cts.; fancy amber, 6½ cts.; ¼ cent less in five-case lots or more. C. C. CLEMONS & Co., Kansas City, Mo.

FOR SALE.—Choice clover and buckwheat honey in 60-lb. cans, at 7 cts. for clover and 6 cts. for buckwheat. G. H. ADAMS, Mill St., Bellevue, Schenectady, 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.—Buckwheat honey in 160-lb. kegs, 5½ cts. IRA WILSON, Ovid, N. Y.

FOR SALE.—Finest quality of white sage and orange bloom honey, 6 cts. Wild alfalfa and buckwheat, 4¾ cts. Discount on large lots; all in new cans. FRANK McNAY, Redlands, Cal.

FOR SALE.—2000 lbs. buckwheat comb, capped nearly as white as clover, 12c per lb.; extracted, 7 to 8¼c, according to quantity and quality wanted. Sample for dime. QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

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.—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.—Comb and extracted honey. State kind, quantity, and how put up.

CHAS. KOEPPEN, Fredericksburg Va.

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

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

WANTED.—Comb honey; Michigan preferred. W. D. SOPER, Jackson, Mich.

WANTED.—Clover and basswood extracted honey; also No. 1 amber honey. Send sample, and state quantity and price, delivered at Preston.

M. V. FACEY, Preston, Fillmore Co., Minn.

WANTED for cash.—About 200 pounds fancy basswood comb honey, 4x5 plain sections preferred. Address stating price. JAMES SOWARDS, Pikeville, Ky.

WANTED.—Comb honey at improved prices. Write us what you have to offer.

H. R. WRIGAT, Albany, N. Y.

WANTED.—Comb honey, nuts, beans, and popcorn. C. F. PERKINS, Columbus, Ohio.

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.

The American Bee-keeper

—NOW IN ITS 16TH YEAR—

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A Magazine edited by two of the most experienced, practical, scientific, and able bee-keepers in this country.

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Edited by Harry E. Hill, Ft. Pierce, Fla.; Arthur C. Miller, Providence, R. I.

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The American Bee-keeper, Box 127, Falconer, N. Y.

Be Good to Yourself in 1906!

BY READING

THE WEEKLY AMERICAN BEE JOURNAL

BY CARRYING

**A Novelty Pocket-knife and
a Gold Fountain Pen. . .**



(This cut
is the full
size of the
Knife.)



NOVELTY POCKET-KNIFE

(Name and Address on one side—Three Bees on the other side.)

Your Name on the Knife.—When ordering, be sure to say just what name and address you wish put on the Knife.

The Novelty Knife is indeed a novelty. The novelty lies in the handle. It is made beautifully of indestructible celluloid, which is as transparent as glass. Underneath the celluloid, on one side of the handle is placed the name and residence of the owner, and on the other side pictures of a Queen, Drone, and Worker, as shown here.

The Material entering into this celebrated knife is of the very best quality; the blades are hand-forged out of the very finest English razor-steel, and we warrant every blade. It will last a life-time, with proper usage.

Why Own the Novelty Knife?—In case a good knife is lost, the chances are the owner will never recover it; but if the "Novelty" is lost, having name and address of owner, the finder will return it; otherwise to try to destroy the name and address would destroy the knife. If traveling, and you meet with a serious accident, and are so fortunate as to have one of the "Novelties," your POCKET-KNIFE will serve as an identifier; and, in case of death, your relatives will at once be notified of the accident.

How to Get this Valuable Knife.—We send it postpaid for \$1.25, or club the Novelty Knife and the American Bee Journal for one year—both for \$2.00. (Allow two weeks for Knife order to be filled.)

A SOLID GOLD FOUNTAIN PEN

Finally, we have found a good Fountain Pen that is reasonable in price. The manufacturers of this pen say that if you pay more than \$1.25 for other fountain pens, it's for the name.

This pen is absolutely guaranteed to work perfectly, and give satisfaction. The Gold Nibs are 14 kt., pointed with selected Iridium. The Holders are Para Rubber, handsomely finished. The simple feeder gives a uniform flow of ink. Each pen is packed in a neat box, with directions and Filler.

We mail this Gold Fountain Pen for only \$1.25, or for \$2.00 we will mail it and the weekly American Bee Journal for a whole year.

☞ Sample copy of the American Bee Journal free; trial trip of three months (13 copies) for 20c; regular yearly price, \$1.00.

Address all orders to



Worker



Queen



Drone



$\frac{2}{3}$ size

GEORGE W. YORK & CO., 334 Dearborn St., Chicago, Ill.

Two Years for \$1

AFTER a man succeeds in publishing a good journal, the next step is that of getting it into the hands of the people, of getting them to reading it, and becoming acquainted with its merits. This can be done by advertising, sending out sample copies, circulars, etc. All this costs money. I think I am safe in saying that for every new subscriber I have received I have paid out \$2.00 in advertising; hence I have often said that a publisher of a good journal could afford to send his paper one year

free, for the sake of getting it into new hands. It would cost no more than other forms of advertising, and would be very effective, but, for obvious reasons, this plan could not be put into practice, but I am going to come as near to it as I can. I have between 200 and 300 complete sets of back numbers for the present year, and so long as the supply holds out I will send a complete set, and the rest of this year free, to any one who will send me \$1.00 for Review 1906.

The Review for 1905

It is impossible, in this space, to more than touch briefly upon a few points. Perhaps the leading feature for the year is a series of articles on keeping bees in large numbers.

10,000 COLONIES

in the aggregate are owned by a dozen men whose articles appear in the Review for this year. No one of these men has less than 400 colonies, and one has 1700! These men have kept bees in large numbers. They have succeeded. They have made money. They point the way for others. They tell how many colonies in the home yard will justify the starting of an out-apiary; how far apart out-apiaries ought to be located; how locations should be selected; the best methods of traveling from apiary to apiary; how hives and increase shall be secured; what kind of honey shall be produced; how to solve the swarming problem; what are the greatest obstacles, and how to overcome them.

Perhaps the one article that attracted the most attention was by H. G. Sibbald, of Canada, entitled

Ahead of Shook Swarming

The article described a method possessing the following advantages: No shaking of the bees; no handling of the brood; no possibility of the queen being in the wrong hive; no danger of after-swarming; no increase unless desired (but easy if wanted); no queen-cells to hunt up and destroy, yet the whole force of bees may be kept together the whole season,

and each colony may be requeened with a queen from a naturally built cell.

There is no doubt that there are thousands of

DOLLARS WASTED

in the rendering of wax that might be saved if proper methods were employed. The best article that I ever saw on the subject was written by Mr. E. D. Townsend, and appeared in one of the issues of the Review for this year. The number of new and practical ideas furnished by him in regard to the profitable and comfortable rendering of wax will be a surprise even to the veterans. He also illustrates and describes a wax-press that any person of ordinary ability can make for three or four dollars, and it is the equal if not the superior of a high-priced, factory-made press.

TIP THE HIVE OVER

so that it will rest upon its back end, use a little smoke along the lower edges of the brood-combs, and it is an easy matter to determine if the bees are building queen-cells and getting ready to swarm. The only difficulty is that the supers are likely to slide off, but Mr. F. G. Cyrenius has invented a simple, cheap clamp that can be put on the hive in five seconds, no matter how many supers there are upon it, and it will hold the supers on so securely that the hive might be rolled about the yard without their becoming loose. By this method it is an easy matter to examine 100 colonies in an hour without ever opening a hive. It was illustrated and described this year in the Review.

Advanced Bee Culture

A NEW edition of this book is now out, and, without doubt, is the most beautifully gotten up bee-book that has ever been published in this country. It is printed on heavy enameled paper, profusely illustrated with beautiful half-tone engravings, and the front cover embellished with a green vine of clover—a golden bee sipping honey from one of the snow-white blossoms.

Most important of all, however, is the simplicity and freshness, the inspiration and real *helpfulness* of its contents. From years of experience as bee-keeper and

editor, I have told in plain simple language what I believe to be the most advanced methods of keeping bees for *profit*, from early spring to the end of the year. The book is almost wholly re-written, and contains nearly twice as much matter as did the former editions. In short, every man who would make the most money out of bee-keeping, as a business, *must* have the book.

The price, postpaid, is \$1.20; or I will send the Review for 1906, and the back numbers for 1905 as long as the supply holds out, for only \$2.00!

W. Z. Hutchinson, Flint, Mich.

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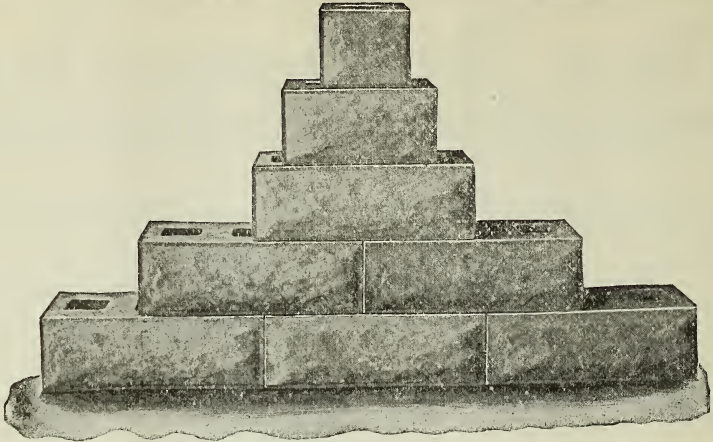
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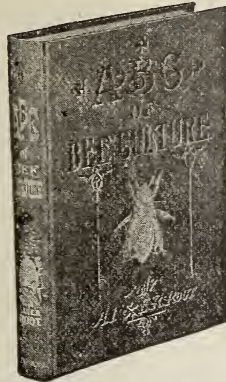
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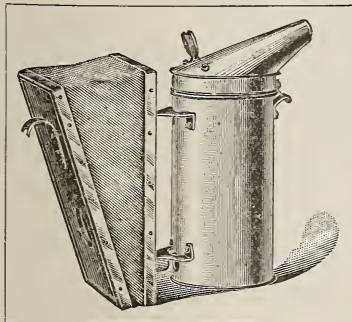
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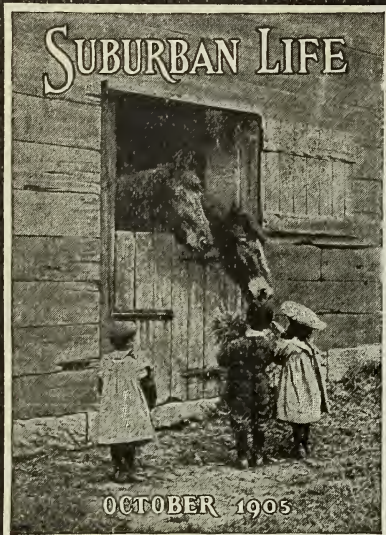
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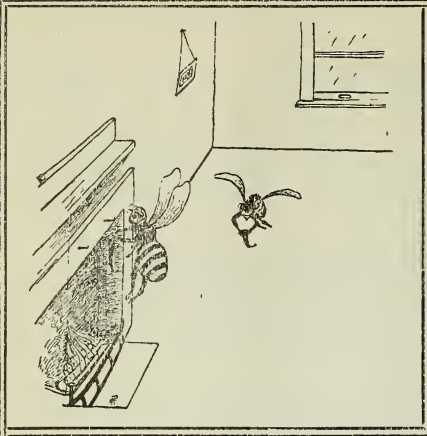
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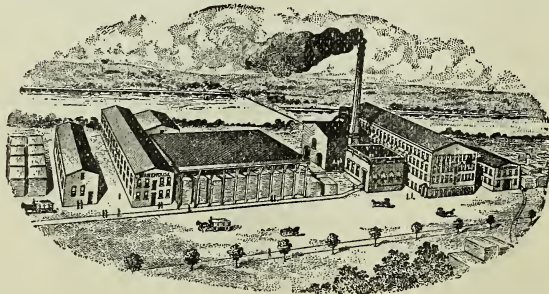
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And the world is full of cheer,
We extend to all in beedom
Best wishes for the coming year.



G. B. LEWIS COMPANY

Bee-keepers' Supplies

WATERTOWN, WISCONSIN, U. S. A.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS

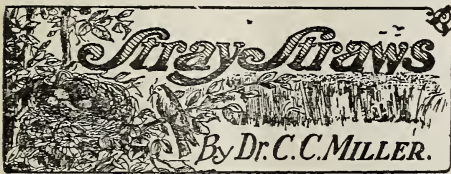
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No 24



REFERRING to that alfalfa question, p. 1241, would it not be well to emphasize the need of bees to secure alfalfa seed?

LOOK OUT Ernest, or you'll get a lot of Canucks after you for hinting that bees will not winter well on combs sealed clear down to the bottom, p. 1250. They're probably all right if you have plenty of room for the bees to cluster under the bottom-bars.

LATEST FASHION in this locality demands hay-racks as level as a floor; so this year my bees were brought home on a hay-rack, 48 hives on the floor, and 11 under it—59 at a load. Strips nailed down to keep hives apart; no hay or other packing, but a pair of heavy springs under all.

S. E. MILLER, in *Progressive*, objects to calling honey "white"—wants it called "clear." Of course, we'll tell him to go and sit down in a corner and keep quiet; but when he goes off grumbling that his cistern isn't filled with white water, and asks, "Why does not the poet or novelist speak of the white babbling brook?" what under the sun can we reply to such a man?

WM. M. WHITNEY, p. 1240, raises the tanging question again. As I think you are a bee-keeper rather than a naturalist, friend Whitney, I venture the remark that it is not a question as to whether bees hear; it is pretty certain that they do hear, and that they hear sounds inaudible to the human ear; but the question is whether those sounds have the slightest effect in making swarming bees cluster.

DR. D. E. LYON writes that not only are his Caucasians of almost incredible gentleness, but good gatherers, and good defenders of their homes. One colony took up

25 or 30 pounds of syrup in a night and part of a day. Per contra, a queen-breeder who got a queen direct from Washington speaks unfavorably of them. Are there Caucasians and Caucasians?

[Yes, just the same as there are Italians and Italians. While their reputation is most excellent for gentleness, there may be some specimens quite the reverse.—Ed.]

IS THERE NOT a difference between comb and extracted as to early sales? "New comb honey" is a common sign in grocers' windows, but I never saw a sign "New extracted honey."

[No, for the reason that the word "extracted" is not even yet commonly known to the public. If new liquid honey were for sale it probably would be denominated "new honey." But I suspect that locality has something to do in the matter. In your vicinity comb honey only is produced, hence you would not be likely to see the sign "New Extracted."—Ed.]

NOTCHES for spacing frames like those on p. 1249 are objectionable, but I don't believe. Mr. Editor, there would be any unequal spacing from hauling. Remember that a frame must move sidewise more than 5-8 inch before it can get into the wrong notch, and there's no need to have that much play. Even if there were so much play, it would take a tremendous jolt to throw a frame out that much.

[I do not think you quite understood. I meant that a jolt of the wagon might cause several frames to hop out of their notches, resting on the rabbet between the notches or into other notches not their own. This, however, was a minor objection.—Ed.]

PROF. COOK says, p. 1122, that Irish farmers pay \$5 an acre annually for rent and taxes, and asks, "What would our American farmers do under like circumstances?" When I read that I went down to the road and asked a farmer, "What cash rent do farms bring?" He answered, "Well, rent isn't so high here as further off—maybe \$4 on the average. I'm offered \$15 an acre for some that's 2½ miles from town; but

it's extra good new land." In the last Mar-engo paper I see that the Pease farm has been leased for three years at an annual rental of \$5 an acre. It is five miles from town, and contains eighty acres. Good farm, but I don't know that it's better than the average.

EDITOR HUTCHINSON celledared his bees Nov. 4 to 10. Sorry—at least unless his weather has been different from mine. My bees have had a number of flying days since then. His were brought from an out-apiary, and then celledared without a flight. He thinks they don't need a flight after hauling. They may stand it, but I've always preferred hauling them home early enough to allow a flight. This year they were brought home Oct 19. Next day they flew as in a first spring flight while the bees in the home apiary remained quiet. What but the hauling made them need that extra flight?

E. W. ALEXANDER, p. 1238, says, "No man ought to bother trying to produce honey in a poor location," and I suppose any thing less than a fairly good location is counted poor. His "fairly good location" is one where, with the best management each colony, spring count, yields an average net income annually of \$21.25. If his view should prevail, the business would be revolutionized, for so few would be left in the business that prices would go skyward, and none but the rich would know the taste of honey. But would it be a good thing for the country at large if no one should bother trying to produce honey who has not what Mr. Alexander calls a fairly good location?

A. I. ROOT, p. 1231, says the statement that only 7 of the 83 bee journals of the world are published in this country "gives us an idea of how little we are." Not an entirely correct idea, Bro. Root. For of the 75 published across the water the larger part contain scarcely any thing except matter copied from the smaller number of better ones; and even in the better class you will find page after page the same, from the fact that the same reports of conventions are contained in nearly all.

[The journals in this country, without a single exception, publish almost entirely original matter, and each has a field of its own. If the European readers would take only the best journals, the "copyists" would soon be ruled out of existence. This would enable the survivors to do better work because of a larger clientage and better profits.—Ed.]

GLEANINGS, if I understand correctly an item, p. 1123, wants bee-keepers to secure correction of comb-honey canards in cook-books, etc., saying, "It does not do much good for a manufacturer of bee-supplies to write to these people, because they conclude he has 'an ax to grind.'" But, dear GLEANINGS, hasn't the bee-keeper still more "an ax to grind"?

[Yes, in a way; but the concern that has several hundred thousand dollars invested in a certain line has a good deal bigger "ax to grind" than a lone farmer who may have only a hundred dollars so invested. Then, too, the protest from several hundred or a thousand small investors in the business would have a good deal more weight than the protest of one large one, but the point I had in mind was that the stationery of a large manufacturer of bee-supplies having the protest is apt to be suggestive of a "big greedy corporation" that is seeking to feather its own nest independently of the desires and rights of the small user of those supplies and hence the protest is ignored.—Ed.]

My GOOD FRIEND from across the water makes a good showing for an increased amount of honey collected on account of protection, p. 1238. Friend Simmins, I don't know but you are entirely right from your standpoint, "in regions that have cool nights." At any rate, I can easily believe that a temperature low enough would hinder the building of comb. Just how low it would have to be, and how much the hindrance, are things I should like to know. I have had comb built in a surrounding temperature of 45 degrees, but I don't believe that's the best temperature. But in this country we don't generally have nights cool enough to trouble much in the harvest season. It is probably a rare thing for my bees to have a night while gathering when protection would make any difference as to comb-building. The question is an important one, and our experiment stations ought to give us a definite answer. That would be better than discussion, although discussion may help.

[If your climate is such that you have hot nights during the honey-flow, then you are a good deal better off than we are, where the general temperature through the winter is higher, for we are troubled much by cool nights. This question of outside protecting-cases for comb honey is one that will hinge on locality. I can readily see how such protection would mean an increase in the honey crop in a climate like that of England, while in your locality, for example, it might not make the difference of one ounce. But is it true, doctor, that you generally have hot nights during the honey-flow?—Ed.]

THE reader will see by the last page of this issue, which numbers 1370, that during the year we made a big increase in the size of our volume all for the price, \$1.00. A few years ago our issue was 32 pages and a cover, making in all 864 pages for the year. This gives us an increase of 506 pages. Next year will not run behind. But we do not wish to make any promises in advance as to how much better we can do.

Alexander the Great.

By W. Root.



How big was Alexander, Ma,
That bee-men call him great?
What's all this rumpus with his bees,
(Down in the Empire State?)

Is he so big that he can stand
Within his bee-yard dry,
And when his bees start out to swarm,
Can snatch them from the sky?

And do his bees have awful jaws,
And tongues that reach an inch,
To draw the honey from the tubes
That common bees cant pinch?

Why can he do what others cant
(At least so folks believe),
Unless he's got some secret great
Tucked up within his sleeve?

No, no, my child! he's not so big,
Nor does he stand so high;
He's 'bout as big as Uncle James,
Or something like A. I.

His bees are good---Italians fine
Just such as all may raise;
But in the way he handles them
Is where he earns his praise.
Of course the fields around are good,
And full of nectar sweet;
Kind Providence has blest the place
With oceans of buckwheat.

But constant work alone, my boy,
Bestowed on bees with skill,
Will put the honey in the hives,
And empty coffers fill.

Learn Nature's ways, then follow them,
For they are best, my son;
Then you may have as good success
As he of Delanson.



MURRAY



What are the bees doing in the North at this time? They can't do what ours are doing here in Southwest Texas! Broomweed is in full bloom, covering the entire prairies, and the bees are storing honey for winter supplies. The summer has been a severe one on bees, and the colonies left are not very strong. Since the fall flow (a slow, steady one for over two months) brood-rearing has been kept up, and the colonies go into winter in the best possible condition—an ideal one—with a lot of young queens and an abundance of stores. What a harvest there will be next year if the season is favorable!

SOUTHWEST TEXAS.

Are you interested in *that* country of Southwest Texas? If you are you will want to get better acquainted with it—its location, rivers, railroads, counties, towns and information about each of these. You want something that will help to give an idea of just what the country is. Hundreds of letters that I have received the past few months are proof of this.

In answer to these a map was gotten up, and here it is. Keep it always ready, in a place where you can find it. Remember it was in the Christmas number of GLEANINGS. This will help you to find the map. Frequent reference will be made to this map in articles during the coming year. A trip of several weeks this fall has given me an opportunity to learn of some things that are done only in Southwest Texas. A thorough study of the map will enable you to understand subsequent articles much more fully.

LOCATION OF SOUTHWEST TEXAS.

This section, divided from the rest of the State, as given in the map, is my own, and is to be applied simply as a division according to apicultural resources that are very much alike in the whole section. North and east of the boundary lines the conditions are very much different for bee-keeping. A different flora also begins there. The division on the map, however, is by no means a distinct one, as the natural dividing line between the two divisions may extend both further east or north for some distance into adjoining counties at some places, while the same may not extend to the outer boundary-line of the counties included in the map. For convenience, the outside boundaries of the counties have been used as a dividing line, and, as well as I could ascertain, the division is close enough to suit our purpose.

Southwest Texas lies between the 97th and 101st meridian of longitude, extending slight-

ly east of the 97th. North and south it extends from a little below the 26th to nearly the 30th parallel of latitude. The distance from the northernmost boundary of Bexar County (pronounced "Bair") to the extreme southern line at Brownsville is 290 miles. The width of this section of country is about the same distance from east to west. There are twenty-six counties—Bexar, Medina, Uvalde, Kinney, Maverick, Tavalla, Frio, Atascosa, Wilson, Karnes, Goliad, Bee, Live Oak, McMullen, La Salle, Dimmit, Webb, Encinal, Duval, Nueces, San Patricio, Refugio, Cameron, Hidalgo, Starr, and Zapata—and nearly every one of these is adapted more or less to bee-keeping, some of them containing many acres of fine bee-pasture without bees.

THE RIVERS AND RAILROADS.

The section is traversed by several large streams with their tributaries. The Rio Grande forms the western boundary. In the eastern portion the San Antonio and the Nueces in the central part, make their way through the entire length, and end in the Gulf of Mexico. It is along these rivers and along the railroads that most of the bee-keepers are located. Of the railroads there are three main trunk lines, spreading out from San Antonio as a center. The San Antonio and Aransas Pass runs south to the Gulf; the International and Great Northern to Laredo, and makes through connections to Mexico; the Southern Pacific, through the northern part, goes to El Paso, and is the main outlet to the Pacific-Coast country. All these extend east of San Antonio and make through connections at their terminals as well as at other connecting points to all parts north and east.

Besides the above, the Mexican National and the St. Louis and Mexico ply the southern parts and connect with the San Antonio and Aransas Pass. Other railroads will be built as soon as the country becomes settled more, thus opening up much new bee-keeping and other valuable territory, and providing a better outlet.

IN ANSWER TO NUMEROUS LETTERS.

Many of the inquiries sent to me ask for information about Southwest Texas. It is impossible for me to give them a personal reply, consequently this means is resorted to in answering all of them at one time. Other information will be given in GLEANINGS from time to time throughout the year, and to this I should like to call the attention of the interested bee-keepers.

In reply to the letters in regard to Southwest Texas I believe I can do no better than to refer you to a copy of the "Texas Almanac," published by the Galveston and Dallas *News*, of our State. The almanac gives a description of each of the counties of Texas, their soils, water supply, climate, topography, resources, industries, and products; also information concerning population, schools, churches, transportation facilities, etc. These

county descriptions constitute the leading features of the almanac; but there is much other valuable information concerning the crops, resources, and industries. It may be obtained directly from the publishers, A. H. Belo & Co., Dallas, Texas, for 31 cents, postpaid.

To those who are seeking to locate in Texas it would be best to write to the Land Commissioner for a list of school lands now being sold by the State. Six million acres of public school lands were placed on the market by the State of Texas, Sept. 1, 1905. Other lands will come on to the market from time to time as the leases under which they are held expire. Prices generally range from \$1 to \$3 per acre, and in some cases more. The terms are one-fortieth cash, the remainder in forty years with interest at 3 per cent. The lands may be held forty years by making the original payment of one-fortieth down and paying the interest annually.

Lists of the tracts of land going on the market, and directions for applying for the same, may be obtained by writing to Hon. J. J. Jewell, Commissioner of the General

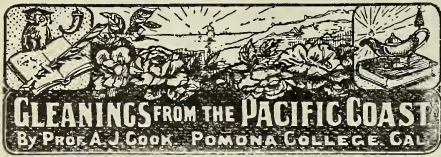
Land Office, Austin, Texas. He will, from time to time, publish additional lists of lands to come on to the market, and will supply these free of cost to the applicants. Persons who are desirous of securing information concerning the counties in which the said lands are located can get this by referring to the Texas Almanac above referred to.

To all who are thinking of making a change I should like to give a word of caution. It is not every man who should come to Texas. If any man has a good home, and is making a comfortable living, and has reasonable hopes of a prosperous future for his children, he ought not to pull up stakes there and go to unknown lands. If land at reasonable prices can not be bought around him to provide homes for his children in the future, as they grow up, or if climatic or agricultural conditions are unfavorable, and a change will be to his advantage, then go to the new country. Before doing this, look the ground over carefully.

Texas wants progressive people. She needs them to develop her industries, bee-keepers not excepted. In my travels I have seen many localities that afford abundant room



for many bee-keepers. Of these more will be said later, always trying to give the bad side as well as the good.



While on the ocean, *en route* for Europe, I had the pleasure to read a book that I wish to recommend to the readers of *Gleanings*. It is called

THE FAT OF THE LAND.

The author is John Williams Streeter, and the style of the book is the same as "Blessed Bees," which, it will be remembered, was a fascinating recital of the experience of one John Allen, which was so realistic that many supposed it was actual fact, though it was a too roseate picture of what might possibly occur, but what would be exceedingly improbable. In this later book John Williams is the chief character and he, because of over work as a successful physician, breaks in health, and so, with abundant means, he purchases a farm, makes a thorough study of the principles of agriculture, and achieves a brilliant financial success. He also regains fully his lost health. I do not know whether or not this is the recital of actual experience; but I am sure that the methods described will bring success. I see no reason why the financial success as pictured in the book might not be realized to the full. Mr. Williams kept strictly in line with the principles of land culture that have been determined by our Department of Agriculture at Washington and the several Experiment Stations. He worked to improve steadily the fertility of his soil, and aimed to sell only such products as would not impair such fertility.

I am the more ready to call attention to this volume, as it is not only full of valuable suggestions that will help to bring success in any line, but I have known several cases in Southern California that have been as striking in the way of phenomenal success as the experience of John Williams. I believe the success of Mr. C. C. Chapman in orange culture would even distance the figures given in "The Fat of the Land." Mr. Chapman, to my certain knowledge, has won his proud success by keeping in touch with just such principles and methods as those which pushed Mr. Williams to the very front. All this is most pleasurable to think upon; for, as we know, agriculture is the very basis of all national prosperity, and that, with its advance, progress will be pushed in all lines. When farmers are thoroughly taught as to principles and methods, and will practice as best they

know, then they will leap forward with prodigious bounds, and all other activities will feel the impetus from this progress. American agriculture to-day leads the world because it uses brains more than elsewhere. We shall go on to better performance with such narration of success as is given in this interesting book. More than this, the pulse-beat of this higher, better life will reach to other lands, and so the world will be blessed.

THE HIRED MAN.

One reason why Mr. Williams reached such eminence was the fact that he had reliable, competent help from his men. They made his interest their interest. The farmer who is thus fortunate in his hired help has a most potent factor toward exceptional success. Mr. Williams, instead of acting on the principles of "Charge all the traffic will bear," used the golden rule in all his relations with his men. Of course, his employees responded to such treatment, and probably no money expended on the farm brought such large returns as that which gave to the help good—the best—food, pleasant rooms, books and papers, and made their lives on the farm pleasurable. Mr. James Mills, of Riverside, California, and Mrs. Minnie E. Sherman, of Fresno, in the same State, have both carried out the same plan on the large farms which they control, and the tremendous success which they have both achieved owes not a little to their wise and generous treatment of the hired help. I believe that the heaviest tax our farmers pay is that which comes from poor, uninterested, inefficient help. The one thing that will tend most powerfully to remove this ungracious handicap is to bring more of the golden rule into play in all the relations with our employees.

