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GLEANINGS IN BEE CULTURE

JUNE, 1918

EDITORIAL

FREQUENT MENTION has been made in Gleanings in Bee Culture of the Extension Work in Beekeeping which is being done by the Bureau of Entomology, but perhaps some of our readers do not know that this work is part of the greatest educational institution in the United States. The Bureau of Entomology has sent out a dozen men thruout the country to teach better beekeeping, and the teachings of these men is the most practical beekeeping taught today. However, to send out a dozen men on so large a subject would be a small affair, if the men went alone and on their own efforts entirely. They actually do go as part of the work in agricultural extension, and, because of the cooperation which they receive the results of their efforts are multiplied many fold.

Extension Work in Beekeeping.

For a number of years extension work was carried on in the South from funds contributed by the General Educational Board and a great establishment for the work was built up under the management of Dr. Seaman Knapp. Finally Congress saw the desirability of such work as an enterprise of the Federal Government, and the Smith-Lever Bill was introduced and became law. Under this law each State is allotted a certain sum annually, the amount varying with the rural population and also with the amount which each state is ready to contribute to the work. In this way the funds are greatly increased and enormous sums are spent every year for this purpose.

All of our readers are familiar with the system of County Agents and at the beginning of the war there were about 1,000 such agents thruout the country. As a war measure, Congress appropriated additional funds for increasing this staff of experts rapidly and there are now such County Agents in almost all the agricultural counties in the country. This work in each State is administered by a State Director of Extension, who represents both the Federal Department of Agriculture and the State Agricultural College. To this official the County Agents are directly responsible. No institution of such size has ever before existed for the teaching of better methods in agriculture, and, if any of our readers have failed to take advantage of the things which are offered by this system, we advise them to reform in this regard at once. Of course the individual County Agents are not all as well equipped as we may wish, and in some cases perhaps mistakes have been made, but there can be no doubt that the work of these men has added greatly to the agricultural wealth of the country.

The work on beekeeping, supported by the Bureau of Entomology, is part of this larger work. The extension men go to a State and are then under the administration of the Director of Extension. He arranges with the County Agents for the necessary meetings, schedules the trips for the beemen and sees that their time is well occupied. The County Agents in turn arrange for all local meetings, notify the beekeepers, and give the meetings the necessary publicity. It is therefore plain that the time of the beemen is put to the best possible advantage and they are able to reach a much larger number of persons than would be the case if they had to arrange all the details of meetings. The County Agents are of course skilled in arranging for such work and in practically all cases are able to work up better meetings than the beekeepers themselves could do.

We have thus a dozen, and we hope that the number will be rapidly increased, men who are giving their entire time to the upbuilding of the beekeeping industry. They are assisting beekeepers not only by the giving of advice of the most practical kind, but they are assisting the County Agents in organizing the beekeepers into local associations so that they can do together what they could not do individually.

This is part of the effort that the Government is making for the advancement of beekeeping, and most of it is brought about as a war measure. There is need for more honey. However, it does not take a prophet to see that this work will bear lasting results, that the benefit will not cease when peace comes. Then, too, it is to be hoped that the good work in beekeeping will go right on after the war is over, and we think it will, for the beekeepers of the country will realize the benefits which they have received from the work and will insist that the work be supported liberally in the future.

If the Government will teach beekeepers the best methods of beekeeping, will advertise their product, will aid them in the dozens

of ways which we have experienced this year, then there is nothing for the beekeeper to do but to dig in to make the biggest crop of honey that he has ever had.

We suggest to our readers that they take steps to have one of these extension men come to their communities. This can be arranged through your County Agent. There are only a dozen of them and they cannot be in many places at one time, but by taking the right steps in time something can be done for your community. You will be surprised at the results. The men who are doing this work are well equipped, surprisingly well. We have had opportunity to meet some of them and we can commend them to our readers.

A meeting with one of these men present offers a good opportunity to organize a county bee club. Perhaps you do not see that you need one, but you do. Clubs can do for the members what the members individually cannot do for themselves. Think it over.

Big Marketing Plans in the West.

THE HONEY PRODUCERS of western United States are showing the way in many things to honey producers everywhere. Just at this time, they are busy perfecting the greatest honey producers' organization on earth for marketing their honey. The men engaged in this big task are imbued with the proper spirit of co-operation, they have business vision, and they have big-business capacity. They purpose to stand together in their common cause, and to end the day when the Western honey producer stands alone in single feebleness.

We can give our readers no better idea of this big movement than to reprint here the notice sent out to beekeepers on Apr. 26, from Denver, by Stuart L. Sweet, Field Agent in Marketing of the Bureau of Markets, U. S. Dept. of Agriculture. This notice reads as follows:

The Colorado Office of Markets, a branch of the United States Bureau of Markets, and representing the Extension Division of the Colorado Agricultural College, called a meeting last August to discuss the possibility of organizing the honey producers in the Inter-Mountain districts. The territory embraced nine States producing alfalfa white honey. A tentative set of by-laws was submitted at this meeting by Mr. C. E. Bassett, in charge of the Co-operative Organization Projects of the United States Bureau of Markets. Mr. Bassett has made a life study of co-operative work, and will submit the final plan of the by-laws for this Association early in May. Those by-laws will be based upon those used successfully by other co-operative organizations in the United States.

The short crop in the alfalfa white district last season, with the attendant high prices, eliminated the marketing difficulties which have prevailed in past seasons. This year all indications point to the largest honey crop this district has ever produced, and it is felt by many beekeepers that it will be distinctly to the interests of all concerned to have perfected an organization which will be able to assist in the marketing and distribution of the 1918 honey crop.

It is requested that you read over the form attached below and if you are interested in joining this organization please fill out the blank, as outlined. It will be appreciated if you will call the attention of your neighbor honey producers to this, and ask them to sign. There is enclosed a franked and self-addressed envelope, requiring no postage, for the return of this form to the Colorado Office of Markets, not later than May 10.

Thanking you for your co-operation in this work, I remain,

STUART L. SWEET,
Field Agent in Marketing.

INTER-MOUNTAIN HONEY PRODUCERS' ASSOCIATION MEMBERSHIP AGREEMENT.

We, the undersigned, do hereby agree to become members of the Inter-mountain Honey Producers' Association and to market through the Association the honey from the number of colonies set opposite our names and to pay a membership fee of 10 cents per colony, provided that in no case shall such membership fee be less than $10. The agreement shall not be binding upon the subscriber hereto until the honey of at least 30,000 colonies has been pledged. [There follow blank lines for the names, addresses and number of colonies that the beekeepers signing may have.]

We wish this formative association every success in bettering the market conditions of the Western beekeepers.

Importance of Soil Surveys.

EVERY BEEKEEPER knows that nectar secretion is influenced by the character of the soil. In establishing out-apiaries and even the home yard, it is worth while to get information on this point. This is especially true where the nectar comes from a leguminous plant, such as the clovers, when lime is of great importance. Of course, those of our readers who engage in farming also need such information in crop growing.

The Federal Department of Agriculture publishes a series of soil surveys. In time, probably, these surveys will cover the whole country, except the parts where agriculture cannot be practiced. A list of the surveys which have already been made may be obtained by writing to the Bureau of Soils, Department of Agriculture, Washington, D. C. This list explains how the surveys may be obtained.

Beekeepers are just beginning to find out how handy it is to have a Department of Agriculture. Gleanings has referred many times to the value of the daily weather maps. Then there is a Bureau of Chemistry which keeps its eyes open for honey adulteration, and a Bureau of Markets which furnishes the semi-monthly market reports which are reprinted in Gleanings. Of course, our readers know that there is a beekeeping office in the Bureau of Entomology. It would be an interesting thing to know something of all the offices which affect the beekeeper. Perhaps Gleanings can dig all this up some day.

In the meantime, has your region had a soil survey? Have you a copy?

BEEKEEPERS in and around Denver have suffered for years from what they were pleased to call smelter-smoke poisoning. This trouble starts generally the latter part of April or May and continues thru June. Often it lasts later than this. The effects of the poisoning remain with the colony from year to year. There are, as yet, no definite data as to whether smelter smoke is responsible for this, but it is known that the trouble is present around Denver and Pueblo. Some beekeepers say that the trouble is caused by the city smoke. Colonies will be greatly depleted or destroyed entirely in a few days. The loss takes place generally right after a rainy season. The honey stored in these colonies is badly granulated, but often there is much thin and nearly sour honey on top of the granulated cells. Combs of granulated honey look wet and greasy. A number of colonies, that a correspondent of Gleanings examined recently, were greatly depleted in number—in fact, they were nothing but weak nuclei. These colonies had not been in the poisoned district since last year, so that their weakened condition was caused by the honey that they had consumed from the stores in the hive. So experienced a beekeeper as Wesley Foster of Boulder, Col., gives it as his opinion that the unripe condition of this honey may be explained by the fact that the bees do not succeed in thoroly ripening it, because they become sickened by the poison and go out and die before completing their job. Mr. Foster adds that at present the beekeepers are moving their bees out of this district where the smelter poison seems to be the most serious. The area affected is favorable for honey production, so that most of the beekeepers move the colonies back about the time the alfalfa begins to bloom; but whether this procedure is profitable is being questioned by a number of beekeepers who have been practicing it.

Smelter Poison in Colorado.

THE MONTHLY crop report for May of the U. S. Dept. of Agriculture contains a "Honeybee Report," date of May 1, which is summarized as follows:

Official Report on Conditions.

The losses of colonies of bees during the past winter have been, for the United States as a whole, 18.7 per cent of the total number; in other words, almost one out of every five colonies has perished. As the reports to the Bureau of Crop Estimates are in the main from the better class of beekeepers, it is to be feared that the wastage has been even greater. Under the present circumstances, this loss assumes a serious aspect. The Nation can ill spare the 20 to 30 million pounds of honey which past experience permits us to assume as the possible production of these lost colonies.

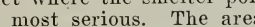
Roughly, a third of these losses are ascribed to freezing and another third to starvation, and it is sad to reflect that both of these causes might in large measure have been overcome by their proprietors and protectors. Sugar and labor shortage are partial, but only partial, excuses, as is also the unusual winter, which came early, shortening the flow of nectar from the autumn flowers, and persisted with unexampled severity without the customary brief relaxations of ordinary years. Lost or failing queens and small colonies resulting from brood diseases or late swarming, are the principal remaining causes of loss.

The losses were most severe in the North Central and Northeastern States (Massachusetts, Pennsylvania and Maryland having 40 per cent loss of colonies or more,) and extended as far southward as North Carolina, Tennessee, Missouri, and Kansas, ranging in some States as high as 41 per cent and in only a few cases falling below 15 per cent. The losses in the South and West have been less than usual, with the exception of Oklahoma and California, and notably Texas, where drought of two years' duration in important honey-producing sections has resulted in 24 per cent of loss.

The number of working colonies remaining on May 1 is estimated at 88.7 per cent of the number on May 1, 1917. Material increases last year partly offset the heavy losses. Increases are shown over last year's numbers in most of the Southern and Western States.

The condition of colonies was 86.4 per cent of a normal on May 1 compared with 91.1 per cent last year, and an average of 94.2 per cent, reflecting the effect upon the surviving colonies of the severe winter. The colonies appear to be building up rapidly, however. Colonies are reported in excellent condition in most southern States, omitting Texas, and are above normal in several of the western group, altho in California they are in only a trifle better than last year's poor condition, and still 10 per cent below the average.

The condition of honey plants is reported at 86.7 per cent, which is considerably better than the 82.3 per cent reported last spring, but distinctly below the average of 92.6 per cent. The lowest conditions are in Wisconsin, Iowa, and South Dakota, due to winterkilling of clover, and in Texas and Oklahoma, resulting from droughts.



ON ACCOUNT of the winter losses, as mentioned elsewhere, difficulty has been experienced in buying bees. Those who have bees are unwilling to sell them. With the present high prices of honey and the possibility of securing from 100 to 150 pounds of extracted honey, no man who has a colony of bees can afford to sell them at prices even double what they have ordinarily been held at, providing, of course, that he is a good beekeeper. If he is not, then he would better sell.

The Difficulty in Buying Bees.

The lesson that comes to us is that some (the weaker) colonies should be held for increase, as something must be done to replace losses that occurred last winter.

Beekeepers can secure a very interesting article by Dr. E. F. Phillips on "A Wasted Sugar Supply" by writing the Division of Publications, Washington, D. C., and asking for "Separate No. 747." It is taken from the 1917 Agricultural yearbook.

DISCUSSION of QUEEN PROBLEMS

How to be Sure of a Good Queen; Rearing One's Own Queens; Best and Cheapest Way to Requeen; Notes on Controlled Mating

JUNE is the time of year when the queen in most regions of the United States holds the center of the bee stage — perhaps she always holds it, but it is during this month that the test of her quality and worth is proved. So Gleanings is here going to print some recent views of a number of well known beekeepers concerning the queen and her activities as well as the beekeepers' treatment and handling of the queen.

A Breeding Queen, and How to be Sure of Having a Good One.

BY J. E. CRANE.

In recent years I have noticed a tendency to advertise breeding queens or "breeders" as they are often called. The price is usually five or ten times the price of ordinary queens. It is rarely, indeed, that I have seen the good qualities of these high-priced queens enumerated or described. You pay your five or ten dollars for a "breeder" and get what the dealer chooses to send you. This business has many times reminded me of a trick we used to play as children: "Open your mouth and shut your eyes, I will give you something to make you wise." Now I have opened my check book and invested in some of these "breeders" and been made wise. Not that I have never received any choice queens—I have—but I have also found that the chances of getting all I desired, are not very large.

I have wished that the queen-breeder would tell us what we may expect from his "breeder." If I go into a store to buy a suit of clothes, the obliging proprietor is ready to enlighten me. I may find a suit for $15 that fits me very well, and perhaps I am ready to purchase when he shows me a suit with a price of $20 or $25. I enquire wherein the difference consists and he explains that the higher-priced suit is of finer material, will never fade, and contains no cotton. He will point out the better quality of linings, the more nearly perfect fit, and the color most becoming to a man of my years. I buy the higher-priced suit and take my purchase home for my wife to admire, thinking the while of the good trade I have made. It is guaranteed to be all right and, if it does not prove so, I can return it to the dealer. But when I buy a "breeder," it is like buying the proverbial "pig in a poke"—a very uncertain commodity.

It's the queen he's looking for. She interests everybody.

THE QUALITIES A "BREEDER" SHOULD HAVE.

Have the workers of this queen proved themselves of unusual vigor? Are they longer lived than average workers? Has the queen a pedigree of many generations of good honey-gathering stocks? Is she of pure Italian blood? Do her workers build their surplus combs white and free from propolis or bits of dark wax carried up from the brood-chamber? Is she, as well as her queen ancestors, prolific. Or does her excellence consist simply in her beauty? Does the breeder warrant such queens to be of superior quality? Not that I am aware of. If a queen proves quite worthless or even a damage to your yard, you can hardly expect the dealer to replace her, for it can not be shown that she is not a "breeder."

Until breeders of queens can show that their "breeders" possess quality, as well as price, would it not be well to buy the average queens and run your chance of finding a breeder among them? A queen can hardly be fully tested in much less than a year. When we can buy ten or a dozen queens for what we would have to pay for one breeder, it would seem good policy to buy the larger number of cheaper queens and run our chance of finding among them a good queen to breed from.

