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Gleanings in Bee Culture



An Apiary in the Caucasus Mountains, Trans-Caucasia, Southeastern Russia.

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Vol. XXXVI

March 15, 1908

No. 6

DEEN LOOM



Flying Shuttle



WHY not put your spare moments to work bringing in extra cash? Some people in your town are waiting for some one to make up their rags into carpets, rugs and portieres.

It's genteel, honest work that any man or woman can do and make good profit at it. Just to prove it, here are the names and addresses of fifteen out of hundreds of people who have woven carpets and rugs at a good profit. They use a **Deen Loom**.

Good Profits Made At Home

- Mrs. C. R. Stover, Bradford, Ohio
- Oma Cooper, Dale, Indiana
- R. P. McGowan, Piedmont, W. Va.
- Mrs. Rob. Record, Seymour, Illinois
- Mrs. Henry Clark, St. Anthony, Iowa
- Mrs. A. L. Clark, Central Square, N. Y.
- Mrs. H. O. Blanahet, New Lathrop, Mich.
- Mrs. T. E. Alley, Sylvan Grove, Kansas
- Mrs. O. E. Albin, Kearney, Nebraska
- Mrs. H. Goebb, West Point, Iowa
- Mrs. J. S. Gilbert, Milton Junction, Wis.
- Mrs. L. E. Foster, Bedford, Indiana
- Mrs. Salanda Gunkel, Osgood, Ohio
- Mrs. D. E. Williams, Pickering, Missouri
- M. H. Vining, Waterloo, Iowa

Remember these are only fifteen of scores and hundreds who at this moment are hustling out work and getting good money for it.

You Who Read This

Haven't you often wished for a useful employment by which to make money in your spare hours? No doubt you know of people who would gladly pay you for weaving their rags into carpets and rugs.

It's not only the poorer people that have hand-woven carpets and rugs on their floors, but well-to-do people of city, village and country-side appreciate the handsome and useful products of home-weavers.

By canvassing among your friends you can work up a good business. Profitable, too. Besides, it's done at home with the children, where you can have an eye on everything in house and yard.

It's Not Hard Work

Weaving with a **Deen Loom** is soon learned. The Loom itself is a simple affair, easily handled, and soon understood. May Vittum, Barclay, Kansas, says:

"I can weave almost twice as much as I could with the old loom. I would not go back to the old one for anything. The new one is faster, easier, and does the best work."

Having a steel frame well-braced, and rigid, it resists the shock and stroke of the shuttle mechanism, remaining solid for years without repairs.

It will accommodate any size rug or carpet demanded.

What May Be Woven

Any design can be made in any number of colors that taste and fancy may dictate. You can weave rugs, hammocks, all kinds of hand-weaves, carpets, portieres, etc. The materials to use are common carpet warp which can be purchased of any dry goods store; carpet rags, old clothes of any kind, old ingrain and brussels carpets, blankets, or nearly any kind of fabric. Your customers furnish you all material; you do the weaving and get good pay for it.

A Few Prominent Reasons for Buying

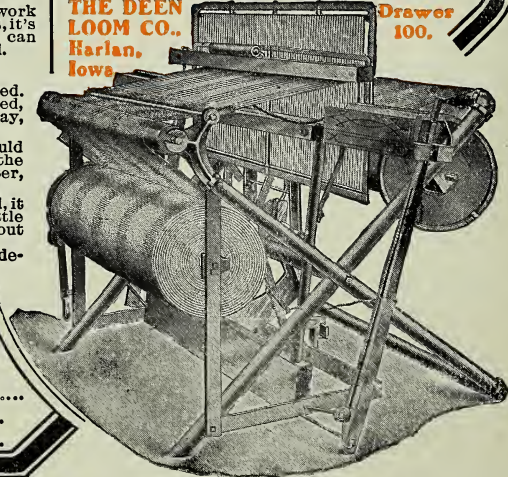
- 1.—You can make from \$2 to \$3 a day if you weave 8 hours daily.
- 2.—You can make from \$4 to \$10 a week using only part of your time—say evenings after work and an hour in the morning.
- 3.—We help you personally by letter if you wish. But this is seldom necessary, because we send you simple, detailed instructions with pictures of the loom and its parts. This book makes everything plain. You have no real difficulty in handling the loom.
- 4.—The Fly-Shuttle is easily filled, quick to handle, doesn't bother.
- 5.—The Winding Mechanism and Feed-Governor are new improvements. The latter keeps the warp and weft mechanism within control. It saves much material and prevents hours of thrown-away time used by old-style looms.
- 6.—It takes up much less room than many other styles. It requires a room but 10 feet square for a complete weaving shop.
- 7.—We send you everything with the Loom. You can go right to weaving as soon as you get warp and rags.

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LOOM CO.,
Harian,
Iowa.**

**Drawer
100.**



COUPON

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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.

WANTED=Sweet Clover.

If you have **Sweet Clover**, state if yellow or white, hulled or unhulled, also quantity and lowest price.

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Warehouse, Freeman and Central Avenue.

CINCINNATI,



OHIO

Honey Markets.

GRADING RULES FOR COMB HONEY.

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

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

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

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

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

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

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

INDIANAPOLIS.—Demand for best grade of extracted honey is good, while comb honey is meeting with slow sales. Very little honey is being offered by producers, and jobbers are carrying a very limited stock. Bottled goods in groceries find slow sales, which can be attributed to dull times; but there is another reason—many bottlers are making the mistake of putting out inferior goods. Jobbers are offering the following prices, delivered here: No. 1 and fancy comb, 16 to 17; extracted white clover, 9 to 10; amber in barrels, slow at 6 to 6½. Beeswax, 23 cents cash or 30 cents in exchange for merchandise. **WALTER S. POWDER,**
Mar. 7. Indianapolis, Ind.

CINCINNATI.—There has been very little demand for honey the past month. We do not look for a good trade until business in general revives and things all around don a more cheerful air. We quote amber extracted honey at from 6 to 7½ according to the quality and quantity purchased. Finer grades of extracted honey sell at 8 to 10 cents. Comb honey is moving very slowly. There is simply no demand for it. We are asking from 16 to 18, according to the quality and quantity. For good to choice yellow beeswax we are paying 30 cts. per lb. cash, and 32 in trade.

Feb. 29.

THE FRED W. MUTH CO.,
Cincinnati, O.

PHILADELPHIA.—Since the holidays honey has been moving very slowly, both comb and extracted, with a very few arrivals from out of town. Comb honey has declined in price, while extracted honey keeps up fairly well, with demand about equal to the supply. We quote: Fancy white comb honey, 16; No. 1 comb honey, 15; amber and off grades, 12 to 13; fancy white in 60-lb. cans, in a small way, 9 to 9½; ambers in cans or barrels, according to grade and quality, sell from 7 cents up. Beeswax, 28. We are producers of honey, and do not handle on commission.

Feb. 28.

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

DENVER.—The demand for comb honey is lighter than usual at this time of year, while the trade in extracted is fairly good. We quote No. 1 white, per case of 24 sections, \$3.25; No. 1 light amber, \$3.10; No. 2, \$2.75 to \$2.90; No. 1 white extracted, 9 to 10; light amber extracted, 8 to 9; strained, 6½ to 7½. We pay 25 cts. per lb. for clean yellow wax delivered here.

THE COLORADO HONEY-PRODUCERS' ASS'N.,
March 3. F. Raufhuss, Mgr., Denver.

CINCINNATI.—The market on comb honey is very dull. There is no demand. We quote white clover at 16; extracted amber, fair demand at 6 to 6¼; water-white sage, brisk at 9½ to 10. Beeswax is selling slowly at \$33 00 per 100 lbs.

Feb. 29.

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

Do we handle Good Hives

Do we handle good —SAY! Just read this letter for an answer to *that* question:

Central Tennessee Bee-keepers' Association

Franklin, Tenn., March 2, 1908.

The Fred W. Muth Co., Cincinnati, O.

Dear Sirs:—The hives and supplies I ordered from you came promptly to hand, and I have been busy the past week nailing them up. I must say this is the best lot of supplies it has ever been my lot to handle. *They could not be surpassed* in quality of lumber or accuracy of cutting. I am particularly pleased with the MUTH SPECIAL HIVE. It comes nearer being the ideal hive than any other I have ever seen.

Thanking you for the prompt and efficient manner in which the order was filled, I remain
Yours very truly, J. M. BUCHANAN, Secretary.

Unsolicited—right off the Reel of Appreciation! That's the way we get our testimonials—no framed-up requests—customers feel they have to tell us how good we treat them—that's all. Read that letter again, and send for our free catalog of Bee Supplies.

Muth Special Hives

cost no more than any other style of Dovetailed hives, but they're worth 99 cent more than we ask. The cover and bottom are absolutely warp-proof, and, in addition, there is a honey-board whereby a Porter bee-escape can be placed to take off honey without a sting.

Confidentially, we buy and sell as much honey as any other firm in the business. That's going some! We handle every thing the bee-keeper ought to have, and at right prices. Let us prove it to you.

THE FRED W. MUTH COMPANY
51 WALNUT STREET THE BUSY BEE-MEN CINCINNATI, OHIO

CHICAGO.—The market for honey is a dragging one. Sales are few, and volume small. Prices are nominal in view of conditions that are so unsatisfactory. Beeswax sells at 28 to 30. R. A. BURNETT & Co., Chicago, Ill. March 9.

SAN FRANCISCO.—Some water-white extracted is again in the market, but offerings of all lines are very light, and prices are firm. It is reported that some is held in the country, but arrivals are small. Very little is changing hands in this market. We quote: Water-white, comb, 16 to 17; white, 15; water-white, extracted, 8 to 8½; light amber extracted, 7 to 7½; dark amber and candied, 5¼ to 5¾.—*Pacific Rural Press*, March 7.

ST. PAUL.—Receipts very light; demand moderate and prices steady. The prices below represent those obtained for shipment in small lots. Fancy white clover, new, 18; fancy Cal., 24 combs in a case, \$4.00; strained, in 60-lb. cans, 10. W. H. PATTON, Sec., St. Paul, Minn. Mar. 9.

KANSAS CITY.—The receipts of comb honey are more liberal. The demand for both comb and extracted is light. We quote: Fancy white, 24-section case, \$3.25; No. 1, white, \$3.00; No. 2 and amber, \$2.75; extracted white, 8; amber, 7. Beeswax, 23. C. C. CLEMONS & Co., Kansas City, Mo.

Mar. 8.

LIVERPOOL.—Market fair, slow demand. Quotations to-day are, honey, Chilian, 3¼ to 6½; Peruvian, 3¼ to 6½; California, 7½ to 9¼; Jamaican, 4 to 9¼. Beeswax, African, 28 to 29; Jamaican, 34 to 35; American, 30 to 33; West Indian, 29 to 32; Chilian, 30 to 35. TAYLOR & Co.,

Feb. 22.

7 Tithebarn St., Liverpool.

Extracted Honey Wanted

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

**NATIONAL
BISCUIT COMPANY**

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

WE WILL BUY AND SELL

HONEY

of the different grades and kinds.

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

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

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NEW YORK.

Bee-keepers TAKE NOTICE.

Clean, New Supply direct from Root's
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Send in your orders now for bees and queens. Our orders will be very heavy this spring. Early orders first filled. We are in the market for beeswax and honey. Correspond.

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411 Main St, Watertown, N. Y.

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Citizens' Phone, 381-0.

Big stock of Root Co.'s and Marshfield Co.'s bee-supplies, to make room for my 1908 stock. Deduct 8 per cent till March 31, then till April 30 deduct 2½ per cent; take 1907 or 1908 price list if you have one; if not, send for one. S. D. BUELL, Union City, Mich.

PATENTS No attorney's fee until patent is allowed. Write for "Inventor's Guide."
Franklin H. Hough, Loan & Trust Bldg., Washington, D.C.

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

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

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

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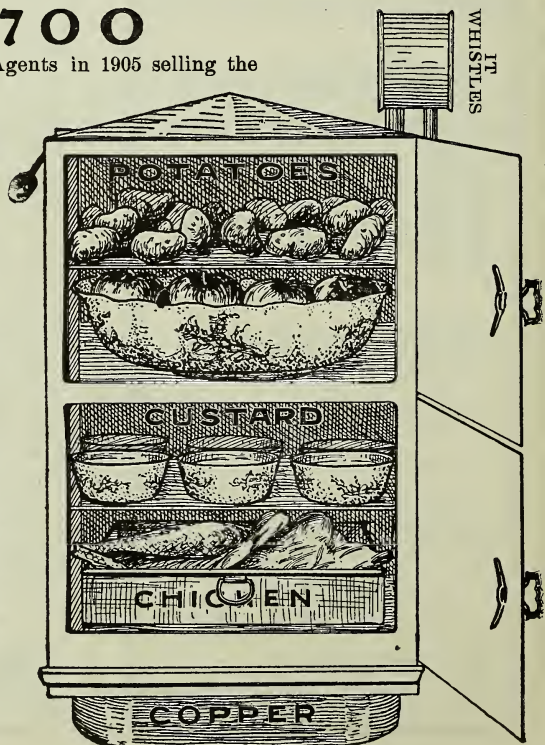
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908 Jefferson Av., Toledo, O.



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MEDINA, OHIO

READ WHAT EXPERTS SAY OF IT

The Christmas mail brought me what is probably as useful and beautiful a Christmas present as I ever received—a morocco-bound copy of the new edition of the ABC and XYZ of Bee Culture. Bee books and journals have come to my desk of which it seemed as though the least said the better. Not so with this book. On the contrary, it seems as though words were lacking to do it justice. There are many other bee-books, each filling its niche, but, in all the world, there is nothing so comprehensive as the ABC and XYZ of Bee Culture. There is no point in the wide domain of apiculture that is not touched upon in this volume, and the information is the very latest and most authentic, well written and well illustrated. The amateur and the expert are both served equally well.—W. Z. HUTCHINSON, editor and proprietor of the *Bee-keepers' Review*, and author of *Advanced Bee Culture*.

No bee-keeper's library can be at all complete without a copy of this magnificent apiarian work. It has reached a sale of over 100,000 copies already, being the most largely sold book on bees in the world. Better send to us for a copy to read during the long winter evenings.—*American Bee Journal*.

This work of 536 pages is, as its name implies, a complete cyclopaedia of every thing pertaining to bees and bee-keeping. It was originally compiled by A. I. Root, who in the 1877 preface, after stating his indebtedness to Langstroth, Quinby, and others, says that, "A great part of this ABC book is really the work of the people, and the task that devolves on me is to collect, condense, verify, and utilize what has been scattered through thousands of letters for years past." Since the first copy of this work appeared, now thirty-one years ago, it has undergone many revisions, and has had many additions, both of letterpress and illustrations, while the rapid advancement in bee culture has made it necessary in many cases to remove whole articles and rewrite them entirely. The revision has been ably carried out by E. R. Root, the present editor of GLEANINGS, who has had the assistance of a number of well-known and able men. In the preface the names of the writers of the different articles are given. For instance, we find Dr. C. C. Miller writes on honey-comb and out-apiaries; Dr. E. F. Phillips on the eye, parthenogenesis, and scent of bees; E. R. and H. H. Root on wax and wintering, both of these having carried out a number of experiments on these subjects. There are also articles by W. K. Morrison and Mrs. Comstock. It seems almost superfluous to say anything about a book of which already 100,000 copies have been sold; the simple fact speaks for itself that it fills a want, and is an attestation of its worth. Among the articles that have been revised we find the new methods of queen-rearing described, so that the practical bee-keeper will have the latest and best ideas on the subject before him for reference. The new methods of wax-production are treated in an exhaustive manner, and as this subject is of more importance than formerly, greater space has been devoted to it. We have nothing but good words for this work, and recommend our readers to get a copy of the 1908 edition. The work is profusely illustrated and beautifully printed, and is a credit to the publishers.—By T. W. COWAN, Esq., editor of the *British Bee Journal*. Mr. Cowan is the author of two first-class books on bees and bee-keeping, "The Bee-keeper's Guide," and "The Honey-bee."

Gleanings in Bee Culture

E. R. Root,
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H. H. Root
Ass't Editor

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G. M. DOOLITTLE, R. F. HOLTERMANN, "STENOG," W. K. MORRISON.

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SAVING MONEY ON AN INCUBATOR.

The Belle City Incubator Co., box 69, Racine, Wis., have asked us to make special mention of the fact that they are now making a phenomenally low offer to incubator purchasers. It is this: They agree to furnish (freight prepaid) a 120-egg incubator, guaranteed perfect, at just half the usual rate, or \$7.15. For only \$11.00 they will include with the incubator a good brooder which ordinarily costs from \$6.00 to \$9.00. This is what they term a bargain offer, and it certainly looks like that to us. They strongly guarantee both the incubator and brooder, so one need not hesitate to buy. It would be well to look up the advertisement of this firm on page 381 of this issue; and while you have the matter in mind it might also be well to order a copy of their book, "Hatching Facts," which they send free. Poultry catalogs are generally worth sending for, and this one certainly is no exception to the rule.

"SURE HATCH!" INCUBATORS.

The makers of these famous incubators are very anxious to have all the poultry raisers who read this journal send to them for their latest catalog. They believe that this will be to the mutual advantage of both parties. Their catalog shows how hundreds of men and women are making money with their poultry by using the Sure Hatch incubators. These chicken-machines are made in all sizes, from that of the small amateur to the bonanza professional. They are shipped with the freight prepaid, either from the factory at Fremont, Neb., or from the branch at Indianapolis. This insures quick delivery. To make assurance doubly sure, the maker of the Sure Hatch insures the machine against breakage for *five years*. This seems like a long time to guarantee a machine of this description, but we do not doubt for a moment that they will replace a broken part within that time. To get better acquainted it would be well to get their book, entitled "Poultry Profits." It is very surprising, the great amount of valuable knowledge which may be found in an incubator catalog.

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about a savings account with The Savings Deposit Bank Company—

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WHAT BRIGHT MEN SAY OF GLEANINGS

Hear what an Authority on Trade Journalism says of GLEANINGS. It is written by Editor F. Dundas Todd, formerly of the PHOTO-BEACON, Chicago, Ill.

I enclose one dollar to pay for my subscription to GLEANINGS. I want the bee knowledge you provide—emphatically want it, for you are running one of the finest trade papers that is printed, and, for a house organ, one that is remarkably free from house prejudice. You are a first-rate editor, and I want to tell you frankly what I think of you. I can speak plainly when I kick, but I try, even if it be a trifle harder, to be as plain when I like what a fellow does.

After receiving the foregoing we wrote Mr. Todd, asking if he would have any objections to our using this paragraph. In reply he writes as follows:

Why, certainly use the paragraph of my letter. You deserve it. I have been journalist long enough to develop contempt for a selfish stock-house journal, and to admire a man who can see bigger and wider, as you can. In photography the one-sided house journals have all failed; and as a money proposition only, you are wise to be open. I like the way you throw the columns open to ideas that conflict with the goods your firm manufactures.

The accusation has been made in times past that this journal was biased in the interests of our supply business. Our editorial force have been instructed to publish the truth about any thing and every thing, no matter whether it conflicts with the supply business or not. We have certainly made an honest effort; and if we have succeeded in the minds of unprejudiced, candid observers it is no small gratification. Mr. Todd has been long in the editorial field and the general publishing business, and his statement certainly should have weight.

What a Celebrated Authority on Farming says:

Dear Mr. Root:—I want to congratulate you and your sons, and all others connected with GLEANINGS, on the great improvements you have been making on this magazine. Its columns are filled with helpful articles, and nothing that isn't of the highest tone ever appears. It is beautiful in its make-up. The paper, printing, and pictures are strictly first-class. The double-page picture in the Jan. 1st issue is fine enough to frame. It is an educational matter to the young people (and we all ought to keep young) to have so perfect a magazine come into the home. Even the advertisements teach order, Heaven's first law, and neatness and harmony. And now the magazine comes in an envelope, unrolled. It would have pleased you to hear what I said when the first copy came in that improved condition. I enjoy nice things—beautiful and perfect things. For weeks I have had it on my mind to write you, but didn't get at it; but when I read page 43 I went directly up to my study and got busy.

Hudson, O., Jan. 8, 1908.

T. B. TERRY, Hudson, O.

We highly appreciate the foregoing, knowing Mr. Terry's opinions are not for sale at any price. Moreover, he is one of our best authorities on general farming and rural life in the United States. He is one of nature's noblemen, self-educated, self-reliant, and true. Most of our readers know of Mr. Terry, and admire him for the work he has accomplished. Coming from so worthy a man, this testimonial has a peculiar value to us.

Read what Mr. Hunter, the Corn King of Ohio, has to say:

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

Seven Mile, O., July 10, 1907.

Gentlemen:—I have a great respect for GLEANINGS, and, on our table, containing twenty to thirty of the leading journals and papers, it is the gem of the lot.

Yours very truly, CALVIN S. HUNTER.

What the late Veteran Henry Alley said:

Had I been well I surely would have sent you some strong praise of the several copies of GLEANINGS. You have outdone yourselves. No magazine or publication I have seen comes up to the beauty, both outside and in, of any copy of GLEANINGS.

Mr. Alley's opinions were never for sale at any price, and what he said he meant in very truth.

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HOW TO SAVE THE TREES.

It has been demonstrated beyond all peradventure that the only reliable way to protect trees from blight and insect pests is to spray them; and no first-class park or private garden is now considered complete without a thoroughly efficient outfit for spraying even the loftiest trees.

The chemicals which have hitherto been used by the farmers to protect their fruit-trees are now being freely used by all public parks and cemeteries with any pretensions to perfection of management. The trees are kept in better health, they look greener, hold their leaves longer, and, of course, are really more beautiful to the eye of man. To do this work, power-driven spraying-machines are needed.

One of the best firms we are acquainted with in this line of work is the old reliable firm, The Deming Co., of Salem, O., who manufacture on a large scale every sort of spraying-apparatus of the most modern description.

The most powerful machine they make is a gasoline-power apparatus which does the business in a masterly, wholesale fashion, by which a big orchard may be sprayed in short order. But they also make apparatus to meet the wants of the smallest garden. We have no doubt that all the outfits turned out by the Deming Co. are thoroughly efficient and satisfactory when used according to directions. They have an enviable reputation of years' standing. Drop the company your address on a postal card, and they agree to send you promptly by return mail some very interesting literature on insect pests, etc.

QUITE A BOOK.

The Ohio Carriage Manufacturing Co., of Columbus, Ohio, have just turned off the press one of the handsomest catalogs ever issued by any firm. Of course, it's free; but it takes quite a lot of money to turn out such a catalog. It is intended to show in a masterly manner the various styles of "split hickory" vehicles made by the firm. It is our opinion that it will do this better than a flying visit to a warehouse where one sees the different carriages for less than half a minute. With this handsome book a prospective buyer can sit down of a winter evening and devote an hour, more or less, to the study of each particular style he is interested in.

In spite of the great cost of such a catalog, this firm is probably able to offer you a vehicle very much cheaper than one which maintains show-warehouses, agents, and a big staff of salesmen. We know they are thoroughly reliable, having sold carriages in this manner for many years. If you are at all interested we strongly advise sending for this book, even if you do not require a vehicle right now. Take time to study it.

CATALOGS RECEIVED.

Catalog of cypress tanks for holding water and other liquids, by W. E. Caldwell, Louisville, Ky.
 Catalog of "Roof-Fix," a liquid material guaranteed to stop leaks in roofs. The Anderson Manufacturing Co., Elyria, Ohio.
 The "Good Enough" incubator, brooder, and bee-hive catalog of C. J. Werner, Superior, Nebraska. Interesting to western readers.

BEES VS. LABOR

In other words, shall a man spend all his time with a limited number of colonies, giving them extra care, or shall he adopt short-cut methods and

The *Review* is always packed full of just such interesting.

"KEEP MORE BEES" ?

Probably this subject never had a more thorough overhauling than it receives in the March issue of the *Bee-keepers' Review*, and from such men as Taylor, Townsend, Doolittle, and the editor—seven pages are devoted to the discussion.

Another excellent topic in this issue is handled by that veteran of Northern Michigan, Mr. S. D. Chapman, and I think he puts up the best argument yet made in favor of

REQUEENING ANNUALLY.

He tells why he requeens, how he does the work, and then shows that the cost need not exceed five cents per colony—and that for labor.

REALLY HELPFUL,

practical articles as these. It is one of the journals that the man keeping bees to make money can't afford to do without.

Just at present you can get all the back numbers of 1907, and your name on the subscription list for 1908, for only \$1.00, but some of the issues of 1907 are

GETTING PRETTY LOW,

and you ought to order soon if you wish a complete file for 1907.

Your money back if you are not satisfied when you get the back numbers, and you may keep the back numbers in the bargain.

W. Z. HUTCHINSON,

..

..

FLINT, MICH.



QUEENS FOR 1908



J. E. HAND, the veteran bee-keeper and EXPERT QUEEN-BREEDER, will devote a part of his time the coming season to the rearing of CHOICE QUEENS from a superior strain of LONG-TONGUE RED-CLOVER ITALIANS that have gained a world-wide reputation for HARDINESS, GENTLENESS, AND SUPERIOR HONEY-GATHERING QUALITIES. Send for his circular. It will open your eyes to a few points in queen-rearing that will save you dollars.

HIGHLAND BEE AND POULTRY FARM, J. E. HAND, Proprietor, BIRMINGHAM, ERIE CO., O.

Lewis Bee-supplies at Factory Prices

BEST GOODS. PROMPT SHIPMENTS. MARCH DISCOUNT 2%.
Send for 1908 catalog on new supplies and fire-sale list.

ARNOLD HONEY & BEE SUPPLY CO., H. M. Arnd, Prop. Successors to
191-193 E. Superior St., Chicago, Ill. York Honey & Bee Supply Company.

This Coupon worth 25 Cents!

If not now a subscriber and you want one of the most helpful aids to successful bee-culture—a paper that tells how to make your bees pay—you should subscribe for the

New Subscribers Only.

Name.....

Postoffice.....

State.....

AMERICAN - BEE - JOURNAL
A 32-page illustrated 50-cent monthly. It tells all about the best way to manage bees to produce the most honey; with market quotations, etc. A dozen different departments—one for women bee-keeper. . . . Best writers.

It will increase your Honey-money!

If you will send us your name and address with 25 cents (stamps or coin) together with this coupon, we will send you a trial trip of our journal for 12 months. Order now, and let us begin with this month's fine number. Address

American Bee Journal, 118 W. Jackson, Chicago, Illinois

TO THE
BEE - KEEPERS
OF CANADA.

WE are pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we do not offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, The best is cheapest."

E. GRAINGER & COMPANY,
Deer Park,
Toronto, Ontario, Canada.

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

BIENENZÜCHTER!

von Deutschland, Schweiz, Oesterreich,
u. s. w., senden Sie fuer unsere
1907 Preisliste von

Bienenwohnungen, Rauchapparaten,
Honigschleudern, Handschuhen,
Bienenschleiern, Walzwerken,
Futterapparaten,
Porter's Bienenflucht,
Fluglochschiebern für Kasten,
Königinnenabsperrgittern,
Weiselkäfigen,
Schwarmfangbeuteln,
Entdeckungsmessern,
Dampfwachsschmelzern,
Wabenentdeckungsappa-
raten, und allen anderen
Bienengerätschaften der

A. I. ROOT COMPANY
Grösste Fabrik ihres gleichen in der Welt

EMILE BONDONNEAU
General Vertreter für Europa und Kolonien
142 Faubourg Saint Denis, Paris, 10me.

“Root Quality”

We are MICHIGAN headquarters for “ROOT QUALITY” goods. If you keep bees and live in MICHIGAN, we want to send you our 1908 catalog. We can supply you with Root's goods to your advantage.

M. H. HUNT & SON
WAYNE CO. REDFORD, MICH.

M. H. Hunt & Son.

Dear Sirs:—Please find enclosed \$1 15 for which please send me GLEANINGS one year (new or renewal) and, as a premium, a good bee-veil with a silk tulle front, postpaid.

Name _____

Address _____

No matter where you are in the United States, we want your subscription to GLEANINGS. If you renew soon, take advantage of this and have an extra veil to use this summer.

\$UCCE\$\$ IN BEE-KEEPING

The man who makes a \$ucce\$\$ in bee-keeping is the one who does things when they should be done.

The time to buy goods is before they are needed; not when the rush comes.

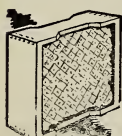
Let us send you our catalog for 1908, so you can make out an order now.

THE A. I. ROOT COMPANY
SYRACUSE, :: :: :: NEW YORK

BEE KEEPING will be a profitable industry this season.

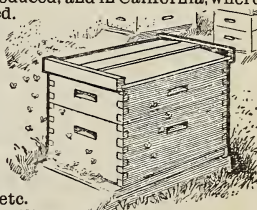
Honey is high—short crop last year. The shortage of the honey crop for 1907 in the United States warrants bee-keepers to increase their colonies. About a half crop was produced, and in California, where the cheap honey comes from, only a quarter of the average crop was produced.

Get Ready Now for More Honey



Let us send you our catalog. We are manufacturers and sell only our own make of bee-supplies. Minneapolis is the largest lumber-distributing point; the Mississippi river furnishes us power, and our organization and labor conditions are the best for economical production. Send us an estimate of your requirements and let us give you prices. We have a large stock of standard bee-supplies on hand. Dovetailed Hives, Sections, Section-holders, Separators, Brood-frames, Comb Foundation, Smokers, Extractors, Shipping-cases, etc.

MINNESOTA BEE SUPPLY COMPANY, 23 Nicollet Island, Minneapolis, Minn.



Keep your



on this ad.

We intend to keep a full stock of The A. I. Root Co.'s goods on hand this season, as we have in the past. When in need of bee-supplies, write us. Get our catalog at once. For prompt shipments and good service, we are at your command.

JOHN NEBEL & SON SUPPLY CO., HIGH HILL, MONTGOMERY CO., MISSOURI.