ORDERS OF INSECTS.

A subscriber asks if I will not describe the several orders of insects so that one who has not studied entomology may place them. I am glad to do this, as it is quite easy. The names of the orders come from the wing-characters, and it is the wings that are of chief use in placing the insects in the ordinal groups. But many insects in all orders are "apterous," that is they have no wings, therefore we must look further than wings to find characters that will make us able to classify correctly all insects into orders.

The kind of mouth organs is the second guide, and is easily used by the neophyte. As there are but two kinds of mouth-structure in general structure, though the details are most varied, and as there are several orders, we have to use still a third set of characters in this classificatory work. These have to do with the transformations of the insects, whether they are very pronounced, or complete, as we call them, or not so marked, when we style the transformations incomplete. The locusts and lice are always much alike, though here we find four stages

in development as elsewhere. The egg is much the same in all insects. The larval locust, or grasshopper, is small and wingless, but looks so much like the mature insect that the novice would recognize that they were the same. The next stage—the pupa—is also active, and resembles both larva and adult, though it has only rudimentary wings, and, though larger than the larva, is smaller than the adult or imago. Like the larva and imago it feeds, and so in habits the insect is much the same in all three stages. The imago is chiefly peculiar in its larger size, fully developed wings, and in being now sexually perfect. This mating of the sexes and egg-laying are usually peculiar to the adult or imago insect.

In complete transformations it is quite otherwise. The larval grub, or caterpillar, is worm-like in form, and may or may not have legs. The growth and usually the feeding occur exclusively at this period. The pupa is inactive, and resembles the imago in a general way. Of course, one not informed would not recognize these different stages as belonging to the same insect.

A word more about mouth organs before I commence the description of the orders. Most insects like bees and beetles have sharp, strong jaws or mandibles which they use for biting. These move sidewise, and are often strong and quite formidable. They have other quite complex organs, which, as in case of bees, may be transformed into a sucking organ. Yet all these mandibulate insects, as they are called, can bite and devour their food. The other insects have the mouth organs modified into a beak, or sucking-tube, with which they can suck the juice of plants or the blood of other animals. Some insects, like butterflies and moths, bite as larvæ, or caterpillars, and suck when mature. Thus the caterpillar eats the leaf while the parent moth can only sip the nectar or dew drop. Sucking insects are called suctatorial or houstillate. It would seem that it would be more serious to devour than to bleed or suck the sap; yet for a fact these sucking insects are no small enemies, and are really not second as pests.

NEUROPTERA.

The neuroptera, or lace-wings, are easily told, as the wings are thickly covered with veins. There are several main nerves or veins, and very numerous cross-veins. They always have biting mouth parts, and may or may not have complete transformations. This order is so diverse that most authorities would divide it into several orders. Here we find the darning-needles, the only one that is of practical importance to bee-keepers; the white ants, which are interesting as they remind us strikingly of bees in their life history. Here we have queen, workers, and, in addition, soldiers. The queen is even more prolific than is the queen-bee. Indeed, it is said that the queen white ant lays over 100,000 eggs a day. She is hardly more than a vitalized egg-sack, and

does nothing but lay eggs. She is fed, groomed, and cared for absolutely by the other members of this curious family. The aphids and ant lions also belong here. These latter pass through completed transformations, while the others mentioned above illustrate incomplete metamorphoses.

To be Continued.



SWEET CLOVER.

Prof. Cook's remarks on sweet clover, page 1121, should perhaps teach me to have a little more charity. In my own experience, those who have talked that way have generally been lacking in the faculty of observation, and I have usually been able to show them that they were mistaken. For instance, a cousin once came to visit us. The talk turned upon sweet clover, and she said, "But it is such a perfectly worthless thing. Nothing will eat it." I at once invited her out to the barn, where her horse was eating sweet-clover hay with a very evident relish. He had never had any before, but he ate it greedily; and after he was hitched up to go away he paid his respects to a tempting wisp of sweet-clover hay in a way that showed plainly what *his* sentiments were. I have never had a horse or cow that would not eat it readily without any teaching, especially when made into hay; but I know that some stock do not take to it readily at first. This does not prove that it is not good forage. Cattle-feeders tell us that stock just brought in from the range will often refuse to eat corn, and they sometimes have considerable trouble to get them to make a start on it; yet I never heard any one argue from this that corn is distasteful to cattle, or that it is not good feed for them.

COMB HONEY ATTACHED TO FENCES IN SUPER.

It has been my experience that bees are much more likely to attach the combs to fence separators than to plain wood separators, and that both of these are more likely to have such attachments built on them than the tin separators. I confess to a strong leaning in favor of the old-style tin separator, which is what I use almost altogether. Some bees are much more likely to build these attachments than others. When you discover this, of course the proper thing to do is to requeen with better stock.

WHY DOES COMB HONEY SOUR?

A perplexed subscriber asks on page 1142 why his comb honey sours. While it is quite possible, as the editor has suggested, that the

honey came from some source with a special tendency to sour, it may be that a part, at least, of the trouble is due to his method of handling it. He says that he wraps each section separately in paper, and that the frames are covered thoroughly, top and bottom, in the supers, with paper. That is to say, he has shut them up as nearly air-tight as possible, while still in a comparatively thin and un-ripened condition, and then wonders why they should sour. Why is it that so many people, bee-keepers included, think that honey must be kept cool and away from the air? I received a letter some months ago from a bee-keeper, asking how he could ripen his extracted honey into a more satisfactory condition. He had extracted it rather thin, and stored it in a large tank where it had deteriorated rather than improved, as he had been told it would. He said he was sure it had not been injured by the heat of summer, as his honey house was built with double walls and roof, with packing between the walls, while the doors and windows were as tight as a carpenter could make them. In other words, he had made a building after the fashion of an ice-house or refrigerator, when what he really needed was an evaporator. The place where honey keeps best is in the hive, where the bees can keep it always warm, where the door is open at all times, and where a number of ventilators are ready to set to work to increase the circulation of air at any time it may be needed.

The ripening process of honey is not ordinarily complete when the comb is sealed, and both comb and extracted honey are improved by further ripening. This may be accomplished by leaving it a long time on the hive; but in the case of comb honey this results in a deterioration of its appearance, and, consequently, its market value. The same result may be accomplished without this deterioration in appearance by storing the honey in a dry, hot, well-ventilated room, the honey being so arranged that the air will have free access to it.

FOUL BROOD IN APIARIES RUN FOR EXTRACTED HONEY.

Elmer Todd, in his article on page 1073, appears to think that I have conveyed a wrong impression of what he wrote for the *Bee-keepers' Review* on the above subject, and that I have not understood some of the points of the article. He also appears to think that my objections to the plan he proposes are based on theory rather than on actual practice.

I have carefully re-read his article and I fail to see that I have misrepresented it in any way or that there is any part of it that I do not understand. As to theory *vs.* practice, I will say that I have had full experience with foul brood in an extracting apiary, having been through that mill thoroughly some fifteen years or so ago. In my experience as Bee Inspector here during the past three years, I have handled and observed a very large number of cases of foul brood in hun-

dreds of apiaries and have had abundant opportunity to note the ways in which it is propagated and spread. I have also made some experiments in feeding healthy colonies with honey from various parts of a diseased hive. It is not from fine-spun theories, as he intimates, but from the knowledge gained by experience and particularly from that gained by observing the disease in the hands of a great many different men, that I have objected to his conclusions and especially to their publication.

I do not doubt at all that one might in most cases safely extract the honey from a super separated by queen-excluding zinc from a brood-chamber containing only a few cells of foul brood. I feel sure, though, that such a practice would, with most men, result in disaster sooner or later out of all proportion to the possible gain.

It is doubtless true that the use of excluding zinc very greatly lessens the danger of spreading the disease through the medium of the extractor and this is another very good reason, added to several others, why it should always be used. Mr. Todd deserves credit for calling attention to this, though in my opinion he goes entirely too far in claiming that foul brood can be controlled as easily in an extracting apiary as in one run for comb honey. For in most cases there is never any exchange of honey in sections from one hive to another, and when there is any such exchange, it is only of unfinished sections to which the bees simply add honey and from which they very rarely use any honey to feed brood. With extracted honey it is very different. All combs go into the comb-basket of the extractor; and even if all combs are returned to the hive from which they came (which is inconvenient and very rarely practiced), they are brought into contact with the honey from the combs that preceded them, which may contain the germs of the disease.

It is unquestionable that diseased honey is frequently stored in the supers. For instance, when a colony has swarmed the bees usually fill the brood combs more or less completely with honey. Though bees dislike to do anything with cells that have contained foul brood, under the pressure of a good honey flow they will fill them with honey. This honey is certainly infected. When the young queen begins to lay, this honey is moved up into the super. When the combs containing this are extracted, they are liable to infect others, even if they are not themselves transferred to other hives. When the bees receive a set of freshly extracted combs, they proceed at once to clean them up and the honey taken from them is used the same as any other honey that comes into the hive. If it is infected and is used then to feed brood, or is stored away where it will be used to feed brood, it will start the disease. This will happen sooner or later. I have known cases where bees that obtained infected honey showed no trace of the disease for nearly a year, the honey evidently having been stored

away so that it was not used for brood rearing sooner. At other times I have known a bad case to develop within a month after the infected honey was taken into the hive.

The greatest trouble with the plan advocated by Mr. Todd is that many, instead of extracting from hives that contain but a few cells, and with therefore but a slight probability of conveying the disease, will, either from carelessness or the willingness to take chances, extract and interchange combs from those in which the disease has progressed so far that infection is extremely probable.

The safest way to handle an extracting apiary where foul brood exists is to use queen excluders on all hives and to tier up as much as possible, so that there will be as few extractings as possible from each hive. Then inspect the brood combs before extracting, and if any disease is found, no matter how little, extract the honey from that hive first, with proper precautions to prevent the spread of the disease. Do not under any circumstances extract any honey from the brood combs unless you expect to do a very thorough job of disinfecting afterward.

A STEP BACKWARD.

At a series of farmers' institutes recently held in this part of the state, the speakers being paid by a state appropriation, the man who handled the bee-keeping part of the program advocated that farmers and others who intended to keep only a few colonies of bees should not go to the expense of movable frame hives, but should put their swarms into plain boxes. His argument in defense of such amazing advice was that even when they used modern hives, they almost always had the combs built crooked so that the frames could not be handled, and that even when they were straight they never handled them. He thought, too, that it was easier for the inspector to examine box hives than frame hives in which the combs were crooked, and finally, while if any hives had to be destroyed on account of foul brood, the loss would not be as great as if the hives had cost more.

While there is some truth in these arguments, it is an insult to the intelligence of the Colorado ranchman to say that he cannot get his bees to build combs straight or use them when he has them. There are some, it is true, to whom this applies, but the majority of them handle their bees intelligently and in fact many of them are ahead of some of the larger producers in this respect. Bees cannot be as profitably kept in box hives, nor can they be satisfactorily inspected and kept free from disease.

It is costing the taxpayers of the state a great deal of money to keep foul brood in check and that without very satisfactory results. Yet this man, paid by the state and supposed to be working in the interests of the people, is advocating a plan which will make inspection more difficult and expensive and less effective and that will certainly tend to

the increase and spread of foul brood. Then our foul-brood law, though not as stringent as it should be in some respects, provides that bees in box hives may be destroyed if the owner neglects to transfer them to frame hives.

The man who starts with only a few colonies may before long have a large apiary. If he has started right, there will be no loss and nothing to regret. He will learn of bees and their ways as he progresses and become an intelligent and successful bee-keeper. The man who starts wrong has a costly mistake to undo, or he will always remain unprogressive, a stumbling block and a menace to his neighbor.

The argument on the cost of hives it seems too is a pitiful one. A frame hive can be made at only a few cents more than the cost of a box hive; and a hive properly cared for will last fifteen or twenty years.

COLORADO AS A FRUIT COUNTRY.

While the bee-keepers of Colorado have not much to boast over this season, the fruit men in this locality are jubilant over the crops of apples they have secured and the prices they have received for them.

A neighbor claims to have sold \$64.65 worth of apples from one tree. I have picked over \$25.00 worth of apples from a ten-year-old tree. Other reports range all the way between. This was not a good peach season, as in most places the buds were killed last winter. In favored localities though, some of the peach men claim a profit of close to a thousand dollars per acre. This beats bee-keeping, in a season like the past. I wish A. I. Root could leave his cabin in the woods long enough to make a visit to the Grand Valley during the fruit season.

NEW BLOOD NEEDED.

In inspecting bees this fall, I came across a number of colonies with a hive full of honey and a queen apparently all right, but with only a mere handful of bees. These, if they did not desert their hive, would have died the first real cold snap and then the owner would have puzzled over the mystery why a colony with plenty of honey and combs in good condition should have perished, leaving few or no bees in the hive.

In such cases I have advised the introduction of new blood into the apiary by getting a few queens that would not stop breeding so early in the fall.

"TANGING" TO MAKE SWARMS SETTLE.

Professor Bigelow appears to think that it is the "city chaps" and funny papers that are responsible for the idea that it is foolishness to pound tin pans, etc., when bees swarm. I think that the ridicule of this old custom originated with and is most common among practical bee-keepers.

I pounded pans in my boyhood, but I have never seen a particle of evidence that it did any good. At least 999 out of 1000 swarms will

settle anyway. We will admit that mechanical disturbances, such as throwing water or other substances among the bees of a swarm, or perhaps the flashing of light among them, may have some effect in inducing runaway bees to settle, but did anyone ever know any amount of noise, and *noise alone*, to have any effect in stopping bees after they had once settled and then really started to run away?



ABOUT SEPARATORS.

"Good morning, Mr. Doolittle. Cold this Thanksgiving day."

"Yes, Mr. Smith, and a great change in temperature since yesterday noon. The mercury stood at 54 above zero at that time, and now it is only 14 degrees above. Got your bees in the cellar yet?"

"Yes, I put them in one day last week. I was hoping that they might fly once more; but I am glad now they are all housed. It was warm enough for bees to fly yesterday, had it not been for the high south wind."

"I put mine in two weeks ago. Of course, I am always glad to have them fly a few days before they go into the cellar; but I do not wait long after the middle of November, for I think it is better for them to have the hives all dry and nice when they go in rather than have the hives all wet or covered with snow and ice, as is often the case if we wait till nearly or quite December before putting them in; at least, I can see very little difference in the way they come out in the spring, between those set in before or after a day in which those left out have a late flight. Therefore I put them in along from the 10th to the 20th of November, regardless of whether they have had a flight or not, on the first day when the hives are dry and nice, and when they are not frozen down to the stands. A temperature of from 35 to 40 degrees above zero is one in which they go in with the least disturbance."

"I am glad to know of these things; but I came over to have a little talk with you about separators. I was reading in an old bee paper which I found in the paper-rags at the tin-shop last night that more honey could be secured in sections where no separators were used than could be with them, as they tended to hinder the work of the bees. I am about to make a lot of new supers this winter; and if it is best not to use separators I should like to know it before I commence work. What do you think?"

"There is no question but that bees will store honey in sections without the use of separators; but the great question is regarding its *marketable* shape where stored without them."

"But what do you think about the matter of their storing more honey where they are not used?"

"When I commenced to use separators I was fearful they would be a hindrance to the bees in their work, and so I used them on half the colonies that were run for comb honey, and worked the other half without them, with the result that, at the end of the season, I could see no difference as to the amount stored by either half, on an average; but I could see a great difference in favor of that honey built where separators were used when I came to prepare the same for market."

"But one season would hardly be a fair trial, would it?"

"That was the way I then felt, and so I kept on trying, using more and more colonies with separators, till, after three years' experimenting, I became satisfied that the separators were no hindrance to the yield of honey."

"Well, I am glad to know this; but I hardly feel satisfied in my own mind yet."

"Well, that being the case, you can, if you desire, go over the ground for yourself; but as nearly if not quite every comb-honey raiser of today uses separators you will probably conclude to use separators at the end of your experiments; and, if so, to accept the experience of others, without going over the ground they have traveled, will save you much time and expense."

"Yes, I know you are right there; and I should decide now, before I build the new lot I am anticipating doing; but how would it do to bore a lot of holes through the separators, thus making the super more nearly as it would be where no separators were used?"

"That would only be going over old ground, as the thought is not new."

"Did you ever use any in that way?"

"Yes. I procured a boring-machine for this special purpose, and, with the power of a six-horse engine, I could bore the holes through a four-inch plank very rapidly; and after the holes were bored the plank was sawed up into separators, so that the work would not have been very great. I was so enthusiastic in the matter that I got out very many more than I needed for a careful experiment; and such, the next season, showed nothing in their favor, much to my surprise."

"Can that be possible? I had thought such would be preferable to what are termed 'fences.' Have you ever used the fence separators?"

"Yes, both of wood and of tin; and if I were to adopt fences I think I should prefer the tin, as it takes less room in the super and is not liable to be gnawed and worked at by the bees."

"But can you not get more handsome-

looking and more completely filled sections by the use of fences?"

"My experience says there is no perceivable difference, taking an average of colonies and an average of seasons, and with the same use of foundation in all the sections."

"That seems strange, for I had certainly thought that these perforations would help matters much."

"I know it would seem so, but facts are stubborn things, which will often stand secure after theory fails. But if there was any thing in these fences and perforated separators above the old-time solid separators, the Betsinger invention of using wire cloth of a quarter-inch size would be far better than any of the others; for with this the bees can go and come, as well as the heat, in any and all directions, nearly, if not quite, as well as it would where no separators are used. Still, with a careful test of the whole, with supers of each, and the different separators of the different inventions mixed in the same supers, together with the old solid plain tin separators which first came into being, I have failed to find any thing in favor of either, after years of experimenting; therefore I conclude that it makes no difference which are used."

"Then you would advise me to use the old plain tin separators, would you?"

"No, not necessarily that. If the most of my supers were fitted with these, and they were as cheap as any to me, I should prefer them, so as to have all my supers as nearly alike as might be. If I had the fences, or wire-cloth separators in general use, and they were as cheap for me to make more from, or fit new hives with, then I would use them, as there is an advantage in having all the fixtures in the apiary as nearly alike as possible."

"But are you sure that the bees will make as nice-looking sections of honey with the plain tin separators as they will with the fences or wire-cloth separators?"

"My experience tells me that the season and the different strains of bees have all to do with this, if I may except the way and amount of foundation used. Fill the section full of foundation; and with a good season and a strain of bees that way inclined there will be no holes left next to the wood of the sections—no, not even in the corners. But with only starters in the sections, a poor season, or a strain of bees that are not given to close filling, and you will get sections with more or less holes along the wood, and especially in the corners, no matter what kind of separators are used. In fact, I find that, all other things being equal, the matter of separators plays no part in this matter; and I have had thousands and thousands of as perfect sections filled and finished when using the old plain tin separators as have been any of those pictured in the bee papers to show that perfect sections could be gotten with a different separator."

"Well, I must be going now, as I am invited out to Thanksgiving dinner."



How do you like our Christmas cover, showing red clover in natural colors?

"IF I COULD START ANEW IN BEE-KEEPING, WHAT APPLIANCES WOULD I ADOPT?"

DURING the coming year there will be a series of answers from prominent bee-keepers in various parts of the United States in reply to the question, "If I were to start anew, what style of hive, frames, supers, and appliances would I adopt?" These men who, by the way, have made a success of bees will represent every section of the country and every style of hive and frame. They are built on the broad-gauge order, and are not afraid to express their convictions. This will be one of the most valuable series of articles we have ever published. The list of writers will be announced later. In addition to this series there will be some special articles discussing various vital questions connected with our industry.

A HARD FALL ON WINTER STORES.

REPORTS from over the country indicate that this has been a rather severe fall on the winter's stores. Bees that were fed up and well supplied three months ago are short just at the time of going into winter quarters. The warm weather of the early fall induced brood-rearing, and this was followed by cold weather. Both conditions caused an extra consumption of stores. Colonies that are short may be fed in the cellar with a pepper-box feeder. Outdoor bees should be given big chunks of queen-cage candy. For winter feeding this is prepared by mixing a good grade of extracted honey and the best pulverized (not confectioners') sugar into a good stiff dough. Lay this on top of the frames right over the cluster; tuck it in warm with carpeting or some other equally good packing material. Most hives would require the putting-on of an extra super in order to accommodate this lump of candy. In this case put the quilt over the cluster and the candy, then fill the super level full of packing material.

THE RESULT OF THE LAST NATIONAL ELECTION OF OFFICERS.

THE result of the last National election was as follows: President, C. P. Dadant; vice-president, George E. Hilton; secretary, W. Z. Hutchinson; general manager, N. E. France; directors, Mr. F. Wilcox, C. A. Hatch and E. R. Root.

I declined to accept the office of director some two years ago, not because I was dis-

satisfied with the management nor with any of the officers, but because my time was taken up so much with my general work that I did not feel that I could do justice to the Association. While I still feel the same way, I do not wish to be unreasonable to the extent of declining the election the second time. I certainly appreciate the compliment of the second election in the face of declining the first; and as to whether I can accept the office will be determined later, after I consult some of my friends.

IS THERE A FUTURE FOR STINGLESS BEES?

APPARENTLY there will be a strong demand for the Caucasian bees because they are generally spoken of as being very gentle. While individual specimens may be cross, their general reputation is good on the one point, at least, of being docile and easily handled, whether they have any other desirable qualities or not. Now, it is possible that there is a class of people in this country who would like to go one step further, and secure bees that *could* not sting, even if they would. There is no doubt that Uncle Sam will help us to investigate the qualities of the melipona so we shall know more about them in the future than we do now. But from what we know of stingless bees in general we should hardly be warranted in concluding that they will ever be commercially important; and it is even doubtful whether they could adapt themselves to our particular climate. Perhaps they could be kept in our extreme southern States. As a matter of fact, there is one small species, I believe, of the stingless bees in Texas.

THE FOLLY OF KEEPING THE BEES OUT TOO LATE.

In our last issue, page 1234, I took the position that it was better to leave the bees out as long as possible in order to give them one more winter's flight. The editor of the *Review* took the ground that it was preferable to put the bees in early, saving them the severe chills pending a warm flying day that might not come. I differed then with my brother-editor on this point, as will be remembered. Some experiments we have been making since, the result of which is just made apparent, goes to show that Bro. Hutchinson was nearer right than I—at least for this fall.

We put in the shop cellar about half of our colonies some three weeks ago, selecting the weaker ones, leaving the stronger ones outdoors. Today, as we put in the last lot, it was plainly evident that during the three weeks they had consumed largely of their stores, and were weaker in actual force of bees. Our Mr. Pritchard reports that the colonies that were put in three weeks ago, and were not as strong at the time as the others left out, are *now* ahead in point of numbers and weight of stores. It is true the second lot had the benefit of a nice flight; but three weeks of cold weather cost them in stores

and bees a good deal more than we gained. Whether this will prove true *every* fall, I cannot say; but I am frank to acknowledge that Mr. Hutchinson hit the nail squarer on the head than I did.

THE SCIENTIFIC CLASSIFICATION OF THE HONEY-BEE.

LEST the reader may become a little confused in regard to the classifications as mentioned elsewhere in the article on stingless bees, it may be well to explain.

In the first place, the honey-bee belongs to the general order of *Hymenoptera*, meaning membranaceous-winged insects. In this we find the family *Apida*. This is further subdivided by genera, comprising the following: *Apis*, the hive bee; *Bombus*, the bumble bee; *Xylocopa*, the carpenter bee; *Megachila*, the leaf-cutter; and the *Melipona*, the stingless bee of the American tropics. The first genus, *Apis*, includes such species as *Apis mellifera*, *Apis dorsata*, *Apis Indica*, etc. Each one of these species comprises varieties or races. Under *Apis mellifera* we have Italians, Cyprians, German, Caucasians, Carniolans, and the like. Under *Melipona* we have also a large number of species, some of which have been named, and some, probably, have never received the careful attention of a scientist. In the article elsewhere, Mr. Green is describing one species of the genus *Melipona*. Not knowing the name of this particular species, he designates it with the general generic name, comparing it with species of *Mellifera* of the genus *Apis*.

Possibly this may seem "all Greek" (or Latin) to some; but in scientific articles of this kind it is very necessary that we do not get misled or mixed when we come to talk about races, species, and genera.

Referring to the particular *Melipona* described in this issue, the illustrations will doubtless enable some scientific men to give the species. If this is the largest and most important of the *Melipona*, then we ought to know its name just as we know the name of *Apis dorsata*, the giant bee of India. If they are the giant bees of the *Melipona*, then we ought, of course, to know the name.

THE FIRST-PRIZE SWARM OF BEES.

THE first-prize photo of a swarm of bees, by A. L. Errett, on page 1319, shows up as fine a cluster of bees as was ever taken by a camera. Even the white fuzz bands and the yellow ones, as well as the gauzy wings of the bees, stand out clear and distinct. To photograph successfully a swarm of bees is one of the most difficult things in all beedom, as I know by experience. In the first place, yellow takes black. The other portions of the bees, except the fuzz bands, are black. Then as a general thing a swarm will hang in some shady spot out of the direct rays of the sun. All these

conspire against taking a good instantaneous photo, for a time exposure is out of the question, as the bees are constantly moving. Nothing short of a snap shot will catch them at all. That Mr. Errett was able to overcome all these difficulties is evident by the half-tone shown elsewhere.

Incidentally it may be noted, as in the case of nearly all swarms, the bees have their heads pointing upward. If you were to ask the average bee-keeper what is the relative position of the bees in a swarm he might be unable to tell you. As a matter of fact, a bee can hang on to its neighbor better with its head facing toward the point of attachment. When the cluster is suspended from a bare limb, without any supporting branches running through it, the strain on the bees hanging to the point of support must be enormous; but in the case shown on page 1319 the bees are probably held by several branches. In this case we should naturally expect that more of the bees would be having their heads in different directions. Except toward the very bottom, nearly all the bees would seem to be looking skyward.

It has been said that a queen will generally be found on the outside of the cluster, where she can be easily picked up and caged. I think this is generally true, for the bees seem disinclined to put any strain on the queen or to cover her up in a great mass of bees. She is, therefore, allowed peculiar privileges—privileges which she seemingly accepts as her queenly right. I have scanned this cluster very carefully, but do not see any thing that looks like her majesty on the front exposed to view. We may, therefore, conclude that she is "on the other side."

It will be noted further that the bees, true to their general instincts, sought the end of a bough with small limbs. It is very seldom that a swarm will be found in the crotch of a tree or a limb as large as one's arm. The fact that they cater to the ends of small leafy branches makes it much more handy in hiving. From such a point they can be easily jarred off, or the branch may be cut with a pair of pruning-shears or a good sharp knife. Except in the case of ornamental foliage it is cheaper, at least, to cut the limb. If the bees be shaken off, there will be hordes of them that will be going back to the old point, having a strong scent of the swarm. It takes a good bit of jarring and smoking to get them to cluster elsewhere or with the rest of the bunch of bees in a living-box; so in the generality of cases it is better to cut the limb entirely, and do it in such a way as not to jar it, in order that there be no more than half a dozen flying bees. If the branch with its precious burden be now carefully conveyed to the hive, and laid in front of the entrance, there will be no commotion, and every bee will be secured.



THE AMERICAN BREEDERS' ASSOCIATION.

How Bee-keepers by Joining may Become Benefited.

BY E. F. PHILLIPS, PH. D.

About two years ago there was formed an organization known as The American Breeders' Association; and, since but few bee-keepers are interested in this movement at the present time, it may not be amiss to tell something about the object and work which has been done and is being done by the men interested.

On December 29, 1903, about fifty persons met in St. Louis for the purpose of forming an organization composed of the leading men in plant and animal breeding work. Those most prominent in all lines of breeding took an interest in this from the start, and to-day there are over seven hundred members in the association, including almost all who rank high in their respective lines.

By growers of all forms of plants and animals it is now recognized that there can be much accomplished by proper selection in the various forms of life in the way of improvements for the uses of man, and it is also generally known that the general principles which must be considered in this breeding work are very similar, no difference on what species work is being done. The two great factors which enter into all such work are heredity and variation; and countless times it has been found that these two principles hold good for all types, although, of course, they differ in details of practice in the different species which are studied. It is highly fitting, therefore, that breeders should unite themselves in a study of these great principles; for by comparisons of the results which they have severally obtained a clearer insight may be gained and much more accomplished.

Heredity can be chained down, as it were, so that man may, by skillful selection, attain almost any result desired. In the same way variation, which normally works in all directions, may be diverted into any channel which best suits the purpose of the breeder. However, before such things may be accomplished there must be at least an elementary knowledge of the underlying principles, and these can be gained much more rapidly by comparisons of the results obtained in experiments on many forms of life.