Still I believe it pays to buy queens occasionally from standard breeders, for if they are no better, it is at least an advantage to introduce fresh blood. Besides, it gives us an opportunity to compare our stock with that of those who have been engaged for many years in breeding queens and presumably have done their best to improve their stock.

HOW TO SELECT A GOOD BREEDING QUEEN.

We may often find

queens of superior quality among our own bees, if we are looking for them. When visiting an old beekeeper in a near-by county, he told me of one colony he had that had done remarkably well, far in advance of the others in his yard. He lives alone and has only his bees to care for, and also a little garden where strawberries crimson from June till November. I asked if he could spare me a queen from his best colony. I fancied a shade of sadness came over his genial face as he told me that he had none to spare, for he loved his bees almost as tho they were his own children. For several years I have been breeding from such a queen and daughters with very satisfactory results. Indeed, the strain seems as good or better than anything I can find. But it is not every day or year that I find such a queen and I must be content with a slower advance.

This last year, in order that I might be guided in selecting a good breeding queen, I marked all my supers as they went onto my hives and then as I cleaned the sections I set down the number of those hives that stored above the average and whose combs were white and free of propolis and well attached to the sections. Then in the spring when the soft breezes blow and dandelions are paving the roadsides with gold while the trees are vocal with bird songs, I can go out into my yard and, by means of my list, select a breeder. This first number may be 26. This is found to be a grade or hybrid. I do not care for it. Next is 33. As I look, the bees begin to get nervous and run off the comb. This does not suit me. The next is at number 52. It seems rather backward and I am inclined to think that it lacks vigor. Next I open 63 but before I am thru I find them quite too ready to take an insult, and, if I get away without a sting, I shall be fortunate indeed. And now another. Here I note the combs are well filled with brood, the bees of fair color and quiet on the combs, and the queen does not even stop her egg-laying at the unusual disturbance of opening the hive. On looking up her pedigree I find she comes thru a long line of superior queens, and she is my choice. She is not for sale for she is worth more than her weight in gold.

Middlebury, Vt.

[We have often suggested that the beekeeper who desires a breeder can sometimes secure better results by taking the money that would buy one breeder and purchase untested Italian queens. If those queens come from a select mother, that has been tested out in all-around qualities, there is a strong possibility that one of those daughters may come very nearly equaling the performance of the mother. And in the lot there may be one or two others that may develop breeders.

However, if the queen-breeder is conscientious, he will supply only a breeding queen of known merit and when he doesn't have her, say so. There is no justice or right in charging $10 or $15 for a breeding queen, if he doesn't have that kind of value in stock. Sometimes the demand for a high-priced queen is so great a queen-breeder is tempted to pick out something that he thinks will come up to standard out of his young queens, without so advising his customer. The only fair way in such cases is to write the customer that his breeding stock is exhausted, and then say the only thing he can do is to pick out a fine select tested from his best breeder and charge no more than such select tested queen would ordinarily bring in the open market. A breeding queen should not be less than six months old and it would be better if she were a year. The honey-gathering qualities of her bees, their gentleness and good wintering qualities should all be factors in determining her value. Moreover, she should be a queen that will duplicate her own qualities in her daughters as far as possible. The bees of a breeder may do ever so well, but all her queens be indifferent and poor. This does not often happen, but we have heard good queen-breeders say such and such a queen would be a good breeder, if only her daughters would be uniform and go part way in equaling the performance of the mother.—Editor.]

* * *

Does It Pay the Beekeeper to Rear His Own Queens.

BY F. L. BARBER.

Arising in the mind of every professional beekeeper is the question, "Will it pay me to rear my own queens?" It is true that very good untested queens may be purchased for about $1.00; but, tho this cost seems small, if a large apiary is to be requeened, the amount reaches a considerable size, and, if this extra expense can be saved, the total receipts of each colony will be correspondingly increased with comparatively little labor.

Of course it will be necessary for the average beekeeper to purchase his breeding stock, as few are so situated that they can profitably rear their own. Therefore in most cases the selection of fine strains must be left to the professional queen-breeder. In some apiaries it is the rule to choose for the breeder the queen from the colony with the best honey record; but this policy, tho apparently good, leads to some curious errors. Unless it is certain that the queen is of pure stock or of a fixed cross, she should not be used, for it is a well known fact that when a first cross is used as a breeder the resulting offspring are most variable in character.

NECESSITY FOR A PLENTY OF QUEENS.

The beekeeper should remember that it is desirable to have extra queens on hand when the number of colonies is to be increased by division or by any method of artificial swarm-building. If a queen is provided as soon as the increase is made, the new colony will gain about three weeks in brood-production over a colony that has to rear

its own queens. Since it is a well established fact that queens lay more eggs during the first year than in any other, it is evident that frequent requeening pays well for the extra labor and that it is really necessary in order to secure the best results in honey-production. The best honey-producers hold that it does not pay to keep queens more than two years old. There is, however, one exception to this rule. This is in queen-rearing apiaries where it is desirable to have a large number of choice drones always on hand. Since old queens lay a much larger number of drone eggs, it is often well on this account to keep a few old queens of select stock.

QUEEN-REARING NOT DIFFICULT.

It is true that queen-rearing can not be carried on without careful attention; but the methods are not, as many believe, so complicated as to make it impossible for the honey-producer to afford the time. In rearing queens by any artificial method, it is first necessary to study the circumstances and conditions under which queens are reared naturally, namely, under the swarming impulse. From this study we learn that the hive must be well filled with bees and there must be a bountiful supply of honey and pollen. The amount of brood supplied should be limited so as to concentrate the working force of the colony on the building of queen-cells. Here is the outline of a plan I have used with good results.

From a strong vigorous colony, remove the queen and most of the brood. Then take 20 wooden cell-cups, each of which has a wooden base with a depression into which has been previously placed a molded wax cell. Into these place a little royal jelly. Next take a frame of larvæ from the best breeding queen and with a grafting needle carefully lift out larvæ about 24 hours old. Place these into the prepared cell-cups and give them to the queenless colony and, if no honey is coming in, feed them until the cells are capped. Or, if desired, after about 24 hours these cells may be given to a colony made queenless but not broodless, and another batch of cells given to the first colony. For when cells have been started by a broodless and queenless colony, they will usually be finished just as well by a colony with brood but queenless.

It is better and more in harmony with nature not to allow the queens to hatch in cages, for when first hatched they need the attention of the nurse bees as they are not fully developed for several days. It is well known that the drones contribute as much as the queens to the character of the workers. Therefore in order to have a large per cent of the queens mated to select stock, it is well to rear a large number of drones in one or more colonies whose queens produce worker progeny especially noted for their good qualities. If desired, we may help in the drone-rearing by giving these colonies some drone foundation.

All phases of beekeeping are interesting, but to me queen-rearing is particularly so. How fascinating it is to see the cells accepted and watch them grow large, white, and beautiful; to see the big fat larva curled up on a lump of royal jelly much more than it can use; and then, after the cell has been sealed and given to a nucleus, to watch for the virgin to hatch. Finally the cell is found open at the end and we know the queen is there. Still we want a look at her and so we find her. How large, long, and beautiful she is! In a few days we look to see if she is laying. There she is with a more matronly and dignified appearance. We know she has mated and will be laying in a few hours. The next day when we look again, there are eggs, which proves that she is now fitted to begin her life work. We cage and then introduce her into the home or colony where she is to reign supreme; and we hope and trust that her reign will be one of peace and prosperity.

Lowville, N. Y.

* * *

The Best and Cheapest Way to Requeen.

BY R. F. HOLTERMANN.

This interesting subject was discussed in an address given by A. D. Hall at the convention held last fall in Watertown, N. Y. He used to requeen during the honey flow. His experience was, that, as soon as honey began to come in freely, the bees began to build queen-cells. If he wanted a queen from the colony, after seven or eight days he would go thru the colony, kill the queen, and remove every cell except one of the best. In that way he overcame the swarming impulse and saved time and manipulation. He said he had frequently been asked what he did with all the bees in the hive if they did not swarm. His answer was that he often made a nucleus from it, and increased and made up losses in that way. If queen-cells were started for swarming, and he wished to keep the queen, he removed her with a comb of brood and bees and added some more bees. A beekeeper must, however, adjust himself to conditions. Bees are sometimes held back from swarming by rainy weather. In such a case the bees might not follow the usual rule of casting the second swarm the eighth day after the issue of the first; but the swarm might come out, even three days after the first. He would not advise killing the queen of a colony unless the cells are well advanced—almost ready to swarm. In that way the best cells are obtained.

During the time that the colony is queenless, and as the young bees emerge from the cells, leaving them empty and not again occupied by eggs and larvæ, the bees will clog the brood-chamber with honey; but after the young queen emerges from the queen-cell left in the hive the bees will move the honey into the super, thus preparing the brood-chamber for the eggs which in time the young queen is expected to deposit.

C. O. Enders of Oswegatchie, N. Y., stated that he often killed the old queen and put

in a new cell protected by a cell-protector and almost ready to hatch. He tried to time this operation for the middle of the flow.

This drew out a very profitable discussion upon the value of queens. George B. Howe of Black River, N. Y., said that one fruitful cause of swarming was poor queens. If the queen is two or three years old, the colony is almost always bound to swarm. A good queen is valuable; and a good queen can be raised only during a moderate honey flow.

Charles E. Stewart, one of the efficient inspectors of New York State, made the statement that the best time to requeen is in the fall of the year. A good queen should be reared late enough to introduce by Sept. 15 or later. She will then lay very little that season, and be in prime condition to lay abundantly the following spring, thus helping to build up the colony.

Brantford, Ont., Canada.

[The plan of requeening by A. D. Hardy here spoken of is very similar to the one advocated about 17 years ago by N. D. West of Middleburgh, N. Y. His plan was not so much for stopping swarming, if we remember correctly, as it was to get good queens from choice cells. The principal objection to taking swarming cells is the danger of getting queens with the swarming impulse. However, it is generally admitted that the swarming-impulse cells furnish better queens than those from cells under the supersedure or queenless impulse. The scheme of preventing swarms is a good one and may be used to advantage by a good many beekeepers where swarming in the early part of the season is a source of a good deal of annoyance.—Editor.]

* * *

Some Notes on Controlled Mating of Queen-Bees.

BY ARTHUR C. MILLER.

Queens and drones fly normally in a nine-foot cube lined with white cloth. In a room or cage covered with one thickness of white cotton cloth they evidently can see thru, for they attempt to go thru the walls. But with two layers of cloth one inch apart, that trouble disappears, altho they do attempt to go higher than nine feet.

The presence of workers in the cage is a direct interference with the queens and drones. George B. Howe of Black River, N. Y., reported that in two different years and on two occasions he observed drones swoop down upon and seize heavily laden homeward-bound workers. To the human ear the hum of a heavily laden worker is the same tone as that of a virgin queen.

Drones probably follow and find the virgin queens by the sound of the latter's wings. Virgins with slightly clipped wings to prevent long flights have never been known to mate.

Young queens fly high, pretty much out of the sound of the apiary. In place of a permanently built cage, Fred B. Simpson of Cuba, N. Y., tried a tube of cheese-cloth hoisted to the top of a tall pole, but the tube was of too small diameter and was of only one layer of cloth. A cotton-cloth cage is superior to netting, either of cotton or wire; it is also stronger and cheaper, but the walls, as above stated, must be double and separated by a small space.

Both queens and drones must be well fed and in a warm hive, so they fly readily at the customary hours. Even in the white-cloth room, with four identical small hives, one against each side, the young queens find no trouble in returning each to her own hive.

SUGGESTIONS AS TO A MATING CAGE.

To lessen the expense and avoid trouble from storms, a rectangular double tube of white cotton cloth, hoisted to such height as may be necessary, probably not over 50 feet, would be superior to a cage with rigid and permanent framework. (A place between tall buildings would do, if they were not so near together as to restrict the light.) The top frame, to which the cloth walls and "roof" are attached, would have to be fairly firm. Other rectangular frames, inserted at intervals to keep walls apart and "tube" in shape, could be made of bamboo poles. Such a "room" could be hoisted for a few hours on suitable days and lowered at other times. The bottom of such a tube would need to be anchored securely to the ground. Some method should be used to keep workers from entering the tube, and the tube should be out of sound of the apiary.

Drones and queens must have access to nurse bees, probably thru wire cloth, and should also have free access to pollen and honey in the combs. The writer did some experimenting along this line too, but could not complete it.

It seemed to him preferable to have the queen in a compartment on a comb with emerging bees, said compartment being in the middle of a strong colony. He was also of the opinion that it was best to move such a colony from its stand the midday before the queen was to be allowed to fly, so that all the field bees and most of the youngsters old enough for a play-spell would be out of the way and not be humming outside of the mating cage.

Probably as good results (perhaps better) might be secured by shutting in the bees of the colony and letting only the queen fly from her compartment and the drones from theirs in another hive. Until we know more about the subject, it seems best to fly queens from a different hive than the drones.

The writer is of the opinion that relatively few drones, say 12 to 20, will be better for cage work than more. Select vigorous mature ones by catching some as they return from flying.

Providence, R. I.

[These interesting "notes" were sent by Mr. Miller to Gleanings, not for publication, but at our request he has permitted their publication as "notes" and "notes only."—Editor.]

BEST SWARM CONTROL PLAN

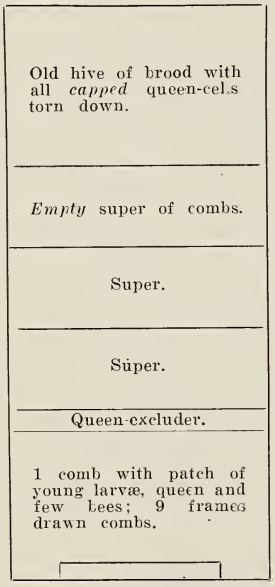
A Review and Study of the Plans of Thirty Years. Is There Such a Thing as "the Demaree Plan?"

By Iona Fowls

Of all the different phases of beekeeping nothing has had more discussion and experimentation than swarm control. It therefore occurred to me that to study the bee literature of the past 30 years, carefully picking out, correlating, and comparing the most successful plans of swarm control might perhaps be instructive and helpful. It is quite possible that I was slightly prejudiced at the start. At any rate, the result of this study is a firm conviction that the plan we have been using for the past five years is as good a plan as has yet been advanced for the prevention or control of swarming in the production of extracted honey in out-yards.

The Best Plan for Out-yards.

This plan is: As soon as danger of swarming arises, every seven or eight days carefully examine the colonies, keeping them always supplied with plenty of room, and destroying whatever queen-cells are found, providing they contain only eggs or young larvæ. When more advanced cells are found, place on the old stand a hive of drawn combs, one of which contains the queen, a few bees, and a few young larvæ. (If no combs are available, most of the frames may contain foundation; but there should always be at least three drawn combs, and a whole set, if possible.) Above this place the queen-excluder; then two or three empty supers; and at the very top the hive of brood, tearing down only the capped queen-cells. At the end of seven or eight days, if no increase is desired, tear down all queen-cells again. If increase is wanted, simply place the upper story on a new stand and leave them to raise their own queen, or introduce a good queen or choice cell in a protector. It is not even necessary to remove any queen-cells; for when the new queen hatches, either she or the bees will attend to that. If one desires no increase, then the queen-cells may be destroyed and the brood distributed to other colonies or left to increase the original colony. That is the entire plan, and it has for years been used by many of the best beekeepers.



