Gleanings in Bee Culture

A Winter Home for Bees "Way Down East" in Maine

Vol. XLVIII February, 1920 No. 2

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FEBRUARY, 1920

SUBSCRIPTION RATES.—One year, $1.00; two years, $1.75; three years, $2.50; five years, $4.00. Single copy 10 cents. Canadian subscription, 15 cents additional per year, and foreign subscription, 30 cents additional. **DISCONTINUANCE.**—Subscriptions, not paid in advance, or specifically ordered by the subscriber to be continued, will be stopped on expiration. No subscriber will be run into debt by us for this journal. **CHANGE OF ADDRESS.**—Give your old address as well as the new and write the name to which the journal has heretofore been addressed. **REMITTANCE.**—Should be sent by postoffice money order, bank draft, express money order, or check. **CONTRIBUTIONS** to GLEANINGS columns solicited; stamps should be enclosed to insure return to author of manuscript if not printed. **ADVERTISING RATES.**—Advertising rates and conditions will be sent on request. Results from advertising in this journal are remarkably satisfactory. **ADVERTISERS' LIABILITY.**—The publishers use utmost diligence to establish in advance the reliability of every advertiser using space in this journal.
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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

HONEY MARKETS

The honey market has changed but little during the last month. As usual at this time of year, the retail demand is generally light. The high price of sugar has not had the expected result of making a lively retail honey trade in what is always a dull season. Carlots are offered to large dealers at as low a figure as a month ago, and the dullness in the retail trade is not making the big buyers eager. Export demand has somewhat increased during the last 30 days.

U. S. Government Market Reports.

HONEY ARRIVALS, JAN. 1-15.

MEDINA, O.—4,507 pounds from Minnesota, 55,900 pounds from Wyoming, 225 pounds from Pennsylvania.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS, JAN. 1-14.

CHICAGO.—1 car California, 2 cars Colorado, and 1 car Arizona arrived. Supplies moderate, demand and movement moderate, market steady. Sales to jobbers, per lb., extracted: Californias, Colorados, Idahos, and Arizonas, white alfalfa and clover 20-20½; light amber alfalfa 18-19c. Comb, 24-section cases, best No. 1, $7.00-7.25; poorer $6.00 up. Beeswax, receipts and supplies moderate, demand and movement moderate, market steady. Sales to jobbers, Californias, Colorados, and Idahos, light 46-48c; dark 40-42c per lb.

CLEVELAND.—Demand and movement good, market steady. Sales to jobbers, extracted, 60-lb. tins dark amber and white clover 22-25c per lb.

PHILADELPHIA.—1 California and approximately 1,000 pounds from New York arrived. Demand and movement moderate, market steady. Extracted, sales to jobbers, Floridas, fancy light amber 20½-21c per lb., West Indian light amber $1.67 per gallon. Purchases by local wholesalers f. o. b. Philadelphia, California white orange 21½c. New York white clover 18½c per lb.

BOSTON.—Supplies light, market dull, demand slow. Sales by jobbers to grocers in small lots, comb, New York and Vermont, mostly good quality, some light sections, best 33-37c per section; few light sections low as 30c. Extracted and beeswax, no sales reported.

CINCINNATI.—2 cars California arrived. Sales to jobbers, comb, Western 24-section cases fancy, light $7.50. Extracted, no sales reported. Beeswax, supplies light, demand good, market steady. Sales to jobbers, average yellow 46-48c per lb.

KANSAS CITY.—No arrivals reported. Demand and movement moderate, market steady. Sales to jobbers, comb, Missouris, light amber $7.50-8.50 per 24-section flat case. Extracted, Californias, medium color 22-23c per lb.

MINNEAPOLIS.—Supplies liberal, demand and movement good, market steady. Sales direct to retailers, comb, Western, fancy light, 24-section cases $7.50-7.75. Extracted, Western, in 60-lb. cans 21-22c per lb.

NEW YORK.—1 unknown arrived, incomplete. Supplies moderate, demand and movement fairly active, market firm. Sales to jobbers, extracted, per lb. California, white sage and orange 22-23c; light amber alfalfa 19-20c. Mexican light amber Shasta 19c; light amber alfalfa and clover 19¾c. Porto Rican and Cuban, per gallon $1.60-1.70. Beeswax, no arrivals reported, supplies moderate, demand and movement moderate, market steady. Sales to jobbers, light 43-44c; dark 42-43c per lb.

ST. LOUIS.—Supplies light, demand and movement slow, market steady. Sales to jobbers, extracted, per lb., Southern amber in cans 15-16c; in barrels 14-15c. Comb, practically no supplies on market, no sales reported.

St. Paul.—Supplies liberal, demand and movement moderate, market steady. Sales direct to retailers, comb, Western, fancy light, 24-section cases, $7.50 per case. Extracted, too few sales to establish market.

HONEY EXPORTS FROM THE UNITED STATES, DEC. 1-15, 1919.

Total, 302,733 pounds; to Belgium, 70,008; to France, 8,970; to Germany, 51,000; to Netherlands, 122,000; to Norway, 17,400; to Spain, 16,969; to Canada, 8,701; to Newfoundland and Labrador, 2,538; to British India, 4,060; to all other countries, 1,352 pounds.

George Livingston,
Acting Chief of Bureau.

Quotations From Producers.

The following are the opinions and quotations of actual honey-producers thruout the country received during the last few days:

ILLINOIS.—Wholesale price producers are receiving: Extracted 20c; comb 25c. The demand is good. There is not much honey left in the hands of the producer.—A. L. Kildow.

INDIANA.—No honey being disposed of by producers at wholesale prices. Single case lots, 26-27c for extracted; pails 30-35c retail. The demand is fair. Not much honey is left in the hands of the producer. Have been buying in order to supply retail trade.—E. S. Miller.

MARYLAND.—Wholesale price producers are receiving: Extracted 22-24c; comb 26-30c. The demand is fair. Very little honey is left in the hands of the producer.—S. G. Crocker, Jr.

MASSACHUSETTS.—No honey for sale at wholesale. Very quiet market; only a limited demand in very small lots. Only about 20 per cent of last season's crop is left, and this is being sold to local customers at retail.—O. M. Smith.

MISSOURI.—Wholesale price producers are receiving is $7.00, $7.25, and $7.50 per case; no extracted except Airline on the market. Demand is good. There is no honey left in the hands of the producer in this county that we know of. Commission men charge the retailers $8,00, $8.25, $8.50 per case, comb honey. Some retailers retail their section honey as high as 60c a pound.—J. W. Romberger.

NEW JERSEY.—Further quotations are useless, as there is no honey in the hands of producers.—E. G. Carr.

NEW YORK.—Practically all honey sold in Onondaga County. Very little demand from wholesalers or consumers. Not over 5 per cent of honey left in the hands of the producer.—F. W. Lesser.

NEW YORK.—Wholesale price producers are receiving for extracted honey: Clover 25c; buckwheat 17½c. No comb honey left in this vicinity. Producers cleaned up at $8.50 per case for No. 1. Believe it would bring $10 now. The demand is excellent. Hardly any honey is left in the hands of the producer. No demand from big buyers. Retail demand is the best we ever knew at this time of year. We are retailing at the following prices: Clover, 60-pound cans, $16.50; 10-pound pails $3.25; 5-pound pails $1.75; buckwheat 60-pound cans $12; 10-pound pails at $2.75; 5-pound pails $1.50 each. Consumer pays delivery charges. We are selling to the trade 14-ounce glass clover at $9.00 per case of 2 doz. Good demand.—Adams & Myers.

OHIO.—Wholesale price producers are receiving for extracted honey 25c. No comb on the market. The demand is very good. There is very little honey left in the hands of producers. Bees are wintering finely; about 12 inches of snow on the ground furnishes a good protection for the colonies.—Fred Leininger & Son.

OKLAHOMA.—Wholesale price producers are receiving for extracted honey is 25-30c. Comb honey all sold. The demand is fair. There is not much honey left in the hands of the producer.—C. F. Stiles.

ONTARIO.—Wholesale price producers are receiving: Extracted 17-20c dark, 25c light; little comb left in producers' hands. The demand is good. Possibly 5 per cent of honey left in the hands of the producer.—F. Eric Millen.

PENNSYLVANIA.—Wholesale price producers are receiving: Extracted, buckwheat in kegs 17c, in 10-pound pails 20c. No comb of any kind. Demand is good. Practically no honey left in the hands of the producer.—Harry W. Beaver.

WISCONSIN.—Wholesale price producers are receiving for extracted honey is 25c, but the demand tending to become stronger. I do not know where there is any comb for sale. Small quantities of honey still in hands of isolated producers. Occasional producer has 5,000 to 6,000 pounds.—H. F. Wilson.

TRADE NOTES

A FINAL WORD AS TO SECURING BACK NUMBERS OF GLEANINGS.

A very large number of back copies and back volumes of Gleanings have been sold to our friends, seeking the best of beekeeping reading at lowest price. This has reduced the number of complete years that can be bought in single copies at 50c a year. But we still have the following years at this price: 1873, '74, '76, '88, '91 to '99 inclusive, '04, '05, '06, '09, and '10. A number of other years are almost complete. Understand that the years listed above as complete now may not be complete long, and when ordering please state if we may fill your order by substituting other numbers of Gleanings, if some of these years are no longer complete when your order reaches us; or you may direct us to refund your money.

As a final great offer, before clearing our stock room of surplus Gleanings, we will send to anybody remitting to us $1.00 50 copies of Gleanings, all of different dates, but no particular year or month—the selection to be made solely by us as our remaining stock permits. This is the lowest-priced offer of the best beekeeping literature that we have ever made. Write at once. Address

Gleanings in Bee Culture, Medina, Ohio.

Special Notices by A. I. Root

POULTRY-KEEPING IN FLORIDA.

Constant inquiry keeps coming in regard to Florida as a place for poultry, and my replies have been and must be brief. Our readers have likely gathered from what I have said about my own chickens in years past, that I think it an ideal place for one who really loves the work. A year or two ago I had a hen steal her nest in the woods, and come off on *Christmas Day* with 17 fine chicks. Just now our Florida Experiment State Station has sent out a bulletin entitled "Twenty-three Poultry Questions and Answers," which covers the ground very fully. Address Poultry Dept. of the Ag. College, Gainesville, Florida.

Advertisemcnts Received too Late to Classify.

FOR SALE.—Honey in brand new 60-lb. cans.
Van Wyngarden Bros., Hebron, R. D. No. 4, Ind.

FOR SALE.—Pure-bred Italian bees in season, 20 years' experience. T. C. Asher, Brookneal, Va.

FOR SALE.—Second-hand 8-frame hives and supers. Martin Fink, Cold Spring, Minn.

FOR SALE.—Choice clover honey in new 60-lb. cans, at 22c per lb.; five or more cases at 21c f. o. b. Akron, N. Y. Wm. Vollmer, Akron, N. Y.

FOR SALE. — Push-in-comb queen-introducing cage, The Safe Way, 50c.
O. S. Rexford, Winsted, Conn.

FOR SALE.—50 cases best-grade sweet-clover extracted honey. Your best offer gets it.
Thos. Atkinson, 1954 Jones St., Omaha, Nebr.

FOR SALE. — New hives, reversible bottom-boards, telescope metal covers, self-spacing frames, made by me, sold at a big discount. Write for particulars. O. L. Rothwell, Gillett, Pa.

FOR SALE.—Ten 8-frame and ten 10-frame hives complete with bottom starters, painted, in fine condition; 3 shipping cases, 4 queen-excluding boards, and various other supplies. For particulars address J. W. Sherman, Wakeman, Ohio.

"Stanley's" queen-rearing nursery twin-mating boxes, cell cups and protectors. Cheapest and most adaptable. Write for information and prices. A. Stanley & E. C. Bird, 2008 Pearl St., Boulder, Colo.

FOR SALE.—New orange-blossom honey in new 60-lb. tin cans, cased single, at 22c per pound.
Garrison H. Adams, Palmetto, Fla.

FOR SALE.—Amber mountain honey, 20c; sage honey, 25c; dark honey, 15c; in 60-lb. cans. Bees and 4-frame extractor wanted.
C. F. Alexander, Campbell, Calif.

FOR SALE.—100 hives of bees; 100 new 10-frame hives, unpainted but nailed, wired for foundation; 1 extractor, 4-frame, "Kretchmer." Reason for selling, death of owner.
Mrs. R. R. Marble, Holstein, Nebr.

FOR SALE.—Italian queens, three-banded and Goldens. High grade, carefully bred from best select stock. Price each, $1.25; 6, $6.75; 12, $13.25; extra select, $2.00. Orders booked now. Satisfaction guaranteed.
G. H. Merrill, Pickens, S. C. (Formerly Liberty.)

FOR SALE.—32 supers, 8-frame; 5 Miller feeders; 10 large shipping cases, 3 in glass; 500 plain section-holders; 500 plain section fence separators; 300 super springs; 240 folded sections with full sheets foundation in supers. $50.00 for the lot.
Walter J. D'Allaird, 330 Ninth St., Troy, N. Y.

WANTED.—200 to 400 colonies bees to work on shares for 1920. 14 years' experience.
John Hutchinson, 7 Forsythe Ave., Detroit, Mich.

WANTED.—Two-frame Cowan extractor in good condition. Harold R. Curtiss, R. F. D. No. 4, Bridgeport, Conn.

WANTED.—To buy bees for April delivery, free from disease, in southeastern Minnesota or western Wisconsin. State how many colonies, kind of hives, and price. P. B. Ramer, Harmony, Minn.

WANTED.—Single man who knows all the kinks in the production of extracted honey, one who can raise queens successfully, and produce results. A good position and good wages for the right man for the season of 1920.
F. A. Young, Grand View, Idaho.

WANTED.—A stout boy or young man of good habits anxious to learn the bee business. Home in family with good treatment and reasonable compensation given. State qualifications and wages desired in reply. P. H. Elwood, Fort Plain, N. Y.

WANTED.—April 1 for six months, man with some experience to work in apiary run exclusively for extracted honey. State age, experience, and wages in first letter.
F. C. Alexander, Schoharie, N. Y.

WANTED.—One experienced beeman. Must understand out-apiary work for comb and extracted honey and the handling of motor trucks. Write full particulars, experience, reference, age, and salary wanted in first letter. I can also use one helper. Can give permanent employment to the right man.
W. J. Stahmann, Clint, Texas.

WANTED.—Position in a progressive bee-yard in southern California, by a young married man with good education, good habits, good health, good reference and not afraid of work. Three years' experience. State wages.
A. O. Smith, Loogootee, Ind.

SITUATION WANTED.—Young woman, desirous of learning modern beekeeping, wishes position. Address H. W., c o Gleanings, Medina, Ohio.

WANTED.—50 colonies bees in 10-frame hives on Hoffman frames wired worker combs, near N. Y. State.
Walter J. D'Allaird, 330 Ninth St., Troy, N. Y.

I have in Henry County, Va., a farm of 75 acres, 7-room house and out-buildings near church, one mile from school. Also have about 100 colonies bees in good 10-frame dovetailed hives. Most of the frames are wired. Plenty supers and other extras. I want a good man to occupy the house and care for the bees on shares. Give references.
D. F. Dunlop, Red Oak, Va.

GLEANINGS IN BEE CULTURE—EDITORIAL

Announcement of a Policy.

THE JANUARY GLEANINGS, in its news items, stated that the proprietor of the "Pelican Apiary" at New Orleans had been landed in the Ohio penitentiary, having been convicted of embezzlement at Cleveland. We might have added that a small advertisement of this rogue appearing twice in Gleanings' columns had much to do with his detection. We are more than well satisfied with so much of the results obtained by this "gentleman" from his advertising efforts in our columns. But that his advertisement appeared at all in Gleanings furnishes the text for what is here going to be said.

We asked for and received from this swindler, before accepting his advertisement, a reference that we supposed in all right faith to be good. But it was not good. He deceived us, and a large number of our subscribers were swindled to a total extent of a thousand dollars by sending him orders for queens and bees that were never filled nor their money returned to them.

We shall refund to these subscribers of Gleanings every dollar sent by them to this dishonest concern as a result of seeing this man's advertisement in our columns, upon proof of such loss, and that it came about by answering this advertisement seen by them in this journal.

We never mean to permit an advertisement of the least question to appear in Gleanings, and no legal responsibility lies against us in this matter; but we can not evade the conviction that a moral responsibility does, for we let a rogue into our columns whom we might have possibly discovered by more searching investigation of his references and himself.

In the next issue of this journal we shall announce an advertising guarantee against deliberate swindlers such as the "Pelican Apiary," and state the terms of such guarantee. These terms will remind our subscribers that they have some responsibilities in such a guarantee as well as ourselves and as well as our advertisers, for there is good reason back of that old principle of law, *caveat emptor*, which translated means that the purchaser shall take good care on his part as to the man from whom he buys and the terms he makes. We can not attempt to adjust trifling disputes between subscribers and honorable business men, nor guarantee against loss by honest advertisers who become bankrupts or are unable to fill contracts because of innocent misfortune or unfavorable conditions beyond their control. We hope not to have such unfortunate advertisers, but the greatest care may not always prevent it. We shall henceforth, however, guarantee our readers against loss (up to the full amount of investment) that may come about thru our admitting an advertisement in our columns of a dishonest man or dishonest company. We will not plead our innocence nor care in the case. We will plead guilty to letting a rogue get by—and will settle with our subscribers. This is as far as any publication can or does guarantee its advertising—and so much we will do.

We now say to our readers and to prospective advertisers in our columns that the most exacting references as to both character and financial standing are required in every case of parties unknown to us seeking admission to our columns to advertise as dealers in queens and bees, beekeepers' supplies, honey, or anything whatever that presupposes the integrity and financial ability of the advertiser to assure our readers a fair and honest deal. This rule does not apply in all cases of minor advertisements in which our readers can clearly guard their own rights by ordinary precaution, such for instance as the sale of a colony of bees or the bee supplies of a private individual, with no payment in advance asked.

We require of a new and unknown advertiser the signed endorsement of both his good character and financial standing by his postmaster, his banker, and a public official of his home; or, if it is obviously impossible for the would-be advertiser to obtain such, we require three signatures equally as responsible as his postmaster, banker, and a local official, whose responsibility we can establish.

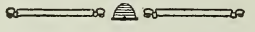
Altho these strict requirements are meeting with the complaint of some seeking to enter our columns as advertisers, we insist on them. We propose to defend our readers against loss and fraud by dishonest and unreliable advertisers, and to defend our advertisers against the unworthy who seek to share with them the good name and fame that go with admission to our advertising columns. We want it to be said that if you see an advertiser's name in Gleanings he is unquestionably honest and to be trusted—and we are going to have it so.

The New Organization.

AMONG WELL-INFORMED beekeepers it has been no secret that the National Beekeepers' Association, having no definite headquarters no definite policy, no permanent officers, has been on the sick list. Its demise has been expected at almost any moment. But out of the old organization has now developed a new one with certain definite policies that look good. For particulars the reader is referred to page 104. But this organization, good as it is, can not succeed unless beekeepers get back of it in a substantial way with their dollars and their moral support. Gleanings wishes the new venture success.

A New Substitute for Sugar.

ACCORDING TO A BULLETIN from the Department of Agriculture, Bureau of Chemistry, there is, or will be shortly, a new malt sugar. It is stated that the shortage of ordinary table sugar and the recent prohibition law have made it possible to bring out a new sugar that will compete with the ordinary sugar of commerce. It has been stated that the breweries, with but very little change, can be used for the manufacture of this new product. The sugar looks very much like maple sugar, and can be used in baking and cooking; and, while not so sweet, it can be used on the table. From the description given concerning it we should rather imagine it is an invert sugar, and probably would be a competitor of honey for manufacturing purposes. However, the beekeeper need have no fear, because honey has always held its own. It has a natural flavor that no artificial sugars have or can have.



Queen-cage Candy; Between the Devil and the Deep Sea.

SOME YEARS AGO the Postoffice Department, acting on the request of some beekeepers in California, issued a ruling that all candy used in the transmission of bees and queens thru the mails should not contain honey unless it has been boiled 30 minutes in a closed vessel. The purpose of this ruling was to prevent the spread of bee disease from candy made from infected honey. But experience proved that a boiled honey almost ruins the candy. Then an effort was made to comply with the spirit of the ruling by using invert-sugar syrup—that is, a syrup having the characteristics of honey; and it was found that a very good queen-cage candy could be made of it. High hopes were entertained that this would solve the problem. But, unfortunately, candy made with invert-sugar syrup is apt to become hard in a very short time, so that bees actually starve on it.

We have been making some experiments in testing out the candy from unboiled honey and the candy made of invert-sugar syrup. Careful tests have shown that the former will keep moist and soft for days after the latter has become hard and unfit for a queen and bee food. Candy made of invert-sugar syrup will remain moist for two or three days; and for short-distance mailing, where the queens can arrive before the candy becomes hard, everything goes on lovely. So far, so good; but when an effort is made to send queens long distances or for export, trouble comes.

Under the postoffice ruling, the queen-breeders are not allowed to send queens to foreign countries in cages containing unboiled honey. Candy made of invert-sugar syrup is unsatisfactory for the reason named. Candy made of boiled honey is worse yet. Apparently there is no form of syrup that satisfactorily takes the place of honey as a bee food, either for the purpose of breeding bees in the spring or for sending queens thru the mails.

Gleanings is in favor of the ruling. In fact, it believes it is good; but apparently the queen-breeder who sends queens long distances is between the Devil and the deep sea.

Perhaps the Postoffice Department will allow the use of unboiled honey of good quality from some apiary where there has never been foul brood, and which has been carefully examined and kept under the supervision of Government experts. That there is plenty of good honey produced in localities where there has been no disease is true. It is our opinion that most of the honey sent by carload does not contain any disease—neither European nor American foul brood. There is considerable doubt as to whether honey is ever the medium of conveying European foul brood; but that it might carry the germs of American foul brood is now well proved. It is because of this that the Postoffice Department issued the ruling it did.

Packing Bees on the Pacific Coast.

THE EDITOR VENTURED to suggest last winter in California that perhaps the beekeepers of that State could afford to use moderate packing. Most of the veterans, however, believed this to be an unnecessary expense. We talked with a number of small beekeepers, and several of them expressed their determination to try out the experiment. Among them was R. E. Fairchild of Redlands, who writes:

Dear Sir:—When you were in Redlands last winter we had some discussion in regard to packing bees in California, and I had, at that time, 10 colonies packed in straw, and promised to report to you the result of the experiment. I weighed 20 average colonies in the fall, packing 10 and leaving 10 unpacked, for a check.

As the experiment was somewhat crude, and the packing was torn up several times by stock and had to be renewed, and was not very well done anyway, I will not go into minute details, but simply give the results as far as I was able to observe them.

I laid off an empty brood-frame in inch squares by means of twine, and counted the total number of square inches of brood in four packed hives, and compared them with the four unpacked ones, and the packed colonies averaged 40 per cent more brood on April 1. The difference in weight also indicated that the unpacked hives used 30 per cent more honey, but part of this would probably be accounted for in the extra weight of brood in the packed colonies.

I stumbled on to something else, which may or may not be new to you, but which I will also try this year. I have had two or three colonies which have been under the shade of an oak tree in winter, and these have wintered very much better than the same-sized colony sitting out in the sun. I judge this is due to their being kept cooler on warm days, thus keeping the bees quieter, so they do not wear themselves out flying. I find these colonies do not use so much honey either. I am going to place a

number farther under the tree, where it will not only be cool, but also dark, and then notice the result.

I also have permission to use a cold storage room which is not in use in the winter, and I will try about 10 in that, after the manner of your eastern cellars. I would also like to have any suggestions on this that you might make, as cellar wintering is an entirely new and untried game to me. The room I speak of is apparently a very well insulated one, as I find that, with a variation of 30 or more degrees outside, the variation of the room is less than two degrees.

I will use 4 inches of planer shavings on the bottom, 6 inches on sides, and 9 inches on top. Shavings are very cheap, and the extra lumber for this amount of packing is of very little consequence.

R. F. FAIRCHILD.

One swallow does not make a summer; but a moderate amount of packing ought to be an advantage in some places in California. M. H. Mendleson of Ventura, one of the most extensive beekeepers on the coast, says he knows it pays. Perhaps it is not wise to draw definite conclusions as yet; but the matter is certainly worthy of experiment.