Two classes of persons are interested in the problems of heredity and variation—

the scientists and the practical breeders. In the American Breeders' Association both groups of men are represented, and the result of such co-operation can not but result in the scientists becoming more practical in their work and the breeders becoming more scientific—results which will work untold benefit to both classes. Both have done excellent work in the past, and are now independently working on exactly the same problems but with different ends in view. That each class will be able to attack the problems with a wider point of view must result from this co-operation.

That the principles underlying the breeding and improvement of the races of bees are primarily the same as those found in other similar lines, and that there is room for improvement in every race of bees now being raised, are facts almost too evident to need mention. Does it not seem, then, that bee-keepers would do a wise thing in becoming interested in this movement, and then applying the results of other lines of work to their work on bees?

Something has already been done of this kind on bees. We now have five-banded Italians which, by selection, have been bred from the natural three-banded type originally imported, so that in only a few years this strain has been produced and breeds quite true. Others have bred with the idea of producing bees which do not swarm; but, while something may have been done, the result is not so easily measured, and we are not able to say just how far this has been successful. Still others have selected for gentleness, and have been successful to some extent.

The search for bees with long tongues is, it seems to me, slightly different in nature. Sports have arisen of queens whose bees had tongues longer than the average, and a feeble effort has been made to perpetuate this trait, but without any great success. This character is more difficult to select, since the tests of advancement are harder to make.

After all, though, what bee-keepers want is honey, and it may not be out of the way for the breeders of queens to attempt to figure out how much advancement has been made in the past forty-five years with the Italian race. Compare the records of the early importations of Italians with records of colonies bred from American-reared queens and there will be seen comparatively little advancement. Certainly the average per colony for the entire country is not more than the amounts produced by the earliest-imported queens, and there is good reason for thinking that many of our colonies are very inferior to the imported stock. Here is room for scientific selection by the use of the scales.

It is safe to assume that, if any queen-breeder had figures to prove that, by wise selection, he had produced bees which are superior as honey-producers we should see

those figures in the advertising columns of the bee-keeping journals; but until we see actual comparative weights we must not be expected to believe any generalized statements. When Jersey cows of high grade are for sale, the yearly amount of butter fat produced is given; but for bees it is not so easy to give figures; but that is just what must be done before we obtain more perfect honey-producing bees by scientific breeding.

It has seemed to me that the bee-keepers interested in the advancement of the races of bees used in this country would do well to join the American Breeders' Association, and for that reason I have asked for this much space in this paper. I have no axe to grind, for I am not interested in this organization except as I am interested in the work done, and, needless to say, will receive no commission on new members. I would, however, urge any readers of this article who have any interest in the betterment of honey-production or any other kind of selection on bees to send one dollar to Professor W. A. Hays, American Breeders' Association, Washington, D. C., and become a member. By asking for the very valuable volume which has just been issued, one dollar makes one a member up to February 1st, 1906, and another dollar will be due before the second volume can be had; but the book is worth more than one dollar, and I would advise that it be requested. The dues for foreign members are two dollars, and for life members twenty dollars.

Bureau of Entomology, Washington, D. C.

[It is a fact, and not very much to our credit, that bee-keepers have made comparatively little progress in developing and accentuating desirable qualities in our bees. A little effort has been made in breeding for longer tongues, a little more of color, and better honey-gatherers; but we have not begun to make the progress that Dr. Phillips points out has been made in other kinds of stock. One barrier that stands in our way at present is our inability to control the male parentage of our breeding stock. But this need not necessarily be insurmountable, because there are numerous islands in the lakes that may be used for the purpose of improving and developing certain desirable characteristics.

The Root Co. has had in mind the leasing of some island—perhaps one in the Gulf of Mexico and one in Lake Erie, small enough in size so there will be no other bees on the island, and far enough from any other land where there would be contamination from other drones. This thing has often been dreamed of and talked of, but very little has ever been done except by D. A. Jones, nearly 25 years ago. For some reason he abandoned it before he gave it much of a trial.

I believe the organization that Dr. Phillips recommends is well worthy of our serious consideration.—ED.]

SELLING COMB HONEY BY THE PIECE OR WEIGHT.

Plain Sections and Fence Separators the Solution of the Problem.

BY J. E. CRANE.

The proverb has it, "No question is settled till it is settled right," and so that old bone of contention, selling honey by the pound or by the section keeps bobbing up ever and anon. Doubtless it has not been settled right or it would keep still.

I cannot help but admire Dr. Miller's sterling honesty in the matter and desire to find out and do the right thing. Have I not been through it all over and over again; and who that has put up tons of honey that would run all the way from fourteen ounces to eighteen ounces to the comb, and has any sense of justice, has not felt uncomfortable at the thought that someone would doubtless have to pay just the same for the fourteen ounce comb that another would for the eighteen ounce comb? I have sometimes said to myself when packing such honey that I had done the best that I knew how. If the bees put only so much in the sections I did not see how it could be helped, I was not responsible. If the grocer sold by the comb he must be responsible. I had put the honey up honestly and did not feel responsible for how the grocer sold it, whether by weight or by the piece.

Again I have said to myself if I put all the heavy weights in cases by themselves the cases will run over weight or have more pounds than combs, and this will not suit the grocers; and if I put all the light weight sections that are fairly well filled and sealed in cases by themselves it would make them run too light, and so what could I do but put them together? Even then my cases would run from eighteen to twenty-one pounds to the case of twenty sections.

While I sympathize with Dr. Miller's view of the subject I still feel, yes, know you are right when you say "bee-keepers have not catered enough to the demands of the grocers." Still, I would not cater to the grocer in just the way you mention, by putting all the heavy weights in one case, the medium weights in another, and the light weights in still another, but rather by producing combs so nearly alike that they can all go together in the same case. Of course there will be some light weights at the close of the season that are not finished and these should be sold by themselves.

How to produce combs of even weight or very nearly so is my object in writing this paper, but before doing so let me show you how nearly I have succeeded. Last year I put up of my best grade of honey some 400 cases and of these I was able to mark about 370 cases (24 sections to the case) 24 pounds net, while the remainder, some 30 or 35 cases, were marked 23 pounds net.

This year we had three weeks of good honey weather and then three weeks of very poor weather and yet the combs run nearly as heavy and even as last year.

Perhaps I should say that if 24 sections weigh 23 $\frac{3}{4}$ pounds, 24 pounds, or 24 $\frac{1}{4}$ pounds, I mark it 24 pounds. If they weigh 22 $\frac{3}{4}$ pounds, 23 pounds, or 23 $\frac{1}{4}$ pounds, I mark it 23 pounds, thus avoiding all fractions. This suits the trade and as it is all sold by the section it does no harm to anyone. Now if I put 24 sections on the scales and they weigh 23 $\frac{1}{2}$ pounds, I either remove a few of the heavier ones, and replace with lighter ones, or remove a few of the lightest ones, and replace with some of the heaviest ones I can find, and yet so even in weight have my combs run that it is often quite a task to select combs that will change the weight even $\frac{1}{4}$ pound.

On page 1119 of GLEANINGS you say, "But take that same grocer a case of sections, each of which will be almost exactly the same weight, so that he can sell them by the piece and see if he does not ask you to bring him some more of your honey "in the same way." Here Mr. Editor you have hit the nail square on the head. I cannot tell you how many letters we have received this season saying ship us from five to fifteen "more cases of honey *the same as the last.*" Alas! our honey was all gone weeks ago and still the demand keeps up and we could sell tons more if we had it.

Some years ago much was said in the bee journals about developing the home markets, and I had a nice show case made, and began, only to find that after I had a fair trade worked up, that others would step in and get the benefit of it; and to save bother and vexation I let them have it. Since I have been able to produce honey of very even weights and otherwise handsome this trade has come back to me with little effort, on my part, till I am now supplying every grocer in the place so far as I know to the exclusion of all other comb honey. Some time ago I met a former resident of this town who for many years has resided in Chicago. He told me that he was in a store in Chicago when looking up he saw a pile of honey with my address on it. He said to the grocer that the honey looked good to him as he had lived many years in the town from which it came and knew very well the man who produced it. Upon this the grocer told him that in Chicago they received honey from every quarter of the country, but of all the honey they received the honey with those marks was put up nicer and sold for a higher price than any other. And so I might go on but I will not weary you. I am not giving these facts to boast for I doubt if I take more pains with my honey than thousands of other bee-keepers, nor is my location any better, if as good, as that of many others, nor yet do I grade my honey with more care than others.

I could not in former years put it up so satisfactorily even if I tried my best. The weight of my sections was uneven in spite of my best efforts; and combs did not look so neat as now.

How have I been able to make the change do you ask? I can tell very quickly. It was by changing from the old style of two beeway sections to the plain four beeway sections.

While formerly I used a section $1\frac{7}{8}$ inches wide with top and bottom $1\frac{5}{8}$ inches wide, now I use a section $1\frac{1}{2}$ inches wide on all sides, and the bees fill them very perfectly and much more evenly than the old style. This I attribute to the fact that the bees travel over all the edges of the section and are encouraged to build as near the edge as there is room.

I was at first puzzled to know why these plain sections looked so much better than the old style. Of course the projecting sides of the old style injured their appearance but if these were cut off still they would not average nearly so good as the four beeway sections or as even weight. Then I went to work opening first a clamp with the old style of sections and separators and then a clamp with the new style of sections and separators. I soon discovered what I either failed to notice before or had given little thought; that many clamps of old style sections, while well filled in the center, as you moved away from the centre the combs would be thinner and of course lighter in weight and less attractive, while the four beeway sections with open separators would run very evenly from the centre to the outside row.

When I first began using these sections and separators it was with the hope of a much larger yield of section honey. In this I have been somewhat disappointed and still there is reason to believe that quite an amount more is stored than with the old style of sections, as during the past two seasons we have been able to tier up many good working colonies once in eight days in the clover season, something that I have never been able to do before. Again the fact that the sections are more evenly filled shows that the yield is larger.

Of course there is in these sections some variation in weight and yet the difference is so slight that I do not feel as I formerly did about selling by the piece, and I am sure Mr. Editor should you see how evenly my combs run you would be satisfied that it was catering near enough to the grocers' wishes without making an extra grade, and Dr. Miller would be satisfied without stopping to weigh each one as it is sold. I am now more than satisfied as from year to year I have it to pack with the pleasure it gives me.

Indeed, I know of few things in the whole line of beekeeping that have given me more unalloyed pleasure than these no beeway

sections with the separators to match, for the two must needs go together.

It is one of the surprises to me that others have not seen their value and adopted them.

It is true that the separators are much more expensive yet the advantages are so many and desirable that I feel it pays many times over.

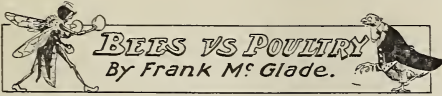
Before closing I might add that bleaching all combs that are much stained, so they will all be of an even color or near it, adds to the attractiveness of a lot of honey as well as evenness of weight.

Middlebury, Vt.

[I have read this article over with no little pleasure—not because it gives me a chance to jab Dr. Miller—"I told you so," but because it is a gratification to know that so excellent an authority as Mr. Crane backs up two of the doctrines I have been preaching for some time back, namely, selling comb honey by the piece, and producing said comb honey in plain sections. Mr. Crane brings out very clearly *why* some have regarded the selling-by-the-piece proposition as impracticable, not to say unfair and dishonest. Why? Because comb honey in beeway sections will vary considerably in weight, while that in plain sections will run much more uniform. As nearly as I can remember, those who have advocated selling by weight have been largely from the ranks of those who produced beeway-section honey; and those who have advocated selling by the piece have, conversely, been principally the plain-section men. Perhaps this will serve to harmonize the conflicting opinions, because the advocates of the one side have been talking about one thing while those on the other have had in mind another.

As I have traveled over the country I have time and again been impressed by the fact that some honey-producers of the old school were constantly working against themselves when they compelled the retailer to sell by weight. Some of them just would not sell that way, but by the piece. The result was that comb honey in beeway sections would vary to such an extent that one customer would get 25 per cent more for his money than another.

I have seen, too, that there was a growing tendency in favor of plain sections. The sales-records of our manufacturing department have shown that very strongly; but I have noticed that the "old-timers" who have produced honey for many years in beeway sections stuck to the old system. This is not to be wondered at, because age (and very properly so) grows conservative, and perhaps less able to appreciate the value of a new device. I feel it more and more so in my own case. For that reason I am not disposed to call my friends of the old school mossbacks. But I notice that beginners and bee-keepers of the latter days take kindly to the plain-section system because they have no old prejudice to remove. This is an article that may well be read with care by bee-keepers of both the old and new schools, for upon its truth or falsity hinges not pennies but dollars.—Ed.]



In all the history of GLEANINGS there never was anything in it which contained more truth to the square inch than the note by the editor to one of Dr. Miller's Straws, on page 1062, relative to "Profits in Poultry." I only regret it is in such an obscure place, and may be passed over by the hasty reader. Such statements should have a conspicuous place for every word is true. I never heard of any one paying off a mortgage by raising chickens to sell to the huckster, nor do I believe such a thing was ever done, because they cost too much. I gave the business a four-year trial with the renowned Barred Plymouth Rocks. I had to buy all the feed; kept a strict account, and I didn't make a cent. The last year I set 45 hens on 660 eggs, and hatched 330 chickens, and raised only about 200 of them that fall. I culled out 50 of the best earliest pullets for winter layers, and didn't get an egg till March 1, and by April 1 a third of them wanted to sit. So I just loaded them up and hauled them to Columbus and sold 'em—yes, sir, sold 'em, and quit the whole business. Plymouth Rock chickens are the best beggars on earth. They have it down fine. They just stand about the door and beg, and beg, and cry, and if you make up your mind *not* to give them so much they will put on such an air of helpless injured innocence that you feel like a heartless wretch and give them more feed, and they eat and eat, and get fatter and fatter, and a fat hen will not lay many eggs.

Now, when it comes to giving advice to

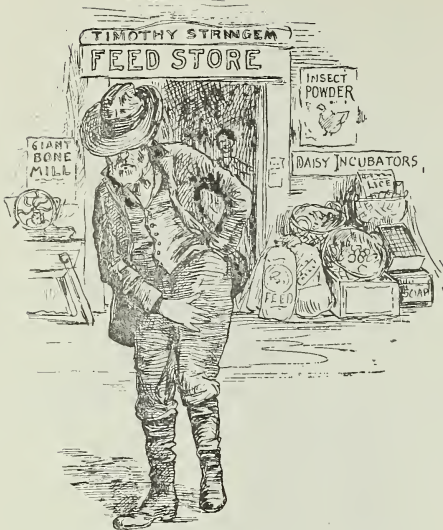


"I DIDN'T MAKE A CENT."

those who are not familiar with either bees or poultry, as to which of the two is more profitable, I say bees, every time. In fact, there is no comparison, as bee-keeping is so far superior to chickens in every way.



THE WORK WAS PLAY COMPARED TO RAISING CHICKENS.



“ALL THE MONEY I COULD RAISE.”

But Bro. Miller wants to “see the figures,” There they are.

Four years raising chickens; all the money I could raise for corn, wheat, oats, lime, oyster-shells, bones, insect-powder, grease, etc.; work enough to build 17 miles of railroad; cleaning coops, roosts, killing lice,

mites, burying dead chicks, and, in the end no—*money*.

Now for figures on bees:

In 1902 I got an average of 30 lbs. per colony; in 1903, an average of 125 lbs.; in 1904, an average of 40 lbs.; in 1905, an average of 60 lbs.

In the four years the average was 255 lbs. per hive for the whole time, and was an average per hive per year of 63 lbs.; at 15 cts. per lb., \$9.45 per hive per year.



“THE BEAUTIES OF POULTRY-RAISING.”

I had the hives and bees left, more than in the beginning. The work was play compared to raising chickens.

Now, if Dr. Miller wants ocular proof that what I say is true, let him study closely the pictures in this, which are not overdrawn.

THE PRINCIPLES OF TROPICAL BEE-KEEPING.

Why Strained Honey is more Practical than Extracted; Cuban Honey and Perforated Honey-boards.

BY W. K. MORRISON.



“PLYMOUTH ROCKS ARE THE BEST BEGGARS ON EARTH.”

When I wrote the article with the above caption it did not seem to me at all necessary to explain that practical details were left un-said; in fact, it is unusual to state details when principles are at stake. This phase of the matter does not seem to have reached Mr. Leslie Burr, of Casanovia, Cuba, who proceeds to criticise my principles, and in the same breath supplies splendid data in support of my contentions. Mr. Burr admits that a considerable quantity of the Cuban honey is dark—too dark, and if all the bee-keepers in Cuba pursue the methods so sincerely advocated by Mr. Burr, then it is no wonder that their honey is dark—very dark. Mr. Burr does not believe in queen-excluders. I do, and so do the best authorities on bee culture—Root, Dadant, and Cook. It is too late now to decry the use of queen-excluders. So far as I know, the most successful bee-masters in the world use them—in fact, can't very well get along without them. If I wanted to ruin the bee-keeping industry in the West Indies I would advocate the non-use of queen-excluders. I know of two men oc-

cupping the same locality. One produces excellent honey; the other, honey that is no better than New Orleans black-strap molasses. The former uses queen-excluders and other up-to-date appliances; the latter does not use queen-excluders. Need I say more? Yes, I will say this much, after 15 years' experience in all parts of the American tropics, that, if tropical honey is to gain its rightful position in the world's markets, queen-excluding honey-boards simply *must* be used. Their use impedes the bees' progress very little if entrances are provided to the honey-chamber. As a matter of fact, the bees learn not to pass through the zinc at all.

It is true, some of our tropical honey is dark, but this does not necessarily mean inferiority. On the contrary, heather honey, which is dark and very thick, is classed in Europe as extra fine. The European buyers know how to detect whether honey is naturally dark or actually dirty. Some people do not believe this, and keep on shipping inferior honey. *The man who extracts from dirty combs has dirty honey.* Honey is so delectable and delicate a comestible that the slightest admixture of foreign matter injures it materially. Some people I know have the notion that strained honey is necessarily inferior. On the contrary, if well managed it is the best there is. All over Europe one finds exquisite honey that never saw the inside of an extractor. Irrespective of other considerations, the less honey is handled the better, and this is secured by the principles I advocate.

The West Indian bee-keeper has two great problems before him to solve—

1. To produce the largest possible amount of wax with a minimum of effort.
2. To produce honey of the very highest quality for a critical market 4,000 miles away. The freight is the same whether the honey be good, bad, or indifferent.

If he follows the principles I advocate he will certainly accomplish this without fail. Moreover, he will do it in less time and with much less labor than by Mr. Burr's methods.

The bee-keepers of West Texas pursue methods similar to mine, and I don't think they can be called unsuccessful. The only material difference is, the Texans are obliged to ship the comb and the honey together as a guarantee of genuineness. The West Indian strains the wax out, as that is mainly what he is looking after. He can get 33 to 35 cts. net per lb. for his wax in London; and if he can average 6 lbs. per hive per annum he is well satisfied. If he follows my principles he gets high-grade wax with very little labor. *No refining is needed.*

Mr. Burr would have us adopt the mussy, laborious job of uncapping and extracting a whole lot of combs in sizzling hot weather, with the idea of saving the combs for next season. The West Indian does not want to do this at all. He wants the wax to sell to some man in London. Mr. Burr admits the bees stuff wax around and through the

honey-board. If he will only allow the bees a chance they will use the wax in making combs, and there will be no further trouble. I have seen bees stuff all the space between the top-bars solid full because they could build no comb, and didn't know what else to do with the wax, apparently.

The idea that it is ever so cold in Cuba as to keep the bees out of sections nights seems strange. I wonder how it is the bee-keepers of New Mexico, Colorado, and Utah ever get a single section to eat, much less to ship by the carload. They are a mile higher in the air, much further north, and in a climate where the nightly radiation is much greater. In Cuba the finest tropical flowers bloom all the year round without protection, and yet it is too cold for bees!

It is *heat*, not cold, that bothers the West Indian.

About straining honey. Mr. Burr has evidently had very little experience along this line, as he states it would take 80 bags to strain 300 gallons of honey. As a matter of fact, it takes six bags—one for each barrel if the barrels will hold 50 gallons each. No tank is necessary, but a funnel in the bung-hole of each barrel. It would be "just fun" to extract 300 gallons by my method—that is, to cut out the combs. It is the "lightning method."

Apparently Mr. Burr thinks one can not get a crop without an extractor. A German wax-press is also a honey-press, and a very good one. A big crop can be taken off with it alone. Mr. Burr does not believe in bee-escapes. I do, and there's where he and I differ. Many of the largest and most successful bee-keepers use them to their entire satisfaction.

Mr. Burr also ought to read what Mr. J. F. McIntyre, of Ventura, California, says about queen-excluding honey-boards. The letter is too long to quote here. See page 153, latest edition of the A B C.

Queen-excluders are just as necessary in the West Indies as in California and are a success in the hands of every one who knows how to use them.

THE "DISHONEST" ONE-POUND SECTION

Why there will Never be a "Standard" Section which will Invariably weigh an "Honest" Pound.

BY WM. MUTH-RASMUSSEN.

Every now and then appears an article in some one of the bee papers on the above subject. Various remedies are suggested, and principal among them is the problem of devising a section of such a size and shape that it will weigh exactly one pound, no more and no less, when finished. The writers seem to forget, if they have noticed it at all, that force of honey-flow, temperature, and other atmospheric conditions, strength of colony, building and storing propensity of individual colonies, and, finally, the part

of the season, whether beginning, height, or end, in which the honey is gathered, are factors which determine the weight of the finished section more than do its size and shape. The $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{8}$ section is called "dishonest" because many, perhaps the majority, of such sections do not weigh a full pound. That it *can* weigh a full pound and more is a fact which every practical comb-honey producer is aware of. Every year I have cases weighing 24 pounds net, and some that weigh $24\frac{1}{2}$, 25, and even $25\frac{1}{2}$ pounds. This is without any special selection except to see that all the sections in a case are as nearly uniform as possible; and the honey is in the ordinary $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{8}$ separated sections; 24 in a case.

Another consideration is that the specific gravity varies for different honeys. "In this locality" amber honey weighs appreciably more per cubic inch than white honey. The season here was a poor one. The first crop of alfalfa failed to yield any thing; but the bees worked slowly on buckwheat brush (*Eriogonum fasciculatum*), and continued to work on this after the second crop of alfalfa came into bloom and yielded something. In the same super, and often in the same wide frame, and at the same time, I would find sections of white (alfalfa) and amber (buckwheat) honey side by side, equally well finished, and *apparently* of equal weight except for the difference in specific gravity. If a certain size and shape of section could insure a full pound, we should need sections of different sizes and shapes for honeys of different specific gravity, in order that each section might weigh just one pound. What a mess we should be in!

The whole discussion of this subject makes me tired. There will never be a "standard" section which invariably will weigh an "honest" pound when finished. The sections in use at present are probably the nearest we can come to perfection. We can no more compel the bees to put an exact pound in a section than we can induce the hens to lay eggs of a uniform size and weight. Nature does not work by fixed weights and measures. (The diametrical size of the cells of honey-bees and similar insects may, perhaps, be an exception; but I can think of none other.) By combining human ingenuity with nature's work we may approximate desired results; but if exactness is accomplished it is only an accident and can never be depended on as an invariable rule.

When A. I. Root invented the $4\frac{1}{4}$ -inch section he knew that it could weigh one pound, and that it would do so *under favorable conditions*. He never claimed that it would do so invariably; but as it could weigh, and often did weigh, one pound when filled, it was called a "one-pound section," and justly so. To show still further that he was perfectly honest about it, he proposed, as the older readers of GLEANINGS will remember, that comb honey should be sold at one cent *per ounce*. This would have been a

fine thing if the price could always have been maintained. But, unfortunately, prices will fluctuate; and, still more, in some localities like this, we have no change smaller than nickels. One-cent pieces are scarce and seldom seen here except in the Sunday-school collection.

The fault is not with the section, neither is it with the producer. He has no control over the honey-flow, the atmospheric conditions, nor the time of the season. When he sells his crop (as a whole) he gets paid by the pound, not by the piece. The only remedy I can see is to sell a full case at the time, at the market price per pound for the honey. If consumers will insist on buying less than a case at the time, they should be made to understand that it is *impossible* to have *all* sections weigh a full pound, and the price must then be left to the mutual agreement between seller and buyer.

T. K. Massie, page 1072, cuts out all "light weight" combs and makes them into chunk honey. As he acknowledges that his new $4\frac{1}{4} \times 5 \times 1\frac{3}{8}$ plain sections will, "when well filled out, average a shade over a pound," he ought, to be consistent, also to cut out all combs weighing over a pound and convert them into chunk honey, for he should be as honest toward himself as he intends to be to his customers.

Your footnote, Mr. Editor, to E. A. Newell's article, page 1089, is right to the point, and comes nearer to settling the question about honest or dishonest sections than any thing else I have seen.

Independence, Cal., October 30.

FOUL-BROOD EXPERIMENTS IN ENGLAND.

No Drug Treatment; Cure by Swarming and Exchanging Stocks, etc.

BY SAMUEL SIMMINS.

It is not generally realized that disease germs can be disposed of, or compelled to leave the living body, without resorting to drugs. Nevertheless, while knowing this to be an absolute fact, from practical demonstration, it is desirable to use some disinfectant to prevent the spreading of disease.

Though the state of bees living in such large numbers, with the healthy subjects in immediate proximity with the dead and dying, can not be compared with the condition of sick members among the larger animals or mankind, yet I am going to show how even the colony of bees may sometimes recover from foul brood without the slightest aid from medicine.

In many cases the complaint comes upon the bee-keeper while he is yet unacquainted with the nature of the malady and consequently it gets a tight hold of his stocks before he awakes to the fact; and his early endeavors to check the pest are half-hearted, and likely to do more harm than good.

WORN-OUT STOCKS EXCHANGING WITH STRONG LOTS.

In following my own experiments the reader will please understand that worn-out stocks with only a few old bees left may not be treated on the same lines as here laid down, with any hope of a successful issue. However, where there are also some strong lots the following case may be helpful:

During the early part of the past season an old client, a doctor, wrote me that he was afraid he would have to give up his bees, as they were going down with the plague. Several lots were still strong, some very weak. What could he do to cure, or should he destroy the lot? I at once advised him to remove all queens, and then, after three days, exchange hives, the weak with the stronger lots. I also told him to follow the izar treatment as advised by me, and in seven to ten days he was to place an Italian queen at the head of each lot. He followed out my instructions, and in a little over a month told me every stock was apparently clean, and progressing favorably. Nothing was destroyed in the process.

I have elsewhere explained how I exchanged places with two stocks, one of which was diseased while the other was quite healthy. The latter, consequently, received all the flying bees from the foul-brood stock, but, contrary to all preconceived ideas, the healthy stock remained perfectly sound. You see the hives were moved quietly on a warm day, with no previous smoking or internal disturbance whatever, so that none of the bees were induced to gorge themselves before flying in the usual course from their hives.

TREATMENT BY SWARMING.

Following upon this fact gained in management I was able to treat diseased stocks in a manner not hitherto attempted. Any lot not allowed to go too far could be swarmed by removing the old stock and placing a fresh hive with foundation upon the original site with their own queen, thus giving the diseased combs an interval of rest, always an important factor. No shaking took place, and as little disturbance as possible of the old combs. The moved lot, having none but young bees, presently have a queen-cell inserted, and by the time the new patches of brood develop, no sign of disease is to be seen, providing there is a fair honey-flow and the bees are energetic. At other times both lots require feeding, and, for greater security, with izar in the syrup. Sometimes I have sprayed the bees of the old stock with izar solution, and often I have not; but in all cases both the swarm and the stock have remained clean. In fact, the increase from the young queen in those original and once diseased combs has often permitted of a further division the same season.

Many of your readers will not believe these statements of fact; but I describe them exactly as they have occurred, not in one case, but many times repeated, with the same successful ending.

But right here let us consider another important factor bearing upon this matter. You may divide a foul-brood stock, leaving half the combs on the old site with the queen, while the other half of the combs and bees are to take a new situation. Without medication in either case, those left in the original hive, being mostly old bees, with the queen, will remain diseased unless an immune queen be added; but the portion removed having only young bees, and no addition being made to the brood-nest, will clean out the combs after a few days. I have found young bees, especially if Carniolan or Italian, never fail to do this effectually in the interval of waiting for a young queen to lay.

These successful results have been secured without medication during warm honey weather; but they were experiments, and there is no reason why the same processes should not be rendered doubly sure by the izar treatment.

But where do the foul-brood germs go? Of course, the bees carry out the bulk of them, and if insects do not take this refuse into the earth, the sun or rains must render it harmless. While the interval or break in the production of brood in warm weather, when every spore must germinate, appears to be fatal to the disease, there being no further soil for carrying forward the reproductive series of germs meanwhile, thereafter the renewed vitality of the young bees and young queen is an important factor in the case.

CURING WITH CLEAN BROOD AND YOUNG BEES.