What's the Matter With Hilton?

WHY!

He has got his new goods fresh from The A. I. Root factory, and his 1908 catalog, and wants you to send for one free—40 pages illustrating and describing Root's goods at Root's prices. Send him a list of what goods you want, and let him tell you how much they will cost you.

Cash or supplies for beeswax at all times.

GEORGE E. HILTON
FREMONT, :: :: MICHIGAN

OUR SUPPLY BUSINESS HAS BEEN IN New York City

for 15 years. It has increased each year. We want YOUR order this year, and will quote you attractive prices. Our prices are f. o. b. cars here. We furnish bees in any quantities. Have seven hundred colonies in our own yards. Catalog free.

I. J. STRINGHAM,
Apiaries, Glen Cove, L. I. 105 Park Pl., N. Y. City.

Root's Bee-supplies at Root's Prices

But f. o. b. Baltimore instead of Medina. Write for catalog L. No charge for drayage. ❖ ❖

RAWLINGS IMPLEMENT COMPANY
9 and 11 W. Pratt St. Baltimore, Md.

THE DANZENBAKER SMOKER

PAT. OCT. 3, '06, JUNE 4, '07

GOLD MEDALS
St. Louis Exposition, 1904
Jamestown Exposition, 1907



**IS THE BEST,
STRONGEST,
COOLEST,
CLEANEST,
CHEAPEST,
AND LARGEST
SMOKER SOLD
FOR A DOLLAR**

The perforated side grate seen above holds a removable, metal, asbestos-backed fire shell, preventing burning the tin off the outer case, and deflects the air at right angles, preventing back draft to the valveless bellows. The air, passing to the back and over the top, cools and expels the smoke, fanning the burning fuel at top or side till all consumed, giving cool smoke for hours from one filling. It can't clog. No top-heavy cap to choke with soot: no valve to fail; no holes shedding sparks or hot ashes.

Four years' sales prove its success beyond a doubt, expensive dies making it uniformly perfect as possible to devise. We confidently guarantee full satisfaction or refund the price.

Price, \$1.00; 3 for \$2.50; by mail, add 25c. each

Send address of yourself and Bee friends for 8-page leaflet on "Smoker," and facts about Bees and Queens, 80 pages, free.

F. DANZENBAKER, Norfolk, Va.

1884

1908

Root's Goods always in stock

FOR YOU

Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens.
Root's Goods in Stock.

J. M. Jenkins
Wetumpka, : : Alabama

Dittmer's COMB FOUNDATION

is the best, not because we say so, but because the bees prefer it to other makes.

Dittmer's Process is Dittmer's

It has built its reputation and established its merits on its own foundation and its own name.

We make a specialty of working wax into foundation for cash.

Write for free catalog, and prices on full line of supplies.

GUS. DITTMER CO., Augusta, Wis.

Hammer Free!

With Every Order of Supplies of \$5.00 or Over.



This is the handiest tool for nailing up hives, frames, and all parts, or for opening up hives. Made of steel, nickeled.

Three per cent discount off all prices in catalog.

FULL LINE OF ROOT'S GOODS

NO CHARGE FOR DRAYAGE.

John N. Prothero
Dubois, .. Pennsylvania

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company

H. G. ACKLIN, MANAGER

1024 Mississippi Street, St. Paul, Minn.

At St. Louis

On a  Line

to all points in the South and Middle West.

Send for our free illustrated catalog of

Root's Bee-supplies

We sell at factory prices.
Send us a trial order.

Beeswax Wanted.

Blanke & Hauk Supply Co.

DEPT. B.

1009-11-13 Lucas Ave. St. Louis, Mo.

Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

North Texas Bee-keepers

will find Dallas the best point from which to purchase supplies. We have a carload of **ROOT'S GOODS IN STOCK**, and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1908 free on application. Mention GLEANINGS when you write.

TEXAS SEED AND FLORAL COMPANY

Dallas, : : . Texas

The Time To Place
Your
Order
for

QUEENS

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

	1	6	12
Untested, in May and June, \$1.00	\$5.50	\$10.00	
Untested, after July 1	.75	4.00	7.50

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

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

	1	6	12	
Abbsbaz {	Tested queen.....	\$1.45	\$7.00	\$13.00
Caucasian {	Select tested.....	2.00	11.00	20.00
	Select breeding.....	3.00	17.00	32.00
	Extra select breeding..	7.00		
Banats {	Tested.....	2.00	11.00	20.00
	Select tested.....	2.50	14.50	25.00
	Select tested breeding..	5.00		

Safe delivery and genuineness of breed guaranteed. Write orders distinctly, especially the address, and indicate by letter the queen ordered.

I. Ivanhoff, Georgievsk, Province Terskaya, Russia (Caucasia).

Westwood Red-clover Queens

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

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

PHARR'S GOLDENS

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

W. H. Laws

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

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

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

NOT CHEAP QUEENS, BUT QUEENS CHEAP

500 Best Strain Italian Queens Ready to Mail March 1st.

Untested queens in lots as follows: 1, 75 cts.; 6, \$4.20; 12, \$ 7.80.

Tested queens in lots as follows: 1, \$1.00; 6, \$5.70; 12, \$10.80.

Breeders' queens in lots as follows: 1, \$5.00; 3, \$12.00.

Nuclei with untested queens: 1, \$1.75; 2, \$2.25; full colonies, \$4.75.

Nuclei with tested queens: 1, \$2.00; 2, \$2.50; full colonies, \$5.00.

Also dealer in bee-keepers' supplies. Root's goods. Ask for cat'g.

W. J. LITTLEFIELD, LITTLE ROCK, ARK

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

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

Queens Queens

of the

FINEST POSSIBLE BREEDING

BRED BY

F. J. WARDELL,

UHRICHSVILLE, OHIO, U. S. A.

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

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

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

Taylor's Queens for 1908

J. W. Taylor & Son have made a specialty of breeding for the best honey-gatherers. Our three and five banded Italians can't be beat, or haven't been, as honey-gatherers. Untested, \$1.00 each, or \$9.00 a dozen; tested queens, \$1.25 each, or \$12.00 a dozen. Select tested queens, \$1.50 each; breeders, the very best, \$3.00 to \$5.00 each. Send all orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas.

Queens FOR 1908.

Finest Goldenes bred in America. Send for my latest circular and prices — "and be convinced."

DANIEL WURTH, PITKIN, ARK.

How are Your Bees?

Any Queenless Colonies?

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

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

FREE! 50 lbs. Comb Foundation FREE!

WEED'S NEW-PROCESS COMB FOUNDATION.

PRIZES GIVEN AWAY

ABSOLUTELY FREE IN A CONTEST.

FIRST PRIZE—25 lbs. Comb Fdn.

THIRD PRIZE—5 lbs. Comb Fdn.

SECOND “ —10 lbs. Comb Fdn.

FOURTH “ —5 lbs. Comb Fdn.

FIFTH PRIZE—5 lbs. Comb Fdn.

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

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

Now do not lay this aside and put it off until some other time, but begin right now and start the list. Write the words in a little memorandum-book and carry it in your pocket; and every time you think of another word mark it down. There are a great many words to be made out of the name “Toepperwein,” and you have just as good a chance as any one else; so do not let any time go by, thinking some one else may have more words. Now, understand you are welcome to enter this contest, no matter whether you own bees or not, nor whether you are old or young, nor where you live. In case any of the winners have even numbers, then the amounts will be equally divided between such winners.

ROOT'S BEE-SUPPLIES.

We always carry a large and complete stock of The A. I. Root Co.'s make of bee-supplies at Root's factory prices. Write us for illustrated catalog and price list.

HONEY AND BEESWAX.

We buy honey and beeswax at all times. If you have any to offer, write us stating quantity you have, quality, and your best price delivered at San Antonio. We also work beeswax into comb foundation by the pound at reasonable rates. We should like to have some business from associations in other States who have large quantities to work up. Our capacity is 500 lbs. per day.

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

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

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

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

"Bee in His Bonnet."

By the Bee Crank.

The old Scotch expression related to the visionary in contrast with the man of action. But it isn't exactly square to the bee, who may buzz a little now and then, just for recreation, to compare it with the folks who do nothing else. Now, if you have been building air castles on the honey harvest you expect to gather this season and have made no definite plans, have neglected to order your supplies, why not get busy **now?**

The best is none too good for you. You can't afford any other kind. You want Root's goods and you want them of Pouder, because he can get them to you quickly. I have



sixteen railroads and almost as many electric roads at my command, and I can make prompt and economical shipments of hives, sections, comb foundation, and any other supplies that you may need.

My new catalog will help you in planning for your new equipment, and a postal brings it.

Beeswax Wanted. I pay highest market price for beeswax, cash or trade. I will allow 28 cents cash or 30 cents in exchange for supplies. If you wish to exchange for foundation, I will ship foundation the day wax arrives. Send large shipments by freight and small ones by express.

Walter S. Pouder,

513-515 Massachusetts Avenue, Indianapolis, Ind.

GLEANINGS IN BEE CULTURE

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

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A. I. ROOT, EDITOR OF HOME DEPARTMENT

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No. 6



DR. BRUENNICH, *Leipz. Bztg.*, 24, reports a young queen stinging a worker to death. I saw one case of the kind, and never but one.

THAT PARCELS-POST rate of 5 cents for first pound and 2 cents for each additional pound, p. 279, has reference only to a distributing office and its rural routes, and could never apply to a distance as great as 100 miles.

G. K. HUBBARD writes: "I wonder if it would not fulfill the requirements of the Nebraska pure-food law to label a case of comb honey 'None of the sections in this case weigh less than 14 oz. or more than 17 oz.'" I'm watching to see what those Nebraskans do.

YOUR ANSWER, Mr. Editor, page 276, that more than $\frac{1}{4}$ inch between bottom-bars of Langstroth frames is needed to look up between them, clears the matter. I never think of looking between bottom-bars, and didn't know that other people did. Of course, $\frac{1}{4}$ inch wouldn't give much chance for looking.

ASPHALT PAPER is strongly recommended, *Deutsche Bzcht.*, 18, to put in the bottom of hives in winter to catch the droppings. Does that mean asbestos paper, or what? [Asphalt is similar to tar; but, unlike tar, has no odor, and will stand a greater degree of heat without running or becoming sticky. It therefore makes a coating much superior to tar. In short, asphalt paper looks like tar paper, but is much superior to it.—Ed.]

I AGREE with all you say, Mr. Editor, p. 276, about testing heat by the hand, and most emphatically when you advise measuring by a thermometer. Please note that I gave no conclusions—merely items of the experiment. The objection to using the hand for a thermometer, aside from the great

variation of hands, is emphasized by the chance for misunderstanding as illustrated by your urging *holding* instead of *dipping*, neither of which words is given in the report. Hershiser said "stand" and you said "put," either of which might mean a quick dip or holding ten minutes.

F. DUNDAS TODD suggests "division" as a name for one of the parts of a divisible hive. Sounds all right, and doesn't bump into the name of anything else in bee-keeping. [We have no objections to the word "division." In referring to this general subject we may say that we have a big grist of matter on the proper word to designate the several parts of a divisible-brood-chamber hive. Owing to the crowded condition of our columns we shall not be able to publish any of these articles; but we will say right here that we favor the word "division," and suggest that our correspondents adopt it. In any case we wish them to use any phrase or word that can not be misconstrued. Brevity, at the expense of clearness, always defeats itself.—Ed.]

ALLEN LATHAM, you've filled page 291 with exceedingly interesting reading. I've always counted you a genius; but how you can succeed in getting bees to do such remarkable work with bottom-starters is beyond me—must be locality. That queen reared by me, whose bees filled sections with "solid chunks of honey with daylight showing all around the chunk except at the top." I am sure that queen would not have acted so if she had stayed here—at least I could not possibly get my bees to do such a thing here, and all that bad work that you tell about your other bees doing with bottom-starters—why, I couldn't possibly get my bees to do anything of the kind. They just make beautiful sections, tons and tons of them, with no imperfections, and with no effort on my part. You say you follow my directions and "use a bottom-starter not over half an inch wide, and usually less." *Et tu, Brute!* Where did you ever see me advise anything less than $\frac{1}{2}$ inch? But I can hardly believe that so shallow a starter can cause all the trouble. Seriously I can not understand it at all, and I'd give two spoons and a potato

pop-gun to talk it over with you for half an hour.

I wish, however, you might try this: In the same super put part of the sections with bottom-starters less than $\frac{3}{4}$ inch, and part $\frac{5}{8}$ inch. It may be it wouldn't work so well with "extra-thin" foundation. I use "thin."

C. P. DADANT says that if bees are unusually long-lived it's because they are lazy. I don't want to believe that if I can help it. Of course, there's no denying that bees live longer when idle than when working hard, and so it may be that some colonies have a longer lease of life just because each worker takes life easy. But that does not conflict with the possibility that there may be such a thing as a colony whose workers live longer than the average, while at the same time working just as hard as the average. And in consideration of the fact that the average life of a bee as a fielder is 26 days or less, the addition of a single day to its gathering career is an important item; for I take it for granted that the added day would be on the fielding end.

Now, what could I afford to pay for a queen which would result in that added day for a whole apiary?

Suppose one has an average crop of 10,000 lbs. annually, at 15 cts. a pound, bringing \$1500. One twenty-sixth of that is \$57.00. A queen that would bring that *annual* increase would be cheap at \$50.00—yes, at \$100.

YOUR BELIEF, Mr. Editor, p. 275, that thick syrup "may be better than a thin one which the bees are required at some expense to their vitality to reduce down to the body of ordinary honey," is all right for late feeding; for early feeding, I doubt. Evaporating is then a regular business of the bees, and I don't believe it is any such great strain on them. An important point is that, along with the evaporating, they make the feed better. [We fed thin syrup last fall, early in the season; but along in December we noticed in some colonies an alarming diminution in the force of the bees. While we do not say positively, yet we are a little fearful that this early feeding with thin syrup wore out bees that might have been useful in maintaining the body heat of the cluster during winter.

And, again, is it definitely established that the syrup which the bees invert is a better winter food than one which they can not invert, or, at least, to only a small extent? In view of recent testimony we confess to a feeling of uncertainty on both of these propositions.—ED.]

SOME THINGS said about improvement of stock are likely to scare out the average bee-keeper from any attempt in that direction. The different characteristics to be striven for are martialed in array, and he at once throws up his hands in despair. "What can I do about all those things? For instance, 'strength of wing for sustained flight.' Can I go around to each colony, feel of the wings, and decide which is strongest?"

Well, whatever may be the best way, there

is one thing certain: The rawest beginner can do something to make his stock better than if he did nothing. That something is merely to breed constantly from the colony that gives the biggest yield. For, after all, the most scientific breeder, who has each trait laid out to breed for, is aiming toward such a combination of traits as shall lead to the greatest yield. The beginner can aim at the same thing by paying no attention to individual traits, only keeping track of yield alone; and, although he may not do as well as the scientific breeder, he'll go a long way in that direction. At any rate I feel sure that by just such a course I've increased my income from my bees quite materially.



OWING to excessive demands on our space we shall be compelled to leave out of this issue some special articles on spring management until our next number.

SWARTHMORE (Mr. E. L. Pratt) has been engaged to give two days' instruction in queen-rearing at the Apicultural School of the Bee-keepers' Association at Vienna, Austria, next June.

It is said the Royal Baking Powder Company has acquired, within the last few weeks, two great factories near Chicago which they intend to use for the manufacture of glucose in opposition to the Corn Products Co. It is said the latter are chagrined over this move. The sale is the direct outcome of the recent decision of President Roosevelt, which allowed the use of the words "corn syrup" instead of "glucose."

A SURPLUS OF GOOD COPY.

WE are fairly buried up with good copy, and it will be some months before we can reach it all. Possibly some of it we may not be able to insert in our columns until after it is out of date. We think it only fair to make this statement so that if any of our contributors desire the return of any unused manuscript, so that they may use it elsewhere, they may instruct us accordingly. Of course, we get any amount of matter, but probably less than a tenth of it is set aside to be used as our space will permit.

BEE-KEEPING IN CALIFORNIA.

It is a pleasure to note that the publication known as *Sunset Magazine*, published in San Francisco, has an accurate and truthful article on bee-keeping in California, in the

March number. The article bears the title, "Among the Honey-makers," and is by M. E. Dudley. It is primarily designed for the gentler sex, but the men-folks can read it too. It places the honey production of California in a good year at 4500 tons. Several fine views of apiaries accompany the text.

LABELING THE WEIGHT.

THE clause of the Nebraska pure-food law, which requires the labeling of the weight on all food packages, has just been declared unconstitutional by the circuit court in the case of the State vs. Swift & Co., the beef-packers. The law required *the true net weight* to be printed on all packages.

CONDITIONS FAVORABLE FOR A CROP IN TEXAS AND CALIFORNIA.

THE latest reports from various sources indicate that there will be a fair crop of honey from California this season. The old crop has been entirely cleaned out, and prices on the coast are remarkably stiff.

Reports from Texas are also very favorable. But during the last two poor years many bees have died, letting their owners become discouraged. But the survivors (it is always the survival of the fittest) ought to be able to get good returns, and to make up for the two poor years that Texas has had.

OVERLOOKED, PERHAPS.

ONE of the most readable and interesting sections of a modern magazine is the advertising pages—that is to say, if the publisher exercises due care in the selection of advertisers. One of the features of GLEANINGS likely to be overlooked in this connection is the index to advertisements which some journals do not contain, but which is quite a help to the reader. Another feature which some may not have noticed is the department of foreign honey markets. To some of our readers it must be interesting reading.

ALEXANDER'S LOCALITY.

SEVERAL of our correspondents take issue with Mr. E. W. Alexander on the matter of spring feeding. One or two fail to take into consideration that his locality is noticeably different from their own; for his main honey-flow (buckwheat) does not come on until middle or late summer, while that of most of our subscribers begins in early summer. After one sees Mr. Alexander's special environment he would, perhaps, feel less inclined to criticize his methods. But this does not necessarily signify that the average reader would do well to follow his advice for a locality with different conditions.

OVERCOATS FOR BEES.

MR. N. E. FRANCE, in this issue, in the special series of articles, draws attention to the fact that many bee-keepers who would not think of going outdoors without an over-

coat in chilly weather will nevertheless take their cellar-wintered colonies out of a warm dry cellar and put them on their summer stands without any protection. What is good for man must also be good for bees. The evidence in this issue shows quite conclusively the value of paper winter cases for spring protection. Shall we give our bees overcoats, or shall we let them stand out in the open, where they must necessarily suffer by reason of the sudden change from indoors to out?

SPRING OR FALL FEEDING--WHICH?

IT will be noticed that the trend of the articles on spring management in this issue is against spring feeding. There are more to follow in the next issue, of the same import. It has for years been considered a wise policy to stimulate brood-rearing in late spring by feeding. Even so good an authority as E. W. Alexander still advocates it; and not only that, but he recommends extracting and feeding back in dilute form. We are curious to know whether the majority of our readers have found spring feeding to be detrimental. No one would question for a minute that colonies short of stores ought to be fed in the spring; but the question is, should the bees be fed up in the fall, and fed liberally, to carry them until settled warm weather, or should they be fed just enough to carry them through winter, and then give them more feed in the spring to stimulate?

There would not be space enough for us to insert extended articles on this subject; but we should like to have two or three hundred postal-card responses. The answers must be couched in not more than two or three sentences. Just write what you have found to give the best results—fall or spring feeding.

HAS THE ADMINISTRATION BEGUN TO WEAKEN THE NATIONAL PURE-FOOD LAW?

OUR readers will remember that we requested them to write to Secretary Wilson and President Roosevelt to sustain the decision of the Board of Food and Drug Inspection to the effect that glucose be called *glucose* and not "corn syrup." As stated in our last issue, the administration revoked this decision, by which the manufacturers of glucose can now cover up to a great extent the identity of their product under the innocent name of "corn syrup," as if it were a sort of sorghum. The fact is, the glucose people, with their unlimited capital, could send down to Washington chemists and big lawyers by the score, who could present all kinds of plausible reasons; and these same interests, of course, left no stone unturned in the way of getting letters sent in, urging and demanding a recognition of their side of the controversy, while bee-keepers and others had no one on the ground to champion their interests.

Referring to the decision of the administration on this point, the *American Grocer*, published in New York, has this to say:

It is time for the administration to stop taking to itself credit for the enactment of a national pure-food law, now that it has practically nullified one of its most important provisions, namely, an honest label. It has decreed that a syrup made by converting the starch of corn, through the action of hydrochloric acid, may be called corn syrup and not glucose, as it is named commercially.

This decision strikes at the vitals of the food law and opens the way to blenders of spirits to sell their product as whisky; for the users of that fraud, saccharin, to resume operations again, so that the flavor of creosote will again be found in preserved fruits and canned corn.

It is up to the administration to ask Congressmen to introduce at the White House some distillers of pure whisky and manufacturers of pure food, who understand the art of putting up mincemeat, fruit butters, catsups, jams, jellies, and preserves, without the use of chemical preservatives. Thus far the delegations have been from the ranks of whisky-blenders, the users of coal-tar colors, preservatives, and the makers of "corn syrup." They preach the gospel of license; juggle with names with the exception of the honest users of benzoate of soda, who advocate their product being labeled as containing the much-debated article.

There is a national election ahead, and the grocery trade and its allied branches have half a million votes, and we trust every voter interested in pure food will note how the party in power has begun a campaign to nullify the most popular law passed by Congress, and again open the sluiceway of adulteration. Do not be fooled with party protests asserting credit for passing a national pure-food law which is intended to stop absolutely the sale of unwholesome food and secure honest labeling. The ballots of the grocers can punish the sinners.

We do not look at this matter quite as seriously as does our contemporary. If the administration has made a mistake (as it surely has) the mighty protest that is going to be raised will make the "powers that be" more careful in rendering decisions of an allied character in the future.

Of course, this most unfortunate decision will be used as a powerful precedent. The blenders of whisky, and all others who desire to conceal and cover up certain ingredients, are doubtless having a regular jollification, for now they have a precedent by which there is a chance and even a likelihood that they can, to some extent at least, misbrand their product. But be it said to the everlasting credit of Dr. H. W. Wiley, he stoutly stood out against the cabinet. Even though our great and good President, influenced by the majority of his subordinates, was made to feel that "corn syrup" was the proper and legitimate name for glucose, yet, notwithstanding, Dr. Wiley dared to stand alone.

Our government officials can not be too strenuous in enforcing the provisions of the national pure-food law. Their decisions, therefore, should be on the side of safety rather than take the chance of opening the floodgates of fraud.

HOW GLUCOSE (CORN SYRUP) IS MADE.

The following clipping was sent through the mails, and we reproduce it here for the benefit of our readers:

Although the glucose-factories all have a big sign of "No Admittance" nailed to their doors. I was once admitted with a chemist, and had the process of the manufacture of glucose described to me as it was being done. The corn is first ground, then soaked in water to get the starch, and the starch water is boiled with sulphuric acid added in the proportion of 1 quart of the acid to 100 gallons of the starch water. This is

then sweetened with cane syrup, my Early Amber cane syrup being largely used for this purpose because of its being strongest in saccharine matter. The syrup thus made contains only one-sixth saccharine content, and this is the syrup most people buy. The State Board of Health does not consider this glucose syrup wholesome, and at the Red Wing and Faribault institutions they now make their own syrup.

Glucose is bad for the stomach and kidneys. Scientific physicians claim that the strong mineral acid used in its manufacture destroys the fine tissues of the kidneys.

Farmers can protect themselves against this enemy to health by growing the amber cane and manufacturing their own syrup.

We do not know in what publication this appeared, but no matter. The statements are, in the main, correct, except that hydrochloric acid instead of sulphuric is used in this country, and one process is left out—namely, that soda, after the boiling in hydrochloric acid, is put in the mixture to neutralize the soda—or, rather, we should say, the soda combines with the acid, forming common salt. But, unfortunately for the American stomach, this soda does not take up all the acid; and the capitalists back of the glucose interests, we understand, would give millions if some chemist would tell them *how* this could be done in a *commercial* way. It can be accomplished in the laboratory, but at great expense; but in the glucose-factories it is impracticable, and consequently the glucose in the markets, in its various forms under the name of "corn syrup" and its compounds, contains some unneutralized hydrochloric or sulphuric acid, and this is what plays the mischief with our digestive apparatus. We may disguise the so-called corn syrup (glucose) by putting in cane syrup, but the injurious agent is there just the same.

Reference is made to the fact that "No Admittance" is nailed up on the doors of the glucose-factories. We have been trying to get our chemist into some one of these concerns for several years back, but without success. The fact is, the glucose people do not want the outside public to know the process of manufacturing their product; and now it has leaked out that the wooden buildings in which glucose is made are very short-lived because of the destructive action of the acid fumes during the process of manufacture.

Bee-keepers, on the other hand, have no secrets to cover up. Their bee-yards and their supply-factories are open to the inspection of all reasonable and fair-minded people, especially reporters.

THE DIFFICULTIES OF A QUEEN-BREEDER.

It has been the settled policy of the proprietors of this journal to allow none but responsible people to place advertisements in its columns. There seems, however, to be a misunderstanding of what we mean by *responsible*. For example, we have a complaint now against an advertiser up for settlement which shows the difficulty we occasionally have to contend with in making advertisers and purchasers harmonize, even when both parties to the transaction are honest.

A, the buyer of a select breeding-queen

(price \$6.00), complain of B, the queen-breeder, because the queen died several months after her safe arrival and introduction. On this account the buyer demands his money back. B, the queen-breeder, says he can not do that, because he was not notified until months after the death of the queen; but to effect a compromise he offers to furnish a good queen in lieu of cash. The customer refuses this offer.

We think most people will absolve us from any responsibility in the matter, more particularly as we have gone to some trouble to get the dispute settled. We know the queen-breeder acts on the square-deal principle, and have a high respect for him accordingly. On the other hand, the buyer feels the loss of \$6.00 very keenly.

What complicates the situation still more is that we too had a complaint from the same buyer several years ago. He bought a breeding-queen from us which died a few days after receipt. We made the matter good by sending another queen in a nucleus, because we guessed either of two things had happened—the queen was injured in the mails or she was unsuccessfully introduced.

What we wish to point to buyers of queens, more especially breeding-queens heavy with eggs, is the very great desirability of having such queens sent in a nucleus by express. This reduces the risk to a minimum, and is more satisfactory in every way. Heavy queens can not stand the banging of the mail-bags; and middle-aged queens, or the queens old enough to have been well tested, can not stand the shocks of a mail-bag as well as very young queens.

We are of the opinion that none of our subscribers would expect us to do more than we have done in the foregoing case. We can not do wonders or impossibilities.

SENDING OUT TRAVEL-STAINED, BROKEN,
AND NO. 2 HONEY AND LABEL-
ING IT NO. 1.

THE illustration on page 358 shows a very conspicuous example of this very thing. We will explain by saying we received a carload of honey from a broker who bought what he supposed was No. 1; but much of it so graded was hardly No. 2. No, it would not even pass for that. It will have to be cut out and sold for chunk honey. The sections shown in the photo were taken out of the cases at random, and piled one on top of the other, and are a fair average of that one lot. Unfortunately the camera fails to show all the varying shades of travel-stain and bee-glue, but it gives one an idea and at the same time portrays very clearly where the honey was leaky and broken, with only a portion of the surface capped over. Notice, also, that this supposed No. 1 honey was of the non-separated kind. There are some bee-keepers who can produce good No. 1 stock without separators, but they are few and far between. The great bulk of such honey that we see at commission houses is inferior, and oftentimes a bad lot. The

sections are bulged, and when two bulged surfaces come together the results are always the same—both sections are ruined, and in most cases the whole case of honey is knocked down several cents per pound, even though the other sections are No. 1.

The samples shown in the photo do not by considerable represent the whole car of honey, but it was a fair sample of some of the so-called No. 1. I say *some* of this No. 1, because a good portion of it, having been produced by other bee-keepers, came up to the standard of the grade called for. But this particular lot of No. 1 (?) was produced, evidently, by some man who was not as ignorant of what he was doing as he might be. To state the plain facts, it is apparent that he *deliberately* put a lot of No. 2 and off-colored honey in the cases *knowing* they were such, and marked them No. 1. The broker, a large buyer, apparently took the whole lot without examination, and it was only when he sold it to us that he became aware of what had been palmed off on him. We at first refused to accept the car, and you can imagine the telegrams and letters that flew back and forth over this thing.

If there is any thing in this world that hurts the sale of good honey, and injures the honey business in general, it is the bee-keeper who resorts to such dishonest practices as this. We don't wonder that honey-buyers lose patience when they have to deal with such kind of trickery as this. It is not at all strange that some dealers quit handling honey at all.

Speaking about unseparated honey, we wish to register a most emphatic *protest against trying to get along without separators*. If there ever was a penny-wise-and-pound-foolish policy, this is it. In the photo here shown, five cents' worth of separators would have saved something like \$2.00 in the valuation of the honey. While the non-separator man did not lose on this one deal, he will have hard work to sell to that same broker again.

We feel so strongly on this subject, that, if the bee-keepers in any locality know of any one who is wrongly grading his honey, calling it No. 1 when it is not even No. 2, we should be glad to have somebody buy a case of it, take it to a photographer, and have a photo taken of it just as it is, showing every section. Send the photo to us; and if the bee-keeper is an old offender we shall publish his name to the bee-keeping world. Such a man ought to be run out of the ranks. He secures only a temporary advantage, but in the end injures himself and every one else.

Please do not get the impression that we are affirming that *no* one can produce good honey without separators; but we do say that the *average* man should not attempt it.

ALSIKE VERSUS RED CLOVER.

The following excerpt from the *Indiana Farmer* for Feb. 1 hits the nail on the head in a way that will be quite pleasing to the

bee-keepers of the red-clover States. It would be a good plan for bee-keepers to have this item printed in their local papers, as the facts are as stated, not being overdrawn in the least, nor untrue, and ought to be known by all farmers who now grow red clover. Most bee-keepers ought to sell alsike seed at cost, or even less than cost, to nearby farmers.