The great loss in California is due to bees being drawn out of their hives by the alluring sun and never getting back again. For this same reason we also believe that it may be an advantage to have bees in the shade.

Code for the Sale of Queens and Bees.

THE GREAT INCREASE of business in the sale of queens and bees by regular breeders (and generally at long distances) has brought about the urgent necessity for definite agreement and stipulated conditions as between the seller and the buyer. The Editors of Gleanings have been in a position to hear the complaints of both sides of the business and to learn the commonest points of friction and disagreement between the rearers of queens and bees and their beekeeper customers. Accordingly, we set about drawing up a "code" for the sale of queens and bees, keeping carefully in mind what we regarded as the necessities and rights and limitations on both sides of this selling and buying proposition. When we had finally got this "code" in shape, we sent it to 48 of the leading breeders of queens and bees thruout the country, accompanied by the following letter:

Dear Sir:—We are enclosing a copy of a proposed "Code for the Sale of Queens and Bees," which we ask you carefully to read, and then, if you will, write us your views of this proposed code. It is open to all and any reasonable modification. When its provisions can be generally agreed upon as fair and just by the queen and bee rearers, we propose to publish it in GLEANINGS and request our advertisers and their patrons to live up to it. Both parties have obligations to regard in the transaction.

We think you will agree with us that it is time that some common terms of agreement be reached between the rearer of queens and bees and their customers; that these terms be distinctly understood, and then strictly lived up to by both parties. In a word, it is time that clearly defined business procedure be put into the queen and bee sales business, for the good of the business itself.

We hope for the hearty co-operation of every reliable bee and queen rearer in our effort to put the enterprise on a correct business basis; for, if this can be done, the business of queen and bee rearing will be greatly benefited.

May we not hope to have your views on this proposed code at an early date?

We had hoped for a hearty response from the breeders to our efforts to help get their business on a more satisfactory basis. But the response that came to our letter and proposed "code" was so general and so hearty as to exceed all our hopes in the matter. Most of the 48 breeders responded at once, and of these fully half indorsed the "code," without change as drawn up by ourselves. The rest suggested changes. Wherein the breeders agreed generally in suggesting changes, we made such improvements as they suggested in the code, re-drafted it, and again sent it (as thus re-drafted) to the breeders, with the following letter:

Dear Sir:—We are herewith enclosing a copy of the "GLEANINGS Code for the Sale of Queens and Bees." This revised copy of the "code" is the result of many letters containing valuable suggestions received from a large number of queen and bee rearers of the country. We have incorporated in this revised "code" the changes suggested by any considerable number of the queen and bee rearers to whom we submitted the first draft.

Will you now be so good as to read over the "code" as revised, and send us at your earliest convenience any further suggestions that you may have to better it. We want this code right and satisfactory to the queen and bee rearers as well as to their customers. If we do not receive a reply from you, we are going to assume that the "code" in its present shape is satisfactory to you.

To this second letter, we had 16 replies, all agreeing to the re-drafted "code" except four. Of these, two proposed merely word changes in the code that we accepted. The other two objected to the clause requiring the shipper to agree not to make sale of queens and bees from an apiary infected with foul brood. One of these did not dissent from the spirit of this clause in the code. He said he certainly would not ship from a colony infected and always used invert sugar in all the feed—and was not this precaution enough? The other said, "No queens should be shipped from **colonies** infected with foul brood — but if we did find one or two cases we would get rid of it at once and keep right on shipping queens." After long and careful consideration of this foul-brood clause, the Editors of Gleanings concluded (as evidently did all but two of the breeders) that it would not do to let down the bars on foul brood, altho we did modify this provision of the code by providing that the customer be informed of conditions if bees or queens are to be sent from a yard where there may be any foul brood. If the breeder has foul brood, his customer certainly has the right to know that fact in advance. How could the second objector to the code quoted above get rid

of foul brood "at once" and know he was rid of it "at once." It is not a get-rid-of-at-once disease.

The "code," as twice revised, and signed by practically all of the most prominent rearers of queens and bees in the country, is printed in full below. We have told how careful we have been in trying to have this "code" right and just to all parties concerned. We wish it remembered that it embodies all the suggestions on which the leading breeders of the whole country are in agreement. It is not likely that it is perfect—most things human are not. If experience shows that it needs correction or amendment, we shall be glad to make such. But let us try it this year, as generally agreed on, and learn if it does not go far to put the business of rearing, selling and buying queens and bees on a far better and more definite basis. Here, then, is this "code:"

GLEANINGS CODE FOR THE SALE OF QUEENS AND BEES.

The bees of Italian queens are distinguished from blacks by the three yellow bands on the upper part of the abdomen. Leather-colored Italians, as the name signifies, are those whose stripes on the abdomen are darker yellow—leather-colored. Golden Italians are those having four or five yellow bands, sometimes called four- or five-banded Italians.

An untested queen is one which is sold soon after she is found to be laying, not one previously tested and known to be impure.

A tested leather-colored queen is one whose bees have been examined by the breeder and found to be uniformly marked with at least three dark-yellow bands; a tested golden, one whose bees have at least three or four bright-yellow bands, this signifying pure mating.

Select queens of any of the grades are those which show special advantages as to color, size, shape, etc.

A breeding queen is one which has been kept long enough for the apiarist to test her queens and to prove her bees are good honey-gatherers. A breeding queen may be a year old when sold.

All salable queens are to be mated and laying when sold, with the exception of those expressly sold as virgins.

Those advertising queens in GLEANINGS guarantee safe arrival of the queens. The breeder agrees to refund the money or to replace the queen if the one first sent arrives dead or is so feeble that she dies before she can be introduced—provided the beekeeper receiving the dead or unfit queen, returns her at once, and in her own shipping cage. No delay in returning the queen can be permitted.

The breeder agrees, when accepting an order, to send out all queens if possible within five days of shipping date specified in the order, and also agrees, when for any reason a shipment has to be delayed beyond five days, to inform the purchaser at once of such delay and specify another probable date when shipment can be made. And whenever for any reason a shipment has to be delayed from time to time, the breeder agrees to inform the purchaser at once of each such necessary delay and to specify in each such case of delay a new probable day of shipment. If the new date is not satisfactory to the one sending the order, the breeder agrees, when requested to do so, to return at once any money accompanying a cash order.

The queen-breeder agrees to make no shipment or sales from an apiary infected with foul brood, unless the exact condition of the apiary be made known to the customer, satisfying him that there can be no danger in making shipment from such apiary.

[The queen-breeder must use either honey boiled for 20 minutes in a closed vessel, or invert sugar (nullomoline) in making his candy for mailing-cages and pound cages, as strictly required by the U. S. Postal regulations.]

When requested to do so, the breeder agrees to give the purchaser notice two days before filling an order, to enable the purchaser to know just when to look for the shipment.

No cancellation of an order will be binding on the breeder if it is sent without good and sufficient reason, or if he receives such cancellation two days or less prior to the filling of an order.

BEES.

Those advertising bees for sale in combless packages agree to put at least 10 per cent overweight of bees in each package when preparing for shipment, to make up for those that are likely to die before the package reaches its destination. But there is quite likely to be some shrinkage in weight, which in some instances may be as great as 20 per cent, due to the fact that the bees may have been filled with honey when shaken into the cage; therefore, shrinkage of 10 per cent in weight is not in itself evidence of short weight by the shipper.

The shipper agrees to use a cage ample in size, provide same with candy sufficient for the journey and take all due precaution by the use of proper address tags and instructions to expressmen, to prevent undue delays and careless treatment of the bees en route. The shipper also agrees to have directions for the disposal of the bees on arrival tacked to the package, or enclosed with his acknowledgement of the order.

The shipper agrees to make good the loss of bees in case the shipment reaches its destination in poor condition, provided the buyer obtains a bad-order statement from the express agent, and forwards the same at once to the shipper when making claim for replacement.

The shipper agrees to supply young bees largely of the stock ordered with very few drones. If pure stock is not expressly specified in the order, the bees are not necessarily to be pure stock, but blacks shall not be sold for Italians.

The shipper agrees to make no shipment or sale of bees from an apiary infected with foul brood unless the exact condition of the apiary be made known to the customer, satisfying him that there can be no danger in making shipment from such apiary.

[The shipper must use either honey boiled for 20 minutes in a closed vessel, or invert sugar (nullomoline) in making his candy for mailing-cages and pound cages, as strictly required by the U. S. Postal regulations.]

At the prices quoted on bees, it is to be understood that queens are not included. But if queens be included in the order, the price of the queens desired will be added to the price of the bees.

When requested, the shipper agrees to notify the buyer two days in advance of shipment.

It is impracticable to define the number of bees on the combs when one-, two-, three- or five-frame nuclei are ordered. It is also impracticable to define the amount of honey in the combs. Especially in hot weather it is not practical to select combs heavy with honey or brood, nor is it good practice to ship too many bees.

In case a shipment of bees has to be delayed or delayed from time to time, for any reason, the shipper must at once inform the purchaser of such delay or of such several delays as they occur and specify another date in each case, when shipment can be made. If the new date is not satisfactory to the one sending the order, the breeder agrees, when requested to do so, to return at once any money accompanying a cash order.

"THOUSAND-DOLLAR TRICK"

A New Old Scheme for Increasing the Capacity of a Hive Without Enlarging It

By E. R. Root

IN the last issue, page 9, I promised to tell something about a scheme that will increase the capacity of a hive without enlarging the hive itself. I also said that one man told me that the scheme would be worth a thousand dollars to him, and he is an old and experienced beekeeper at that.

The idea of enlarging the capacity of a hive without increasing its dimensions seems paradoxical, but it is not; and then when I tell you what the trick is, at least some of you will say, "Fudge! I knew that before." It may be so; but if you did, did you practice it or did you realize what you had accomplished by it?

The scheme I have in mind is both new and old—old because the general idea has been advocated and practiced by beekeepers in certain sections for years; new, because this particular plan, while used quite largely in southern California, is not generally known.

To go back a little, I may say that thruout the beekeeping world there is and has been a general desire to prevent foundation in brood-frames from stretching, and there are a hundred and one ways of doing it, some good and some bad. There would be no harm in foundation stretching were it not for two things. First, a normal queen avoids cells that are neither drone nor worker. Get that fact clear in your mind. When there is about two inches of stretched cells near the top-bar there is two inches of comb surface that is not available for brood. Have you ever thought of that? This amount will average 20 per cent in a Langstroth frame having four horizontal wires not reinforced as hereinafter explained. Second, some cells stretch enough to make them sufficiently large for the rearing of drones; and a large amount of drone brood right in the midst of a heavy flow is always a waste of bee energy and a waste of honey, whatever one may say of the desirability of mature drones to help keep the supers warm.

Now, that little trick of the trade, call it new or old as you like, is a scheme to prevent foundation from stretching in brood-frames so that the nearly two inches of space above the circle of brood in an ordinary Langstroth frame will be used for worker brood and not honey.

Dr. Miller, who uses wooden splints to support his foundation, says he has no trouble in making his queens rear brood clear up to the top-bar. Why? Because those splints absolutely prevent sagging, and he once said to me when I was at his place that he thought this "trick" of his was one of the biggest that he ever put out. "But, Doctor," said I to him, "while that 'trick' is all right for the production of comb honey, it is of almost no value for holding combs securely in a frame while they are being run thru the extractor. There is no attachment to the frame."

Years ago, when I reached the age where most boys know more than their dads, I threw out of the catalog A. I. Root's scheme of vertical and diagonal wiring as shown in Fig. 1. Frames so wired, I distinctly remember, held solid cards of brood clear to the top-bars. A. I. Root had no trouble with this scheme in getting the queen to go up into the upper story of his 15-frame chaff hives. Well, when father's scheme of wiring was thrown out from the catalog and our general literature I substituted the plan, now so well known, of four horizontal wires. See Fig. 2. In this I had the support of some of the largest beekeepers at the time. The thick top-bar, then accepted by the big beekeeping fraternity, made it impossible to use the vertical wiring. The result was that nearly every one adopted what seemed to be the only scheme possible, and that was to use four horizontal wires strung thru the end-bars. Such wiring made beautiful combs with one exception, namely, the cells for about two inches below the top-bar would stretch slightly—not while the foundation was being drawn out, but after the combs had been in use for a year or two, or after a strain of a heavy crop of honey during a hot spell. This space would usually be filled with honey because the queen would avoid these stretched cells.

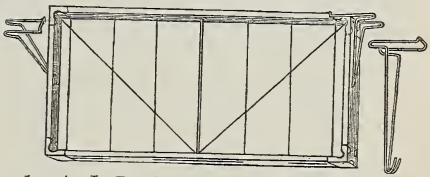


Fig. 1.—A. I. Root's scheme of wiring used years ago.

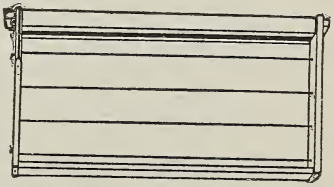


Fig. 2.—Present ordinary scheme of wiring.

To overcome this difficulty Dr. Miller used wooden splints about 1/16 of an inch square, placed vertically about three inches apart on the foundation. Others recommended the scheme of painting hot wax over the surface of the foundation. This, when cooled, stiffens the sheet so it does not stretch. In other words, it makes a "heavy brood foun-

dation.'' In my humble opinion other means are cheaper and better.

Others have recommended using the regular horizontal-wiring scheme, but pulling the two top wires **downward** when imbedding the foundation, thus taking out the stretch, and at the same time putting an **upward** strain on the sheet. This, to a large degree, overcomes the tendency to stretch, and is vastly better than the four wires imbedded in the usual way. Good as the plan is, it does not go quite far enough.

Along in the 90's a man by the name of Keeny recommended what is known as the Keeny method of wiring. He drove a nail in each of both end-bars about ¾ inch from each end. The nail-points were then bent in the form of a hook, making one hook in

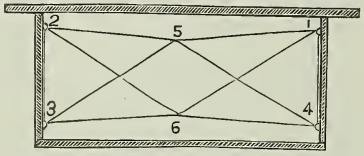


Fig. 3.—The Keeny method of wiring, used in the 90's, permitted a bulging of the foundation between the wires.

each corner of the frame. The frames were then wired over the hook as shown in Fig. 3. The objection to this plan was that the foundation bulged between the wires, and it did not altogether stop the stretching near the top-bar.

Some three of four years ago I called on Mr. Southworth and Mr. Brown, of the Western Honey Producers, in northwest Iowa. Mr. Brown called my attention to their method of wiring shown in Fig. 4. This, he said, eliminated all stretching, and was very much superior to the usual scheme of using four horizontal wires. The plan is good, but there is considerable work in put-

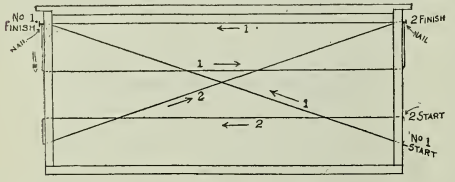


Fig. 4.—Brown and Southworth's method, which is good but involves considerable work.

ting the wires; and, moreover, it does not, in my opinion, give all the support it should near the top-bar.

Now, then, for the new old trick of the trade which I think is better than any of the methods just described. It is no new and untried experiment, because it has been used for several years all over California, and with most gratifying results. It was introduced, if I am correct, by C. F. M. Stone, Lamanda Park, Cal., of whom photos have been shown in Gleanings several times of late. Well, here is the trick:

He uses nothing but regular standard factory-made brood-frames—that is to say, Hoffman thick-top frames with four holes equally distant in the end-bars. He puts in four horizontal wires as shown in Fig. 2. Then he goes just one step further. After he has put in the four horizontal wires and

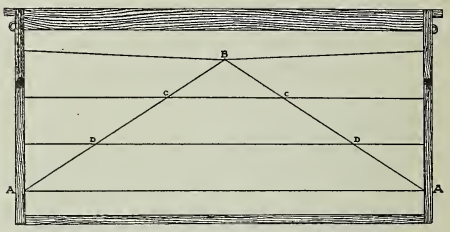


Fig. 5.—The Stone method of wiring, which is unusually good.

fastened them he drives in two more tacks close to the bottom hole in each end-bar. Then he threads another wire from the bottom wire on one side diagonally up over the top wire, then diagonally to the bottom hole on the other side; draws the two diagonal wires taut, and fastens. That is all. See Fig. 5. You will note that the top wire is drawn down a little as shown at B. You will also observe where the diagonal wires intersect the horizontal wires B, C, C, D, D, that the foundation will be reinforced at those points. Point B will be stiffened on account of the tension, so that it can not sag. The second horizontal wire is reinforced at two points, C and C; the third horizontal wire is likewise reinforced at two points, much as concrete is reinforced by means of cross-rods.

How I Discovered the Trick.

I noticed that Mr. Stone, when I looked over his bees, had brood clear to the top-bars, but I supposed that this was due to climate. Later on, after going thru a number of apiaries in southern California I noticed that brood would be clear up to the top-bars in some cases, and in others two inches down. This excited my curiosity, especially when I saw in one hive a comb with brood clear up to the top-bar, and the very next comb, perhaps, with brood no nearer than two inches. Then I held the combs up to the light, and, presto! I caught

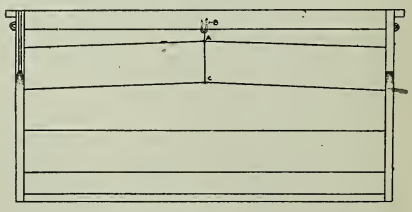


Fig. 6.—Ventura method of wiring is a good one.

on to the trick. I found invariably that when there was two inches of honey above the brood there were the usual four hori-

zontal wires. When the brood went clear to the top-bar I invariably found that either the Stone or the Ventura scheme of wiring had been used. This will be described below.

Another interesting fact was that many beekeepers who had bought bees from different apiaries were unable to explain **why** brood went to the top-bar in one case and not in the other; but when I showed them the "trick" they caught on.

There was another plan of wiring that I found used in Ventura County. The scheme, while employing the four horizontal wires, was a little different. A staple is driven on the under side of the center of the top-bar. To this is hooked a short piece of wire. This is looped under the top wire, drawn upward, and then it is run under the second wire, pulled upward and fastened. See Fig. 6. Wherever I saw these combs there was no stretching of foundation, and brood would go to the top-bar. For extracting purposes the comb is not held as firmly as in the Stone method or in the method shown in Figs. 7 and 4.

Recently I ran across another idea that looks good—very good to me. It is a modification of the Stone idea; and from the fact that it would allow electrical imbedding without overheating some wires, it appeals

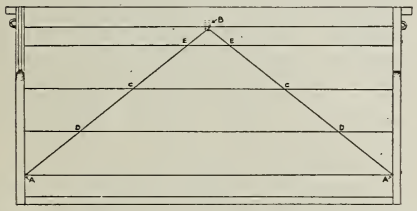


Fig. 7.—Recent method, which closely resembles the Stone method and has some advantages over it.

to me. The plan is exactly the same as the Stone, except that, instead of running the diagonal wire from A over the top wire at B, as in Fig. 5, it is passed up thru a hook or staple driven in the under side of the top-bar, then run to the bottom holes on either side as at A. See Fig. 7. This has the further advantage that it reinforces the top horizontal wire at E and E, and the other wires (see Fig. 7) at C and C, and D and D respectively. Nor is it necessary that the wires be drawn taut. The nice feature of the plan is that it will permit slipping a whole sheet of comb foundation between the four horizontal wires on one side and between the diagonal wires on the other side. This will leave four wires on one side of the sheet and the diagonal wires on the other side. Each set of wires can be imbedded independently. When using the Stone method, if electricity is used, only one strand of wire can be heated at a time. If there should be an attempt made to run the current from A A thru all the wires (see Fig. 5) there would be numerous short circuits, with the result that some wires would be red-hot and others hardly warm. This last plan makes it possible to carry out the Stone idea and still use electrical imbedding.

One thing ought to be said right here, and that is that with any plan of wiring where the wires cross each other, the bees are apt to gnaw holes. Don't worry about this as they will close them at the first honey flow or after the first season. That was the experience of A. I. Root with his form of wiring.

Now, then, dear reader, to recapitulate: No matter which of the last three schemes you use to prevent the top of the foundation from stretching, you will **increase the brood room of an ordinary ten-frame Langstroth hive by about 20 per cent without enlarging the hive.** In one way of looking at it, this little "trick of the trade" makes a 12-frame hive out of a 10-frame hive at almost no expense. Where foul brood of the American type is rampant one can very soon convert his combs into the non-stretching sort.

But the non-stretching combs mean another thing that is **very important.** When the brood goes clear up to the top-bar, the queen is much more inclined to go into the upper story with little or no coaxing, and the result will be that swarming will largely be eliminated. When, however, she comes to about two inches of comb that is neither drone nor worker she stops. She rather hesitates about crossing that space, and, as a matter of fact, she does not cross it. Also, she will not lay eggs in the two outside combs. When the eight combs have been filled with brood in the height of the breeding season, the colony is inclined to swarm if the queen can not have more room. She usually does not go above immediately. Putting on an upper story where there is two inches of stretched comb in every frame does not usually stop swarming, unless some of the brood are lifted above.

Now, if you have read carefully all I have said you will see why a big beekeeper said the Stone method for eliminating the stretching of foundation or comb was worth more than a thousand dollars to him. He could have said that, in a series of years, it might have been worth many times that to him in the elimination of swarming and the saving of labor in lifting the brood into the upper story. With labor conditions as they are, it is almost impossible to get competent men and when you do get them they may do the brood-spreading so unintelligently that more harm than good is done. No one but an expert should spread brood.

Get my point. If you can make conditions so that the queen or bees will do their own spreading, don't you see you cut down your labor, your swarming, and at the same time increase your honey crop at a time when labor can scarcely be had for love or money? Lastly, the bees or the queen will not spread the brood too fast. When the frames are properly wired the queen is much more inclined to spread her brood area without help from the apiarist.

WHY YOUNG QUEENS MAY FAIL

An Experiment That Goes to Show That Young Queens are Sometimes Only Partially Fertilized and Why

By F. W. L. Sladen
(Apiarist, Dominion Department of Agriculture, Ottawa.)

FOR our 1919 breeding experiment, it was decided to take 16 queen bees of selected parentage to Duck Island, at the eastern end of Lake Ontario, to be mated with drones of selected parentage, 500 of which were to be brought with the queens.

Duck Island is about two miles long (three miles including the small adjacent Yorkshire Island), and three-fourths of a mile wide in the widest part. These islands are eight miles from the nearest islands. It was expected that our queens would be well beyond the range of flight of drones located as much as eight or more miles away, altho no definite information on the limits of flight of drones and queens has been obtained.

It was hoped that no bees were present on Duck and Yorkshire Islands. Information to this effect had been obtained from the owner, and was later confirmed by the lighthouse keeper and other persons on Duck Island.

The eastern part is low, narrow, swampy, windswept, and margined on the south shore with a broken line of trees. Hay is grown here. The western part is thickly wooded, especially at the western end, with clearings which are quite extensive eastwards.

Sixteen nuclei in eight boxes contained the queens and the drones. The nuclei were made up on July 16, each with a just emerged queen and two tough old combs (Langstroth size), containing a little honey and capped brood, and enough young bees to cover thinly one comb. The combs were held rigid at top and bottom, and there was a space for a third comb in each nucleus. Each nucleus had also two one-inch wire cloth-covered ventilators closable with corks and two flight-holes closable with wire cloth. The start was made from Ottawa July 21. On the morning of that day, 500 drones were run into the nuclei, 30 to 50 in each. These drones had been raised in a drone comb given to a certain colony on June 16, and later placed between queen-excluders after the larvæ had been capped. Nearly all of the drones had emerged by July 21. They looked immature, however, but many were able to fly.

Duck Island was reached at noon on the 23rd.

Before the bees were let out, a careful inspection of the island for the presence of honeybees was made. A little white clover was found to be in flower and secreting nectar well in a moist pasture near the fishing settlement at the east end of the island. A number of small basswood trees were also found in flower and secreting nectar well in the bush at the west end of the island. The weather was warm and sunny, and as no honeybees were to be seen at these flowers the boxes were placed in a clearing in the bush in the western part of the island, about one-third of a mile from shore, and the bees were allowed their liberty at nightfall. No drones had been killed.

The island was visited again on August 6 to 8 for the purpose of bringing the bees back. The basswood honey flow had ended, and examination of the nuclei showed that

Details of Results, Duck Island, 1919.