Best extracted-honey plan of swarm prevention or control in out-yards to be applied after advanced queen-cells appear. Above lower story there should be at least three shallow or two deep supers. For swarm prevention, after 8 days remove queen-cells in top story and leave brood to hatch or give to weak colonies. For swarm control after 8 days move top story to new stand, contract entrance and leave queen-cell to hatch or introduce new queen.

Good Points in Above Plan.

There are points of unusual merit in this method. The conditions very closely resemble those of a natural swarm, the bees of the old colony being mostly young and hatching bees; and, being so far removed from the new swarm below, they seem to consider themselves queenless, and consequently direct all their energies to the completion of splendid-looking cells. In the lower story there are no nurse bees nor cell-builders—only field bees; and since this new colony is supplied with such an abundance of room, both for the queen and for the storing of honey, they entirely give up all ideas of swarming. Moreover, this plan keeps the working force together for a longer time; enables the bees in the upper story to raise fine cells under the swarming impulse, keeps the brood very warm until it is all sealed and the greatest danger of chilling is over, and makes it possible to leave an apiary entirely alone for a week at a time during the swarming season.

Haziness in Regard to Demaree Plan.

This plan is one often referred to as a modification of the Demaree plan; and if every plan in which brood is raised to an upper story has the right to this name, then almost every plan except swarming, dividing, or dequeening should be so designated. Right in this connection we should like to ask whether Dr. Miller, E. R. Root, or any one else really knows what the Demaree plan is.

We noticed in Gleanings, page 854, 1917,

that Dr. Miller alludes to the fact that E. R. Root puts all the sealed or hatching brood above, and the unsealed brood below with the queen; and then he continues, "Please tell us why that was better than putting sealed brood below and unsealed brood brood above; also why it was better to put up only part of the brood instead of the regular Demaree plan of putting up all the brood, with the possible exception of one."

Now, it just happens that of the two suggestions in Dr. Miller's last sentence, the first is not Demaree's and the second is a combination of the plans Demaree gave in 1892 and 1894, while E. R. Root's plan was the one given by Demaree in 1895. However, Mr. Root was apparently quite unconscious of the fact, for in a footnote he straightway proceeded to put up a very good defense in which he said: "We do not claim that this procedure is better than the Demaree plan."

Sealed Brood Should be Above.

This last quotation of Dr. Miller's raises the question whether the sealed brood should be put above or below. We feel convinced that it, together with all but a small patch of the unsealed, should be put above. This leaves the upper and lower colonies in the same condition as the new and old colonies of a natural swarm.

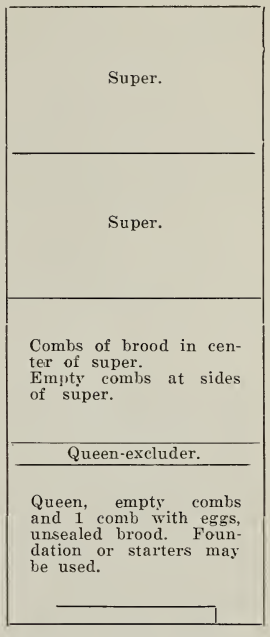
Demaree's Plan Underwent Changes.

During a period of about ten years his plan underwent certain changes. Just what his finally perfected plan was we cannot say, unless it was the one given in 1895.

In the American Bee Journal, page 619, 1884, in an article entitled "Controlling Increase," his idea was to make the colony queenless for a time. When the colony first showed signs of swarming he placed on the old stand a new hive of empty combs, one containing some larvæ just hatched. On this was placed whatever supers the colony chanced to have. He then placed the old hive at right angles to the new one, leaving in it the queen and a few bees, most of the bees having been shaken in front of the new hive. At the end of five days he gradually turned the old hive, bringing the entrances beside each other, and then at the end of ten days turned it back again, thus turning more of the field bees into the new hive. At this time he also removed the queen-cells and gave young larvæ. When all danger of swarming was over he tiered the old hive above the new one.

Demaree's Plan of 1892.

In 1892 (American Bee Journal, page 545) Demaree discarded this plan, saying that "any system that requires a divided condition of the colony, using two or more hives, is not worthy of a thought." He then proceeded to give a full discussion of his plan, concerning which we especially call attention to the fact that the method was applied at the commencement of swarming, but usually before any cells had appeared, instead of after the cells were far advanced and sometimes even capped, as in the plan we advocate; that the purpose was swarm prevention only, instead of either prevention or control—and that the brood was, therefore, never removed from the hive;



Demaree's Plan of 1892, for prevention of increase. Applied to strongest colonies at commencement of swarming, but usually before appearance of any queen-cells. If applied after swarm issues, no brood or eggs are left in brood-nest.

and that the surplus supers appear to have been placed above the super of brood instead of between the brood and lower story. Following is a statement of his 1892 plan:

"When your apiary is as large as you want it, what would you give to be able, by a simple, practical manipulation at the beginning of the swarming season, to hold all your colonies in full strength of working and breeding force steadily thru the entire honey harvest? You can do it, beyond a doubt, by practicing my new system of preventing swarming; and if you have the ingenuity to apply proper management to suit the *new condition*, your surplus yield will be larger than by any other method made known to the public.

"I have practiced the new system largely for the past two seasons, and my surplus yield was never so large, tho it is well known that the past two seasons were not above the average as honey-yielding seasons.

"As I have already intimated, my plan of preventing swarming, and entirely preventing increase, is accomplished by one single manipulation right at the commencement of swarming. Only one hive and its outfit is used for each colony. Any system that requires a divided condition of the colony, using two or more hives, is not worthy of a thought.

"In my practice I begin with the strongest colonies and transfer the combs containing brood from the brood-chamber to an upper story above the

queen-excluder. One comb containing some unsealed brood and eggs is left in the brood-chamber as a start for the queen. I fill out the brood-chamber with empty combs, as I have a full outfit for my apiary. But full frames of foundation, or even starters, may be used in the absence of drawn combs.

"When the manipulation is completed, the colony has all its brood with the queen, only its condition is altered. The queen has a new brood-nest below the excluder, while the combs of brood are in the center of the super, with the sides filled out with empty combs above the queen-excluder.

"In 21 days all the brood will be hatched out above the excluder, and the bees will begin to hatch in the queen's chamber below the excluder; so a continuous succession of young bees is well sustained.

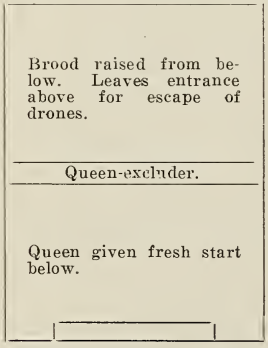
"If my object is to take the honey with the extractor, I tier up with a surplus of extracting combs as fast as the large colony needs the room to store surplus. Usually the combs above the excluder will be filled with honey by the time all the bees are hatched out, and no system is as sure to give one set of combs full of honey for the extractor in the very poorest seasons; and if the season is propitious the yield will be enormous under proper management.

"The great economy of this system is, all the colonies will produce as nearly alike as can well be—a condition of things that never occurs in any apiary swayed by the swarming impulse. If my object is fancy comb honey I tier the section-cases on the super that contains the brood, and push the bees to start all the combs they can.

"The system described above works perfectly if applied immediately after a swarm issues. The only difference in the manipulation in this case is that no brood or eggs is left in the brood-nest where the swarm is hived back."

Demaree's Plan of 1894.

In the next allusion we find to this meth- (American Bee Journal, page 633, 1895). Demaree speaks of leaving an entrance



Demaree's Plan of 1894, for swarm prevention. All brood raised.

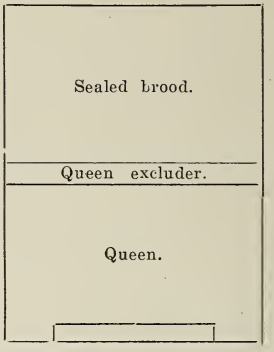
above; and instead of leaving below one comb with eggs and young larvæ, he simply says he raised the brood above.

"In practicing my plan to prevent swarming, which consists in the simple manipulation of raising the brood above the zinc excluder and starting the queen afresh below, I make a hole in the upper story for the drones to escape from the upper story, as they cannot pass out at the entrance because the excluder is between."

Demaree's Plan of 1895.

The last description we find given by Demaree was in an issue of the following year (American Bee Journal, page 633, 1895). There we note that when he wanted increase he allowed natural swarming. When he desired no increase he raised all the the sealed brood. He stated the plan as follows:

"I want a system of management that will keep the full working-force of the colony together during the entire honey flow unless I want to increase my colonies by taking a prime swarm from each colony. If I want no increase I prevent swarming by raising all the sealed brood above the queen excluder and confine the queen below the excluder. If I



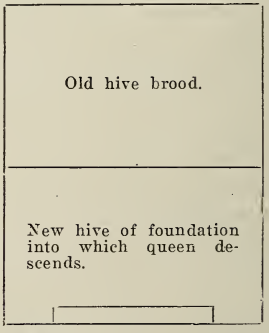
Demaree's Plan of 1895. For no increase, he used above plan. For increase, allowed to swarm, shaking some bees from old colony into new.

want the prime swarm, I let them come, hive them on the old stand, remove the parent colony to a new location, after shaking enough bees from the combs to prevent after-swarms."

Demaree's four plans may be summarized as follows: The colony was made queenless and nearly broodless for ten days (1884). The queen and one frame of eggs and larvæ were left below; above this were the excluder, hive of brood, and supers (1892). The brood was raised above an excluder and the queen left below (1894). All the sealed brood was raised (1895).

Langstroth and Others Raised Brood Before Demaree.

Does it seem to any one that any of these plans demands that we give Demaree the



Langstroth's Plan of 1865 for prevention of increase.

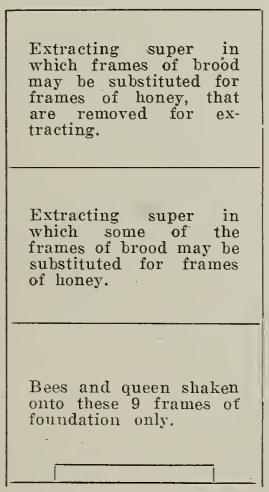
credit for all plans involving the raising of brood? If so, then we refer such a one to "Langstroth on the Honeybee," 1865, page

153, where it will be found that Langstroth suggested the raising of brood for the prevention of swarming 27 years before Demaree. He says, under "Artificial Increase":

"If, however, the new hive is directly below that in which the swarm was first lodged, and the connections are suitable, she will be almost certain to descend and lay her eggs in the new combs, as soon as they are begun by the bees. The upper hive being now almost entirely abandoned by her, the bees fill the cells with honey as fast as the brood is hatched, their instinct impelling them to keep their stores of honey, if possible, above the breeding-cells. As long as bees have an abundance of room below their main hive they very seldom swarm."

Also in the British Bee Journal, page 13, 1884, Samuel Simmins gives this plan:

"My method of 'swarming without increase' is as follows: When a colony working in sections is on the point of swarming I remove the whole of the brood-frames and shake off every bee into the hive again, and give them nine frames of *foundation only*, replace the sections, which are at once proceeded with, and the colony is as contented as a new swarm. The removed brood-combs are given



Plan of Samuel Simmins of 1884, for prevention of increase. May place brood above or give to other colonies.

to other colonies that may need them, or are inserted where frames are removed for extracting."

[In this quotation, "sections" evidently means supers. Some old-time writers used "section" in the sense of super.]

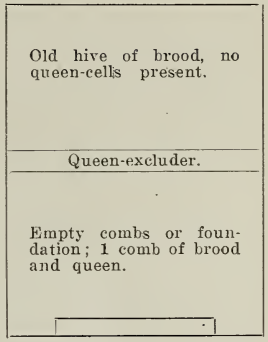
Does it not look as if Demaree's plan was as much a modification of preceding plans as all the recent brood-rearing plans are modifications of Demaree's?

Recent Swarm Prevention or Control by Raising Brood.

Since the time of Demaree there have been a great many beekeepers who, either for the prevention or control of swarming, put brood above. We have now before us a long list of those who, during recent years, have tried this plan with slight variations; but lack of space forbids our pointing out all the differences and similarities.

Alexander's Plan.

E. W. Alexander had a practical plan for one having a large number of colonies all in one yard; but for those with several out-



Alexander's Plan of 1906, requires three or four manipulations. Applied when about populous enough to swarm. After five days, if queen-cells are present, destroy and separate at once. If no queen-cells, leave 10 or 11 days and then put old hive on new stand. In 24 hours give ripe cell, virgin or laying queen.

yards his plan demands too close attention. It should be noted that the plan is applied preferably before queen-cells are started, that the brood is placed immediately above the lower story, and the whole plan requires three or four manipulations.

Alexander's plan appeared in April, 1906, and stated briefly was as follows: When the colony is about populous enough to swarm, over a hive of empty combs or foundation containing the queen and a frame of brood place the queen-excluder and the queenless colony. (So far the plan is the same as Demaree's.) Leave five days and then, if there are queen-cells, destroy them, unless you wish to breed from them, and separate at once. If no queen-cells are started, leave 10 or 11 days and then put the old hive on the new stand. In 24 hours give a ripe queen-cell, virgin or laying queen.

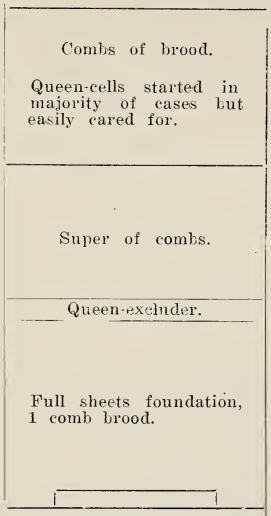
Byers Plan of 1914.

The first who came near giving the plan described at the beginning of this article was J. L. Byer who stated (page 337, Gleanings for 1914) the following method:

"Take away the major part of the brood *before* the swarming fever shows, substituting full sheets of foundation in place of combs removed. If the colony is strong I recommend taking all but one comb of brood away; and if there are no signs of swarming at the time of operation, these brood-combs can be placed above the excluder in the super. If the flow is on, as it should be when doing work of this kind, I place a super of comb next to the excluder, and then another story with the brood in on top of that. With this brood so far away from the old brood-nest, queen-cells will

be started in the majority of cases; but they can be cared for easily later on."

We consider this system a very good one for those who desire no increase and have such large swarms that there is no danger of chilling the brood when applying the plan so early. It will readily be seen that this plan is to be applied before any cells are started, and is for swarm prevention alone, thus offering no provision for those desiring increase and also a crop of honey. On the other hand, it should be noted that a super of combs intervenes between the upper and lower hives. Right here is where it seems to me the plan goes away ahead of those preceding, for it places the new and old swarms further apart, renders the condition of the upper one more nearly that of a queenless swarm, and makes it less likely that any cell-builders from the hive of brood will enter the lower story and begin cells there. When using this plan before queen-cells appear, probably one super intervening would be all that is necessary; but if applied at a later stage, when advanced queen-cells were present, of course more supers would be required.



J. L. Byer's Plan of 1914, for swarm prevention. Applied before swarming fever shows.

Many beekeepers who do not care to raise so much of the brood before any signs of swarming appear, place from one to three frames of brood above, allowing the queen access to both stories; and then a few days after the opening of the season place the queen in the first story below a queen-excluder. We have also done this, and then later applied the plan we first described if occasion arose.

The Plan We Have Used for Five Years.