W. K. M.

Subscribers are asking us about alsike clover as a substitute for red, partly because of the high price of red-clover seed as compared with that of alsike, and partly because of the difficulty of securing a stand of red. The seed of alsike clover is only about half as large as that of red; and as the plant spreads more it should not be sown thick, so that only from 5 to 7 lbs. is required to the acre. The price of alsike just now is \$1.50 less per bushel than red, so that there is a saving of more than half in the seed required for a given area. Not many of our farmers have tried alsike, and we must take the testimony of those in other sections as to the plant. It differs from red in being good for four or five years when once set, and in allowing only one cutting in a season. Good moist clay soil suits it best; and as the stalks are long and rather slender it is well to sow a little orchard grass with it to give it support. The two plants mature at the same time, so there is no loss in cutting them together. Alsike is hardier than red, and stands rougher winters without injury, and comes out all right where the other fails. Analysis shows that alsike contains more solid matter and protein than red clover. It is also an excellent honey-plant, yielding more and better honey than the other varieties of clover. It should be sown and treated as red clover, with a little more care in preparing the seed-bed. The ground should be pulverized as fine as possible.



KOLA FOR BEES.

A writer in *La Apicultura Espanola* advocates the addition of extract of kola to each quart of syrup fed to bees. He says it greatly increases the activity of the bees, apparently with no injurious effects. It is not clear to me what is to be gained by this, seeing that, when bees require to be fed, they do not require a stimulant but rather the reverse. I have known alcohol to have a stimulating effect on bees, but the results were unsatisfactory.

GERMAN MANUALS OF BEE-KEEPING.

I have received lately two excellent German works on bee-keeping, by Herr Max Kughenmüller, of Constance, Germany. The author is the editor of an excellent German bee-journal published at Stuttgart, the *Allgemeine Zeitung fuer Bienenzucht*, so that the works which are before me may be justly considered up to the times.

Both books are well bound, and well printed on excellent paper. The paper particularly is of the kind that lasts for hun-

dreds of years. The first one noted is "Die Bienenzucht," published by Sprösser & Nägele, of Stuttgart. I have not had the opportunity to read this book through; but it seems to me that, if any one desires to become quickly acquainted with German bee-keeping methods, reading this book carefully will do it. The European writers excel in what may be termed the science of the bee, and Herr Kughenmüller is no exception to this rule.

The other book is by the same authority, but published by Messrs. Richard C. Schmidt & Co., of Leipzig, who are well-known publishers. Its full title is "Betriebsweisen lohnenden Bienenzucht." On its title-page it states that it is written by the practical for the practical; and this seems to be so, for each chapter is written by some successful bee-keeper from every part of Germany. For example, the first chapter was written by Pastor W. Stolzenburg, in Borgfeld, Prussia, and the last chapter is by the editor, Herr Kughenmüller, who lives in Constance, by the lake of that name in Southern Germany. There are articles from Schleswig-Holstein, Alsace, Pomerania, Hanover, Silesia, Gotha, Posen, Rhineland, Switzerland, Scherzingen-Munsterlingen, Austria, Baden, and elsewhere.

That interesting journal, *L'Abeille et sa Culture*, published at Huy, Belgium, signalized the new year by giving a sketch, with portrait, of Réaumur, the illustrious bee-keeper and savant. It says in part:

Reve-Antoine Ferchault de Réaumur was born at La Rochelle, France, Feb. 28, 1683. His name is generally remembered on account of his invention of the thermometer which bears his name. He became at an early age very proficient in mathematics, and published a work on the subject; but bee-keepers are chiefly concerned with his studies in bee culture. At the age of 55 he commenced the publication of a number of communications which he had originally read at meetings of the Academy of Sciences. These books treated on physics, natural history, and technology. He invented white porcelain for use in thermometers, and which is now much used for refrigerators. He also concerned himself with artificial incubation and the preservation of eggs. He was also interested in botany, and conceived a system of classification similar to the Linnean. In natural history he made a special study of the invertebrate animals, notably insects. Between 1734 and 1743 he published his great book, "Mémoires pour servir à l'Histoire des Insectes," in six volumes, which denoted sagacious observation, ingenuity, and patience. Of all the great naturalists of the 17th and 18th centuries he was certainly the most thorough in his methods. His "Histoire des Abeilles" (History of Bees) is second only to the work of Francis Huber in public estimation as a scientific treatise on bee study. He ceased his activities Oct. 17, 1757, after a long and very useful life.



COMB OR EXTRACTED HONEY, WHICH?

"Which had I better produce, comb or extracted honey?"

"Are you tired of comb-honey production, Mr. Smith?"

"Not if it pays as well as does the extracted. But from what I have been told, it would seem that the extracted should pay better. I read only yesterday in one of my old bee papers that extracted honey could be produced more cheaply than comb honey. The writer said there was a saving of 20 lbs. of honey which was required to build 1 lb. of comb in which to store the honey sold in the sections, and that, where the honey was extracted, combs once built could be used as long as the apiarist lived, barring accidents."

"Did you believe him?"

"I could not contradict, for I did not know enough to. He said Huber, who lived a century or more ago, experimented till he found that it took from 20 to 25 lbs. of honey (this to be eaten by the bees) before wax enough to produce a pound of comb could be secreted. Did you never hear of this?"

"Yes. This was a stock argument when the extractor was first known. But beekeepers of this time believe that it does not require nearly that much. In conducting his experiments, Huber confined the bees to the hive, which put them in an abnormal state, so that their struggle for liberty made them use very much of the honey Huber thought was used to produce wax. When bees are very active, and especially when they are uneasy under confinement, they use large quantities of honey to support the necessary vitality which is required all the while to take the place of that used up in the struggle to get out, very much on the principle that a man who is doing hard muscular labor requires much more food than does the one who sits at his desk all day."

"He said nothing about that; but he figured that extracted honey had the advantage because of the time taken to build the comb, when the comb-builders could just as well be in the field gathering nectar. Then he said further, that, since it takes about 1 lb. of wax to hold 25 lbs. of honey, if the yield in newly built combs in sections was 25 lbs., if I furnished the combs I would secure 50 lbs. of extracted, plus that gathered by the comb-builders, when they were not held in the hive for the production of wax and the building or shaping the same into comb. I have been thinking this over during the night; and it seems to me that, if he is anywhere near right, from 60 to 65 lbs. of extracted honey could be produced from the same colony of

bees as easily as could 25 lbs. of comb honey. What do you say?"

"It seems to me he was mixed just a little, although I do not know that I just understand that argument from beginning to end. He mentioned things which I never heard in an argument of that kind before. I am free to admit that it takes about 1 lb. of wax, when built into comb, to hold 25 pounds of honey; but I am not free to admit that the pound of wax costs 25 lbs. of honey to produce; nor am I willing to admit that there would be more gatherers where no combs were being built than would be the case where the bees were filling the section from starters; for it is a rare thing that the comb-builders go into the fields as laborers. It is possible to cause the bees which are generally occupied in comb-building to go into the field as gatherers by throwing the colony into an abnormal condition; but otherwise they would not gather stores whether they were building comb or not. You can very easily prove this for yourself by changing queens in a colony of black or hybrid bees about four weeks before the honey harvest, giving the colony a queen of the yellow race. Note the time the first yellow bees from the new queen begin to emerge from their cells; and twelve days later, when the harvest is at its height, take a look at the entrance of the hive during the forenoon, and you will see only black bees going out after and coming in with their loads of nectar. Now take a look in the sections, where comb-building is going on rapidly, and you will find nearly all the bees there at work, pulling away at the cells and septum to the combs of the yellow race; and if you wait till the sixteenth day you will find the same at the entrance, while there will be scarcely a black bee in the sections. This proves conclusively that the writer had no ground for arguing that 'the comb-builders' could just as well be in the field gathering, for the field-bees rarely build comb under normal circumstances."

"But, after all, don't you think that more extracted honey can be produced than section?"

"Yes. From all of my past experience I should say that, on an average, one-half more extracted honey can be produced from a given number of colonies than section. That is, if a given number of colonies would produce 50 pounds of section honey during a certain harvest, those same colonies would give a surplus of 75 pounds of good thoroughly ripened extracted honey. The reason I do not produce extracted honey for market is that, when it comes to the disposing of the two articles, I can sell nearly double the number of sections with the same labor that it takes to sell half as much extracted, and always secure a half more in price for the section honey, while during many seasons the section honey brings nearly double the price. I know that some claim to get as much for their extracted as for comb, in their home market, but I can not do this; and when it comes to sending the two to a distant market, all know that extracted brings

little more than half the price of section honey. The quotations in any of the bee papers will tell you that."



I agree with Mr. Doolittle most heartily, that there are some strains of very yellow bees, five-banded ones if you please, that are both hardy and good honey-gatherers.

A capital idea, that of cutting out light combs and placing them in a wooden butter-dish. One great difficulty with the honey trade is that it is not pushed as it should be.

In Dec. 1 issue of GLEANINGS Mr. Holtermann enumerates some of the causes of irascibility, and yet has left out one of the most important causes, as it seems to me. When bees are at work a heavy wind seems to make them very irritable, and sometimes human beings are affected in the same way. One day, without much wind, we may handle bees with the greatest pleasure; while the next, with a heavy wind, a good veil of the most approved pattern is very essential to our happiness.

Some of Mr. Coveyou's methods are novel, and seem to be of considerable value to those putting up honey, or bottling, as the government officials would have us say. I fear he would not be allowed our eastern roads for his tricycle, however. I am interested in the suggestion of an automobile for bee-keepers' use. Can you not, Mr. Editor, give us illustrations of the best up-to-date machines that will carry 1500 lbs., or thereabout? I believe a good practical automobile would save time enough so we could run an extra yard.

Although much may depend on the strain of bees or on the flow of honey, yet I believe that Mr. Morrison is not far out of the way in thinking that thin combs will be built more evenly than thick ones. I believe it a mistake that the standard sections are so thick. A comb, including the bee-space of not over $1\frac{1}{8}$ to $1\frac{1}{4}$, will not only be built more evenly, but I am satisfied that more of them will be completed; and then, too, they will sell to better advantage, as they are larger, or have more comb surface, and are more showy. They may also be cut to better advantage.

The experience of O. S. Rexford in feeding bees, page 1508, is not only interesting but of great value. How little we know for certain along these lines! One experiment

alone is insufficient. Here is an opportunity for our government experiment station to tell us just the best way to feed, and how much to feed, to supply a colony with the equivalent of, say, ten pounds of honey. This experiment would seem to show that, the quicker a colony can be fed, the less will be the loss. The best method of fall feeding is becoming a matter of a great deal of importance in those localities where there is little fall forage and the basswood has been cut off.

Right along this line is the cost in honey of wintering bees out of doors, by Allen Latham, p. 1563. I had the pleasure of meeting Mr. Latham in October, and am free to say that I believe him to be one of the most careful experimenters within our ranks, and yet his experience is so very different from my own that I am tempted to inquire what should make the difference. Some thirty years ago I wished to know the amount of honey required to winter a good colony out of doors. I took three good colonies; and the last of October or first of November, that there might be no mistake, shook off all the bees and weighed the combs. Again, about the first of April I shook and weighed the combs and found the average loss about 17 lbs. One lost almost exactly 17 lbs.; one $\frac{1}{2}$ lb. more, and the other $\frac{1}{4}$ less. Thus these three colonies averaged a loss of $3\frac{1}{4}$ lbs. a month—nearly double that of Mr. Latham's. What could make the difference? I can think of only two or three things. The first is, he is some two hundred miles further south, and, of course, the winters are somewhat milder. Again, his colonies may not have averaged as strong. They may have been of a more quiet strain of bees, which, as he says, makes quite a difference.

There is another thing I had thought of. Had his hives absorbed any considerable amount of moisture during the winter, thus showing a smaller loss than if the combs alone had been weighed? If this were very perceptible I believe he would have mentioned it. Doubtless the large entrances he uses had much to do with getting rid of surplus moisture.

If half of these colonies had had contracted entrances the result would have been instructive. My experience tallies with that of the editor, that a small entrance is a saving in honey and bees.

I purchased a yard of some forty colonies of bees in the spring of 1906, and found the winter entrance contracted to $\frac{1}{2}$ by 2 inches, and yet I believe I never saw a yard of bees average as strong as that one; and I believe this entrance, which is equivalent to $\frac{1}{4} \times 1$ is ample, provided it is given so as not to get clogged with bees, and provision is made to get rid of all surplus moisture.

Your experience, Mr. Editor, at Mr. Mendelson's, is certainly interesting, p. 1565. I was especially interested in the method of separating cappings from honey by heat. It

has for some time been a question how best to separate honey perfectly from cappings.

It may not generally be known that wax will melt at a temperature of 150 to 155°, while most honey will remain unharmed at a temperature of 160. Indeed, you can raise the temperature of clover honey to 170 for a little while without harm. A year ago we bought many hundreds of pounds of honey from a large dealer that had been broken or granulated. By placing it in a large tank with water-jacket the temperature rose to 160°, when the wax came to the top, and, after cooling, was easily separated from the honey. We have had occasion to buy more the past autumn, and treat in the same way, with equal success. Of course, the honey and wax must be stirred often so as to keep the temperature even through the mass.

The past summer at one of my yards, during my absence, quite an amount of honey and cappings came off together, which I found separated easily by means of the double boiler. Where a large amount of feeding is required in the fall I have found that a very good method is to take cappings after letting what honey drain out that will readily, keep them till we are ready to feed, then soak them out in water and use the rinsings for melting sugar in. Some use these rinsings for vinegar, but I prefer to use them for feeding.



Prospects in Texas are good.

The Southwest has enjoyed a mild winter.

An average of three frames with brood in January, and bees were in splendid condition.

The way we throw hives around, handling hundreds of colonies, nails to hold hive, tags will be driven into the wall of the hive-bodies in time. With the bent staples there is no trouble. See p. 139, Feb. 1.

Little cubes of honey, in paraffine wrappers, etc., to be served in hotels and dining-cars, is a good idea. It seems that the North will some time enter into the production of "chunk" honey yet.

Honey is a luxury for those who use it only occasionally and keep it in the house to place on the table just when visitors call. For those who know the true value of honey, especially its healthfulness as a food, and who use it on the table regularly, it is not a luxury but a necessity.

The tendency with too many bee-keepers is to let a great many things go to waste and continually buy anew, which costs money. More economy and less extravagance is what the American bee-keeper needs.

Contrary to the arguments of some of our authorities, I believe that hives well painted will last very much longer, keep in shape better, and look nicer than unpainted ones. These three points in favor of painted hives are enough to make me put a new coat of paint on all of my hives, supers, bottoms, covers, and all other supplies and implements this spring before the honey-flow.

NARROW VS. WIDE BOTTOM-BARS.

Wide bottom-bars with only $\frac{1}{4}$ -inch space between them would retard communication between stories very much. It is already detrimental with wide top-bars, leaving only $\frac{1}{4}$ -inch space between them. That's why *my* top-bars are $\frac{3}{4}$ inch wide and $\frac{1}{4}$ inch thick; and there are no more brace-combs than with wider ones in the same hive. The bottom-bars are only $\frac{3}{4}$ inch. It is easy to look up between the combs; and a great advantage is that all the queen-cells will be built right past these narrow bars from the lower edge of the combs of the upper story of the divisible brood-chamber. I say *all*, for those that will not be built there, if the combs are all solid slabs, are too few to mention. Where would the cells be with wide bottom-bars? and what would be the advantage of such width?

GLUCOSE OR "CORN SYRUP."

We have tried some of the stuff known as "corn syrup," hence are in position to side with those who are making such a vigorous protest against calling a thing such, which it is not. *Glucose* should be the name for it, for the people would then know what they buy. Of course, the bee-keepers will favor this. Now for my experiment: Taking a tumbler of honey and a similar one of "corn syrup" it will be found that it takes twice as much of the latter on bread "to get a taste," and then it does not give as much of a taste as half the amount of honey would. The syrup costs "only 50 cents for a ten-pound bucket, while honey is \$1.00;" but the consumer does not know that he must use more than two buckets of it to one of honey; and instead of getting the good that he would from honey he eats thrice the quantity of the injurious glucose stuff.

HOT AIR FOR LIQUEFYING HONEY.

It seems that the time will come when hot air will be used more for heating and reliquefying honey than the old method of placing the vessels in hot water. I stumbled across this idea quite a while ago. A 60-lb. can of granulated extracted honey was set on the brick wall surrounding a large boiler that was kept going night and day. On the following day all the honey had melted and was as thin as water. The can was at least

a foot away from the boiler, but nearly above it, where the heat was greater. Then, again, I have often set small vessels of honey quite close to the stove to have the contents melted, but it has been only lately that I have given it much thought.

While out at one of my neighbor bee-keeper's, Wald. C. Conrads, he spoke of an idea that seems good to me, but it will have to be put into practice before we can be certain whether it will work.

The idea is to have an apparatus very much like an incubator, but built on a larger scale. This "incubator" could be made large enough to hold six or eight 60-lb. cans of honey. The lamp arrangement would be the same as on egg-incubators, only large enough to give the required amount of heat. After putting the cans in the box the heat would be regulated to the proper temperature, and the register would keep it there. It would be necessary to leave the honey only long enough to be thoroughly heated to the required point, after which it could be replaced by a new lot of cans as quickly as possible, so the machine could go on with the same heat for days at a time. It would have to be ascertained at what point the temperature must be kept in the box to give the required results. It might have to be more than 100° Fahrenheit. The contents of the cans, *if these are left in the heat long enough*, would have the same temperature throughout; but for rapid work it might be best to put on more heat. In some instances a larger machine would be needed.

DIVISIBLE-BROOD-CHAMBER HIVES.

Among dozens of inquiries, one of interest to many who may contemplate giving this kind of hive a trial will be given herewith. It is as follows:

"I write to ask some questions about your shallow hives. I asked one editor why it would not do to use shallow supers with ordinary shallow frames—the advantage in this being that, if one did not like the divisible-brood-chamber system, he could go back to the deep brood-chamber without disposing of his shallow hives. The answer was, 'They would do in a way; but one objection would be that the top-bars of the frames would be too wide, and interfere with the operations.' I do not see the force of this objection. Is not the comb wider than the top-bar? and could one not order frames with narrower top-bars? Do you use the system that J. E. Hand outlined in GLEANINGS?"

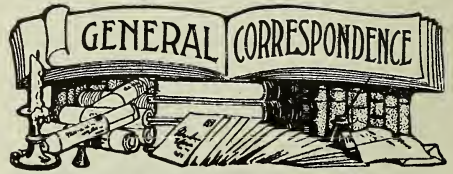
My first divisible hives were nothing but the regular ten-frame shallow extracting-supers with 5½-in. Hoffman self-spacing frames. These were used throughout from the bottom up. My idea was exactly the same as the questioner's. If these shallow hives should prove unsatisfactory they were to be used as supers on the deep-brood-chamber hives, but this was never done. More were put in use as divisible-brood-chamber hives instead, until now I have hundreds of them in my apiaries. Having these side by side with both

eight and ten frame deep hives I can more readily notice their advantages.

And this is the very way I would urge others to give this kind of hive a trial before plunging into an expense that may be regretted later. There is nothing to lose in this way, as the bottoms and covers are the same as for ten-frame L. hives.

It is true that the top-bars of the regular frames are too wide for ready examination, and sometimes it is a hindrance in that it does not allow sufficient communication between stories in some colonies, keeping the queen from passing freely from one story to another. Nevertheless I have thousands of these frames in use with good results. My ideal frames have top-bars only ¼ inch wide the entire length, and ¼ inch deep, the other parts of the frames being the same. I have used them for ten years, and there was no trouble with burr-combs or sagging; besides, these frames allow freer communication, better observation, and are stronger. There is no comb-guide or groove to weaken the top-bar, the foundation being fastened with hot wax.

My system of management is different from Mr. J. E. Hand's, in that it is not so complicated. It will be written up later.



SPRING MANAGEMENT.

Protecting Hives with Paper; Prevention of Mixing when Colonies are Set out of the Cellar; Feeding in the Spring; does it Pay?

BY E. D. TOWNSEND.

If I were wintering colonies in small hives with sealed covers, and had a well-protected location, I do not think it would pay me to paper the hives; but if I were using a hive larger than the ten-frame Langstroth I would paper in all cases, for I do not think that the large hive has as many bees in comparison to the size of the hive as the eight and ten frame hives have. If this is the case, the extra room to warm during the breeding season of spring would, in my estimation, justify the papering. If a yard of bees is located in a windy place (and I think the majority are) then it will also pay to paper.

COMPARATIVE ADVANTAGES OF BLACK AND WHITE PAPER.

It is with a good deal of satisfaction that I find GLEANINGS showing *white* paper for protecting colonies during winter and spring. Although I do not *winter* bees in papered hives I have been almost alone in the use of

white-felt building-paper for spring protection; and while the journals have been recommending tarred paper for spring protection I have been using the white with good results.

The reason that I have "steered clear" of black paper for papering hives is that, several years ago, I had experience with hives painted a dark color, some of which were of the chaff pattern, but built with a thin front painted a dark color. The results were that these dark-colored hives would absorb the sun heat so as to attract the bees out on many cold days, so that they rarely wintered a colony in good condition. They were, therefore, abandoned for a better kind.

Mr. S. D. Chapman, during the spring of 1906, wrapped every other hive in his home yard, consisting of over two hundred colonies, with tarred paper. By having half the colonies in the same apiary wrapped with paper and half not wrapped he was able to give the plan a very fair test. All of the colonies were wintered in a cellar, and Mr. Chapman is very particular to have all light colonies fed early in the fall for the purpose of having all the covers sealed down so there will be no chance for a draft through the hives after they are set out of the cellar in the spring. The location where this test was carried on is well protected from the prevailing winds, especially those from the north and west.

The ones that were covered with the tarred paper absorbed the heat from the sun to such an extent the bees were lured from the hives on days that were too cold for them to fly. This meant that the colonies in the papered hives at the beginning of the honey-flow in June were not nearly so far advanced as those in hives that were not protected. In view of this, Mr. Chapman has decided that no extra protection is needed if the yard is well sheltered from the winds, and if the hive-covers can be well sealed the previous fall.

White paper does not cause the hive to become so excessively hot when the sun shines as the black paper does; and if it has been well folded down and fastened at the bottom of the hive the bees are kept as warm as is necessary. Colonies so protected went through the severe freeze of May 10, 1906, without the loss of a particle of brood, while many colonies in hives not papered lost heavily, and some of these were so greatly reduced that they were able to gather no surplus honey that season. Generally speaking, night is the time when the extra protection is needed, for the air during the day is warm enough. Since white paper at night is just as good in all respects as the black, it is obvious that it is the better material to use, since it does not absorb the heat of the sun during the day and make the hive too hot.

I use white-felt building-paper, and it is so cheap that I throw it away and buy new each year. It is true that any sheets that might not be torn could be rolled up and saved; but the new paper folds so much better than the old stiff paper kept over from the year

before that I do not think it would be much of a saving to try to use the old. This white-felt paper comes in rolls 36 inches wide, and costs about 65 cts. a roll. One roll of paper this width will cover about 35 hives, and it is not hard to see that, if the paper is of any value at all, the expense of less than two cents per hive can not be considered. The tarred paper is usually but 32 inches wide. While this might do for an eight-frame hive it is not wide enough to suit me for the ten-frame size.

HOW TO WRAP THE HIVES.

If the hive-cover is sealed down I put the paper over the hive—cover and all; but if the cover has been loosened, or if there are any openings at the top of the hive, I remove the cover and put the paper next to the bees. The paper can be used more advantageously in this way, for it comes down to the bottom of the hive in better shape. Furthermore, it is easier to fold the paper around a hive that has no cover. The best arrangement of all is a hive with a thin super-cover that comes just flush with the outside all around. I remove the outer cover and fold the paper directly over the inner cover, being careful to put it on smooth, so that there are no wrinkles at the sides. I then fold over the ends in such a manner that the water can not possibly run down between the folds. I secure the bottom of the paper with a piece of lath as long as the side of the hive, and fasten it with a nail in the center. These pieces of lath should be tacked at the bottom of the paper, one on each side.

The lath have the advantage over the string in that the lower edge of the paper is held perfectly tight against the hive at all points, so there is no chance for a circulation of air between the paper and the hive. If nothing is used but a string tied around the bottom of the hive, there is likely to be a loose wrinkled edge where the wind and cold air can get in. If the work has been done well, there is no chance for the heat from the bees to escape except through the entrance of the hive. I believe this to be a very desirable condition.

We are wintering 325 colonies of bees in a cellar in Charlevoix Co. Nearly all of the covers are loosened so that there is some ventilation at the top.

The yard in which these colonies are placed in the summer is well protected; and when the hives are set on the summer stands the propolis is cleaned from the upper edge of the hive and from the under side of the cover. A sheet of felt paper the size of the outside of the hive is put on, held down by the cover. A ten-pound stone is finally placed on top; and it is my opinion that, since the soft paper fills up any small opening between the hive and the cover, there is no more chance for draft than in a hive with a sealed cover. However, in all our yards where the wind is likely to be strong the hives will be papered according to the plan given before.

REMOVING BEES FROM THE CELLAR.

In removing colonies from the cellar, no

attempt is made to set them on the stands they occupied the previous season; for I have found that it makes no difference as to the mixing of the bees whether the hives occupy the same stands year after year or not.

Unless precautions are taken, the bees will drift to one side of the yard when the hives are taken from the cellar, all of them trying, apparently, to enter a very few hives. This means that, in some cases, a hive will be deserted; and even the queen, thinking she is being left alone, will fly out and join the busy throng, trying to get into the few hives at one side of the yard. I have had this experience two or three times; and after the mixing is started I have found that it pays to contract the entrances of the strong colonies so that only a few bees can emerge at a time. When this is done the flying forces of all the colonies are more nearly equalized. After this the colonies should be shifted about to some extent; that is, if a certain hive already has its share of bees, and if more bees keep coming to it so that the prospects are that it will become overcrowded, it should be carried to some part of the yard where the hives are not getting their share. One of the hives light in bees is set in the place occupied by the strong colony. This should be kept up until all the colonies are as near alike in regard to strength as it is possible to get them. After finishing such work, however, it is generally found that the plan is not very satisfactory; hence it is well to prevent such drifting on the part of the bees in the future.

HOW TO PREVENT DRIFTING.

In order to prevent this state of affairs it is necessary, first, to understand what causes the trouble. Improper methods in wintering account for some of it; for, if the bees are "just dying" for a fly, they are more likely to boil out of the hives without carefully marking their locations. This, of course, means a general mix-up.

Removing the colonies from the cellar on a very warm day also tends to cause drifting. The disturbance and the warm air together cause the bees to leave the hives in such numbers that they are almost demoralized. A large entrance is detrimental in this case, for it allows the bees to leave the hives too rapidly, so that, in a short space of time, the air is almost full of lost bees. A high wind aggravates matters, for this surging mass of lost bees may be blown to one side of the yard. It would seem that the leeward side of the yard (the side toward which the wind blows) would get the greatest number of bees; but such is not the case. I have found that the windward side gets the bees—that is, the side toward the wind.

Hubbard Bros., of Boyne Falls, Mich., had a peculiar case of drifting last spring. Their yard is located on a ridge, one side of which slopes to the east and the other to the west. The hives were set out of the cellar in the night, and in the morning the sun shone brightly and the bees on the east side were attracted out by the morning sun, and were flying strongly before those on the west side

even started to fly. The result was that the bees from the west side were so attracted by the great commotion on the east side that a good share of them went over and mingled with the flying throng so that there were finally entirely too many bees on the side of the yard which got the sunlight first, while the other side had but a few. It seems to me that in such a case I would try shading the east side until the sun is high enough to shine on all the hives at once; and then when the bees have begun to fly to some extent the shadeboards, or whatever had been used for shade, could be removed. In this way it seems to me the flying of the bees could be regulated, especially if the precaution is taken to contract the entrance down to about $\frac{1}{2} \times 2$ inches.

It must be borne in mind that the bees from the strong colonies are the ones that make the great demonstration at the entrance, so that bees from other weak colonies are attracted to them. I know of no better way to regulate this than to contract the entrances of the strong colonies as explained above. This means that the bees from such hives can not fly any faster than those from the weaker ones, so that all are flying with about the same force.

If the hives are removed from the cellar in the early part of the season, before the weather gets too warm, there will be less mixing on the part of the bees when they fly for the first time. This is a good point in favor of removing the bees earlier, for such mixing is quite a serious matter to the honey-producer.

THE BEST TIME TO REMOVE COLONIES FROM THE CELLAR.

Whenever the indications are that the next day will be a suitable one for the bees to fly I go to one of the clamps and remove all but about two inches of dirt from the straw that covers the hives. This is left on so that the bees will not try to fly before they are finally uncovered. In the evening, after it is so late that bees would not try to fly from the pits, I remove the rest of the dirt and the straw. When this is done, there is quite a demonstration among the bees on account of the fresh air which reaches them; but, since it is now so dark that they can not fly, there is no mixing. By morning the bees will have quieted down, since the nights are usually cool at this time of the year. As soon as it is light in the morning I quietly place the hives on the permanent stands, and hardly a bee will come out. By this time they are so used to the fresh air that they usually fly very moderately, and rarely get mixed up. An ideal day for the first fly would be one when the air is warm but the sky hazy. With these conditions the flying is very moderate and there is no mixing.

Any colonies that are light in stores are placed in a row by themselves near the honey-house. This saves a good deal of work, and such weak colonies are not so likely to be forgotten as if they were placed in some remote corner of the yard, for they may be seen every time the honey-house is entered.

On this account they get better care than if they are scattered all over the yard.

STIMULATIVE FEEDING DURING THE SPRING NOT ADVISED.