Nucleus No.	Approx. age at which queen began laying*	Sex of pupæ August 14	Spermatheca	Sperms found
3 A	July 28	Approx. 50% drones, 50% workers	Slightly clouded	Abundant
3 B	July 29	All drones	Clear	None
4 A	July 28	All drones	Clear	None
4 B	July 28	Drones, 3 workers	Clear	None
5 A	Aug. 5	All drones (Sept. 15)	Clear	None
5 B	Aug. 1	Drones, 4 workers	Clear	None
6 A‖	.....	.....	....	....
6 B†	.....	.....	....	....
7 A‡	.....	.....	....	....
7 B	July 28	All drones	Clear	None
8 A	July 28	All drones	Clear	None
8 B	July 31	Approx. 66% drones, 33% workers	Slightly clouded	Abundant
9 A	July 29	Approx. 66% drones, 33% workers	Slightly clouded	Not examined
9 B	July 30	Drones, 1 worker	Clear	None
10 A	July 29	All drones	Clear	None
10 B°	No eggs	.....	Clear	None

* Calculated from age of brood subsequently found.
‖ Queen not found, many eggs in queen-cells and in worker-cells.
† Queen not found, 1 egg in side of worker-cell.
‡ Queen not found, no brood.
° Queen found balled, Aug. 7, but could fly.
Note.—None of the drones that met these queens could have emerged before July 10 nor after July 21. The drones were therefore from two to 13 days old on arrival at Duck Island, July 23.

they had gained but little in weight. The number of drones appeared to have been somewhat reduced, but those that remained flew freely.

In 11 of the nuclei, the queens were found to be producing drone brood of which the most advanced were just capped or about to be capped. In one nucleus there were no larvæ but only eggs, which afterwards developed into drones. In three, the queen could not be found; one of these had one egg on the side of a worker-cell; another had a number of eggs in a queen-cell and in several worker-cells; both these nuclei probably contained fertile workers. In the remaining nucleus, the queen was found balled and not laying yet, but able to fly.

Subsequent examination at Ottawa on Aug. 9 and 14 showed that six of the drone-breeding queens were producing workers as well as drones. Three of these that it was estimated were producing from 33 to 50 per cent workers, showed, postmortem, a nearly clear (slightly clouded) spermatheca. Under the microscope the spermathecal fluid contained numerous sperms, but evidently far fewer than the completely clouded spermatheca of a properly fertilized queen. In the brood produced by the other three queens, only one to four worker pupæ could be found. These three queens, as well as the six that produced drones only, had perfectly transparent spermathecæ in which no sperms could be found. Particulars of each queen are given in the table printed on the foregoing page.

The interpretation of the results appears to be as follows:

1. No colonies of honeybees exist on Duck Island and Yorkshire Island.

2. No drones from outside could reach the queens on Duck Island. (Honeybees were seen in plenty on July 25 at Point Traverse, located about seven miles away, and a small apiary was seen about one-fourth of a mile from this point.)

3. Only three out of the sixteen queens were lost, not a large proportion considering the wind blew fresh nearly every day from July 23, the day the bees were brought, until August 4.

4. Of the 13 queens surviving, 12 had started laying. Eleven of these had commenced to lay between July 28 and August 1, at the age of 12 to 16 days, and the remaining one on August 4 when 19 days old. All turned out to be drone-breeders, but six of them produced some workers.

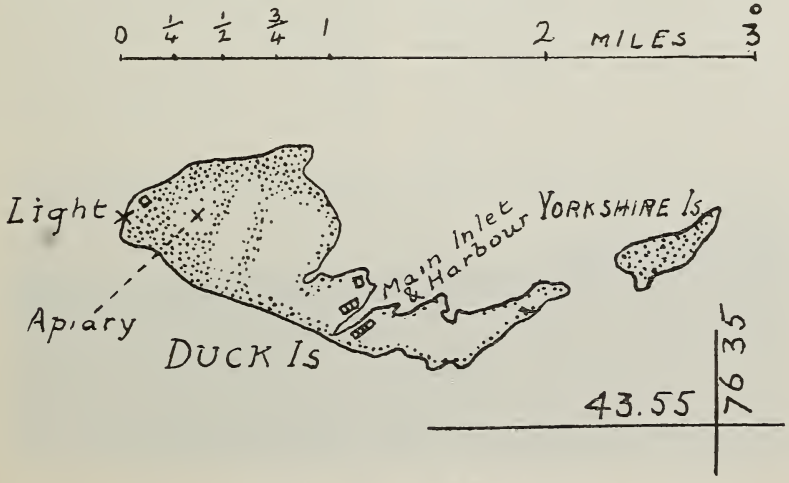
It is evident that all the six that produced some workers had been mated, altho sperms could not be found in three of them, and one of these produced only one worker.

It is probable that the six that produced drones only had also been mated, not only because their symptoms graded almost imperceptibly into those of the queens that had been mated, but also because in the writer's experience a queen that fails to get mated does not usually, if ever, begin to lay until she is considerably more than 19 days old.

5. The proportion of workers produced appeared to vary with the quantity of sperms present.

6. Evidently some accident had prevented the spermathecæ getting filled with sperms. The most probable explanation is that the drones were too young to fertilize the queens properly. Assuming that laying begins two days after mating, which the writer has always found to be true during the active season, none of the drones flying at the time the first queens were mated were less than five days old or over 16 days old, and all the drones flying at the time that the last queen that began to lay was mated were at least 13 days old; probably many of them were a few days older.

On July 28 in five minutes, two or three drones from a lot that had been raised in a drone comb given to a colony on June 16, the same day as the Duck Island drone comb was given, were seen flying from a colony



Location of the queen-breeding experiment.

that had been isolated in the orchard at the Central Experimental Farm, but probably drones are not mature enough for successful mating until they have been able to fly for several days.

Another possible explanation of the accident is that the drones had been injured in some way. The drones were put into the nuclei singly by hand, and it is possible that thus handling them while immature, which it was noticed caused most of them to defecate, may have injured them.

The fact that the queens were eight days old before they were allowed to fly may be considered as a third possible cause, or a contributing factor. This however, is extremely improbable because the writer formerly mailed to beekeepers a great number of virgin queens, most of which were not introduced until several days old, but they were never reported as becoming drone-breeders; indeed many of them became mothers of very productive colonies.

The large twin nucleus boxes, containing on each side two well-secured Langstroth frames and a space for another, with four ventilation holes, that were designed for this year's work and used this year, have proved far more satisfactory than the twin "baby" nucleus boxes containing on each side two combs one-third Langstroth size, used in 1918 at Kapuskasing in northern Ontario. The extensive swarming out at Kapuskasing and the overheating on the return journey from there that caused much loss last year with the "baby" boxes, did not occur at all this year, but the steadier temperature on Duck Island helped to prevent swarming out. The present form of nucleus box can hardly be improved upon.

The experiment was planned and carried out by the writer, who is also responsible for the figures and conclusions given.

Ottawa, Can.

[There are times when some of our young queens are found laying eggs, part of which are drone eggs; yet, at the same time, the conditions are such that we would expect them to be laying worker eggs only. I had supposed that such queens were not completely fertilized but did not know the reason for it.

Mr. Sladen's finding regarding the mating of queens to immature drones would seem to be a plausible reason.

It would be valuable to know just how old these drones were at the time the virgin queens were ready to take their mating flight, which would have been about July 23. The drone comb was given to a colony on June 16, and if eggs were laid in it within a day, they should have hatched about July 10 and would have been 13 days old; yet they were still hatching on July 21. We are taught that the worker bees are about 17 days old when they begin going to the fields. The drones are slower at maturing while in the larval stage than the workers, and they may require a longer time to reach full maturity after emerging from their cells than do the workers.

There are many problems which can only be solved by experimental work conducted on an isolated location such as Prof. Sladen has chosen; and we know of no one better qualified for this work, as he has that rare gift of observing the thing that the rest of us overlook.—Mell Pritchard.]

[While the experiments recorded here by Professor Sladen are somewhat inconclusive from the fact that we are not able to prove whether the trouble was wholly with the queens or drones, or with both, there are enough data furnished to make it appear that, in order to function properly, the drones should be much older than most of us have believed. We hope that the experiments may be repeated next year. This is the first time, if we are correct, that **really scientific** experiments like this have been conducted on an island where there are no bees. While D. A. Jones of Beeton, Ontario, Canada, in 1883 and '84, had three islands for mating queens of three different races, up in Georgian Bay, his only object was to get queens in their purity for commercial purposes only. The project at the time was too expensive to make it a paying one. There was no honey to be gathered by the bees on the islands, and the bees had to be fed sugar syrup.

Mr. Sladen is an expert queen-breeder; and if he can bring his experiments to a definite final conclusion, the beekeeping world will owe him and his station a tremendous debt of gratitude.—E. R. Root.]

Scene along the Duck Island shore.

THE OVERSTOCKING THAT PAYS

How More Bees Can be Profitably Kept in a Locality Already Well Stocked

There are many persons who would like to increase their income from their bees, but do not care to start an out-apiary, nor overstock their present location. Most beekeepers of limited experience have a wholesome fear of overstocking their territory, altho there are some who seem to think there is little danger of overstocking their neighbor's territory.

There is little doubt but that five colonies will do better in any given location than fifty and fifty better than one hundred. Just how many may profitably be kept in one location is, I confess, something of a puzzle. After many years' experience I have come to the conclusion that the number of colonies might often be largely increased with profit to the owner, if wisely managed. In most localities suitable for commercial beekeeping there are at least one or more sources of honey that are for a part of the season very abundant; and all colonies in good condition as this season comes, are quite sure to secure sufficient surplus to repay well the enterprising beekeeper for their care.

Perhaps I can not do better to illustrate this subject than to give our own experience. Our main dependence for surplus is clover, alsike and white—our only source of surplus, I might well say, altho, once in 25 years, I suppose, we get some buckwheat honey. In average seasons, we get also some dandelion honey stored in the brood-chambers. There are other sources of honey, as willow, maple, fruit bloom, raspberries, goldenrod, and asters, that would support a few colonies, but when divided among a hundred amount to but little. I thought formerly that 75 or 80 colonies in one place in spring were about as many as could be kept with profit, altho we then had a good supply of basswood. Our season for clover is short, not averaging over four weeks, yet I have noticed that strong colonies are able to gather sufficient surplus for a paying crop.

Now it might seem a very simple matter to keep a large number of colonies together, if all that is needed is to get them strong by the time clover begins to yield nectar, but in practice we do not find it so. Where there is a light flow of nectar during May or only a few colonies are kept, they may do very well; but where there are a large number in one place they must be watched closely, and, if there is a dearth of honey, stores must be supplied. A few years ago we had a rather cool May, and bees could fly but a short distance from their hives. As a result, a great number of colonies by the last of the month or early June were in a starving condition, where kept in large numbers in one yard; while where only a few were kept together they were in fine condition. By feeding heavily we saved our bees in large yards and had a successful season, for as soon as clover opened there was enough for all.

Last year we had in one yard 200 colonies in the spring and we could see little difference in the average per colony in this yard and in the yard where there were one-half as many colonies. Where clover is abundant and yields nectar freely, it would seem as tho almost any number of colonies would find enough to store a fair surplus. But when the clover fails there is trouble, unless the beekeeper is on his job, for there will be flowers enough for only a few colonies.

Let me illustrate by our experience the past season. Very little honey was stored after July 20, while the brood-combs were so well filled with brood that a comparatively small amount of honey was stored in them for winter use. Brood-rearing continued during August so that much of the honey stored was consumed, and by the middle of September many colonies were in a starving condition—in fact, some of them did starve. As usual, we have had to feed a great amount of sugar to carry our bees thru the coming winter.

One yard, which consisted of 140 colonies in the spring, we have had to feed this fall more than a ton of sugar besides some honey; but we secured from this yard several tons of honey, besides increase enough to pay for all the sugar fed to the colonies. Had we kept only enough bees in this yard so they could have gathered sufficient honey during the latter part of summer to winter on, we should have had to be content with a very small income from the yard.

Thus we see that by watchfulness and by supplementing with sugar syrup any weakness or failure of our locality to supply the needs of a large yard of bees, we may still be able to keep a large number of colonies in one place and secure a much larger profit than would otherwise be possible. Where buckwheat, goldenrod, asters, and swamp flowers abound the matter is much simplified; where these or other flowers are lacking, we must be prepared to make up the deficiency with sugar and bank credits—but it pays.

J. E. Crane.

Middlebury, Vt.

[Mr. Crane should not be misunderstood in the above article. He certainly does not advocate a general overstocking of locations. As he says in the opening paragraph,

FROM THE FIELD OF EXPERIENCE

"There are some who seem to think there is little danger of overstocking their neighbor's territory." Right there is where the trouble arises. If one considers that a smaller average from a larger number of colonies will net him a greater income, and if he can increase the number of colonies without injuring his neighbor, then such action is entirely his own business. But, alas! it happens all too often that in the mad scramble for dollars, little thought or consideration is shown neighboring beekeepers, to whom in many cases long years of priority have given the moral right to the location.

We have recently been receiving letters from various parts of the country showing that overstocking is now becoming a real problem to many beekeepers. A well-known beekeeper has lately written us that he has actually been driven out of the business and has been compelled to take up queen-rearing instead of honey production because of other beekeepers who have gradually been moving in on his territory. Is it any wonder that in some parts of the country a very bitter feeling has arisen toward the newcomers? Remember that the crop of honey is the man's bread and butter, and he may be so situated that he can not move away. If any one with the slightest sense of justice or fair play will only put himself in the other man's place, he certainly will not care to lower himself by crowding out or stealing another's location.

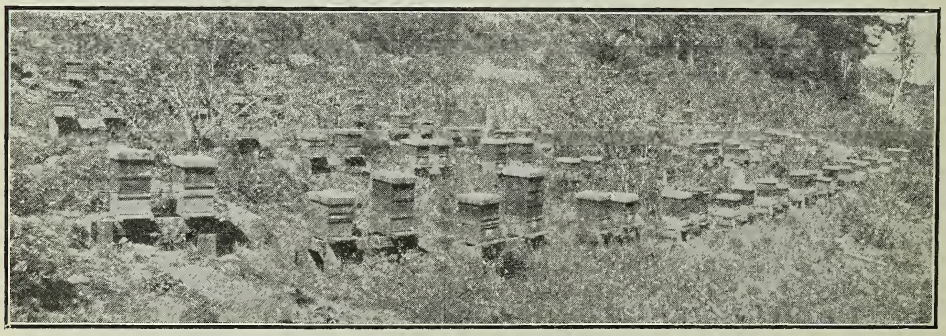
For those who are now obtaining too small a crop, of course, the logical solution is to move to an unoccupied and better location. Mr. Crane's excellent advice, however, as we have previously stated, is intended for those who are unable thus to better their condition and who can increase the number of colonies without injuring their neighbors. There is more of value in this article than appears at first glance. It is well worth reading a second time.—Editor.]

BEEKEEPING IN THE NORTHWEST

What the Country is Like and How Beekeeping Varies There

That the great Northwest is an empire in itself, "with conditions more varied than any other part of this great United States," may seem to some a surprising assertion, but true nevertheless. Mountains and plains, rivers and lakes, humid and arid, fertile and desert, temperate and extreme, all can be found in the great Northwest; and such a conglomeration of conditions necessarily existing in such varied localities would in itself raise a doubt in the minds of those who understand the keeping of bees, as to whether honey could be produced in quantities sufficient to be of interest to commercial producers. In other words, can it be done, or is it being done? This may readily be answered. Yes, in some parts, depending largely, as in every other part of the U. S., on the ability and care of the individual beekeeper. It is a well-known fact that some always secure crops in larger quantities than others in the same or adjacent territory; so while locality has a great deal to do with it, success depends on the man behind the gun. I understand that in the eastern part of the great Northwest, the beekeeper's sole dependence is alfalfa; but since I am not sufficiently familiar with conditions in the eastern part to give intelligent details, I shall attempt to give some ideas as to honey production in the Northwestern and humid belt of the territory, known as the Coast Range and Cascade Range of mountains, between which lays the beautiful Willamette Valley.

On the Columbia, over 30 years ago, I noticed bees working on red clover in **November.** The weather had been wet and was then quite cold, but there they were; and if anything will stir an enthusiast's blood any quicker than seeing bees working under difficulties, I don't know what it is. Just as soon as possible I looked up someone who offered the information, "Why, boy,



Ideal fireweed location in the Pacific Northwest.

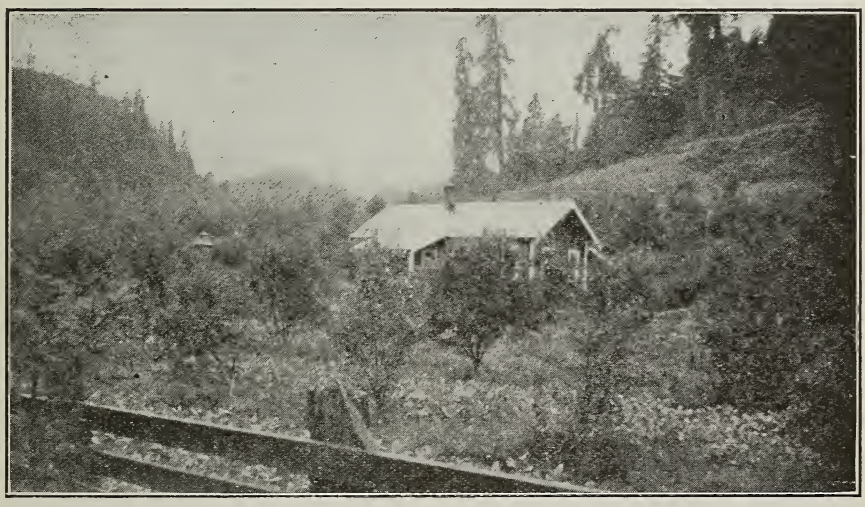
FROM THE FIELD OF EXPERIENCE

the woods is full of bees.'' My interest being then at boiling point, I lost no opportunity to investigate. The statement as to all the woods being full, I found to be untrue; but sure enough, many bee-trees were there and of all sizes. Most of the beekeepers of the Middle West never saw a real Oregon tree in the thick timber, 8, 10, 12, and even 16 feet thru at the butt, straight as flag poles and not a limb within 100 feet of the ground. Some bee-trees, eh? But generally the bee-trees were snags and cottonwoods near the river.

All domesticated bees found then were in box hives about 12 x 12 x 14. Some honey of inferior quality was sometimes secured in ''Caps.'' No one knew of a movable-comb hive or seemed to care for better methods; but finally I had made for me a movable-comb hive. It was a success from the start, and the bees in it wintered well and gave some surplus in homemade sections. The stumbling block at that time was the tremendous winter losses. Those who had bees seemed to expect such losses and reported that the reason was mouldy comb. Upon investigation I found mouldy was right, and I attributed it largely to the excessive moisture of the winter. Later I discovered foul brood was the cause of the death of the small colonies, the combs moulding afterwards. You couldn't make the ''old timers'' see it then; but new methods proved it, and today winter losses are comparatively nil, and the industry is on a paying basis. If weather conditions were good when we wanted it, this would be a beekeepers' paradise and their bank-rolls fat. I shall give one instance:

The month of April, 1918, was the driest April known in this section. Soft maple and vine maple blossom in that month, and, there being no rain to wash the nectar out, those who were prepared with combs harvested a crop in a few days. Those with none missed it and had to buy sugar (not an easy task) to winter their bees. As 1918 will go down in history as one of the years without surplus, virtually no white-clover honey was secured. The mountain beekeeper also had a short crop, but yours truly had plenty of good sealed honey and needed no sugar.

Bees generally gather some pollen in February and unless weather conditions are very bad build up into fair colonies by the end of March. Plenty of rain is the rule in spring, and in some years but little or no honey is secured, even when hundreds of acres of fruit trees are in full bloom for weeks; but, if weather conditions are at all favorable, some early super honey from fruit trees is secured from the strongest colonies



A typical fruit-ranch home and fine bee location in the mountains near Portland, Ore.

In April swarms are not uncommon, and bees are generally booming by May. June brings white clover and generally better weather, assuring at least some first-class honey; but many times rain has persisted all thru June into July, and the hopes of the beekeepers have gone a-glimmering, as far as surplus is concerned.

We can bank on settled, clear weather after July 4, and then it rarely rains until September. In the meantime clover dries up, and the local bees have to depend on berry and later blossoms. From ten days to three weeks is the time we really get for surplus here; so here as elsewhere, it is the ready and alert beekeeper who succeeds. Many ask what is the average crop secured.

FROM THE FIELD OF EXPERIENCE

It is safe to say not more than 25 pounds of section honey.

Our bees seem to have become acclimated and fly and work under adverse conditions. I have seen them at work when the thermometer was close to 40 degrees. And they frequently work out in the rain. In January generally there are many days the bees can and do fly. In February some pollen is brought in from willow. In March an early crop of dandelion furnishes enough to boost breeding. In April the soft maples, and later vine, are fine honey-yielders. In May fruit blossoms; in June white and alsike clover; in July late berries blossom and general flora; but after July 10 the honey flow is negligible. No fall crop here is dependable and colonies do not gain any in weight or quantity—rather the reverse.

Handling or methods employed differ here as elsewhere. Some rarely fail in getting some results; others rarely get much, if any. In my own experience, I find success depends on eliminating swarming. **As you all know** how, I need offer nothing on this; but I have good success by adding an extra brood-chamber to each colony, thus securing a tremendously strong colony.

As new appliances are used, doubtless others find different results, necessitating different methods. For instance, the seven wires in the new honey-boards permit the bees to pass thru so readily and with such little interruption that often the entire brood-chamber is used for brood only, and nearly all the honey is placed above. With the old-style zinc it was often otherwise, and in some instances the lower chamber would be honey-bound; but a few honey-bound colonies are not bad property if stores are short in others. Bees are wintered on summer stands; no cellars here, no bee-houses that I know of, and if the hives are well sheltered from the winter rains, heavy colonies come thru strong. Many schemes have been, and are now tried, to eliminate mouldy combs. What works sometimes, fails other times. Frequently I find the strongest colonies have more mouldy combs than lighter ones. For years I have wintered late nuclei on five frames, and these generally show no mould at all. The boys who had the nerve to try out migratory tactics this year won out big. Many are leaving all their colonies in the mountains, as the locations are dependable. I shall give one instance only, that of a young couple, both of whom work at a trade. They had one day off a week and owned a few colonies. They increased and bought up to 40, moved these to the hills in July, and got a crop of over a ton of fireweed honey.

But another instance in 1918: When there was nothing in sight here, one took 100 colonies 30 miles to the hills where the whole mountainside was pink with fireweed. However aphis appeared and paralyzed things, and the bees were brought back starving by a sadder and wiser man. Still I have faith to the utmost that in this part of the great Northwest, we have a real God's Country, a good bee-country, the finest water on earth, no extremes, cyclones unknown, but months of disagreeable, wet weather that harasses Easterners. In eastern Oregon and Washington weather conditions are more like the Middle West, with hot and cold spells and less rain at all seasons. E. J. Ladd.

Portland, Ore.

A SWARM-PREVENTION PLAN

Provide Ample Room in the Brood-Nest for the Queen to Lay

From my experience I have come to the conclusion that swarming is brought on more often from this one cause than any other, insufficient room for the queen to lay **in the brood-nest.** Now, I can imagine somebody saying, "Oh! but that is nonsense, for I have frequently opened a hive immediately after a swarm had left, and found plenty of empty cells in the brood-nest." That may be so; but you must remember that the queen lessens her output of eggs a few days before the swarm leaves, so that her body may be lightened to enable her to fly. I emphasize **in the brood-nest** because in hives composed of shallow cases, such as the Heddon, queens sometimes refuse to pass from one case to another unless one spreads the brood either up or down. This is why the bottom case is often ignored by the bees.

I believe it is a mistake to suppose that there can be too great a force of workers. The larger the number over and above those necessary to attend the brood, the greater the quantity of honey stored. To remove **hatching** brood, therefore, is to decrease the proportion of workers and to take away a large number of cells which would have been almost immediately available for the queen to lay in.