In Gleanings, page 574, 1915, is a full discussion of the plan which we like best, and which is given in outline in the second paragraph of this article. It is for either swarm prevention or control, and is to be applied after the queen-cells are started; or even after they are sealed, if desired. It is quite possible that this form of plan appeared in print at some earlier date; but if so, we have not happened to run across it. As previously intimated, the plan is a gradual development, and therefore many people deserve the credit for its final form. It is doubtful if any one person originated it; but certain it is that the credit should not be given to Demaree, since his plan consisted merely in raising the brood, and Langstroth also did that more than fifty years ago.

A View of the Home Yard of S. A. Niver, Greenfield, Cal. This Apiary is Composed of Artificial Increase.

CONVERSATIONS with DOOLITTLE

The Desirability of Breeding from Queens Having a Pedigree

"I see that a Michigan dealer in small fruit plants claims that he has made great improvement in strawberries by selecting the best and strongest specimens, both in plant and berries of certain kinds, till he has some of these kinds brought to perfection in every respect, or very nearly so. I know that animal life does not stand on the same plane as does vegetable life, but why cannot beekeepers work along the same line in the improvement of bees, working through the drones and queens?"

Our questioner has touched on something about which I have been frequently asked by those who kept bees and also horses, cows, and poultry, they claiming that the latter three had been much improved thru a pedigreed course for a term of years, while bees were very little better than when the first queens were brought to this country from Italy. It is a common saying that "like produces like," and it is true in a general way. It is also true that in the breeding of animals, and especially so with bees, that the parent transmits not only its own qualities, but that of its ancestors, it may be for many generations. A lecturer at a teachers' institute was asked when a child's education should begin, and made answer, "Begin with his grandfather." I am told that breeders of horses admit an animal to be thorobred, that has been crossed for eight or ten generations.

There is no question about the importance of selecting our breeding queens from our most honey-productive colonies; and not only that, but it is even more important, if we would secure the best results, that also the ancestors of our breeders should have been from extra-producing colonies, and that, for many generations. And this ancestral selection is of more importance when it comes to the drone, as nearly all agree that the father has more to do with pedigreed results than does the mother. And right here is where our improvement in bees has been so slow. The experience of the writer has been that, even with the cost and labor of getting and keeping hand-picked drones, no such advance can be or has been made as can be done, where we have as complete control of the father, as with the other stock usually kept by the agriculturist.

There are two ways of securing a pedigreed stock, and the one so far touched upon is the way mostly used by our breeders of queen bees. The other way, and the one I have worked hard upon, is that of eliminating the undesirable qualities found in my most productive colonies. My desire has been not only to build up all desirable traits, but to weed out all that did not make for success. As vindictive disposition in bees mars much of the pleasure of apiculture, and also hinders work in the apiary, I have superseded the queens of such colonies having a vindictive disposition, supplanting them with others of the same productive stock, reared from the best tempered colonies.

In this selection I have also been careful about other undesirable traits, among which was the tendency to build an excessive amount of brace- and burr-combs. These are a nuisance, even with extracted honey, and with comb honey brace-combs are the means of spoiling the nice capping of other sections beside the one from which they are built out. And bees which have burr-combs "on the brain," concentrate much of their efforts in plastering different places with wax, instead of expanding in securing the largest yield of honey, to say nothing of the objectionable trait, necessitating frequent scraping of the top-bars and super bottoms.

Next came the weeding out of the queens giving short-lived bees, and breeding from such as would carry bees, emerging in August, over to the next June; also such as would carry over from May to the close of the buckwheat flow in September. This has always seemed a more profitable field than working for more prolific queens, which generally gave bees requiring two generations to be reared and fed during the main flows of nectar.

Drones should be as closely looked after as possible, as they have no sire. Most breeders of queens have been looking at what they consider "the business end," the workers. But these have a sire, and partake of characteristics, from both sides; consequently, a pedigree based on the workers may take in almost everything where there are a mixed multitude of bees in box hives and apiaries, and where the beekeepers pay no attention to the matter of drones on all sides of our pedigreed stock, for a distance of five miles. And at even a greater distance than five miles, a few of our choice queens may go astray in their mating. As hinted at before, about our only way to even partially overcome this drone matter, is to keep the drones from our improved thorobred stock till after the drones, not desired in our own apiary and surrounding country, have been killed off in September. Unless such a course is pursued our work for improved stock will tend toward a general mixing instead of developing desirable characteristics.

If I have made myself "plain" in this matter, it will be seen that it is very important to use good queens from our most

FROM THE FIELD OF EXPERIENCE

productive colonies to breed from for both drones and queens. Not only that, but it is even more important, if we would secure the best results, that the ancestors of our breeding queens should have been from extra-producing colonies also, and that, for many generations. Not only the queens, but the drones, if possible, should likewise come from such stock. Our chances of success are much greater by the use of queens with a pedigree than with a chance-queen of even unusual excellence. G. M. Doolittle.

Borodino, N. Y.

IMBEDDING WIRES

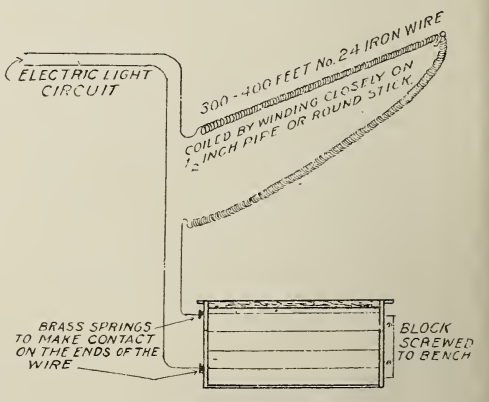
How Electricity Gan be Effectively and Inexpensively Used

After all is said and done, the most satisfactory method of imbedding wires in comb foundation is by means of electricity; and if one has access to an electric-light circuit, as so many beekeepers now have, the best way is to imbed all four wires at once by attaching the current to the tacks on the outside of one of the end-bars of the frames, around which the ends of the wires are wrapped, the current then flowing thru all the wires. Dry batteries might be used for this purpose, but it would take eight to a dozen batteries to heat all four wires quickly, and even then it would be a rather hard strain on the batteries. Even for heating one wire at a time it takes four cells, and fresh cells at that. The trouble with dry batteries for imbedding is that they must be fresh to be efficient, and after a little of this kind of work they are no longer fresh.

Obviously with the straight electric-light current, if that were attempted, the wires would be heated redhot in an instant, or, what is more likely, a fuse somewhere on the circuit would be blown out. The current must first be run thru a "resistance" to reduce it, just as steam when run thru a steam engine is exhausted, and of much lower pressure thereafter. If one has an electric flatiron to put on the circuit, that furnishes about the right amount of resistance. In that event the two wires that go to the switch which turns the flatiron on and off, have just about the right amount of current to do the imbedding nicely. If there is no switch, the flatiron may be hooked in on one of the wires, the current going first thru the flatiron before it goes thru the wires in the frames.

With no electrically heated flatiron available, a resistance coil can be made in a few minutes' time. First, get about 400 feet of No. 24 iron wire. The exact amount can not be given, for the wire varies slightly in size; furthermore, different operators may prefer different currents to work with. The best plan is to get 400 feet of the wire and then not use quite all of it, if more heat is desired. In order to have the wire in convenient form to handle, wind it on a long iron rod, or pipe, the outside diameter of which is not over ¾ of an inch. Twist the wire around one end of the pipe tightly, so it will not slip; then have some one else turn the pipe slowly, while you wind it on evenly and tightly, with no space between the coils. When it is all wound on, let the wire loosen up, cut the end that was first twisted on and slide the whole thing off the pipe. Hang the coils on nails in the wall or ceiling, being careful that the different lengths of the wire do not touch each other. The electricity after passing thru all these coils of wire will be "tame" enough to handle by any one. These directions are for the standard voltage, 110, found almost universally. It makes no difference whether it is direct current or alternating—one works as well as the other.

To do the imbedding, take a board wider than the frame and near one end screw two



Electrical Imbedding Device.

pieces of sheet brass, which will stick up about an inch. These are to be spaced the right distance apart, so that if the end-bar of the frame is pushed up against the piece of brass, one tack, around which the end of the wire is wrapped, will touch one brass spring and the other tack the other. For best results there should be a switch for turning the current on and off.

The sheet of foundation should be on top of the wires, instead of the wires on top of the foundation. As soon as the current is turned on with the left hand, a light wooden roller, that will just fit inside the frame, should be rapidly rolled across the wax, pressing it down over the heated wires. If one desires to deflect the upper two wires out of line, that is, bend them down slightly, two headless nails can be driven into the board at the right point, and the upper two wires drawn down around them before the current is turned on, or before the sheet of

FROM THE FIELD OF EXPERIENCE

wax is laid on. These nails should not stick up any higher than necessary to catch the wires over them. A very slight notch can be filed, almost at the top of the nails on the under side, to prevent the wire from slipping off easily.

Imbedding all four wires by means of electricity, while not particularly easy for the first few frames, is far more rapid than any other method and capable of the very finest work. A good operator that has imbedded a few hundred wires can do the work so nicely that it is almost impossible to detect which side of the foundation the wire went in, the wire itself showing no more on one side than on the other. H. H. Root.

Medina, O.

HOW HE WON A PRIZE CONTEST

Yet the Prize Comb Honey Did Not Pay as Well as Extracted

During the season of 1917 a contest to show the possibility of Wisconsin beekeeping was carried out under the direction of the State Beekeepers' Association. Certain rules and restrictions were laid down, such as single-colony production, defined as the production of bees from one queen. The contest closed Sept. 3, in time to remove the product and get the result to the State Fair for exhibition.

Those knowing the Wisconsin honey season for 1917 know that what was a great result for 1917 would have been very small in comparison to the possibilities of our white-clover season of 1913.

And now as to the secret of how I obtained my 97 finished sections from one colony. I know there are beekeepers who have "secrets" and who guard them very carefully; but this spirit is not common among the members of our fraternity. The bright, active, pushing beekeeper will find out; and the more experienced beekeeper is usually glad to show him the way. It seems to me that the secret to successful beekeeping is this: "To do the right thing at just the right time."

Now, this sounds simple, and the selection of a strong colony is simple; and to recount my operations is simple; but the doing of them is another matter. Especially is the production of fine comb honey a fine art—that is, to produce the beautiful, white, well-filled No. 1 sections, free from travel-stain, and, as far as possible, free from bee glue and stains.

I resorted to no spring feeding or spread-

Apiary of W. H. Moe, Prize Winner, at Woodford, Wis.

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ing of brood. For the first super I selected nice partly drawn-out sections (bait sections) of the previous fall. Of four queens received the year before from the University queen-breeder, Mr. Aeppler, one was especially good. In the first super for this colony I placed large foundation starters, but not drawn out. This colony fell short in the quantity production, and also had many poorly finished sections in the third and fourth supers; and, perhaps, room was given a little too freely, as I desired all the honey I could get.

My prize-winning colony had a young queen of the preceding fall; and by May the hive was full of working bees. They swarmed early, and I cut out the cells and returned the colony to the same hive, enlarging the entrance by raising the hive-body from the bottom-board, and, as fast as needed, giving more section supers of full sheets of foundation. On Sept. 3 the colony had 97 pounds in 96 sections. All were well filled, fancy and No. 1 section, and the exhibit at the State Fair made a fine showing, as I think all who saw it will testify.

Another colony was selected for the best extracted production. My best single-colony production was 157 pounds net. This, at 15 cents a pound, brought $23.55. The comb honey sold at 21 cents in case lots. Ninety-seven pounds at 21 cents brought $20.37. At present it is difficult to know honey prices. It is, apparently, anything for which you choose to hold up your neighbors. At times "frenzied finance" is a sordid affair. The figures show a balance of $3.18 in favor of the extracted-honey colony. Such a statement and such a showing, I think, would in general have been true for last year. Of course I am aware that higher prices on extracted honey are now quoted; also that my figures for extracted-honey production are not as high as those of the winner in the contest. Therefore from the above considerations, together with the fact that comb-honey production requires constant care and watchfulness, it would seem that comb-honey production is doomed. The above would also prove the wisdom of the United States Government when it advises beekeepers to produce extracted honey.

Woodford, Wis. H. H. Moe.

MOVING TO PASTURES NEW

How to Take Advantage of a Poor Season with a Light Truck

I lost a crop of honey last year thru lack of foresight, in-sight or hind-sight — one may take one's choice after knowing the circumstances. In 1916 we had a big clover flow; the pastures were white with clover nearly all the growing season. That fall everything looked as if the clover must repeat in 1917. The action of that repeater must have got jammed, as it most flatly refused to repeat in 1917.

Nothing happened to suit a beeman. We had a cold and, I believe, the dryest winter in our history. The clover winterkilled. There was no snow to protect it and it failed to show up in the spring. I kept looking for it, feeling sure it would come but that it was late for some reason. My experience had not at that time included winterkilled white clover. After I was convinced the winter had killed it, I expected it to come from seed later in the summer. The summer was very dry until late in August and, if it did come, it came when I was not looking.

Then I pinned my hopes on sweet clover, and the sweet clover made good all right. But it came after a starvation period for the bees and it required all the flow to build the bees up to a storing point. Then after the August rains we had a light heart's-ease flow which made just a little surplus in the stronger colonies and put all in good shape for winter. Now here is where I was shy of some of the above "sights."

If I could have convinced myself that there would have been no white clover, I might have fed the bees for the sweet-clover flow which I was sure was coming. I am sure now that if I had fed a few sacks of sugar at the right time, I could have had those bees ready and have gotten at least a fair crop of sweet-clover and heart's-ease honey. I can't see now why I couldn't see it then, but the remorseful fact remains that I didn't.

Then just a few miles north and a few miles south, there was clover in plenty in places where it was protected, on creek bottoms and in low-land pastures. Now I wish some one would tell me why I did not think to move my bees to some of those places. I was just too bullheaded to give up the white clover in my own particular locality till it was too late, and I missed a mighty high-priced honey crop.

I believe last year's experience will not be without its value to me. The conditions remain the same in my own home bee pasture. Not enough white clover showed up last fall to create a bit of enthusiasm in a beeman. But in the places south and north of me on the creeks there was plenty. I took several trips to find it, and I know where it is and a good many places where it has been before and isn't now.

I have changed my mind about how I will keep bees. I will put the whole apiary in the country next spring in yards of 40 and 50.

For moving and bringing home crops I may get, I bought a new Ford truck and went in debt for it too. If there is a place in the country where there is a chance for a honey flow, I intend to have bees there

FROM THE FIELD OF EXPERIENCE

or in a place that seems equally good to me. As I intend increasing my bees, the truck seems to me to be a necessity; and I feel that it is not taking too many chances, as a good crop will pay for it two or three times, if the price stays near what it is now.

Even if the worst comes, the demand for trucks like mine is such that I need suffer little if any loss on it. If I am plunging a little, I have too many bees to risk a loss of a crop in these days of high-priced honey.

I am having a box made for the truck chassis that will be 50 inches wide by ten feet long inside. I estimate that I can move 30 to 45 ten-frame hives at a load. I can haul home a ton of extracting supers easily, as a ton load is a joke for the truck.

There are plenty of places where I can put the bees, as I have ascertained, and at little expense. I probably will run up against difficulties that will make me change plans somewhat, but I believe that the way I have in mind is the way to get crops one year after another in this locality.