Now suppose we take the case of a clean stock being used to regenerate one diseased. It will be an instance that happened under my own observation. A weak lot, slightly diseased, had a comb of hatching brood covered with young bees, given to it at short intervals. These youngsters simply cleared out every vestige of the disease, and, with a young queen added, not a speck of the pest appeared thereafter. Three such combs were given, and no medical agent employed.

At all times, while bees may be safely manipulated, the most urgent item is that of raising the natural vitality of the stock to the highest pitch. If honey is not coming in, then rapid feeding will create that well-known "roar" which is fatal to any disease-germ. Fresh food means fresh life, even if the food should not be medicated.

NEW VITALITY VERSUS DISEASE.

A few years ago a bee-keeper wrote to the *British Bee Journal* stating he had been surprised to get a large swarm in May from a stock which was badly diseased when put up for the previous winter. Upon examination (after swarming) he found the combs crowded with healthy brood, with the exception of the one back comb which was still occupied by foul matter, just about as they all had been the previous autumn. The bees evidently had no special need of that back comb; but there it was by the side of others perfectly clean. Force of vitality and new food were responsible for the improvement

during a fine early spring. It is evident, therefore, that bees sometimes cure themselves under favorable conditions.

Some years ago I bought two strong stocks in early spring. The bees were vigorous, and the large patches of brood perfectly healthy. The hives being very old, I presently transferred the bees to new frames, and in doing so I noticed that two or three of the rear combs in each hive were solid with old candied honey, where it had remained for several seasons. Well, as soon as this was opened up for brood-rearing, the larvæ rapidly assumed the usual appearance of the foul pest. Evidently these bees had some time been troubled with the disease, but had been self-cured in the interval, so far as the combs used for breeding were concerned, the old store never being required.

I remember an American writer once mentioned that a heavy flow of melilot honey cured his diseased stocks. Some kinds of honey may be more likely to aid the bees in checking the pest, but the greater vitality ensured while honey comes in freely is likely to have been the more important item in freeing his apiary from the trouble.

IMMUNITY.

Finally there is the question of immunity. I have traveled all along this line too, and will describe one or two of many experiments. Of two diseased stocks, one had a Carniolan queen given it, and the other an imported Italian. Each had a sixth slab of candy along in April. By the time the young bees were hatching freely from these queens, no disease could be found in the combs.

Several purchased stocks showing disease in the spring were given queens from my specially immune Italian strain. From a short time after these bees were hatching, the complaint rapidly declined, and the combs were soon covered with a clinging mass of bees, so dense as to hide the surface of the combs.

I have offered these examples hoping to show that the disease can be cured without destroying any valuable material whatever, and even without medicine; and therefore no difficulty ought to be found in disposing of the trouble by using, in addition to such manipulation, so simple and effective an agent as izar has proved itself to be, both as a cure and preventive.

ITALIANS VS. NATIVES.

Recently you gave an extract from the *British Bee Journal*, where the writer endeavored to show that the more prolific Italians would of necessity pile up greater masses of dead and putrid brood simply because they would attempt to breed more extensively than the natives. Such a statement is theory only, and is not founded upon actual practice. If the combs are occupied by foul matter, no more eggs can develop, even if deposited, until some of the cells are cleaned out; and it is from the fact that Italians, and especially such bees bred by selection for the purpose, are more determined to clean out

the foul matter, that they gradually but surely get the upper hand of it. If any bees are inclined to retain the rotting mass of brood it must be the blacks, as they possess the least energy in the direction of brood-rearing, and are so little inclined to clear out the diseased matter.

BACILLUS ALVEI—NOTHING MORE NOR LESS.

I can not find that there is any distinction to be made between a malignant type and a so-called mild case of foul brood. The only difference is in the length of time it has been neglected, and its wider scope for mischief as it extends further throughout the combs. The cure is the same in either case.

PRACTICAL CONCLUSIONS.

With the izar treatment there is no need to destroy any valuable material; and any lot not too far gone may be renovated, as shown, by fresh combs of brood and bees, or by exchanging with stronger colonies. In other cases it has been seen how, by disposing of the old bees by swarming from the original combs, as well as by removal of the queen with or without swarming, the greatest assistance is given to the owner in effecting a cure.

[Izal is a disinfectant like formaldehyde and carbolic acid. It is highly recommended by Mr. Simmins in his book, "A Modern Bee-farm." So far as I know it is obtainable only in England, although we have purchased a small quantity for the purpose of testing.

Regarding the general subject of foul brood, there is much for us to learn, and, perhaps, to unlearn. While Mr. Simmins' ideas may not be entirely orthodox from the standpoint of American practice, yet he has struck out in some new fields that it may be well for us to investigate.—Ed.]

WHAT COLOR SHALL WE PAINT OUR HIVES?

Black, not White, Preferred; an Interesting Article.

BY ALLEN LATHAM.

Though the advisability of painting hives at all has been questioned, and not a few bee-keepers advocate leaving hives unpainted, whenever (if hives were to be painted) the proper color has been inquired after, the answer has invariably been, "White." I shall try to show in this article that here we have another instance in which error has been upheld in the practice of agriculture.

To understand why one color may be better than another, and why black and white are brought into opposition in this matter, one must be familiar with the laws of absorption and radiation of heat. There is a law in physical science which, put in simple words, reads: "Good absorbers are good radiators." This means that a surface of such a color or texture that it readily gains heat will lose that heat, or other heat, with equal readiness. It is also true that a sur-

face which gains heat slowly will part with heat slowly by the process of radiation.

The first half of each side of this law is well known; namely, that some surfaces absorb heat rapidly, others slowly. It is because of this knowledge that mankind, especially the gentler half of it, has decided to wear white in summer and dark colors in winter. Whether this choice is wise is open to doubt.

If one studies nature closely he finds that most animals which live in warm climates are dark in color, and that animals of white fur must be sought in the frigid zones. Of interest in connection with this fact is the change of fur which certain animals of the temperate zone undergo contemporaneously with the shifting of the seasons. It has been argued that animals put on white fur in winter, and that animals of the frigid zones are clothed in white, for purposes of concealment from foes or from victims. Personally I believe this to be a minor cause, if any cause at all, and would argue that the true cause must be sought in the phenomenon of heat-radiation.

Before going deeper into the consideration of the great question which we are approaching, I wish to suggest a simple experiment which anybody can easily try, and from which he may gain a deeper insight into the philosophy of heat radiation.

Let the reader select two empty tomato-cans and paint one white, the other black, a dead black by preference. Pour boiling water into each, and, setting them a few inches apart, hold the hand midway between them. It will quickly be seen that the side of the hand which lies next the black can is sensibly warmed. Let the experimenter be blindfolded, and, while his hand is extended, let a second person shift the cans. If his sense of heat is at all like mine he can without error tell which is which.

The experiment just described furnishes solid ground for certain deductions, and will let me say: "Dress in white if you are to work in the sun; in black if your work is in the shade." "Animals are clothed in white in winter that they may the more completely retain their own heat." "Bee-hives should be painted white if exposed to full sunshine, but black if protected from the mid-day sun."

If any doubting reader will experiment with white shirt and with black shirt, in sunshine and in shade, he will quickly give assent to the statements in the preceding paragraph. When the thermometer is 95 degrees and creeping up, put on a thin black suit and sit down in the shade—better than ice water, better than ice cream.

A few years ago I began covering my hives, side walls, and top, with "paroid" roofing-paper. This was done for the purpose of keeping out the wind and wet. Phenomenal results along other lines led me to consider the color question. This paper, at first a grayish black, soon becomes al-

most black. I observed that colonies in hives covered with this paper never swarmed where well shaded, and that, in the trial of wintering, all colonies thus housed fared splendidly.

Now, a colony of bees has not only the heat of the sun to get rid of but its own heat. If a white hive is in the shade it will not absorb heat rapidly, to be sure; but it at the same time can not lose heat readily. Hence the bees must ventilate vigorously during a hot day or night. If a black hive is in the shade it will not absorb heat rapidly, but it will let heat escape rapidly. *A colony in a black hive which is well shaded does not ventilate much.*

In the sunshine, however, the white hive gains less heat from outside than does the black hive, and the black hive may, and probably will, gain heat on a sunny day more rapidly than the radiation can take care of it. Still, toward sundown, while the white hive still has its front covered with bees, and while the little insects are wearing themselves out trying to cool off their home, the front of the black hive will be free from bees, and there will be but few bees fanning the entrance. These are facts.

BLACK THE BEST COLOR THE YEAR ROUND.

I consider that black is the proper garb for hives in summer, provided the hives can be protected from the mid-day sunshine. If unprotected there will be too many cases of melted-down combs. It is in winter, however, that the greatest gain comes from the use of the black hive.

The last statement may seem to contradict a previous statement concerning the furs of animals, but allow me to explain. Possibly, during the winter, surely to be exact, a white hive will lose less heat by radiation than will a black hive; but when one studies further into the matter he will find that color of the hive will have but little to do with the loss of heat from the cluster of bees inside the hive. This cluster is surrounded by cold air most of the time, and hence little heat will get into the walls of the hive to be radiated, regardless of the color of the hive. How, then, does black help in winter?

That last question is one which every bee-keeper should know the answer to, and he should have unbounded faith in that answer. What kills most bees in winter with the exception of bad ventilation? Is it not too long a confinement in a semi-torpid cluster? Is it not true that bees wintering out of doors must break cluster in order to eat and live? A white hive does not help in this matter, but a black hive does.

During every sunny day in winter the front wall of the hive, facing south, if painted black, gets thoroughly warmed, freed from frost, and dried out. The bees loosen out on that side of the cluster, stretch their limbs, and are happier.

During the hard winter of 1903, when so many lost their bees, my colonies in black

hives came through alive except two which starved. Again, last winter there was no loss except one colony by an unforeseen accident.

What I have said is based upon experience with hives having a dead-air space. I do not know whether single-walled hives would show the same results. Those who wish to investigate this can do so by tacking a piece of tarred paper over the front of a few hives for trial this coming winter.

This article has already reached undue length, although I have but barely introduced the subject. Let me close by saying, if one wishes to keep bees successfully the year round, let him use black hives set in the shade of trees which shed their leaves in fall, so that the sunshine which is not desired in summer may be of benefit during the cold of winter.

THE HOFFMAN FRAME PREFERRED.

The Propolis Matter not a Serious One.

BY S. J. GRIGGS.

The writer notes with interest the article which appears in GLEANINGS, November 1, by Mr. Alpine McGregor, on the Hoffman frame, and the writer greatly regrets that he has not the time to write an article on this frame himself. We are unable to understand how Mr. McGregor can condemn the Hoffman frame in the way he does. There is scarcely a large apiary in Lenawee County, Michigan, which the writer has not visited, and will state that the Hoffman frame is certainly the most used at this place. We notice your explanation, where you speak of propolis depending considerably on the location. We notice by our own yard that this is where the trouble lies with the possible condemnation of the Hoffman frame. At a yard we have located at Addison, Mich., where the crop is principally white clover and basswood, a person could not get propolis enough to fill a good-sized sugar-bowl, and there are over 100 colonies located at this place, and we should like to see anybody go into this locality and try to get the bee-keepers to use any thing but the Hoffman frame. We think they would be up against a good stiff proposition. Then take it at our Whiteford Center yard, where the flow is principally fall honey, and we notice a considerable amount of propolis; but the Hoffman frames are no more of an annoyance to us than the old-style Langstroth. If Mr. McGregor had very much moving of his bees to do, we think he would realize the great value of the Hoffman frame. It is only natural for people using a certain hive all their life to dislike to change to something else, and we presume this is the case with this gentleman, although, from the experience we have had, the Hoffman frame ranks in the lead.

We can only speak in words of loudest

praise for this frame. Our customers are all well pleased with it, and we are satisfied that it is here to stay.

Toledo, O., November 9.

WINTERING BEES IN A CELLAR WITH THE ENTRANCES BLOCKED.

BY T. J. QUAIL.

As the time of year is near at hand when all bee-keepers must prepare their bees for winter, I will give my experience in the past three winters. The first year I wintered on summer stands; in the spring their honey was nearly all gone, and only a handful of bees left in each hive. The next winter I put them in our house cellar; put a block across the entrance, and left them blocked in. I took them out in the spring, and every colony was alive and practically as heavy as when I put them in.

Last winter I put 38 colonies in the same cellar, Dec. 12, and blocked them in as before. I opened the outside cellar door nearly every day, not to give the bees air, for I don't think they need it, but to keep the cellar dry, and that, I think, is essential in cellar wintering. I took them out for a fly March 27, and left part of them out two days. All were put back. The day I took them out they were perfectly contented, while those left out two days roared, and I had to take them out and put them on the summer stands. I used eight Hoffman-frame hives, and did not weigh them when I put them in. When I took them out in the spring several of the hives weighed 64 to 66 pounds, and all hives seemed to be practically as heavy when taken out of the cellar, as when carried in. I shall put 82 colonies in the cellar this winter, weigh all of them, and note how much honey each colony consumes. I would advise all bee-keepers who have not dry cellars to put their bees in, and if they must leave them out doors, to give their bees all the protection they can—the more packing around and over the hives the better. Bees left outdoors should have an empty super put on, and filled with chaff packed in a gunny sack. Hives may be put close together on the south side of a building, and packed for winter. I give late swarms a frame or two in the fall; and if any feeding is needed I feed in the spring. If I were to winter my bees outdoors I would block up the entrance to keep out all the cold I could. In my opinion it is cold and dampness that kill bees in winter.

Miller, Neb., Oct. 20.

[The plan of closing the entrances of the hives for wintering, while it would work in a few isolated cases, would most surely lead to disaster in most cases. Some of our entrances got closed last winter by ice, with the result that the bees all died. This has been the almost universal experience. I would advise Mr. Quail to abandon the plan before he has a heavy loss.—ED.]



Fig. 1.—The Italian honey-bee—drone.



Fig. 2.—The stingless worker.

THE STINGLESS BEE.

A Comparison of the *Melipona* with the *Mellifera*; the Relative Importance and Possible Value of the Former.

BY STEPHEN N. GREEN.

[The following article was prepared by one of our men, Mr. Stephen N. Green, who was in Cuba one season helping to run our yard of 500 colonies. While on the island he made a special study of some varieties of stingless bees found there, and on coming back to Medina he continued these studies, keeping up a correspondence with several in the tropical regions, including our correspondent Mr. W. K. Morrison. The latter sent Mr. Green various specimen lots of the stingless bees that he had secured in the tropics. Among these was a mailing-cage of some extra-large ones, including a queen. As these arrived late, and as it would be impossible to unite them with ordinary common hive bees, we concluded to do the next best thing—take some micro-photos of them. We accordingly sent Mr. Green with the bees to Prof. Hines, at the Ohio State University, Columbus. The photos were taken, showing the bees about three times larger than life size, and the same are here reproduced. The illustrations alongside of the common honey-bee, also enlarged, will give an idea of their comparative sizes and general structure. Unfortunately, we were unable to learn the name of this variety or the species. For the purpose of more ready distinction it will be noted that Mr. Green refers to the common hive bee as *Mellifera*, and the stingless variety under consideration as *Melipona*. The former is the name of a species of the genus *Apis*, and the latter the name of the genus for stingless bees in general; but as we have no name for the particular species here shown he calls it by its generic name.—E.D.]

To understand clearly the stingless bee question it is well first to have fixed clearly in our minds its position as to natural classification, and especially its position with regard to the common honey-bee. Both belong to the same *family* but are separate *genera*, the scientific name, *Apis*, being applied to our common honey-bee, and *Melipona* being the "stingless bee." The *Trigona* is another genus, but it is so nearly like the *Melipona* that it is often classified as such.

The object of this article is not to dwell upon the species of *melipona* so much as upon one variety, which, to the bee-man's standard, is of the most importance. To this species and variety I am, unfortunately, unable to give scientific names. The genus itself is so little known, and this variety so rare, that some of the best authorities in the United States have so far been unable

to classify it definitely. This variety finds its home in the Orinoco region of Venezuela. Only a few colonies, so far as known, are kept elsewhere.

To give a more definite idea of this, the largest *melipona* we yet know of, I have obtained micro-photos taken from life, showing the variety alongside of the Italian honey-bee. In such photos the magnification of each set is the same (about three to four diameters), so that the relative size is plainly shown.

Fig. 3 is the common every-day queen; Fig. 4, the *melipona* queen. The difference between them is very striking indeed. First, it will be noted that the entire size of the *melipona* queen is smaller than *mellifera*. Next, the long graceful abdomen of the *mellifera* contrasts strongly with the globular abdomen of the *melipona*. In short, the *mel-*



Fig. 12.—Wing of Italian honey-bee..



Fig. 11.—Wing of stingless bee.



Fig. 3.—Honey-bee—queen.



Fig. 4.—The stingless bee—queen.

lifer queen is much more beautiful than its clumsy relative. Figs. 5 and 6 show the side views of these queens.

The difference between the workers of the races is much less marked. Figs. 7 and 8 give the top views of these bees. Aside from the shorter abdomen of the melipona worker it might be easily mistaken for the mellifera worker. The side views, Figs. 9 and 10, show more distinctly the difference, the abdomen of the melipona appearing still shorter in comparison. Figs. 1 and 2 illustrate the mellifera drone and melipona worker. For still further comparison I have taken the measure of the tongue and thorax of the workers. The thorax measure of the melipona is about .156 inch, and the mellifera .158. The tongues of the melipona run from .16 to .20; and the mellifera, as we all know, average from .18 to .23. These figures are not supposed to be exact, but will show the approximate measures of the few specimens I have.

The wing of an insect is of as much value to an entomologist in the identification of species as the leaves of a tree are to a botanist. Every species has some distinctive marking of veins and cells that vary but a

trifle in the individual. The veins and cells of the melipona and mellifera are quite different, as may be seen by the drawings, Fig. 11, the former, and 12 the latter.

The side view of the melipona, Fig. 9 shows the immense pollen-baskets of this genus. As pollen-gatherers the melipona are, no doubt, superior to the mellifera. Not only do they carry larger loads, but, as verified by my observation of the little stingless bee in Cuba, they work when the honey-bee does not. Beginning early in the morning, and working late at evening, it flies in bad weather when the mellifera does not venture out. Of course, this pollen-gathering quality does not rank in commercial importance as does the honey-gathering of the mellifera, but it is still of value in another way. The cross-pollination of flowers is coming to have more and more attention from the agricultural scientists. There is, undoubtedly, much room for improvement in this respect. More bees means more fruit; and the introduction of another race of bees means better pollination of flowers. The introduction of great pollen-gathering bees, such as the melipona, would doubtless mean an improvement. The superior quality of



Fig. 5.—Honey-bee, queen—side view.



Fig. 6.—Stingless bee, queen—side view.



Fig. 7.—Stingless bee—worker.



Fig. 8.—Honey-bee—Worker.

the Mexican vanilla is attributed to these melipona because of this ability to work when other insects will not. The very slightest increase of the seed or fruit of any of our great crops will more than justify their introduction.

The honey production of the melipona at the present is of no great importance. The large melipona illustrated has been reported to yield as much as eight quarts at one extracting. The smaller melipona of Cuba gives only a few pints a year. The honey is of a light amber color, light in body, but of a very pleasant flavor. This honey is esteemed by the native Cubans as a remedy of great value, and finds ready sale at good prices for this purpose. While the yield is not yet of much importance, the yield of the mellifera under similar circumstances is not much greater. The surplus of the honey-bee in an old log or box hive can scarcely be counted as of commercial importance. Who would not say that, after the study and work that has been bestowed on the mellifera has been placed on the melipona, the yield of the melipona would not increase as has that of the honey-bee? Surely

there is a chance of improving this stingless bee to a great extent. True, the method of storing honey is radically different between the bees; but do not the great honey-cups of the melipona offer the ingenious inventor a chance upon which to improve his talent? Again, it is true that this melipona has not been wintered successfully in the North; but it is possible that, when we learn their habits better, we may be able to do this. At present Florida and California seem to be the only places outside of our island possessions in which these bees can be kept the year round, though it is entirely possible that they can be wintered in some other favored regions where the winters are mild.

"But," you ask, "can this stingless bee defend itself against the bee armed with a fatal sting or any other enemy?" I think it can. They are remarkably quick in action. The honey-bee is slow and clumsy compared with them. Then they build their nests and guard them so that it is next to impossible for the honey-bee to enter. If we can induce them to live in hives with wide entrances, no doubt a honey-bee-excluding zinc built for this special purpose can be devised. When



Fig. 9.—Stingless bee, worker—side view.



Fig. 10.—Honey-bee, worker—side view.

these bees are once angered they make an attack with all fury. Their lightning-like sallies are certain to scare one, as the painful stings of the mellifera under such conditions are surely remembered. The bite of the melipona is not painful; in fact, they can not cut the tenderest skin; but they pinch and cling with the tenacity of a bulldog, and do not hesitate to attack anything. However, these bees are not easily aroused, and attack only when their nest is broken. They are, indeed, extremely docile.

One strange thing about the melipona is that the bee-men have failed to discover drones in the nest. All of the family *Apidae* have what corresponds to the queen, drone, and worker of the honey-bee, so the stingless bee can be no exception. However, the life habits of the different genera are not alike in many details. The drones of some of the varieties of the melipona are reared at long intervals under some special conditions. The drone of this large melipona no doubt exists, but has so far escaped the notice of the bee-keeping fraternity. Only long scientific investigation can probably clear this point. Another strange thing is about swarms. Like drones, these melipona seem to be non-swarming. But how do they increase? The natives know enough to increase them by simply dividing; but how they increase naturally still remains for the patient investigator, and he will doubtless bring to light some interesting facts.

The nests of the melipona are radically different from those of the mellifera. Their construction seems to be something of a hybrid between the honey-bee and the bumble-bee. The color of the brood-comb is something like that of the bumble-bee, being light brown in color, tough and fibrous. The combs are built in parallel tiers held apart by columns of wax. The cells are constructed of a shape similar to that of the mellifera, but in only one layer, like that of a wasp, and not in double sets with a common base as with the honey-bee. The honey and pollen are not stored in the brood-combs, but separately in large egg-shaped cells scattered along the edges of the brood. These cells are quite large, and hold considerable quantities of honey or pollen. The brood-rearing of the melipona, too, is different from that of the mellifera. The brood-cell is first filled with a mixture of honey and pollen, then the egg is laid on top of this mass, and the cell is sealed. The necessity of this is seen by the shape of the abdomen of the melipona queen, which would not allow of the laying of the egg in the bottom of the cells as in the case of the mellifera. As to the time taken to develop a perfect worker or queen I can not say, this being another point that remains to be investigated.

It is a self-evident fact that a stingless bee would be of untold value providing its honey-gathering capacities were as good as those of the mellifera. Burbank has bred

the spine from the cacti, and will in time make the desert blossom as the rose. The man who breeds the sting from the bee will make the air hum with bees where no bee flew before.

The large melipona which I have illustrated is one of a great genus found in Mexico south to Argentina. A large melipona was domesticated by that great nation of Incas of South America long centuries before the Spanish Conquest. It may be that we shall find a bee more highly developed than the one we now have, in the little-known central Andes region, where this ancient civilization made its home. I am doubtless optimistic regarding these melipona. Many consider them absolutely worthless as a commercial asset. I accord them but little value as yet.

Some others of them are large enough to receive attention from the bee-keeper. The small stingless bee found commonly in Cuba is the most familiar. Reports come from Mexico of a large green bee and another black bee. From South America comes the report of a white bee. I have yet to obtain authentic information regarding these. Some hope to find a still larger bee than is now known, and there is no reason why such should not exist. The fact is, the genus is comparatively unknown. Indeed, such scientific data have been gathered, but it is very scattered, and would take months of labor and waiting to present in form to the bee-keeper such as would be of interest and value.

I am indebted to Mr. W. K. Morrison, of Porto Rico, for the specimens of the large melipona reproduced here. Mr. Morrison deserves much praise for the discovery of this large melipona, which to date is the best of its kind known. He obtained these bees only after long waiting and a considerable personal risk. I am also indebted to Prof. J. S. Hine, of the Ohio State University, for aid in making the micro-photos and for information on this subject.

ALEXANDER'S APIARY; THE MAN, THE LOCATION, THE METHOD.

The Observations Made During a Visit Taken in the Interest of Gleanings.

BY D. EVERETT LYON, PH.D.

Until a year or two ago it was unknown to the bee-keeping world that the largest apiary in the United States is located at Delanson, N. Y., and that its owner is E. W. Alexander.

Most of us had learned to look upon California and Colorado as the land of big things, especially in the line of apiaries; but we awakened one morning to the fact that the largest apiary located in one yard is that of E. W. Alexander. We learned that in his home yard were 750 colonies, and that last



FIRST PRIZE PHOTO OF A SWARM OF BEES, BY A. L. ERRETT. SEE EDITORIALS..

year his crop of honey, all extracted, was 70,780 lbs.

While we did not doubt Mr. Alexander's statement of facts for an instant, yet we felt it would be a source of great interest to the readers of GLEANINGS to have a visit made to this colossal apiary, and an account given of the man, his location, and his method. The writer was, therefore, sent by the editor of GLEANINGS to give a write-up of this marvelous project, and I can truly say the sight was wonderful. The roar of those 750 colonies as their field bees went and came is simply indescribable.

Delanson is located about 30 miles west of Albany, about half way between Albany and Cherry Valley, in the midst of the buckwheat section of New York, and a finer landscape is hard to find.

Mr. Alexander's home is about a mile out of town, and nestles against the hillside, from which a glorious view can be had of the surrounding country and of the village of Delanson, nestling in the valley. The Alexander home is on a farm of some 130 acres; but as its owner devotes his whole time to his bees the farm is mostly sown to grass, and produces some 200 tons of hay a year.

Brother Alexander himself is, I should say, about 60 years of age, so far as the years go, but has in him a youthful heart.

One has but, like the writer, to spend a few days beneath his hospitable roof to learn that he is fully abreast of the times in the field of apiculture. The secret of his success is found in his statement to the writer, namely, that he would be willing to sacrifice a whole year's yield of honey to carry through some experiment that would help him in the future.

Another element of his success is in the fact that he is a lover of bees, and takes real pleasure in working among them.

E. W. Alexander has been a bee-keeper ever since he was eight years of age, and we were very much entertained as well as amused by his description of how he used to do things in those days. So that from boyhood Mr. Alexander has been a bee-keeper; and so modest has he been of his success that, though he has been doing things on a gigantic scale for years, it remained for others to discover him, and that at a very recent date.

Mr. Alexander's home is one of refinement, and pervaded by a fine religious atmosphere, and presided over by Mrs. Alexander, one of the noblest of women, with a big motherly heart—one of the kind of women who make you feel you are a better man for having met them.

From the bee business Mr. Alexander has been able to start his sons in other lines of business, and he and his wife have lived to see them all do well. In fact, our friend stated to me that it was a source of great comfort that all of their children had turned out well, and had never caused them shame or heartache. Happy the parent who can say likewise; and it is all due to the atmosphere

of that home, and the example of a godly father and a devoted mother.

For the last two or three years Mr. Alexander has had in partnership his son Frank, a noble fellow, and a natural-born bee-keeper—a worthy son of a worthy sire, who, happily married, lives with his wife and two children down in the village. So much for the man; now a few words regarding

THE LOCATION.

Mr. Alexander has been particularly fortunate in this respect; and but for this it would not be possible for him to keep in one yard so large a number of colonies. This part of New York was, years ago, the scene of many a bloody battle between the Indians constituting the Five Nations, and the other tribes from the West; and history records the massacre of the whites at both Cherry Valley and Schenectady. But now for nearly 200 years this country has been given up to husbanding; and, because of the peculiar adaptation of the soil, buckwheat is a staple annual crop.

For 200 years or more this has been a big and staple crop; and for miles around, at time of bloom, the mountains seem covered with virgin snow. I timed my visit to be there at buckwheat bloom, and the sight was well worth the trip. The buckwheat comes into bloom about the last of July, and thus continues until about the 10th of September, and forms the main crop of honey. The main honey-flow, coming as it does so late in the season, gives Mr. Alexander a fine chance to have his colonies all built up strong for the flow—a condition which would not be always possible where the flow is in June or even July.

There must be at least 5000 acres of buckwheat within range of his bees; and the threshing-machine men say that, as soon as they begin to get within the zone visited by the bees, the buckwheat crop is better in quality and quantity, showing that the bees are benefactors to the surrounding farmers as fertilizers of the buckwheat blossom. And this is a fact overlooked by many bee-keepers; namely, that the sole mission of the bee is to fructify the honey that it stores. Goldenrod also grows in the greatest profusion, and Mr. Alexander believes it gives him as much honey as buckwheat. I know from tasting a sample that its presence in buckwheat greatly improves it.

Like all country districts there is some sweet and white clover, also basswood; and a crop of honey is often harvested from these before the buckwheat bloom comes on; but nevertheless the buckwheat crop is the main one and one that seldom fails.

It would hardly be fair to leave the matter of location without stating that it would be the height of folly to say nothing of the violation of ethical principles for other bee-keepers to start up near our friend.