I suggest that all **unsealed** brood be removed at regular intervals, giving it to a few strong colonies kept especially for the purpose, to be taken care of. In its place give back frames of **hatching** brood previously taken when unsealed. The result will be an enormous force of workers and an abundance of room for the queen to lay. Care must be taken that there be ample super room, as such a force of bees will store rapidly; and if super room is insufficient they will put honey in the brood-nest, and so bring on the very condition we are endeavoring to prevent. If a honey flow is on, it might be better to give foundation rather than hatching brood in the brood-chamber. In that case the hatching brood from the nursery colonies would come in handy for making nuclei, building up weak colonies, or forming new ones. B. Blackbourn.

Melbourne, Australia.

SIFTINGS

J. E. Crane

IT was a red-letter day the latter part of December when, with two other men interested in bees I rode to Somerset, just out of the city of Washington, Md., to visit the field laboratory and apiary of the Bureau of Entomology. Dr. Phillips and Mr. Demuth were just back from a trip of several weeks to the Southwest and Pacific Coast where they had been holding institutes or schools for advanced beekeepers in various places. Their enthusiasm over the outlook for the future of beekeeping was great. Dr. Phillips estimated that the future possibilities of honey production in our country when fully developed would be ten times the present output.

* * *

The old story in the book of Samuel concerning Jonathan's gathering up honey that had dripped from trees has seemed somewhat exaggerated, but Dr. Phillips tells how the honey or nectar is sometimes so abundant in the orange groves of California that it drips upon those cultivating them so that they have to change their clothes and sponge down their horses to get rid of the honey. If honey was as abundant in New England, I think we would find some way to gather it into our hives.

* * *

The apiary at Somerset, belonging to the field laboratory of the Bureau of Entomology, is nicely located to the north of the house, while close by to the west and north is a thicket of forest trees, largely evergreens. The grounds include, I should think, about one-third of an acre. Notwithstanding the sheltered position of the apiary I found the hives had been placed in large boxes, four in a box, and heavily packed with sawdust, leaves, or other non-conductors of heat. The entrances were reduced to one small hole, that I judged to be about five-eighths of an inch in diameter, but so arranged that a larger entrance could be given at the coming of spring. The conditions for wintering seemed ideal, but I should fear the heat in summer would be pretty severe for those at work in the yard.

* * *

Speaking of feeding bees sugar for winter feed, Dr. Phillips said that while bees have the power when fed slowly to invert sugar so as to prevent granulation, they do not always do so; so it is safer to use acid or honey with the sugar syrup. This had been especially true in the West where large quantities of sugar crystals have been carried out of the hives by the bees. This seems very strange to me, as we have been feeding tons of sugar as a heavy syrup often late in the season and just as fast as they would take it down and store it in their combs. I can account for it only by the possibility that where trouble has occurred bees have been fed beet sugar instead of cane sugar. Why there should be any difference I can not tell, but we know that housewives prefer cane sugar for certain purposes. Also candy manufacturers prefer cane. Further, we have understood that British beekeepers are much prejudiced against the use of sugar made from beets. [We have fed tons of sugar, either beet or cane, as a heavy syrup late in the fall and have had no trouble whatever from granulation.—Editor.]

* * *

I have great respect for the captain of a ship who can take his vessel out of one port and anchor it safely in another, it may be thousands of miles away, while ocean currents tend to force it in one direction, tides in another, and winds and waves in still another. So well is the skillful navigator able to master and solve this composition of forces that he is able to leave one port and reach another, thousands of miles away, with surprising accuracy.

Since coming to Washington I have become acquainted with two or three persons connected with the Bureau of Crop Estimates of the Department of Agriculture, and have come to appreciate their work as never before. Their work seems, in some respects, like that of the navigator. They gather up statistics from all sections of our great country. They have to make allowances for drouths and floods, for insects and blights, for frosts and summer heat, and, above all, for the imperfections in the reports of their reporters; and yet, so skillful have they become in this line of effort, that they are able to make very accurate estimates of the staple crops of our country long before they are harvested. So valuable and reliable have these reports become that when about to be made public the halls of the buildings are thronged with reporters and others desiring information; and for one or two nights 20 or more clerks and officials are locked up in the building that the reports may be given out at the same time to all, and thus the speculator have no advantage over the farmer.

Shall not we beekeepers who report on honey-crop conditions see to it that our reports are such as will help these experts to give us accurate estimates of our crops of honey from year to year?

* * *

I am glad that Mr. Warren has proved "beyond the possibility of doubt" that bees are most efficient agents in the fertilization of alfalfa, as told recently by E. R. Root. Again and again we see the value of bees, aside from the storing of honey or making of wax.

OUR FOOD PAGE

Stancy Puerden

WHEN a certain nice man with an ingratiating smile calls at our home I always know he has a dull axe concealed somewhere about him. Sometimes that axe takes the form of a few honey recipes which he would like to have me invent; sometimes he would like a few honey candies or honey cakes to display at a food show; sometimes it is an article on honey which he wishes written.

But one day, when neither of us happened to be quite so busy as usual, after he had secured a promise from me to sharpen his axe we fell to talking of the food value of honey, and he told me a couple of true stories which I am going to pass on to you. He said, after telling me the stories, "Mrs. Puerden, I have not dared to make these stories quite as strong as they were told to me." He knows I very much dislike to have statements as to the food value of honey exaggerated. The truth about it is quite good enough, and if we permit ourselves to claim too much we are only weakening our case.

YEARS ago this man, who has been connected with the sale of honey nearly all his business life, sold a few pounds of candied honey in the brick form to a Cleveland grocer. Honey in this form was rather a novelty at that time, and there was little call for it unless in a vicinity where it had been demonstrated. The grocer put it on his counter and there it stayed. His customers had never heard of it; they were not interested and declined to try it. Months later the weather grew warm, the honey began to liquefy, and pretty soon it started to leak out of those one-time neat packages on the counter. About that time the grocer, like the weather, grew warm under the collar and he sat down and wrote my friend, whom we will call Mr. Honeyman, a warm letter.

Mr. Honeyman admits that he was not as wise a honey salesman then as he is now, and he therefore refused to take the honey back, for the reason that he had sold the grocer a good article in perfect condition and was not to blame for its deterioration. For a year or two after that he heard nothing more from the offended grocer.

Then one day when he had charge of a honey exhibit at a food show a man came up to him and said, "Mr. Honeyman, do you remember selling me 16 pounds of 'honeyspred' some years ago, which you afterward refused to take back at my request?" Mr. Honeyman remembered it, and I imagine his feelings were not particularly joyous at this unexpected reunion with a dissatisfied customer. But the grocer had not come with a tale of woe, as you will see. He went on with his story thus: "Just about the time you refused to take the honey back my health broke down, and I decided to go out of the grocery business. I was troubled with indigestion and was in a much rundown condition. When I sold out I decided I was not going to sting my successor as I had been stung, and I therefore carried that despised honey home and put it in the kitchen. In so doing I got a little on my hands as the sticky stuff had oozed out of the package, and I put my fingers up to my mouth."

Isn't that just like Charles Lamb's story of how roast pig was invented?

To resume the grocer's story: "I discovered that the honey had an unusually pleasant flavor, and I began to use it freely on the table. I decided I was going to die anyway and might as well hasten the process by eating what I liked. I used one pound after another, with plenty of whole wheat bread, until the whole 16 pounds were gone. By that time I was feeling better and had acquired such a taste for honeyspred that I hunted groceries where I could buy more, and from that day to this honey has been almost constantly on our table. I am now perfectly well, able to work hard, and believe that honey had more to do with my restoration to health than anything else."

Someone may think that this grocer was over-enthusiastic, that change and freedom from care improved his health, and that his diet had little to do with it. Draw your own conclusions. I have told the story just as it was told to Mr. Honeyman. For anything we know to the contrary, the ex-grocer may have engaged in some other business which was more strenuous and confining than the one he sold.

THE other honey story came to Mr. Honeyman while he was in charge of a honey exhibit in California. A robust, fine-looking man came to him, and in the course of a conversation said, "I wonder if you fellows realize what a valuable food you have in this honey." Mr. Honeyman thought he did, but intimated he would not object to further enlightenment on the subject. Then this man went on to tell him how he came to California several years before this time, hoping to recover his health, which had failed until he was unable to do any work. He went to friends who lived on a ranch in the foothills, and those friends kept bees. Now you know the rest, don't you? Naturally he began eating honey, and he ate more and more of it, and then he began to gain in flesh and strength and kept building up until he was the picture of health. He also ate whole wheat bread with his honey, and like the grocer he attributed

the recovery of his health to the honey diet.

Now you know and I know that any patent-medicine manufacturer can find gullible people who can be induced to give him testimonials as to what his medicine has done for them. But the point that makes these stories so convincing is the fact that probably neither of these men used the honey with the idea that his health would receive any benefit from it. If a patient begins any course of treatment with faith that it will help him, it is almost certain to do so to an extent.

But the grocer not only had no faith in honey as a health-building food, but even had a prejudice against it, believing he had been stung. Also, neither of these men was solicited for testimonials, and had not been in the least interested in the honey business.

Practical Hints.

While most of the following timesaving hints are not new, I find so many housekeepers who do not know them that I am giving them a place here:

To measure accurately hard fat, such as butter, lard, or hardened vegetable fat, try the chemist's way. For instance, if you wish ¼ cup of fat, fill a measuring cup three-fourths full of cold water and then put in fat until the cup is full. Push the fat down so it will adhere to the sides or bottom of the cup, and when the water level reaches the full mark pour it off. This is much quicker than trying to crowd the hard fat into the cup compactly enough to measure it. Remember there are 16 level tablespoons in a standard half-pint measuring cup.

If you wish to pare potatoes a number of hours before you cook them, prepare them as usual, rinse them, and put them in the cooking utensil with a folded towel over them and tucked down closely at the sides. If they are covered with water for that length of time, they lose food value and tend to become water-soaked.

Before washing your meat roaster put in a teaspoon of sal soda or washing soda, add water, cover, and put over the burner until the water has boiled. This will cut the grease and loosen food particles which have dried on the surface. Other greasy cooking utensils may be treated in the same way except those made of aluminum.

Have plenty of asbestos mats in your kitchen. Those covered with sheet iron and with handles are durable and convenient. They eliminate all but a minimum of watching and stirring and save food and utensils from being ruined by scorching.

Worn Turkish bath towels may be made into convenient kitchen holders. If they are small, two may be put together, or a large one may be folded in the middle or cut in two and hemmed. They are easily laundered, and their size enables one to lift heavy baking dishes with both hands.

After washing your lettuce, dry it for salad by centrifugal force, on the principle of the honey extractor. Put it in a large square of clean cheesecloth, old muslin curtain, or any other thin cloth, step outside, and whirl it around your head. It will dry quickly and evenly.

If you wish to cut a brick of butter smoothly, without crumbling, wrap a sheet of oiled paper around a dull knife.

When you are about to fry food, stop and ask yourself if you could not do it more easily in your oven. Many foods commonly fried are just as palatable and more digestible baked, and the cook is saved unpleasant work and an unbecomingly flushed face. A number of the following recipes are for foods baked instead of fried.

BAKED BACON.

Slice the bacon very thin and arrange on a rack which is fitted into a pan wide enough to catch the drippings. Bake in a rather quick oven until done to taste. Bacon is much more delicate cooked in this way than when fried in its own grease, and the fat which tries out is white and well flavored. When bacon is fried the fat is darkened and the flavor of it injured. An ordinary wire cake cooler makes a very good bacon rack.

BAKED SAUSAGE.

Bake the sausage as in the preceding recipe. If you have no rack, it may be baked in an enameled pie plate if the fat is drained off several times in the baking process. Baked sausage will not burst as it does in frying.

BAKED LIVER AND BACON.

Liver
Bacon
Pepper
Salt

Have the liver sliced rather thin and parboil it by covering with plenty of boiling water, bringing it just to a boil and then draining it. On a flat baking dish arrange the slices of liver, season slightly with pepper and salt, cover each slice with thinly sliced bacon, and bake in a quick oven until the bacon is done. If preferred, the liver may be floured lightly after parboiling it.

PIGS IN BLANKETS.

Oysters
Bacon
Lemon juice
Pepper and salt

Wash large oysters, season lightly with lemon juice and a very little salt and pepper, wrap each one in a very thin slice of bacon, skewer with a toothpick, and bake in a hot oven until the bacon is crisp. Serve at once.

BAKED RABBIT.

Rabbit
Savory cooking fat
Minced onion
Flour
1 tablespoon vinegar
Salt and pepper
Water

After cleaning and cutting the rabbit in suitable pieces for serving, soak it in salt water for several hours, drain the pieces, roll them in flour, season, and arrange in a covered roaster. Dot the pieces liberally with a savory fat, such as sausage fat. As rabbit is a very lean meat much more fat must be used than for chicken. Pour over cold water until you can see it, add a tablespoon of vinegar and a little minced onion if the flavor is liked, cover, and bake until

(*Continued on page* 117.)

Beekeeping as a Side Line

Grace Allen

SOMEHOW I can't think Gleanings without Dr. Miller in it. I don't want to. Yet how much better to miss him in Gleanings, knowing he is gradually getting stronger there in Marengo, than to think of him as lying ill, as we have had to do for the last few weeks. Most heartily and earnestly do all of us, sideliners and mainliners alike, wish you a speedy return to health and vigor, Dr. Miller. Personally and professionally, you mean a great deal to all of us, more, undoubtedly, than you realize.

* * *

Imagine how the sideliners at the annual Tennessee Beekeepers' Convention felt when they heard J. J. Wilder of Waycross, Ga., admit that now he has 10,000 colonies! One of them felt exactly like that famous minnow that went "swimming with a whale." Ten thousand colonies is—well, it's a lot. Division, nuclei, purchase, almost any way that will make increase, is his method when increase is what he wants. And it has been pretty steadily what he has wanted. Simple division of colonies has been perhaps the favorite method. Then when Mr. Wilder begins to feel restless and cramped, and as tho he didn't have much of a bee business anyway, and must spread out a bit more, he takes his grip and goes off a hundred miles or two. There he starts a new apiary, builds up a lot of outyards for it, and leaves a good man in charge, to receive an attractive share of the crop. He always knows right where to go, because he keeps ahead of this expansion business by always having locations in mind, that he has already investigated; so that his problem resolves itself into, not, "Where can I put these bees?" but "Where and how shall I get the bees to stock that location?" So as soon as he gets the bees, he puts them there, gets the honey and sells it, and after a while, there you are—a 10,000-colony business. But a man has to use his head to do it, and sometimes he lies awake thinking about it all, Mr. Wilder admitted. And we sideline beekeepers sighed and thought it likely. Mr. Dadant, who had visited several of Mr. Wilder's yards, suggested that one reason for his success was his wise choice of men and his equally wise arrangements with them, arrangements that leave the men contented and interested.

I believe Mr. Wilder was downright shocked to find that I was really and truly only a sideliner! He urged me to increase and spread out. When I'm at a beekeeper's convention, I am always right on the verge of doing that very thing. Last year when I left the National, I was all ready to grow into a real whale of a beekeeper, with wild fluttering little visions up my sleeve of Mr. Allen leaving his own work and the two of us going together to some famed honey-producing spot—Ontario, Upper Michigan, California, or possibly the Balkans! But somehow when I get home, a score of other interests fairly spring at me, books and friends and church and clubs, a neglected but wistful typewriter, and the dear home itself, until gradually the beekeeping becomes frankly a beloved sideline again. Yet if a few more big conventions and a few more 10,000-colony beekeepers cross my path, no one can say what rearrangements might be made. Let me hereby warn all other sideliners too, and all beginners—if you don't want to become enthusiastic about this bee-and-honey business, and don't want to be troubled with insistent visions of how big a thing it might become, don't go to conventions. No, nor read many journals. They are all almost uncomfortably inspiring.

Porter Ward, the successful retiring president of the State Association, is always a real inspiration to sideline beekeepers, because he has made such a splendid success of it himself. A farmer first, he has done so well with his beekeeping that none of us will be surprised if some day we learn that it has become his chief occupation.

This year Tennessee was again favored at the convention by the presence of C. P. Dadant, and again the large brood-chamber became the subject of discussion. Dr. Herbert Sanborn of Vanderbilt University led an unexpected movement in favor of the Danzenbaker hive. A show of hands proved that very few in the audience had ever tried the Danzenbaker, and these seemed not to follow Dr. Sanborn's leadership in defense of them. It occurred to this sideliner, listening, that hives and frames, in their different styles and sizes, are much the same as different kinds of people. They all have some good points and some bad. One beekeeper, having accommodated himself to one hive, shapes his systems and methods to it, and learns to take full advantage of its good points and disregard its faults. Another, impressed chiefly by its faults, will have none of it. Which is, indeed, quite consistently human. Why expect unanimity on beehives when it couldn't possibly be secured on any other question? The men in any room outside a denominational or party gathering would differ utterly, almost hopelessly, on point after point in their politics and their religion—or, more properly, their theology. (I cannot resist here recalling how Lyman Abbott distinguishes between these two so-different things. Religion, he says, is "the life of God in the soul of man;" while theology is only what men think about it. Some day, some far-off golden day, we shall drop our little theolo-

gies and know ourselves one in the holiness and power, the reverence and service, of religion.)

Coming back to our convention, tho, Dr. Sanborn, who is head of the Department of Philosophy at Vanderbilt, gave us a most impressive paper on "The Present Status of the Problem of Heredity." I was interested in one question he let drop, unanswered: "Do bees gather more now than in primitive times?"—meaning, of course, bee by bee. Undeniably, modern beekeeping methods have brought about a higher average colony surplus, but do the individual bees gather more, Dr. Sanborn wonders. Dr. Miller is a famous exponent of the theory that by breeding continually from the best, one can build up a better honey-gathering strain. On that theory, there should sometime come a day, even tho it be not yet arrived, when the bee can gather more nectar than its primitive ancestor.

Kennith Hawkins of Watertown, Wisc., talked on that most important of all subjects, "Getting a Maximum Yield," emphasizing once more the dictum, "Get your colony strength to its greatest in time for the big flow—not some time later."

Then we continued in office for another year our able secretary, Prof. G. M. Bentley, State Entomologist; while as president and vice-president respectively we chose two comparatively new names in our beekeeping midst—O. R. Reichley, Dyersburg, and Prof. Floyd Bralliar, Madison Station, Nashville.

* * *

I was interested in what Mr. Parks said in the January number (page 31) about the apple and peach trees of Texas blooming for short periods in the fall. Prof. Bralliar, our new vice-president, told us at our convention, that the elms in this locality were in full bloom last fall, and that their bees securred some surplus from it. It was news to many of us that our elms ever did bloom in the fall, but he assured us it was true last fall not only of elms, but also of catalpas and some pears, and expressed natural surprise that we had not noticed it. He brought a jar of this fall honey with him, calling it elm honey, tho admitting it was mixed to some extent with nectar from other sources. It was somewhat dark with rather a strong flavor. [According to that very good authority, J. H. Lovell, elms yield no honey but do yield pollen and quite often honeydew.—Editor.]

* * *

Has anybody noticed that I haven't said a word about wintering this season, not a single word about packing? That's not the worst. I haven't done a bit of it, either. That wasn't intentional, tho. It just happened. Refraining from the written remark was intentional. One thing I must say, however, in passing. The four colonies that wintered 1918-19 in the one quadruple case we possess, and in which last winter we used the two-or-three-little-hole-entrance advised by Dr. Phillips, showed right up to the top notch in honey production; that is, they were among the very best in the yard. There were other colonies that did as well, but no other four right together than ran as well as this four. They were about even one with the other, and all as good as the best. That's something, isn't it? We intended using the case again, and trying to get a better grade of chaff, as what we got last fall was not much better than straw. But we kept waiting, waiting, for the carpenter to get the fence built in the new place, as we have to move the bees; and presently it was December, and they were neither moved nor packed. But we did put mouse-excluding wire across every entrance and so hope to avoid the sad experience of finding mouse-ruined combs next spring.

* * *

The year 1919 closed mildly. Up to the end of December there had been no severe weather, tho we had experienced a few of those sudden changes that so disturb both human and apiarian tranquillity. Then how 1920 did jostle 1919, the night of December 31, when they met at the gate. The last time I looked at the thermometer on our porch in 1919 was at half past seven the last night, after the sun had set and dark had come with her chill. But there was the mild old year gently registering 64 degrees. The next noon, in the warmest part of the day, the mercury had been pushed down to 34 degrees by the scornful young year, riding a wind from the west. And notwithstanding the gay fire in my grate, the air from the wide-open window struck cold and things crackled in the room. But it was a bright, sunny day, the kind one likes for New Year's Day. May 1920 be a bearer of much that is good.

* * *

Miss Flora McIntyre (page 38, January Gleanings) makes me a little ashamed that I have never even thought of trying to increase the becomingness of things in the beeyard. Perhaps it would be only honest to admit at the same time that I have the bad habit of dreading to think of clothes, anyway. I like them pretty and all that, if somebody else will just do the thinking about them and planning and making. That's why I mostly buy them ready-made. If someone would only start a factory for making becoming beekeeping suits and hats and veils, I'd promise to be a good customer. But that idea of splashy gay silk on the hat brim, drooping a bit over the edge and helping make soft shadows underneath for the eyes to rest in, this I like well enough to try it myself—tho alas, I have no lovely golden curls!

* * *

A "Boys' and Girls' Beekeeping Club," mentioned now and then, is a capital idea. With our exhilarating climate, children will be doing something. Why not get them interested in something useful, instead of wasting their time in play or in annoying their neighbors?

FROM NORTH, EAST, WEST AND SOUTH

In Northern California.—Our State has an enviable record in honey production; for not only has she a very high average production per colony, but she also continues to lead all other States in the quantity of honey produced. According to the Bureau of Crop Estimates of the United States Department of Agriculture, California produces more than twice as much as Texas, her nearest competitor; or in other words, our State furnishes 15 per cent of the total amount of the honey produced in the United States. Texas comes next with 7 per cent, followed by Iowa with 6 per cent; and then come New York, Illinois, Michigan, and Wisconsin, with 4 per cent each. California's average production per colony for the past six years is 60 pounds per colony. The average of other leading States is as follows: Texas 37 pounds, Iowa 57, New York 45, Illinois 47, Michigan 49, and Wisconsin 58. Ninety-seven per cent of our honey is placed on the market in the extracted form, leaving but three per cent as comb honey. There is no other State that produces a greater per centage of extracted and less comb honey than California. Last year the ratio was not so great, being 90 per cent extracted and 10 per cent comb. Outside markets take 85 per cent of our crop, there being no other State that is compelled to seek outside markets for the disposal of their crop so extensively as California. The marketing problem with her is much more of a problem than it is with any other State. We produce 15 per cent of the honey produced in the United States and must seek an outlet for 85 per cent of the amount. Texas produces 7 per cent and disposes to outside markets 60 per cent of her crop. Iowa produces 6 per cent and has only 20 per cent of the amount to dispose of outside the State. Obviously the marketing problem in Iowa is not a leading one. The three States, Illinois, Michigan, and Wisconsin, that produce each 4 per cent of the crop of the United States, have for disposal to outside markets respectively only 15 per cent, 25 per cent, and 28 per cent of their crops. Like Iowa, these States do not consider the marketing problem as a vital one. This problem is essentially a Western problem and concerns itself principally with California and Texas. Colorado, Idaho, and Arizona produce respectively 3, 2 and 1 per cent of the honey produced in the United States, and the disposal of the crop to outside markets is respectively 69, 75, and 68 per cent.

Of late there has been some discussion in the journals regarding the feasibility of federating the various marketing associations of the State into a central national body. In view of the above, the Eastern States have very little in common with their Western sisters, and an organization of this kind would more than likely result in failure. A federated marketing association of Western States would be more likely to prove a success; yet, even an attempted federation of this kind, at this time, in the opinion of your correspondent is unworkable. Nor does he believe that the time is near at hand when such an organization is necessary. California and Texas organized marketing associations because they had to do so. The speculative buyers had become very bold, and not a few used unscrupulous methods. Colorado and Idaho also found it necessary to organize. Arizona markets 75 per cent of her crop outside her boundaries and is today the stronghold of the speculative honey-buyers. Arizona will soon find out that she has to organize. Marketing associations do not come into being because they appear attractive to prospective members or seem to be a good thing—they come into being simply because they have to. It has proved a distinct advantage for beekeepers to join together in a central marketing scheme; and when this scheme reaches a high state of perfection (which is by no means the case today), it will be possible for the beekeeper to realize even greater profits than did the speculative buyers, and that too, without increasing the price to the consumer. In time, if California or Idaho or Texas or any other State or any combination of States find that they must co-operate, such a federation will be a necessity. These problems are worked out by themselves and can not and should not be anticipated.