Those here who have the trucks tell me that they can be run at about the same cost as a regular Ford car. They require a little more gas, but the tire expense is less, as the rear wheels have solid tires and wear a long time. They are used here for long trips, and seem to be as practical in every way as the lighter car and almost as fast; fast enough anyway. If we have a season that is at all favorable this year, and I don't break a leg or something else that is just as indispensable, I expect to have a honey crop next fall. If I don't, it will be because I don't know how to get it.

Sabetha, Kan. Frank Hill.

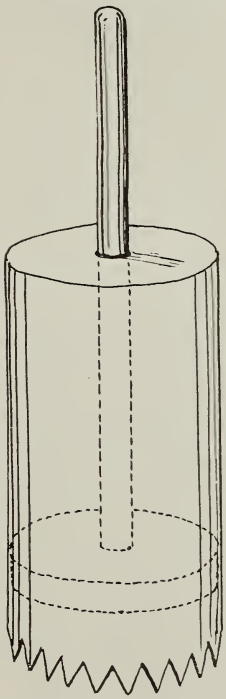
HOW HE CHUNKED HIS HONEY

A Convenient, Neat and Cleanly Device for Cutting up Honey in Comb

In view of the probable shortage of sections and glass containers for honey this season, I thought it might be of interest to your readers to learn of a method of using up partly filled and sealed comb honey in sections or shallow frames, and selling them as chunk honey. Hitherto chunk honey has not been much on sale in this country; but, having on hand a quantity of partly sealed comb honey at the end of last season, I decided to cut it up and offer it as chunk honey in one-pound parchment packages.

I have not observed in bee literature any allusion to an appliance for cutting up comb and inserting it into a container, so I will give my method, in the hope that the idea may be of some use.

To make a cutter, a round tin canister (can) about 2¼ inches in diameter was taken, and the edge at the open end was serrated by snipping out small triangular pieces with a pair of scissors, and a hole ⅝ inch in diameter was punched in the bottom. A small wooden piston was then made, and the rod or handle passed thru the hole in the bottom of the canister, thus making the cutter complete.



To use, lay a comb flat on a table. Press the serrated end of the cutter with a screwing motion thru the comb; lift out and transfer to the container; push the piston down and eject the disc of honey and repeat until the container is full. Extracted honey from the unsealed part of the comb is used to fill up the pot to the desired weight, and the lid pressed home. It will be noticed that during the operation the hand never comes in contact with the honey.

The demand for those packages of chunk honey exceeded the supply, and the price received was the same as for my first-grade sections.

Arch'd Fergusson.

Strachur, Scotland.

Dr. Phillips calls attention in his book to the fact that swamp lands are often particularly valuable as bee pasturage, because, with so much available moisture, their plant growth is likely to be more regular and dependable, less changeable from season to season; and he likewise pays tribute to the less important sources of nectar, those that most of us are so likely to overlook or regard as unimportant because they do not produce surplus. If there were no nectar except what is secreted by the plants that give us surplus, there might be no surplus. It takes hundreds of pounds of honey each year for the colony to support itself and carry it thru its life processes and changes; and for this purpose the bees visit a multitude of plants, each of which yields its little toward the great total required.

STRAY STRAWS

Dr. C. C. Miller

SELDOM, if ever, have we had such an adverse spring. A few warm days induced me to bring my bees out of cellar March 23, yet up to May 1 there has seldom been a day for them to fly; and I suspect they would have been better off in cellar until now.

* * *

DREAMS OF BOYHOOD.

Oh, Doctor Miller!
If you want a filler
  To tickle your palate again
Like the pies of mother,
Some corn pone or other,
  I fear that you're longing in vain.

For the tastes of a boy,
"His grief and joy,"
  Are born of a growing frame,
And never are known
When to man he's grown,
  With the same dietetic fame.

With age on you stealing
If you ate with such feeling,
  I would fear for your comfort and life;
That swift apoplexy
Would surely catch you
  And you'd depart this world and its strife.

So don't scold your wife,
Or worry her life,
  With efforts to fill your vamp
With cakes and jam
Like you used to cram
  As a boy in the sugar camp.

In your changed station,
Your daily ration's
  For nourishment not for joy;
So eat at leisure
And dream of pleasure
  That once was yours as a boy.
—Frank T. Kelsey, Moorhead, Mont.

Friend Kelsey, I appreciate your interest in my physical welfare, and accept with thanks your advice as to eating with moderation, but when you attempt to lull to rest my longings for some of the things I ate as a boy, on the ground that "the tastes of a boy are never known when to a man he's grown," and that now my daily ration is only for nourishment and not for joy, I refuse to be lulled.

In Shakespeare's "As You Like It," 80-year-old Adam says:

"Tho I look old, yet I am strong and lusty:
For in my youth I never did apply
Hot and rebellious liquors to my blood;
Nor did not with unbashful forehead woo
The means of weakness and debility;
Therefore my age is as a lusty winter,
Frosty, but kindly."

Same here. Not only have I eschewed alcoholic drink, but that great destroyer of taste, tobacco, as well, as also strong tea and coffee, and hot spices. These, and not years, are the things that destroy the delicate edge of the organs of taste; and having avoided them for nearly 87 years I now eat the modest ration needed for "nourishment" with the same "joy" as when a barefoot boy, so that if Stancy Puerden should offer me some of that crisp and toothsome preparation of corn I have not tasted for many a year, I should be very likely to say, "Yum, yum; tastes like old times."

Let me advise my young friends that abstinence and moderation in youth pay big dividends in old age. While I eat with the same relish as in boyhood's days, my enjoyment of the beautiful in sights and sounds is immensely greater than then, and increases from year to year. My dreams of the past are pleasant; but my greater joy is in the present and in dreams of the future. With Browning let me say to you:

"Grow old along with me!
The best is yet to be,
  The last of life, for which the first was made;
Our times are in His hand
Who saith, "A whole I planned,
Youth shows but half; trust God:
  See all, nor be afraid!"

* * *

On page 271 the first illustration shows "Colonies a and b crowded onto as few frames as possible" preparatory to uniting. That's all right, only I have found it well, in the colony to be moved, to have a sufficient space each side of the combs, so that none of the outside bees will be left clinging to the dummy or side of the hive.

* * *

"Our experience is that a nucleus will travel safely many hundreds of miles with a loss of less than one per cent, while bees in cages without combs will have a mortality of from 33 to 50 per cent," page 280. Yet because of the danger of disease it is counted better to ship in cages, as bees sent thus have been combless long enough to be safe from disease. A question arises. Why not ship nuclei, and then after they are received make them combless long enough to be safe? Would, or would not, the 33 or 50 per cent of bees saved pay for the extra expense of the nuclei? [The plan would be all right, if the consignee would do it.—Editor.]

* * *

"But can you recommend putting two weak colonies together with a newspaper between, in early spring? Is it not true that the cluster may be so weak that they will not work thru the paper?" Thus, ye editor, page 282. Yes, that is possible. I have sometimes punched a hole thru the paper with a lead pencil, and it seemed to work all right.

Yet if left without that, would there be any great harm, at a time when they are too inactive to tear paper, for them to be left imprisoned a week? At the end of that time you would be likely to look after them anyway, and if necessary could then make a hole in the paper, and feel quite sure against their returning to their old stand. [When the hole is not punched thru, in some cases we have had the bees die of worry. If the two lots of bees are not too weak, they will make their own hole.—Editor.]

* * *

Speaking of A. I. Root's saying, "There is no easier, quicker, and safer way of feeding bees that are short of stores than to give them sealed stores of honey," J. E. Crane says, page 283: "This is quite true; but how are we to proceed when we have no sealed stores, as often happens in spring time?" Well, in that case we must do the best we can, and the way you offer answers; but really, friend Crane, do you think being caught without sealed stores "often happens in spring time" with the right kind of beekeeper? Just between you and me, I should say once, and never again. For after being caught once, ought it ever to happen again that he does not provide the previous year for a stock of sealed combs for the following spring? Often, if not generally, these sealed stores may be of fall, dark honey, in which case there is a gain in having them, even if not needed to prevent starvation. For when the flow of white honey comes, a lot of empty space must be filled in the brood-chamber before storing in supers begins, and, if these extra combs supply this need, it will be really swapping fall honey for white honey in the supers.

* * *

G. A. Sheppard, you are told, page 300, that it would not be well to use drone foundation for sections, since "the worker foundation results in comb of such superior grade that this more than offsets the apparent preference of the bees." There's an additional reason. Bees prefer drone-comb because they want to raise drones, and if you should have a super filled with drone foundation you may count on a big lot of space in the super filled with drone-brood. To be sure, you can prevent that by the use of an excluder, but that's an extra expense and trouble, and besides, even with an excluder you will find that the bees will be slow to finish up some of the space where they expect the queen to come up and lay drone eggs. When using worker foundation in sections, more than once, if a section happened not to be entirely filled with foundation, I have found the vacancy filled with drone-comb, and not a drop of honey in it, the bees holding it open for the queen's use.

* * *

J. L. Byer, you seem to link me up with a certain editor in insisting on empty cells as a "winter nest," page 162. Said editor is too conservative for me. So are you. You think "bees will get along splendidly, even if combs are about solid at the beginning of the winter." I think they'll get along all right if combs are entirely solid at the beginning, middle, or end of winter, provided there's plenty of room to cluster under the bottom-bars. ["Provided there is plenty of room for the cluster under the bottom-bars." —aye, there is the rub! In most brood chambers that condition does not exist. While it may be a matter of locality, solid combs of stores would be all right here in November, but before cold weather sets in the bees would have to make a winter nest.—Editor.]

* * *

Stancy Puerden, you say, page 156, that you put grain thru your hand-mill twice, because it makes a more evenly ground product than to attempt to grind it fine the first time. I didn't know that, but have always ground twice because it's too hard work to make it fine enough the first time. Thanks for telling me what's your name. Now tell us whether there's some good way to cook cornmeal mush without standing over it stirring all the time. And look here, Stancy. You don't want to be called a deserter or a slacker these times, do you? Well, then, don't talk any more about stepping out and giving some one else your job in Gleanings.

* * *

As addenda to what is said on page 302, let me say something of what I have learned from quite a bit of experimenting in introducing virgins. If a virgin is picked out of her cell before maturity, she will be thrown out of the hive, not because a queen, but because immature, just as an immature worker would be. When quite mature, and until she attains a certain age, she will be received kindly in any colony, even in one with a vigorous young laying queen, or one with laying workers. No precaution is necessary in introducing; just drop her on the top-bars or let her run in at the entrance. But when she ceases to be a baby, and begins to put on airs as a young lady of royal blood, then it's a different story. She will be promptly assassinated wherever introduced, unless in a colony that feels desperately in need of a queen, or one which is about to supersede its queen. I'm sorry I cannot say just when the change from a baby to a young lady occurs. Possibly when she is about 24 hours old. In a number of cases I have dropped into a hive with a laying queen a virgin not long after emergence from her cell, found her all right five or 10 hours later, but the next day missing. But if the bees desired to supersede their queen, the virgin would be retained. G. M. Doolittle tells of requeening by giving a young virgin late in the season. It is almost impossible to introduce a laying queen into a colony with laying workers, but I think a virgin young enough might always succeed; altho a colony of laying workers is generally not worth a queen. Now can some of you tell us at what age the change of a virgin occurs, when she is no longer considered a baby but an aspiring candidate for a throne?

SIFTINGS

J. E. Crane

I HAD hoped to find in Gleanings for May full reports of the wintering of bees in the new style of winter case suggested by Dr. Phillips, with frames set on ends, but not a word so far. [In our locality the "stand-on-end colonies" wintered well, if not better than those in the regulation double-walled hives. We will have a further report next September.—Editor.]

* * *

In an editorial, page 268 of Gleanings for May, the loss of bees in consequence of a large entrance is mentioned. A loss of 90 per cent ought to satisfy the advocates of large winter entrances that their method is not the best. If we multiply the size of an ordinary brood-chamber by 12, we shall have the size of the ordinary living room we ourselves live in during winter. Now let us also multiply the one-inch entrance across the end that some beekeepers advocate, and we shall have an opening at the end one foot high clear across the end of our room. Well, how would you like it with the mercury 30 degrees below zero?

* * *

There has been a greater loss of bees in this section in wintering than I had thought earlier in the season. The loss seems to be confined largely to inexperienced beekeepers, or to shiftless ones who have given the bees little thought or care. My own loss has been a little more than usual, but not large. Last week I examined one yard that went into winter with 120 colonies, and I discovered a loss of only four dead. I broke up another colony, it being weak, thus making a loss of five colonies or four per cent. Most of the others were in good shape. This shows that with care bees can be wintered in the most severe winters, on summer stands, here in the North without serious loss. In another out-yard where considerable honeydew was stored last year, and the yard moved during winter, there was some dysentery and a loss of 12 per cent. [There is no question but that the past winter, east of the Mississippi, was very hard on bees. It may go down in history as worse than the winter of 1880 and 1881. In the western States bees wintered well. —Editor.]

* * *

That is a decidedly interesting article by the editor on "May Work" among the bees, and especially in regard to "Equalizing Brood," pages 274 and 275. The illustrations are good, and so plain that the beginner can not fail to see the point. However, I find myself more frequently working on a little different plan in trying to bring up weak colonies. Instead of leaving the brood in three or more patches in as many combs, I move the brood to one side of the brood-chamber and confine it to two or three combs, by using a division-board or a heavy comb of honey. It has seemed to me that bees will spread their brood faster when allowed to put their brood into several combs. As soon as we get two combs well filled with brood, it is an easy matter to spread them and give a comb of mature brood from another hive. Also, sometimes where a colony is too weak to care for brood, I give to it all the bees that adhere to the comb removed from the strong colony, taking care that the queen is not on the comb. More or less of these bees may go back, but not faster than the young bees are hatched to take their place. I was at first a good deal exercised for fear the bees that were removed with a comb of brood might kill the queen of the weak colony when introduced with the brood, but I have rarely had it happen.

* * *

On page 277, Harry T. Huff tells us how he uses comb foundation for extracted honey, and he would have us believe that by his superior method of using the foundation he can get as much or more than where drawn combs are used. He also says he secured 50 pounds of surplus, while 160 colonies with drawn combs gave only 25 pounds of honey per colony. Had he stated whether the 160 colonies were equally strong in the spring and the locations equally good and flowers equally abundant, his statements would be more convincing. [The universal rule is that drawn combs are far superior to full sheets of foundation.—Editor.]

* * *

Grace Allen informs us on page 287 that she picked the first clover blossoms March 31. It is May here in Vermont and we are yet looking forward to some time in June before we shall enjoy such a pleasure. I have been wondering if they have any winter down there in Tennessee. Her experience with winter protection for bees is interesting, and I am not surprised that she found all her moldy combs under sealed covers. It is surprising that she received no more benefit from winter packing. I wonder if the leaves were dry and packed down firmly. Leaves are apt to be too loosely packed to be of much use, unless they are pressed down and made to stay put by some weight.

* * *

In looking over "Bees, Men, and Things," I ran across our old friend, Eugene Secor, and I was glad to hear from him. He still has ideas that are worth our attention.