I personally do not believe that the country will support any more bees than are there; and as our friend has pre-empted the terri-

tory he should not be crowded by interpolators.

To conclude the matter, a word about
THE METHOD.

Of course, there is much hard work to be done in an apiary like this; so, in addition to

building a special repository for his charges; and from the description I received from him the other day it is an expensive and elaborate affair with honey, hives, and extracting-house combined.

The bees are set out in the spring; and such



FRANK ALEXANDER (SON OF E. W.). "These are nice warm gloves."

himself and his son Frank, our friend had two other expert assistants, and the quartette was kept on the jump all of the time.

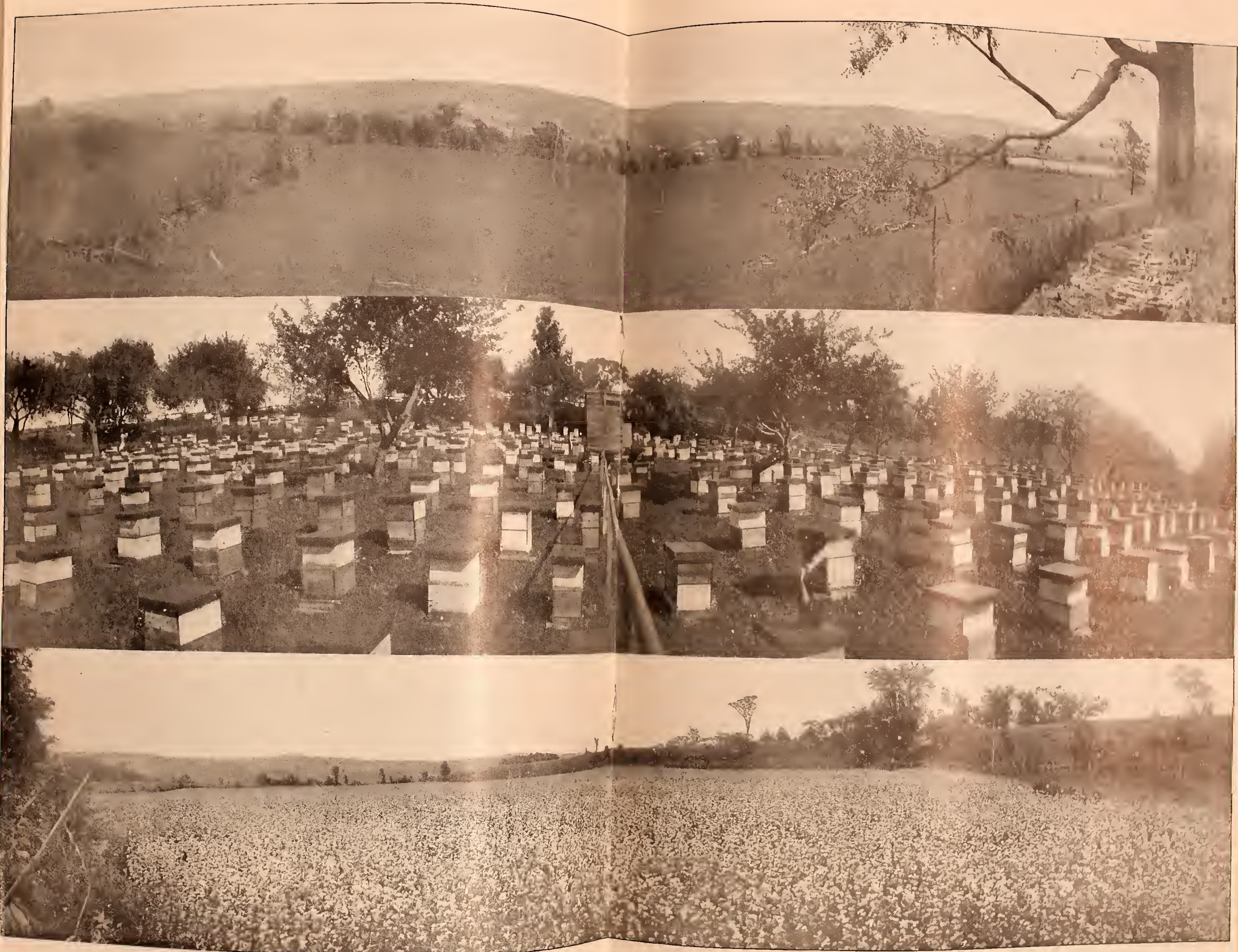
The bees are wintered in the cellar of the dwelling; but this year Mr. Alexander is

colonies as need it are fed for brood-rearing, and requeening is practiced when necessary.

The honey is extracted when ripe, and runs from the extracting-house through a two-inch iron pipe to big storage-tanks holding



THE ALEXANDER BEE-RANGE, APIARY, AND ONE OF THE



THE ALEXANDER BEE-RANGE, APIARY, AND ONE OF THE CHARACTERISTIC BUCKWHEAT FIELDS IN THE VICINITY.

5000 lbs. each, and in a few days it is run off into wooden casks holding about 160 lbs. each, and in such shape it is sold at wholesale.

Mr. Alexander raises his own queens, and is in touch with all of the detail of management; and in conversation with his hired assistants I learned that they esteemed it a great pleasure to work for such a man.

Though somewhat advanced in years our friend has a youthful step; his eyes fairly twinkle as he talks about the bees, and he has no secrets of management that he keeps from his fellow bee-keepers.

My visit to their home lingers as a sweet memory; and as I left its portals it was with the prayer that there might be more and more of such lovely Christian homes in our land; for these things make life worth the living, act as a sweetening leaven in society, and at life's close cheer the last moments with the thought that life has not been in vain, and that one has lived to build up, not to tear down.

[I fully indorse all that Dr. Lyon has said concerning Mr. Alexander; and it has been a wonder to me how it was possible that so successful a bee-keeper has been operating for these thirty years on those York State hills, with little or nothing being known of him in the bee journals. Perhaps it is well, for now we are permitted to enjoy the ripest experience of one of the most successful and at the same time most extensive bee-keepers in the world.

Mr. Alexander is quite alone in the distinction that he operates more bees in a given locality than perhaps any other man in the world. While he formerly worked out-apiaries, he has now demonstrated that he can make more money by keeping his bees all in one place than wasting valuable time on the road that might be more profitably spent among the bees in productive labor. And yet Mr. Alexander contemplates increasing his 750 colonies to 1000, because he believes that the extra number will still be able to keep up the general average. The ordinary bee-keeper will be nonplused to know how it is that so many colonies are worked to advantage all in one spot. A glance at the large engravings in this issue will partly explain the secret. The surrounding country is very hilly, and from the bee-yard one can look in a number of directions and actually see immense fields of white (buckwheat), which in the distance look like mere specks or white patches on the landscape. When it is understood that these 750 colonies have a range of 5000 acres of buckwheat, and probably as many more of goldenrod, one can begin to comprehend something of the possibilities of this location. Next to basswood buckwheat is the heaviest yielder of nectar of any plant in the world at least in this part of York State.

Some of the buckwheat-fields, if you will look at the top view, are probably four or five miles distant. We ordinarily estimate

that bees do not generally go beyond a mile or a mile and a half on the average; but the conditions afforded by this hill country are somewhat peculiar. I suspect the bees have a telescopic vision—that they can actually see these white patches as far as or further than we can; that they learn that these patches contain honey; and as soon as they exhaust the nectar from near-by fields they will go to the further ones, with the result that they are kept busy all day.

In most localities buckwheat yields nectar only about two hours in the morning. During the night it is secreted, and the bees are kept busy another two hours; but here the multiplicity of the fields makes it impossible for the bees to gather all the nectar. Then the problem simmers itself down to this: That if one can induce the bees to fly five miles, and bring back heavy loads of nectar, it is cheaper to produce a crop of honey thus, by having all the bees in one location, than to have them scattered in several yards, because the bees will travel cheaper than their owner.

Now, the question naturally arises, "Do the bees actually go five miles?" I think Mr. Alexander told me that he had visited buckwheat patches that distance from home, and actually lined bees going from those patches in a direct line toward his mammoth yard, proving conclusively that his bees would actually go five miles, and did do it. By a scheme of outyards having 100 colonies in a spot the bees probably would not go over two miles, for the simple reason that they could not gather all the nectar in a radius of that length; but, on the other hand, when we increase the number of colonies we compel the bees to go further, and further they go.

The question might arise, "What is to prevent some one else from locating a yard of 500 colonies three miles from Mr. Alexander's?" Nothing, so far as I know; but I will say this: Anybody who would do this would have to be a good deal smarter than the average bee-keeper if he beats Mr. Alexander in the game of getting nectar; and besides he *knows* this locality as an interloper would not. Then I am convinced that, all through these York State hills, there is a sort of moral code that one bee-keeper is not to overlap on another's territory.

The top view, unfortunately, does not show the number of white patches that one will actually see while he is on the spot. As a matter of fact, no photo can do justice to the landscape.

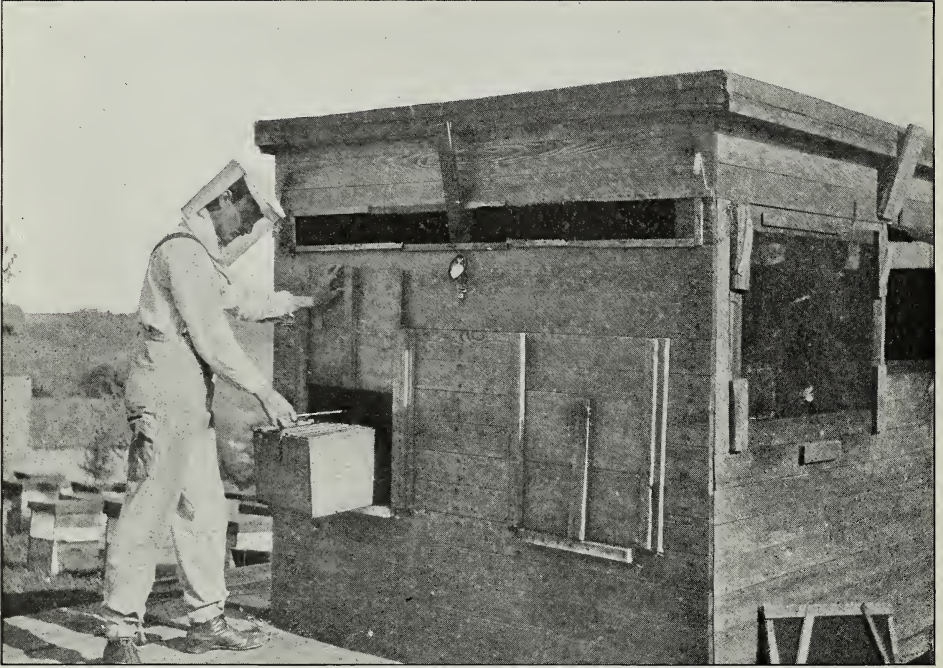
The lower picture shows a close view of one of the fields of buckwheat. One can get some idea of its size by the height of the trees in the distance.

The middle view shows the entire Alexander apiary. All three of these views were taken with a Panoram camera that takes in a scope of 142 degrees. If one has the time and patience he will be able to count 750 colonies; and with some few exceptions

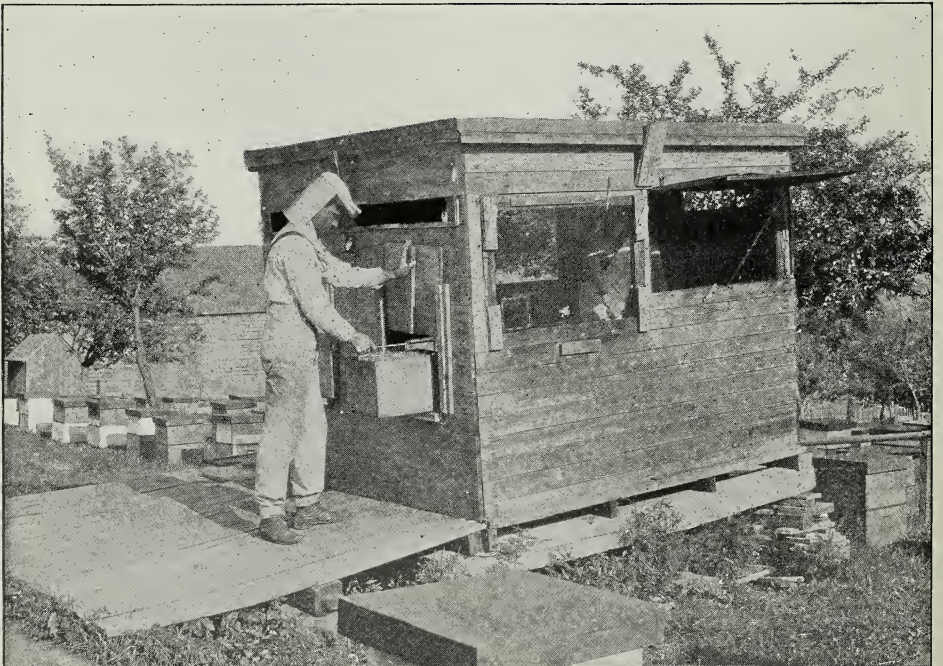


THE A. I. ROOT CO.'S EXHIBITION APIARY AT JENKINTOWN, PA., NEAR PHILADELPHIA.

[When the editor was visiting Mr. W. A. Selser he took a number of photos, and among them was one of the Root Co.'s bee-yard in the rear of Mr. Selser's residence, which he is operating for us. In beauty of surrounding, lay of land, and artistic arrangement of hives, it surpasses any thing we have here at Medina or elsewhere. It contains specimens of all the different races of bees as well as variety of hives. It is run for bees and queens as well as for honey. It was at this yard that the Philadelphia Bee-keepers' Association met last September, at which 400 were present. This was probably as large a convention of bee-keepers as was ever held in the United States. In between sessions, and even during sessions, practical demonstrations were made for the benefit of beginners. Further particulars regarding this will appear in the convention report to be given in another issue.—Ed.]



ALEXANDER'S EXTRACTING-HOUSE; TAKING THE EMPTY COMBS OUT.



ALEXANDER'S EXTRACTING-HOUSE; PUTTING THE COMBS IN.

they were all boomers; for, be it said to Mr. Alexander's credit, he knows how to get his colonies in prime condition for the honey crop when it comes. He does it by scientific feeding at the right time. Right here is one very important secret of Mr. Alexander's success, and why he has been able to do things on such a magnificent scale.

I would call attention to the long tin pipe (for carrying the honey) leading from the little extracting-house in the center of the yard; to another building containing immense evaporating-tanks.

It is with considerable pride that GLEANINGS is able to bring prominently before the world this immense bee-yard; and proud, also, that we are permitted to lay before our large circle of readers some of the secrets of Mr. Alexander's success.

The series of Alexander articles that we shall be publishing from time to time will be among the most valuable that it has ever been our privilege to publish.—ED.]

THE PRODUCTION OF EXTRACTED HONEY.

Cutting off the Corners in order to Save Time; Honey-tanks.

BY E. W. ALEXANDER.

In this article I hope to mention at least a few of the essential things that should be taken into consideration in the production of honey. One very important thing is the grade of the land where you hives stand. A gradual slope to the southeast, with a descent of about a foot and a half to every ten is the most desirable. This gives you a fine chance to have your honey run from the extractor through a pipe into your storage-tanks; and when the most of your colonies are above the extracting-building it is much easier to bring in the heavy combs than it would be if the ground were level. This, when handling many tons of honey in a season, is of much importance. Every move our honey makes from the hive where it is gathered to our railroad station is all down hill. There is not a place where it has to be raised one foot.

You will notice in one of the accompanying photos one of our men in the act of shoving into the extracting-building a carrier of heavy combs to be extracted. As he comes to the building with this carrier in his right hand he raises a drop sliding-door with his left. That is just large enough to nicely admit the carrier, he gives it a shove, and it slides along a bench to the man at the extractor, then he drops the sliding-door, and takes one step to the left, raises another door, and pulls out a carrier of empty combs; this only requires five seconds to put the heavy combs of one carrier into the building and take out the extracted combs of another. While they are in the building the man at the extractor uncaps those that require it and puts them

through a four-frame Cowan extractor; and now comes the part where we have a great advantage over many. We give this honey no attention whatever. The gate of the extractor is wide open all the time; and as fast as the honey leaves the combs it runs through a pipe which has one end under the extractor-gate, and the other end over the storage-tank we wish to fill; and as these tanks hold about 4,500 lbs apiece we don't have to look at them very often to see that they are not running over. These tanks are in pairs, two of them in each of the small buildings you see in the photo. When one tank is full we simply add on a short piece of pipe which will convey the honey into the next tank. They have a large gate at the bottom of one end, and are resting on large blocks, high enough from the floor so we can set our scales with a barrel on under the gate, then draw off the honey directly into the barrel, setting the scales at whatever weight we wish it to hold; then when we have that weight we close the gate of the tank and have not had to lift any honey nor lose a drop in filling.

Then when you want to ship your honey, drive your wagon along the lower side of your building, lay down a plank and roll out the barrels on a level with your wagon.

[When I visited Mr. Alexander during the height of his buckwheat flow I took a number of photos showing the men actually at work, and also photos of appliances used. The two half-tones showing the little extracting-building, and the method of putting inside the filled combs and removing the empty ones, are a part of this series. Mr. Alexander, with the aid of these pictures, will describe his methods more in detail in future issues.

One thing that struck me particularly was the perfect system that our correspondent has elaborated for saving labor in securing his immense crop. The whole outfit, including the building, but exclusive of hives, bees, and the honey-tanks, would not cost \$50, and yet I could scarcely imagine any thing more suitable than this little extracting-house, just large enough to hold one man, a four-frame reversible extractor, and two or three comb-carriers. One man inside does the extracting while two others take off the honey. While one of the two outside men is taking a carrier of combs to the building, the other is putting in a set of empty combs from which the filled ones were taken, closing up the hive and opening up another one. By this time the other man has returned with a carrier of empty combs. Both of them shake and brush the filled ones and put them in the carrier. When full, one man, as before explained, takes them to the extracting-house. So on the operation is repeated with the whole 750 colonies. To relieve the monotony, all three of the men change off. The man in the extracting-house will come out while one of the outside men will go inside.

These little comb-carriers are very simple and inexpensive; in fact, the whole lay-out is so extremely cheap and simple, and yet so effective, that the extracted-honey producers of the country will do well to follow this plan unless they have something better.

In our next issue Mr. Alexander will describe how the honey is conveyed from the extractor to the receiving-tank, some distance away, and how he strains all his honey and how he further evaporates it.—Ed.]

PACKING COMB HONEY IN SHIPPING-CASES.

The Importance of Providing Some Material to Absorb the Shock; the Use of Corrugated Paper in Place of No-drip Sticks.

BY J. E. CRANE.

During the past thirty or forty years great strides have been made in all departments of bee-keeping, and cases for shipping honey to market in have been improving with other things. I remember very well visiting a bee-keeper in the north part of Vermont, in the fall of 1868. In the evening he said he had honey to pack. As I was hoping to have honey to ship later, I watched the process with much interest. He brought out into his kitchen a lot of odd-sized boxes and a flour-barrel, and proceeded to fit them into it. I expressed my surprise that he should use a barrel for comb honey; but he told me it was the safest way in the world to ship honey, or at least there was the least danger of its being broken if shipped in this way.

The next season my brother and I produced some 3000 lbs., and sold to a local dealer who proceeded to pack in drygoods-boxes. A little later I learned, by visiting New York, that honey was shipped to that market in cases made for that purpose, holding from 50 to 75 lbs., many of them holding two tiers of boxes; but commission men told me that the single-tier cases were preferred. Later the size was cut down to hold 20 or 25 lbs., which seems to be the most satisfactory size and style to-day. A tray of paper in the bottom of these cases, with sticks running across the bottom for the section to rest on, brings shipping-cases down to date. These have, I believe, proved (with careful handling) very satisfactory for shipping to near-by places or long distances when there is no change of cars if packed securely in a car.

Where much change, a danger of breakage occurs, if these small cases are packed in a larger one weighing one or two hundred pounds, with straw, handles, etc., they are said to travel more safely. The only fault with the present shipping-case is the danger of breakage of combs. Of course, we can pack a lot in a through car to the commission man or dealer in our larger cities, and

it will almost always go through safely; but the large dealer can not ship in the same way, but must parcel it out in small lots, and re-ship, consigning it to the tender mercies of the expressmen or truckmen of our cities, so that often it reaches the buyer more or less broken. Could a case be invented that would carry honey safely it would, I believe, very largely increase the consumption of this delicious product, and relieve our overstocked markets. Many grocers now refuse to buy, or buy but lightly, well knowing that the danger of loss by breakage is quite as great as any profit likely to be had by dealing in so risky an article as comb honey. One grocer recently said he had rather pay two cents a pound more to a local dealer, and be sure of having his combs all unbroken, than to buy for two cents less and run the risk of breakage.

Some dealers seem to get used to it, and expect more or less breakage, and take it patiently, but with most of them it is quite otherwise.

Honey shipped during warm weather is likely to go more safely than when it is colder. At a temperature of from 80 to 85° wax is at its greatest strength. If you raise the temperature it becomes soft and weak. If you lower the temperature it becomes brittle and weak.

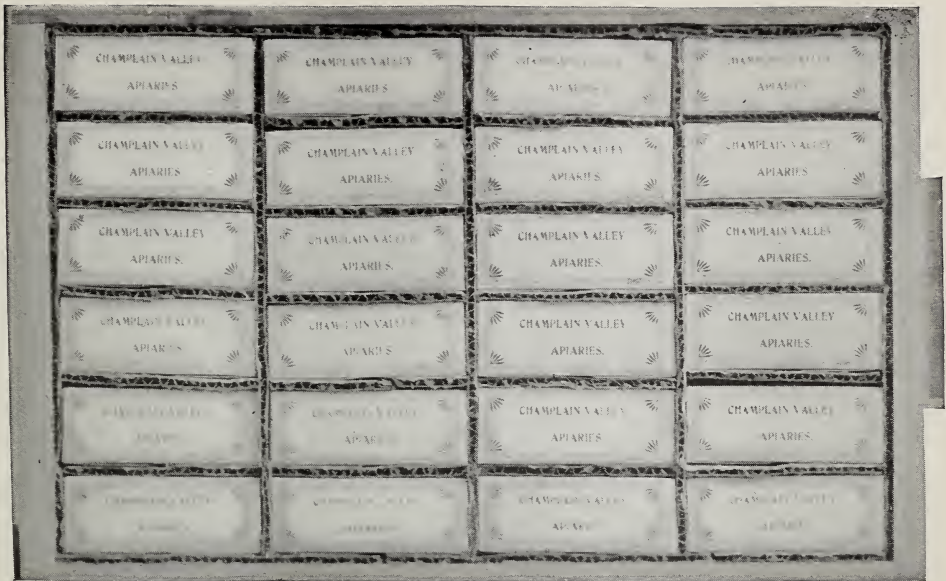
This whole subject has been brought to my attention on account of trying to market our honey direct to grocers, and shipping to them direct in small lots, and I find it of more importance than I had thought. In fact, packages play a most important part in commerce. As a nation we are trying to increase our foreign trade, yet our consuls at foreign ports or cities complain of defective packages, or those not adapted to the trade sought.

The invention of a safe, light, and cheap package for shipping eggs to market has doubtless added immensely to the value of this domestic product.

We may learn something from the fruit-growers. The success of growing small fruits depends upon the use of small baskets in larger crates. J. H. Hale, of Connecticut, is said to be the largest peach-grower in the world, yet I believe his success is the result of new and improved packages and methods of shipping, quite as much as in the growing of the fruit. The skill of fruit-growers on the Pacific coast in packing their fruit is well known, and has much to do with their success.

Comb honey is one of the heaviest and at the same time one of the most fragile of rural products, and yet so delicious and healthful that, could it be safely delivered at every grocery in the country, I believe its consumption would very rapidly increase until all produced would be taken at good prices.

My son, Philip E. Crane, was on the road several weeks last year, and again this season, selling honey, and he quickly saw the

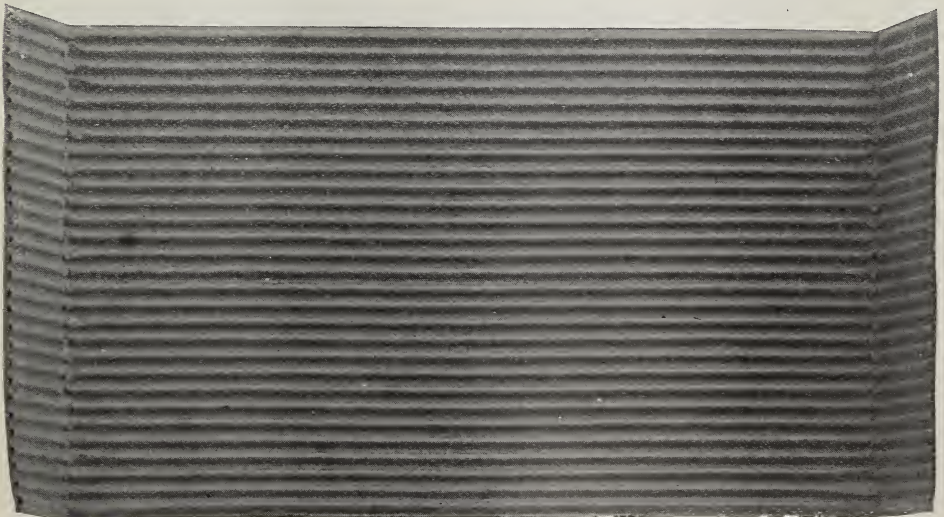


EXTRA FANCY COMB HONEY, EVERY SECTION OF WHICH IS ENTIRELY SURROUNDED WITH CORRUGATED PAPER.

value (perhaps I might say the necessity) of lessening the danger of breakage; and when we began packing this year we began to lay corrugated paper in the bottom of the cases before filling with honey. I soon noticed that, if we used single-faced boards lengthwise of the case, bending the ends of the board up the ends of the cases, we had, in addition to a safer case, a very good protection from any honey dripping from the combs above it. Now, if we place under this some light elastic material we have a

pretty safe case. Planer shavings, excelsior, or other material can be used. Unlined corrugated paper, if cut so as to have the corrugations first lengthwise and then crosswise, is very helpful if two or three layers are used. If great care is required, fillers can be used such as are used in shipping bottles, thus making a box or cell of elastic paper for each section. Corrugated paper is not expensive, and the extra expense is not large.

We are accustomed to think that our pack-



CORRUGATED PAPER FOR INSERTION IN THE BOTTOM OF SHIPPING-CASES, IN PLACE OF DRIP-STICKS.

ing-cases are rather expensive; but, are they? Apple-producers do not hesitate to pay 30 or 35 cents for barrels when they are getting less than two dollars per barrel for their fruit, thus giving one-sixth of all they get for the package, while I can get up a case for my honey, with very good protection against breakage, for less than one-twentieth of what my honey sells for.

By the way, I notice of late that careful apple-packers are using cushions of some light material for the heads of their barrels, to prevent bruising the fruit when filling and heading the barrels. Does it pay them? I do not need to answer the question. And if it will pay them, how much better will it pay bee-keepers to pack their honey so that there shall be the least danger of breakage?

I may say, in closing, that the use of corrugated board in packing has been very satisfactory to us, and appears to be especially pleasing to those who receive honey so packed.

Middlebury, Vt., October 16.

[It is a fact that bee-keepers have hardly kept pace with the fruit-men in getting up suitable packages and shipping-cases for their comb honey. It may be that this reflects more seriously on the bee-supply manufacturer than on the customer. If so, the Root Co. will try to take its own medicine.

As soon as Messrs. Crane and Green suggested the use of corrugated paper, such as is put around patent-medicine bottles and

other fragile articles, I felt at once that here was something that was just the thing for comb honey shipping-cases in lieu of the no-drip sticks. Why did not somebody think of it before? Why have we been so stupid as to let all the rest of the world run ahead of us? Why have we been letting our comb honey break down when we might have saved quite a respectable percentage of it?

We have been testing the corrugated paper by taking cases of comb honey right out of stock. Half of the case to be tested contained the no-drip cleats, and the other half the corrugated paper. How did we test it? We lifted the case up about two feet from the floor and let it drop ker-slap; and we kept on dropping it until some of the combs were broken out of the sections. Then we would open up the case and see which side fared the worse. Of course, the comb honey on the no-drip side broke out first. The continual dropping, however, smashed all the combs, leaving but little choice between either side. But it was very evident that, in ordinary shipping, the corrugated paper with its cushion surface would save many combs that would be utterly lost on the unyielding no-drip cleats. Even though the cleats lift the honey above the drip, the whole case full is damaged to some extent. The corrugated paper also lifts the combs out of the honey, but not so well as the cleats. But if the paper will save the breaking of the combs it is easy to see there will be less of drip or none at all.



A FRAME BONE-YARD. PHOTO BY W. A. PRYAL.