For some reason, here in Michigan there do not seem to be many who practice spring feeding for stimulating. I can not say whether this is on account of the bad weather in the spring, which makes it difficult to get bees to take the feed when they need it most, or whether experience has taught the bee-keepers of this locality that a colony with brood-nest made rich with honey the previous fall is in better condition. All indications point to the latter cause.

There is one bee-keeper, however, Mr. E. E. Coveyou, of Petoskey, who thinks it pays him well to feed for stimulative purposes during the spring. I will let him tell his experience in his own words. He says:

"After the weather in the spring is settled, and the bees have begun brood-rearing long enough so that young bees are hatching, I aim to keep them breeding as fast as possible. Lest the weather should turn cold, or a frost come as it did last spring, I proceed to feed every colony at once. My experience last spring was quite serious. In one apiary 131 colonies that were fed continuously before and after the frost gave an average of 87 lbs. of honey to the colony. Another apiary, six miles from Petoskey, of 118 colonies, was not fed, although it was otherwise in just as good condition, for each colony had a good deal of brood started before the frost. I went to this apiary about a week after the frost, and, to my sorrow, I found that the bees had dragged out the drones, and the conditions seemed to be more like those in September. This was when the raspberries were just coming into bloom. The yield from this apiary was 30 lbs. of surplus per colony; and if there was any difference in the two locations, this last apiary had the better one. I am sure that I could have obtained 4000 lbs. more honey from this yard if the bees had been fed 500 to 1000 lbs. of sugar syrup in the spring."

Remus, Mich.

SPRING MANAGEMENT.

Building Up Colonies for the Honey-flow; a Unique Scheme of Exchanging Brood between Weak and Strong Colonies.

BY OREL L. HERSHISER.

[Mr. Hershiser states in a letter that in this article he assumes two apiaries which are on an equality in every respect in the spring, the locality also being the same, in order to explain more clearly his plan, and to show the difference that would result from special care over that where no special care is given. The average bee-keeper will be able to make such modifications of the plan as his particular case requires.

Mr. Hershiser thinks that this has been the most effective plan for building up weak colonies and bringing the maximum of workers into the hives that he has ever tried. He has had some experience with the Alexander plan of placing a weak colony over a strong one, but has finally adopted his own plan in preference. Mr. Alexander has twice as much time and twice as much good weather after the 20th of June, so

it is easier for the colony below, in his plan, to keep the extra amount of room warm enough for both queens to lay to their full capacity; and since he has until August to accomplish the desired result a little delay in the spring is not important. The Hershiser plan, on the other hand, contemplates getting all the queens to laying to their full capacity from the time manipulations are begun in early spring.—Ed.]

Shall we have workers according to the harvest when it is ready? An affirmative answer to that question may mean a full and abundant harvest. A good growing season, and weather conditions favorable for the abundant secretion of nectar, will afford only a partial harvest, ranging from something less than a full crop to little more than nothing, according to the condition of the colonies, if they contain less than a full complement of workers. Let us not answer the question in the negative, but turn our attention to how we may with greatest effect build up the colonies to overflowing with workers for the honey harvest.

The great need of skill in handling the bees that survive is strongly emphasized when we remember the heavy winter and spring losses that recur so frequently, notwithstanding all the pains bestowed in fall preparation. Every spring finds many bee-keepers, even among the most careful and experienced specialists, with not only heavy losses, but with a large proportion of the colonies that have survived, in weak condition. However, let no bee-keeper be dismayed by heavy losses, but, rather, let him study how best to prevent them in the future. If the losses are heavy, above all let him make the most of the survivors, remembering, as many bee-keepers of long experience have observed, that a bountiful honey-flow nearly always follows a severe winter and spring.

Occasionally bees winter so well that there is little or nothing to do with them to better their condition; but more often every apiary of considerable size will come through the winter with the surviving colonies ranging all the way from very strong to very weak, and this condition exists whether the bees are wintered in the cellar or on the summer stand. Without some special care and manipulation, these weak colonies are of little or no service to their owner. Especially is this true of those apiarists whose main source of honey is clover or basswood, or both, as weak colonies have but a short time to build up and get in condition so early in the summer; but even apiaries so circumstanced may be made to yield a handsome profit, if skillfully managed, which otherwise, if there is a preponderance of weak colonies, would gather hardly enough honey for the following winter's stores.

On the first warm day of spring the apiary should be looked over with a view of supplying food to all colonies that are short, but they should not be disturbed except to supply such needs. I do not regard early stimulative feeding as desirable except, perhaps, to get one or two strong colonies in condition for early queen-rearing. All entrances should be contracted to small proportions—for example, what would amount

to one-half inch square to $\frac{1}{2} \times 2$ inches. If packed for outside wintering the packing should not be removed until settled warm weather. If severe cold weather follows the setting of the bees out of the cellar the entrance to the hives should be contracted to a fly-space for only two or three bees; and if the hives have a flat cover an additional flat board laid on the cover will help greatly in conserving the heat of the colony. Tar-paper wrapping of the hive is recommended by a few specialists whose success in honey production gives great weight to their opinions. I have not had occasion to try it. The gist of the whole matter of early spring management is to keep the colonies warm and dry; and, having seen that they have plenty of stores, let them alone until settled warm weather.

It is a waste of time to attempt to unite weak colonies early in the spring. Usually the uniting of several weak colonies will result in one colony no stronger than if it had been left undisturbed by the addition of other bees.

When settled warm weather has come, and all danger of spring dwindling has passed, it is time to get busy with active preparation of the colonies for the harvest. Generally speaking this season is about apple-blossom time in the northern and eastern States and the southern Canadian provinces.

There are several methods of building up colonies, in anticipation of the honey-flow, employed by specialists; but I purpose describing only the one that has given the best results in my own experience. For the purpose of more clearly illustrating this method let us suppose a good-sized apiary, one hundred colonies of which have come safely through the spring-dwindling period after a severe winter and spring. Upon examination we find that of these hundred colonies twenty-five are strong, and bid fair to be running over with bees by the commencement of the main honey-flow (white clover), which will open in five or six weeks, and be in its height a week thereafter. Of the seventy-five remaining colonies, fifty are in medium condition, with from three to four L. combs fairly well filled with brood; and twenty-five colonies are weak with from two to three L. frames containing brood. Assume that it will be a good honey season and a good location, and that the twenty-five strong colonies will, without manipulation, other than supplying the needed supers, store an average of 100 lbs. of surplus honey, or a total of 2500 lbs., and that each will cast one swarm which will gather winter stores, any surplus from swarms being credited to the parent colonies; that the fifty colonies in medium condition will gather enough honey on the average for winter stores but no surplus, the assumption being that there is no fall flow, and that none of these will swarm, and that the twenty-five weak colonies will rear enough bees and store enough honey during the season to make eight good colonies ready for winter when doubled up in the fall. From this assumption the net re-

turns, not counting labor or expenses, would be 2500 lbs. of honey and an increase of eight colonies, or 108 colonies fall count. At the close of the season the possibilities of this apiary, if it had been in the pink of condition for the honey-flow, is plainly pointed out. Instead of a net crop of 2500 lbs., not counting labor or expense, and an increase of eight colonies, there would have been nearly or quite 10,000 lbs. of honey, and a liberal increase amounting to approximately 100 per cent, or, instead of the increase, a corresponding increase in the amount of surplus honey, all of which is evidenced by what the 25 strong colonies accomplished. The apiary has yielded less than one-fourth of its latent possibilities. That is not enough for the progressive bee-keeper. Let us, then, diligently inquire how we could have made those seventy-five profitless colonies yield at least a fair profit.

It is well known that the egg-laying capacity of the queen is not necessarily impaired by reason of the colony having dwindled to small proportions. A young vigorous queen in a dwindled colony has as much of latent value stored up in her as her equal in a populous colony, and she is willing and anxious to yield it up; but to do so she must have the proper environment. Dwindling is probably due to a variety of causes other than low vitality of the bees, and the progeny of the queens of dwindled colonies are as likely to be extra vigorous honey-gatherers as otherwise. In fact, dwindling may be the result, in some cases, of so much vigor in the bees that they venture out for water and nectar in weather so cold as to cause their destruction. Populous colonies of such bees are the ones that roll up a bountiful surplus if it is to be had. The importance of getting as many as possible of the progeny of such queens into the honey harvest is, therefore, apparent. It is equally clear that, for lack of warmth, a weak colony is incapable of incubating many of the eggs the queen might lay, or of nurturing the young bees. If we can so manipulate our colonies as to secure the maximum of egg-laying of all our queens at the season which will put the largest possible force of vigorous workers into the harvest, it is plain that we shall be far and away ahead for our pains in the amount of honey secured by the close of the season.

HOW TO EQUALIZE WITHOUT WEAKENING THE STRONG COLONIES.

Let us classify the colonies comprising the apiary in the above illustration into three groups, placing the twenty-five strong colonies in the first, the fifty of medium strength in the second, and the remaining twenty-five weak colonies in the third class. This classification is made without changing the position of the colonies in the apiary, and is made when settled warm weather arrives and spring dwindling has ceased. Now go to one of the weak colonies and select the two combs containing eggs and brood, and shake the bees clean therefrom into their own hive, leaving no brood unless it be a

comb from which the young bees are emerging in considerable numbers. Then go to one of the strong colonies and select as many combs well filled with capped and hatching brood as were taken from the weak colony, and replace them with the combs taken from the latter. Shake most of the bees from these combs of hatching brood into their own hive, being sure not to take their queen. Give one of these combs to the weak colony from which the combs of eggs and larvæ have been taken; and if it has bees enough to care for both of them they may be given; otherwise one of these combs of hatching brood may be used in another of the colonies of the third class. All the colonies of the third class should be thus supplied with combs of hatching brood from the colonies of the first class; and the poorly filled combs of eggs and brood from the colonies of the third class should be given to the colonies of the first class in exchange. This manipulation will result in a rapid increase of bees to all colonies in the third class. As the young bees emerge the queen will occupy the cells with eggs, and the addition of so many young bees emerging from the full combs of capped brood that have been supplied will create heat enough to induce the queen to fill one or two additional combs with eggs as fast as her capacity for reproduction will admit. Having commenced these manipulations from four to six weeks prior to the opening of the main honey-flow the efficiency for honey-gathering of the colonies of the first class has been very little, if any, impaired, as the queens in these populous colonies will immediately occupy the remaining cells in these exchanged combs with eggs which will develop into field bees in time to be of the greatest use in the forthcoming honey-flow. Swarming will undoubtedly be retarded in the strong colonies as a result of the curtailment of young bees at this time; but, if delayed or defeated, it will result in enough more honey to amount to a full compensation. A swarm thus retarded will be enough larger and better to be well worth having when it does finally issue.

Buffalo, N. Y.

Continued.

[The plan here outlined in the last paragraph we consider excellent, and we are sure it will work. The special feature of it is that it allows all queens to lay to almost their full capacity, whether they have strong colonies or not.—ED.]

SPRING PROTECTION.

Paper Winter Cases.

BY N. E. FRANCE.

In the Northern States spring protection is of great importance. With eleven years of early spring inspection of bees in Wisconsin I find that the general causes of weak colonies are old queens, shortage of honey, and unprotected hives. Quite often in one

neighborhood I find one apiary in which nearly every colony is weak and several dead, while quite near will be another apiary with strong colonies. I at once seek the cause. I always want young queens from strong colonies in early fall (August) so as to get my hives filled late in the fall with young bees. Young queens in early spring also begin brood-rearing earlier, and have plenty of young bees to take the place of the old bees fast dying with age. As for fall feeding, my old statement is still good—*a little too much winter stores will be all right in the spring.* Every time I find strong colonies in the spring, plenty of stores are in the hives. "More in the feed than in the breed" is true.

I am surprised that in the cold climates where we wear overcoats many take the bees from the cellar in a tender condition, and do not place an overcoat of building-paper or an outer case around the hive until settled warm weather. In many places while inspecting apiaries in the spring I have asked the owner to wrap half the hives with black building-paper and see for himself the results. *In every case it has convinced the owner that the sudden changes of spring weather did not affect the colonies in protected hives, while the others continued to dwindle and die.* I always want an apiary in a location protected from the high winds.

If spring feeding must be done, sealed combs of good honey with cappings partly scraped off, and placed next to the cluster of bees, give satisfaction. Warm liquid honey or sugar syrup makes good spring feed if needed; but I prefer my spring feeding in the fall.

Platteville, Wis.

SPRING MANAGEMENT.

Preparing Supers; How to Put Starters in Sections.

BY DR. C. C. MILLER.

I want to say some words especially for producers of comb honey with not much experience.

In starting out in producing honey it will very likely occur to you, without my suggesting it, that you should feel your way somewhat carefully, economizing wherever it is possible. You can economize in the matter of foundation. Instead of filling the section you can use triangular starters coming half way down, and the expense will be only one-fourth as much. Instead of using super-springs you can save expense by using wooden wedges costing almost nothing. You can get along with only two supers—yes, you might save by having only one super for each colony, emptying out the finished sections and filling again as often as needed. By waiting until the honey-flow is on before getting any sections ready, you can tell better how many sections you will need, and save the expense of having a lot of su-

pers filled with sections lying over till the next year, or may be longer.

With regard to practicing all that kind of economy, I have a single word of advice—*don't*.

Let us take the last item first. I can't take the time to give you all the reasons for it, but I advise that you get ready, before bees fly, all the supers of sections you will get ready for that year. One of the reasons for it is that you will not then be caught with a heavy flow of honey, no dish ready to catch it, and a lot of honey lost while you send off to the supply-dealer for the dish.

How many supers of sections shall you have ready in advance? In the first place you should have for each colony one superful of sections that you deliberately count on as not to be filled at all *that* season; for toward the close of the season there will come a time when you think no more room will be needed, and yet there is a possibility that some colonies may need it. You don't know just which they are, and the safe way is to give the extra room to all. Given on top, the bees will do little or nothing with it if they don't need it; and if you take it off as soon as the bees stop storing, it will be all right for a future harvest. Besides that extra super you must have enough ready, not for an average season, but for the biggest season that may occur. If you can find out that in the past the biggest season that ever happened yielded an average of five supers per colony, then you must have ready five supers and one extra, or six supers in all for each colony.

"That's a lot of expense every year for nothing?" Look here. Every year for many a year I've had my house insured against fire, and have paid out a lot of money for nothing, for my house never burned down. I expect to keep on paying, and I don't expect my house to burn down; but if it should—see the point? Same way about insuring against loss by not being ready for that big year.

Let me earnestly advise that you invest in at least one super-spring for each super. With a wooden wedge you can make the sections crowd up tight, perhaps even tighter than with springs, but they'll not stay so. The sections will shrink, and then they'll be loose unless you have springs that will follow up and keep crowding in spite of the shrinking.

Just as earnestly—yes, a little more earnestly—I want to advise that you do not make the mistake of trying to economize on foundation. You know it is generally believed that 50 per cent more extracted honey than comb can be obtained—some claim two or three times as much. That's because the bees are saved the labor of building comb for the extracted. Well, don't you see that at least part of that labor is saved by having full sheets of foundation? and so the crop ought to be increased by that much.

Another thing: The chief secret of preventing brood in sections is to have them filled full of *worker* foundation. If only a small

starter is used, the bees are pretty sure to build some drone comb in the vacancy, and then the queen will come up for the sake of laying in the drone-cells. With full foundation in sections it is so rare a thing for the queen to come up that I never think of having an excluder under sections.

A very important item in this connection is the manner in which the section is filled with foundation. Let the starter reach clear down to the bottom-bar, and when warmed up by the bees it will bag and buckle. To avoid that, the starter must fall a little short of reaching the bottom. There will then be no buckling, but another trouble arises. In too many cases the bees, instead of fastening the foundation to the bottom-bar of the section, will gnaw away a passage beneath it, making an unsightly section and one not safe for shipment. The case is aggravated by the fact that, when there is a space below, there is likely to be more or less space at the sides.

Some have fastened the foundation on all four sides with satisfactory results, but others who have tried it say that the foundation still bags, as reported especially by E. F. Atwater.

To solve the problem of having the comb well built down to the bottom, and at the same time to have no bagging, the vacancy to allow for stretching must be, not clear down at the bottom, but a little higher up. This is accomplished by having the starter in two parts, the bottom starter standing up about $\frac{5}{8}$ inch, and the top starter coming down within $\frac{1}{8}$ inch or so of the bottom starter. With such starters coming within about $\frac{1}{8}$ inch of the wood at the sides, I have had no trouble in getting tons of sections beautifully built out on all four sides. Even if the sections are not to be shipped, the increased beauty of appearance pays well for the little extra time required to put in the two starters; for it requires no more foundation than for a single starter reaching down nearly to the wood.

To those who have never tried it I can hardly commend too highly the use of the bottom starter.

Marengo, Ill.

HONEY AS A FOOD.

The *Prairie Farmer* publishes the following:

Late investigations lead to the belief that honey, the earliest form of sugar that human beings could obtain, is still about the best. It is counted, as the result of these experiments, among the most nutritious and delicate of foods. Not only does honey seem to act as a cure for diseases of the throat, but as a somewhat remarkable purifier of the blood. The only obstacle in the way of its more general use appears to be that many people can not eat it without stomachic pain.

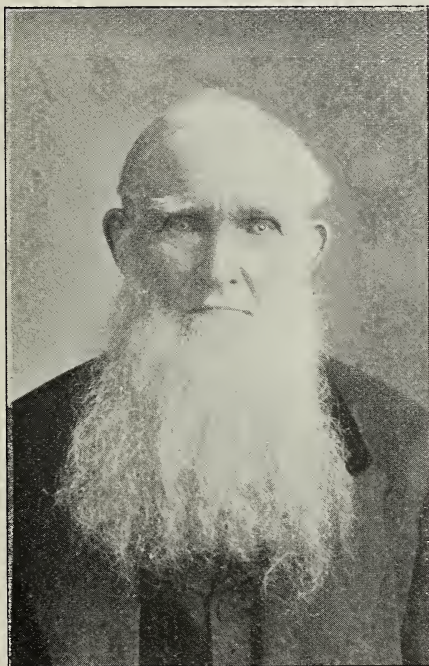
We wonder where the editor of the *Prairie Farmer* obtained the idea that honey causes stomachic pain. To those who are not used to it, honey tastes so well that they are induced to eat too much of it when the chance is given them. It is unfair to blame the honey for this indiscretion, however. Please place the blame where it belongs.

E. FRANCE.

Trapper, Naturalist, Bee-keeper, and Fruit-grower.

BY E. R. ROOT.

Mr. Edwin France, father of N. E. France, General Manager of the National Bee-keepers' Association, passed away on the morning of Feb. 7, at the ripe age of 84 years. But the senior France was not illustrious simply because of his illustrious son, but for what he has done himself. He produced, during the 80's, some immense crops of honey, and at one time he was regarded as one of the most successful bee-keepers in Wisconsin. Beginning in 1880, and all during that decade, and till 1895, he was a fre-



E. FRANCE.

quent and valued contributor to these columns. He began his writing about the time the present editor began to take charge of this journal. Looking back over these 25 years and more, I take just a little pride in having "discovered," as I believe, a real and original genius—one whose articles fairly bristled with practicalities, for whatever he undertook paid.

While not an educated man, it was very evident that E. France was a wonderful student of nature. Incidentally I learned that, through his early experiences as a trapper, he came in close contact with animal life, especially that in its wild state; and when it came to knowing bee nature he was one of the best-posted men in our ranks. He was

indeed a very keen and close observer—a man who could see not only beauties in nature, but turn his knowledge to a practical account. He made money, not only with bees, but in growing fruit and in farming, and, what was more, he had a faculty of telling others how to do it. No wonder that the junior France, under the tutelage of such a father, has been so useful a man to the bee-keeping interests at large. To be really *useful* means far more nowadays than to be only great. The world, though somewhat tardily, is beginning to see this.

The senior France really began bee-keeping about the year 1870; but he had had considerable experience some years before that. Starting with 123 colonies in 1871 we find him making a gradual increase until 1886, when with 395 colonies he took nearly 43,000 lbs. of honey, increasing to 507 colonies. While he had some reverses he seemed to have a faculty of keeping up these remarkable yields for a number of years. But during these days he had the support of a son who seems to combine all the qualities of his father, and who, in later years, assumed charge of the bee business of E. France & Son.

The senior France was a believer in large hives and strong colonies. Starting with a very deep frame he finally settled upon the Langstroth, adopting what is known as the France quadruple tenement hive. This contains four powerful colonies, the same being wintered outdoors, for the hive is double-walled. His honey-extractor (for he produced only extracted) was of the non-reversible type; and with this simple machine it was remarkable the amount of honey he could take in a day.

I said that Mr. France was a naturalist, and so he was; and being one of the pioneers he trapped and hunted during the winter, at which times he endured all kinds of hardships, many and many a time the Indians camping on his trail. The stories he could and did tell of wolves and wolf-hunts would doubtless interest many of our boy readers, for he knew wolf nature as very few men do. Too bad that some of his experiences in his early life could not have been put in book form. I can imagine that, during his declining years, he must have smiled broadly at some of the nonsense written by nature-fakirs, especially when they attempt to tell some of the wonderful performances of bears and wolves.

But if I were to attempt to give a complete life-history of the elder France I would also have to write a biography of his son, N. E. France, for their lives were very closely interlinked. But our older readers, at least, I assume, are familiar with the fact that the junior France is not only the General Manager of the National Bee-keepers' Association, but foul-brood inspector for Wisconsin, president of the Wisconsin Bee-keepers' Association, and lecturer at farmers' institutes. The fact that he has served in these various capacities for so many years is ample proof of the appreciation in which he is held. Indeed, his genius and ability have not only

been recognized in his own State of Wisconsin, but he is known and respected by the two or three thousand members of the National Bee-keepers' Association.

The senior France has been in failing health for a number of years. He had a fall last October from which he never fully recovered, and which was really the immediate cause of his death. During the time of the last meeting of the National at Harrisburg, Mr. N. E. France felt that he would not be able to leave his father; but the latter, I understand, urged him to go, which he did. It must have been a comfort to the old father in his last days to learn of the sincere appreciation in which his son is held by the members of the National, as was shown at the Harrisburg convention.

HENRY ALLEY.

BY W. K. MORRISON.

The readers of GLEANINGS have already been informed of the death of the veteran queen-breeder whose name is inscribed above. The Salem, Mass., *Evening News* of Feb. 11 thus alludes to the event:

Henry Alley, one of the best-known and most respected citizens of this town, died at his home on Larch Row last night, aged 72 years, after a brief illness of heart trouble.

He was born in Newburyport, but had lived in this town practically all his life. He was long active in town affairs, and was frequently heard at town meetings. He had served as a police officer, on the board of health, and as cattle-inspector for many years. He was an ardent Republican, and had long been a member of the town committee.

Mr. Alley was known all over the county as an expert in bee culture, and had edited many standard works on that topic. His queen-bees and a patented appliance for handling bees were sent all over the world. For the last five years he had done a big business in curing hams, he having devised a process which won him much fame in this line.

Thus disappears from view one of the early lights of American apiculture, the last of a brilliant galaxy which included such names as Langstroth, Quinby, Gallup, Hetherington, Wagner, Grimm, King, Cary, and Mrs. Tupper. He was the pioneer in scientific queen-rearing, and did much to place America far in advance of all other countries in bee-breeding—a lead which it still maintains.

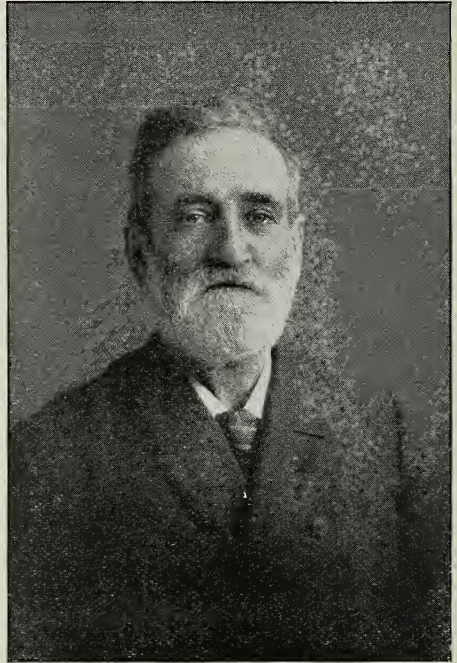
Of course he had the advantage of being first in the field; but this does not detract in the least from his reputation, for he had to blaze out his path alone and unaided. To his credit be it said he was one of the first to appreciate the supreme value of Langstroth's invention, and always vigorously defended him when others attempted to lay claim to the rights of the father of American apiculture. Mr. Alley was no mean inventor himself, for, besides inventing and devising a system of queen-breeding, he also invented the Bay State hive, Alley's drone and queen trap, Alley's nursery cage, and baby-nuclei hives.

It may be well to state that here in Medina, after faithfully trying all sorts of devices, the queen-breeders of The A. I. Root Co. have returned to a modification of Alley's

baby nuclei as somewhat superior to any other. They have also returned to the use of Alley's nursery cage and nursery frame, and that, too, after experimenting with and using many similar devices.

It may be well to say something right here about Mr. Alley's system of queen-breeding. He never practiced "grafting," but, on the contrary, held it was very injurious to the young queen. One reason he gave was that handling so delicate a creature with an ear-spoon is hurtful; also that it is treated as a worker for two or three days, and for that reason is stunted for want of royal jelly at a critical time.

He claimed for his larvæ that they were



HENRY ALLEY.

fed royal jelly immediately they hatched from the egg. He laid special stress on this point; but it must be admitted that very fine queens are also reared by the grafting process which is now so popular. It is, however, only fair to say that some of the very best queens ever used here at the Home of the Honey-bees were purchased from Mr. Alley, and it is well known his queens were uniformly good.

One of his pupils was Mr. E. L. Pratt, better known as Swarthmore, whose system of queen-raising is based on that of Alley's.

As already intimated, he commenced bee-keeping very soon after Langstroth's hive appeared, and very soon thereafter proceeded to contribute to the pages of the *American Bee Journal*. He was severe on what

he thought was wrong, and for that reason made some enemies; but he was not resentful himself when others criticised him.

In 1883 was published "The Bee-keeper's Handy Book," by Henry Alley, wherein he gave the world the benefit of his 27 years' experience, of which 24 had been as a specialist in queen-breeding. This work was well received, and 2000 copies were sold within a year and a half. Much of it is taken up with his method of rearing queens. This, being well illustrated and clearly described, enhanced his reputation as an expert bee-breeder.

As is well known, he reared his queens from the egg by cutting a comb containing eggs into narrow strips (about three cells wide). A certain number of the eggs were (or are) destroyed with a match-stick, so that those which are left may have ample room to allow of the construction of a queen-cell. When the strip has been duly prepared, the under side of it is dipped into melted wax, and by this means it is attached to the lower edge of a comb which has been built half way to the bottom-bar. The bees seeing the cells arranged mouth downward, and every thing so handy, proceed to build queen-cells around each egg; and as they are absolutely queenless, yet strong in numbers, they seldom fail to rear a large proportion into good queens. It is true that the various operations require a lightness of touch and a delicacy of treatment which some are incapable of; but Mr Alley always maintained that such people ought not to attempt to rear queens.

In 1883 Mr. Silas M. Locke, of Salem, Mass., one of Mr. Alley's students, started his sprightly bee journal, *The American Apiculturist*, and in this paper the subject of our sketch had the opportunity to state his views freely. It was one of the best bee-papers ever started in this country; but, most unfortunately, Mr. Locke died just as the journal had succeeded in fully demonstrating its usefulness. Mr. Alley then put on the editor's harness; but journalism was not his forte, and the paper died a natural death in 1894.

From time to time Mr. Alley issued his book on queen-rearing, which consisted of a part of his "Handy Book," adding little improvements and inventions which he had made in the interim. He also kept up his queen-breeding operations to the last, having established a reputation for the high quality of his queens.

One of his last acts was to write (Jan. 24) a personal letter to Mr. E. R. Root, in which he expressed his appreciation of GLEANINGS in this wise:

"Had I been well I surely would have sent you some strong praise of the several late copies of GLEANINGS. You have outdone even yourselves. No magazine or publication I have seen comes up to the beauty, both outside and in, of any copy of GLEANINGS."

Peace to his ashes. He was a great bee-keeper,

STORM-DOORS.

Bees Flying Out on Bright Days and Dying on the Snow.

BY E. R. ROOT.

On page 96 of our issue for Jan. 15, in a footnote to the article by C. H. W. Weber I referred to storm-doors, so to speak, that we had placed on all of our outdoor hives, embodying a principle suggested to us by Mr. A. J. Halter, of Akron. It will be remembered that he has been using them for over two seasons, and believes them to be not only a saver of bee-life, but a protection from piercing winds which might otherwise blow directly into the entrances, thus chilling the colony.

As we are now approaching spring, a further report on these storm-doors ought to be made. We had been having a very cold spell of weather, for us, during which there had been a heavy fall of snow. On the 10th and 11th the weather moderated very decidedly. There was a clear sky, and the sun shone with a brilliancy that we do not often see in February. The hives had storm-doors *a la* Halter over all entrances, and I was curious to know just what the effect of these might be in keeping the bees in. The atmosphere was balmy from 10 to 2 o'clock on both days; but there was such a large amount of snow I was certain that any bees that lodged thereon would never return to their hives. The storm-doors, because they kept out the sun, had the effect of keeping the bees in the hive till about the middle of the day; but as the atmosphere warmed up it percolated through the entrances to the colonies. The bees, allured by the warmth, but not by the light, came out. The air was full of them; and the way they clustered over the hives was alarming. I did not fear so much for those that lodged on wooden objects or on bare ground as I did those that fell directly on the snow. These I was sure, would never get back, and they did not. But those on the hives and on ground where there was no snow, after resting for a few moments, would take wing and return to the hive.