OUR FOOD PAGE

Stancy Puerden

WHAT book do you suppose was one of the best sellers last year? Indeed, I am not sure but it was the very best seller, excepting the Bible. That book was Farmers' Bulletin, No. 839. Perhaps I should not call it exactly a best seller, as it is free to everyone. Its subject is Home Canning by the One-Period Cold-Pack Method. Now you may have heard stories of women who spent hours in the hot kitchen canning vegetables, only to find them spoiled and their time wasted a few months later. I have taken pains to investigate stories of that sort which came to me, and in every case I found that the methods worked out by experts in the Department of Agriculture had not been implicitly followed. And I have heard of hundreds of other women who successfully canned vegetables sufficient to supply their families all winter. This is the type of remark I so often hear, "We never lived so well as we have this winter in spite of high prices, the sugar shortage, and the necessity of conserving so many foods. Our canned vegetables made it seem like having a garden all winter, and how it did reduce the food bills." It is certain no commercial canned vegetables have the delicate flavor of the home product.

You have all read of the boys' and girls' canning clubs. Did you ever hear of these clubs having trouble with their product spoiling? Sometimes I am inclined to think it is the very young people who succeed best in the cold-pack canning. They take up the work, realizing that they know nothing about it, and they are willing to implicitly follow instructions. Capable housekeepers, who have canned fruit successfully for years by the old methods, are apt to believe that such care at every step in canning vegetables is unnecessary, and omit one part of the process, or shorten the period of sterilization. Don't do it. Under favorable circumstances your vegetables may keep, even if you are a little careless about obeying directions; but there is just one safe way, and that is to follow every step in the process from the cleaning, blanching, cold dip, and sterilizing to the final tightening of the covers and inverting the can to make sure it holds.

Perhaps some of you noticed an article, which went the rounds of the press last winter, to the effect that there was great danger of poisoning from eating cold-pack canned products, due to a certain wicked bacillus with a hard name. One of those articles gave a list of deaths in various parts of the country said to be due to that cause. The dates at which these deaths occurred were spread over a period of some thirty years, and, with two or three exceptions, all occurred before the modern one-period, cold-pack method was in general use. I could not help wondering if the origin of that story was not another instance of German propaganda. Just to make sure of killing any such undesirable bacillus in your canned foods, turn out the contents of the can, bring to a boil, and keep it at the boiling point several minutes. It can be cooled before using, if it is desired in a salad.

Being of an investigative turn of mind and also having great confidence in bulletin 839, I tasted the contents of every can of vegetables I opened this winter before heating them, and I am still very much alive.

Begin your canning early and thus make sure of a varied assortment. Even if you have time for only two or three cans of each vegetable as it comes, it will be a wonderful help to winter-menu planning. Canning is a form of food hoarding to which Uncle Sam gives his cordial approval.

For bulletin, No. 839, send to Division of Publications, U. S. Dept. of Agriculture, Washington, D. C.

Those Interesting Vitamines Again.

Do you know to be stylish and up-to-date, I should say, "so called vitamines." Certain tiresome scientific (?) investigators seem to have a grudge against the word "vitamines." Why they dislike such an innocent looking, serviceable word I cannot see, unless it is because they had nothing to do with the christening. As the history of "so called vitamines" is still in the making, research along this line being pursued by a number of independent investigators, I can see the editors have a feeling that Stancy is "rushing in where angels fear to tread." Calm yourselves, gentlemen, I do not mean to say one thing about "so called vitamines" that is not culled from the highest authorities. But I am going to say this much: I believe those scientific investigators are going to have their work cut out for them when they try to take that word "vitamine" away from the public. The public has adopted it joyfully, various advertisers are calling attention to the fact that vitamines are in their products, and people everywhere are asking food writers and teachers to tell them more about vitamines. It may turn out like some slang words which we have been obliged to incorporate in the English language.

You may remember, in the April number, in the little that I wrote about vitamines I said there were two well recognized types, and some believed there were even more. As one of these types is soluble in certain

fats and the other is soluble in water, one prominent investigator proposes that until chemically identified they be known as "fat soluble A" and "water soluble B." "Fat soluble A" is found in the fats of milk, eggs, certain animal organs, cod-liver oil, the leaves of certain plants such as cabbage and alfalfa and probably others, and in millet, hemp and flax seeds and wheat embryo and corn embryo. "Water soluble B" is much more widely distributed. I have seen it stated that it is in practically all foods. That should be amended to say "in nearly all foods in the natural state." Polished rice, fine white flour, refined sugar, and corn syrup are totally lacking in "water soluble B," and it is weakened and destroyed in many other foods by faulty methods of preparation.

Now of course it is "water soluble B" which is in honey, altho between you and me and the rest of the Gleanings family, I should not be at all surprised if in the course of time some other very interesting things are found out about honey. Personally I am a great believer in natural foods, served just as nature gave them to us, altho I do publish some recipes which might lead one to believe otherwise.

Don't get the idea that "water soluble B," because it is more common, is less important than "fat soluble A." Sherman in his Chemistry of Food and Nutrition, just published in March, says: "Both 'fat soluble A' and 'water soluble B' are held to be essential for the maintenance of health as well as growth. The 'fat soluble A' appears to be dispensable, when maintenance alone is involved, for a somewhat longer period than is 'water soluble B,' which accounts for the polyneuritic symptoms in birds kept on a polished rice diet and the cure of these symptoms by the extracts of foods rich in 'water soluble B.'"

Milk and egg yolk are unique in being rich in both "fat soluble A" and "water soluble B."

Wheat Versus Other Grains.

The Food Administration is still emphasizing the great need of wheat saving, and you know the best way to save wheat is not to use it. Mothers sometimes say to me, "I would not dare to deprive my family of wheat to the extent that we are asked to do. My children need nutritious food." Certainly they do, and it is your first duty to see that your children have plenty of good food. But dietitians who have studied the matter thoroly tell us over and over again that wheat possesses no nutritive qualities for man or beast, superior to those of oats, corn, rice, or barley. Wheat is undoubtedly the most delicious of the grains, the one which we can eat longer than any other without tiring of it, the one which makes the finest, lightest bread, and the bread which has the best keeping qualities.

Our Pilgrim Fathers managed to live years at a time without wheat, and they were no weaklings. Our southern States had to get along without wheat for over two years during the Civil War, and the Southerners have always used a great amount of cornmeal, altho they live in a warmer climate and cornmeal is popularly supposed to be heating.

In making bread with a large proportion of wheat substitutes this warm weather, if you use the long process, you may find it necessary to add a very little soda to the flour when mixing it into the solid loaf, one teaspoon of soda to a baking of four loaves of bread. We must admit that the present generation, with all its domestic science, cannot excel our mothers in bread making, and several of the older ladies have told me that they always add a little soda when making bread with the heavier flours in warm weather.

Notice that this month I am giving two kinds of quick bread, a cake, biscuits, and muffins, all entirely wheatless, and I can heartily recommend all of them. The breads are very good cold and help solve the problem of wheatless sandwiches for picnics. They are particularly good with a cottage-cheese filling.

Please try the rice-flour sponge cake. It is quite as light, soft and delicate as a sponge cake made of wheat flour, and it keeps well, if you hide it.

The editor, for reasons of his own, has a way of camouflaging my recipes by scattering them all through the advertising. I hope my friends will not give up the recipe hunt until they come to the line, "all measurements level."

May I take this opportunity to once more thank the readers who write such delightful and appreciative letters. If I am unpardonably slow in answering them, it is not because I do not love to hear from you but because I am a very busy woman.

RICE FLOUR SPONGE CAKE.

4 eggs
1 cup sugar
¾ cup flour
2 tablespoons lemon juice
⅛ teaspoon salt

Separate the whites and yolks of the eggs, beat the yolks until thick and light colored, sift in the sugar, add the lemon juice and beat until smooth. Add the salt to the egg whites, beat with a wire whisk until stiff and dry, and fold into the first mixture, and last of all sift in the flour a little at a time, folding it in lightly. Bake in a slow oven about 45 minutes.

RICE AND BARLEY RAISIN BREAD.

2 eggs
1 cup sweet milk
3 tablespoons shortening.
3 tablespoons honey
1 cup rice flour
2 cups barley flour
1 teaspoon salt
7 teaspoons baking powder
1 cup raisins

Beat the eggs in the mixing bowl, add the honey, the melted shortening, and the milk. Stir in the flour in which the salt and baking powder have been sifted, and then the raisins. Put in an oiled loaf pan. let rise 15

(*Continued on Advertising Pages.*)

Beekeeping as a Side Line

Grace Allen

THERE'S one thing side-line beekeepers must remember, especially those in cities, keeping a few hives in their backyards. It doesn't pay to get discouraged because their bees don't produce as much per colony as some that are reported in the journals. Locality is a big, big factor in beekeeping, one of the most important, if not actually the most important. You may be as proficient as study and intelligent application will make you, but if your bees can't reach any good pasturage, they can not pile up the honey like those that, with perhaps not nearly so much attention, have a wealth of nectar-bearing bloom around them. When a man who is keeping bees commercially decides his location is not good enough, he may move his bees and completely change the results of his labor. But the side-liner is not likely to do that (tho we've moved part of ours this year); his bees are like his chickens and his strawberry patch and his garden, a pleasant and profitable part of his home yard. So he may have to be content with an average of 40 or 50 pounds, while his country friends tell him of their 100-pound average; and he reads of hives that give, under exceptional conditions, 300 or 400 pounds. Yet there is scarcely a spot where there is not enough nectar to pay to have two or three hives of bees to help supply the family needs and to add intensely to the delights of the owner.

* * *

I don't like being the exception that proves the rule, page 268, May. I'd so much rather be one of the straight irrefutable proofs. But now that the season is nicely started, the case of packed hives vs. unpacked doesn't look a bit brighter for the packed. One of the four colonies in the quadruple packing case perished (any amount of packing won't save a colony that loses its queen); another, when the packing was removed the last week in April, was scarcely more than a nucleus; another is fair; while the fourth is one of the best five colonies in the yard—the other four, including the very best one of all, having gone thru the winter with no protection other than supers of leaves and contracted entrances. When putting these colonies in the packing case in the fall, we were at some pains to take four good ones.

The two that were packed in big single cases came out among the weakest in the yard this spring; in fact, only No. 2 in the quadruple case and one unpacked colony were so backward. These two, however, in the single cases, were not particularly strong when packed, being among the 1917 increase built up from nuclei. On the other hand, the other colonies of the 1917 increase, built up side by side with these two, under exactly similar conditions and management, and wintered without any protection whatever, came out better. Of course I am not so silly as to attribute this to the lack of packing, tho had the difference been on the other side, I would doubtless have given the packing the credit. [Until full details of packing, entrances, wind protection, stores, strength of colony, age of queens and other essentials are given we do not think that conclusions should be drawn, especially not in so small an apiary. We suggest a more complete trial next year. —Editor.]

* * *

This has been an absurd sort of season here, so far, an early spring that was also late. I have heard that there are men who are very courtly until they have won their brides, and then, after the wedding, become cold and neglectful. That is how this spring has treated its blossoms. Most friendly and smiling and inviting thruout March, the spring turned a cold shoulder when black locust had come with its fragrance and white clover with its beauty, and most of April was chill and drear and disappointing. Even the night of May Day, while we drove to the country with a few recently purchased bees, we were be-coated and be-rugged as tho it were winter, and that night there was a heavy frost. Frost in Tennessee on May Day! And that, after clover blossoms on Easter Sunday, the last day of March! Badly mixed, indeed, and not a bit ideal for bees or beekeepers—or farmers. One Nashville man had a small field of turnips in full bloom for seed, for which he had already received an offer of $1,200.00, when the frost came and killed it all. But prospects are good now, and there is a wealth of white clover in bloom.

* * *

There's been considerable early swarming, or efforts in that direction. One side-liner with only four hives lost two swarms before Apr. 25. Locust and clover both coming unusually early must have excited the bees. Colonies with plenty of room, the double brood-chambers being by no means crowded, started queen-cells before anyone suspected them. I wish swarming were orthodox, anyway. Artificial increase, however you make it, is a cold business-like proposition, while a swarm in the air is a thing of thrill and romance. But please don't think, because of the last stanza of this month's verse, that I customarily let mine go off! Customarily I don't have any; and never lost but one, a little "tee-ninetsy" that deserted one August, the day after being hived in a shallow super and left out in the hot sun. We all admired their spirit in go-

ing. But this spring, when I found sealed cells in one colony (with plenty of room) one day in late April, I believe I was secretly and foolishly pleased. I would have prevented it if I had discovered it sooner, but as I had not discovered it sooner, "let 'er swarm" I wrote in my record book with glee. And she swarmed. It was the third day of May when they came out, "aquiver, ecstatic and singing." Probably it isn't good taste to quote one's own lines, but you see that's just how they did come, "aquiver, ecstatic and singing." I sympathized with the mood, feeling that way myself. But we've no right to indulge our side-line taste for swarms.

The hive that does not swarm at all,
Tho you may think it funny,
Will beat the swarmer, *plus the swarm,*
In gathering the honey.

Anyway that's the general belief.

* * *

"How many bees did your father lose?" I asked a freckled smiling boy one day. He left the backyard camp-fire to come to the fence and talk. "Oh, he lost a lot!" he answered tragically. There were only eight colonies in the yard at the time, so I inquired sympathetically how many there were last fall. "Ten," was the answer. "Oh, well," I exclaimed, relieved, "he didn't lose so very many after all." "Hm!" ejaculated that small boy, with the scorn the knowing ones often show for the uninformed, "there's 10,000 bees in every one! Aint that a lot?" I admitted it was.

* * *

I've never been an inspector like Mr. Crane, but this spring I have examined hives in two "let-alone" apiaries, while Mr. Allen had the same experience in a third. We did not enjoy it a bit. Moreover, I scorn home-made hives. These had no bee-escape at the top, and an embarrassing quantity of bur-comb. Many good combs were unwired, and joggled nicely to pieces when moved over fairly good roads ;for we bought some of them in spite of everything, took them with all their faults, and love them still—the bees, that is, not the home-made hives and the bur-comb and the drone-comb and the broken comb.

* * *

On page 281, May Gleanings, is an extract quoted from Dr. H. W. Wiley, attributed to Good Housekeeping, March, page 44. According to this quotation, Dr. Wiley says, "When I went into the stores and asked for 'corn syrup' I was uniformly handed a can of 'karo.' I sought in vain for the term 'corn syrup' on the label." But it's on the labels of the Karo I get, Dr. Wiley. Right across the top runs the legend, "A table delicacy prepared from corn syrup of the highest grade, granulated sugar syrup, and vanilla flavoring." Is there a mistake somewhere? As it evidently contains granulated sugar, it may not be the complete substitute for cane sugar that many people have thought.

Huge swarm of Texas side-liner, L. A. Cameron, Bloomington, Tex.

* * *

THE SWARM.

If Swinburne, the melody-maker,
Or Keats with his passion for beauty,
Or Wordsworth the chanter to duty,
Or Herrick or Shelly were here,
Where the air is alive with strange humming
And filled with a going and coming,
The Queen of my bees, the Forsaker,
Forever would sing in your ear!

Uncounted, her people come winging,
This hour that the high sun is warming,
This hour of their annual swarming,
This exodus hour of their year;
And above the hive home they are leaving
A great web of wings they are weaving,
As, circling and sailing and singing,
They float and they plunge and they veer.

Their wings are a gleam and a glimmer
In sunlight of magical Maytime,
Till a flame that is brighter than daytime
Seems flashing its radiance near;
Such rythmical meeting and parting!
Such gay and bewildering darting
Athwart all the silvery shimmer!
Such brave and adventurous cheer!