Modesto, Calif. M. C. Richter.

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In Southern California.—'Tis January — and the New Year finds Southern California far short of rain sufficient to give us any assurance of a crop for 1920. To be sure, we have had some rain, which started the grass nicely but did not wet the ground to any great depth. High, drying winds have carried away much of the moisture. During such years as the one just past, one is most forcibly impressed with the fact that the greater part of southern California is dependent almost entirely upon the rainfall for its honey crop. Notwithstanding the fact that the alfalfa, oranges, and many of the beanfields—what are known as the irrigated crops—produce many carloads of honey, yet I feel safe in saying that, with an abundance of rainfall, the honey crop of these sections would be fully two or three times as great as in a dry year. In talking with beekeepers who depend entirely upon the sages, buckwheat, blue curl, sumac, and the so-called wild plants of our waste lands, I am surprised to find so many who made little or no honey during the season of 1919. It has been several years since we have had a heavy rainfall, and many people feel

FROM NORTH, EAST, WEST AND SOUTH

that this is the winter to get it—so here is hoping.

One crop this year is surely immense and that is the "tourist crop." Never in our history have so many visitors come to our State for the winter. In many of the larger cities it is often hard to find a place where one can secure a bed for the night. Some of these tourists are beekeepers and are not fully decided but seem to be somewhat in this frame of mind, "I came from ———— and can go back there; but, if I can get an apiary or a good place to work, I would like to remain in California a year or two, anyway." Many of these fellows report crops at home, which, I must say, will compare favorably with any of the records we can show. Better make haste slowly when thinking of changing to an entirely new climate, new conditions, etc. We don't make a crop every year, and 1920 may be one of the best or—well, the other kind.

What a pleasure to be able to call meetings and go to places without the fear of the flu, which was so prevalent over the country last year. According to reports, there have been but few cases in evidence this year.

Queens? Yes, they are the backbone of our apiaries. Where can we get them? To be sure, we have some good queen-breeders but not enough of them. At any rate, they do not have enough queens when people want them the most. Is there not sufficient money in the business to warrant men and women going into it? Some inducement should be offered to get enough people into the business so that the beekeepers can get all the queens they want during the spring and early summer. I think that there are usually plenty available during the late summer and early fall.

Each year finds another section of California trying out the growing of cotton to the extent of thousands of acres in a locality. It is only reasonable to suppose that in some of these places the cotton will yield honey. They say that it is pretty well conceded that little or no honey is stored from the cotton of the Imperial and Palo Verde Valleys.

Reports of the attendance at the short course in beekeeping held in San Diego, I am sorry to say, do not indicate that the interest shown by the beekeepers was as great as this excellent work is entitled to.

Five or six carloads of bees have arrived from the north since my last writing. A few of these colonies are light, but the majority are in fine shape and should give good results during the orange flow. The eucalyptus is reported as yielding nectar, and the strong colonies are getting considerably more than a living.

February is not too early to be sure that all colonies have several weeks' stores on hand. By the middle of the month all of the queens should be laying, and many colonies will have from two to five frames with brood the size of a saucer. On warm days you should see many bees entering the hives with pollen. If any is available the stronger colonies will get a little honey. This, except in very favorable locations, will not be of much benefit and must be supported by a sufficient reserve within the hive. About 60 days seems to be the accepted time to count on a normal colony getting ready for the honey flow. Uncapped honey in the combs is often mistaken for nectar just brought in from the fields. There are some things that we cannot prove, but it is supposed that this condition is caused by the bees either uncapping or moving the honey already in the hives. Be sure that all colonies have sufficient stores to last, should unfavorable weather keep the colony confined for some days or weeks.

Corona, Calif. L. L. Andrews.

* * *

InMinnesota.— The annual meeting of the Minnesota Beekeepers' Association was held at the University Farm on December 31 and January 1. The sessions were interesting, instructive, and well attended. O. J. Goodmanson of Little Falls explained how he packs his bees for outdoor wintering. Prof. G. C. Matthews gave methods for practical home queen-rearing. He also spoke on the subject, "Extensive vs. Intensive Beekeeping." This latter paper has been published by the State Inspector of Apiaries in connection with his last annual report to the Governor. C. B. Stravs, Superintendent of the Bee Culture Department of the State Fair, spoke very encouragingly of the work of the department during the past year. He reported that the number of exhibitors increased 40 per cent over that of the previous year. Premiums paid out amounted to $834 out of the $1,100 appropriated. All exhibitors, who desired to do so, were able to sell their exhibition honey in the building at 50 cents per pound, thereby saving the trouble and expense of shipping it back. Some of the exhibitors preferred to keep their honey for their own customers. About 70 per cent of the exhibition honey was sold, bringing $1,700. Plans are being considered for the enlargement of the honey building, providing for the putting in of a fully equipped extracting outfit for exhibition purposes, and a more suitable place in which to give the daily lectures on beekeeping during the period of the fair. Prof. Francis Jager spoke on the subject of "Larger Hives," also on "Problems of Wintering Bees." Dr. L. D. Leonard, speaking on "New Beekeeping Pointers I Learned This Year," emphasized the importance of planning far enough ahead to have 10 pounds of sugar for each

FROM NORTH, EAST, WEST AND SOUTH

colony, and then feed it not later than the first of October. F. E. Balmer, State Leader of the county agents, read a paper on "What Minnesota Beekeepers May Expect from County Agents." This paper contained so many facts of interest to the beekeepers of the State that we shall refer to it in a future number, and likewise to the paper by Prof. L. V. France on "Minnesota Beekeeping Illustrated." Many others contributed towards making the meeting one of the most successful held in many years. The election of officers resulted in the re-election of Prof. A. W. Rankin for president and Otto L. Wille, 110 Bates Avenue, St. Paul, as secretary-treasurer. Prof. France, the retiring secretary, felt that he could no longer devote the necessary time to the office. A hearty vote of thanks was given Mr. France for his faithful and untiring services as secretary during the last four years.

We are looking for a heavy loss of bees this winter. Judging by the letters which have been received from various parts of the State, and by the discussions at the annual meeting, many colonies went into winter quarters with insufficient stores to carry them thru the winter. Many others will come thru the winter light in stores. These should be fed as soon as taken from the cellar. Anticipating a good flow, many sold themselves short of white honey. But the fall flow did not materialize and sugar could not be purchased. Now, let us not forget the lesson which experience has taught us.

Dr. E. F. Phillips and staff are announced to hold a Beekeepers' Short Course at the University Farm, St. Paul, during the week of February 16-21. We are sure that every one who attended the course which Dr. Phillips conducted there last April will make a special effort to attend this course.

Minneapolis, Minn. Chas. D. Blaker.

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In Texas.—The Beekeepers' Short Course held at San Antonio, Dec. 15-20, was a success in every way. In spite of the rain and the cold there was a regular enrollment of one hundred and thirty. Besides Texas, 12 other States and one country (Mexico) were represented by beekeepers. In addition to the regular beekeepers a class from the high school attended each afternoon session. A number of soldiers from the school at Fort Sam Houston took this work as a part of their regular school course.

A representative survey of the State, relative to the conditions of bees and honey plants, was made Dec. 15. The findings are peculiar in that they are contrary to the common opinion. The bulk of the bees of the State are in better than average conditions . It is hard to account for the spotted conditions found, for some good beemen were compelled to feed; but the reason for the widespread cry that the bees are starving is that the newspaper accounts of loss of bees in other States caused the bee-owners who never care for their colonies to investigate, and, as a rule, these neglected bees were starving. The report on honey plants is all one could ask for. In every instance the report is that all species are in first-class condition and present in more than normal quantities. The biennials, like horsemint, aster, boneset, and broomweed, are reported to be in the best condition since the winter of 1913. Fall-sown sweet clover has done remarkably well.

One of the things brought out during the Beekeepers' Short Course at San Antonio was the fact that Texas, a great honey-producing State, not only consumes its own honey but imports large amounts from other States. This does not mean that Texas exports no honey, but it does mean that Texas people have learned to eat honey, and when the home-grown article is no longer available, they import it rather than use cane or other syrups. If the west coast and white-clover regions would follow Texas in the matter of home consumption of honey, the low price of honey would no longer be the topic of beekeepers' meetings.

Reports indicate that the whole State is suffering from a plague of mice and rats. A similar outbreak was reported in 1918 in several counties in east Texas, but now it seems to have spread over the entire State. As soon as winter caused the rodents to seek protection and food they made themselves at home in houses, barns, and even beehives. In many places the blocks, used to narrow the entrances to the hives, have been pulled away or gnawed out by the pests. As usual the box-gum owner is the greatest loser. Many of our beekeepers have solved the protection problem by putting a piece of queen-excluder as a guard over the entrance.

If we are to get the best out of our honey flows in southwest Texas, it is evident that brood-rearing must begin in early December, if the bees are to be ready to care for the agarita flow. It was brought out in the Short Course that tulip-poplar became known as a honey plant only after the bees were so wintered that they stored the flow instead of building up on it. The agarita flow begins about Feb. 15 and lasts a month. Rock brush, Mexican persimmon, and huajilla give a continuous flow from March 12 until May 15. It is more than likely that the reason for the big flows from huajilla, catsclaw, and Mexican persimmon is that the heavy flow from agarita enabled the bees to build up by the beginning of the second flow. If the proper stores and winter protection were given, it is probable that the bees would be able to build up to their maximum and store part of the agarita flow.

College Station, Tex. H. B. Parks.

FROM NORTH, EAST, WEST AND SOUTH

In Ontario. — The past month in Ontario has been quite cold, with little snow here in York County. Within the last few days we have had some snow; but automobiles are yet to be noticed once in a while, plowing thru the roads and spoiling the sleighing. But, I guess, gasoline as a motive power for traveling is about done for this winter—anyway, after Jan. 10 auto traveling seems a bit out of season here. From the beekeepers' viewpoint, we shall be glad to see a continuous mantle of snow on mother earth for the next 10 weeks, as lots of snow generally means good wintering of the clover. As repeatedly mentioned in these columns, cold weather is often not nearly so great a factor in the wintering of bees outside as some other conditions local to certain sections. While we have had little snow here in York County, and hives are exposed to the winds at all times, at the yards in Simcoe County there has been much snow for six weeks past. A letter from a good friend near our bees up there says that packing cases have been covered for some time, and all one can see is mounds of snow in the rows of the apiary. Now, while the weather has been quite a lot colder there than here, yet one can easily guess where the bees have been the more comfortable and where they are apt to winter the better. At these yards in Simcoe County the snow has in different seasons covered the bees for over three months, and, aside from one or two getting entrances blocked each year with dead bees, they have always wintered splendidly. Our entrances are one-half inch deep by five in width, and if always assured of a good snowfall I should make them larger instead of smaller. However, I am not satisfied with the long, narrow entrance on account of the danger of clogging with dead bees during a long-continued confinement, and we think of making deeper bridges between the inner hive and the packing case, having a narrow upright outside entrance instead of the present style. That would allow bees to get quite deep on the bottom-boards and yet the entrance would not be clogged. This system is used largely by many of our best beekeepers, and its advantages are quite evident. It may be argued that more packing would overcome the difficulty, but our experience emphatically says, "no." In years when we have had little snow up north (and that has happened twice since we had bees there), we had no entrances clogged. The trouble happened when hives were completely covered with snow and had enough of Nature's "packing" to make all the protection for which the most enthusiastic advocate of lots of packing would wish. More than than, the entrances had not been clogged with snow, as a large opening is always thawed around the entrances of the hives. Very small entrances in outdoor-wintered colonies may be all right where constant attention can be given, but I would not care to risk them in an apiary that we do not see from October till next April—and that is the condition we are up against in different yards.

Last week I was in Toronto, and, as usual, I made inquiries from honey dealers as to how our product is moving. I was disappointed to find the universal complaint that honey is having a very slow sale. In the face of facts indisputable that nearly all other lines of food products are moving higher all the time, and the demand for them is very firm, it is time for us to inquire just why honey is having such a slow sale. Lack of export is given as one of the main reasons, but our crop last year being quite light should easily be handled by home consumption. What would have happened if our crop had been on a par with that of 1916? Perhaps it would have moved more freely with a restricted crop; but if such a thing had happened, and the home demand had been as slow as now reported, certainly there would have been a break in prices.

One of the interesting talks given at the last convention of the Ontario Association was that of Wm. Agar about beekeeping in New Ontario. In the spring of 1919 Mr. Agar accepted the position of apiary inspector for one of our southern districts, and, having only nine colonies of bees in New Ontario at a point about 350 miles straight north of Toronto, he decided to let them go on the let-alone plan for the season. He left quite early in the spring, and without any attempt to equalize in any way he simply piled supers of drawn combs on each colony. Seventy supers, 10-frame Langstroth size were piled on the nine colonies. I forgot to mention that Mr. Agar had previously sold the rest of his bees, but had all these combs left on hand. The first two supers were placed crosswise on the brood-nest side by side, a strip being nailed on each super at the side so as to close up the space that would have been left. Then two more were put on top and so on—an average of eight supers to each colony, all given at once (May 20) and no excluders used. He did not get back to New Ontario till Sept. 15. Two colonies had done nothing—perhaps they had superseded queens and simply built up—at any rate, they had no honey in supers and just enough for winter. In the other seven hives conditions were good enough to please anybody. After leaving each colony a super of capped honey for winter use, in addition to some in brood-nests, from the seven colonies he extracted 1,725 pounds of fine honey. Allowing for the seven supers left with the bees, the surplus stored would average nearly 300 pounds per colony, and they were never looked at from May 20 to Sept. 15. All things taken into consideration, is not this a record?

Markham, Ont. J. L. Byer.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Dr. Miller Comes Back.

In Gleanings for January, page 18, C. E. Fowler gives some figures supposed to show how it works out when a plan of rearing queens that I advocate is used. Then he says, "Now let us breed my way," and he gives some more figures intended to show that by his way 33 per cent more honey may be obtained.

Probably most of the older readers know the plan I advocated. It may be given in four words: **Breed from the best.** That's all. There's nothing original about it, and I have no copyright on it. Simply breed from the best, always from the best.

But in giving figures for carrying out my way, Mr. Fowler rears a queen each from colonies yielding respectively 100, 50, 0, 150, 200 pounds of honey. And then Mr. Fowler says, "I hope the Doctor sees the truth of the above figures and will confess again."

I must confess, friend Fowler, that I do not see all things as you seem to see them. You figure that the amount stored by any given colony depends altogether upon the character of the drone with which the queen of the colony has mated and not at all upon the character of the queen herself. In accordance with that view you say that in your way of breeding you "prevent all drones flying except from hive No. 105," and so you will "have all queens whose colonies give 200 pounds."

I am willing to grant that the drone is equally potent with the queen, indeed to grant the prepotency of the drone, but when you claim **all** the potency for the drone I must demur. For in that case the worker progeny of a drone will be equally good whether he mates with the best or the poorest queen in the yard.

The thing, however, that puzzles me most is how you can understand that in carrying out my way one can breed from queens of different grades of goodness and still call it breeding from the best. Indeed, I cannot help wondering whether you really mean that, and I should appreciate it if you would say whether when one breeds from a 200-pound queen and at the same time from a zero queen you would call that **breeding from the best.** C. C. Miller.

[Doctor, we are indeed glad to see the old spirit aflame in you, even if you can't write a whole load of "Straws."—Editor.]

Where Bees Build Drone Comb.

Since reading the article in Gleanings last spring, page 210, on "Elimination of Drone Comb," I have transferred 25 hives from box hives to hives with Hoffman frames, and I made note of the amount of drone comb in each hive and its location. While in three of the hives the combs were as straight and as even as any I have in my 65 hives, and it was a pleasure to cut them out and tie them in the frames, the outside combs on the east side of the hives facing north were filled two-thirds full of drone comb near the center of the hive; and at the rear there were patches of drone comb the size of my hand. In some of the hives one-fourth of the combs were drone comb.

By noting the conditions of the combs I could reasonably judge the age of each comb, as none of them, the owner told me, was more than four years old. My observation was, if the bees built all the comb in one season there was a greater amount of drone comb than if they built it on the installment plan.

Mr. Miller's side-entrance theory may work all right in modern hives, but the bees do not know it. In only two hives was there a whole drone comb in the middle. I judged there was an old queen in that colony, and the outside comb for them the first year was in the middle of the hive body or gum. The next year they then finished it out as drone comb, and placed worker comb beyond it to the eastward. I did not find a single piece of drone comb on the west side of a single hive. J. E. Sutton.

Jackson, Ala.

Frames Wired to Prevent Sagging.

As I now have success in getting perfect combs built on wired foundation, it might be well to tell in Gleanings how I do it. Maybe some other beekeeper can improve on it. I have, at last, by experimenting, succeeded in preventing any stretching or sagging, even if light brood foundation is used.

I wire the frames horizontally with three wires and the foundation with four wires vertically, all put in with electricity. I

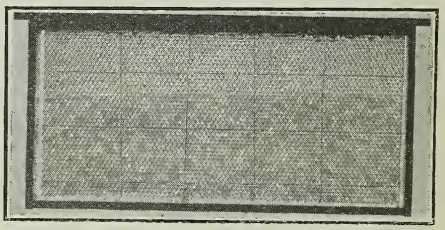

Fig. No. 1.—Light brood sheet vertically wired.

have perfected a machine to put the vertical wires in the foundation before it is put in the frames, and it is right speedy and does good work. All the wires are imbedded at once just by turning on the current.

The photographs show the result. No. 1 is the light brood sheet after the vertical wires are put in. No. 2 is the frame after

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the foundation is put in and the horizontal wires are imbedded. No. 3 is the empty

Fig. No. 2.—After the horizontal wires have been imbedded.

comb after the bees have drawn it out. Doesn't it look perfect?

The foundation is fastened in the frames

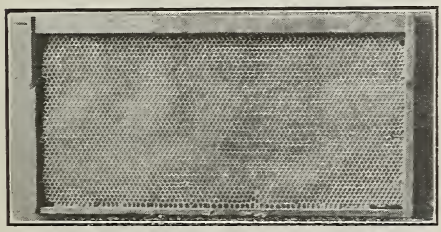

Fig. No. 3.—After the bees have drawn out the comb.

with melted wax. That is what makes the spots shown beside the top-bar.

Brush, Colo. Daniel Danielsen.

How to Get Rid of Drone Comb.

In the elimination of drones, I have observed three principal causes of the bees building drone comb at the sides of the frames:

(1) Whenever the foundation is not imbedded properly, but becomes separate from the wire, the bees promptly cut it away, as they will not allow a space between the wire and the foundation.

(2) Also drone comb results whenever the foundation is imbedded too deep, so that it is weakened.

(3) Further, if foundation is given the bees when no honey is coming in, they cut below and above the wire, and thus gradually make holes.

I overcame the excess of drone comb by daubing a little hot wax over about two inches of the two lower wires at the corners. This covers the wires and braces the foundation. I have used thousands of such frames of foundation. My frames are wired with five wires, and the lower wires daubed with wax. Four wires are placed as in the ordinary way, and the fifth wire is halfway between the upper two. This braces the weakest part of the comb.

Medina, O. J. E. Thompson.

Louisiana a Good Field.

We have one of the best States in the Union for honey production on a large scale, but up to the present time there are very few large producers in the State.

The lower portion of the State is our best part. Here are hundreds of honey-producing plants, including willow, tupelo gum, black gum, red gum, white clover, persimmon, scrub palmetto, maple, pepper vine, goldenrod, heartsease, and late blooming thoroughwort. Any of these plants are in abundance. This flow of honey begins about the first of February, and continues thru the season, until killed by frost. I have just returned from this district; and on the 10th of December found asters, goldenrod, mistflower, and elderberry, all blooming. This district is anywhere from Morgan City to Des Allemands, La., on the Southern Pacific Ry., out from New Orleans, and this particular territory extends north and south from here for 50 miles or more. One beekeeper in here this season made 571 gallons of honey from 42 colonies, and another made 28 half-barrels from 58 colonies.

The only drawback is the Argentine ant, which gives the beekeeper much trouble. But there are ways of overcoming and controlling this pest. E. C. Davis.

Baton Rouge, La.

A Scale House for Protecting Scales.

A scale house should have the following requirements: (1) Sufficient floor space for the scale; (2) sound construction; (3) enough super room above; (4) a suitable bee-entrance; (5) good ventilation; (6) a small opening for weighing only; (7) easy access to the hive for manipulations; (8) easy opening and closing of the house, with little disturbance to the bees; and (9) easy means of placing and removing scale.

The accompanying views show a scale house which conforms to these requirements. The frame work is of 2 x 4's, and the sides

Frame work of scale house.

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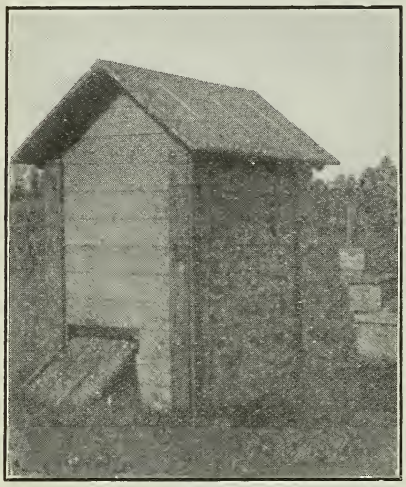
are of drop siding. The material cost about $8. I did the work. The top is hinged on the under side of the rafter projections so



Outside appearance of scale house.

that it will tilt back only as far as shown in the picture. It is held tight in this position by brace A, notched on the ends to fit. One side and the back are hinged to one corner post, which is braced by B, a removable brace mitered on the ends, which are fitted under mitered blocks. When the house is closed, the drop siding and corner boards fit together exactly. Weighing is done thru opening D, closed by a small door. Ventilation is thru the bee-entrance and the spaces marked V between the plates and the roofing boards. One fault that might be found is that the floor space is a little too large for the scales.

A scale is the best measurer of the honey flow as it is gathered, and it is often quite advantageous to know just when the surplus from a flow ends. After having had a scale, I would not want to be without one. But I also would not think it economical to expose a good scale to all kinds of weather—hence my scale house. Ivan Whiting.

Plymouth, Wis.

Seriousness of Isle of Wight Disease.

It is some years since you have heard from me. Now that the war is over and we don't live any more on an island shut off from other countries, I will give you a sign of life.

It is known to you that in England the beekeepers are still fighting against the well-known malady, Isle of Wight disease. It seems to be an awful malady, and during my visit in England I saw more empty hives than populated ones. Many beekeepers lost all their stocks. It is very interesting to read what Joseph Tinsley of the West of Scotland Agricultural College at Kilmarnock writes in his preliminary report on the Isle of Wight disease. So long as we don't know exactly what bacillus is the cause of this awful malady, it is hopeless to fight it.

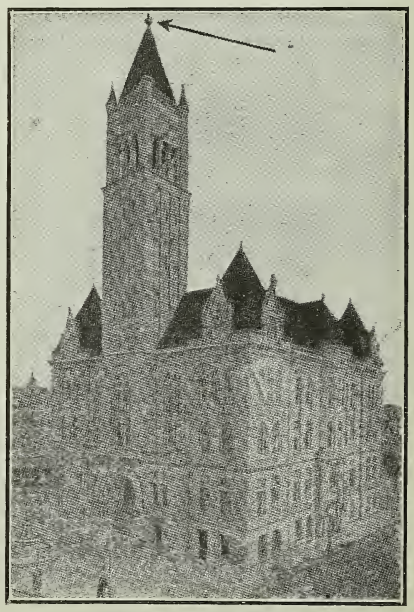
Dutch bees don't take this illness. Mr. Tinsley told me that he had fed Dutch bees with honey in which were dead bees which had died from Isle of Wight disease. However, the Dutch bees did not catch the disease. This I think is a proof that our bees are well able to withstand it.

W. Herrod Hempsall, editor of the British Bee Journal, said that we had the same illness here in Holland 80 years ago, and that now the bees have become immune. Whether this is true I cannot say, as I have never heard this story here. At the same time I heard that they will now allow Dutch drones to cross with Italian queens. The result of this the future must tell. Tho the real Dutch bees are able to withstand the illness, it is still doubtful if the cross with Italian queens will as readily withstand it.