In order to give the reader an idea of what was prevailing in our yard among the hives I am reproducing here a number of photos which I took on the occasion. Fig. 1 shows one of our regular double-walled chaff hives, over the entrance of which was leaning a so-called storm-door. Just notice how the bees were clustered over the hive and on top of it! They had discovered that it was warm, and the temperature induced them to come out and have a playspell and void their feces. While I was taking the pictures my clothes became badly spotted—not from unhealthy droppings, but from those as a result of the natural retention on the part of the bees that were wintering in an ordinary normal way.

I do not care how well the bees are doing; if they have been confined in the hive for over a week, either summer or winter, they will spot objects round about. But this spotting does not indicate any condition that is

alarming. But when bees come out at the entrance and stain the front of a hive with a very dark and ill-smelling stuff, then the condition of the colony is dangerous if not hopeless, especially if there is no immediate prospect of settled warm weather within the following month. But, to return to Fig. 1:

I took a photo of this particular hive because it shows admirably just how the bees were clustering on all the hives in which there were strong colonies. The bees on the cover had taken a flight, had voided their feces, and now, apparently, were taking a rest preparatory to going into the hive. Those bees that lodged on the snow were immediately chilled; but for some reason,

fortunately, the great majority of the bees lodged on some wooden object, especially on the hives. At half-past one I had some fears that they might not return; but as the atmosphere turned a little cooler, and the sun was going down, all these bees took wing and re-entered their hives, and at half-past two there was scarcely a bee to be seen on any wooden object; and the few that were in sight were keeping around the storm-doors about as shown in Fig. 2.

Mr. A. J. Halter, having visited us a few days previously, on looking at these lean-to boards expressed the conviction that our little notches on the front edge were altogether too small—that the bees, many of them, would not pass through them, and, failing



FIG. 1.—HOW THE BEES TOOK AN AIRING ON A WARM DAY IN FEBRUARY AT MEDINA.

to discover the side passage, would become chilled and die. But this certainly did not prove so in our case. By reference to Fig. 1 it will be noticed how the bees were going through the side passages, seeming to have discovered that this was a more rapid way of getting into the hive. While neither photo shows it, I found in many instances where the bees were crawling through the notches on the front edge of the board.

On the 14th I visited Mr. Halter at his apiary in Akron, and found that he had the same arrangement except that his notches were very much larger. He explained that, according to his experience, bees would not go through those small notches—that we would be losing many bees; that the large notches were almost a necessity, as otherwise the entrance would become clogged with the dead.

On returning home I instructed our apiarist to examine the entrances at random; but in no single case could he find that there had been any clogging; for on the nice warm day spoken of the inmates of the hive carried out their dead, leaving the passageway clean.

It is my own private opinion that these storm-doors do not prevent bees from flying out on bright alluring days, but only tend to discourage such coming out; that, moreover, they do, to a very great extent, prevent

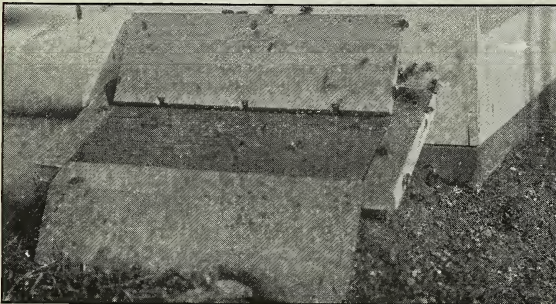


FIG. 2.—THE MODIFIED HALTER STORM-DOOR AS USED ON THE OUTDOOR HIVES AT MEDINA.

piercing winds from blowing in directly on the cluster of bees, and I therefore deem their use an advantage. Unless some untoward circumstances shall show otherwise, we shall use these next season.

But this can not be denied: That with them the bees still come out, and, alighting on the snow, die there. These bees are not superannuated nor diseased, as I found by picking up dozens of them that were chilled through and warming them with my breath. As soon as they revived they would take wing and fly direct to their entrance. Quite a number I smashed to see if the discharge from the intestines showed the least diseased matter; on the contrary, it seemed to be perfectly healthy—proving conclusively, as I believe, that, had there not been any snow on the ground, they would have added greatly to the prosperity and strength of the colonies to which they severally belonged.

I am thoroughly convinced that the flying-out of bees, no matter how warm the atmosphere, when snow is on the ground, is attended with considerable loss. This loss is greater in mild climates, subject to occasional thaws, than in those localities where winter comes snug and cold, and continues so until spring arrives, which, when it does arrive, continues to be warm. In a locality such as we have here in Medina, we have warm and cold weather off and on all through winter. It is these bright sunny days when the snow is on the ground that causes considerable mortality.

This brings me to the question, "Should we not keep the bees shut in the hives until warm days?" You will remember that I tried this two winters ago, shutting them in with wire-cloth porticos, and then removing them on warm days. But the result was disastrous, for apparently a few bees would attempt to escape during the time of their confinement—that is to say, a few superan-



FIG. 3.—PAPER WINTER CASE AND HALTER STORM-DOOR.

nated or diseased ones would try to get out of the hive, which, failing to do, would stir up the whole colony. The cluster would expand, become chilled, and in the attempt

to ward off the cold would consume largely of the stores, and this would lead to dysentery. I don't know that this was what happened; but I surmised it from indications.

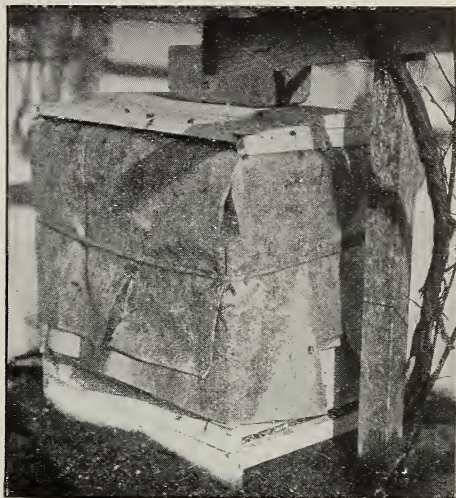


FIG. 4.—WINTER CASE OF SECOND-HAND WRAPPING-PAPER AS USED AT MEDINA.

Even though I removed the porticos on bright suitable days, mischief had been done; and most of the hives on which these porticos were attached, the same being removed when the weather favored, resulted in the death of the colony.

THE WEBER ENTRANCE-CONTROLLER.

It will be remembered, also, that on page 96 we illustrated the Weber device. This is a contrivance to let the air pass through freely into the hive through darkened passageways and at the same time confine the bees within the hive. When the operator desires to let them have a flight, on suitable days he can do so by lifting a slide so that the bees of the colony may pass out direct.

The question may arise whether or not while confined at other times they would not stir up a commotion within the colony, resulting in disaster, as was explained in the case of the porticos just mentioned. But in the Weber device all rays of daylight are entirely shut out, and the only way by which the bees would know their entrance would be from the direction of the fresh air which would pass through wire-cloth partitions, closing the darkened passageways. Right here, I suspect, is a vital difference between the Weber device and the wire-cloth porticos which allow the light from without to pass freely into the entrance.

As explained on page 96, we had put some of them into use; but so far we have been unable to come to any conclusion, as there are no indications at present that would seem to warrant us in forming an opinion either way.

Figs. 3 and 4 show a hive protected by heavy wrapping-paper, the folds of which are held in place by a short piece of rope or twine. These colonies in these two hives are apparently wintering just as well as those in double-walled chaff hives; and while the paper is not put on very neatly, yet for the purpose of experiment we took second-hand wrapping-paper, just as it came, and folded it over these two hives as shown. To prevent leakage from the top we put on regular hive-covers.

Fig. 3 shows the regular Halter storm-door and how the bees were clustering around over the top of the hive, the photos having been taken the same day as the other two.

We hope to give, about six weeks hence, a full account of how these two colonies have wintered. We might remark, however, in closing, that the paper on No. 3 was hardly

lowed by a strong west wind which carried a black dust with it that settled all over the snow. It is generally supposed that seeds of this plant were carried here by the wind and lodged with the black dust. The seeds are very light, and arranged in the seed-pod similarly to those of the thistle. The small white flowers which have a yellow center appear very late in the season, generally after there has been a light frost; but, although it is so late, the bees get considerable honey from them. The first season the plant bloomed here the bees gathered about 15 lbs. of honey per colony from it. The second year I think I received fully 20 lbs. per colony, and the last season only about 10 lbs., as we had some frost almost every morning it was in bloom. If this weed (I know no other name for it) did not bloom so late it would do us more good than the



A HONEY-PLANT THAT BLOOMS AFTER THE FIRST FROST IN THE FALL.

wide enough to cover up the entire hive as it should. But as many of our subscribers have to take what they can get, we took any old thing we could find.

A FALL HONEY-PLANT.

Blossoms that do Not Appear until After the First Frost.

BY W. W. CRIM.

I am sending you a picture of a colony of bees which is conveniently near the flowers. I have been keeping bees here for about 25 years, and until three years ago I never had a fall flow of honey. Five years ago this winter we had a very heavy snowstorm fol-

lowed by a strong west wind which carried a black dust with it that settled all over the snow. It is generally supposed that seeds of this plant were carried here by the wind and lodged with the black dust. The seeds are very light, and arranged in the seed-pod similarly to those of the thistle. The small white flowers which have a yellow center appear very late in the season, generally after there has been a light frost; but, although it is so late, the bees get considerable honey from them. The first season the plant bloomed here the bees gathered about 15 lbs. of honey per colony from it. The second year I think I received fully 20 lbs. per colony, and the last season only about 10 lbs., as we had some frost almost every morning it was in bloom. If this weed (I know no other name for it) did not bloom so late it would do us more good than the

white clover. Clover can not be depended on for a crop of honey here, but this weed has never failed entirely. The worst trouble is that it blooms at a season when the weather is very uncertain. The bees are able to work on the blossoms only a small part of the time. It takes a pretty hard freeze to kill them, for I saw bees working on them after we had had more than one-fourth inch of ice this fall. Stock of all kinds will eat them. The seed comes up in the spring, making a plant that looks much like "white top," and these stand until the second year before blooming. They grow everywhere except where the stock get at them. I have a small patch in an unused part of my beehot where they are as high as my head, and so thick and strong that I can scarcely walk through them.

The honey is almost as white as that from clover, but has a slightly yellow tinge, and a very rank, disagreeable smell and flavor when first gathered—much worse than bass-wood; but when fully ripe it has scarcely any smell, and a rather pleasant flavor. It seems to be good for winter stores, although it candies early in the winter. I wish it would bloom twenty or thirty days earlier in the season, for I hate to see so much sweetness wasted on account of a little tardiness each season.

Pekin, Ind.

ORNAMENTAL HIVES.

BY W. E. STEINER.

Seeing so many different kinds of ornamental hives I decided to make some that would be both ornamental and useful. I got the style from the Pearl Agnes, and suggestions from different persons, and the hive shown in Fig. 1 was the result.

It is a standard eight-frame hive, the sides being framed together from 2 by $\frac{3}{4}$ -inch yellow pine. After framing, openings through the sides, 6×15 , are closed with glass on the inside and a tight-fitting door on the outside. The bottom-board is nailed to the hive, and the entrance is provided with a small door which, if closed, will have an opening only $4 \times 4\frac{1}{2}$. If the door is open, as during the summer, the entrance is $6\frac{1}{2} \times \frac{7}{8}$. At both ends are removable plugs which act as ven-



FIG. 1.—STEINER'S ORNAMENTAL HIVE.



FIG. 2.—A REGULAR HIVE MADE TO REPRESENT A LOG CABIN.

tilators. These holes are $\frac{3}{8}$ inch in diameter, and covered with wire cloth on the inside.

In the illustration the hive has one super; but there is also a second one. Each super holds 24 4×5 plain sections with fences

The roof parts from the super $1\frac{1}{2}$ inches below the eaves. At this point a flat cover is made across the gabled roof, making an open space in the gable, which is handy for storing bee-veils, records, etc. A door opens into this from the rear gable.

Fig. 2 shows a standard eight-frame hive with two supers containing 24 sections each. The outside is covered with willow wood, giving a log-cabin effect. The hive is painted green, and the ends of the small logs red. Myerstown, Pa.

SEALED COMBS OF HONEY FOR SPRING FEEDING.

The Practice of Extracting in the Spring and Feeding Back to Induce Brood-rearing, a la Alexander, Condemned; Spring Feeding of any Kind Not Favored, and Why.

BY ALLEN LATHAM.

The editor, on page 1428, in a footnote to *Stray Straws*, invites subscribers to offer their experience and opinion. The *Straw* has reference to an article by Mr. Alexander, which appeared on page 1376. I feel strongly that Mr. Alexander errs in this matter—at least in recommending others to follow his custom; errs, because what does not succeed with him is succeeding with others, and



A SAMPLE OF A PART OF A CAR OF WESTERN HONEY WHICH WAS SOLD TO THE A. I. ROOT CO., AND GRADED NO. 1; SEE EDITORIAL ON PAGE 339.

also errs because spring feeding by syrup or even dilute honey is a questionable practice.

I have had almost no experience with buckwheat honey, and but little with candied sealed honey in spring. That such honey delays the building-up of bees in the spring is attested by Mr. Alexander. Such being the case, let him and others similarly situated follow his teaching. Let all others think twice before adopting his teaching.

Most of us are not situated as is Mr. Alexander. The stores in spring are liquid honey, or, in the case of previous fall-feeding, liquid sealed syrup. Such is the case with me, and allow me, therefore, to state my own experience along this line.

I have for years compared the building-up of colonies that were fed in spring with that of those which were let alone because of their abundance of sealed stores. I can not now recall one single instance in which the spring-fed colony excelled the other. I can recall a few instances in which the fed colony developed into a very satisfactory colony, but no case of marked superiority.

Locality may have much to do with these results, and I have figured it out as follows: The matter rests upon the pollen supply. If one is situated where the early pollen supply is sufficient and *reliable*, then the bees will respond well to spring feeding or to any kind of feeding. With me the pollen supply is most unreliable some springs. There are spells of weather when for a week the bees can not gather pollen. At such a time no kind of feeding will keep up brood-rearing. The queen may continue to lay, but all unsealed brood will be eaten by the bees, although that nearly matured may be sealed.

If eggs are allowed to hatch, the young larvæ soon disappear. But let a warm spell come, the pollen be abundant, and every colony becomes endowed with a new lease of life. Within four or five days there will be great patches of glistening fat larvæ.

Some one breaks in here and asks, "Why doesn't such a state of the weather and scarcity of pollen affect the unfed colony with equal severity with the colony which has been stimulated?" There are three reasons at least. In the first place the unfed colony has not been overstimulated too early in the season, and hence the bees have not exhausted the pollen in sight.

Secondly, the unfed colony is uncovering a supply of pollen every day, pollen packed away the year before, and kept sweet and good under its sealing of honey.

Thirdly, the unfed colony has a greater store of pollen to begin with.

No one will deny the possibility of starting a colony into too rapid breeding and thus exhausting the pollen supply before the new pollen is sufficiently abundant. Such a thing may not happen with the expert, and probably does not with Mr. Alexander, if for no other reason than that he waits till about May first before beginning to stimulate his colonies with feed; but it is almost sure to happen with the enthusiastic beginner who will start in to follow Mr. Alexander's advice. The results are very disastrous—tired queen, discouraged bees, and a general apathy difficult to overcome.

That the unfed colony should have a better initial supply of pollen in the first place may not at first be evident, but the explanation is simple. As is well known, all normal

colonies keep a fringe of pollen about the brood-nest. As the brood-nest normally shrinks with the waning of the season, and the accumulation of honey increases, this pollen fringe becomes engulfed in the honey, and is preserved for spring consumption. There are several pounds of this honey-preserved pollen in every well-stocked colony. Such a colony in spring can increase almost to swarming strength without bringing into the hive any thing besides water. Even to the old and experienced bee-keeper the speed with which these combs of honey and pollen become bees is astonishing.

Far otherwise is it with the colony whose combs have been kept empty by the extractor, and which is fed in fall for winter, and again in spring for breeding. Such a colony stores as much as possible of its winter feed in cells free of pollen, for it is fed at a time when the brood-nest is no longer strictly normal as regards its fringe of pollen. Very little pollen is preserved, and such as happens to lie in open cells becomes sour or moldy. This pollen is unfit for breeding, is not relished by the bees, and so in such a colony the breeding does not go on prosperously.

Extracting the brood-nest in early May, to be sure, may not bring about such a result as is pictured in the preceding paragraph; but, even if not attended with loss, it surely is not worth while in this locality. My experience with my large let-alone hives proves this: As may be known to some of my readers, I practice a sort of happy-go-lucky mode of keeping some of my colonies. I have some 75 colonies in large hives—those having a capacity of over three cubic feet, holding a score of frames having dimensions exceeding those of the Langstroth frame. The brood-nest of about ten-Langstroth-frame capacity is in front, and is separated from the store-frames by zinc. The brood-nest is seldom disturbed except from necessity, sometimes for a year or more. When fall comes these brood-nests are heavy with honey and pollen, and are populated by a huge host, often as many as 40,000 bees. To open one of these brood-nests late in April would astonish you bee-keepers who talk about your colonies covering three, five, or seven frames at that season. Many of these colonies in April, if queen-right, will rival strong colonies in May. These colonies are never stimulated in any way. Nor are they molly-coddled in any way. Even their entrances are left unchanged in size the year round, the width of the hive and one inch deep, mouse-guarded by a *cheval-de-frise* of nails.

Some of these large colonies have on one or two occasions been fortunate enough to enjoy a flow of honey in May, and the results were most gratifying.

I therefore feel constrained to cry out against all spring feeding for stimulation. Having only good will for all who offer such advice, I must nevertheless denounce the advice as unsound. The advice is likely to bring disappointment, even if it does not bring any thing worse. There are times when we must feed in spring, but let us not

create such conditions voluntarily. A queen which will respond properly to spring feeding will attend to her duties under any normal condition. A queen which will not fill her brood-nest under normal conditions, with combs of sealed honey about her dominions, can not be made to do it through any sort of feeding. Feeding her colony will result in clogging the brood-nest with honey or syrup instead of with bees.

Norwich, Ct.

FEEDING BACK IN THE SPRING.

The Alexander Plan for Extracting and Feeding Back in the Spring Not Indorsed; Spring Feeding Discouraged; Not too Much Honey but a Poor Queen the Cause of Little Brood.

BY M. A. GILL.

I have been reading with much interest the article from E. W. Alexander upon the question of brood-rearing in the spring, and there are a few places in his plans upon which I should like to turn a little sidelight, so that beginners in nearly every place in the United States except around Delanson, N. Y., won't get it into their heads that they can extract three or four thousand pounds of honey (old honey) before fruit-bloom while getting their bees strong for the harvest.

There are several things except honey that are absolutely necessary to obtain before brood-rearing can be carried on successfully in the spring of the year. The first essential is a good queen; second, proper temperature, both inside and outside of the hive; third, natural pollen coming in if there is a scarcity in the hive.

The fact that a card of honey hung into one of Mr. Alexander's colonies in the month of May acts like a dummy and prevents the queen from spreading her brood across the hive proves beyond cavil or doubt that Delanson is a most wonderful spring location.

Either in Wisconsin or Colorado at this time of year it is neither necessary nor profitable to use the extractor to remove old honey; for just at that time of year (if the three essentials already mentioned exist) the bees start up an automatic reversible extractor so that I am more liable to be short three thousand pounds than to have a surplus.

In my twelve apiaries I have three that I judge are something like Mr. Alexander's, and some seasons they would get a little too much honey for their best good in brood-rearing, which I take away and haul to other yards that are destitute and exchange for empty combs; and I do not believe that the great mass of bee-keepers need have any fears about taking Mr. Doolittle's advice in giving combs of sealed honey in the month of May; for if conditions are right they will turn it into brood, and no other kind of feeding or fussing will avail any thing until conditions are right.

The question of *profitable* stimulative feeding in early spring is one that requires as

much skill and experience as any one branch of the business; and advice upon this important point can not be handed out like pills by a medicine-peddler. Each one must study his own particular field and flora, and ascertain when we need the workers. At any rate, don't commence stimulative feeding too soon; and if you commence at all, keep it up liberally until the flow comes; for bees that are being fed lose much of their hustle for natural stores, and await your coming like a beggar on the street corner. Like Mr Alexander, I too have been over the ground for 30 years, and will say I very much doubt if it pays to practice stimulative feeding, for the purpose of brood-rearing, in early spring.

But be sure to feed enough so there is no starving; and if you are not in a location where nature will back up good prolific queens for thirty days before the honey-flow, move to one that will, for there are plenty of such locations. As Mr. Alexander says, the month of May is the time for all bee-men to be most active, for we *must* have brood in this month; but I would rather my queens would save their strength and forces until this date than to do extensive early breeding.

Mr. Alexander speaks of neighbors' bees being too weak to work in supers, and says it is because there is too much honey in the brood-nest. Now, is he mistaken, or am I? for I think that, when a normal colony of bees has lived off from the stores in any hive from August until the next June, and the combs are still so full of honey that there is no room for brood, then that is a plain indictment against the queen, and it is her fault that the honey is there in excess.

I believe with Mr. Alexander that every hive should contain a large amount of empty worker comb during May and June; but what is worrying ninety-nine out of every hundred bee-keepers in the United States is that this comb will get empty too soon before the flow comes, so that a comb of sealed honey would not long serve as a dummy in most locations.

I think very likely that if Dr. Lyon had taken a picture of the *inside* of Mr. Alexander's hive the past spring, he wouldn't have found as many bees as he did on the *outside* of the hives one year ago. So we are all bound, more or less, by that inexorable law of nature that says you can not raise brood until the conditions are right. And there is *no* condition so favorable as natural warmth, a little natural honey coming in at the entrance, and natural pollen in abundance; and these conditions so often exist for thirty days before the main honey-flow that it does not pay to make stimulative feeding a part of our plan.

Longmont, Col., Nov. 4.

[Mr. Gill is always a valued correspondent; but in the foregoing he has quite outdone himself. A bee-keeper with 12 apiaries ought to know something about practical management; but when such a man disagrees with another strong man in the person of Alexander, the beginner may not know which

way to turn. Our own experience, together with that of those who write on the subject in this issue, seems to support Mr. Gill. Indeed, we may say that the average beginner should avoid spring feeding if he can—certainly if the hive is well supplied with sealed stores.—Ed.]

CELLAR VENTILATION.

When and How to Set the Bees Out; Alexander's Spring Feeding Not Indorsed; the Let-alone Policy for the Beginners Favored.

BY R. F. HOLTERMANN.

To me, from my youth up, agriculture in its various forms has appeared to give abundant scope for the highest exercise of intelligent thought and study. The person who pursues a cast-iron rule season after season in bee-keeping, or in other lines of agriculture, does not act intelligently, nor does he obtain the measure of success secured by the one who studies season after season, and who tries to acquaint himself with weather signs and conditions, and then seeks in his management to act according to these varying conditions. This is particularly true of spring management.

To those who have their bees on their summer stands all winter, having them packed, and provided with an abundance of good stores, I shall have nothing special to say. There may, however, be certain suggestions in this article which some might find to their advantage to act upon in future plans.

WHEN TO SET BEES OUT OF THE CELLAR.

Those who winter in repositories must, toward spring, exercise some judgment as to when to set out their bees. General weather conditions, the condition of the ground upon which the bees are to stand, the specific locality of the apiary, the condition of the bees, the number of the colonies in the repository, and the nature of the repository, all must be considered in a decision upon this important question. After all this has been considered we must run our risk as to the nature of the weather in the future, no matter what our decision (setting out or not setting out). If the weather keeps cold, and the ground where the hives have to be placed is covered with snow, it is practically impossible to set out the bees. I have seen hundreds of bees perish, all belonging to one colony, because there was an insignificant coating of ice on the ground in front of the entrance when other colonies in the apiary, and without the small patch of ice, did not suffer. The location of my home apiary, where the cellar is situated, is well sheltered with elevations of land, timber, buildings, and fences. When the bees are set out they are in a very sheltered place, and they can be set out when others in a more exposed place would, perhaps, do better by remaining in winter quarters. Let me say here it is an immense advantage to have an apiary located in a place sheltered from wind; and the average bee-

keeper in village, town, or city has in this respect an advantage over the average country bee-keeper, particularly in spring, autumn, and winter. Right here let me put in a plea on the ground of beauty, comfort, and enhanced intrinsic value of property for those who own their homes, to plant more evergreen trees about their buildings and orchards.

From many years' experience so far as conditions will allow, I am an advocate of what might be termed early setting out. If many colonies, or a considerable percentage of colonies, have broken cluster; if they are uneasy, and readily fly to a candlelight in the cellar, the sooner the bees get a cleansing flight the better if they can do so with safety, especially if they will be in a sheltered place. The loss of vitality from day to day under conditions of unrest is very great. It does not take long to kill bees by worry, be it in or out of the cellar; and a cleansing flight has a wonderful effect in this direction. More than that, I am satisfied that one restless colony where hives are piled one above the other, and side by side, transmits that restlessness to others, and herein is one weak point in cellar wintering. The condition of the bees then as to the above points might influence me in deciding on the time of setting out.

The more bees there are in the cellar, other things being equal, the more difficult it is to keep them quiet when the outside temperature rises, for their activity adds *very greatly* to a temperature already too high. It is also very much more difficult to keep up ventilation when the outside temperature is about the same as that inside. In 1903 the first bees were set out by me March 14, the last, March 19; the first pollen was gathered March 19. In 1904, first, March 22; the last, April 5, at which date the buds had not even swelled. In 1906 the first pollen was gathered April 12. In 1907 the first bees were set out March 12; the last, March 18, and the first pollen was gathered March 29, after which we had several months of what we thought was altogether too much like winter to suit bees.

As to the manner of setting out, I should like to air the cellar well so that it will not be, as to purity of air, a great change to carry them out. I have followed with great satisfaction the plan suggested some years ago in GLEANINGS by E. W. Alexander; viz., to set them out previous to the morning upon which we calculate they shall fly. The previous evening or early night is a good time. If they do not get a flight for a day or two after, I have found it an advantage. There will be less excitement when they fly; weaker colonies, and colonies not needing a flight badly, may not fly as soon as others do, and there will be less confusion and less loss to weaker colonies by having their bees drift to the hives where the bees are flying in great numbers; particularly is there this danger if the wind is blowing hard.

Having nearly an acre of ground in my apiary, and the bees scattered, when brought

home in the fall, over the entire ground, and setting out only a part of the bees at a time (there are 500 colonies in the cellar now), and placing the first together in one part of the apiary, and all without regard to their previous location, I am thoroughly convinced that wintering them as I winter them, and confined for the length of time they are, bees, when they take their first flight, relocate themselves and do not return to last year's stand.

I do not think it good practice to seek to keep bees in winter quarters by changing the air at night and shutting off ventilation during the day. Such changes are too violent, and produce constant activity and brood-rearing. A colony perfectly wintered in the cellar should have no brood when placed on the summer stand.

ALEXANDER'S PLAN OF EXTRACTING AND FEEDING BACK IN THE SPRING NOT INDORSED.

Under the heading of "Brood-rearing in the Spring," page 1377, last year, is a statement by E. W. Alexander which, in my estimation, would be dangerous for many to follow. After referring to combs of honey inserted in the brood-chamber for stimulative purposes about May 1, he writes, "If we uncapped them it was sure to start a bad case of robbing; if they were left capped, then they simply formed a division-board which prevented the queen from spreading her brood across the hive." With the latter statement I would heartily agree; but not with the former if the colony is strong enough to stand that kind of treatment, particularly if the work is done toward evening.

In the same column, however, so far as robbing is concerned, Mr. Alexander, to get rid of this objectionable robbing, suggests a remedy far worse than the disease. He states, "After realizing the folly of this erroneous method of spring feeding we commenced to extract all capped honey from the brood-nest about May 1, and in its place, when necessary, we fed a little warm thin honey or sugar syrup daily for about a month." How can there be a bad case of robbing from merely uncapping one comb, when there is no such objection to taking combs of honey and brood out of the hive, extracting the capped honey, then putting back the combs wet with adhering honey? and if this handling at a critical time were not enough objection, I think the danger of unduly displacing the brood-chamber as to order of brood and pollen is great enough to warrant me in raising a note of warning, in all kindness, and saying *don't*.

Mr. Alexander's advice, to see that the brood-chamber is not clogged with pollen and honey, is good. Many a queen does not get proper room, yet more harm is done by the average bee-keeper in not having enough of these in the hive.

As to robbing, prevention is worth much. Discard bottom-boards, hives, and covers which, through defects, compel the bees to guard any thing but their entrance to the

hive. Take out combs which the bees can not properly protect by covering them, otherwise with cool nights strong colonies are out and flying the next morning and ready to rob before weaker colonies, owing to the chilling of the outside of the cluster, can become active and defend their hives and stores.

DON'T CHANGE THE APPEARANCE OF THE HIVE.

Mr. Jacob Alpaugh, Eden, Ont., in a conversation with me, pointed out the danger of changing during uncertain weather, and, after the bees had located themselves, the outside appearance of the front of the hive. This is sometimes done with shade-boards, etc. Once located as the bees fly out, they do not examine the front; and in cool weather, returning and finding a changed condition, they hesitate, fly about, and become chilled. He states that, if they once fall, they may again take wing; but they appear stupefied, and generally fly away never to return. I am satisfied that Mr. Alpaugh is correct in his observations and deductions.

In conclusion, let me say spring management is of great importance. The greater the inexperience of the bee-keeper, the less what he knows, the safer the *let-alone* policy after seeing that the bees have a good queen and plenty of stores. To those of more experience, a scriptural injunction will not be out of place: "Prove all things; hold fast to that which is good."

Brantford, Canada.

BUILDING UP COLONIES.

Colonies Divided into Three Classes; Swarms from the Strongest Hived with the Weakest; Strengthening Medium Colonies with Frames of Brood.

BY WM. W. CASE.