Like sun-motes they hover suspended,
Aquiver, ecstatic and singing;
Then slowly go swaying and swinging
To a restful old cherry tree near,
Till there on the tree hangs the wonder!
Draw close and fold over and under—
The song and the shimmer are ended
And only the silence I hear.

O Queen, with your people around you,
The pulse at the heart of the cluster,
How old are the instincts that muster
Such cohorts out, year after year?
Is the swarm of your will and volition,
Or because of an ancient tradition?
What honor code was it that bound you
To venture forth thus without fear?

It may be a dumb hidden yearning,
Some urge of which you are partaker,
That makes you, O Queen, a forsaker
Of the fragrant hive, dusky and dear.
You have left the old home in the keeping
Of princesses quietly sleeping,
While you, when your scouts come returning,
Must journey o'er woodland and mere.

For the swarm will arouse from its resting,
Take wing and fly off without sorrow
Straight into its dream of the morrow,
Till the far chosen place shall appear;
And there, of the deeps of its passion,
New cycles of hope will it fashion,
For such is the goal of its questing
In the mystical spring of the year.

FROM NORTH, EAST, WEST AND SOUTH

In Northern California—Weather conditions were not particularly favorable during April. A little more rain and fewer strong winds would have pleased the beekeepers far more. In some of our districts bees are short of stores and no increase has been possible, but in others a 20 to 30 per cent increase is materializing. Due to the lack of a late April rain, the blooming period of spring plants will be below normal, and no May increase is anticipated before the first alfalfa extraction the latter part of June. Tulare County beekeepers are securing a good crop from orange.

The disease situation has taken a turn for the worse. Several localities thruout northern California have had outbreaks of American foul brood. Not a few apiaries and localities that heretofore have had clear records, are now being visited by Bacillus larvæ. European foul brood is continuing to enlarge its area of infection, the extreme northern part of the State (and notably Merced County) being as yet unaffected territory. Merced County should begin at once to introduce resistant Italian stock since it is estimated that fully 75 per cent of the bees in that county are blacks. The matter of differentiating the brood diseases continues as baffling as ever, especially in their earlier stages of development. Many experienced beemen, who have handled both diseases for several years, are very much puzzled at times as to which course to pursue. Some beekeepers are no longer surprised, upon examining a comb infected with European, to detect American on the next comb examined.

The progress of the California Honey Producers' Co-operative Exchange is most satisfactory. The promotion committee reports that membership in the exchanges is increasing rapidly. Exchange Organizer Massey has placed six field organizers in various districts and expects to place two more very shortly. In five districts we have already 50 per cent of the colonies signed up, and in three of these the output totals more than 75 per cent. The Central Valley Honey Producers' Exchange is now in successful operation, and before July 1, it is expected that seven more locals will have been organized. At that date the machinery of the California Honey Producers' Co-operative Exchange will be put into motion. This central body will market the honey of, and purchase the supplies for, the various local exchanges. The necessity for a central body to market the bee products of the locals is very apparent. It may be mentioned that honey buyers two weeks ago offered producers in a certain district 16 cents per pound, whereas in another district at the same time a price of 15 cents was offered. In still another district only a few days ago producers were offered a fraction over 17 cents per pound for this season's crop. The quality of the honey produced in the three above mentioned districts is the same. It might also be cited what is now (March) taking place in New Zealand and Australia. New Zealand has a powerful co-operative honey producers' association and it is securing for its members prices ranging from 14 to 19 cents per pound. Australia, on the other hand, without such an organization, is at the mercy of the buyers, for her beekeepers cannot get more than 8 to 10 cents per pound for their honey. California beekeepers are fast realizing the fact that they, as individuals, are unable to inform themselves properly on the honey market, but that collectively it is not only possible for them to secure the market price at time of sale, but also that they will know at what time it will be advantageous to sell. They will likewise know that each one of them will receive the same price for any uniform grade of honey.

In the March issue of the Monthly Crop Report we find some rather startling figures pertaining to beekeeping. There are 496 apiarists in California, which number represents 23 per cent of all of the apiarists in the United States, the total number in the United States being 2,145. These figures were compiled from the last U. S. Census, and the Monthly Crop Report believes that these figures since 1910 would be increased by 10 per cent. The Bureau of Entomology contends that there are now some 800,000 beekeepers in the United States, instead of only about 2,359 apiarists, as the above mentioned publication would indicate. The difference, however, lies probably in the use of the terms "Apiarists" and "Beekeepers." An apiarist, according to the U. S. Census, is probably one who gains his living solely from beekeeping. However, a comparative study of these figures is interesting. Next to California are New York and Texas, with 231 and 180 apiarists respectively, and their total still gives California a surplus of 105 apiarists. Ohio, for instance, has but 42. California has always had the reputation of having many large honey producers, and the above figures as published in the Monthly Crop Report would bear out this fact.

M. C. Richter.

Modesto, Calif.

* * *

In Southern California—So far as I can learn now, May 4, the orange honey crop will vary from 20 pounds, on some apiaries that were very weak and late in getting in condition to gather honey, to 40, 50, and possibly some as high as 75 pounds per colony from the best apiaries. Most beekeepers and orange-growers say they never saw so plentiful a bloom as this year. And what is still better

FROM NORTH, EAST, WEST AND SOUTH

for the beekeeper is the fact that the blossoms are full of nectar. Such an abundant secretion has hardly been known before. When I say that many orchardists, who work in the groves, wash the nectar from their horses and harness every night, one can get some idea of what a quantity of nectar there is in the flowers in one of our banner years. One can take a blossom just opening and jar a drop of the precious sweet onto his hand. In that local district where so many thousands of colonies are located near together, all are getting good results. Some orange-growers, whose orchards are only a half mile from several hundred colonies, remark on seeing few bees on their orange trees. Where there is more nectar in one blossom than a bee can carry—and Dr. Phillips says that each bee carries but four loads a day—with the trees one mass of bloom (there must be tens of thousands of blossoms on a tree 20 feet high and 15 feet across), you have a faint conception of the chance the bees have to get to all the flowers. So the question as to whether the southern California orange district can be overstocked during a good honey flow has been answered this season in the negative.

With the exception of three or four days of dry north wind, the weather in these parts has been almost ideal for the secretion of nectar during the orange flow. Many years we have foggy, cool weather so much of the time that the bees are not able to work, but this year has been very satisfactory. Unfortunately, some beekeepers consider that from 25 to 50 per cent of the crop has been lost owing to the poor condition of bees, disease, and slowness of colonies in getting ready to gather honey.

Navel oranges are the first to blossom, and are now pretty well past. Sweets, St. Michaels, Valencias, and Seedlings follow in order, overlapping each other in blooming period; and one who has all of these varieties on his range is very fortunate indeed. The orange bloom will last in most sections of the southern part of the State until May 15 or 20.

It is reported that buyers are offering 20 cents per pound for white extracted orange honey, with but few producers ready to contract. So many sold their honey last year at prices so far below what others got, that very few are willing to contract at any price. They prefer to wait until the crop is made before selling.

Weather conditions here are not good for the later crops of honey so far as moisture is concerned. The ground is dry and rain is needed very badly. Even tho we had copious rains for a month during the latter part of February and the first of March, since that time it has continued dry and prospects are not good for any more rain. It is very seldom that we get enough rain to be of any benefit after May 1. In some sections where the rainfall has been over 15 inches, and where the character of the soil is such as to hold moisture well, beekeepers will likely get fair crops of sage and buckwheat honey. But in much of the honey-producing territory that depends on the rainfall for a crop, the prospects are not good for much of a yield. Mild weather, such as we had last year until the hot wave in June, will give a much better chance for honey than very warm weather.

Many beekeepers of this section are of the opinion that the heat wave of last summer so injured the queens that they have not had the usual vitality to properly build up a colony for the early spring flow, especially for the orange flow. In my own yards, while I find many colonies that have built up well, they are now, just at the height of the orange season, preparing to supersede the old queens. Many of these queens appear to be in excellent condition—large, plump, active, and with good frames of compact brood. To all appearances, these conditions would indicate a queen in her prime. But the bees seem to realize that all is not well with her, as in many cases we find from two to six fine queen-cells ready to hatch. Sometimes we find one that has hatched, and the old queen still laying. In some cases a swarm goes out with the virgin, while the old queen is still laying in the hive. Sometimes this swarm will go back; but, if we happen to hive them, they are a week or so getting a laying queen, in which case the hive is filled with honey and the queen is forced into the super to lay. Conditions this year are in many ways different from any other I have ever experienced. The bees in some apiaries seem to be determined to swarm, no matter how much honey is coming in or how much room they have; while others swarm but very little.

Some apiarists moved several hundred colonies from the back country, as we call it, in the sage and wild buckwheat range of the eastern part of Riverside County, to the oranges of Riverside. One of these on visiting his home ranges found honey almost ready to extract, while the bees in the orange district were doing nothing. The manzanita, which begins to bloom in February and in ordinary years when the weather conditions are too cold for bees to gather honey, this year came when the weather was almost like summer. With plenty of nectar in the blossoms, the bees in many cases filled their hives full in February and March.

Reports from the great alfalfa regions of Imperial and Riverside Counties indicate that the crops will be satisfactory, and prices are sure to be good.

L. L. Andrews.

FROM NORTH, EAST, WEST AND SOUTH

In Michigan—In many places there is nothing left but "seed" for foul brood. The mortality among the bees has continued up to the present (May 8) and indications are that, unless bees are carefully watched, there will be a heavy loss of bees and brood from starvation during May and June. There is no excuse now for not feeding sugar syrup. When there is beginning to be a shortage of food, feed at once.

Many Michigan beekeepers will be interested in knowing that P. W. Erbaugh, a former deputy inspector and later a special agent for the Federal Bureau of Entomology, enlisted in the Marines in February and is now stationed at Paris Island, S. C.

Now is the time to buy up the remnants of the apiaries which have been wintered outside without protection. Many such beekeepers have made up their minds that beekeeping does not pay. Get those few remaining colonies into your apiary and make them producers.

Before long we shall be able to class Michigan among the states which produce some alfalfa honey. A strain of seed-bearing and nectar-producing alfalfa is being develop-el in this State. I cannot say anything further without giving away a secret, but the facts are as above stated, and we may look forward with confidence to the time when alfalfa will be an asset to the beekeeper.

Inspectors are finding that the winter loss among the beekeepers that are not specialists runs from 50 to 100 per cent. The names of hundreds of beekeepers will be removed from our list as a result of the past winter. But the tendency is very strongly towards the elimination of the small, careless beekeeper as a means of protection against the brood diseases. So, we may consider the losses of the unproductive beekeeper as a real gain for the industry. In order to remove the temptation of trying it again, the better beekeepers would do well to buy up the equipment when reasonable terms can be agreed upon.

This spring will witness the beginning of an unprecedented number of new beekeepers. Possibly many of them saw the headlines of the Saginaw paper, which, after the State Association meeting last fall, announced in large type that Ernest Root said, "Every Family Should Keeep Its Bee." Likely the scarcity of sweets during the past winter has had a great deal to do with Michigan people desiring to produce honey for their own use. The Agricultural College extends to such beginners the invitation to take advantage of the help that the College may be able to give them.

On May 1, Edwin E. Baldwin of Florida, a special agent of the Federal Bureau of Entomology, came to the State for a series of meetings with beekeepers. A schedule was arranged which enabled him to meet the beekeepers of 19 of the most important honey-producing counties of the southern part of the State. He brought from the Federal authorities a powerful appeal to the beekeepers to make a special effort this year to supply as far as they can the tremendous demand for sweets that has been especially evident during the last year. Those beekeepers who heed his advice will produce larger crops and be better beekeepers in the future.

The month of May marks the beginning of another improvement in the service that the State is giving to the beekeepers. Edwin Ewell was appointed by the College to the position of Extension Specialist in Beekeeping. Mr. Ewell will work from the office of the State Inspector of Apiaries and will have charge of the organization work among the beekeepers. He will organize county and local associations, hold field meetings, give demonstrations of better methods of beekeeping, and will help beekeepers individually to become more efficient in their work. It is the intention to thoroly organize every part of the State where beekeeping is an industry or where it can be profitably followed. The State will be better able to serve the interests of the beekeepers thru a knowldge of the needs of the various counties, which can be gained thru local organizations. B. F. Kindig.

East Lansing, Mich.

* * *

In Ontario—The month of April in Ontario was cold and dry most of the time, and conditions were anything but good for the bees. As a result many weak colonies, that might have pulled thru under better weather conditions, perished outright; and many others, that seemed to be in fair condition earlier, weakened very much. Reports still coming in point to a very heavy loss over the province, and, from the data now at hand, I think it is safe to say that the loss will reach 40 per cent or thereabouts. Of course, this is only an estimate, but from present indications I am afraid that figure is no exaggeration. Losses are by far the heaviest in localities where fall flows usually occur and where natural stores are generally depended upon for winter. Much of the honey left with bees, in such localities, granulated very firmly and bees were unable to use it, either starving or getting dysentery; and, in many cases, full combs of this honey were left in the hives, and the bees were all dead.

In connection with this matter of winter stores, Morley Pettit says in the May issue of the Canadian Beekeeper: "Our bees, as far as we have examined them, have come thru in fine shape. We attribute our success

FROM NORTH, EAST, WEST AND SOUTH

in wintering, in such a severe winter as the one just past, largely to the fact that we fed sugar heavily in the fall.'' My report for the home yards would be something like this: ''We attribute our winter loss and the general poor condition of our bees around here to the fact that, as a matter of sentiment, last fall we made our colonies heavy with combs of honey, instead of feeding sugar as we should have done.'' My loss is the heaviest in years, the bees left not averaging up in strength as is usually the case, and, as stated, ''there's a reason.'' On the contrary, the bees at north yards where I had no combs of honey in the fall, and which, of course, had to be fed with sugar syrup, are in very fine shape, and many colonies are so strong even in this backward weather that they need supers early in May before fruit bloom.

Dry cold weather has not been conducive to growth of clover or other vegetation, but clover is still looking fair and, with rains soon, it should be up to the average.

Beekeepers are not worrying about prices, for it looks as if there will be a good market for all the honey produced.

The Food Controller is allowing sugar to be supplied to beekeepers really needing it, and a statement of needs along that line sent to the Food Controller brings an order on nearest wholesaler to supply the sugar required.

At this date, (May 8) many beekeepers who have lost heavily, and some beginners as well, are in a flurry over the fact that orders for packages of bees from the South that were placed months ago in some cases, are being canceled by the wholesale. Backward weather conditions are given as an excuse and, no doubt, that accounts for much of the disappointment. On the other hand, I have heard some say that they had an idea that some breeders were backing out of their contracts on account of the high price of honey, thinking that the bees would pay better to be kept for honey production than to be sold for shipment. Personally, I have no comment to make, as I know nothing about the matter, except that there are a lot of disappointed beekeepers here just now, who were hoping to restock their empty hives with bees from the South and who now seem to be in a fair way of getting none at all.

In the past I have rather favored single-packed cases instead of the quadruple or two-colony cases, but this year's experience has been in favor of the cases with more than one colony in it. Whether the difference is enough to make me discard the single cases is another question, but the cases with two colonies wintered the best this year. But wherever the colonies had abundance of good stores, of which the major part was sugar syrup, the bees wintered fairly, regardless of what kind of case they were in, proving once more that stores are the first factor to be considered in the matter of wintering.