Breukelen, Holland. Hans Mathes.

Some Bees Are Very High.

The Wood County court house of Parkersburg, W. Va., stands right in the business section. On the top of the tower is an open ball (or lattice-work sphere). A colony of bees have taken



Arrow shows where bees are.

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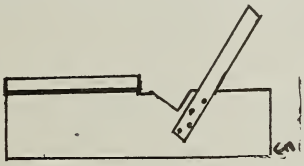
possession of this, a hundred feet or more above the street. From the number of bees flying around it, it must be a strong colony. The janitor says he is going up to get a pot of honey. He is certainly welcome.

Parkersburg, W. Va. Dr. J. F. Hill.

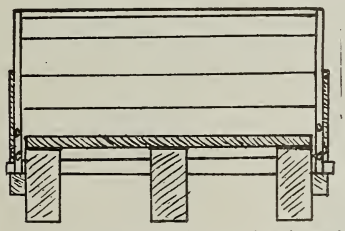
Form for Fastening Foundation. The drawing shows a simple form I am using in fastening foundation into frames with the triangular strip. It is quite a satisfactory idea when put into



Side view showing foundation board, groove, and stick for holding up frame.

practice and is much quicker than when the frames are held by hand or leaned against something.

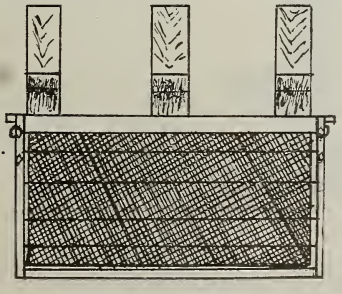
It can be made in just a few minutes by using three 2 x 4's about 15 inches in length, and sawing out an angular piece as shown in the side view. An inch is deep enough,



End view, with frame for tacking in strip.

with a convenient slant for ease in nailing. Tack a strip on the outside of two pieces 3/16 of an inch back from the cut, giving them the same angle as the cut. Then nail the three pieces together, with a board that fits loosely into the frame and about ½ inch thick, and the form is made.

In using it, a frame is placed in the groove, the foundation put in position, and



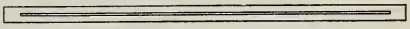
Top view with frame in position for imbedding of wire.

the strip toe-nailed in place. The frame is then dropped forward on the board and the wire imbedded. About one handling of the frame is all that is necessary.

Raleigh, N. C. J. E. Eckert.

Bottom Starters in Brood and Extracting Frames. Having in view the desirability of getting combs of worker-cells in brood and extracting frames built down and securely attached to the bottom-bars, and the difficulty the average beekeeper has in attaining this result, perhaps the method described below may be of value.

The plan has, I think, the merit of being simple as well as secure. I have the bottom-bar of the ordinary standard frame made



Bottom-bar with saw-kerf.

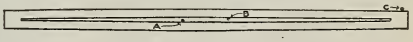
with a saw-kerf which practically divides it into halves lengthwise to within ½ or ¾ of an inch from each end as shown.

The assembling of the frame is performed in the usual way, and also the wiring.

The bottom starter is of medium brood foundation, and cut in strips ⅞ inch wide by ½ inch less in length than the inside measurement across the frame horizontally.

To put the starter in position, take two two-inch wire nails (a) and (b) and cut off the heads. Then drive them into a board or into the top of the workbench, spacing them about two inches apart, and allowing them to stick out about ⅛ of an inch.

The bottom-bar of the frame is then placed over the projecting nails (a) and (b) which enter the saw-kerf midway between the ends. An end of the frame is then pressed slightly to one side, and so held by a movable pin (c) inserted in a prepared hole bored in the bench top. The saw-kerf will now, as shown, be sufficiently widened



Showing saw-kerf widened to receive starter.

out to receive the prepared starter, which can be dropped into place. The holding-pin (c) is now removed, and the saw-kerf closes up, holding the foundation firmly; and if any extra firmness is desired, a fine nail can be driven thru the bar at the center, from edge to edge. The starter is held upright; and as it will be ⅝ of an inch high there will be but little chance of its folding over sidewise, as, I fear, often happens with the melted-wax method of fixing.

To prevent the bulging of the finished comb, a space of about ⅜ of an inch should be left between the lower edge of the main sheet of foundation and the upper edge of the lower one, or starter.

These starters have proved very satisfac-

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tory to me. It might seem that such a bottom-bar would be weakened by the saw-kerf, but I have no trouble from the partially divided bars breaking or splitting when pried apart to receive the foundation. The frame is assembled in the usual way, the corners nailed, and the frames wired before the bottom starter is put in; and the fact of the bottom-bar being dovetailed into the bottom end of the end-bar prevents any chance of its dividing in two when opened out to receive the starter.

The adoption of this suggested saw-kerf in the bottom-bar can not entail much extra cost in manufacture, and would give beekeepers the option of easily inserting and using bottom starters, if so desired.

Strachur, Scotland. Arch'd Fergusson.

Another Pet Method of Introduction.

By this method I have lost only about 4 per cent of the queens introduced — many of them introduced into strong, cross colonies and some during a dearth of nectar.

Upon receipt of queen the undesirable queen is removed, and the new queen clipped and transferred to a Miller cage without attendants (these being destroyed). The cage is then laid on top of the frames so that the space between the frames runs centrally lengthwise of the cage. If no super is on the hive, a Hodgson wire escape board is placed over the cage. (An inverted inner cover is as good, but the wire gives better opportunity to smoke gently if desirable.) Then the covers are placed on. If comb-honey supers are on, an inverted wire excluder is used instead of the Hodgson. If extracting supers are on, two excluders are used, the lower one inverted. This arrangement gives the bees free access to the supers, and also leaves room for the bees to crawl all over the cage. Twenty hours after introducing, the pasteboard is removed and the hive closed for five days. This method has been highly successful with me. I doubt if there is a better or safer way.

Brookhaven, L. I. E. M. Barteau.

The Fashions.—By Bill Mellvir

(With apologies to Walt Mason.)

I've followed the fashions and swallowed my rations in beehives thru ages galore. I've always been changing, but prices are ranging so high I can't change any more. My first hives were boxes as canny as foxes, refusing their real works to show. When I was real busy I used to get dizzy from stooping to peep in below. When Langstroth's invention came to my attention, I changed to that style like a breeze. With porticos nifty they looked bloomin' thrifty out under the old apple trees. Simplicity followed with arguments solid for bottoms and covers alike; their joints were all beveled where propolis reveled; I pried them apart with a spike. Eight-framers then riot demanded a try-out; so beehives were purchased anew. They lasted a season when for some strange reason the style-makers panicky grew. The fads of reversing, contracting, and nursing were making us tight-wadders groan. The styles were so many that every cheap-penny invented a hive of his own. The Heddon two-section brood-chamber collection with thumbscrews, I chose as the best.

For speedy contraction these gave satisfaction, but soon they were junked with the rest. And then came the Danzy, that psuedo bonanza; I fell for it dead on the go. I transferred that summer and sweat like a plumber; it cost me a bushel of dough. Then came the contentions that Langstroth's dimensions of early days surely were right. I changed them all over from home yard to Dover, to Langstroth ten-framers at sight. So then things were quiet some years without riot, approaching a standard at last. I rested from fretting, from ranting and sweating o'er fashion's demands in the past. But lately some batty galoots that are ratty are howling again for a change. I hereby give warning that changing each morning is now getting out of my range.

Dame Fashion of Beedom! pray give us some freedom! We've slaved for you now till we're poor. Our hives that are standard should never be slandered by fashion's decrees any more.

Bill Mellvir.

GLEANED BY ASKING

Iona Fowls

QUESTIONS.—(1) Are the tested and untested queens sold by queen-breeders mated or are only the breeding queens mated? (2) Last fall I purchased 8 colonies of Italian bees in homemade movable-frame hives. Upon removing the covers of the hives when packing I found two colonies gone, but no dead bees. One hive showed much evidence of the larger wax-moth. The other had no work of the moth visible and the two outside frames contained nearly full combs of sealed honey. On the inner frames the comb was very dark, the cells full of a dark-brown odorless liquid. What was the cause of the loss of the two colonies? (3) June 1st I intend to get pound packages of bees with a queen for each, placing them in new standard hives on full sheets of wired foundation. Then I intend to place Porter bee-escapes on each of the old hives, and close to the entrance of each of the old hives to place one of the new hives with its queen and pound of bees. In August I expect to sulphur the bees in the old hives, remove any remaining honey, dilute it with water, boil it to kill all germs, feed it back to the bees thru Boardman entrance feeders, press out the wax, and burn the old hives and refuse from the wax. Is the above plan all right. F. B. Sawyer.

New York.

Answers.—(1) Tested and untested queens when sent out are mated. The unmated queens are always sold as virgins. (2) From your brief description we cannot tell what caused the trouble with your bees. Shortage of stores or a poor queen sometimes causes colonies to dwindle and die. If you would send us, or, better still, the Department of Entomology, Washington, a small piece of comb showing the dark-brown substance within the cells, you would be able to find out whether or not the colonies were affected with foul brood. (3) If it proves that your colonies have foul brood, then the method you suggest would work out nicely, only instead of placing the new hives close to the old ones, it would be better to put the new ones on the old stands and place the old ones (with bee-escape attached) near the entrances of the new ones. And the old hives should not be touched or jarred after being so arranged. In using this plan it will, of course, be necessary to have the old hive shut up completely so that not one of the bees can escape except thru the bee-escape at the entrance. You see, after the foundation is drawn in the new hive, if any bee in the old hive should load up with diseased honey and then enter the new hive and store it, the disease would spread to the new hive. By using care, however, the plan will be found a success. In regard to foul-brood honey, tho, we would not care to take such chances. Altho it is possible to dilute with water, boil until all germs are killed, and then feed back to the bees, we ourselves would not care to take the risk. It would be much better economy, in the long run, to use the honey for baking purposes; for, as you doubtless know, such honey is perfectly wholesome for human consumption, altho disastrous for the bees. The extractor used in extracting foul-brood honey should be carefully disinfected, and the old hives scorched out and saved. The wax also should be saved, as you suggest.

Questions.—(1) In the June issue of Gleanings, page 367, in commenting on a swarm-control plan there mentioned, Miss Fowls asserts that she or her people managed to get the nurse bees—or "took pains" in behalf thereof—to beget themselves into the upper stories, and stop committing the nuisance of starting queen-cells in the lowest story. Now what I would like to be enlightened about is, how one can do anything to induce any certain portion of the bees to go just where you, we, I, or anybody else wants them to go? I for my part cannot even tell a nurse bee from any other worker. I would like to quality myself or be qualified to get aforesaid nurse bees to beget themselves upstairs instead of frustrating my designs. (2) When trying this swarm-control plan last year, next to no work was done in the lowest story. How is it that with me it results as described? (3) In that escape foul-brood treatment given in the A B C and X Y Z of Bee Culture, would not a glass tube be better than a tin tube? It would not be such a dark passage-way. Chas. Reynders.

Pennsylvania.

Answers.—(1) It is not difficult to get the nurse bees out of the lower brood-chamber and into the upper one. It is only necessary to shake out the bees adhering to the lower brood-chamber on to the combs of bees and brood placed above. The young bees that act as nurse bees will have no inducement to leave the upper story and go thru several other stories down to the lower one, and will, therefore, remain above on the brood just where the beekeeper wants them. (2) In the case of good, strong colonies, during the honey flow, we have never experienced any difficulty in getting the foundation drawn out in the lower brood-chamber. If applied too late, however, the plan would be unsatisfactory. (3) The glass tube, we fear, might cause the bees to worry. Since they could see thru all along the tube, they would not easily find the exit.

Question.—I noted in a certain issue of Gleanings that you tried out, last season, in your yards the non-swarming plan incident to the use of a half-depth super under the hive. I beg to ask how this worked out? I tried the plan on a small scale with some success and contemplate employing the idea in my outyard, but would like a little more confirmation from the experience of a large producer; hence my query. H. M. Daniels.

Maine.

Answer.—In our locality there was very little swarming this past summer, and so, altho we think the plan a good one, we are not yet ready to report. We shall try it again the coming season. If you also use the plan next summer we shall be glad to learn of the results.

ANSWERS BY E. R. ROOT.

Question.—I am desirous of obtaining information as to the practicability of locating either in southern California or on the eastern slope of the foothills of the Rocky Mountains in Colorado. Any information that you may be able to give me in regard to the advantages and disadvantages, length of seasons, etc., of these two localities will be gratefully accepted. Charles E. Stowe.
Colorado.

Answer.—The territory on the east slope of the foothills of the Rocky Mountains in Colorado and the territory in southern California are both excellent for beekeeping. If you have any difficulty with your heart on account of elevation, you will find California much preferable. Beekeeping in southern California is one of the prosperous industries, altho it has its ups and downs. It requires migratory beekeeping to get the best results. The bees must be moved from eucalyptus into the orange country; and, just as the orange is about closing, the bees should be moved into the sage, provided there are sufficient rains so that they will yield nectar. Otherwise the bees had better stay where they are. They may then be moved from the sage to the beanfields, and from the beanfields back to their former location for winter. One has to be in California for a year or two before he is able to get next to the general situation. In the Imperial Valley of California the conditions are quite different. The crop there is mainly alfalfa and cotton. In Colorado the main source is alfalfa; and if one can locate where alfalfa is cut late, or, better yet, where it goes to seed, the conditions will be all the more favorable. We would advise you, if you can, to buy out the bees and bee-range of some one who is willing to sell. While there is, of course, considerable unoccupied territory in California, practically all of the bee-ranges have been taken up in Colorado and in the Imperial Valley, Calif.

Question.—Do bees do well in a citrus orchard?
California. Mrs. Geo. A. West.

Answer.—The citrus trees are excellent honey-producers, and some of the best honey-producing localities in the United States are found among these groves in southern California.

ANSWERS BY MELL PRITCHARD.

Question.—A friend of mine tells me that he knew an old bee-hunter who used a pair of yellow glasses with a small (half-inch in diameter) clear hole in the middle of each lens, to help him see the bees and trail them to their hive. So far as you know, is there anything in this? and could such glasses be of any help? Henry W. Miller.
Arizona.

Answer.—The spectacles to which you refer are made for target practice, and would undoubtedly be of some assistance in following bees. Common field glasses are of great help in the woods in looking for the entrances to bee-trees.

Question.—I am keeping in the cellar 90 colonies of bees. I should like to know where I could buy a good hygrometer, and what the normal dampness in the cellar should be. A. V. Praehar.
Minnesota.

Answer.—The amount of moisture which the air contains is shown by a hygrometer. This consists of two thermometers, one of which has the bulb dry while the other bulb is kept wet by means of a wick which draws distilled water from a glass bulb. The difference in the reading of the two thermometers should be about three degrees when the temperature of the cellar is 48 degrees. This indicates the relative humidity to be 80 per cent. Hygrometers are for sale by nearly all jobbers of hardware.

Question.—On Nov. 26 I put 46 colonies in my 12 by 13-foot cellar, which is dark and well ventilated. The temperature of the cellar never goes below 42 degrees nor higher than 46. The covers of the hives are raised a little, and the entrances are wide open. The bees have plenty of honey for stores, yet at times many fly out and finally die, being scattered about all over the cellar. No bees in this section had a real full flight in November. What would you advise me to do?

Answer.—From the description given of your cellar, we should think it very well arranged and should give good results; yet we would suggest that you close the top of the hives and raise the temperature of the cellar to about 48 degrees. We find our bees more quiet at this point than either above or below it. We have 535 colonies in our cellar, which is 12 by 60 feet. They were put in six days later than yours, and up to this time we have swept up about 18 pounds of dead bees. This we consider good wintering. If there are signs of dysentery in the cellar, it would be advisable to set them out on a warm day and give them a cleansing flight.

ANSWER BY FRANK COVERDALE.

Question.—I am going to sow about 20 acres of sweet clover in this way: The ground since breaking has had two crops of wheat, the last one being disced in on stubble. Just before freezing in the fall, I disced well to kill volunteer wheat as much as possible, and, early in the spring, I intend to sow sweet clover and harrow lightly. I will get a thin stand of volunteer wheat and hope this plan will not leave the ground too loose. What do you think of my proposed way of seeding? C. S. McLeran.
Iowa.

Answer.—You might sow the sweet clover on the last snow of spring, letting the snow and rains cover it; and, as the sweet-clover hulls or shells are very hard, the soaking and freezing will be a great aid toward an early and even coming-up. If the wheat has been thinned to one-half of a usual stand, it probably won't hurt to let both grow together; and the wheat, if it lives, can be harvested and the clover cut for hay late in the fall or pastured, not too heavy. It is an uphill business to attempt to grow sweet clover on a land that is acid; but there is no clover easier to grow when the soil is either inoculated or sweet, or sweetened by ground limestone or air-slacked lime applied lightly.

TALKS TO BEGINNERS

By Iona Fowls

THE coming spring is an unusually good time for making a start with bees. The price of honey is good; there will for years be no danger of overproduction; and the beekeepers are organizing as never before, helping the industry by legislation and in other ways that were quite impossible when working individually.

The Lure of Beekeeping.

For those who love outdoors, and would like work or rather a pastime in which they can completely lose themselves with the ever-present chance of discovering some fact never before observed by any previous authority, there is nothing quite so fascinating as the keeping of three or four colonies of bees. Do you not remember years ago when the craze struck you for collecting postage stamps, or, possibly, it was birds' eggs or arrowheads? Or perhaps you were enthused with the idea of writing some wonderful book or making a flying machine. Whatever the particular enthusiasm may have been, we'll venture to say that it will seem quite insignificant in comparison to the bee fever when you really get the latter in dead earnest. Moreover, the bee fever, when once contracted, usually becomes chronic. Take the case of the well-known beekeeper, H. R. Boardman, who died at the age of eighty. A few months before his death he said that if he were only a young man of twenty he would just be delighted to engage in beekeeping.

Only last July, Dr. C. C. Miller, who perhaps is the best known and best beloved beekeeper in the world, when answering the question, "Does Beekeeping Pay?" said: "If you're a born beekeeper no other business will give you as much enjoyment added to your living. I know I might have made more money at some other business, but I'd have been dead long ago. I've just started in on my 89th year, and there's just as much fun in living now as there was when I began keeping bees 58 years ago. More; for I've better health than I had then." Just one look into Dr. Miller's face has always been sufficient to prove his enthusiasm for beekeeping has never waned.

Best Way to Begin.

To any who may be interested in beekeeping but have a little doubt as to whether they will be able to make it pay, we suggest that the best way to take up this work is to purchase three or four colonies and begin simply with the idea of providing one's self with a live, wide-awake interest outside of one's regular work. If the beginner is careful and punctual and begins with the right spirit, reading the best writers on the subject, and occasionally visiting a good beekeeper to talk things over, he will be pretty certain to make his few colonies pay. And then, after he has gained experience, if he decides that he likes beekeeping so well as to change this sideline into a mainline, he may gradually make the change; but, of course, before launching out too far, a year's work with a professional beekeeper would be a wonderful help.

Our Talks This Year.

Our talks to beginners this year, therefore, will be to the small beekeeper with three or four colonies, and we strongly advise that he start with no more than this. In each talk we shall attempt to explain in successive steps exactly what the beginner should do in order to succeed with his bees.

How and Where to Get the Bees.

Sometime this month the beginner should make his plans for obtaining the bees. Then two or three months later when the weather is warm enough for the bees to fly freely, perhaps during May in the Northern States, he may look over the colonies, make his purchase, and take the bees home. The bees may be obtained from a distance either in entire colonies or in pound packages. When sold in the latter way, the packages are accompanied by directions explaining how they are to be handled upon arrival.

Sometimes neglected colonies in old hives may be obtained from a nearby farm at a low price. It may be difficult, however, for the buyer to be certain of the condition of such colonies, for often the combs are solidly built together and cannot be removed for examination; also, considerable time and trouble are involved in getting such colonies transferred to modern hives. When buying such colonies it is a good plan to take along a good beekeeper to determine their value and whether or not they are diseased.

A better way of getting colonies is to leave new hives with some reliable beekeeper, with the understanding that he hive his first swarms in these hives. In this way you pay for bees only and not for old hives for which you have no use. The only objection to the plan is that you may not obtain the colonies early enough in the season to get a large amount of surplus.

The very best way of getting a start is to buy good colonies in modern hives from a neighboring beekeeper whom you can trust.

Use Our Information Bureau.

And now for the sake of those beginners to whom puzzling questions occur which are apparently not answered in the available bee literature, we shall again call attention to the fact that we have an information department intended primarily for them. It is our sincere hope that all beginners, as well as all other readers of Gleanings, will feel perfectly free to take advantage of this information department at any time.

JUST NEWS

Editors

THE annual convention of the National Beekeepers' Association, which has been previously announced to be held at Hotel Statler, Buffalo, N. Y., March 1 to 3, has been postponed to March 9, at same place, and will probably continue thru March 10 and 11. The meeting is likely to prove the most important ever held by the National Association, as its chief business will be an entire re-organization along the lines laid down at the meeting held at Kansas City, Jan. 6 and 7, a full report of which is found on this and the following page. Don't forget the place and date—Hotel Statler, Buffalo, March 9.

* * *

Gus Dittmer, superintendent of the bee and honey department of the Wisconsin State Fair for 1920, is already sending letters to the beekeepers of his State, urging them to make entries at once for the next State Fair. The premium list for beekeepers for 1920 offers awards to the amount of $1,075 as against $460 in 1919. Mr. Dittmer, in his enthusiastic appeal to Wisconsin beekeepers to help beekeeping, says: "We want the name of every beekeeper who will consider the probability of making entries for the 1920 State Fair **at once.** More than $3,000.00 worth of honey was sold at the 1919 State Fair, during the week, at from 25 to 40c per pound. The publicity given to honey, and the demand created for it, cannot be estimated. You have had your share of the benefit that resulted. Now do your share in keeping it up at the 1920 State Fair. Write at once."

* * *

The chairman of the extension committee of the Wisconsin State Beekeepers' Association reported that the membership of the Association was 530 (now increased to 543); that there were 30 local associations in the State, 17 of which were affiliated with the State Association. During the past year the university has held 49 meetings in behalf of the beekeepers, at which there was an attendance of 1,453 people.

* * *

One of the best State conventions held recently was the Indiana convention, which met at Indianapolis Dec. 18, 19. Those present spoke only when they were able to give something they honestly believed worth while. All worked in harmony and enthusiastically co-operated to make a success of the meeting.

* * *

Michigan beekeepers are on their way to co-operative marketing. At the recent annual meeting of the Michigan Beekeepers' Association it was decided to organize a co-operative marketing exchange. About 37 persons signified their desire to be members and pledged their financial support in varying amounts up to about $200 each. Any who were not present and desire to belong and share in the benefits of the organization should correspond with the secretary of the association, R. H. Kelty, East Lansing, Mich. A committee will soon begin the work of organizing the exchange.

* * *

The Utah Beekeepers' Association will hold its annual convention at Salt Lake City Feb. 20-26. It is expected that it will be the largest and most interesting beekeepers' meeting ever held in Utah.

* * *

The Panhandle Beekeepers' Association will hold its spring meeting at the Market Auditorium, Wheeling, W. Va., on Wednesday, March 10. The annual meeting of the Tri-State Beekeepers' Association is announced for the same date and place.

* * *

The county bee inspectors of California will meet at Exposition Park, Los Angeles, Feb. 7, to form a permanent State organization. W. Lynch of Stanislaus County was appointed corresponding secretary, to write to all the inspectors of California and adjoining States as to laws and inspection.

* * *

The New York State College of Agriculture at Ithaca, in co-operation with the National Bureau of Entomology, will give a short course in commercial beekeeping during the week of Feb. 23. This course will be similar to the one given last year, with some important new features added. The indications are that the attendance this year will be more than double that of last year. No tuition fee is charged. All beekeepers are welcome, and those wishing to attend are asked to write to George H. Rea, Extension Specialist in Apiculture, College of Agriculture, Ithaca, N. Y., at once and have their names registered for this course.

The American Honey Producers' League

In response to the call issued by the National Beekeepers' Association, there met in Kansas City, Mo., on January 6 and 7 delegates representing the beekeeping interests of all parts of the country. It was probably the most representative gathering of honey-producers that ever came together in America.