In the spring every apiary contains three classes of colonies—weak, medium, and strong. The first are generally regarded as useless, by some as nuisances, and as having worthless queens; the second generally get in good enough shape for a little surplus, while too frequently the latter expend their energy in giving off swarms, giving their profits in increase and not in honey. Such I find to be too frequently the case with a far too large number of bee-keepers, especially those who keep small apiaries for honey, and who have no room for (nor desire) increase.

There are certain well-known conditions that are essential to the production of a bountiful honeycrop; and a general law governing these conditions, without which, no matter how favorable nectar conditions are, satisfactory results can not be attained in net returns. An apiary, to be a profit-payer, must consist of a number of colonies, greater or less, all of which are in a homogeneous condition of strength, that strength to be kept up by the progeny of a first-class queen, and then not ruined at the time of the honey harvest by an uncontrollable attack

of swarming fever that turns a honey-flow into increase and not honey.

The bane of most apiaries in the spring is the weak colony, a colony usually regarded as worthless, or as a candidate for combs of brood from more fortunate neighbors—a plan which badly injures the stronger stocks at that time of the year, and is of but little value to the weak colony. A weak colony is frequently unable to care for more brood-combs properly, so the result is the death of the brood from chilling, or the bees that hatch will be of such low vitality as to be practically worthless.

Others try to help the weak ones by feeding and nursing, and sometimes succeed in building them up to satisfactory strength, but only at the *close* and not the *beginning* of the season, with a result of barely enough stores to carry them again through the succeeding winter and give nothing whatever for daily bread for the owner.

In but few sections of the North is it at all worth while to try to feed a weak colony to working condition in time for a flow from clover, and it is only throwing away good money to rob strong colonies of brood to build them up. If feeding for stimulative brood-rearing must be indulged in at all, we should feed the very best ones and get every bee hatched possible before swarming commences, and let the weak ones take care of themselves, of course seeing to it that they are kept supplied with honey, as warm as possible, and protected from robbers.

Now, with the advent of swarming, comes the day when our weak colonies become our money-makers. When the first swarm issues, go to the strongest weak colony, one, say, that has reached five or six partly filled combs of brood, but which will remain too weak of itself to yield surplus; smoke thoroughly to cause the bees to fill themselves with honey, and catch and cage the queen and remove her. Now hive the swarm *right into this weak colony* and give plenty of room for surplus. As all the bees are well filled with honey there will rarely be any dispute. This poor worthless colony has now become, like magic, one of the very best in the apiary, and possesses every requirement for yielding a large surplus, viz., a medium amount of brood, a large force of field bees stimulated by having swarmed, a good force of nurse bees already in the hive, and a first-class queen. Such a colony will rarely swarm again during the season, as, by the time they are again gorged with brood, the honey-flow will generally be so far advanced as to discourage further swarming.

Now to return to the hive from which the swarm issued. Next day about noon, when the few field bees are out foraging, smoke the bees; and, if you have time, remove all queen-cells and turn the queen taken from the weak colony loose on the combs. She will be accepted ninety-nine times out of a hundred, and no questions asked. If rushed for time, just turn her loose on the combs anyhow, and she will take care of the queen-cells herself. In about a week this colony



will have regained its normal strength, and, having a laying queen, will constantly increase that strength through the honey season, and will but rarely swarm. This queen may acquit herself as one of the very best in the apiary the rest of the season.

Now from two colonies, the one worthless and the other one liable to do too much swarming, have been evolved two colonies, both in perfect condition for a large yield of finest honey. Continue this treatment, always selecting the strongest weak one, as the weaker ones each day all naturally become stronger, until all weak colonies are brought up to the standard of extra working condition.

TREATMENT OF THE MEDIUM COLONIES.

But now how about those medium colonies, too strong to be treated as above, and not strong enough to be very profitable in their condition? If we occasionally rehive a swarm on the old stand and in the old hive, and take out four of the best combs of brood, putting sheets of foundation in their places, we can give two combs of brood to two each of those colonies, taking out a couple of poor combs of brood to make room for them, which can be formed into a nucleus and given a queen-cell. These two full frames of brood should immediately bring the medium colonies to the required strength for work, while the swarm hived on the old stand should also give a nice surplus.

WHAT TO DO IF THERE ARE MORE SWARMS THAN WEAK COLONIES.

Should the indications be that there will be more swarms than weak colonies, select the very best colonies as regards both purity and industry, and, when they swarm, remove the hive, from which the swarm issued, to a new stand, and hive the swarm on the old stand, giving it, say, three combs of brood from the old stock, and three or four sheets of foundation, and give plenty of surplus room. This colony, having all the old bees, and some brood, should also give a nice surplus.

Now to go back to the old stock removed to the new stand. Take two nucleus-hives, made to take frames the same size as those in the hive; place them on separate stands, give each one or two combs of brood and a good cell from the hive, and let all three raise queens. Any surplus cells can be cut out and used in other nuclei formed in the same way for the next seven days, thus hastening hatching several days and also increasing the number of queens raised from choice mothers.

After all the queens in both nuclei and central hive are *laying* and have filled all their combs with brood, the queens may be taken from the nuclei and used to replace the poorest queens in the apiary, and the brood and bees united with the main colony, thus giving it at once seven or eight full combs of brood, and making it at once a full colony. Queens reared in this manner have no superiors in beedom.

This method is simple enough for the am-

ateur with half a dozen colonies, and equally valuable for the largest of home apiaries. It is also elastic; i. e., it can be modified to suit many different conditions; keeps every colony to the top notch of strength during the honey-flow, keeps every queen working full time during the whole season, and keeps every colony, nuclei excepted, with a laying queen all the time, and makes swarming a blessing instead of a nuisance; allows a moderate increase through the nucleus system, and keeps the apiary supplied with a class of queens having no superiors on earth.

Any tendency to degeneration from close breeding can be immediately checked by the purchase of choice breeding-queens of other strains—not to replace but to *blend* with the best strains already in the apiary; and any one breeding on these lines would in a short time refuse to have his whole apiary requeened free of charge by the best breeder in the country.

If the apiary is run for comb honey, care must be used to produce nothing but a fancy article—one that will command the top, or a premium over the top quotations; and it is just as easy to produce a crop all A 1 to fancy as it is to produce all number two or worse.

Comb honey, if to command the very best prices, must be removed from the hive about as fast as finished, and before becoming travel-stained, and properly stored and cured, and not left on the hive until the season's close. If every separator used in the apiary, wood or tin, is not thoroughly washed and *wiped dry* before being used in the supers, much of the capped surface is bound to have a non-attractive smutty appearance; and all drawn combs in sections from the previous season, no matter how white, must have the ends of the cells cut down before using, or an expert will condemn every section so used, at a glance. Likewise it is difficult to produce nice honey on a hive containing old dark combs unless they contain freshly sealed honey at their tops.

If the apiary is run for extracted honey, and we expect the honey to bring the top price as a table delicacy, it can not become too ripe before extracting; and for best quality of product it should remain on the hive three to six weeks after sealing before being extracted; while for general market honey it may be extracted as soon as sealed, but not before.

Frenchtown, N. J.

PROTECTION DURING THE WINTER.

Temporary Sheds vs. Outer Cases.

BY W. T. DAVIDSON.

Nothing that I know of at present will beat a good shed for wintering bees. I can pack my hives in straw in a good shed, and get excellent results. I wintered my bees three winters in a shed without the loss of a colony. Sheds are very unhandy to work under, but I think I have designed one that will be

handy. I will make the cover out of boards in 12-ft sections, covered with some kind of roofing. In summer, when I don't need the cover, I can remove it.

But such a shed will cost about as much as good pine winter cases. I bought pine flooring for \$2.00 per 100 ft., and made some winter cases. If bottom-boards, covers, and all are made, it takes about 20 feet of lumber per case. According to these figures, 100 ft. will make five cases. The lumber in these five cases will cost \$2 00, which is 40 cts. per case. There is a little more to add to this—that is, the roofing. Either paper or metal roofing can be used; but my advice is to use the best roofing that can be had. Such covers can be used for shade-boards in summer. For this locality I don't think this size of winter case for eight-frame hives would cost over 50 or 60 cts. per case for material, and I believe that they would last a lifetime. I can pack my bees for winter right on their summer stands, and not move them enough to disturb them. In extremely cold climates the cases can be made larger. The case has a bottom-board and cover and a body all separate. Put the bottom-board under the hive; set the body down over the hive; put on your packing; put on the cover, and your bees are ready for winter.

These winter cases cost a little money and labor to begin with; but while you are looking at the cost of the winter cases you must count the cost of wrapping the hives with paper, and that you will have to buy new paper every year. I do not believe that the paper wrapper is half as good as a winter case. After you fold old newspapers under the wrapper, count the cost for fifteen years on the paper wrapping and you will begin to see a winter case made like some I have, and painted, should last more than 30 years. It is hard for me to decide which is better—a good shed or a good winter case. Right now I am in favor of the winter case. It is not what a thing costs, but what it is worth.

Velpen, Ind.

RENDERING COLONIES NORMAL.

Some Strong Colonies Saved, and a Weak One Made Good.

BY A. J. BURNS.

Some time ago I found several colonies whose queens were laying drone eggs, and several more with laying workers, all strong in bees, and with an abundance of honey—too good to break up if I could save them, so I sent for some new queens, not having any extra ones in the yard. I at once set about preparing a place for them by selecting strong colonies with vigorous queens by putting the queen below an excluder, and as much of the sealed brood above as practicable. The queens came in about two weeks. I had then an upper story of strong young bees which I set off on a close-fitting frame covered with a fine wire screen as a bottom-

board, thus confining the bees, but giving them good ventilation. I carried them into the honey-house, where, within an hour, I placed a cage containing a new queen between the frames just as they came, and left them until the next morning, when I removed the hive containing the old queen on to the old stand a short distance away, and placed these upper stories with the new queens on the old stand on a regular bottom. At the end of 24 hours I gave the bees access to the candy, where they had not already reached it. At the end of three or four days many of the bees had gone back to the old stand. I then went around and pinched out the drone-layers, shaved off the heads of what brood was capped, and sprinkled sulphur over the unsealed brood, and treated the brood of the fertile workers in the same manner. The following day I put them temporarily aside and placed the hive and queen, displaced by the new queen, on their stand; covered it with a paper through which I had punched a hole with a leadpencil, and on top of these their hives that I had put aside, making the hives three-story, and the mutilated brood in the third story—no honey except what might be in the frames containing this brood. In a few days all the bees were down with the queen, the mutilated brood above deserted.

At another place I noticed a colony that seemed very light; and on uncovering it a score or two of robbers came tumbling out, although I did not notice any on the outside as I came up. Upon examining I found the honey all gone except the least bit in one corner of a frame covered by about a tablespoonful of bees, and in their midst a queen, all apparently about to expire. I put in three or four frames of honey from elsewhere, closed up the entrance bee-tight, and covered up the hive. The next day, between nine and ten o'clock, I set an empty hive on top, covering it with a tight-fitting frame covered with screen wire, and laid the cover on top; then with a nucleus box and large funnel I went around where the bees could be spared and took out a few bees at a place, being careful not to get a queen until I had in my box bees enough to make a good fair colony, which I carried to the honey-house, and put them in a darkened corner for between six and eight hours, and at sundown I took them to this queen and her bees, uncovered the hive, unhooked the cover to the nucleus-box, took it between my hands, holding the cover shut while I jarred it on the ground to settle the bees to the side opposite the cover; and before they had time to recover themselves I dumped them into the empty hive and covered it with the screen frame and placed the hive-cover on top. The next morning they were all down among the frames. I left the hive shut up for three full days, and at sundown of the third day I opened the entrance. I did not look at them until the second day after, when I found the bees spread over the combs, some of them industriously cleaning and polishing cells, and the queen hustling around among them,

depositing eggs as if all had always lived there; and at this writing, some ten or twelve days later, there is quite a patch of brood on two of the frames, part of it sealed. I see no reason why they should not do as well as any other colony.

San Diego, Cal., Nov. 11.

LIFTING HEAVY CANS OF HONEY.

A Rope and Tackle for the Purpose; Fastening Foundation.

BY C. F. SMITH.

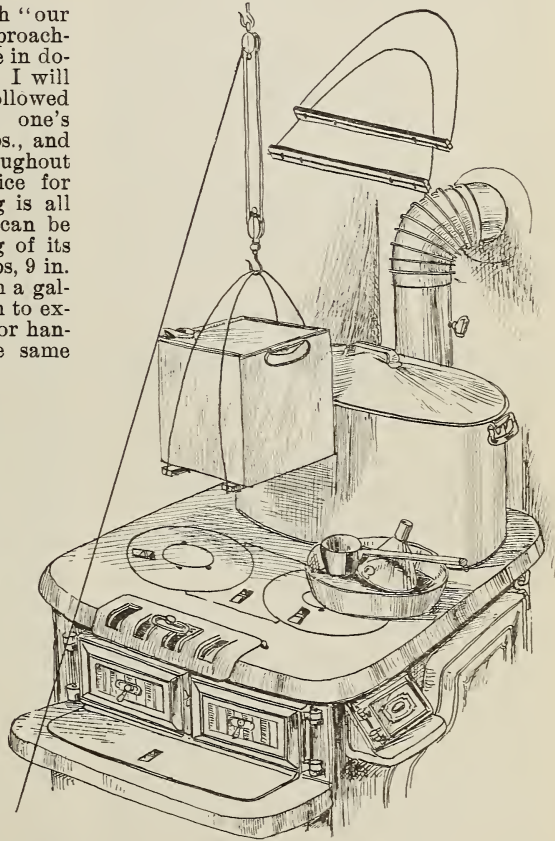
Some kinds of work connected with "our chosen pursuit," that we formerly approached with dread, we now find pleasure in doing because of improved methods. I will describe two plans that I have followed for the past year or two. When one's sales do not aggregate over 10,000 lbs., and they are quite evenly distributed throughout the year, the block-and-pulley device for lifting 60-lb. cans during the melting is all right. In a rush, two wash-boilers can be used. Each can must have a sling of its own. There must be two $\frac{1}{4}$ -inch strips, 9 in. long, for each can to rest on, to which a galvanized wire is stapled, long enough to extend up over the can to form a bail or handle—two for each can, and all the same length. I use two small $\frac{1}{2}$ -in. double blocks with $\frac{3}{8}$ or $\frac{1}{2}$ in. rope. I insert a $\frac{1}{4}$ -inch screw-hook through the plaster into a joist directly over the front of the stove. I always empty the honey through a cloth strainer into a can around which a few thicknesses of paper are wrapped to hold heat. I use an oil-faucet on this can, with entire satisfaction.

The more experience I have in bottling honey, the less heat I apply. I now heat the water to 130°. A man can hold his fingers in water at that temperature 15 seconds; a woman, 30. The honey does not candy as quickly now as it did formerly when heated to a higher degree. The reason of this, probably, is that the excessive heat evaporates too much, which causes the honey to crystallize. I used to be continually bringing bottles home from the store to remelt; but have not been bothered any since I adopted the 130° rule. I think some kinds of honey will stand more heat than others; but 130° is the limit with me. When sealed at 100° it does not candy under ordinary circumstances. I uncap the cans while melting, and never missed any aroma.

Dread No. 2 that was turned into a pleasure is wiring and putting in foundation. Wire lengthwise of a frame tightly. Lay the wired frame on the foundation with your thumb on or toward the bottom-bar, and draw the wires downward as you imbed with

the old rocker imbedder. Now the foundation will gently crowd the top-bar, which, from this method, had better be plain or flat. Imbed three to five hives or supers, leaving the frames piled up, top-bars to the right. I fasten the foundation with melted wax from an oiler, at the rate of four per minute, going over both sides, and I never had one come loose.

The oiler should be large enough to hold at least a pint, and should be provided with a handle. The diameter of the spout at the small end should be about $\frac{1}{4}$ inch. The opening should be reduced with a tapered



wooden plug pierced with a hole the size of an eight-penny wire nail.

To prevent the wax from chilling, the spout should be wrapped with woolen cloth or asbestos; but as an additional precaution I drop a hot wire into the opening every time I set the can down.

The wax should first be melted on the stove and then heated by means of a single-wick oil-burner. All the appliances mentioned can be obtained at any hardware store for two or three dollars, and they will pay for themselves in a month.

Cheboygan, Mich.

[Our correspondent has given us several valuable hints. A small tackle like the one shown here can be purchased at any hardware store for a very small sum. A little outfit like this, costing a comparatively small amount, will save a lot of hard work and severe strains on the back and shoulders.

The scheme of pulling the wires *downward* while imbedding, to cause an upward strain when in the hive, is excellent. If any correspondent has suggested it before, we do not now recall it.

Mr Smith refers to one more thing; and that is, he finds it advisable not to heat the water hotter than 130°. We should like to emphasize this advice, because we believe it to be very important.

Incidentally we can not help poking a little fun at Dr. Miller, who had a little fun at our expense because we said at the National convention at Harrisburg that 140° was too hot for one to bear his hand in; but some people can stand a higher degree of heat than others, especially women; and as thermometers are so very cheap we do not see how any one who does any business in bottling can afford to get along without one; and while one is about it he should get a good one.—Ed.]

TRANSFERRING BEES.

Why it is Best to Place the Old Hive Below the New One.

BY E. W. ALEXANDER.

In answer to Dr. Miller's ninth "Straw," July 15, 1907, p. 947, as to why I prefer putting the undesirable hive under the one I wish to keep the bees in, instead of on top, I will say I have always found them more inclined to commence work above their brood where the temperature is warmer and more even than under the excluder or near the entrance. I should have mentioned that it would be much better to place a frame of brood in the new hive, then the bees would go up, and the queen continue to lay. She will seldom commence laying in dry combs for several days, either above or below the excluder, unless the colony is strong and honey is coming in fast. One of the principal reasons for putting the old hive under is that, at the end of three weeks, it will contain but little honey, and its combs will be about ready for wax; whereas if the old hive is placed on top, then we have but little honey in the new hive, and the old one is full of honey in an undesirable condition. This is especially so if we use foundation instead of empty combs. It is for these reasons that I prefer putting the old hive under the new one.

In one case the new colony at the end of three weeks will be all that could be desired. In the other case the new colony would be light in honey, and, consequently, scant of brood, and its foundation very poorly drawn out. I do not put the new hive under the old one. The object to be gained is to draw

all that is good in the old hive into the new one as soon as possible; and from our experience we find the above to be the better way.

Delanson, N. Y.

THE ALEXANDER PLAN FOR WEAK COLONIES MODIFIED.

More Honey Produced if the Two Colonies are not Separated; Producing Comb and Extracted at the Same Time.

BY J. W. DICKSON.

In the Feb. 15th issue of last year, p. 232, I notice an article on the use of excluders. I will give my plan in brief for the production of comb and extracted honey.

In the early spring, just before I commenced to feed for brood-rearing, I set the weakest colonies over the strong ones, with a queen-excluding honey-board between them; feed half a pint at night to each colony till the desired amount of brood is reared. Then when the flow comes on I pinch the head of the poorer queen, take off the zinc, and then add bodies filled with extracting-frames as needed. Next, I place a super on top filled with sections and full sheets of comb; and when the season is over I take off sections, pack them away, after which I take off the extracting-bodies and extract.

I will now tell you what I gain by this method. By this plan I have two hive-bodies filled with brood so they are doubly strong compared with those managed in the ordinary way, and will make more honey than they will to build up on the Alexander plan, then divided when the flow comes on. Then some of my customers want comb honey and some extracted, so I am able to accommodate all. I can produce as much comb honey in this way as I did when I ran for comb honey altogether, and have the extracted besides. Only about 15 per cent of my bees managed on the above plan ever swarm.

Now, I guess you will wonder how I keep from reducing my regular number of colonies. I do that as follows: I run a few colonies for comb honey exclusively, and they will all swarm; then in the spring, if I am a little below the normal number I buy a few colonies in box hives at from \$1.00 to \$1.50 each, transfer them on my extracting-frames, and go on as usual.

I never use excluders for comb or extracted honey, only as above stated. My idea is to have the bees from two queens united, and at the proper age to work when the flow comes on. By doing this a larger per cent of them will leave these strong hives in search of honey than if managed differently.

[We believe that more bee-keepers would find it to their advantage to produce comb and extracted honey at the same time as above outlined. The plan, as a whole, we believe to be excellent because we have tested something similar and found it to be good.—Ed.]

TESTING HONEY.

A Hydrometer for Finding the Specific Gravity.

BY E. D. TOWNSEND.

I formerly used a hydrometer in photography, and have often thought of using one to test the specific gravity of honey, but have never known what temperature to test by, for honey is affected by the temperature in that, the colder the honey, the higher the test. The thermometer should be of the all-glass kind, and should be tested.

I presume that, on account of its long name, many will hold back from using the hydrometer for a long time, at least, thinking it is something for the "scientific fellow." Really, it is one of the most simple of instruments, and is just as readily understood as the thermometer. I should like to know what temperature the government officials use in testing honey.

Perhaps there are other ways for testing honey. At any rate, we are hungry for news along this line.

One of the uses to which the hydrometer could be put would be testing the specific gravity of all honey at extracting time. In this way a producer could work very intelligently. To illustrate, we will suppose that, for some reason or other, he should decide to extract some honey during the honey-flow; and if he were not quite satisfied whether the honey is well cured he can extract a little, heat it to the required temperature, and test it; and if it falls below the standard he should stop extracting until the honey is thick enough.

Suppose the dealer were progressive, and had supplied himself with a hydrometer and thermometer; the producer could then tell him what his honey tested, and the dealer could answer, perhaps, as follows: "We are paying to-day for white-clover extracted honey the following schedule of prices, based on the specific gravity of the honey," etc. In a note at the bottom he would explain that any honey that did not come up to the lowest test would have to go at a reduced price for baker stock. My idea would be that the dealer, also, should sell to his customers from this same schedule of prices, of course adding his profit.

If ordinary clover honey tested 40, good honey 41, and extra good or the best, 42, the dealer might quote the 42 at 10 cts. per pound, the 41 at 9 cts., and the 40 at 8½. It is evident in my mind that the 42 test would be the most sought-after grade, while the 41 would be a close second. There will be few low-test grades, for it will be too much of a temptation to produce the best, on account of so much difference in price.

The honey business is on a par with the butter trade to-day; and as I have been on both sides of the counter I know from experience just what I'm talking about. A takes a roll of average butter to the grocery when butter is worth 15 cts. a pound, and gets what his butter is worth. B takes a roll of

butter of extra-good quality, and, though it is worth 20 cts., he gets only 15, for that is the market price. C brings in a roll of butter of very poor quality, and, though the market price for renovated butter is only 10 cts., he sells it at 15, and therefore really pockets 5 cts. of B's money. The extracted-honey market is managed on the same principle.

Remus, Mich.

[This is a field worth investigating. In the meantime it would, perhaps, be well to bear in mind that locality and the kind of honey would have much to do with this question of specific gravity. York State buckwheat, for example, would naturally have a greater density than the same honey produced elsewhere. Colorado alfalfa would be thicker than alfalfa in some parts of California and Nebraska. What would be regarded as a standard of specific gravity for one locality would not be accepted for another.

Again, different kinds of honey in the same locality would vary greatly as to the number of pounds to the gallon.

Still again, artificially ripened honey and that ripened in the hive by the bees might have exactly the same weight per gallon, and yet one be superior to the other in point of aroma or flavor.

Having said all this, we are of the opinion that bee-keepers might use hydrometers to very good advantage, and that their employment would be far better than mere guesses as to the density of the honey to be extracted.—ED.]

THE NEW PURE-FOOD LAW.

Some Questions Concerning it.

BY WM. RUGE.

The pure-food law, I am afraid, will work against a good many bee-keepers like myself, who, not raising enough honey themselves to supply their patrons, have been in the habit of buying honey from other bee-keepers or dealers in honey. You say the main thing for such buyers is to get a guarantee of purity from the seller—that this will render the buyer safe in case the purity of the honey when retailed should be questioned. Now, I can not see how this can be. Suppose I buy a lot of honey from a dealer, with a guarantee, and another lot from another dealer or bee-keeper, both lots of honey to be sold to my customers—consumers and retailers. I have to bottle this honey. Am I supposed to mark *each* bottle in some way to be able to know at any time from whom I bought the honey in any of the bottles, should somebody question the purity of the honey and get me into court? And suppose the honey is pronounced adulterated, and I could say I bought it in this particular bottle from so and so, would not this party—the man who sold me the honey with a guarantee of purity—deny that this honey was from him? and how could I prove that it *was* from

him, and that I did not adulterate it myself? Or suppose I buy from several people and mix all the honey together so as to make one grade—how can I prove afterward from whom the adulterated honey came? The dealer who sold the honey, whether he adulterated it or not, will, in case, of trouble, naturally want me to prove that this was his honey; and how can I do this? The only way I can see would be to have the honey sampled on receipt (each can or package), in presence of witnesses at the depot on arrival; then have it analyzed by a competent chemist; but such expense and loss of time would, of course, stop trade altogether.

I can not see the good of any guarantee, once the honey has gone out of control of the seller and passed into the possession of the buyer, and been bottled by him. The dealer may not know himself that the honey he sells is adulterated; or, if unscrupulous, he may adulterate it himself and give a guarantee of purity—knowing quite well that his buyer can not afterward prove the honey in a particular bottle or package is from him, or that the buyer has not adulterated it himself; consequently I expect that, in case of trouble, it will always in the end be the buyer that will have to suffer in case of conviction—I mean the man who puts up such purchases in small receptacles and sells it to the consumer or retailer.

Seeing the matter as I do, I am afraid to buy any honey. Am I wrong? and can you set me to rights and reassure me about the workings of this pure-food law?

Lake Charles, La.

[Our correspondent has given us a hard nut to crack—in fact, we have thought of the same thing. Almost every good law, if it is worth any thing, will work some inconvenience, perhaps hardship, upon innocent law-abiding people. Mr. R. states a condition where an honest bottler *might* be made to suffer for the rascality of some one else; but the national pure-food law has been in effect now for some fourteen months, and we have yet to hear of a case like either of those suggested by our correspondent.

Take the case cited: Suppose your bottled honey is pronounced adulterated and it is made up of one or more lots of honey from as many dealers. You should always retain a good-sized sample of each lot. Having done this you can have them all analyzed, and the one showing the adulteration would give you the means to place the blame where it belongs. With a guarantee of purity from the party furnishing such honey you would be cleared of all responsibility and Uncle Sam would proceed to prosecute the party who furnished you the adulterated lot.

Any bottler who does any extended business should be able to determine pretty accurately by the mere taste whether his honey is pure or not. Even if he does not have the knowledge to make such determination he should be careful to buy of honest and well-known honey-producers or dealers. When the honey arrives he should carefully sample by tasting of every can or barrel of

honey. If he tastes the honey and buys only of reliable people he will not be likely to run up against the national law, nor, in fact, any State law barring out adulterated goods.

But perhaps our correspondent would like to know how to detect glucose, the most common adulterant in honey, by the mere taste. Let him buy a small quantity of glucose of some confectioner, and then prepare several samples of honey and put into a part of them various percentages of glucose. First he should taste the pure glucose until he is perfectly familiar with its flavor. Next, in a day or so afterward or when the glucose taste is out of his mouth, let him taste the prepared samples. If he does not find himself pretty nearly unerring in detecting which is glucosed we shall be surprised. But suppose he finds his taste is *not* reliable. Let him take a sample of adulterated honey and pour over it a little alcohol and stir it. If glucose is present the honey will become cloudy. While this test is not entirely reliable, yet it will show if any considerable quantity of glucose is used.

In a word, the bottler's best protection is his knowledge of reliable dealers and producers, and his knowledge of good and pure honey when he tastes it.—Ed.]



UNITING WEAK COLONIES IN THE SPRING.

On first thought, weak colonies could be united to advantage, but the many failures prove the fallacy of this plan. I have a plan, however, which has proven very satisfactory to me for a number of years—simply unite the weak ones with the very strongest. The strong ones can care for the little brood the weak one may have if it is placed close beside the brood of the strong one. This plan will save the weak ones very nicely, and especially where they may be too weak to be united on the Alexander plan. If two valuable queens come together, divide the brood equally with a thin wooden division-board with a double strip of zinc—one piece nailed on either side. That will prevent the queens from visiting each other.

I prefer the board $\frac{1}{4}$ or $\frac{3}{8}$ thick, with a hole $\frac{1}{2}$ inch wide by 5 or 6 long through the center, covered with zinc. Separate the colonies as soon as the hive is well filled with brood.

F. H. CYRENIUS.

Oswego, N. Y.

PASTE FOR LABELING TIN.

I notice in GLEANINGS for Jan. 15 that Mr. N. E. France recommends washing the surface of tin with soda or vinegar before put-

ting on labels with paste. I think I have a way of making paste that is easier and quicker. It is this: I take about a quart of boiling water and enough flour to make a thin paste. I mix the flour in a little cold water before putting it into the boiling water, and stir it until well cooked. I then put in one teaspoonful of powdered alum. Paste made in this way will stick labels to tin as tight as beeswax; but it is necessary to label before filling the tins with honey. This paste will also keep for months. I have never had any trouble with the labels coming off from my tins.

CHRIS. GRIMOLDY.

Owen Sound, Ont.

A SCHEME OF MANAGEMENT OF BEES FOR THE BUSY FARMER.

I should like to submit my case to you for advice. Two years ago I acquired a swarm of bees. I now have three in ten-frame hives, which I run for comb honey and pleasure. Now, I am a busy farmer, and don't want to increase any further or buy any more hives. How can I manage them to best advantage?

JAMES C. WHITE.

Sewell, N. J.

[For a busy farmer we would unhesitatingly recommend running for extracted or chunk honey, tiering up the hives one above the other, giving the queen unlimited room for egg-laying and the bees for the storage of honey. If a large entrance be given at the bottom, and if the hives are two, three, and four stories high, depending upon the strength of the colony and the season, there will be very little swarming. The extracted honey bottled will bring a fair price at the local markets, probably giving as large a net return as comb honey, with far less expenditure of time and labor on the bees, when the farmer is the most busy with his farm-work. If he can not afford an extractor, let him cut the honey out of the brood-frames and sell it in bulk as it is done in Texas. If he is well known in the vicinity he will have no trouble in disposing of his entire crop.]