We observe another thing—that, when the combs are badly broken, the corrugated paper becoming soaked with honey loses all of its cushioning property, because the corrugations will flatten out; but this is an extreme case.

The Root Co., at least, proposes to furnish this corrugated paper to its customers for 1906 as an option at one cent extra per case. Probably we may in time buy it in large enough quantities so we may be able to send out cases equipped with this paper at the same price as those containing no-drip cleats.—ED.]

A FRAME BONE-YARD.

Experience a Dear School.

BY W. A. PRYAL.

Did you ever see a frame "bone-yard"? You never heard of such a thing? Well, I am not surprised, for it never occurred to me that such a thing existed until I discovered one a few weeks ago. I was elated with my find, for it appealed to me as something unique in the bee-line.

The accompanying illustration shows the result of my discovery. Did you ever see any thing like it from a bee-keeper's point of view? Just study the frames individually! They remind one of human faces, inasmuch as no two of them seem to be alike. Yet there are hundreds of them that are alike if one were to examine them closely. Some old discarded hives, covers, and bottom-boards are to be seen in the mix-up, and there are a lot of brambles, poison oak, and other things too.

These frames were discarded, I should judge, because the owner has adopted a style of Hoffman frame more to his liking. I noticed that he made his own hives and frames, he having a Barnes-saw outfit for that purpose. He uses redwood for the entire hive equipment. (Here I may remark that my experience is against redwood for frames, as it is too brittle. I prefer Oregon pine to any thing else I have tried).

I was told that the proprietor of this apiary is a bachelor. If he were otherwise, it is more than probable that his wife would have seen that all the old frames were converted into *ne plus ultra* kindling-wood. A frame "bone-yard" is all right as an occasional curiosity, but it is a menace to the apiary.

I have not written the foregoing as a reflection on the owner of the yard, but have simply taken the opportunity the pile of old and exposed frames presented to point out the danger they are to the bee-keeper.

Oakland, Cal., Oct. 25, 1905.

[I have seen "frame bone-yards" in some localities in the West; but they were usually the result of some bee-keeper buying up all the bees in the locality from a dozen or so different bee-keepers, each using a different

hive and frame, making it necessary for the new owner to get them all down to one size. The natural result was a lot of old discarded hives and frames of all sizes. The one here shown, however, is one of the biggest piles I have even seen. But there are times when a frame bone-yard of this kind reminds us of Josh Billings' question, "What's the use of knowing so much when so much you know ain't so?" That is to say, every once in a while we run across a bee-keeper who gets an idea into his head that the veterans do not know how to make a hive or a frame; and then he proceeds at once to discard all his old hives for one of his own get up. After investing more money than he will ever earn he becomes disgusted, and declares "bees don't pay." If you go around to his bee-yard you will find a "frame bone-yard" a good deal after the style of the one here shown. That kind of bee-keeping is a travesty on the profession.

While it may look like poor policy to exhibit a picture of this kind in an up-to-date bee journal, yet GLEANINGS believes it ought to show up the foibles and follies as well as the Alexander type of bee-keeping.—ED.]



THE ANTI-SALOON LEAGUE OF AMERICA.

And now I say unto you, Refrain from these men, and let them alone, for if this counsel or this work be of men, it will come to naught; but if it be of God, ye can not overthrow it, lest haply ye be found even to fight against God.—ACTS 5: 38, 9.

I have just returned from Indianapolis, where we have had a session of the above league, commencing on Tuesday, Nov. 21, and closing on Friday evening following. Our text, it seems to me, seems to be specially applicable to this organization, and it is now called the Anti-Saloon League of America, for it now has branches in almost every State in the Union, if not all of them, and these States were all pretty fully represented by delegates. I should estimate that three-fourths of the delegates and field workers were ministers of the gospel, and almost every denomination in the United States was represented. Quite a few of these eminent divines had also studied law; and among them were some of the finest and brightest politicians of the age. Governor Hanly, of Indiana, gave the opening address of welcome, but before I begin to tell you about it I want to say something about the opening prayer.

I fear there are a good many people who are not in the habit of listening to the opening prayer on Sunday morning in the same way that they listen to the sermon that follows. To tell the truth, I know of some

people who go to sleep during the opening prayer. Please do not ask me how I know; and I wish to add it was not the fault of the prayer nor of the pastor who made it. Well, this opening prayer at the beginning of our convention was made by Bishop Mathews, of the United Brethren Church. When he started out he hesitated, and seemed to find so much difficulty in saying just what he wanted to say that I rather pitied him. But it was not long before I changed my mind and began to pity my poor self. I do not know but I was the first person in that great meeting to say amen to something that struck home to me in a remarkable way in that prayer. The amen came almost of itself; and I was a little frightened when I found I had said it so loud and I began to think it was, perhaps, not the fashion among that great body of educated and cultured young ministers to say amen. Very soon, however, I was at ease on that point. Other amens like my own followed fast and quickly, and one good pastor warmed up and put such wonderful thoughts and suggestions in regard to the needs of our nation, together with thanksgiving for the victories that have just been granted us in answer to prayer that the amens came from all over that vast audience like veritable hail. They drowned the prayer so that the dear brother had to wait till they had ceased before he could go on; and for quite a time it was brief, short sentences, so wonderfully to the point, and suggesting things we had never thought of before, but which, notwithstanding, commended themselves so to the hearts of the great listening audience that it seemed as if it was not the leader who was speaking, but the people who were listening. He voiced the thoughts, the longings, and the hungering of all those grand, noble hearts united in one petition. I thought of the words, "Blessed are they which do hunger and thirst after righteousness, for they shall be filled;" and it seemed as if the answer was coming while we prayed. Yes, it is true we *all* prayed. Amid the praying and the shouting (for it was almost that before the prayer was ended), a sweet, motherly voice near by uttered the words, "Yes, Lord"—just those two words, but they almost seemed to lift me off my feet. My mind went back to that revival of toward thirty years ago in the Methodist church here in Medina, when I first spoke in public for Christ Jesus, and where my voice was first heard in public prayer. They were union meetings. We held them first in one church and then in another. When we got around to the Methodist church it was always a little more noisy there than at the other places of worship; and at one of those noisy meetings a dear sister, who has long since gone to her heavenly home, used the words, "Yes, Lord," when some brother or sister expressed just the thought that she felt needed more emphasis. Those words and that sweet, motherly voice still

ring in my ears. It expressed a close and intimate acquaintance with the Lord Jesus Christ, and expressed, too, a faith, a happy faith, that God *would* hear and would send the blessing. That opening prayer, it seemed to me, gave us all an uplift. It suggested to me the chorus of that beautiful hymn:

Lord, lift me up and let me stand
By faith on heaven's table-land.

Governor Hanly, of Indiana, is a comparatively small man. He looks boyish and acts boyish, especially when he first starts to speak; but when he gets a-going you forget all about his size and his apparent diffidence when he first stands up before you. May the Lord be praised for such a man as Governor Hanly! When our beloved President Roosevelt absolutely declines being President any longer, I should not mind voting for Governor Hanly. He said the Anti-Saloon League is the great ally of the church, and that he was glad to extend a Hoosier welcome to all the dear brothers and sisters who had come to Indianapolis from far and near—not because of what we have done, but for what we *stand* for. He commended the League for the *quality* of its work, for its practicability. "You are not only right," he said, "but you know how to bring men to your support, how to appeal to the thoughts of men, then stir them into action. You have succeeded because you have been wise enough to keep out of politics." There were a good many smiles right here, and the people in the audience looked at one another to see just what he meant. After he had paused a little he smiled and then added: "Don't misunderstand me. Some people complain because you have gone into politics. When I say politics I mean partisan politics. You have made your appeal alike to Democrats and to Republicans who are in sympathy with the principles for which you stand.

I hardly need tell you what Governor Hanly has done toward closing the saloons nights and Sundays, for it has been in the papers pretty much all over the United States. While he was speaking the daily papers were announcing in big headlines that seventy saloon men had been arrested for keeping open the Sunday before; and I was told that something over a hundred in Indianapolis had been fined and imprisoned for breaking the law. There was a big stir about it, and they were threatening the good Governor all manner of evil things for having enforced the Sunday-closing law all over Indiana. There were many jokes to the effect that Hanly had not only "shut down the lid," but had "screwed it fast." The mayors, marshals, and policemen of the different towns and cities in Indiana who seemed inclined to connive with saloonkeepers to evade law are being straightened out at a rate that makes their heads swim. But the churches, the temperate, and the temperance people of Indiana are rejoicing and declaring just as

vehemently that Governor Hanly shall be supported and kept in office.

Dr. Howard H. Russell, the old veteran of the Anti-Saloon League, spoke of the victory in Ohio, and said, "It was the men with clay on their boots, who rallied from the country districts, who gave us our victory."

Wednesday morning they decided to have a roll-call of the States; but there were so many of them that it was deemed best to confine each delegate to a report of ten minutes; and even then we did not get to all of them.

Superintendent Baker, in a magnificent speech and summing-up, told us that the League during the year 1905 had received \$339,479, an increase over 1904 of over \$72,000. There are now 26 Anti-Saloon League papers published, with a combined circulation of 208,000 copies. Brother Baker asked us all to remember that the League is confining its efforts strictly to fighting the saloon. "This one thing we do, and we are going to stick to it until the American saloon is a thing of the past."

The delegates from the different States told us many funny things connected with their fights and their victories. A good brother who reported from Texas told us that the greater portion of that large State is now dry territory. In one county there were sixty or seventy saloons. After a big fight the Anti-Saloon League triumphed, and it was decided that, by the time the law had been printed the third time in a weekly county paper, every saloon should close its doors. The law had been published for two weeks; but on the third week, the day before the paper was going to press, a tramp printer wanted a job there. As they were short of help, he was set at work. As he had no home and no money he begged to be allowed to sleep in the printing office over night; but the boss gave him half a dollar to get a bed. He got up the next morning, however, before anybody else got around, slipped into the office, and, after the paper was all printed, ready for distribution, the sharp editor, who was a temperance man, discovered that a single word had been removed from the ordinance, and the line spaced out so it did not show. But the omission of this word permitted the saloonkeepers to declare they were not legally ruled out, and they had already commenced celebrating. The editor, however had the word put back, destroyed the whole edition of papers that had just been run off, and printed a new edition with the ordinance correct. The temperance people then rallied and paid the publisher for the loss of paper and presswork; and then they went for the tramp printer, but he could not be found. The saloonkeepers stopped their celebrating, and proceeded to obey the law; but the outraged public felt so indignant at this trick, indicating so clearly that saloonists are *anarchists*, and do not *propose* to obey the law, that the wets got a

worse dose than they would have had otherwise. In that Texas county, like the State of Indiana, the "lid" is not only shut down, but "screwed fast."

Rev. E. C. Dinwiddie told us about the fights in Washington to circumvent the army officers, or those who are pleased to style themselves army officers, in trying to have the canteen restored. He also told us of the vigorous efforts to open up beer-selling in the Indian Territory, but that righteousness had again triumphed, and there was but little probability that they could evade or get around the law for the next 27 years.

Not only are all the Protestant churches uniting to banish liquor-selling, but Rev. James McCleary, of Minneapolis, gave us a grand temperance talk on total abstinence among Roman Catholics. During the opening of his speech, with a very pleasant smile he said he was happy to be permitted to stand in a Baptist pulpit and speak to those who love temperance. He gathered from the smiles of his audience, however, that he had made a mistake somewhere. When told that it was a Methodist church he said he was sure it did not make any difference so far as he was concerned, and he was quite certain, too, that it made no difference with the audience.

Rev. Louis Albert Banks, D. D., gave us a magnificent talk on the relation of Christianity to politics.

Rev. Charles Scanlon, of Pittsburg, made, I think, the most brilliant temperance oration I ever heard. I asked one of the officers if there was a stenographer present to take down that sermon, but he replied: "Why, Bro. Root, there is no stenographer living who could take down that part of it where he spoke with such enthusiasm, and where he crammed so many brilliant thoughts into sentences so rapidly spoken, and I presume he himself could not reproduce it." The encouraging cheers and clapping of hands, and the amens, had probably given him an inspiration that enabled him to utter thoughts and soar to flights of oratory that could not be transcribed to paper.

I remember we had a very encouraging report from Florida; but I did not gather from it the statement made under the head of the temperance lesson in the *Sunday School Times* for November 6. The statement is as follows: "*The State of Florida manages to worry along with only 25 saloons.*"

Mr. Folk, of Tennessee, brother of Governor Folk, of Missouri, gave us a most interesting account of the work in his State. Tennessee is almost a prohibition State; and it is a little funny to find out how it was brought about. They succeeded in having a law passed, forbidding saloons within four miles of any schoolhouse. Bro. Folk is State Superintendent of the Anti-Saloon League, and he is almost freeing the state by planting schoolhouses wherever saloons are found. They have been giving way be-

fore the march of education; but finally in one place they entrenched themselves on an island in a river. After they got to doing a thriving business and making it quite a resort for the intemperate, by Mr Folk's direction a schoolhouse was planted on the island. Now, I did not learn exactly whether they sent pupils over to the island in order to make it a *bona-fide* schoolhouse, but they broke up the traffic, and still they are "marching on" along the same line. (Some might say right here that this wasn't *fair* to the saloonkeepers.) Just think of it, friends! what a glorious work for any State or any people, putting up *schoolhouses*, places for educating the young, where beer and whisky saloons have formerly held sway! May God bless Tennessee. In fact, God has blessed the State. Mr. Folk is a man of wonderful ability as a speaker. Besides his Anti-Saloon work, he is publisher of some Baptist paper, but I have forgotten the name of it.

HOW A WOMAN ALMOST SINGLE-HANDED
MADE A TOWN DRY.

Mrs. Florence Richards, a W. C. T. U. lecturer from Leipsic, Putnam Co., Ohio, gave the closing address of this grand convention. Superintendent Baker, in introducing her, told us she would, by request, tell us how she got saloons out of Leipsic. Perhaps I might mention that it was in this same town of Leipsic, almost fifty years ago, that I took my first lessons in beer-drinking. I was learning the trade of clock and watch repairing; and as there was a beer saloon right across the way, which my *teacher* often visited, it is not strange that a boy of seventeen got drawn into it. Well, Leipsic is now a town of six or eight thousand inhabitants. A little over two years ago, just as Mrs. Richards was returning from a lecture tour, the pastor of her church informed her he had announced and made other arrangements for her to give them a temperance talk the next Sunday evening. She told him she was tired out, and had come home to rest, and that he would really have to excuse her and postpone the announcement. He replied, "Why, you told me some time ago, Mrs. Richards, that people kept asking about your *own* town, and saying they supposed, of course, that you had succeeded in banishing saloons from your native place, etc. Now, we will give you all the help we can if you will just get right at it. There is a big new saloon, built of brick, just opened up, and they are doing a smashing business, and no mistake."

After a little more entreaty she told him she would try to prepare herself and do what she could. The more she thought about it the more the Holy Spirit seemed to indicate that she should go right *into* the saloons and get facts for her address.

On Saturday night she started out, notebook and pencil in hand. Sure enough, in every one of the ten saloons she found men and boys—boys under age, whose names she

could easily take down in her book, for she knew their mothers and all about them. Before she got to the big brick saloon it was noised abroad through the town what she was doing, and a crowd followed her. In fact, there were so many in that new gilt-edged establishment with its finely furnished trappings that she decided, instead of waiting until Sunday evening before she gave her lecture, she would give it *then* and *there*. The bartender courteously opened the door for her, then got behind the counter with alacrity, and said: "Well, madam, what will *you* have?"

Now, perhaps, I should add that Mrs. Richards is a large, fine-looking woman. She is big enough and stout enough to hold her own with almost any man. She has lots of poise and assurance, and I can readily imagine she could keep a smiling face, and go forward and do her duty, no matter where she might be put. She replied something like this:

"My good sir, I am not yet just ready to tell you *what* I will have, but I will make it known in due time. I see you are on hand in readiness to attend to *your* business. Now, I want to tell you that I, too, am on hand ready to attend to *my* business."

Then she turned to the young boys who were there under age, in direct defiance of the law, and commenced to take down their names in her book. She knew most of them, and she knew their mothers. She knew the men also, and knew their wives; and she knew pretty well about the homes where they lived. She warned the boys of the consequences of the drink habit; she told them they were breaking the laws; she reminded them of their mothers and their sisters, and how pained they would be to find them in such a place. At the close of her talk to the boys she asked all who were ready to sign the pledge and start out on a new life for something better, to raise their hands. Nineteen hands went up. Her prayers for the boys were answered. The Holy Spirit guided her in her desire to reach their young hearts. Then she turned to the men. Among them were some members of the town council and the mayor. They were smoking and drinking, or they had been doing so. She reminded them in kind but plain terms of what they were doing to protect the town and to see that the laws were enforced. She told the men one after the other how much the money was needed by their wives and children. She spoke to one man whom she knew was a carpenter. She reminded him of the poor condition in which his home was to shelter his wife and children from the inclemency of the weather; of the way in which building paper had been nailed over the cracks because the house was not finished, and yet he was there squandering his wages for the week in that gilt-edged den of iniquity. Finally, she wound up by reminding

Continued on page 1352.

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Yes, sir I know the incubator business right down to the ground.

I can truthfully say, without boasting, that Johnson was the first to discover and demonstrate—

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I made 50,000 incubators before I perfected “Old Trusty.”

So it is to-day just about as perfect as an incubator can be made.

And that’s why, wherever you find an “Old Trusty” user, you’ll find a friend of Johnson’s.

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“OLD TRUSTY” is compact, durable, and easy to operate, and while I’m not parading the looks, I don’t know of a handsomer machine anywhere.

I have done away with the frail, uncertain top-lever regulators that are always in the way; and, instead, have a direct-acting, automatic regulator that is strong, and sensitive to one degree.

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- Rapid circulation of warm water.
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Last year “Old Trusty” excelled all others in oil economy.

This year it adds 20 per cent more oil saving.

Last year the average consumption of oil by “Old Trusty” was two gallons and one pint for the 100-egg machine.

This year it will not average over *two* gallons the season through.

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“OLD TRUSTY” must sell on its merits. Because it must do what Johnson says, or your money back.

My “On Trial” plan is, as simple and straight as I can make it.

I allow one trial hatch, with 40 days, after you receive “Old Trusty,” to make it in.

If you do not feel certain, after the first hatch, a reasonable time will be allowed for a second, or even a third, hatch, if you’ve got a reasonable excuse.

And then, if you find the machine not up to representation, ship it back, and Johnson will send you your money without a cross word.

If you’re satisfied, keep the machine.

And remember that Johnson stands right behind “Old Trusty” with a responsible Five-year Guarantee.

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Now, I want you to send for the “Old Trusty” catalog.

It’s a big 124 page book, with nearly 300 illustrations, and cost me a lot of money to get up.

Johnson Pays the Freight

But it’s all paid for, and is free to any one, friend or stranger, who is interested in my hobby—poultry-raising.

And I don’t care a continental whether you expect to buy an “Old Trusty” incubator or not.

I want you to have the catalog anyway.

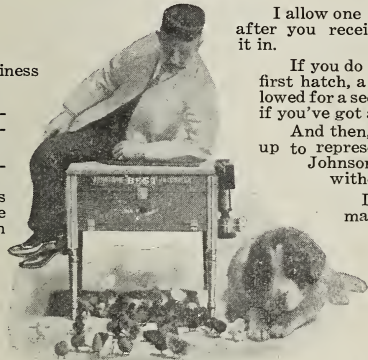
For the time may come when you *will* be incubator hunting; and if you read this book *now*, you’ll remember “Old Trusty” *then*, all right.

So sit right down *now*, while you’ve got it on your mind, and write for the “Old Trusty” book.

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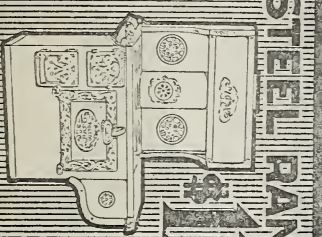
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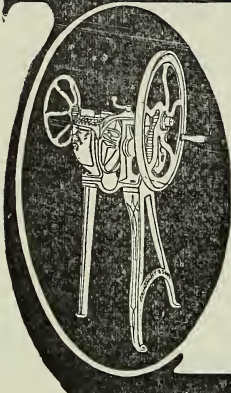
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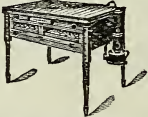
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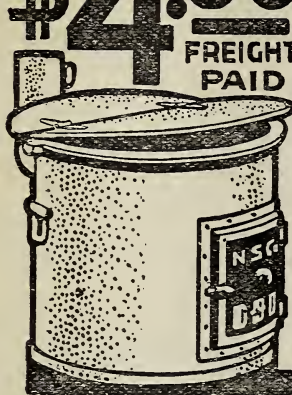
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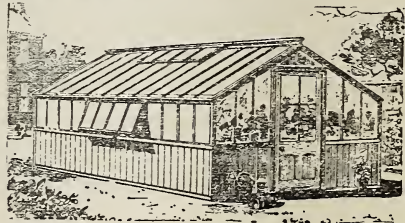
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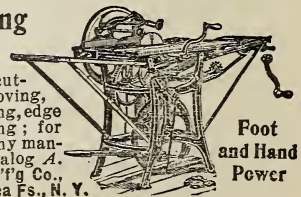
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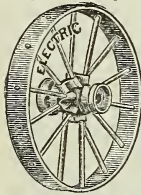
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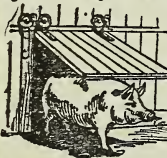
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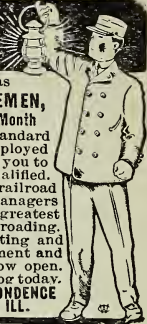
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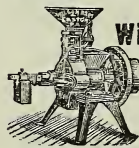
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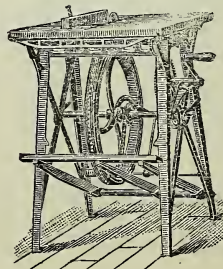
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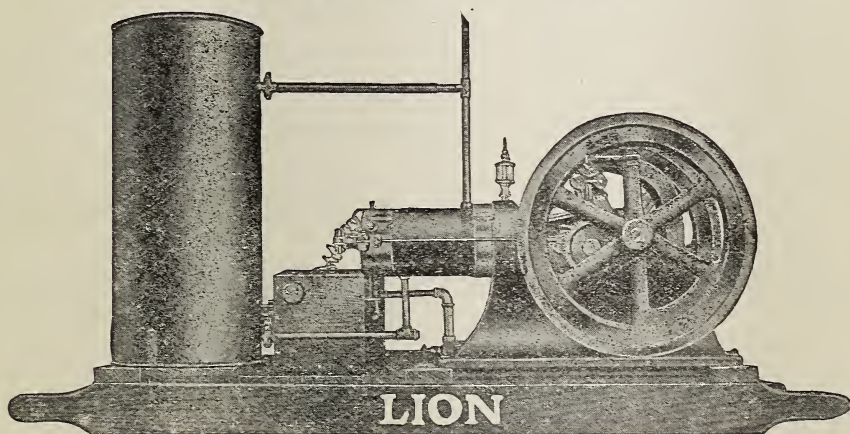
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The Three-banded Long-tongued Red-clover Strain

W. O. Victor, formerly of Wharton, Texas, with competent assistants, will have charge of our queen-rearing department during 1906. We are prepared to run 1000 permanent nuclei, besides numerous baby nuclei in their season.

We shall breed exclusively from Root's Long-tongued Red-clover Stock of Three-banded Italian Bees, having made special selection for the following superior qualities:

- Honey gathering. . . Size of Bees.
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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.

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Red Clover Queens for 1906.
Let us book your order this winter. Untested, 75c; tested, \$1.00. Let us make and quote you special prices on your 1906 supplies. New factory. New goods. Order now.
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- Select purely mated queen.....\$5.00
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- These queens will be reared from a purely mated Caucasian mother, and mated to unrelated drones.

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All the year round.

We are prepared to supply queens any month in the year. We have secured the services of one of the best breeders, and use select imported stock. Prices as follows:

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We do not guarantee impossibilities, such as sending queens to cold climates in winter, but for any reasonable distance and time we guarantee safe arrival. Write for further particulars.

A. GOMES CASSERES,
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Bees and Queens for 1906

Breeder of choice Italian bees and queens from Root's Red-clover Strain. Price list free Jan. 1, 1906. Change of address from Fort Deposit, Ala., to Greenville, Ala., R. F. D. 4. For my responsibility I refer you to Ft. Deposit Bank.

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Let me book your order for queens. I breed the finest Golden Italians, Red Clovers, and Carniolans; also Caucasians from queens furnished by the U. S. Government; therefore am satisfied that they will be as fine and as pure as can be obtained. Write for price list. :: :: :: :: :: ::

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Bee-keepers' Supplies and
Famous Providence Queens

100 ENVELOPES, Printed to Order, 30c

Honey-labels, Letter-heads, Cards, etc., in proportion.

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6000 Pounds of Honey Lost

Mr. Davis, of California, writes that he estimates his loss this season at six thousand pounds of honey by not getting all of his queens from us. . . He had three hundred colonies without our stock. Our queens gave him an average of twenty pounds per colony more than what he got from others.

We warn you against such loss as Mr. Davis has experienced. Get your queens and bees from us and you will make no mistake. Untested, \$1.00; \$9.00 per dozen. Tested, \$1.50 each. Breeders, \$3.00. Get prices on nuclei and full colonies. A big stock of Dittmer's process foundation on hand at Dittmer's prices.

A merry Xmas and a prosperous New Year to one and all.

The Bee and Honey Co., Beeville, Bee Co., Texas

CAUCASIANS

The Wonderful Bees of Russia; the Coming Race for the Timid Apiculturist.

We've gone to considerable time and expense in equipping an absolutely pure Caucasian breeding-yard, far away from all other bees, and shall rear this race during the coming season with as much pains and care as we have for years our Imperial strain of Golden-all-over bees, now of world-wide reputation and circulation.

At this writing we have 32 strong colonies of pure Caucasians, all nicely packed for winter, and shall be ready to breed them in their purity early in the spring.

At the present time there are three direct imported Caucasian queens in America, and we are the owners of one. As far as we know, we are the only breeders who made any attempt to preserve the seed of this race in its absolute purity outside of the National Government.

There is now furious war raging in that part of Russia known as Caucasus, and it will be some time before any further importation of Caucasian bees can possibly be made from their native land. Our imported queen is at the head of a powerful colony, and there is no doubt of her wintering well—all queens will be reared from her eggs, and mated in a remote yard, where drones from at least 30 pure Caucasian colonies are in full flight daily. Send for Caucasian circular and price list free. Golden-all-over queens, Swarthmore outfits, and books on sale as usual.

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For over twenty-one years I have made a specialty of queen-rearing. I ought to know by this time how to raise good queens—and I do. My queens are certainly not excelled by any. They are bred for business. None but large fine queens are sold by me. My strains are the results of long experience, and cost you no more than ordinary. I guarantee satisfaction—you take no risks. Golden Italian, or, if you prefer, Leather stock, I have it; also gray Carniolans. . . . Untested queens, \$1.00 each, 6 for \$5.00, 12 for \$9.00; tested, \$1.50: select, \$2.50; extra best, \$5.00. Nuclei and full colonies in season. Let us book you for a trial order from our Superior stock—a fine lot of breeders on hand now. I also handle bee-supplies. Ask for price list.

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"OF LONG STANDING."

Our ad. has been standing in Gleanings now for many years, and in twenty-five years we have learned a great deal that is helpful both to ourselves and to our customers. We have sent bees to all parts of our civilized world, and we have testimonials quite sufficient to fill Gleanings. We have long since abandoned the baby-nuclei plan of queen-rearing, and now raise our cells in full strong and rousing colonies, and mate queens in three-frame nuclei, of standard Langstroth-size frames; and this alone has increased our queen trade with wonderful rapidity among practical bee-keepers.

We have our mating-yards from five to twenty miles apart, and we get satisfactory mating, which is another strong point. We raise three-band Italians, Carniolans, Holy Lands, Cyprians, Albinos, and Goldens, and use good drones in mating-yards. We can not think of any thing else that would be likely to convince the readers of Gleanings that we send out good stock at the following low prices:

Untested queens, \$1.00 each; \$4.25 for six, or \$8.00 per dozen. Tested queens, \$1.50 each. Breeders, \$2.00 to \$5.00 each. We make an extra selection of any queens for 50 cts. extra. Safe arrival of all queens and bees guaranteed to U. S., Canadian, and Mexican points. We make a specialty of bees by pound, nuclei, and full colonies. Prices on application. We fill carload orders; in fact, we are queen and bee merchants and will fill your orders for what you want. Our experience in shipping bees in car lots, and by small lots by express, is how we land them safely. If you are not just exactly decided in what you want, do not hesitate in writing us, and we will lend you our assistance and help you what we can. Address us as usual.

THE JENNIE ATCHLEY COMPANY
Box 18, Beeville, Bee Co., Tex.