They came together not to discuss individual problems but to add their views together to form a composite image of the needs of the American beekeepers. This resulted in the launching of an organization broad enough in its scope to include any interested group or individual in North America, and with policies so chosen and defined

that everyone in the beekeeping fraternity, North, South, East, and West, must immediately respond to its appeal and gladly offer their support. All sectionalism is lost in the comprehensive statement of its aims.

As fast as funds will permit, the League will develop bureaus or departments, which will take charge of the League's efforts along the several lines. The following outline explains the program to be followed:

Department of Marketing: grading, standardizing of packages, advertising, crop reports, market reports, distribution.

Department of Education: State and national extension work, disease control, beekeeping courses in colleges, dissemination of information.

Department of Legislation: appropriations, uniform inspection laws, pure food laws, quarantine.

Department of Legal Aid: apiary protection, illegal ordinances, classification of freight and express, transportation claims.

Department of research: laboratory research, experimental apiaries.

Department of Equipment: securing supplies, queens and bees, standardization.

Department of Arbitration.—complaints.

Membership in the League is to be secured by the election of one member by each affiliated organization. An organization can become affiliated by the payment of $1.00 per member per year with a minimum annual payment of $100. Each member so selected has one vote in the League. Sustaining memberships may be secured by individuals or firms by the payment of an annual fee of $10, but this membership does not carry with it the privilege of voting. Similarly, professors of apiculture, apiary inspectors, experiment station workers in apiculture, extension workers, entomologists, and others are given honorary memberships with the right of discussion but without a vote. In this plan all interests are given a voice in the discussion of policies, but the voting power is vested only in the elected representatives of the beekeepers themselves. The board of directors is made up of the president, vice-president, and three directors who serve for three years, the term of one expiring each year. The board selects a secretary-treasurer, who may or may not be a member of the League and who is the only salaried officer. The following officers were elected: President, E. G. LeStourgeon, San Antonio, Tex., Manager of the Texas Honey Producers' Exchange; vice-president, Prof. Geo. H. Rea, Extension Specialist in Beekeeping, Cornell University, Ithaca, N. Y.; directors, Frank Rauchfuss, Denver, Colo., Secretary of the Colorado Honey Producers' Association, Prof. F. B. Paddock, Ames, Iowa, State Apiarist of Iowa, and E. S. Miller, Valparaiso, Ind., President of the Chicago-Northwestern Beekeepers' Association. The Board of Directors selected Chas. B. Justice, Manager of the California Honey Producers' Exchange, as the secretary-treasurer.

It is difficult to describe the meeting as it was because it was so different from the beekeepers' meetings and conventions as we know them. Very little talking and arguing took place. It was a meeting of business men. It took but a short time to arrive at the decision that an entirely new organization of beekeepers was needed. The delegates were of one mind regarding the policies and the aims of the new organization. It was therefore a relatively short meeting. Ideas were soon crystalized into a constitution which was unanimously adopted. The League starts with the united support of the following who attended and determined its policies:

Prof. Geo. H. Rea, Ithaca, N. Y., representing seven beekeepers' organizations of New York and Rhode Island; Clifford Muth, Cincinnati, O., representing Muth & Co.; J. A. Warren, Medina, O., representing the A. I. Root Co.; J. D. Rettig, Wabash, Ind., representing the Indiana Beekeepers' Association; E. S. Miller, Valparaiso, Ind., representing the Chicago-Northwestern Beekeepers' Association; Colin P. Campbell, Grand Rapids, Mich., representing the Michigan Beekeepers' Association; B. F. Kindig, East Lansing, Mich., President of the National Beekeepers' Association; Dr. A. C. Baxter, Springfield, Ill., representing the Illinois Beekeepers' Association; L. C. Dadant, Hamilton, Ill., representing Dadant & Sons; H. L. McMurry, Madison, Wisc., representing the Wisconsin State Board of Agriculture; E. G. LeStourgeon, San Antonio, Tex., representing the Texas Honey Producers' Exchange; W. C. Collier, Goliad, Tex., representing the Texas Beekeepers' Association; Dr. J. H. Merrill, Manhattan, Kan., Joseph A. Reinecke, Seneca, Kan., and C. B. Baxter, Leavenworth, Kan.—all representing the Kansas Beekeepers' Association; Frank G. O'Dell, Topeka, Kan., representing "Capper's Weekly"; E. E. Tyler, Columbia, Mo., President, Missouri Beekeepers' Association, J. F. Diemer, Liberty, Mo., and W. L. Wiley, Brunswick, Mo.—all representing the Missouri Beekeepers' Association; Prof. F. B. Paddock, Ames, Iowa, representing the Iowa Beekeepers' Association; R. W. Livers, Hardy, Nebr., representing the Nebraska Beekeepers' Association; Frank Rauchfuss, Denver, Colo., representing the Colorado Honey Producers' Exchange; Mrs. Cora D. Polhemus, Lamar, Colo., and Wesley Foster, Boulder, Colo., representing the Colorado Beekeepers' Association; F. B. Terriberry, Salt Lake City, Utah, representing State Apiary Inspection; A. E. Schellhorn, Billings, Mont., representing the Montana Beekeepers' Association; J. B. Ramage, Yakima, Wash., representing the Washington Beekeepers' Association; Chas. B. Justice, Los Angeles, Cal., representing the California Honey Producers' Exchange.

B. F. Kindig.
(President Nat'l Beekeepers' Assoc.)
East Lansing, Mich.

BEES, MEN AND THINGS

(You may find it here)

I HAVE trebled the number of my hives, and for the season of 1920 I shall be able to sell many swarms and queens. The spring was favorable to the bees, but the summer was the driest we have seen since 1893. In July the thermometer went down to 34 degrees Fahrenheit—the coldest July since 1849. The buckwheat was not good in 1919. In 1917 and 1918 I had some colonies which gave me 220 pounds of buckwheat honey.—E. Giraud, Le Landreu, France.

Being a returned soldier from France, I would like to answer in a way the reference to beekeeping in France, page 29, January Gleanings. It is true that I saw many backward beekeepers. It was my first sight of straw skeps. I never saw an Italian bee in France. I saw a few movable-comb hives, usually in apiaries with box hives. I was told by Mr. Giraud, the queen-breeder, that many thousands of colonies were brimstoned every year in France. My experience there made me happier and broader. I liked France, and I liked it for the reason that so many Americans disliked the country. All that I saw made me proud of my own great nation.—Clinton VanPelt, Clark County, Ind.

I quote the following from Dr. Merrill: "Upon examining the above figures the value of the different forms of wintering is apparent. Whether protected by windbreak or not, the 2-story hives have about 5,000 more bees in the spring than the 1-story hives, and the packed hives would have about 25,000 more bees. Figuring 5,000 to the pound, valued at $2.50 a pound, the packed hives would have $12.50 worth of bees more than the unpacked hives. The difference in the value of a windbreak is more apparent, as would be expected with the hives which were not packed, altho there is about 2,000 bees difference in the packed hives in favor of the windbreak."—B. F. Kindig, Ingham County, Mich.

The report of the Chief of the Division of Publications, for the year ending June 30, 1919, shows that 62,218,829 copies of all publications were issued. This includes periodical publications and all others. The distribution of Farmers' Bulletins was 17,159,294 copies. The distribution of bulletins on bees represents about one per cent of the whole, while the appropriation for beekeeping is 1/10 of one per cent of the whole department appropriation. — E. F. Phillips, Washington, D. C.

Egypt is termed "a perennial Rip Van Winkle of history," in a bulletin from the National Geographical Society. * * * * In February, 1905, an American explorer, T. M. Davis, discovered the tomb of Yuaa and Thuaa, father and mother of that Queen Tyi whose influence played so great a part in Akhenaten's religious information. The tomb was intact, and the objects it contained were as perfectly preserved as if they had been shut up only a few weeks. Most startling of all was the discovery of a jar of honey, still liquid and still preserving its characteristic scent after 3,300 years.—The Daily News.

I have an uncle that lives in Boone about five blocks from the business part of town, which has a population of 15,000. He has 39 hives, and has not had any complaints about them except that when he took the honey off, a neighbor got stung; but he did not say anything, as it does not often happen.—Forrest McHose, Boone County, Iowa.

We might have added a **big** postscript in **extra big** letters to the article you received some time ago. In that article we bluntly stated (and considered it the truth) that we needed no cellars. If you could see us today, you would think we were simple prevaricators. With the thermometer hovering about 10 degrees, snow anywhere from two to four feet deep, everything paralyzed, and no street cars running you might wonder how we expected to save our poor bees that were exposed to such conditions. Yesterday the writer spent considerable time in covering his completely up with snow, believing that that would be better than to leave them exposed to a biting wind. Doubtless, there will be some losses—more than we anticipated.—E. J. Ladd, Multonomah County, Ore.

On page 441, July, 1919, Gleanings, mention is made of one colony robbing a queenless colony. Why, boys, just take the queenless colony and put it on top of the robber colony.—James Spray, Madison County, Mont.

I am trying a new scheme this winter whereby bees are wintered in double brood bodies, by placing a regular cover between the two bodies with the Porter escape left out. All so fixed are wintering in the upper story, which should prove much warmer as arranged. Has anyone ever tried it?—John E. Roebling, Hamilton County, Ohio.

We had a bad drought for over 12 months all over Australia. The bee industry suffered great loss, and honey went up 100 per cent in price. Even if this drought gets broken soon, next season can give only a poor harvest, as bees that are left are very weak and sickly—and so is the Australian flora.—T. Volkofsky, Mount Boppy, N. S. W., Aus.

OUR HOMES

A. I. ROOT

And whosoever will be chief among you, let him be your servant.—MATT. 20:27.

If I then, your Lord and Master, have washed your feet; ye, also, ought to wash one another's feet.—JOHN 13:14.

Blessed are the meek; for they shall inherit the earth.—MATT. 5:5.

I HAVE told you (perhaps several times) of "running away from my funeral, riding a bicycle," when the doctors said, about 30 years ago, that I would never be a well man again. Yes, they said further, I probably had but little time to live. Well, dear friends, I am continually thanking God, that now at 80 years of age I am *still* keeping that funeral away back—in fact, almost out of sight, off in the distance. By the way I verily believe that my coming to Florida in the winter time is a great help in getting the start of *my* especial funeral.

On one of those wheel rides across the State of Ohio, I got caught in a summer shower, and, when I reached a hotel in a little town just about dinner time I was too muddy to go into the nice dining room without a good brushing. My shoes were especially untidy. The landlord said there was no bootblack in the town, but he guessed at the little shoe-shop across the way they would fix up my shoes. My application, however, didn't suit.

"Who sent you over here to have your shoes shined?" demanded the proprietor.

"Why, the landlord said he guessed *you* could make me presentable."

At this, being a profane man, he gave his neighbor a blessing for sending *him* such a customer.

"Here, stranger, are blacking and a brush and you are quite welcome to them, but —! —!" etc.

The above was brought to mind by a remark in the *Sunday School Times*, by our good friend Ridgeway, as given below:

Lesson 9.—Jesus Teaches Peter True Greatness. (JOHN 13:5-16, 36-38.) The great man is the man who wants to serve the other fellow. The tendency of the time is less work. Is this a good thing or not? No work, no eat. Are we coming to the time when class lines shall be no more? Every fellow ready to black the other fellow's shoes, instead of his eyes?

"Every fellow more ready to black the other fellow's shoes, instead of his eyes." Many thanks, friend Ridgeway, for the bright suggestion. But come to think of it, it is only the old, old story of loving even your *enemies* and doing good to them that hate you. This is what the world, yes the whole *wide* world, needs most of all just now.* It isn't *men folks* alone that need Ridgeway's beautiful figure. We want girls and women that will be more ready to "shine each other's shoes" than to damage reputation by thoughtlessly repeating and spreading careless gossip. In regard to taking up menial service when asked, without being offended, my old, old text comes in nicely here: "Great peace have they who love thy law, and *nothing shall offend them.*" And again, some one has said, "No insult can be given, where none will be taken."

There is a new potato out in the garden that I hope is going to bless the world. I will tell you more about it later.

In closing this Home paper permit me to thank the many kind friends who have sent Mrs. Root and myself not only a multitude of Christmas and New Year greetings but so many kind words that we really cannot reply personally to all of them. As the new year opens up before us, the second electric windmill is ready, and only waiting for some delayed freight that contains the belt.

"THE PEACE OF GOD WHICH PASSETH ALL UNDERSTANDING."

(Written for the Tennessee State Beekeepers' Convention.)

Dear friends, while I write on this Thanksgiving Day, great things are coming to pass, not only in this nation of ours, but things that are of late getting to be *world wide.* Things are happening that we should be most devoutly thankful for; and also some things that are not exactly in line with our proud boast that this is "the land of the free and the home of the brave."

While I write, my latest news is that the coal mines, at least many of them, are deserted, right as winter is coming on. I learn that in Ohio not only factories but even *schools* are closed for lack of fuel.

*Suppose the parties in the recent coal strike (yes and other strikes) should turn about and show a readiness to "shine shoes" or "wash feet," what would happen to this world of ours?

Not only our President, but our great nation back of him, has declared that the mining of coal *must* go on; but, to some extent at least, law seems to be defied. Does this not come pretty near anarchy and civil war?

Does it not look like what we are told, "There shall be wars and rumors of wars"? But, praise the Lord, right after the above we read "but be ye not troubled; for such things must needs be."

When I was just getting into the city of Cincinnati, on our way down here to Florida, I was up, as usual, watching the sun rise. While thinking of our troubled nation and the words, "Peace, peace, when there is no peace," all at once something like a voice speaking seemed to say the words at the head of this paper: "The peace of God which passeth all understanding." I presume I have heard these words for years past; but they never seemed to get much hold of me—certainly never before as they did on this occasion. As I looked toward the sunrise, it almost seemed as if they were written across the sky. I am not sure whether I said "Amen" out loud, but I certainly said it mentally; and almost ever since I have been rejoicing, as I repeat the words over, especially the last three.

No matter what happens in this world of ours, if we are doing our level best to fight the evil, it is our privilege, as followers of the Lord Jesus Christ, to have thru life and thru death that "peace which passeth all understanding."

This recalls another text that has been a joy to me for years. "Great peace have they who love thy law, and nothing shall offend them." If we love God's law, and it is our "counsel" day and night, we are on the road to *both* of these most gracious promises; and finally we shall get to that promised land, where "nothing shall offend them." My friend, do you get "offended" occasionally? Maybe you have in times past got offended at your old friend A. I. Root. Please don't think hard of him. Try to remember he has so very *many* friends it is hard to keep them all in mind, and besides he is now almost 80 years old.

Just one more text to help in getting into that promised land. "Let the words of my mouth, and the meditation of my heart, be acceptable in thy sight, O Lord, my strength and my redeemer."

About 50 years ago all my friends were worried because I had "gone crazy" on two things, bees and honey, and prohibition. May God be praised that I have lived to see both—shall I say, "go over the top"?

A few days ago Howard Calvert, my

Rear view of our humble Florida home.

grandson, drove me thru the great city of Cleveland, Ohio. There were miles and miles of automobiles, both gasoline and electric. It made me think of a swarm of bees; but instead of *bees* they were automobiles—some of them costing many thousands each. How about *gasoline* for all the cars to come, saying nothing about *flying machines?*

Well, dear friend, I am crazy still, but it is not altogether bees and prohibition. Just now it is electric windmills. When the miners refuse to mine the coal, and the gasoline of the world is gone, we are going to reach up and grasp the wind and, I hope, thank God for it. It is wind electricity that gives me the light to write this long article, and a wind-propelled automobile will probably carry it to the postoffice.

I am very happy just now in preparing to erect my second electric windmill, and I expect it to warm the house, or help to do so, and maybe do the cooking.

OUR FLORIDA HOME; SOME GLIMPSES OF IT.

Picture No. 1 shows two orange trees and one grape-fruit tree. It also gives a glimpse of the electric windmill that is always "busy;" at least it seems to be, for rarely do we see it standing still a whole hour, altho there is not always wind enough to store even 7 cells of the 28-cell Exide batteries on the electric automobile. The picture shows only a small part of the fruit. The cluster on the grape-fruit tree where I stand contained about 20 fruits when we

The grape-fruit tree that wouldn't die, but finally gave us a single cluster of about 20 fruits.

The Carica Papaya, with its single bunch of 20 fruits; also Wesley, the colored gardener.

reached here in November. Picture No. 2 shows a closer view of this tree. It was originally an orange tree, but the bud died and left a strong shoot of the wild lemon. One day when my neighbor Abbott was over, he took out his knife and set a grape-fruit bud in it. This bud grew over 10 feet the first year, and in the second it bore several fruits. Later, a severe frost cut it back, and we thought it was killed. However, it improved and now has a pretty good load of fruit.

I introduce to you No. 3 by copying from a metal label sent me by the Department of Agriculture on a grafted papaya, as follows:

CARICA PAPAYA.

Papaya. Rapid growing fruit tree, reaching 25 feet; in ten months bears numerous melon-shaped fruits on its trunk. Good varieties deliciously sweet with characteristic flavor; relished as breakfast fruit. Easily digested, containing powerful papain ferment. Try as annual in northern Florida and Texas. Easily grown in hot-house. Both sexes required.

This is a well-known fruit here in Florida, but it contains usually a large number of seeds, which is a sort of handicap. A missionary some time ago sent me a few seeds of what he called a "seedless papaya." Of course, it hadn't been made *entirely* seedless, for how could we get seeds if so? I planted the seeds, but secured only two plants, and providentially these two were male and female. When we arrived in November I was rejoiced to find the tree, with a load of fruit, some 30 or 40 in all.

In fact, the load was so heavy that the tree would soon have tipped over with the roots up in the air, and I was obliged to drive down three stakes to keep it on its feet. How about the "seedless"? I am glad to tell you we have had two *small* melons without even a single seed, and one containing only *one* seed. Most of the larger fruits have about the usual number of seeds, some perhaps as many as a hundred. We have one or more ripe melons almost every day and everybody, so far as I know, calls them "delicious." Let me digress a little. I often, yes *very often,* thank God for the many kind friends I have found. They seem to be scattered all over the face of the earth; and what is more, they are real "honest to goodness" friends. The missionary who sent the papaya seeds is one of them, and our colored friend "Wesley," (Wesley Welch) is another.

You see when the photographer (*another* "friend") was all ready he wanted some one to hold the leaves away so as to expose the ripening yellow fruit. Wesley was spading near and I asked him to do this; but, as he had just been making concrete for the new windmill piers, and was pretty well covered with cement and mortar, he was reluctant to have his picture taken. However, I told him I would explain to our readers when I introduced him. I sometimes think among the great list of friends I have mentioned, there are few more devoted ones than my humble friend and helper, Wesley.

A few seeds from this plant will be mailed to any one who sends an addressed and stamped envelope to *The A. I. Root Company, Medina, Ohio.*

THE NEW ANNUAL WHITE SWEET CLOVER.

See what is said about this clover on page 693, October, aside from what mention has been made in different issues during the past year. Here is something more in regard to it which we clip from Field's *Seed Sense* for October:

A GIANT ANNUAL SWEET CLOVER.

Prof. Hughes, head of the farm crops department of the Iowa State College, Ames, Iowa, has developed something absolutely new in a quick growing annual form of the big white sweet clover, *Melilotus Alba.*

He first found it as a sport, a single plant, in a field of the biennial white sweet clover, which bloomed the first year. He saved the seed of this and planted it separately and by continual selection got it to come true to type.

He sent me just a little package of 50 seeds last year which I planted in our trial grounds and raised over a pound of seed.

This year I planted that pound of seed on about an acre of our trial grounds and altho we were late getting it planted we got a good yield of seed and will have quite a bit to spare now.

It is in every way identical in appearance with the big biennial type and grows to the same size, say 5 to 8 feet high, but does it all in about 4 months. I took a photograph the other day of a plant that stood over 7 feet high and full of bloom and seed, in only 130 days from seeding, but did not get a cut made in time for this issue of *Seed Sense.* Will try to show it next month.

Ours was planted May 9 and the photograph was made Sept. 19, at which time most of the plants had ripened a large quantity of seed and were still blooming and making more seed and will probably keep on until frost.

The first blooms appeared at about 80 days from seeding and the bloom has been continuous from then on.

It is going to be a great crop for early pasture, as you can get action the first year and if seeded early the bloom should be continuous from about July 1 on until frost.

Its greatest value, however, will be as a regular farm crop for pasture, hay, or plowing under. It grows very fast and makes an enormous growth. In fact, it makes as much growth in four months as the regular biennial type makes in fifteen months and seems to be in every way identical except for its annual habit of growth. In fact, at first glance you could not tell a field of annual from a second year field of the biennial.

Prof. Hughes is anxious that this new annual white sweet clover should be given as wide distribution as possible; so I am going to put it out entirely in trial packages at $1.00 each. Anyone can afford to try it at this price and we will continue filling orders in this way as long as our supply lasts, except that of course we are going to save a good big lot for our own planting.

Price: trial package, $1.00 by mail, postpaid.

You will see by the above the price of a trial packet is $1.00; but in our October number I have it 50 cents. Well, friend Field (I suppose in consideration of the advertising Gleanings has given him) writes that readers of Gleanings can have the one-dollar packet for fifty cents.

TWO REPORTS FROM THE NEW ANNUAL WHITE SWEET CLOVER.

I enclose herewith a photograph of a single plant of Prof. Hughes' big annual white sweet clover, showing the remarkable growth it makes.

This plant is from seed planted May 9th and was photographed Sept. 19, or at a little over four months of age. It has been blooming and ripening seed for some time, but you notice it is still in bloom. This is one peculiar characteristic of this plant. It seems to be practically ever-blooming from the time it starts in June or early July until frost.

HENRY FIELD.

Shenandoah, Iowa, Oct. 17, 1919.

Dear Mr. Root:—I am enclosing herewith a photo of the annual sweet clover which I grew from the seed you so kindly sent me. These plants stand 8 feet, 4 inches high and commenced to bloom on Aug. 16—just what we want. They are still blooming, and bees are working some today.

Yours sincerely,

M. Y. CALCUTT.

Seattle, Wash., Oct. 10, 1919.

Dear Mr. Root.:—I wrote you for a few seeds of the new sweet clover. I planted, I think, in September and transplanted this spring and cultivated in my garden. Some of the plants are near 8 feet high and the bees are still at work on them every day. Thank you for same.

St. Joseph, La., July 12. W. R. BAKER.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Heartsease honey in 60-lb. cans.
O. R. Carr, Avon, Ills.

FOR SALE.—Clover extracted honey in 5-lb. pails. L. S. Griggs, 711 Avon St., Flint, Mich.

FOR SALE.—Choice Michigan white-clover honey in 5-lb. pails, 12 in case or 34 in barrel.
David Running, Filion, Mich.

FOR SALE.—New crop clover honey, two 60-lb. cans to the case. Sample 20c.
W. B. Crane, McComb, Ohio.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Raspberry-milkweed honey in new 60-lb. cans (2 in case).
P. W. Sowinski, Wharton, Ohio, R. D. 1.

FOR SALE.—Four tons choice clover honey, extra well ripened, packed in new 60-lb. tins, two in a case. Wish to sell in one lot.
Lee & Wallin, Brooksville, Ky.

FOR SALE.—12,000 lbs. new crop, well-ripened Old Ky. No. 1 clover honey, in 60-lb. cans, at 22½c per lb. f. o. b. Brooksville. Sample 25c.
W. B. Wallin, Brooksville, Ky.

We have a very choice lot of white clover honey for sale at 25c per lb. in 60-lb. cans; also some very choice fall honey at same price.
M. V. Facey, Preston, Minn.

FOR SALE.—3,000 lbs. amber honey for feeding in new 60-lb. cans, 16c per pound f. o. b. Macon, Miss. Guaranteed free of disease.
Geo. A. Hummer & Sons, Prairie Point, Miss.

FOR SALE.—10,000 lbs. clover and 5,000 lbs. clover-heartsease honey at $24.00 per case of two 60-lb. cans, f. o. b. Oto. Sample, 15c. Also 200 cases No. 1 comb honey. J. D. Beals, Oto, Iowa.

FOR SALE. — Extracted honey, fine quality clover, 25c; clover and buckwheat mixed about half and half, 20c. Two 60-lb. cans to case, in 5-lb. pails, 3c a pound extra. Some buckwheat comb honey at $6.50 per case of 24 sections.
H. G. Quirin, Bellevue, Ohio.