The special feature of this large-hive principle, one tiered upon another, that should appeal to the busy farmer, is the comparative absence of swarming, and the fact that the honey can be taken off the hive at his leisure in late summer or in the fall.—ED.]

THE SACKET TRANSPARENT WRAPPER FOR COMB HONEY; FURTHER POINTERS FROM THE INVENTOR.

I have read with much interest Mr. R. A. Burnett's article in reference to my wrapper, in the Jan. 1st issue, page 39, and would like to state that I experimented a great deal with the same before using or sending it out. The heavier the paper is, the less transparent; and to be of any value it must show to the purchaser just what grade he is getting. In fact, I had No. 1 grade, and with some of the paper I tried I found it did not show the true goods; and I found that, although heavier, it did not add very much to the strength.

As for the envelope or bag idea I had a couple of New York envelop concerns try to make up a bag that would be the exact size of the section. This did not work, because the section was not always perfectly square, while the bag was. By this I mean the section before filling was true enough; but when squeezed in the super it was a trifle out, and in inserting the box it tore the wrapper.

Another point was that a bag large enough to take almost any section did not fit tight, and looked messy, and, to my way of thinking, the beauty of the package is its neat appearance, and to have the paper stretched tight with no wrinkles.

I have yet to receive a complaint that the package did not carry well, and that, on account of leakage, other sections were soiled. The paper has the strength, and still has transparency.

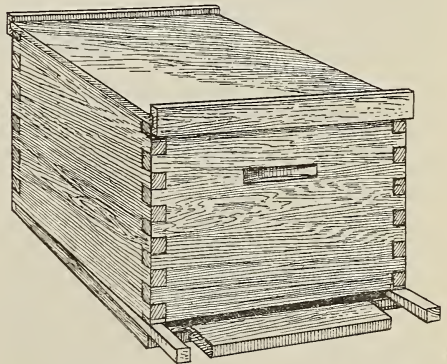
H. A. SACKETT.

East Orange, N. J.

SEALED COVERS VERSUS ABSORBING CUSHIONS; SEPARATE OUTER CASES USED THE YEAR ROUND.

I don't often contradict editors; but on p. 1312, Oct. 15, in answer to the question, "Are sealed covers better than absorbent cushions?" you say, "Yes." Permit me to say, "No!" An absorbent cushion will never get damp if a little space is left between the cushion and the cover of the hive. If super covers are put over brood-frames and sealed tight by the bees you can find damp musty combs almost any time.

I use ten-frame Dovetail hives and regular supers. The bottom-board is simply a flat board with a wedge under each side of the hive to regulate the entrance. This bot-



WEDGES USED TO CONTROL THE SIZE OF ENTRANCE.

tom-board is made with a little projection in front for alighting-board room.

To prepare the hives for winter I make a case 22×26×20 inches high, and a gable cover out of cheap box boards, and cover it with well-painted canvas or tin, or any thing that will keep out the water. I put an empty super on the hive, and over the frames a piece of straw matting or old carpet is put on, separated from the frames by a Hill device. I fill the super with cork dust, chaff, planer-

shavings, or sawdust; but the last two, if used, must be dry; or if a cushion to fit the super is preferred, the space around the sides of the hive should be filled up, and the colony will be ready to swarm by the first of May. Jersey Shore, Pa. L. E. SCHERER.

[You say "absorbing cushions will never get damp between the cushion and the cover of the hive." There must be a great difference in localities, for here at Medina we tested this thing for over thirty years. Before the sealed-cover idea came to the front we had a great deal of trouble with wet cushions, especially during spring. In every one of these cases there was a large amount of air-space between the cushion and cover; and, besides that, there were means for ventilation in the cover itself. During late years we have adopted the sealed cover—that is, a thin board placed right on top of the brood-nest, which the bees seal down. Over this is placed a tray containing packing or cushion. Since adopting the sealed cover we do not find it necessary to pull out the cushions and dry them on warm sunny days; but with the old absorbing cushions we used to have them wet by the hundreds, and sometimes frozen.

We then conducted a series of experiments, putting half the bees on absorbing cushions and half under sealed covers. As our older readers will remember, the latter came out ahead.

Our own experience here at Medina is not the only one, for we often receive letters from our readers who are having the same trouble with wet cushions under a sealed cover; and these cushions are not wet because there is no space between them and the hive, either.—Ed.]

DISINFECTING INFECTED COMBS WITH FORMALIN GAS.

In anticipating the work in the apiary the coming season, some of us are reminded that the germs of foul brood have been lurking around among our bees, and that we must take every precaution to defeat them in further destruction.

As for myself, I have several hundred empty extracting and brood combs, all of which are entirely free of honey, brood, and pollen, and which are dry, and have been so for a year. Some of these combs have had black or European foul brood in them, but, to the naked eye, are as bright and clean as any comb can be.

In the *Bee-keepers' Review* for 1904, page 152, Mr. E. W. Alexander gives a method of formalin fumigation which he says was quite successful in saving European (black) foul-broody combs, but *not* American foul-broody combs. Three years have passed since Mr. Alexander wrote his experience, and I should like to ask whether such treatment is recommended now as being successful.

I also notice a statement by Mr. Adrian Getaz, *American Bee Journal*, 1907, p. 689, as follows: "The experiments made a few years ago by Dr. Howard show that the spores

of the foul-brood bacilli do not resist the sunlight and open air more than a day or two. That explains why the hives contaminated do not need disinfecting. The spores they contain are soon destroyed by being exposed to the open air." Is this the accepted theory? and if so, why would not the spores of black brood be dead that have been on these perfectly dry combs for a year that I speak of above? I have melted up all combs that were badly diseased, or that contained a single cell of brood or pollen; but I do not want to melt these nice dry combs if fumigating will answer, and I do not want to fumigate if a year's airing and drying have killed the spores. WALLACE MAYS.

Benton Harbor, Mich., Feb. 6.

[The use of formalin for disinfecting combs, and even suspected diseased brood, was discussed a couple of years ago in all the bee-journals. Some favorable results were recorded, but there were enough failures to lead us to believe that it was not wise to depend upon such means of disinfection; but we see no objection to applying the fumes of the gas upon clean dry combs such as you speak of; but such combs should be confined in a hermetically sealed box or chamber. An ordinary wooden box with a lid is not tight enough. If a wooden chamber be used it should be made close enough to hold water. Then the gas should be applied full strength for the time prescribed.

We doubt if the formalin gas would disinfect combs affected with the American (old-fashioned) foul brood, for the reason that the dead matter clings to the sides of the cells like so much glue. The microbes under this covering can not be reached by the gas, and hence it would be a waste of time to employ it on such combs; but we think it might be applied to advantage upon those which possibly have been in hives contaminated with European foul (black) brood.

We would not, in the case of hives that actually contained infected colonies, rely upon the air treatment for disinfection. It is the work of but a few moments to throw a lot of loose dry straw into a hive, set fire to it, then stir the straw while ablaze, so that the flame reaches every portion of the hive as well as the cover. The moment the flame blackens the wood in every portion, throw in a cup of water and clap on the cover. We know that sunlight and air are wonderful germicides; but in the case of a disease so serious as American or European foul brood we would advise disinfection of the hives as above stated.—Ed.]

HOW TO LIQUEFY BULK COMB HONEY IN PAILS.

On page 88 Louis Scholl says he can not melt chunk honey in pails after it is granulated, without melting the combs. I sell all of my comb honey in friction-top pails, and when cool weather comes the extracted honey that is poured over the combs will granulate. To melt this I set the pail of honey in a large pan of warm water. The water must

be so I can just bare my hand in it and no hotter, or the combs may be melted. I keep the water at the right temperature. The pan should be deep enough so the water comes up close to the top of the pail. We have melted lots of honey this way, and the combs were just as nice as ever. A thermometer would be a good thing for this.

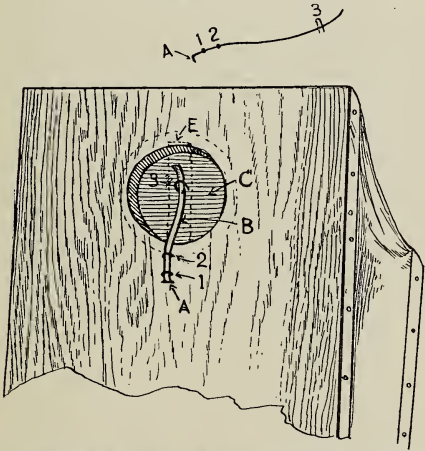
Velpen, Ind.

W. T. DAVIDSON.

[Although we have never tried liquefying bulk comb honey, it would seem to us that the warm-air method mentioned on page 145 of the Feb. 1st issue would prove very satisfactory. There would be no danger, certainly, of melting the combs at a temperature of 100°. See "Bee-keeping in the Southwest," in this issue.—Ed.]

HOW TO PUT A NEW SPRING ON AN OLD SMOKER-VALVE.

Get a piece of old watch-spring, about three inches long, which can be obtained from almost any jeweler. Lay this spring flat on the outside of the bellows-board, with the bend at *d* projecting into an awl-hole at *a*; 1



and 2 are staples; 3 is a staple or small bent wire nail driven only part way down. Properly put on it will bring the valve up with a snap. If the opening in the board were covered with a piece of wire cloth well tacked on it would keep little fingers from spoiling the valve in the first place. S. S. LAWING.

Ozark, Mo.

[We believe this idea is a good one; but we think that the solution of all valve trouble is no valve. The time is past when such a nuisance as a valve is considered necessary in a smoker bellows.—Ed.]

COMB HONEY PRODUCED WITHOUT SEPARATORS; BEES WORK MORE READILY IN THE UNOBSTRUCTED SUPERS.

In the Dec. 1st issue, page 1503, is an article from J. E. Hand which I wish to endorse in regard to the question, "Are separators a hindrance to the bees?" From my experience of several years I answer most emphatically,

yes. I learned by using hives with separators alongside of those without them, and I obtained more honey from the non-separator supers than from those with them; i. e., in many instances the bees refused to work in the separator sections, while those without filled every section. The hives of equal population with shallow extracting-frames produced more honey than those with the $4\frac{1}{2} \times 4\frac{1}{2}$ sections with or without separators. This proves to me that, the more the bees can work all in a cluster, the better. I have a few hives of some old pattern, the super of which takes a section $5 \times 5\frac{1}{2}$, and the bees seem to like these better than a smaller section. I use no separators, and have but few ill-shaped sections. Of course, I use full sheets of comb foundation or three-cornered starters. In fact, I get so much more honey from these old hives than from the new ones with the $4\frac{1}{2} \times 4\frac{1}{2}$ sections that I have concluded to discontinue the use of the latter.

Lorena, Texas.

D. F. MARRS

FRAME-HANDLING; CLIPPING; INTRODUCING THROUGH THE ENTRANCE.

I read the article on page 835 of the June 15th issue, 1907, on handling Danzenbaker frames, and wish wet cloths had been mentioned to spread over the top of the hive, as described in Danzenbaker's book. This I consider almost as valuable as the smoker. As you lift one frame after another, the cloth can be turned back, keeping the bees practically out of the way. A very little smoke blown under one of these covers goes a long way. When ready to close the hive, lift the cloth quickly, and before the bees are much in the way you can have the cover on.

I notice considerable discussion of hive-stands. I use what I saw described in an old number of GLEANINGS—simply three pieces of inch board nailed together in the form of a letter H. This is the cheapest, most portable, and convenient stand I have seen described; keeps the hive dry, up out of the way of toads, etc. The objection might be made that hives could not be tipped up on the bottom-board; but on the rare occasions when this is desirable it can easily be done by shoving the hive forward a few inches on the bottom-board. This gives only four square inches of contact with the bottom-board, doing away with moisture and rotting as nearly as it is possible to, which should make it appeal to Dr. Miller.

I notice many elaborate descriptions of the proper way to catch and hold a queen for clipping. Why catch her at all? I take in the left hand one end of the frame, rest the opposite corner on some solid support, follow her quietly and carefully around with the point of a pair of scissors in the right hand, and, as she pauses, nip off the wing—right wing for even years, left for odd. If a person's hand were not steady enough for this, I imagine a small rubber band lightly stretched between the prongs of a stick would hold her against the comb satisfactorily.

Here is a method of introducing queens I

have not seen mentioned. It is simple, and does the whole thing with one operation, even without opening the hive under certain conditions: I have flat cages (something like the Miller), closed by a cork like plug. When ready to introduce I remove the plug and lay the cage on the bottom-board (I have not found it necessary to place it up among the frames), with the entrance or opening to the cage close up against the side of the hive or bottom-board. Provide a small wire attached to the other end of the cage communicating with hive-entrance; and when you judge she has been in the hive long enough to be accepted, pull the wire lightly, which will drag the cage away from the side of the hive, thus leaving the cage-hole open. If thought desirable a little candy-honey dough can be inserted in the opening of the cage at the time of introducing, which the bees will not be able to get at until you change the position of the cage. This is the only method I have used, and have never lost a queen.

I have only a few colonies and limited experience; but as the above plans have worked satisfactorily with me I give them for what they are worth. C. B. LOOMIS.
Albany, N. Y.

[Mr. Fr. Greiner, a short time ago, illustrated his method of clipping queens' wings, which was, to clip them on the comb. The method is all right if one has steady nerves, and precision as well as celerity of movement. We should suppose that the average person would be as likely to cut off a leg as to clip the wings while doing the act.]

The method of introducing queens as you describe would be excellent during the warm part of the year. It could not, of course, be employed during cool weather.

It is possible that the bees of a strong colony might push or crowd the cage themselves, especially if they should be at all hostile toward the queen. This would let her loose among the bees, where they would make short work of her.—Ed.]

CAN A VIRGIN QUEEN BE USED ON THE DUAL-QUEEN SYSTEM?

So much has been said in GLEANINGS the past few months in regard to the double-queen system that it leaves one at a loss to know whether there is any merit in it or not. But I wish some correspondent who has had experience would kindly tell me if I can keep, during a light honey-flow or by feeding, a laying queen in an upper story, separated from the lower story by perforated zinc, and introduce a virgin queen to the lower story and allow her to become fertilized. If so, how long can I keep her there? Merrill, Iowa. J. R. THOMPSON.

[We see no reason why the plan here proposed would not work. Will some one who is in position to know please enlighten our correspondent? The only question arises as to whether a virgin queen would be treated on a par with a laying queen above the perforated zinc. We think she would; but if

any correspondent thinks otherwise, we should be glad to have him speak up.—Ed.]

STORES OF HONEY FOUND BELOW THE BROOD.

Having read with interest the discussion between J. E. Hand and Dr. Miller, p. 1488, I wish to state that I at one time had considerable experience with bees putting stores below the brood when "unrestricted by the hand of man." A carpenter friend and myself were called upon to remove a colony of bees from the side of a two-story house. The bees were occupying several spaces between the studding, and for a height, in part of them, from the plate to the bottom of the window, and two combs thick. You will see from this that they were very strong. They had brood, as I now remember, from near the top down some two or two and a half feet, and fully two feet of honey below the brood.

Girard, Ill., Dec. 14. CHAS. M. GATES.
[Perhaps the entrance was at the top. See page 102, Jan. 15.—Ed.]

A MODIFICATION OF THE WELLS SYSTEM.

Why not put a wire-cloth division-board in the center of a ten or twelve frame hive, with a queen on either side; then an excluder below the super? That would give plenty of brood, stop swarming, and may be they would not kill one of the queens.

Jonesboro, Ind. C. A. NEAL.

[The plan here spoken of would be a modification of the Wells system, and at the same time something similar to some of the schemes for two queens. It would probably work so long as the colony was in a prosperous condition; but after the honey season one of the queens probably would be missing. Try it, and report.—Ed.]

IN THE CELLAR OR OUTDOORS?

Would it pay to winter bees in a cellar when they could have flights every few weeks through the winter, and sometimes every day for a week at a time if wintered outdoors? W. P. HARPSTER.
Florence, Kan.

[If your locality is such that the bees could have a flight every few days through the winter we should not think it would pay you to attempt to winter them in a cellar, as the temperature would very likely be such that they would be very restless. With suitable packing we should say that outdoor wintering would be best for you.—Ed.]

WIRING FRAMES BY THE AID OF A LARGE NEEDLE.

Perhaps the following may be of value to some of the readers of GLEANINGS. I find that, in wiring frames, by threading the end of the wire about an inch through the eye of a blunt-pointed needle of proper size I can work much faster than without.

Forksville, Pa. W. L. NORTON.



SOUTHWEST FLORIDA—ITS OBJECTIONABLE FEATURES.

Mrs. Root declares that, while I mention and even dwell at length on the pleasant things to be found in this land of sunshine and perpetual summer, there are some disagreeable things I pass over entirely, and no doubt she is, at least to a certain extent, right about it; and I have promised in this talk to give a truthful glimpse of all these objectionable things I can think of.

A good many have inquired more or less anxiously about mosquitoes, and I am glad to say that here in Bradentown I have never seen any worth mentioning from the 5th of last November up to the present date, Feb. 20. There have been a few evenings when Mrs. Root not only *heard* a mosquito buzz, but I believe she actually found may be half a dozen, all told, so she killed them with a folded newspaper. While down on our island near swampy places we found them a few times quite troublesome; but I do not remember that they ever came up around our cottage so as to annoy us. Little gnats, almost too small to be visible, and so small as to get through window screens, are at times, during damp warm weather, quite vexatious, especially when you happen to be too busy with hands and eyes to give them your attention. When we first moved into our new house there wasn't a house-fly to be seen, and none came for quite a few days. The neighbors assured us, however, that, in due time, especially after we commenced cooking, they would be around. Sure enough, they did come, and for a few days almost drove Mrs. Root frantic. I said:

"Now, Sue, don't get so excited about a few flies. The weather will soon turn cold again, probably; and if it doesn't we will get some fly-paper and give them such a regular fight all round they will conclude this isn't a healthy place for flies."

Let me tell you something here. You can get rid of all sorts of domestic pests, rats, mice, flies, fleas, and even coons, 'possums, and *polecats*, if you go at it with enough energy and vigor. Let them know you mean *business*, and then "go in" and fight them to extermination. We got the fly-paper and caught them until there wasn't standing-room on the paper for another fly. We killed them with "fly-slappers," and still they came; and Mrs. Root said, "I told you so." Then I declared something was baiting them. You bee-keepers know that bees will never stop robbing as long as they find a drop of honey (sticky doorknobs and the like). Well, it is just so with flies, and I declared something must be baiting them around a

certain back door. We keep our food in a wire-cloth-covered safe on the back porch in the wood-shed, and she remarked that she was surprised to find flies coming out every time the door was opened. Investigation revealed that this safe was so poorly made that flies were crowding in under the edges of the wire screen. A few tacks and a thorough going over stopped that "baiting." Then when a cool night came, very early in the morning with a brush-broom I killed every fly "roosting" around that safe and back door. Every morning I found fewer and fewer, and soon we both forgot all about the flies until the matter happened to be mentioned, and then we both wondered, because there was not a fly to be found, and it was then *my* turn to say "I told you so."

Now, my friends, this war of extermination will work with all sorts of "vermin." Don't say you haven't time, for it is really a great saving of time. Do you suppose I could write these Home papers with flies crawling over my hands (and bald head), and coming back and *back again*, when I tried to chase them away? As for myself, I greatly enjoy coming out ahead in all such fights. A home *isn't* a home, in the true sense of the word, when flies hold "high carnival" in every room and on all occasions.

Now I suppose I shall have to confess before you all something I didn't tell even Mrs. Root about for a long while. I think I did tell you that our one acre of land runs from the road, in front, back a little more than 100 yards to a bay or creek that juts out from the Manatee River; so we have a little piece of salt water at the lower end of our garden, where there are oysters and salt-water fish. When the tide went out one day, Raymond Rood, 11 years old, caught a fish with his hands that made a nice supper for the whole family. Well, one night after I first took possession of my place I thought I would have a bath in salt sea-water on my own premises, without saying a word to anybody. A rotten stump stood on the grassy bank close to the edge of the water, and I said, mentally, "Now, that stump will be just the thing to hold all my clothing and keep it nicely out of the dirt." I remember, too, thinking that, as things were so extremely handy, I would take a salt-water bath almost every day. No, dear reader, that was over three months ago; and, to tell the truth, I haven't had my *second* salt-water bath yet. In fact, I have scarcely gone near that part of my premises, *especially* that particular *rotten stump*. It makes me feel sad even yet to think of it. I took my bath Saturday night. Monday morning I confided the matter to Mr. Rood, and explained things by showing him one of my ankles.

"Red bugs!" he ejaculated; and after a little questioning I told him about laying my clothes on that rotten stump. A little later I was itching all over so it took all my time and both hands to scratch the place that itched the worst. Another day, the places I had scratched were scabby sores, and any part of my body, almost, would

have made a splendid picture for a medicine almanac—the kind where they say “before and after” taking their medicine. Mr. Rood and other friends told me to “stop scratching”—let it alone, and it would soon cure itself. It made me think of my time-honored remedy for bee-stings; viz., “after the sting is removed, don’t touch it or think of it, but ‘get busy’ about something else.” There are a multitude of remedies, and I went to the drugstore and asked for the best thing; but my colored boy, Charlie, gave me the most sensible remedy of all. He said if I rubbed a little coal oil on my ankles, where they usually get on you first, when in the woods, the bugs would keep away; for all insects dislike coal oil or the smell of it.

The man who built our chimney said that rubbing the oil around the tops of your shoes would keep them from getting on your body when walking in the woods.

Now, here is something very funny about these insects. The people who *live here* are seldom annoyed by them. Raymond goes barefooted, with his trousers rolled up, all through those woods, and wades in where I bathed, and yet the red bugs never touch him. It is mostly the new comers, or “tenderfeet,” who get in the fix I was. I had something similar when I first got on the island a year ago, and also when I first arrived in Cuba. If the Department at Washington has ever published a bulletin on red bugs, “jiggers,” etc., I should be very glad to see it.

There is no danger in walking through a beaten path or on a traveled road. The insects are said to be mostly on stumps or rotten trees, and new comers should be very careful about sitting down in the woods or even on the ground. One of our Bradentown ministers from the North thought he would go fishing, and he sat on the grassy bank, just as we do back in the old home. When Sunday came he was in a fearful plight. Think of stopping in the midst of your sermon to scratch—well, say your ankle, when it has just “got to be scratched.”

When Mrs. Root came a month later I was very careful (and I thought very kind) to inform her that, before she went out in the Florida woods, she must anoint her ankles and shoetops with coal oil; but she very promptly declared she would do nothing of the kind, “red bugs or no red bugs.”* So far she has had only one or two evidences of them, and I have had no trouble since the first week or two. Mr. Rood declares we soon become *immune* to them as one does to bee-stings.

So far as reptiles are concerned, there are no more snakes here, if as many, as in the North.

During very dry weather the sandy roads are a drawback in many parts of Florida; but we have here in Manatee Co. very good roads most of the time, and beautiful roads are now being constructed all over the State,

especially near the towns and cities. Neglected farms, and poorly managed farms and gardens, are perhaps *more* plentiful than in the Northern States. I have sometimes thought the reason for this is that so many come here with the notion that profitable crops may be grown without steady hard work with both brain and muscle.

Early in the morning, when the dew is on, the black sandy soil sticks to your feet; and unless great care is taken it is tracked into the house and makes the floors very untidy, and entails lots of work. This is especially the case on new ground just cleared up. After your dooryard is covered with Bermuda or other grass, or after you have walks of wood or cement about the premises, this trouble is mostly over. There are usually very good grassy foot-paths all along the roadsides, especially along the out-of-town roads. During a dry time, when there are high winds, this same black sand blows or drifts into the houses, and calls for a deal of dusting on the part of the tidy housewife.

There, haven’t I done pretty well in giving the dark side as well as the sunny one? Mrs. Root’s greatest objection to Florida, after all, is that she can not *here* see the children and grandchildren every day by simply crossing the street; but, of course, this objection would apply as well to any locality on earth except the “old Medina home.”

By the way, *she* sometimes makes “great discoveries” as well as your humble servant. Her latest one is that the very best remedy for homesickness on earth is to go and find some other new comer who is also homesick, and in cheering him up and showing him your kind sympathy you both get over your trouble.* As there are quite a few bee-keepers with their wives now here from the North, she has done more visiting, especially among strangers, than she has for years past; and a part of her “discovery” is that not only are bee-keepers, as a rule, very bright, intelligent, nice men, but they seem to have managed in some way to get some of the *niciest* women for wives that there are in the whole wide world, and I think she is exactly right about it.

NEARLY 2000 new names have been added to our subscription list within the last month.

FOR the benefit of those of our readers who are interested in irrigated lands we wish to record the fact that the first stage in the immense Rio Grande project near El Paso, Texas, has been reached by the completion of the Leesburg diversion dam, in New Mexico. The big dam at Engle will next be proceeded with. The total cost of the project is now estimated at between eight and nine millions of dollars.

* If things come to such a pass that she must go round among people *smelling of coal oil* she would go back to “good old Ohio.”

* It just occurs to me that this is the Christian way of getting relief from all our troubles, and there is a beautiful text somewhere in the Bible referring to this very thing. Who will tell us where it is?

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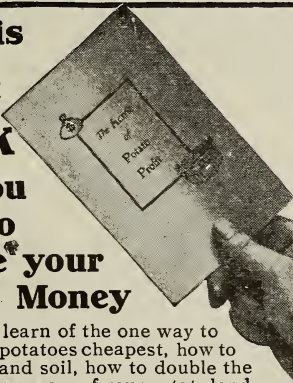
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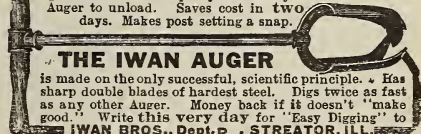
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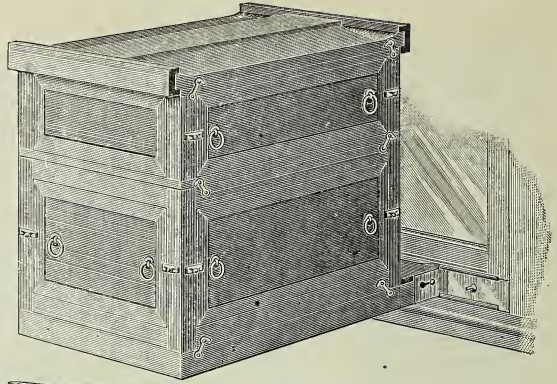
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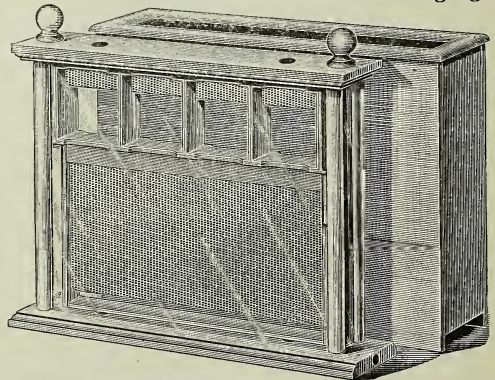
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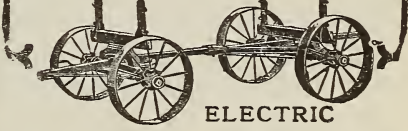
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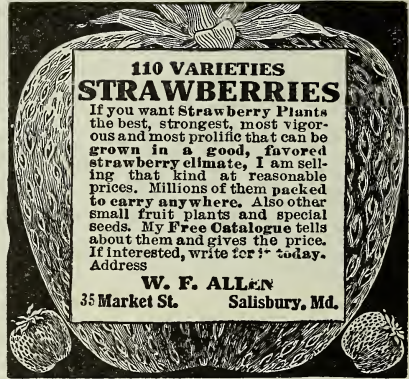
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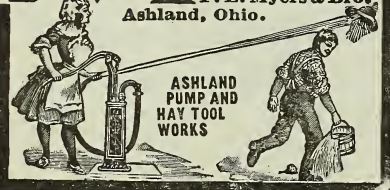
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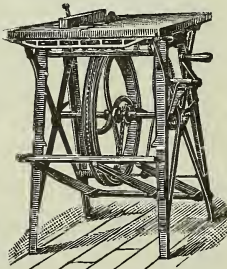
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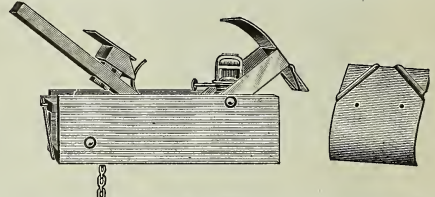
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No machines you can buy for your farm will earn as many dollars as **MODEL Incubators and Brooders**

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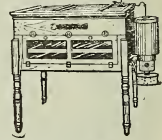
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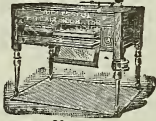
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125 Egg Incubator and Brooder Both For \$10

If ordered together we send both for \$10 and pay freight. Hot water, copper tanks, double walls, double glass doors. Our Free catalog describes them.
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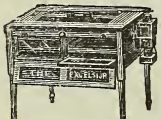
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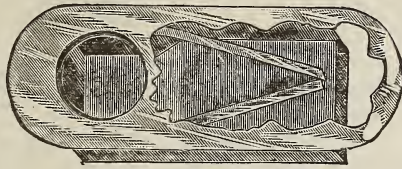


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HIVE ESCAPE

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 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.

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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.

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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.

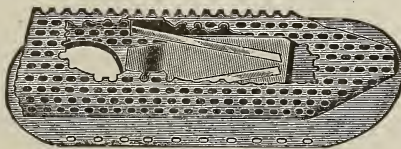
They are the greatest thing on earth for expelling bees from supers.—G. J. Flansburg, South Bethlehem, N. Y.