Any Month

in the whole year I can mail queens. Good queens, too, from the very best stocks. If you want one or a hundred I have plenty of them and can furnish promptly. . . .

Laws Improved Golden
Laws Leather - colored
and Laws Holy Lands

Prices, all races : Single tested queen, \$1.00; in lots of six, \$5.00; in lots of dozen, \$10.00. Liberal discount on quantity lots. Full colonies and nuclei furnished. Bee-supplies for sale at extremely low prices. Write for special circular. . .

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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 fifty select imported and two hundred best select tested Carniolan queens for early orders next spring. Imported queens, \$5.00 each; select tested, home bred, \$3.00 each.

Leather and Golden Italians

We have them as fine as can be found in any country, and we are wintering some select imported stock for early spring sales. Same price as Carniolans.

Specialties for 1906

Banater Bees from Hungary

Great claims are made for this new race of bees as honey-gatherers, non-swarmer, and gentleness.

Caucasian Bees from Russia

Claimed to be the gentlest bees in the world. We are wintering some imported queens of these two races of bees; and, after testing their qualities, will report in proper season.

Bees and Queens

Guaranteed to arrive in good condition at your post-office in United States or Canada. No foul brood or other bee-disease here. New descriptive price list out January 1, 1906.

A Few Testimonials

F. A. Lockhart & Co.:—Last Friday I was in the New York office of The A. I. Root Co., and saw a three-frame nucleus of Carniolan bees with queen, which they had just received from you. They were the finest Carniolans I ever saw, entirely free from any trace of yellow markings, and I at once bought them, though the Root people were not very anxious to sell them. I am writing you to-day to ask if you can ship me at once a three-frame nucleus of Carniolans with plenty of drone-brood. Send by express to me at Columbia University.—J. H. McGregor, Dept. of Zoology, Columbia University, New York, June 17, 1905.

F. A. Lockhart & Co.:—Enclosed you will find 75 cts. for one untested Carniolan queen. If this queen proves to be as good as the first Carniolan queen I bought of you I will feel more than satisfied, for that queen was worth \$100 to me. I put her in a hive that was full of moths and worms, and only a handful of bees or so; and as soon as her bees took possession the moths and worms had to get, and the next year they did finely. I am always ready to speak a good word for your strain of Carniolans.—Walter Hemple, Bagley, Wis., July 25, 1905.

F. A. Lockhart & Co.:—Mr. T. C. Stanton won first premium at the New York State Fair with the Carniolans you sent him, and I will add that your strain of Carniolans has won all the first premiums at the New York State Fair for many years. Where I showed your strain of Carniolans I won, and where I showed some other strains of Carniolans I lost.—S. D. House, Camillus, N. Y., Sept. 22, 1905.

F. A. Lockhart & Co., Lake George, N. Y.



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Attention!!

Read This.

Bee-keepers, why not order your queens direct from one of the leading queen-breeders of America? He sends queens to all parts of the world successfully. I sent a Golden queen to Mexico last year, and her colony stored 416 lbs. in 12 weeks. Just think of it! 416 sections in 12 weeks. I rear only two strains—the red-clover, or three-banded, and the Golden Italian. I shall raise 500 queens in 1906 to fill orders with by return mail. A dozen mails leave San Antonio daily.

Prices

Untested queens up till June 15th, \$1.00 each; Tested, \$1.25 each. After June 15th: Untested, 75 cts. each, or \$8.00 per dozen; tested, \$1.00 each, or \$10.00 per dozen. Breeding queens, \$3.00 each.

I offer you the best queens that money can buy. No order too large or none too small—can fill them all. Am booking orders now for spring delivery. Dealers in foreign countries will do well by writing me for prices. Keep this number for reference.

DANIEL WURTH
1111 N. Smith St., San Antonio, Tex.

QUEENS A SPECIALTY

We remove queens and proceed to introduce at once. . Price list and our method of introducing ready for mailing by January 1, 1906. . Italian and Caucasian Bees.



D. J. BLOCHER
Pearl City, Illinois

Q * U * I * R * I * N

THE QUEEN-BREEDER

Will as usual be on hand with his Superior Improved Strain of Italian Bees and Queens for 1906. . . When you buy stock of Quirin you get the qualities which tend to make bee-keeping a success. The editor of this journal, in observing the handling of our bees, remarked that such stock would be in great demand. Business established in 1888.

A Few Unsolicited Testimonials

Our folks say that your queens are extra fine.
The A. I. Root Co., Medina, Ohio.

We have good reports from your stock from time to time.
George W. York & Co., Chicago, Ill.

On every hand I hear good words of Quirin's queens.
B. S. K. Bennett, Los Angeles, Cal.

Your queens did finely. It was from one I purchased last year that I received over 600 pounds of honey.
J. L. Gandy, Humboldt, Neb.

The breeder is surely a very fine one; her daughters do grandly.
Campbell & West, Hartstown, Pa.

I had a queen of you last year which produced bees that beat any thing ever seen in this part of the country
E. L. Messenger,
53 Townsend Ave., New Haven, Conn.

The nuclei you sent J. A. Adams did just splendid. Each colony stored at least 75 pounds of honey.
F. P. Merritt, 13 Breckenridge St., Lexington, Ky.

A few years ago I bought a queen from you which proved to be the best I had for years.
H. C. Shirley,
Cashier of Liberty Bank, Liberty, S. C.

I have had the pleasure of seeing the results of your queens at Mr. George W. Stanley's apiary, at Scuffletown, Ky., and that is why I am ordering this half dozen.
C. W. Brenner, Newburg, Ind.

I bought a queen from a neighbor last year who said he got her from you. She made me 193 sections of honey after July 4th—the best my other queens did was 64.
C. E. Woodington, St. Anne, Ill.

With great respect I write to you in regard to your dealings and queens. If you want any references you can refer to me, as I can't recommend you too highly. Your queens are the best I ever saw. I have one hive of bees among my 45 colonies containing a queen from you that \$50.00 will not buy.
Morris Coon, Route 2, Locke, N. Y.

The two-frame nucleus you sent me was put in a hive May 25th. In July I brushed a swarm; had a swarm in August, and took 75 boxes of honey. I consider this a wonderful record. I had four nuclei from different parts of the country, and yours was far superior to any of them. They are very gentle, easy to handle, hustlers to work. All bees and queens needed by me will hereafter come from Quirin the-queen-breeder, Bellevue, Ohio.
S. A. Peck, Box 124, Northumberland, Pa.

Prices

| Prices 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 | | |
| Straight 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 | |

about May 10. We employ four to five hundred swarms in rearing queens; and knowing the difficulty experienced in getting queens promptly, it is our intention to keep 500 to 1000 queens on hand ready to mail.

Our Northern-br d Italians are hardy, and give you results. A dollar invested in a queen may mean five to fifteen dollars' worth more honey in the fall. Our stock has improved wonderfully within the past year or two, and would be pleased to have all bee-keepers give us an order for at least one queen, and be convinced. Free circulars. Send in your orders early as possible. Save this advertisement, as you will not hear from us again till April or May.

Address All Orders to

QUIRIN-THE-QUEEN-BREEDER

BELLEVUE, OHIO

WE ALLOW SPECIAL DISCOUNTS ON ALL EARLY ORDERS.

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|--------------------------|
| IN DECEMBER, 7 PER CENT. |
| IN JANUARY, 6 PER CENT. |
| IN FEBRUARY, 4 PER CENT. |
| IN MARCH, 2 PER CENT. |

Our 25 years' experience in the manufacture of ALL KINDS OF

Bee Supplies

enables us to furnish them at **BOTTOM PRICES** and of **SUPERIOR QUALITY.**

WE HAVE MORE SPECIAL MACHINERY,
MORE ACCURATE MACHINERY,
MORE VALUABLE MACHINERY,

than any other manufacturer of Bee Supplies in the world. If you have ever used our goods you **KNOW** their superiority. If you have never used them, one trial will convince you.

WE GUARANTEE ENTIRE SATISFACTION.

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Station M, JAMESTOWN, N. Y.

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NEW LONDON, WISCONSIN

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BEE-KEEPERS'
SUPPLIES ✿ ✿

Seven per cent Discount during December on all Orders Accompanied by Cash

Send for Our FREE
New Illustrated Catalog and Price List

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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 M'F'G CO.
MARSHFIELD, WISCONSIN.

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EXCELS ALL OTHER

WHY? Because it's made mostly from pure capping-wax, and is tougher and still easier for the bees to work. . . . Write for special prices for making up wax. . . . The Weed New Process used. . . . Satisfaction guaranteed. Exclusive right to manufacture on the Coast.

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 731 E. 3d St. Los Angeles, Cal.

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HONEY - JARS

No. 25 honey-jar, porcelain cover, metal screw-cap, absolutely tight, holding one pound of honey net, in shipping-cases, one gross each.
1-gross lots\$4.50 per gross
5 " " 4.00 "

Also in Strong
Re-shipping Cases

of two dozen each, heavy corrugated partitions, sides, top, and bottom, a perfect protection. . .
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Eight-ounce Tumblers

Tin caps, three dozen in re-shipping case
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Honey, Beeswax, Maple Sugar and Syrup, etc
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NEW YORK

Furnishes everything in the line of
BEE-KEEPERS' SUPPLIES and BEES.

12-ounce round jars, NICKEL CAPS, \$3.75 per gross.
No. 25 jar, nickel or porcelain cap, \$4.50 per gross.
1-pound square jars, with corks, \$5.00 per gross.
Catalog free.

Salesroom--105 Park Place. Apiaries, Glen Cove. L. I.

Sections and Hives!

No. 1 sections, \$3.75; No. 2, \$3.25. 1½-story 8-frame L. hive (rabbeted), 95 cts.; Dovetailed, same, \$1.25. Foundation at reduced price. Dittmer's Michigan agent. Send for my 24-page illustrated catalog free.

W. D. SOPER, Rural Route 3, JACKSON, MICH.

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

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

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"Bee-keepers' Guide"

Liberal Discount to the Trade.

Adulterated!

THIS is the verdict of the Pure Food Commissioners in many samples of pure honey put up in the United States. Hundreds of dollars in fines have been paid by packers in the last six months. Unless you get your honey from your own bees direct, it will pay you to send a three-ounce bottle by mail and have it analyzed before bottling it or using it for market, thus saving yourself a heavy fine, a lot of worry, and probably your reputation.

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Honey - Specialist
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PHILADELPHIA, PA.

has made practically a life study of the chemical analysis of all honey-flows, having traveled from ocean to ocean and as far south as Central America, getting the honey direct from the bees, and analyzing it for record, his research being at present on file in the Department at Washington.

Analysis to determine purity only.....\$ 3 00
Two samples 5 00
Quantitative analysis..... 10 00

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.

Now's the Time to Order

Your bee-hives, sections, shipping-cases, berry-boxes, and crates for the coming season. By sending us a list of goods wanted we can save you money. :: ::

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Farm and Stock is an illustrated monthly magazine in the interest of CORN BREEDING, Cultivation and Live Stock. Price \$1 a year, but for a short time will be sent a year on trial for 10c and names of ten farmers who grow corn. Farm & Stock, 251 Charles, St. Joseph, Mo.

Michigan Bee-keepers!

We sell the

Danzenbaker Hive

the comb-honey hive.
If you are interested,
send for the booklet.



Sections Implements

Weed-process Foundation.
Everything for the bees.



Discounts for Early Cash Orders!

Before January 1...7 per cent
Before February 1...6 per cent
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We always Buy Beeswax

and pay top
market price.



Send for our 1906 catalog.
It is yours for the asking.

WE WISH you a Merry Christmas and—Root's Goods. In other words, we also wish you a Happy New Year.

Root's goods have that quality that comes in using better material, and taking the extra pains to have things just right. We call it Root Quality.



It pays to use Root's Goods.

Besides the satisfaction that comes from using the best, there is an extra money profit you get in selling an attractive article in a neat package. Root's Goods mean top-notch prices for your honey.



We want to supply you with Root Quality quicker and with less freight expense than from factory. Will you let us tell you net prices on the goods you will need for 1906? We would like to.

M. H. Hunt & Son, Bell Branch, Mich.

NEAR DETROIT

Continued from page 1334.

the men of what the boys had done, and asked how many there were in that crowd who would in a like manner raise their hands to indicate they were ready to sign the pledge and begin saving their earnings for the wife and children instead of building up this den of iniquity. *Twenty-four* hands went up.

The next step she took was to tell the men and boys that, as an evidence of good faith, she wanted to stay and see them start off home to tell their mothers, wives and children what they had agreed to do. The nineteen boys and twenty-four men all filed out, one after another. Then she gave the hardened sinners who remained, including the saloonkeeper, a temperance talk that they remembered, even if they did not heed, like the ones who had just gone out.

At the temperance talk Sunday evening she told all about it. The nineteen boys and twenty-four men came forward and signed the pledge. Then she called on those who had lately started to help her in a house-to-house canvass to have the saloons banished from Leipsic. By the time "groundhog day" came around, February 2, they were ready for the election. The saloonkeepers came out of their holes, but went back whipped, and stayed there two years. At that election, two years ago, I think they beat the wets by only eight votes. During the past fall the brewers and saloonkeepers marshaled their forces and demanded another election, thinking they could get back the business they had lost in Leipsic, but they were whipped again worse than before. The second time, the dries won by, I think, 168 votes. And now follows something else that perhaps will surprise you, but it did not surprise me at all. The different churches in Leipsic had been trying for years to get up a revival. They had held revival meetings and weeks of prayer, but all to no avail. The people seemed apathetic in regard to religious matters; but immediately following that first crusade against the saloons a big revival started. If I have made no mistake, every one of those nineteen boys and twenty-four men united with the church, and more than two hundred people came out at that time, trusting in the Lord Jesus Christ. It is not all strange, dear friends, and I think banishing the saloons might start a revival in almost every town in Ohio or any other state. While the saloons were running, the town was several thousand dollars in debt. There is now no debt, notwithstanding the loss of revenue so much talked about that comes from the saloonkeepers. Two years after they were banished, the town was out of debt and had over \$3,000 in the treasury; new business enterprises had been established; factories had moved in because it was a dry town; public buildings were put up, and everything was flourishing.

Mrs. Richards here gave us a graphic account that will illustrate what happened in just one humble home. It was the home of

the carpenter whose house had been protected two years before with tarred paper, flapping in the wind. Mrs. Richards went to take a train, when she met the carpenter going to his work. She asked him about his wife, children, etc., and he begged her to go and see them, reminding her of what her talk that night in the saloon had done for his family. She found the train was over an hour late, so she went back, caught him before he got out of sight, explained she had an hour to spare, and said she would like to call on his wife, as his home was near by. He was overjoyed at the prospect. When they arrived at the gate he raised his hand as a signal for her to listen. His wife was singing one of the revival songs they used in the meetings, while she did her washing under the shade of the cherry trees in the back yard. She, too, rejoiced to get a glimpse of the outcome of temperance work. The children were in school, neatly dressed, of course. The husband and wife showed their friend and benefactor the improvements made on the house in two years, the new carpet in their best room, and they even took her down cellar and showed her the rows of neatly arranged canned fruit on the shelves—over a hundred cans in all. The happy young wife then said: "When John's money all went to the saloons we did not have a single jar of canned fruit. Once in a great while we got some at the grocery, put up in tin, that was not a bit like ours."

No wonder joy and thanksgiving were in that household. No wonder the happy wife and mother could sing at her work, and be happy all day long. The husband who had been lost—lost through strong drink—had been found. He, like the prodigal of old, had returned to his family and his home.

Mrs. Richards was in California during the last election; but she had arranged to have her friends telegraph to her the result. As she stepped off the train at Los Angeles the telegraph operator was on the platform inquiring if there was a Mrs. Richards in the crowd. She told him she was the woman he sought. "Well," replied he, "here is a telegram that reads, '168 dry. Rejoice with us.' Now, if you know what that means, all right."

She replied: "Yes, sir, I know exactly what it means."

Now, friends, you may be tempted to think this is an exaggeration; but the facts are all before the world. I noticed in the daily papers the announcement that Leipsic had gone dry by a big majority over its first victory, but I did not know the particulars. I know from my own experience—an experience I have given on these pages—that what I have told you is not only possible but probable. There is no question but a single woman, or, for that matter, a single man, in almost any community, with the love of God in his heart, and one who is not afraid, can do exactly what Mrs. Richards did. Hundreds

of towns that are now cursed by the liquor traffic could be redeemed and emancipated by the efforts of a single person almost single-handed. The churches and the temperance people are ready to respond; in fact, they have been praying for this very thing for many a long year. All that is needed is a leader; and the Anti-Saloon League is undertaking to educate and drill the leaders.

Mrs. Richards gave us a pretty little story at the close. I think I will call it the "dog story." During a part of her temperance work she visited England. Many of you are aware that the railway cars across the water are different from ours. There are compartments for a certain number of passengers, and no conductor goes along with the train. The station agent puts the passengers in, and the one at the next station lets them out, etc. Well, on one of these trips a fellow got in who had a big bulldog, and insisted on taking it in the car with him. This dog was rather vicious, and his presence was annoying to the ladies and other passengers. When they arrived at the station there was a general request that the dog should ride somewhere else. The agent politely informed the owner of the dog that he would have to put the animal in the baggage car, as it was against the rules to carry dogs in a passenger car. This man, however, had his own notions and peculiarities. He said the dog did not do any harm, whatever, and he wanted the animal in the car with himself. The agent informed him politely but firmly that the dog would have to ride in the baggage car; but the owner was so ungentlemanly as to tell them to come and put the dog in the baggage car if they wanted to; but when the railroad official proceeded to lay hands on him he showed his teeth in such a vicious way that they gave it up. The door closed, and the passengers proceeded on their way, dog and all. Now, it is not a usual thing to find an Englishman or anybody else so ungentlemanly. But this fellow seemed to be greatly delighted that he had outwitted the railway officials. When they arrived at the second station the passengers again requested that the dog be taken from the car. After the agent, however, (who had been notified by wire), found the fellow was contrary, he apparently gave it up, as did the agent at the previous station; but while the dog's owner pretended to be reading his newspaper very intently, he quietly motioned to the other passengers to step out. After our English friend had waited quite a spell for the train to start he began making inquiries. Then the agent spoke to him something like this: "Why, my good friend, the train has been gone these two hours. As to when you will start on your journey depends on yourself. You and your car have been standing here on the side track, and I fear that you will have to stay until you can conform to the rules of the railroad company, and comply with reasonable conditions, just as all the rest of the traveling public do."

The dog story was received with clapping of hands, and cheer after cheer. The saloonkeepers and others who persist in defying our laws, and inflicting their hateful business on a patient and suffering public, are just beginning to discover they are "side-tracked," and a good many of them will also find they have been side-tracked when they *didn't know it*. We are marching on.

OUR "ROBINSON CRUSOE" ISLAND.

Friend Root:—I see in GLEANINGS your plan for this winter. Let me tell you about Osprey, for I believe it is the place you are looking for. I live on a key two hundred yards wide—gulf on one side, bay on the other; bay nearly a mile wide. I am told it never freezes on this key. I have been here two years, but have seen no frost. My bees are carrying in pollen and a little honey now. I have five stands, and they are at your service if you will come. I have 35 stands on the mainland, one and a half miles from home. They are the only bees nearer than six miles. Osprey has only a postoffice, a small hotel, one store, and quite a number of residences along the bay; daily mail; telephone, sail boats and launches; oysters, clams, and fish in abundance; ten minutes' sail to postoffice. The railroad is this side of Sarasota. I think it will be to Osprey in three months.

If you need help in queen-rearing, one of my daughters, 17 years old, would be glad to help, to learn the business. The only drawback I see is, I have no empty house. My son-in-law and I have one each. We have a beautiful oak grove. Couldn't you live in a big tent, or build a "cabin in the woods," where you could look out over the beautiful Sarasota Bay?

Last, but not least, we need your Christian influence and teaching. We have a beautiful little chapel, built by a young lady from the North, who died here. The tourist has Episcopal services for about three months, and the rest of the time nothing.

Osprey, Fla., Nov. 23.

I. T. SHUMARD.

Our arrangements are now to accept the above kind invitation: and if you wish to write me, direct your letter to A. I. Root, Osprey, Manatee Co., Florida. But let me remind you that, if I am going to raise queens, I shall not have very much time to answer letters, as I shall probably have no stenographer in Florida. I shall be very glad to hear from all of the friends, and I think I can promise you a fairly prompt reply if you will be satisfied with such an answer as can be put on a postal card. We expect to leave Medina on Tuesday, Dec. 12.

SOMETHING FROM THE GOVERNOR-ELECT OF THE STATE OF OHIO.

Just before election Mr. Pattison passed through Medina and called at the Home of the Honey-bees. Somebody informed me that one of his daughters has some bees and has our A B C book. In view of this I wrote him a letter of congratulation, and called his attention to my editorial in our issue for Nov. 15, page 1200. Below is his reply:

My Dear Mr. Root:—I thank you very much for your kind letter of congratulations, particularly your good wishes for the coming administration. I received a copy of GLEANINGS IN BEE CULTURE. I have also read the article on page 1200 with much interest, and thank you for it.
Very truly yours,
Cincinnati, O., Nov. 22. JOHN M. PATTISON.

OHIO'S VICTORY.

Never again will any political party in Ohio nominate a candidate for governor, or any other high office, against the united protest of the church and moral forces.—WAYNE B. WHEELER, Columbus, O.

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DITTMER FOUNDATION

Retail - Wholesale - Jobbing
Used and Sold in Every State of the
Union, Canada, and Great Britain

THE astonishing sales of Dittmer's Foundation—from 5000 lbs. in 1899 to 35,000 lbs. in 1905 to date, and which will be 40,000 by Jan. 1st—is due wholly to its merits and our persistent efforts to produce the best, and keep it the best. ❖ ❖ ❖ Our machines and process, which it has taken years to develop and perfect, produces a tough, clear, and transparent sheet, of the natural odor and color of the very brightest pure wax, equal to the lightest lemon and orange, and is a foundation that looks, acts, and smells like beeswax.

We make a **specialty of working wax into foundation, for cash,** for the **consumer, dealer, and jobber,** by the **tens, hundreds, and thousands of pounds,** at any time during the year; and we are in the very best shape to attend promptly to large orders, our capacity now being 1500 lbs. daily. It will pay you to look into this, and get prices, discounts, etc.

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 Remember that now is the time to get the best discount  
 on our foundation, working wax for cash, and on our

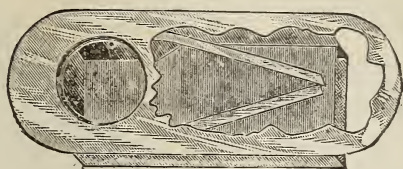
**Full and Complete Line of Supplies**  
 of which we carry the best only

Do not fail to write for samples of our foundation, descriptive catalog, prices, and discounts, stating quantity of foundation wanted, wax to be worked, and list of other supplies, and prices will be accordingly. Our large illustrated catalog will be ready about January 1st.

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Beeswax Always Wanted

GUS DITTMER, Augusta, Wis.

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 E. H. Taylor, Welwyn, Herts, Eng., agent for Great Britain



PORTER BEE-ESCAPES

HIVE ESCAPE

When taking off surplus this is the greatest saving device. It does away with the shaking of the heavy supers, the cruelty of excessive smoking which causes the bees to uncap their honey and start robbing. Just tip the super to the angle of 45 degrees and insert the board. In a few hours it is free of bees; then take off your super. You can as well afford to be without a smoker as without the Porter Bee-escape.

PRICES

Each, 20 cts.; dozen, \$2.25; postpaid. With board, 35 cts. each; \$3.25 per 10; by express or freight.

TESTIMONIALS

They are perfect in action.—British Bee Journal.

No bee-keeper can afford to be without them.—Prof. Cook in American Bee Journal.

Worthy of highest commendation.—Eugene Secor, judge on awards, World's Fair, Chicago.

I would not do without them even if they cost five five dollars apiece.—W. Muth-Rasmussen, Independence, Cal.

They are absolutely perfect. I can not tolerate my own make since using them.—John S. Reese, Winchester, Ky.

They are one of the best things ever brought into any apiary, and should be used in every bee-yard in the whole world.—Wm. McEvoy, Foul-brood Inspector, Ontario, Canada.

There is no robbing or fighting or disturbance in the apiary when the surplus honey is taken off with them. They are simply perfect.—W. Woodley in British Bee Journal.

HOUSE ESCAPE

To be used over the doors and windows in the extracting-house, or any place you wish to clear of bees. The most persistent robber can not return. Some bee-keepers make a practice of taking off the filled supers and stacking seven or eight in a pile. The Porter Honey-house mounted on a board makes the best kind of escape. Don't wait till to-morrow before you get a supply. You can not afford to be without them longer.

PRICES

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TESTIMONIALS

The Porter bee-escape clears the supers of bees so perfectly and quickly and easily that it makes the taking off of honey a pleasure instead of a dread as in former years.—G. M. Doolittle, Borodino, N. Y.

The removal of full honey-boxes has become an amusement since we began using the Porter bee-escape.—Ed. Bertrand, Editor Revue Internationale d'Apiculture, Nyon, Switzerland.

This number of the Review contains more unqualified praise of the Porter bee-escape than any other issue has ever contained of any other implement; but so long as it is deserved, who cares?—Bee-keepers' Review.

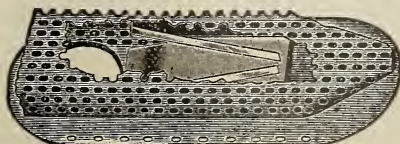
They are the greatest thing on earth for expelling bees from supers.—G. J. Flansburg, South Bethlehem, N. Y.

I would not be without them for four times what they cost.—Dr. W. A. Tufts, Musson, La.

Undoubtedly the best bee-escape is the one invented by R. & E. C. Porter.—W. S. Pouder, Indianapolis, Ind.

Bee-men are certainly behind the times if they can afford to use them and do not.—M. H. Mendleson, Ventura, Cal.

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**Vigorous Plants
Seeds That GROW**

Best in quality and prolific bearers—the kind that yield good returns and give satisfaction. Prices low. Apples 4c; Plum and Cherry 12c; Peach 4c; all budded and good stock. Concord Grapes 2c; Forest Tree

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Write for our Catalogue (English or German). It's full of good things —just what you want. We send it free on request. Write today. Address the

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CARL SONDEREGGER

85 cts. for 15 Names. Send us the names and postoffice addresses of fifteen good farmers and fifteen ceuts—stamps taken—and we will send you for two years the Farmers' Call, a weekly, 25 years old, more than 1200 pages a year; regular subscription price 50 cents a year. Sample copy free.
FARMERS' CALL, Quincy, Ill.

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The firm of Cooley & Deuel

HAS DISSOLVED PARTNERSHIP.

D. COOLEY will continue to sell bee-supplies. All orders will receive prompt attention. Address all orders to

D. COOLEY, Kendall, Mich.

BEE-KEEPERS, ATTENTION!

I have some of the finest Barred Plymouth Rocks in the country, from the celebrated Bradley Bros.' strain. Am booking orders now; \$1.00 for 13 eggs.
FRED W. BUTTERY, R. F. D. 43, NORWALK, CONN.

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Backed by 14 Years of Successful Use by

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



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Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

J. W. WHITE

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without artificial heat, egg-foods, stimulants—an easy, inexpensive positive way. Our FREE booklet tells how to prevent fowls suffering from roup, colds, cholera, loose bowels, etc., and how to get eggs in coldest weather. Send a postal to-day to
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ADVANCED BEE-VEIL.

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50 CENTS, POSTPAID.

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SPECIAL.—A quantity of Dovetail and Wisconsin Hives, slightly damaged by water, in packages of five at \$1.25 per hive for 1½ story 8-frame; 10-frame, \$1.40 per hive. Satisfaction guaranteed.

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

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If you want bee-keepers' supplies of best quality and for the least money possible, you should buy them from **WHITE MANUFACTURING CO.** Situated, as we are, right near the great pine belt of North Texas, Louisiana, Arkansas, and Indian Territory, we can secure the best material possible at least cost, thus enabling us to give entire satisfaction. Catalog and price list free.

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ANNOUNCEMENT.

The undersigned has bought the bankrupt stock of H. H. Hyde, late of San Antonio, Texas, consisting of eight and ten frame bee-hives, sections, frames, foundation, smokers, extractors, and every thing used by bee-keepers.

The problem that now confronts me is how to dispose of the stock to advantage. The writer will go to Texas and try to establish a distributing agency at San Antonio, to which carloads may be shipped from time to time. I wish now to hear from bee-keepers who wish to buy for cash, and also from responsible parties, preferably hardware or lumber dealers, who will put in and carry a retail stock of bee-hives and supplies. It is for your interest to have as much competition and as many retail stores carrying bee supplies as possible. You will, therefore, do yourself a favor by making inquiry among the dealers in your locality, and by inducing somebody to purchase a stock from me. I will keep you posted through my monthly bee journal, **THE RURAL BEE-KEEPER**, in which L. B. Smith, of Rescue, Texas, conducts a department, and such authorities as L. Stachelhausen, J. E. Chambers, E. O. Swafford, of Abilene, and others, are contributors. Regular subscription price \$1.00 a year; six months' trial, 25 cents.