FOR SALE.—Our crop of honey is now ready for shipment. It is a good grade white clover with a very small trace of basswood, almost water-white. It is put up in new 60-lb. tin cans, two to the case. This honey was all produced by ourselves above queen-excluders in nice white combs. Then combs were provided so that no honey was taken off until after the season when it was thoroly cured by the bees. It costs more to raise a crop of honey this way, as we do not get as much per colony; so we have to have a little more money for this fancy article than the ordinary honey on the market. Try a small order and we feel sure you will buy no other. We can furnish at the following prices f. o. b. Northstar, one 60-lb. can $15.50. In cases of two cans $30.00 a case in any sized orders. The crop is short this year, and will not last long at these prices. We feel quite sure that the price will not be any lower; so do not be disappointed by not ordering early if you are looking for honey as good as money can buy.
D. R. Townsend, Northstar, Mich.

E. D. Townsend & Sons, Northstar, Michigan, offer their 1919 crop of white clover and white clover and basswood blend of extracted honey for sale. This crop (it's only a half crop this year) was stored in nice white clean extracting combs that had NEVER had a particle of brood hatched from them. We had more of those extracting combs than we could possibly use this year, and we piled them on the swarms as needed. NOT A SINGLE OUNCE OF HONEY WAS EXTRACTED UNTIL SOME TIME AFTER THE CLOSE OF THE WHITE HONEY FLOW; consequently NONE could be produced that will excel this crop of honey. Of course, it is put up in NEW 60-pound net tin cans, and they are cased up for shipment, two in a case. If you are one of those who buy "just ordinary" honey, at the lowest price possible, kindly do not write us about this lot of honey; but if you can and have customers who will want the very best and are willing to pay the price, order a small shipment of this fine honey as a sample, then you will know just what our honey is and whether it is worth the little extra price we ask for it or not. We quote you this fine honey, either clear clover, or that containing about 5 per cent of basswood—just enough basswood to give it that exquisite flavor relished by so many, at only 25c per pound on car here at Northstar. Kindly address, with remittance.
E. D. Townsend & Sons, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Small lots of off-grade honey for baking purposes.
C. W. Finch, 1451 Ogden Ave., Chicago, Ill.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.)
Superior Honey Co., Ogden, Utah.

WANTED. — Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations.
M. Betancourt, 59 Pearl St., New York City.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

WANTED.—Comb and extracted honey. Send sample of extracted and quote your best wholesale price f. o. b. your station, how packed, etc., in first letter.
D. A. Davis, 216 Greenwood, Birmingham, Mich.

BEESWAX WANTED.—During February I will pay 42c per lb. cash for average yellow beeswax, delivered here. State quantity and quality and await reply before shipping.
E. S. Robinson, Mayville, N. Y.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 40c cash, 42c trade. We will pay 1 and 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival.
The A. I. Root Co., Medina, Ohio.

WE BUY HONEY AND BEESWAX.—Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section, and sections to a case. Extracted honey, quantity, how packed, and send samples. Charles Israel Bros. Co., 486 Canal St., New York, N. Y.

WANTED.—White clover or light extracted honey. Send sample, state how honey is put up and lowest cash price delivered at Monroe. Also buy beeswax. E. B. Rosa, Monroe, Wisc.

FOR SALE

Root's Goods at Root's Prices.
A. W. Yates, 3 Chapman St., Hartford, Conn.

HONEY LABELS.—New designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—300 10-frame comb supers, good as new. J. A. Everett, Edgewater, Colo.

A full line of Root's goods at catalog prices. Catalog on request. Will buy your beeswax, 40c cash, 42c trade. A. M. Moore, Zanesville, Ohio.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

STILES BEE SUPPLY COMPANY, Stillwater, Okla. We carry a full line of Root's Bee Supplies. Beeswax wanted. Free catalog.

FOR SALE.—Second-hand hives, 8-frame, in good condition. Mostly California redwood. Write for prices. R. B. Williams, Ingleside, Texas.

FOR SALE.—Good second-hand 60-lb. cans, two to the case, used only once, 60c per case, cash with order. E. B. Rosa, Monroe, Wisc.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies.
R. & E. C. Porter, Lewistown, Ills.

FOR SALE.—Second-hand honey tins, two per case, in exceptionally fine condition, at 50c per case. Buy them now for next season's honey crop.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—Comb foundation at prices lower than you had thought possible. Wax worked for cash or on shares. Satisfaction guaranteed.
E. S. Robinson, Mayville, N. Y.

FOR SALE. — Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

FLORIDA BEEKEEPERS.—You save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.
Crenshaw Bros. Seed Co., Tampa, Fla.

FOR SALE.—Cheap, 400 supers, Root's dovetailed, 8-frame, 4¼ x 4¼ x 1⅞. 100 never unpacked, rest painted and as good as new, with some sections.
Wm. J. Costello, 1038 Penna. Ave., Elmira, N. Y.

FOR SALE.—Reversible two-frame Cowan extractor, 25 colonies bees in standard 10-frame hives and equipment. Went into winter in good condition. State inspected. Sell now or later.
A. O. Smith, Loogootee, Ind.

FOR SALE.—200 Root standard 10-frame hive bodies, nailed and painted, including Hoffman frames, full sheets foundation, wired, electrically embedded, 100 bottom-boards, 100 galvanized covers. All well painted. Also 100 hives of bees.
Chas. Schilke, R. F. D. No. 2, Matawan, N. J.

FOR SALE.—25 shallow supers or brood-chambers, 5 11/16 in. deep and frames, 25 comb-honey supers with section-holders and fences for 4¼ x 4¼ x 1½ plain sections, queen-excluders, Alexander feeders, all for 10-frame hives; also a queen-rearing and mating outfit.
H. Shaffer, 2860 Harrison Ave., Cincinnati, Ohio.

FOR SALE.—1,000 Standard beehives in flat, 8- and 10-frame sizes; supers with sections; full depth and shallow extracting frames. Entire lot new and strictly first class. We will sell in large or small quantities at low prices.
The Stover Apiaries, Helena, Ga.

FOR SALE.—75 Root 10-frame hive bodies or full-depth supers with metal-spaced frames. New goods, 5 to a crate, $6.00 per crate, f. o. b. Allensville, Ky. 120 lbs. M. B. foundation in wood for L. frames, 30 lbs. to box, $20.00 per box, f. o. b. Allensville, Ky. Porter C. Ward, Allensville, Ky.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—150 section shipping cases nailed up with glass front holding 20 4 x 5 plain sections, 15c each. New nucleus cages nailed ready for use; 20 3-fr., 20c each; 57 2-fr. 15c each; 28 3-lb. cages, 30c each; 148 2-lb. cages 20c each; 150 1-lb. cages, 15c each.
The Hyde Bee Co., Floresville, Texas.

FOR SALE.—75 8-frame metal covers, including inner covers, 75c; 7 Alley traps, wire, 10-frame, 30c (weather beaten); one 4-frame standard extractor (not slip gear), $30.00; 25 10-frame comb-honey supers for 4¼ plain 1½ sections with section-holders and fences, $1.25, painted.
Richard D. Barclay, Riverton, N. J.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

FOR SALE.—200 new 10-frame cross style reversible bottom-boards at 50c each; 200 new 10-frame flat reversible covers made of best select white pine at 60c each; 100 new Alexander feeders for 8- or 10-frame hives at 20c each; 150 Boardman feeders without cap or jar at 12c each. All above goods are factory-made and have never been used. Write M. E. Eggers, Eau Claire, Wisc.

FOR SALE.—New and second-hand equipment. 400 comb-honey supers, 4¼ x 4¼ x 1⅞, 10-frame; 2-frame extractor; 100 shallow extracting supers; 10-frame Bartlett Miller capping melter; 5 Dadant hives with one extracting super; Root capping melter; 100 8-frame hives, complete; one steam knife with generator; 100 8-frame hives, covers, excelsior; 150 fences 4¼ sections; 100 8-frame hives, bottoms; 2 Standard smokers, 3 Junior smokers; 400 Hoffman frames, new; 500 metal-spaced frames, new; 100 pounds Superior medium brood foundation; 67 pounds Dadant's medium brood foundation, 4½ x 16½; 16 10-frame hive bodies, new. All good, used but one season, and some never unpacked. Write for prices on what you want. Sunnyside Apiaries, Fromberg, Mont.

REAL ESTATE

FOR SALE.—20 acres of timber land at Genoa, Miller Co., Ark. Cheap. Address
W. J. Adams, 5408 Prairie Ave., Chicago, Ill.

WANTS AND EXCHANGE

WANTED.—From 10 to 50 colonies of bees, for spring delivery. C. Countryman, Coxsackie, N. Y.

WANTED.—Second-hand typewriter. Give price, description, and make. Ed. Garner, Urbanette, Ark.

FOR SALE OR TRADE.—One minute postal camera and one Boswell stereopticon outfit.
Van's Honey Farm, Hebron, Ind.

WANTED.—Used 8- and 10-frame standard hives and supers. W. O. Hershey, Landesville, Pa.

WANTED.—A good supply of wire entrance guards, wire only, cheap for cash.
C. E. Corbett, Currie, N. C.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED.—Used six- or eight-frame power extractor, also pump. Describe fully and give price.
C. E. Swenson, 1522 12th Ave., Rockford, Ills.

WANTED.—200 or less colonies of bees (any style hive) for spring delivery.
A. W. Smith, Birmingham, Mich.

WANTED.—10 to 50 colonies of bees. What have you to offer? Address Albert F. Roorda, 10505 So. La Salle St., Chicago, Ills.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl & Walnut St., Cincinnati, O.

WANTED—To buy small apiary of 50 colonies more or less, in good locality, guaranteed free from disease. Ontario, west of Toronto, preferred. A. Millard, c o Chas. Annis, Pickering, R. D. No. 2, Ont., Can.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1920 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

AUTOMOBILE REPAIRS

AUTOMOBILE owners should subscribe for the AUTOMOBILE DEALER AND REPAIRER; 150-page illustrated monthly devoted exclusively to the care and repair of the car. The only magazine in the world devoted to the practical side of motoring. The "Trouble Department" contains five pages of numbered questions each month from car owners and repairmen which are answered by experts on gasoline-engine repairs. $1.50 per year. 15 cents per copy. Postals not answered. Charles D. Sherman, 107 Highland Court, Hartford, Conn.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens. No bees.
W. G. Lauver, Middletown, Pa.

Well-bred bees and queens. Hives and supplies.
J. H. M. Cook, 84 Cortlandt St., New York.

QUEENS ON APPROVAL.—Bees by package or colony. A. M. Applegate, Reynoldsville, Pa.

QUEENS ON APPROVAL.—Bees by package or colony. Birdie M. Hartle, Reynoldsville, Pa.

Golden Italian queens, untested, $1.25 each; dozen, $12.00. E. A. Simmons, Greenville, Ala.

FOR SALE.—1920 Golden Italian queens, price list free. Write E. E. Lawrence, Doniphan, Mo.

THAGARD'S Italian queens, circular free, see larger ad elsewhere. V. R. Thagard, Greenville, Ala.

PHELPS' GOLDEN QUEENS will please you. Mated, $2.00. Try one and you will be convinced.
C. W. Phelps & Son, Binghamton, N. Y.

BEES AND QUEENS.—May 1st delivery; also would contract a carload of nuclei, very reasonable. Co-operative Honey Producers, Overton, Nev.

FOR SALE.—Indianola Apiary offers Italian bees and queens; tested, $1.50; untested, $1.00.
J. W. Sherman, Valdosta, Ga.

When it's GOLDEN it's Phelps'. Try one and be convinced. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—210 colonies of Italian bees in 8-frame hives with about 100 supers and 100 shipping cages at a bargain. C. H. Cobb, Belleville, Ark.

FOR SALE.—2-lb. packages Italian bees with queens and 2-frame nuclei with queens. Can guarantee shipment April 20.
O. J. Spahn, Pleasantville, N. Y.

FOR SALE.—Golden and three-banded queens untested, April, May, and June delivery, $1.25 each; $12.50 per doz. Satisfaction.
R. O. Cox, Greenville, R. D. No. 4 Ala.

We will ship 2-lb. packages and full colonies only this season. Three-banded Italian queens any quantity. Send for prices. J. A. Jones & Son, R. D. No. 1, Box No. 11-A, Montgomery, Ala.

Golden queens ready April 15th. One queen, $1.50; 6, $7.50; 12, $14.00; 100, $100.00. Virgins, 75c each.
W. W. Talley, Greenville, R. D. No. 4, Ala.

BEES BY THE POUND. — Also QUEENS. Booking orders now. FREE circulars give details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas, E. B. Ault, Prop.

Bees by the pound a specialty; 2000 lbs. for May delivery, 1920; 200 Italian queens for sale with above bees. Write for prices.
A. O. Jones & H. Stevenson, Akers, La.

GOLDENS THAT ARE TRUE TO NAME. 1 selected untested queen, $1.50; 6, $7.50; 12, $13.50; 50, $55.00; 100, $100.00.
Garden City Apiaries, San Jose, Calif.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GENTLE. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May and June, untested, each, $2.00; six, $7.50; doz. $14.00; tested, $4.00; breeders, $5.00 to $20.00 J. B. Brockwell, Barnetts, Va.

FOR SALE.—1920 prices for "She suits me" queens. Untested Italian queens, from May 15 to June 15, $1.50 each. After June 15, $1.30 each; $12.50 for 10; $1.10 each when 25 or more are ordered. Allen Latham, Norwichtown, Conn.

FOR SALE.—Bees, good hybrid stock from outyards. Queens, three-band Italians carefully bred at home yard. No disease. Bees with untested queens; 1 lb., $3.60; 2 lbs., $5.50; 3 lbs., $7.40. Write for quantity rates.
A. R. Graham, Milano, Texas.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, $1.25; 12 queens, $14.00. One pound of bees with queen, postpaid, $6.00. Safe arrival and satisfaction guaranteed.
M. Bates, Greenville, R. D. No. 4, Ala.

FOR SALE.—Italian queens from some of the best stock in the U. S., mailed as soon as hatched. Safe arrival guaranteed to any part of the U. S. and Canada. All queens mailed in improved safety introducing cages. Order early. Send for circular. Prices, April to October, 1. 75c; 10, $6.00; 50, $27.50. James McKee, Riverside, Calif.

THE BEES THAT PLEASE. Three-band leather-colored Italians, hustlers, none better, 2-lb. packages only. Untested queens, $1.25; 2-lb. packages, $4.75. Ready to ship about April 15. 25 per cent in advance, balance to be paid before bees are shipped. Write for circular.
J. M. Cutts, R. F. D. No. 1, Montgomery, Ala.

We have enlarged our queen yard considerably. We can take care of orders better than ever, large or small. April 15 to June 1, untested queens, $1.25; tested, $2.50; untested, $115.00 per 100. After June 1, $1.00 each or $90.00 per 100. J. A. Jones & Son, Montgomery, R. D. No. 1, Box 11a, Ala.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.
H. G. Quirin, Bellevue, Ohio.

1920 prices on nuclei and queens. Miller strain. Queens, untested, $1.50 each; $15.00 per doz.; tested $2.00 each, $22.00 per doz. One-frame nucleus, $3.00; two-frame, $5.00; three-frame, $6.50, without queens, f. o. b. Macon, Miss. We have never had any bee or brood disease here. Will have no queens except for nuclei until June 1. Safe arrival and satisfaction guaranteed.
Geo. A. Hummer & Sons, Prairie Point, Miss.

FOR SALE.—350 colonies Italian bees in Monroe and Baldwin Counties, Ala., in 10-frame Langstroth hives, Hoffman frames. Plenty supers and supplies for this year. No disease. One 6-frame Root automatic extractor, and other fixtures; extra good range; reason for selling, am crippled and not able to attend to them. Come, look it over. A bargain for cash.
W. H. Owens, 58 S. Conception St., Mobile, Ala.

FOR SALE.— 640 colonies of bees with 2,000 supers of drawn comb; 200 empty supers; 200 comb-honey supers with sections; queen-excluders for every colony; 300 escape-boards with escapes; 1 8-frame power extractor, 2 H. P. gas engine; 1 4-frame hand extractor; 3 2-frame hand extractors; 10 1,000-lb. honey tanks. This is one of the best equipments east of the Mississippi River. All in A-1 condition. Price $8,000.
Virgil Weaver, Falmouth, Ky.

RED CLOVER ITALIAN BEES and queens in two and three-pound packages for sale. My bees have taken first prize at the North Carolina State Fair. Our bees are giving wonderful results the entire U. S. A. over and Canada. We have shipped bees to nearly very State in the U. S. and have had wonderful success. We ship bees by parcel post mostly with the privilege of the cages returned to us. Our bees are wonderfully good honey-gatherers, and are beautiful queens, free from foul-brood disease of any kind. You will make no mistake in buying them. First come, first served. Deliveries, May and June, 1920. Write us your needs.
H. B. Murray, Liberty, N. Car.

FOR SALE.—Bees in two-pound packages only, with queen, sent by parcel post, package paid, delivery and satisfaction guaranteed. Price of two-pound package including queen, $6.50. For 12 or more, $6.25 per package. Empty cases to remain my property and to be returned at my expense. Queens without bees, $1.50 each, or $15.00 per dozen. Tested queens, $2.00 each. The above prices are high, so is the price of a Pierce-Arrow car. My queens are leather-colored and of the highest honey-gathering qualities. A customer in Wisconsin writes that the two-pound packages sent him gave over 300 pounds surplus. I have lots and lots of letters from last year's customers who state that their two-pound packages paid for themselves three times over. Let me book your order now with 10 per cent cash, balance five days before you desire shipment. Prompt service, fair treatment, and the high qualities of my queens justify the prices I am charging. Jasper Knight, Hayneville, Ala.

MISCELLANEOUS

Brother trappers, I give you printed instructions how to make bait, tan skins, remove skunk odor. Best trapping methods. O. Johnson, Thayer, Iowa.

Write for shipping tags and our prices for rendering your old combs. cappings, etc. We guarantee a first-class job. The Deroy Taylor Co., Newark, N. Y.

MAPLE SYRUP.—I am now booking orders for pure maple syrup to be delivered in April. A good bee-food. Write for prices.
G. E. Williams, Somerset, R .D. No. 4, Pa.

FOR SALE.—Eastman camera with complete outfit, perfect condition, size 5 x 7, cost $60. First $25 takes all.
S. C.Jones, 505 Ave. A, Schenectady, N. Y.

HELP WANTED

We can use some good competent help in getting up packages in April and May.
The Penn Co., Mayhew, Miss.

WANTED.—Three queen-breeders and three practical beemen. Write
Northropic Honey Co., Guatemala, C. A.

WANTED.—Man to tend about 300 swarms of bees. Steady employment to the right party. State wages and experience. S. R. Stewart, Rifle, Colo.

WANTED.—Good beeman to run 500 colonies bees for extracted honey during coming season. Give references, experience, and salary expected first letter. Dr. D. W. Gibson, Beaver, Utah.

HELP WANTED.—Assistant to help in large bee business. Excellent chance for advancement to foreman with big wages to right party.
M. E. Ballard, Roxbury, N. Y.

WANTED.—Man, season of 1920, to work with bees. State age, experience, and wages. Give reference. Permanent employment to right man. The Rocky Mountain Bee Co., Box No. 1369, Billings, Mont.

WANTED.—A good commercial queen-breeder, begin March 1. A good position, and with a future to it, for the right man. Give full particulars in letter of application.
W. D. Achord, Fitzpatrick, Ala.

WANTED.—An experienced queen-breeder and also helper in our package department. Would like to have helper experienced in handling a Ford car. State experience and salary expected in first letter. M. C. Berry & Co., Hayneville, Ala.

WANTED.—A proficient ambitious man to help handle 250 colonies of bees for extracted honey for season of 1920. Also capable of running Ford truck. Give experience, good references, and wages wanted in first letter.
J. W. Hackney, Weldona, Colo.

WANTED.—A willing and reliable, clean young man to assist with bees in out-yards. Will give you my experience and wages. State experience you have had, age, weight, height, and wages expected. Board and lodging furnished. Start work about March 1st. A. L. Coggshall, Groton, N. Y.

WANTED.—The Boulder Apiaries, one of the largest and most modern and up-to-date producers of extracted honey in the West, wants two experienced beemen for the season of 1920. State full particulars in first letter.
E. A. Knemeyer, 2328 South St., Boulder, Colo.

HELP WANTED.—Will give experience and fair wages to active young man not afraid of work, for help in large, well-equipped set of apiaries for season, starting in April. State present occupation, weight, height, age, and beekeeping experience, if any. Morley Pettit, The Pettit Apiaries, Georgetown, Ont.

WANTED.—One experienced man and students, as helpers with our 1,000 colonies. Best opportunity to learn the business from A to Z, in the actual production of carloads of honey. Theory also. Write immediately, giving age, height, weight, habits, former employment, experience, references, wages, photo, all in first letter. E. F. Atwater (former Special Field Agent in Beekeeping, U. S. Dept. Agr. for Calif., Ariz., and New Mexico), Meridian, Idaho.

Our Food Page—Continued from page 89.

tender and brown. The oven should be hot at first and then very slow. A young rabbit may need only 1½ or 2 hours to become tender, but an old rabbit needs three or more hours. Replenish with hot water if the water cooks away before it is done. This tastes much like fried rabbit but is more tender and not so dry.

CLUB SANDWICHES.

Cooked chicken or lamb — Lettuce
Cooked bacon — Salad dressing
Buttered toast

Prepare the toast, place a lettuce leaf on one of the slices, sprinkle with salad dressing, add thinly sliced chicken or tender lamb, then another layer of lettuce with dressing, then a layer of bacon which has been baked until crisp, another layer of lettuce with dressing, and finish with the other slice of buttered toast. Trim the edges neatly, cut in two across the corners, and serve at once.

CHEESE SANDWICHES.

Bread — Butter — Cheese

Make sandwiches of the bread and butter with thinly sliced cheese between the slices and toast until golden brown on each side. Serve at once.

NUT CAKE.

½ cup shortening
½ cup sugar
1 egg
½ cup honey
1 cup sour milk
1¾ cups sifted flour
1 teaspoon soda
1 teaspoon baking powder
¼ teaspoon salt
1 teaspoon flavoring extract
1 cup broken nut meats

Cream the sugar and shortening thoroly, beat in the egg yolk and then the honey, add the flour in which the other dry ingredients have been sifted, a little at a time alternating with the sour milk, add nuts and flavor, and fold in the well beaten egg white. Beat very thoroly before folding in the egg white. Bake in a moderate oven about 40 minutes. This will make a delicate flavored gingerbread by omitting the flavoring and nuts and adding 1 teaspoon cinnamon and 1 teaspoon ground ginger. It may also be used as a fruit cake by using raisins or other fruit and spices to taste. If the directions are carefully followed the cake will be of fine texture and soft and light.

113,756 POUNDS OF COMB FOUNDATION

On the date this is written, Jan. 2, 1920, our company has a total in orders for the New Root-Weed Comb Foundation of 113,756 lbs. That is a big lot of comb foundation. It will fill six big freight cars full. We never before have had at this season so many and so large orders for comb foundation as we have today.

WHY are the beekeepers from all over the world sending orders for comb foundation in these amounts to this company? The answer can be given in one word—

CONFIDENCE

When we recently announced a new Root-Weed Comb Foundation, that we believed would prove to be one of the greatest improvements ever made in comb-foundation manufacture, the beekeepers of America believed us. They took some account of our 50 years in the manufacture of beekeepers' supplies and of our long record in ever trying to improve the beekeepers' appliances and utensils. We appreciate this renewed evidence of their confidence in receiving as they have our promise to give them a better comb foundation.

OUR PROMISE

The new process, we told beekeepers, had to do with both the refining of the wax and the milling of the wax sheets. We promised that this new comb foundation would be a product nearer to that of nature's own than any other manufactured foundation. We today re-affirm that promise.

By the new refining process, we are today getting the best wax we have ever secured, with a true waxy aroma that is lacking in all wax refined by the acid processes.

OUR THANKS

At the head of this page, in large type, we have placed the figures that beekeepers have piled up for our New Root-Weed Comb Foundation. Those figures spell the Confidence of the beekeepers of America in the promises and the products of this company. At the beginning of another year, we wish to thank our great host of beekeeper friends for this confidence.

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