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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R. & E. C. Porter, Patentees

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WESTERN Bee-keepers

.. will ..

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from Des Moines, Iowa.

Complete NEW STOCK now on hand. Our stock includes a full line of Danzenbaker hives and all other up-to-date goods.

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

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

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

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NEW GOODS! BIG STOCK!

New Warehouse Root's Goods
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FOR THE BEE-KEEPER AT
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We are now prepared to furnish promptly a full line of supplies; choice new stock just from the factory.

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

HOWKINS & RUSH
241 BULL ST. SAVANNAH, GA.

The Hand System

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

PRICE LIST OF HAND DIVISIONAL HIVE AND PARTS.

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

Each section is 19 1/2 in. long, 5 1/2 in. deep outside; upper portion of side removable with clamps to hold it in place. Sections used are 4 1/2 x 4 1/2 x 1 1/2 plain, split three sides. Furnished in both eight and ten frame size.

Hand brood or extracting section, including the frames, springs, clamps, and nails; no foundation

Hand brood or extracting section, including the frames, springs, clamps, and 1-inch foundation starters.....

Hand brood or extracting section, including the frames, springs, clamps, and full sheets comb foundation.....

Hand comb-honey section, including section-frames, and fences; no sections or foundation starters

Hand comb-honey section, including section-frames, fences, sections, and full sheets foundation

Hand four-section hive including two brood and two comb-honey sections; no sections or foundation starters

Hand four-section hive including two brood and two comb-honey sections with sections and full sheets foundation

Hand sectional super, no inside fixtures, including clamps, nails, and flat tins.....

Designating or Short Name	Nailed and Painted Each	In Flat		
		Each	Five	Weight of 5
Hand 8-8	\$ 65	\$ 50	\$ 2 25	35
Hand 8-10	70	55	2 50	40
Hand 9-8	75	60	2 50	35
Hand 9-10	80	65	2 75	40
Hand 0-8	1 30	85	4 00	38
Hand 0-10	1 40	95	4 50	43
Hand 2-8	75	60	2 75	30
Hand 2-10	80	65	3 00	35
Hand 1-8	1 45	1 00	4 75	35
Hand 1-10	1 55	1 10	5 25	40
HandCE8822-8	3 50	2 65	12 00	180
HandCE8822-10	3 75	2 90	13 25	190
HandCE0011-8	6 30	4 25	20 00	200
HandCE0011-10	6 75	4 70	22 25	210
Hand Super-8	40	30	1 25	22
Hand Super-10	42	32	1 35	24

Hand brood-frames, 4 1/2 x 17 1/2 x 1 1/2; ends, 1 3/4 x 3/4; top, 1 1/2 x 3/4; bottom, 1/2 x 1/4 \$2 00 per 100 in flat; \$18.00 per 1000

Hand section-frames, 4 1/2 x 17 1/2 x 1 1/2; ends and top, 1 1/2 x 3/4; bottom, 1 1/2 x 3/4 2.50 " " 22.00 "

Hand fences, 4 1/2 x 17 1/2. P style 1.75 " " 16.00 "

The A. I. Root Company, Medina, Ohio

Classified Advertisements.

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

Wanted, Situations.

WANTED.—Position in apiary by 16-year-old boy; will work cheap. Address C. W. WEBSTER, Box 337, Prescott, Ariz.

WANTED.—By a young man of good habits, position in an apiary for the coming season; some experience. Address L. C. KURT, Greenfield, Mass.

WANTED.—Position in an apiary for season of 1908; have some experience; age 26; temperate. JOHN CLAUSEN, 5 Buena Vista Ave., San Francisco, Cal.

WANTED.—Work in the apiary the coming season; can furnish the best references; use neither tobacco nor intoxicants; expert. Wages expected, \$30.00 per month and board. Southwest Texas preferred. J. N. MOET, Floresville, Texas.

Help Wanted.

WANTED.—Hustling helper in the bee and honey business. A steady job for the right man. B. WALKER, Clyde, Illinois.

WANTED.—Aparist to help with 200 stands of bees, all of which are run for extracted honey. Prefer a young man who has had experience in Cuba or some other tropical country. Will pay \$25.00 and board per month until Oct. 1. Fare from New York, New Orleans, or Havana, first class, \$52.50; second class, \$37.50; from Santiago de Cuba, \$10.00 less. W. J. YOUNG, Arecibo, P. R.

Post Cards.

Learn to make and deliver post-cards to sitter in ten minutes at fairs, carnivals, etc. We teach you every thing by mail. See our offer in Feb. 1st and 15th issue. ACME POST-CARD CO., Medina, Ohio.

Post Card Photos.—Any one can make without a camera, from another photo; no knowledge of photography needed but my instructions at 50 cts. E. O. WALTZ, Medina, Ohio.

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Why not beautify your home by the use of plants? They give the finishing touches, and are very attractive. We have the finest collection of house and garden plants grown by any florist. Write for price list; it's free. HAMMERSCHMIDT & CLARK, Dept. A. Florists, Medina, Ohio.

Rugs.

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

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Business B. P. Rocks. Eggs, 15 for \$1; 35 for \$2; 60 for \$3. MRS. E. J. ADKISSON, Rt. 13, Nashville, Tenn.

FOR SALE.—40 B. P. R. pullets cheap to make room. Eggs in season. MRS. W. L. BENNETT, Misco, O.

FOR SALE.—White Rocks, cocks and cockerels. Write your wants. DR. C. L. VAN OSDOL, Dillsboro, Ind.

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

FOR SALE.—Rose Comb Brown Leghorn eggs, 30, \$1; 100, \$3. A. W. RUTH, Whiting, Iowa.

FOR SALE.—15 Barred P. eggs, \$1.00. They excel as winter layers. H. G. LARUE, LaRue, O.

FOR SALE.—White Wyandottes, R. C. B. Minorcas, R. C. R. I. Reds, \$1.00 per 15. JAMES STEWART, Franklin Furnace, O. R. F. D.

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

FOR SALE.—Eggs, White Wyandotte, \$1 per 15; \$6 per 100. White Holland turkeys, \$2 per 9. FRANK C. PELLETT, R. D. 4, Atlantic, Iowa.

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

FOR SALE.—Silverplaced and White Wyandottes. Single and Rose Comb R. I. Reds, choice stock, eggs \$2.00 per 30. CHAS. F. L. CLEMONS, Rt. 3, Davenport, Ia.

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

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

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

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FOR SALE.—Dahlias, 20 kinds, \$1. Catalog. St. Louis Grand Prize. H. F. BURT, Taunton, Mass.

FOR SALE.—Opaline honey-jars, all kinds; send for price list. HAROLD E. SHORE, Germantown, Pa.

FOR SALE.—Strawberry-plants. Send for catalog. BUSKIRK BROTHERS' NURSERY, Independence, Ohio.

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

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

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

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

FOR SALE.—A set of fine smith's tools and machines in good repair, cheap.

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FOR SALE.—Bees, extractor, hives, supers, 10-fr., etc., nearly new; combs straight; no disease. Write for list. Good reason for selling. ISAAC D. KREISS, Benjamin, Pa.

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

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

FOR SALE.—Six H. P. boiler and engine on wheels, all in good condition; used to pump oil-well; have put in gas-engine; will sell on board cars for \$75.00. Write for particulars. W. V. BINKERD, box 51, W. Monterey, Pa.

FOR SALE OR EXCHANGE.—One 260-egg Excelsior incubator, \$10.00; 200 8-fr. hives, 75 cts. each; supers and other supplies; also apple-trees of best varieties, 5 to 6 ft. F. H. McFARLAND, Hyde Park, Vt.

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

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

FOR SALE.—One good part bloodhound dog; will hunt all kinds of game; well broke, \$15; Rose Comb Brown Leghorn eggs, full blood; fifteen eggs, 75 cents; per 100, \$3.50. Italian queens, 60 cts., untested. GEO. J. FRIESS,
Hudson, Mich.

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

FOR SALE.—Eight Danzenbaker hives, complete with ten supers; frames filled with comb; 300 No. 1 sections; a few pounds of comb foundation; smoker, beescapecs, etc. All used only one season. Good as new. Price \$15.00 for complete outfit. Original cost, over \$30.00. H. M. WINKEL,
533 Lincoln Ave., Milwaukee, Wis.

FOR SALE.—950 Hoffman frames, P. W.; 25 ten-frame chaff hives, nailed and painted; 50 empty bodies, ten-frame; 50 old-style Danz. covers, flat style, with channel irons, ten frame; 50 old-style A bottoms, ten frame, and one Doolittle wax-extractor. All these goods are new. MRS. MARY PARKER,
Sta. A., R. F. D., Syracuse, N. Y.

FOR SALE.—Automobile. Ford 1904 light touring car, two-cylinder engine, twelve to fourteen horsepower; good running order; two seats; rear seat removable. I have carried five grown people and nine half-grown children ten miles to a picnic. Just the thing for a bee-man. Will sell for \$250 cash if taken at once. I have a chance to get a larger car. Will not sell at all if larger car goes before I get offer.
N. E. CLEAVER, Emporium, Pa.

Honey and Wax Wanted.

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

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

Honey and Wax For Sale.

FOR SALE.—1500 lbs. beeswax.
DR. GEO. D. MITCHELL & Co., Ogden, Utah.

FOR SALE.—40 cases comb honey, 15 extracted; white clover. C. F. PERKINS, 1208 Neil Av., Columbus, O.

FOR SALE.—302 lbs. of No. 1 white-clover comb honey in 4¼ plain sections, no-drip cases; 17 cts. a pound.
E. D. TOWNSEND, Remus, Mecosta Co., Mich.

FOR SALE.—300 cases of light-amber extracted honey at 5½ cts. f. o. b. Address
Box 182,
Tulare, Cal.

FOR SALE.—Fancy W. C. comb honey, 30 cases, \$3.00 per case; one or more cases, \$3.10.
ADAM A. CLARKE, Plymouth Creek Apiary, LeMars, Ia.

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

FOR SALE.—4000 lbs. choice white honey in 60-lb. cans—just the thing for bottling purposes.
H. B. PHILLIPS, Auburn, Me.

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

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

FOR SALE.—Fine article buckwheat comb, 22 to 23 pounds net per case, \$2.75; balance of our amber at \$2.50 per case; six cases candied comb at \$2.00 per case. All cases have 24 sections.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

Bees and Queens.

FOR SALE.—Bees. Correspond with O. E. BURDESS, Birdsall, New York.

Finest stand of Italian bees with tested queen, \$5.75; fine tested queen, \$1.50. Price list free. J. L. FAJEN, Alma, Mo.

FOR SALE.—All who intend to buy bees, queens, and hives, should write postal for Charles W. Zwelly's 1908 catalog. CHARLES W. ZWELLY, Fremont, Ohio.

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

MOORE'S strain, and golden Italian queens, untested, \$1.00; 6, \$5.00; 12, \$9.00. Carniolan, Banat, and Caucasian queens, select, \$1.25; 6, \$6.00; 12, \$10.00. Tested, any kind, \$1.50; 6, \$8.00. Choice breeders, \$3.50. Circular free. W. H. RAILS, Orange, Cal.

Wants and Exchange.

WANTED.—To exchange fine Rip Rap pointer pups for queens or bees. F. J. CARTAN, Medicine Lodge, Kan.

WANTED.—Bees—full colonies and nuclei.
J. H. STONEMAN, Kelwood, Man., Can.

WANTED.—Bees, ranch, or small place in Missouri, in exchange for \$800, equity in new 5-room house, rented in St. Louis suburbs. J. L. ROBERTS, Moscow Mills, Mo.

WANTED.—To exchange strawberry, blackberry, and raspberry and rhubarb plants, of the leading varieties for honey-extractor, fdn., or any thing I can use in apiary. JOHN D. ANTRIM, Rt., box 55, Burlington, N. J.

WANTED.—To buy bees, or will run 500 colonies on shares. Have successfully managed large apiaries.
F. B. CAVANAGH, Flint, Mich.

WANTED.—75 colonies of bees; prefer in 10-frame L. hives, easy shipping distance of Chicago.
R. B. HOLBROOK, 226 S. Howard Ave., Austin, Ill.

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

Real Estate for Bee-keepers.

FOR SALE.—454 acres of land in Southern California; two sets of buildings, 117 colonies of bees, \$10 per acre. Plenty of water. Address Box 64, Fallbrook, Cal.

FOR SALE.—Three village lots with a three-room house, small barn and henhouse, and 1000 colonies of bees in two-story dovetailed comb-honey hives, extractor and all fixtures; good location; satisfactory reasons for selling. Write for particulars if interested.
S. LAMONT, Jarretts, Minn.

FOR SALE.—A nine-room house on a ten-acre lot, with apple and cherry orchards; two acres of growing timber, on Lake Huron shore, on rural delivery, two miles from city; good fishing, hunting, and wild berries handy. Write for terms.
A. F. BRIGGS,
Harrisville, Mich.

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

Bee-keepers' Directory.

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

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

Extra honey queens and choice mountain honey.
Francis J. Colahan, Bernardo, San Diego Co., Cal.

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

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

Golden-all-over and red-clover Italian queens; circular ready. W. A. SHUFF, 4426, Osage Ave., Phila., Pa.

ITALIAN BEES, queens, and Root's bee supplies.
E. SCOGGIN, Carlsbad, N. M.

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

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

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

ITALIAN bees and queens bred for honey; price list free.
B. F. YANCEY & SON, Angleton, Tex.

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

ITALIAN QUEENS by return mail or money refunded. Circular free. D. J. BLOCHER, Pearl City, Ill.

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

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

ITALIAN BEES and queens—red-clover and golden strains.
E. A. SIMMONS, Greenville, Ala.

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

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

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

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

IMPROVED ITALIAN bees and queens ready in May. Circular and testimonials free; second-hand surplus arrangements for 4/4 sections, also folding cartons, cheap if taken soon, or will exchange.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O

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

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

"Seaboard Magazine" ^{SIX SOUTHERN STATES} Sent Free ^{SEABOARD'S IRONCHOLD} A MAN'S DISPOSITION

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

ARE YOU PLEASANTLY LOCATED?

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

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

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

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

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

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

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

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



Clover seed has still further advanced. We can not quote any firm price here. Write for price if interested.

BEEES AND QUEENS.

The season promises to be a good one for the early delivery of both bees and queens, and there is considerable activity in inquiries and orders, especially for high-grade stock. Our apiarist will begin making selections within a short time; and, to secure a good selection, the earlier you order, the better the chance will be for getting something extra fine. We have breeding-queens at \$6.00, \$9.00, \$12.00 up. Our stock is mainly the three-banded or leather-colored Italians. We ship either by mail or in nuclei as desired.

MAPLE SUGAR AND SYRUP.

We have had so far the promise of a very good season for maple products. Our readers will remember that Ohio maple is unsurpassed, and is much sought for by large buyers all over the country. We handle first quality only, and quote subject to market changes as follows:

Maple syrup in one-gallon square cans at \$1.15 per gal.
6 one-gallon cans in a case, \$6.60.
Maple sugar in less than 50-lb. lots at 15 cts. per lb.
50 lbs. and up, 12½ cts. per lb.

In order to secure first run, orders should reach us immediately after the receipt of this notice.

NEW TAPER-PANEL HONEY-JARS.



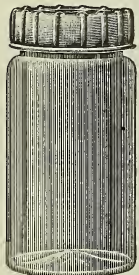
We show here an illustration of a new style of honey-jar holding half a pound. It is a taper-panel jar with lacquered tin cap lined with waxed paper wad which turns on tight with a one-fourth turn, warranted to hold airtight. We expect to have ready soon the one-pound size of the same style jar. Packed in reshipping-cases of two dozen each, ready to ship again, when filled, without additional packing.

Price ½-lb. taper-panel jar, 80 cts. per case; 6 cases, \$4.50.

Price 1-lb. taper-panel jar, \$1.00 per case; 6 cases, \$5.70.

Put up in crates of 2 gross, ½-lb. size, \$3.75 per gross.
Put up in crates of 1 gross, 1-lb. size \$4.80 per gross.

SIMPLEX HONEY-JARS.



The factory have assured us that we may again secure this popular honey-jar in several sizes, including the one holding one pound of honey. We have ordered a fresh supply, but do not expect to have them in stock till next month. They will be packed in reshipping-cases of two dozen each, and the price will be \$1.10 per case; 6 cases, \$6.30.

NO. 25 HONEY-JARS.

During the past year we have had an unusual amount of trouble with breakage of this jar, even in the reshipping-cases packed with corrugated paper. The breakage occurred either in the porcelain cap or the top rim of the jar where the cap rests. We find we can get this same jar with lacquered tin cap without the center being cut out. This cap is lined with waxed paper wad, which seals tight on the top edge of the jar. This style of cap not only does away with breakage almost entirely, but enables us to furnish the jar at a lower price. We are not yet supplied with the new stock, but expect to have them next month at the following price. They will be packed as usual, two dozen in reshipping partitioned cases. No. 25 jars,

tin cap lined, 90 cts. per case; 6 cases, \$5.10. We can still furnish from stock the usual style of No. 25 with porcelain caps at \$1.10 per case; 6 cases, \$6.30.

A NEW SIZE OF SECTION.

There seems to be a demand in some localities, where bees are inclined to daub with propolis or otherwise discolor the wood in sections for a wide frame completely enclosing the sections. Our regular supers are adapted to the regular sections in section-holders without a top-bar. To provide a top-bar as well as a bottom it is necessary either to make the super deeper or the section shorter. In order to use the regular deep super we have decided to make a new section, 4¼x4¼x1½ or 1½ plain, no beeway. This will be used in a section frame hanging by top-bar in the regular deep super, interchangeable with the shallow Hoffman frame 5½ deep. This will necessitate a new fence adapted to this size of section, which will be designated by the letter N. The 4¼x4¼x1½ will hold a full pound, and will work best in the eight-frame super, 24 to the super. In the Danz, width 16¼ ten-frame super the 4¼x4¼x1½ will fit best 32 to the super. These sections may be split for inserting foundation by the Hand method, and the correct size of sheet for that purpose would be 4¾x17½. Price of N section-frames, \$2.50 per 100 in flat. Price of N fences, \$2.00 per 100. Sections 4¼x4¼x1½ or 1½ same price as regular Danz., \$4.75 per 100. No. 1; \$4.25 for No. 2. Unless you specify we will send frames and sections 1½ wide, and supers fitted with the same. Deep super fitted with N section-frames, N fences and springs, either 8 or 10 frame, will be designated 2|N 8. Price, nailed and painted, 70 cts. each; in flat, 55 cts.; 5 for \$2.50.

2 N | 10. Price, nailed and painted, 75 cts. each; in flat, 60 cts.; 5 for \$2.75.

With sections and foundation-starters included.
4 N | 8. Price, each, nailed and painted, \$1.00; in flat, 75 cts. each; 5 for \$3.50.

4 N | 10. Price, each, nailed and painted, \$1.05; in flat, 80 cts. each; 5 for \$3.75.

With sections and full sheets of foundation.
1 N | 8. Price, each, nailed and painted, \$1.40; in flat, \$1.00 each; 5 for \$4.50.

1 N | 10. Price each, nailed and painted, \$1.45; in flat, \$1.05 each; 5 for \$4.75.

These are not listed in our catalog this season, and not in stock with any of our dealers. If you wish to test them you will have to make special orders to secure them. You can get them through your dealer if you order in ample time and are not in a hurry to receive them. This section will require a new size of carton and a new size of shipping-case to put them up for market. We offer the new size for experiment this season to see if it has sufficient warrant for introduction into the catalog another year. By cutting beeways in the top and bottom they could be stored without fences or separators, and four could be placed in a shallow Hoffman frame for storing, though they would not be as well protected as in a section frame. The latest style of shallow frame with ¾-inch ends would be rather scant in length inside to take four sections, but those made earlier would have room.

Convention Notices.

The North Texas Bee-keepers' Association will meet at Blossom, Lamar Co., Texas, on the first Wednesday and Thursday in April. All bee-keepers are invited to attend. Come on, and let's make it a grand time. Free entertainment is provided.

W. H. WHITE, Sec.

The Panhandle Bee-keepers' Association will meet in Knights of Golden Eagle Hall, corner of Jacob and 38th St., Wheeling, on March 25. Morning session at 10; afternoon, 1; evening, 7. The object of this association is to promote and protect its members. All bee-keepers are requested to attend. Ladies are cordially invited.

W. L. KINSEY, Sec.

Blaine, O.

The Central Tennessee Bee-keepers' Association will meet in the rooms of the Nashville Board of Trade on Saturday, April 25, at 10 A. M. A full attendance of the members is desired, as this is the regular annual meeting for the election of officers, etc. A good program has been arranged, which will include essays and discussions on subjects of interest to bee-keepers.

J. M. BUCHANAN, Sec.

Franklin, Tenn.

The seventeenth annual convention of the Connecticut Bee-keepers' Association will be held in Jewell Hall, Y. M. C. A. building, Hartford at 10:30 A. M. Apr. 9, for the election of officers and the transaction of any other business proper to come before the meeting. A program of unusual interest and value is being arranged, and no bee-keepers should fail to attend. The matter of organizing a fall fair, under the provisions of a State law, is to be considered, which will be of vital interest to the honey industry.

J. A. SMITH, Sec.

THE NATIONAL CONVENTION—AN IDEAL SPOT FOR IT.

The National convention has not always been fortunate in its place of meeting. Sometimes it has been held near a noisy, dusty street, where the rattling of trucks over stone pavements and the rumble of street cars would often entirely drown the speaker's voice. Again, it has been held in some hot close hall up two or three flights of stairs.

We have not always been thus unfortunate. Some of the meeting-places have been very comfortable, and well adapted to our needs; but never, in its forty-odd years of existence, has the National met in a place so ideally perfect as the one chosen for the coming convention, to be held next October in Detroit, Michigan. It is the pavilion, or sun palace, built by the Wayne Hotel almost expressly for the use of conventions. It is back of the hotel, away from the noise and dust of the main street, and extends down to the very edge of the Detroit River, where the traffic of the great lakes may be seen passing and repassing at all hours of the day. At one side of the pavilion is a little garden, or private park, filled with beautiful flowers, trees, lawns, and walks. Upon the other side is Third Street, but it is paved with asphalt, which gives but little sound. Besides, the street ends at the river, and is not much used opposite the pavilion.

The pavilion is two stories high, and it is in the upper story where the convention will be held. The sides can all be thrown wide open, allowing the cool river breezes to sweep through; or the windows may all be drawn down if desirable. If the weather is cool enough to need it, steam heat can be turned on. In fact, we shall be able to rid ourselves of noise, dust, heat, or cold. We can sit at our ease, with the beautiful river at our feet, and the spires and chimneys and wooded hills of the king's domain (Canada) looming up in the distance.

Near the center of the pavilion, but somewhat to one side, is an inclosed space, perhaps forty or fifty feet across, the sides mostly of glass, and extending from floor to ceiling. In this will be a capital place to exhibit honey, wax, and supplies—near at hand, yet not right in the convention room, which sometimes causes annoyance.

All of these comfortable quarters will be free, with the understanding that we make our headquarters at the Wayne Hotel. The Wayne is a strictly first-class house—what some of us common folks might call high-priced. It has an unusually large office, or lobby, with two fireplaces, or grates, as they are now called; marble floors and supporting pillars, with large leather-bound lounging-chairs and sofas—a delightful visiting-place for us between sessions. Every thing is quiet, orderly, and well managed. No more desirable stopping-place could be found.

What are the rates? They run from \$2.50 to \$4.50, American plan—that is, including meals; but here is the bargain that we have made: They will take care of 150 bee-keepers at \$2.50 per day, provided two will occupy the same room; and who ever heard of a bee-keeper at a convention who wished to be put off in a room all by himself? In order to give this flat rate for so large a number, many rooms will be used for which the charge is ordinarily much higher.

Of course, no one will be compelled to stop at the Wayne, as there are other hotels within two blocks where 200 people, extra, can be cared for at from \$1.25 to \$2.25 per day. In these times, however, it is difficult, in a large city, to secure really desirable accommodations for much less than \$2.00 a day; and when one has paid that much, besides several other dollars to reach the city, it seems foolish to allow a paltry 50 cents a day to stand in the way of joining the crowd and being "one of the boys."

One thing more: The Michigan Central and the Big Four railroad station stands just across the street from the Wayne, while the Union station, used by the Pere Marquette, Wabash, and Canadian Pacific, is only two blocks away. The Grand Trunk and the Lake Shore and Michigan Southern station is several blocks away—perhaps seven or eight—but it is easily

reached by street cars that pass the Wayne. The electric-suburban-car station is within easy walking distance—only four or five blocks.

The dates for holding the convention have been fixed on Oct. 13, 14, 15—at a time when the weather conditions in the North are usually ideal. The heat and dust of summer are past, and wintry blasts and snowdrifts are in the distant future.

Flint, Mich., Feb. 10.

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

BEE-KEEPING IN HAWAII.

We have received the report of the annual meeting of the Hawaiian Bee-keepers' Association; but for lack of space we are compelled to abridge it greatly. The officers of the association are: President, A. F. Judd; Vice-president, T. V. King; Secretary, D. L. Van Dine; Treasurer, J. O. Young.

The former vice-president, Albert Waterhouse, presided. One of the main objects of the meeting was to hear the report of Secretary Van Dine on his trip to Washington to see Secretary Wilson with regard to the status of Hawaiian honey under the pure-food law. He reported the entire success of his mission. He had also taken the opportunity to make a study of the honey-plants of California with a view to the introduction of some of them, and in this he had the assistance and cooperation of the United States Department of Agriculture.

In company with Mr. J. M. Rankin, Special Agent in Apiculture at the Introduction Garden, Chico, Cal., he journeyed from Riverside to San Francisco. The principal honey-plant in Hawaii is the algarroba, or mesquite (*Prosopis Juliflora*); but to create a great honey industry more honey-bearers must be introduced. Mr. Rankin sent seeds of phacelia (two species), black sage, white sage, wild alfalfa, and horshound. He also recommended white sweet clover, but sent no seed.

The treasurer's report was read, which showed the association is sound financially. It was decided that all members whose dues were paid in advance should receive free a year's subscription to the *Bee-keepers' Magazine*. The matter of introducing new honey-plants was turned over to a committee. A number of new members were admitted.

Root's Supplies

... at ...

ROOT'S PRICES

Give us your order.

CHURCH & SMITH

(Successor to C. M. CHURCH)

924 4th Ave., New Kensington, Pa.

HONEY WANTED.—The coming season we shall want to buy about 25 tons of fancy comb honey, and three carloads of fancy extracted honey. Also butter, eggs, and poultry. CHURCH & SMITH.

GREIDER'S FINE Poultry Catalogue



for 1908 is larger and better than ever. Tells all about pure-bred poultry and illustrates 60 varieties. Contains 10 beautiful chromos of leading breeds—pretty enough to frame. Tells of best Louse Killer, how to cure diseases, make money. Only 10c postpaid. Send to-day for a copy.
B. H. GREIDER, Rheems, Pa.

Honey-cases for sale. Two cans to the case. Both cans and cases in A-1 condition. Price 30 cents per case in lots of 100 cases or more. Write for price. MICHIGAN WHITE-CLOVER HONEY CO.

Mr. Bee-keeper,

Was 1907 a POOR YEAR for you?

It was a GOOD YEAR for users of

DADANTS' FOUNDATION.

One dealer used 14,000 pounds.

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

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

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

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

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

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

Wax worked into foundation.

Send for our Supply Catalog.

DADANT & SONS, HAMILTON, ILL.

SUPPLIES FOR BEE-KEEPERS

Every thing you want; all made by us
in our own factories--at
LOWEST PRICES.

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

W. T. FALCONER MFG. CO.

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

\$500.00 ACCIDENT INSURANCE POLICY FREE!

FARMERS' INSURANCE THAT REALLY INSURES.

You may have had other chances to buy accident insurance that would protect you in elevators, on steamboats, and automobiles, but this is the *first chance you have ever had* to get real protection in your ordinary work. This NEW \$500.00 POLICY was secured from the North American Accident Insurance Company, of Chicago, Ill., (Surplus \$331,498.66) the largest company in America handling this class of policies, after long negotiations. It took three months to induce the company to write the special features that were required to make it valuable for rural people. By buying the policies outright in very large quantities, it is now possible to offer it FREE with this remarkable practical combination of magazines.



GLEANINGS IN BEE CULTURE, \$1.00
the bee-keepers' favorite paper,
FARM JOURNAL (five years), .75
the standard farm paper of the world,
GARDEN MAGAZINE—FARMING, 1.00
a most beautiful, practical horticultural magazine.
INSURANCE POLICY . . . 1.00

\$3.75

All for \$2.



These magazines, if paid for separately, would cost you \$2.75, but we can sell ALL THREE MAGAZINES with the NEW INSURANCE POLICY for ONLY \$2.00. This is because the three publishers have combined for a subscription campaign. If each one sent you a separate letter it would cost us just three times as much as where we offer all three together. **THE SAVING GOES TO YOU.**

If the policy is not wanted we can substitute any of the following: "Designer," "Housekeeper," "Ladies' World," "McCall's Magazine," "Mother's Magazine," or the Garden and Farm Almanac.

WHY SHOULD YOU HAVE THESE PAPERS?

BECAUSE GLEANINGS IN BEE CULTURE is the great paper in America devoted to bees and honey. If you have bees, or are going to get them (and everybody who lives in or near the country should have bees), you need the most reliable and latest information, and you want at the same time the simplest directions possible. You want the bee business in a nutshell, and that is what GLEANINGS will give you. For the beginner or the most expert it is equally valuable.

BECAUSE FARM JOURNAL is far and away the foremost farm-paper in the world, a boiled-down, practical, helpful, entertaining monthly, built to make the rural homes of America more happy, prosperous, and contented, and already doing it for more than 500,000 homes. For farmers, villagers, or suburbanites.

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