To any bee-keeper who will so interest some reliable dealer and secure such a customer for me I will send **THE RURAL BEE-KEEPER** one year FREE.

Yours truly,

**W. H. PUTNAM,
RIVER FALLS, WIS.**

Dec. 1, 1905.

BEE - SUPPLIES

Distributing-house for Lewis' Goods.
Dadant's Comb Foundation, etc., at
Factory Prices.

Every thing the bee-keepers need. No order too large for us, nor none too small. Cash orders before January, 7 per cent discount.

FINE EXTRACTED HONEY x x x

The best the world can produce. Sample sent, 8 cents. How much can you use? *We always buy beeswax.* Catalog and "Special" free.

C. M. SCOTT & CO.
1004 E. Washington St.
Indianapolis : Indiana

Bee-keepers, Co-operate!

We are Bee-keepers--Organized in
the Interest of Fellow Bee-keepers
(No Matter where They Live)

Membership dues, \$1.00 per year.
Present membership—about 200 bee-keepers.

Our 1906 price list of bee-supplies, and a leaflet containing valuable information, are now ready to mail.

If you wish to assist in co-operation among bee-keepers write us now and send the names and addresses of all your neighbor bee keepers.

The St. Croix Valley Honey-producers' Association
Headquarters Until June 1, 1906
Glenwood, Wisconsin

We are now Located at
COUNCIL BLUFFS, IOWA

The ever increasing demand for our goods necessitated the erection of a larger factory, with better shipping facilities. . COUNCIL BLUFFS, IOWA, is the greatest western railroad center, with fifteen railroads radiating in every direction, with freight rates for the West the same as from Omaha. Here we have just completed the largest factory of its kind in the West; modern, up-to-date in every detail; as the oldest manufacturers of bee-keepers' supplies (42 years' actual experience) we have gathered many valuable ideas for the erection of a complete factory, fitted with the best labor-saving machines, many constructed expressly for our work, operated by ten electric motors, all in charge of experienced workmen, nearly all of whom have been with us for years.

A railroad track not only runs to the doors of our factory and warehouses, but also through the entire length of lumber sheds and yards, so that carload shipments can be loaded or unloaded direct into warehouse and factory; paved streets right to the door of the factory enable us to haul immense loads of goods for local shipments, with little expense for drayage.

Wherever you are located, we can now make you DIRECT shipment over this network of railroads, for less freight, in less time, and less damage to goods than from any other source. . By thus handling our material expeditiously, with the best arrangement of labor-saving machines, and material increase in working capital, we are now, more than ever, in position to supply you with the BEST goods now produced, at the same price charged for inferior goods.

Satisfaction guaranteed. Send for free catalog.

Kretchmer Manufacturing Company
Council Bluffs, Iowa

ABOUT DISCOUNTS

EVERY bee-keeper in the United States should fully understand the advantages of the early - order discount offered by all the dealers in Root's Goods.

There are three ways they affect you personally.

First.—You save money on every dollar's worth of goods you purchase before the rush season. Just for convenience in figuring we will assume that you will need \$100.00 worth of supplies.

The discount for December is 7 per cent. If you put off ordering until April 1st you obtain no discount. Thus, for being three months forehand you save \$7.00; and \$100.00 drawing 4 per cent interest for this time would earn only \$1.00. But you earn seven times as much—28 per cent. Worth while now, isn't it?

Second.—You save losses in more ways than more money. During the next few months you will have times when you have ample opportunity to nail your hives and fit your supers—time enough to do a first-class job of it. After April 1st every thing is hurry, hurry. Wasn't that the case last year? Now imagine your hives all stacked up ready for new swarms, and supers ready to go on at a moment's notice. All ready! That's what makes a successful bee-keeper. Twenty-four hours' waiting would mean a great difference in the crop. Worth a little thought just now—no?

Third.—You save annoyances all around. If you wait until April 1st, every chance is

that you will fail to receive your goods promptly. The agent will be out of goods or the factory behind with orders, or the railroads will be unearthly slow in delivering the goods; bees swarming; honey rolling in; no supplies. Ever been in such a pinch? Just think, too, how much trouble you will save other people. Why not try the safer plan this season?

You have nothing to lose. Almost any one can figure very close his needs only 4 months in advance. A few extra supplies will keep without deterioration till next season. Better sure than sorry.

But how can the manufacturer and agent afford to give such liberal discounts? It's very plain. Under ordinary circumstances 75 per cent of their business comes within four months of the year. That is 25 per cent in 8 months. Those eight months are a worry. Then they need money, work for their employees, room for the stock which they must carry. That's why they need your orders then, and are glad to pay for them—just what the discount is.

The discounts are as follows: December, 7 per cent; January, 6 per cent; February, 4 per cent; March, 2 per cent; after April 1, no discount. These discounts apply to all goods listed in general catalog intended for next season's use.

Let's co-operate!

You help us and we will aid you.

7 per cent

THE A. I. ROOT COMPANY

:: NINE BRANCHES ::

MEDINA, OHIO

HUNDREDS OF AGENCIES

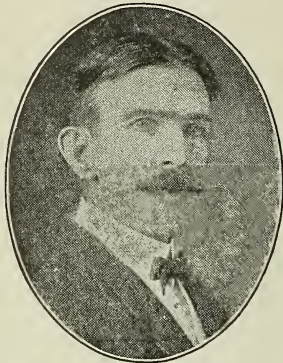
CHICAGO

PHILADELPHIA

NEW YORK

----"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.

If in Need of Finest Grade Honey

to supply your local demand write for my

Monthly Quotations of Indianapolis Honey Market

If you care to secure your bee-supplies now for next season's use I will offer the following very liberal discounts. As an investment every thoughtful bee-keeper should be interested. Goods all "Root Quality."

For Cash Orders Before

January 1..... 7 per cent
February 1..... 6 per cent

March 1 4 per cent
April 1 2 per cent

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 being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

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

A LARGE STOCK OF HIVES ON HAND -- OVER 2000

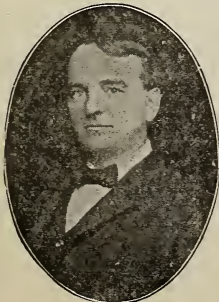
So you see we can fill orders promptly. Sections nearly a million. Our storehouse in Syracuse will hold 20 carloads of bee-supplies—send in your order for anything needed. If you have any wax we will allow you prices quoted in GLEANINGS from time to time. We take it any time of the year. . . .
7 per cent discount for December cash orders.

THE A. I. ROOT COMPANY
SYRACUSE NEW YORK

WHEN ATTENDING THE
NATIONAL BEE - KEEPERS' CONVENTION
AT CHICAGO, DEC., 19, 20, 21

COME AND INSPECT
LEWIS' BEEWARE
AND MAKE YOUR HEADQUARTERS AT

**York Honey and
Bee Supply Co.,**
(Not Incorporated)
**141-143 Ontario St.,
Chicago, - Illinois,**
Long Distance Phone, North 1559



H. M. Arnd, Mgr.

Catalog and prices on honey on application. If you want good goods at factory prices and prompt shipment, send your orders, or call on us.

**BEESWAX
WANTED**

26c cash, or 28c when taking bee - supplies in exchange, delivered here.

**7 per cent
DISCOUNT**
IN DECEMBER

. . . Keep Bees . . .

Few realize that they can keep bees. They are afraid of stings. If you learn the habits of the bee and how to handle them there is no danger in the least. They can be made very profitable. Few specialties are so much so. Two or three colonies with a little care can be made to supply a family with honey, and a surplus for selling. Bee-keeping is a fascinating occupation. It is a fine fad. The more you learn about the little fellows the more you like them.

Our printed matter is a great help to those who are studying the bee. It will teach you how to become a successful bee-keeper. We shall be pleased to send, free of charge to those who are interested, any of the following pamphlets: "My First Season's Experience with the Honey-bee," "Habits of the Honey-bee," "Book for Beekeepers," "A Morning with the Bees," "Outfits for Beginners." Also ask for our general catalog.

If you wish to purchase an outfit of bees, write us. We can furnish you with every thing you need. We have eight branch houses, and many agents all over the United States, and can supply you promptly, and at a saving of freight.

The A. I. Root Company,
Factory and Executive Office, **Medina, Ohio.**
Branches.

- CHICAGO, ILL., 144 East Erie St.
 - PHILADELPHIA, PA., 10 Vine St.
 - NEW YORK CITY, N. Y., 44 Vesey St.
 - SYRACUSE, N. Y.
 - MECHANIC FALLS, ME.
 - ST. PAUL, MINN., 1024 Mississippi St.
 - WASHINGTON, D. C., 1100 Maryland Ave.
- Agencies Everywhere.**

DANZENBAKER HIVE.

"Facts About Bees," a 64-page book written by Mr. F. Danzenbaker, giving a complete description of his famous hive and directions for using. Full of valuable information. Sent on receipt of a two-cent stamp to pay the postage. Send for it.

THE Danzenbaker Hive

THE COMB-HONEY HIVE.
Three points of Excellence:

QUALITY.

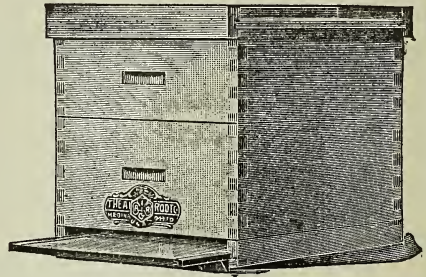
You can produce better-looking honey.

QUANTITY.

You can produce more of it.

PRICE.

You can get more per pound for it.



Special Notice.

The great popularity of the Danzenbaker hive has brought the shallow brood-frame and the tall plain sections into prominence. It must be remembered that no other hive contains the essential features of the Danzenbaker. The success of this system depends on having everything just right, so you should place your order for the Danzenbaker hive with our main office, or any of our branches or regular agents.

What Others Say About the Danzenbaker Hive.

UNION BRIDGE, MD., Feb. 9, 1904.

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

Gentlemen:—I saw in a recent issue of your paper that you have a department called "Reports Encouraging." I shall send you my report.

I use the Danzenbaker hive and will give you report of the same, as the few Dovetailed hives that I use do not compare at all with the Danzenbaker. One colony gave me over one hundred pounds No. 1 white honey, and the rest averaged about sixty, with an increase by natural swarming of one hundred per cent. A friend of mine who uses all sorts and kinds of hives in his apiary succeeded in making scarcely enough honey to pay for the foundation used in the sections. This was about two miles from my apiary. Long live the Danzenbaker hive. It is just the thing for this locality.

Yours truly,

J. B. HOLLOPETER.



MALLET CREEK, O., Sept. 25, 1902.

I now have 250 colonies of bees, of which 170 are in Danzenbaker hives, and shall have all my bees in Danzenbaker hives next spring. During the past poor season, 30 or 40 of the colonies in the Danzenbaker hives gave over 100 pounds surplus. On the average I get more than double the amount of honey from these colonies that I do from those in the old chaff hives. With a seven-inch telescope cover, the Danzenbaker hive winters the bees better than the chaff hives.

VERNON BURT.

I have used both square and tall sections in all my apiaries five years, and I know from practical experience that it will pay to discard the 4¼ sections, and use only 4x5 sections, and the Danzenbaker hive with the fence separator. They have made enough more this season in the same yard to pay for the hives. I have made *more money* this season per hive than I have any previous year in my 15 years of bee-keeping. Fifteen of my strongest Danzenbaker hives made a ton of honey. When it comes to sales, I get more for the 4x5 sections, and have no work in cleaning them. I ship them as I take them from the super. This is not the case with the 4¼ section. I make honey to sell, and anything that sells the best, and for the most money, is what I want out of the bee-business.

S. D. MATTHEWS.
In Gleanings, p. 931, Dec. 15, 1899.



ROCK VALLEY, N. Y., Feb. 22, 1901.

My bees gathered no surplus after July 1. I had only 1200 pounds, but I obtained a fancy price—15½ for "Fancy" and No. 1 white, and 14½ for No. 2 here at my station for all the Danzenbaker 4x5 plain sections used on our hives, while I got only 14 and 13 cents per pound for the 4¼x4¼ square sections, and I consider that much difference is worth looking after—don't you? The Danzenbaker hives doubled up, two brood-chambers, are in fine condition, even better than my double-walled hives. I intend to build a bee-cellar and work off my double-walled hives as fast as I can, and get the Danzenbaker hives.

Very truly yours, J. L. HAIGHT

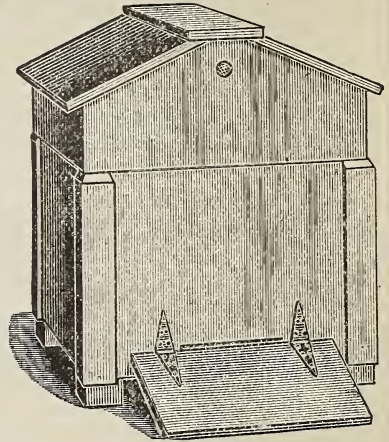
F. Danzenbaker, Patentee, Miami, Florida
For Sale by all Leading Dealers in Bee-keepers' Supplies

Hilton's Chaff Hive

fortifies your colonies against sudden changes of weather in spring and fall. Only a little extra work necessary to change them for winter, and make them frost-proof. This work can be put over until late in November or December, after the busy time at this season of the year.

The double cover with ventilators enables the bees to continue work in supers during the intense heat of summer, where the hives, of necessity, are exposed to the sun during the middle of the day. Ask for copy of report from Michigan Agricultural College, regarding "Double v. Single Walled Hives."

A large part of many apiarists' time is consumed in shifting from winter to summer, and summer to winter quarters, which could be well spent in caring for a larger number of colonies. This is overcome by using Hilton's Chaff Hive.



Prices of Improved Double-walled Hives

| | |
|--|--------|
| One hive, nailed and painted..... | \$2.75 |
| Ten hives " " at | 2.70 |
| One hive, nailed as sample, no paint..... | 2.50 |
| IN THE FLAT | |
| One hive, including frames and nails..... | 2.00 |
| Five hives, including frames and nails.... | 1.95 |
| 25 or more " " " " | 1.90 |

The above prices are for eight-frame hives. For nine-frame hives which I keep in stock, add 5 cts. each. Above prices do not include supers.

Prices of Hilton's T Super, including Hilton's Separators

| | |
|----------------------------------|------|
| One super, as sample, nailed ... | .35c |
| Ten or more supers, nailed | .33c |
| One super in the flat | .30c |
| Five supers in the flat..... | .29c |
| 25 supers in the flat | .27c |
| 50 or more | .25c |
| If fence separators, add..... | 5c |

Full Line of Root Goods



I Carry a Complete Stock

of all kinds of bee-keepers' supplies, Danzenbaker Hives, Root's Dovetailed hives, Root's Chaff Hives, Root Cornell Smokers, Doolittle Wax-extractors, and Alley Traps, etc.

In the Heart of Michigan

Within a hundred miles of me are over three-fourths of the bee-keepers of Michigan. I am on the Pere Marquette Railroad, which completely covers this region. Factory prices, prompt service, low freight. 36-p. catalog free.

George E. Hilton
Fremont, Mich.



PRICE OF BEESWAX.

Until further notice we will pay 27 cts. cash, 30 cts. in trade, for average wax delivered here. As the early-order discount grows less we reduce the difference between cash and trade price of wax.

LANTERN-SLIDES.

We now have a good assortment of lantern-slides for illustrating lectures on bee-keeping. Parties interested will be furnished with a list of subjects, and terms for rental or sale.

HONEY WANTED.

White clover and basswood comb and extracted honey wanted. We can pay a good price for a large lot of extra-fancy basswood in Danzenbaker sections for an export order. State quantity, and price wanted. Send sample of extracted.

EARLY-ORDER DISCOUNT.

The discount for December cash orders is 7 per cent; and many who have not ordered in previous months are taking advantage of this discount before it grows less. After January the discount drops off two per cent a month.

DRONE-EXCLUDING ZINC.

Several years ago we advertised perforated zinc that will exclude drones, but allow the queens to pass. Before disposing of the Tinker machine on which this was made we prepared a good supply of sheets 24x40 in size, and we still have a good part of this stock, as it has not been listed in recent catalogs. To those who have use for such zinc we shall be pleased to furnish this at 75 cents per sheet.

OUR 1906 CATALOG.

Before the Jan. 1st GLEANINGS goes to press we expect to have the first 100,000 catalogs for 1906 pretty well completed. The large editions of GLEANINGS, and the increased size, has kept our presses so busy that we haven't had time to push the catalog as we should like. Although we have been running our big press night and day for weeks we have had to have help on this first 100,000 catalogs from outside in order to get it out on time.

THIS ISSUE.

The paper required to print this issue of GLEANINGS weighs 16,000 pounds. Not counting the cover there are 240,000 impressions on our large 16-page press, or four million pages. At the low newspaper rate of postage, one cent a pound, it costs \$160 in postage alone on this one number. Forty thousand copies of 100 pages each are printed and mailed — the largest size and largest number of a bee paper ever made.

GLEANINGS FAIR CONTEST FOR 1905.

The contest closed Nov. 15th, and was satisfactory in every way. The following were the winners. Trial subscriptions count one point; and yearly subscriptions (new or renewal) count two points.

- 1st prize, \$10, J. P. Berg, Washington, 41 points.
 2d prize, \$5, F. M. Roseman, Nebraska, 34 points.
 3d prize, \$3, H. S. Doby, Illinois, 22 points.
 4th prize, \$2.50, E. Grainger & Co., Ontario, 20 points.

We will doubtless inaugurate another fair contest in the fall of 1906. GLEANINGS readers should, whenever possible, enter our subscription contests. The entries are always light when compared with other magazines, and our prizes are very liberal. A little extra work is well rewarded. Notice that three of these prizes went to parties located in somewhat remote points where bee-keepers are not as numerous as in many places, showing how easy it is to get a prize, even under unfavorable conditions.

The Western Fruit Grower.

One of the best, if not the best, fruit-papers that reaches us is The Western Fruit Grower, published at St. Joseph, Mo. It comes monthly, filled with valuable articles, and its pages crowded with clean advertisements. The typographical appearance is extra good.

Every number has a special cover design printed in two colors. Every issue is devoted to some special subject. The following are the ones for the next four months:

- January, Horticultural Society Number.
 February, Spraying Number.
 March, Gardening Number.
 April, Small-Fruit Number.

Gleanings heartily recommends this paper to its readers. Bees and fruits naturally go together, so every bee-keeper should read at least one good fruit-paper.

FOR SALE.—One Barnes foot-power buzz-saw.
 F. W. STEVENS, Rt. 1, Box 53, Moore's Hill, Ind.

FOR SALE. White Wyandotte cockerels; selected stock; farm-raised; bred from 200-egg strain; \$1.00 to \$1.50 each. F. B. YOCKEY, Apollo, Pa.

FOR SALE.—Golden Italian queens from select stock, 40 cts. each for orders received before Jan. 20, spring delivery. Try a dozen; I guarantee satisfaction. M. O. office, Arifton. W. S. MCKNIGHT, Newtopia, Ala.

FOR SALE.—Eighty acres of fine land—no better in Iowa or Illinois—at \$65 per acre; better than money at 6 per cent; joins \$75 and \$80 farms; title clear. Write me. D. E. LHOMMEDIEU, Colo, Story Co., Iowa.

FOR SALE.—All or part of apiary for cash; or will exchange for young Guernsey cattle in fair condition. Shipping-point, Canton, Ohio.
 ELVERT W. HAAG, Route 2, New Berlin, Ohio.

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

FOR SALE.—Western bee-keepers, if you use foundation or have any beeswax you wish made into foundation, write to the Delta Apiaries, Delta, Colo., for free samples and prices; 25 years' experience. A big discount from ruling prices, and on this winter's orders.

FOR SALE.—Fifty portico Langstroth hives, \$50; 25 Jumbo hives, 500 Langstroth and Jumbo brood-frames; one honey-extractor, \$5; Barnes foot-power saw, \$15; 50 Doolittle division-board feeders; honey-tanks, Hill devices, etc. R. C. HUGENTOBLE, Miami, Ohio.

FOR SALE.—One horse sweep-power, speed-jack, rods, and belting, Daisy green-bone cutter; a bargain; price \$25. One Odell double-bar type-writer, good as new; price \$7. A small quantity of shallow extracting-frames; price 10 cts. each. Address
 WM. F. FINDLAY, Basco, Hancock Co., Ill.

FOR SALE.—Weed-process foundation business; a rare chance to buy a foundation business with good growing established trade; price \$300.

H. F. HAGEN, Denver, Colo.,
 Or The A. I. Root Company, Medina, Ohio.

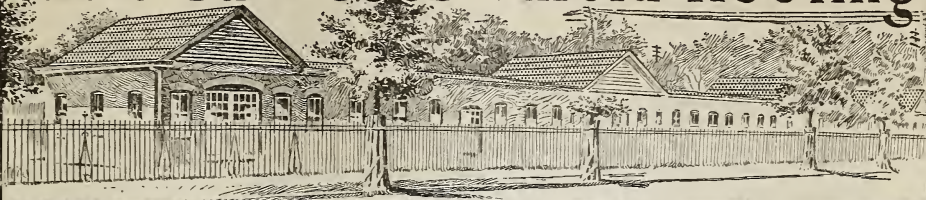
FOR SALE.—300 acres of land six miles from a thrifty town; 40 acres in cultivation, 40 acres timber, balance pasture; all new land, partly underlaid with good coal. Price \$17.50 per acre if sold soon. For particulars address
 A. O. YOUNG, Appleton City, Mo.

FOR SALE.—Fifteen Dadant hives, painted; also joints painted before nailing; used 1½ years; consisting of bottom-board, body, and cap; brood-frames nailed and wired. Price each, \$1.60 f. o. b. here.
 WM. UECK, Dorchester, Wis.

FOR SALE.—Custom sawmill and farm of about 80 acres, with about 32 cleared; new 15-room house; daily capacity about 4 to 5 M; price \$6500. For further particulars address
 No. 74, Route 2, Dorchester, Wis.

FOR SALE.—Ten AE5-8 hives, nailed and painted; ten 2P-8 supers, and ten 23-8 supers; in use two seasons, but good as new. Root's catalog price over \$30.00, but \$20.00 will buy the lot. Also have some bees in box hives at \$2.00 a colony.
 W. T. ANDERSON, R. F. D. 4, Erin, Tenn.

Uncle Sam Uses Paroid Roofing



PAROID ROOFING is the most economical, the most durable, and the most satisfactory of all ready roofings.

The above illustration is from a photograph of the Plant Industry Building, U. S. Department of Agriculture, Washington, D. C.

It is located in the heart of the city,

PAROID ROOFING

on all the buildings of the Monmouth Poultry Farm, Freneau, N. J. This is one of the biggest poultry-farms in the country, and we would like nothing better than to have you write to these people and get their opinion of Paroid for roofing and siding.

Thousands of other poultry-raisers, dairymen, and general farmers all over the country are keeping their buildings dry and warm with Paroid.

The basis of Paroid is an extra strong and heavy felt, which insures permanency and durability.

The extra saturation this felt receives in our special solution makes it absolutely proof against heat and cold.

It keeps the cold out.

It keeps the heat in.

Sparks and cinders have no effect upon it.

It is proof against gas and acids.



Remember! Paroid contains no tar.

The dressing it receives contains nothing that will taint rain water.

It will not run or crack in any climate.

Aside from all of its real substantial qualities, people like it because it is easy to put on.

A complete roofing kit is packed in every roll, and this enables any one to put it on in any kind of weather.

And when it is once put on it stays put.

F. W. BIRD & SON (MAKERS)

Originators of the Complete Roofing Kit—Fixtures for applying in every roll

E. Walpole, Mass.

Established 1817

Chicago, Illinois

and is covered with Paroid Roofing.

The Government also uses Paroid for stables, barracks, warehouses, etc.

It uses Paroid because it finds nothing its equal.

Uncle Sam is a careful buyer.

It will pay you to follow his example.

The illustration below shows

Besides, it doesn't require painting when first laid either.

There is just one reason for the universal use of Paroid, and that is quality.

And the reason for that quality is close to a century's experience.

The mills where Paroid is made were established in 1817.

There is roofing knowledge in it, and a record back of it.

It is the standard in quality, yet low in price.



If it pays to protect live stock from cold and wind and rain and sun, it pays to use Paroid Roofing.

If it pays to protect farm implements, grain, and hay from the weather, it pays to use Paroid Roofing.

Wherever a roof is needed

It pays to use Paroid,

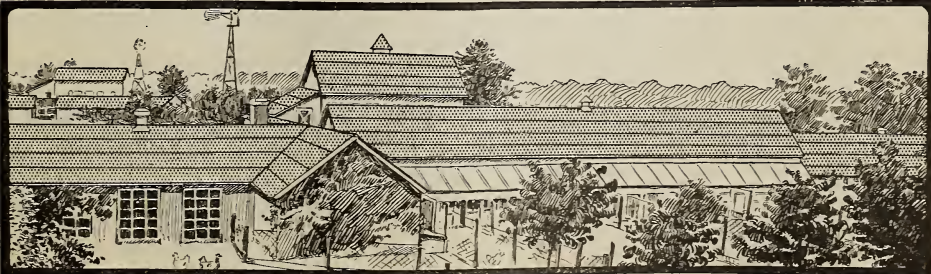
The Roofing that Lasts.

If you think of putting up a building, or repairing an old one, *Send for a Free Sample of Paroid*, and ask for the name of our nearest dealer.

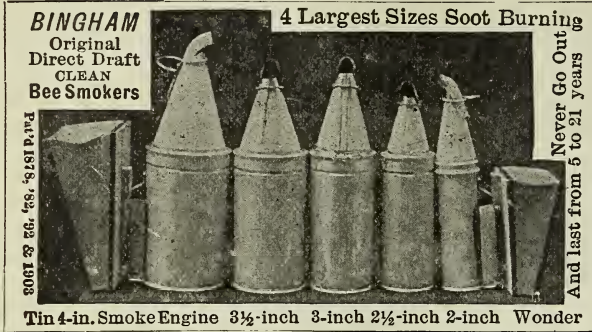
We have a book of poultry and farm building plans that is worth a good deal of money to any one who thinks of putting up a barn or any sort of out-building.

You can have one of these valuable books free by sending a two-cent stamp to cover postage.

Write for the sample and the book now while you think of it.



INVENTION



smoke-tar into smoke instead of over the smoker on the outside and into the joints. Bingham made and sold the first and original closed-end frame Bee-hives in 1863. Bingham made and sold the first and original square Bee-smoker Bellows with spring valve and double-cleated joints.

Bingham make and sold the first and original five sizes of Bee-smokers.

Having made all the above tools, and improvements upon them, is it any wonder that in getting a Bingham tool you get the best?

Rev. L. L. Langstroth made the hive that has stood the test for fifty years. Bingham made the smoker that has stood the test twenty-seven years.

Below is a part of the direction card sent with all Bingham Smokers, viz.: "This Bingham Smoker comes to you ready to use, not a bolt nor screw to turn. If you have our four-inch Smoke Engine please send us a card and say how you like it. Mention its faults. They have been in every country the standard of perfection. They have always pleased every one—we hope they will please you."

The above invitation has brought us hundreds of complimentary letters and only two uncomplimentary ones.

Mr. Charles Dadant & Son, in their catalog, say "Bee-smokers being one of the most useful and probably the most indispensable instruments used in the apiary. All Bingham Smokers have elastic barrels and cover. If they get stuck they can be sprung and opened without injury.

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UNITED STATES DEPARTMENT OF AGRICULTURE, BUREAU OF ENTOMOLOGY, }
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- 2 Blank bars, 2 Cell-bars,
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- 1 Cage-pocket, 1 Grace Cell-compressor,
- 1 Grafting-plug, 100 Flange Cups,
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| 16-hole Cell-bar | | .10 | .02 |
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| Grace Cell-compressor, each | | 1.75 | .14 |
| Grafting-needle, each | | .15 | .01 |
| Grafting-plug, each | | .10 | .01 |
| Grafting-stick, each | | .10 | .01 |
| Holding-frame, each | | .10 | .05 |
| Incubating-cage, each | | .35 | .07 |
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WANTED.—Old books on bee culture, especially from foreign countries. Please state titles, authors, year of publication, edition, binding, condition, number of pages, and price wanted. A. L. BOYDEN, Medina, Ohio.

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WANTED.—A sober, honest, reliable young man by the year at good wages who likes bee-keeping. W. S. GROW, Naples, New York.

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WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. \$1.00 per month; \$10.00 per year. Daily except Monday.

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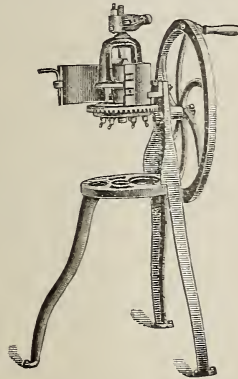
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