Many beekeepers who are affected by the latest draft ruling, that cancels all exemptions of certain ages, are finding themselves in rather bad straits, having little time to square up their business before reporting for service. Within the last few days two young men with over 200 colonies have written me as to prices they should ask for their bees, which they are forced to sell. Needless, to say, for every good reason, these men should be well dealt with and purchasers should pay all the bees are worth, or, if possible, arrange to care for them till the boys come home. J. L. Byer.

Markham, Ont.

* * *

In Texas—With the season advanced this far, it is well to sum up the situation, as plans for the future can be made more accurately. In the Gulf Coast region the bees are in fair to good condition, altho local conditions are extremely variable. There are now about 50 to 60 per cent as many bees as there were there last year. In the southern part of southwest Texas the bees are in normal condition altho there are only 40 to 65 per cent compared with last year. In the western part of this section it has been much drier and conditions generally are not as good. The bees are in poor condition and the number of colonies is only 60 per cent of last year's number. In the irrigated section, the bees are only in fair condition, being extremely short on stores. Their number is 80 per cent of last year's supply. In west Texas the bees are in good condition. In east Texas, localities show a big variation from starving bees to bees in good condition. The bees in central Texas are in good condition, altho there are only 60 per cent of the number of last year's bees. In north Texas, conditions are worse now than two months ago, spring losses being excessive.

The effect of the drouth of last year on the honey plants is of much concern to all. In the Gulf Coast region the mesquite and catsclaw have yielded well but the horsemint in this region has not appeared this year. The prospects for further honey flow in this region are not promising at this time. In the southern part of the southwest region, there has been a good honey flow from the catsclaw and the mesquite. Here the prospects are good for a large crop of honey. In the western part of this region there is no honey flow, but the prospects for a honey crop have just been improved by rains. In the irrigated region the cold and drouth have proved a severe handicap to the mesquite flow. Unless rains come, the only

FROM NORTH, EAST, WEST AND SOUTH

flow outside of the irrigated alfalfa may come from mesquite. In east Texas the horsemint is better than for some years and the condition of all honey plants is good. The prospects are good for a honey crop in this region. The central region has honey plants that are in fair condition with the exception of horsemint, which probably will not appear this year. In north Texas the honey plants are in poor condition and the prospects are not good. Cotton, the main source of honey, is late this year.

As yet, very few offers have been made for this year's crop, and these have been with an indefinite price. The local price that will prevail for honey varies greatly, from 13 cents to 19 cents for extracted honey in cases. In small quantities, 20 cents will prevail in many sections for honey of good quality.

A development of interest to beekeepers in general has just occurred in the negotiations with an express company, relative to pound-package shipments. The company contends that the heavy losses in the past have been due to the shippers not using cases large enough or strong enough. The strength is apparently very necessary in spite of the fact that the shipper pays rate and one-half because extra care is necessary in handling this commodity. The express company further contends that some claims which have been presented are not fair at all, and future claims will be watched more closely. F. B. Paddock.

College Station, Tex.

* * *

In Florida— Little news is available from Florida beemen this month. The big producers have shut their mouths tight, and are keeping them shut, locked, bolted, and otherwise guarded. They have made good this spring, and seem afraid that some one will jump in and rob them of their range. They need have no fears on that score, if they will give their record for the last ten years, and especially for the last two years, of partial or total failure. Florida has no great inducement to offer beekeepers. Honey production is like truck farming, in that we make bare expenses or a loss three years and a good crop one year. The outsider hears nothing about the losses; but the big money made on one crop of celery, lettuce, or tomatoes is brought to his notice, and he comes with high hopes to Florida—and is "busted."

Florida has made a big crop of orange honey, and has got a big price for it, 18 cents to 20 cents f. o. b. shipping point. Those who sold for less were too hasty, or were ignorant of market conditions. One beekeeper drove a good many miles to Apopka and sold 16 gallons at $1.50 per gallon. If he had taken Gleanings and followed the market prices, he would have received $14.40 more for that one small lot, and saved the expense of hauling and bottling. In Orlando, a few weeks ago, I saw honey selling retail in the grocery stores at 50 cents per quart bottle. This honey bore the label of an extensive producer, who for the last few years has been an occasional contributor to the columns of Gleanings and who runs several apiaries on the St. Johns River. The man who sold at $1.50 in Apopka can be excused, for he did not know any better; but there is no excuse for the other, and we can only hope that the wholesale buyers will pay him the smallest possible price for his present and future crops. Such men do not deserve the consideration of buyers or their fellow beekeepers.

As could be expected after a successful season, beekeepers are springing up like mushrooms all over Florida, and the question arises as to whether they should be encouraged or discouraged. Many of those already engaged extensively in beekeeping look with disfavor on all who are making a beginning in a small way, and will give neither advice nor help in the way of obtaining supplies. They may be right in a few cases, but personally I do not agree with them. I see too many bees in boxes and home-made hives of varying sizes, which, with a few words of timely advice and unselfish co-operation from the experienced beekeeper, would now be in standard hives and in shape to take their places in the apiary of the specialist when he buys out the small beginner, as will undoubtedly happen in very many cases. There is but a small percentage of those that start with bees that remain in the business long. They get tired of the occupation or move away and have to sell, and then it is up to the specialist to buy hives that are nothing but drone factories. I have been told that it is the beginners who spoil our markets and overstock our ranges, but my experience has been that the beginner establishes the use of honey in more homes than he can possibly supply, and the big producer gets the benefit of the other's energy as an advertiser. As to the overstocking of our pastures, there is little danger of small apiaries crowding us when they are situated more than half a mile away.

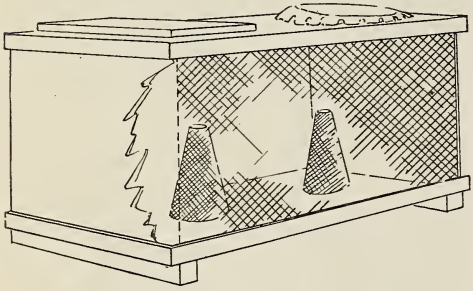
It is too early yet to state what the prospect is for a crop of palmetto honey. There is more bloom this year than in the last four years put together; but it does not appear to be yielding much. Basswood and red bay seem to be doing better, and those whose bees are near the swamps should secure some surplus. There is a good average of cotton planted in Florida this year; but whether it yields much nectar in the sandy soil remains to be seen. Harry Hewett.

Apopka, Fla.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Flytraps Made of Bee-cages.

Last spring I had several wire cloth cages that had been used to ship bees in. I was examining them one day and decided that they would make good flytraps. So I removed all the "inside fixin's," then cut two circular pieces of screen, each about six inches in diameter. Two or three holes were punched in the center with a lead pencil, and the screens were pushed into the openings in the top of the cage



Beekeeper's Inexpensive Fly-trap.

that had been used to hold bee candy, thus forming cones leading into the cage.

The cage was then inverted and two one-half inch cleats fastened on the bottom. Shallow tin lids were placed under the cones to hold the bait. I caught several gallons of flies with one of these traps last summer. M. L. Dodson.

Jennings, Kans.

Case of Pritchard vs. Miller.

In the reply to Dr. Warren B. Davis (page 236, April Gleanings), it is not credited that bees will dilute thick honey with water and move it over next the brood. Yet that is just what the bees always do when there is no honey coming from the fields. If the colony is fairly strong and the brood well up to the top-bars, some of this thin honey will be stored at the bottom of the super over the brood, as he stated. Mel Pritchard.

Medina, O.

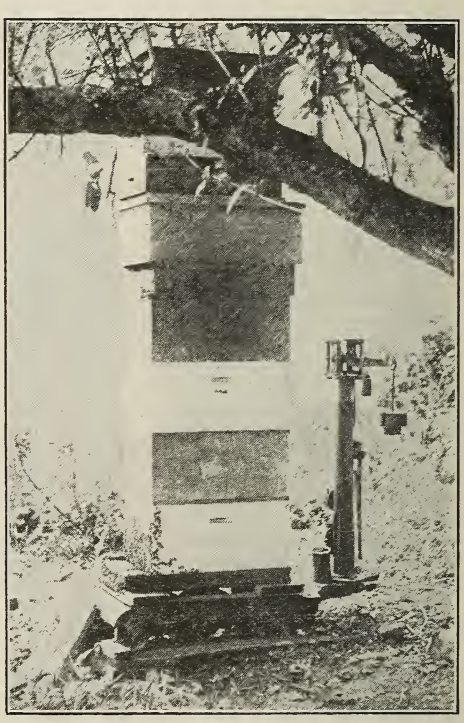
I don't know whether bees ever dilute thick honey and then move it elsewhere. I know they carry water into the hive, and that they do this even at times when it seems unlikely there is thick honey in the hive. If thick honey is in an outside comb, it would seem greater economy to transport the thick honey without diluting, and then dilute as it is used, rather than to transport the water to the outside comb and then back again.

When candied honey is in an outside comb, I believe it is a common thing for the bees to carry out the granules and waste them. Yet if the beekeeper from time to time sprays with water the candied honey in the cells, the bees will utilize the honey. Now, if candied honey can thus be thinned and used, and the bees are up to the trick of carrying water to thin the thick honey, why shouldn't they carry it to the candied honey?

As the Scotch say, "I hae ma doots," but sufficient evidence might dissolve those "doots." C. C. Miller.

A Remarkably Good Colony.

This I consider a remarkable colony of bees. It is my ten-frame scale hive for 1916. The picture was taken after the white-honey season closed and before any combs were removed for extracting. As I lacked extracting-combs I put on five section supers containing sections with empty combs, the three upper ones being eight-frame supers. The bees did not store much honey in the upper one, as it was put on near the close of the season. On July 19, when the white-honey season ended, the gross weight of the hive as shown in the picture was 54½ pounds. From June 1 to July 19 they made a gain of 370 pounds.



A Remarkable Hive.

The greatest gain for one day was 19 pounds. I weighed them every night, but did not make a daily record. In the fall they made

HEADS OF GRAIN FROM DIFFERENT FIELDS

another gain of 30 pounds, which makes a total gain of 400 pounds for the season. They were given sufficient winter stores and good winter protection and plenty of room at the right time. That is all the credit I can claim. Last season was an exceptionally good one, and only one of the nine colonies swarmed. I obtained 1,530 pounds of extracted honey from nine colonies, spring count. Three of the colonies were weak, the weakest producing about 45 pounds. The scale hive was about 125 pounds ahead of any other colony in the yard. Our main honey flow came from white clover, altho we also had some alsike and a little basswood.

Bellevue, Ia. Joseph M. Niemann.

A Roof Apiary in California.

From this picture you may infer that I am a roof buzzer. My bees gather pollen in abundance all winter, and it is very seldom that they do not carry in a little honey. There is one thing that must be guarded against, and that is mildew.

A Roof Apiary in California.

After the rain the weather is very warm and sultry, and it requires a great deal of care to keep the hives well ventilated and dry. The bees are now well up in their supers, and by the first of April will begin the swarming season. This would be an ideal bee location in regard to climate, but there is a great scarcity of honey-producing plants. The willow and bluegum are now in bloom; in April the fruit trees put forth their blossoms; but the greater surplus comes from the locust in May and June. I have done my best to encourage in my neighborhood the growing of sunflowers, which yield a surplus in July and August. Altho the honey from them is very dark amber in color, it certainly has a remarkably fine flavor.

Santa Cruz, Cal. A. Higgins.

Use of the Heavy Auto Truck.

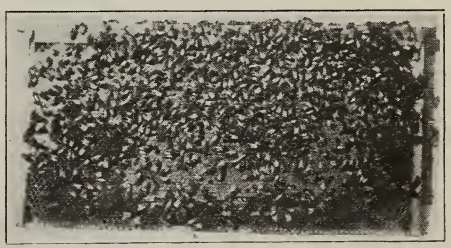
The one-ton and two-ton auto truck will doubtless become necessary in the progressive beekeeper's equipment. There are several reasons for this. Beekeeping operations will gradually be taken over by those who manage from 500 to 1,000 colonies. With an outfit of this size it is often necessary to make quick moves of large numbers of colonies. With a two-ton truck, 200 to 300 colonies can be moved 10 or 15 miles in 24 hours. Supers can quickly be moved, and a complete extracting-house can be placed on the body, if it is not found feasible to haul the honey in the combs to the home extracting-house. With a heavy truck and a light car, all the work for a large crop from 1,000 colonies can be handled. The distance that the truck need travel in one year is small, but it will pay for itself in having it ready for the rush hauling when it comes. Wesley Foster.

Boulder, Col.

[The plan here outlined would be all right where one is carrying on beekeeping in a large way such as Mr. Foster is doing with his 1,300 colonies; but as a general proposition, a light small machine is better—one that can make frequent and quick trips and which will carry a limited amount of stuff at a time. A heavy machine, however, is expensive to operate, both from the standpoint of first cost and its slowness in making trips; and unless one has a large load to carry, it is very uneconomical. A little light Ford machine, capable of carrying 600 or 700 pounds, is much more serviceable for the average beeman in the average locality. Where heavy work is to be done, one can hire a two-ton truck for a particular occasion, then afterward do practically all the other work with a light machine. If, when going to and from an out-yard, one always carries something needed then or later, he can transport many tons of stuff during the entire season.—Editor.]

Brood-Combs Built Clear to the Bottom.

By using a bottom-starter, George F. Webster of Sioux Falls, So. Dak., obtains brood combs that are built clear to the bottom-bar. For these starters



Brood-comb built clear to the bottom-bar, obtained by using a bottom-starter.

he prefers the medium brood foundation cut in strips ½ to ¾ inch wide. The bottom-starter is cemented in place with wax.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Not Due to Damp Climate.

The articles on Isle of Wight disease have been of great interest to me, as I have had some quite bad cases of it among my colonies. This is a dry climate with about 12 inches of average rainfall. Our spring is early and the bees breed from late July until early April and during the late winter and early spring there are ample honey and pollen coming in for brood-rearing. Yet the disease is here and, not even at midsummer, does it always do the disappearing trick. I have never lost a colony from the disease, but have had some very weak ones. I saw a queen affected a short time ago, but I am sorry to say that I did not mark the hive, and therefore can not tell what became of her. One colony badly affected last season is not nearly as bad this year. I make mention of the Isle of Wight disease because many writers appear to blame a wet climate and bad stores for its appearance, and believe that it will disappear with the improvement of weather conditions.

Leonard A. Chapple.

Berri, Australia.

How the Pollen Is Packed.

A few years ago I noticed an article in Gleanings in which the writer stated that it was difficult for him to detect how a bee adjusted the pollen to its legs. I have watched them many times, and will admit that on a single flower they will work and leave so swiftly that there is but little opportunity to observe their work; and it was only on a cluster of bloom that I had a chance to observe the operation clearly. Last summer, when the corn tassel was in bloom, I watched the pollen-adjusting with ease. A bee would rise from the tassel some four or five inches, and, while looking it over for ungathered pollen, would rapidly use its central feet, to which the pollen had adhered, by rubbing them dextrously on the rear legs. Having done this, the bee would alight on another unharvested bloom and continue the process. Of course, old beekeepers have seen this many times, but to the amateur this observation will give a decided thrill of pleasure.

C. E. Graves.

Blue Ridge, Texas.

THE BACKLOT BUZZER.

Are we soldiers? You bet we are. Ma says there's just two things to do. One is to stay home and raise honey to beat the Huns and 'tother is to go go "over there" and help stamp out the European foul brood.

BEES, MEN AND THINGS

(You may find it here)

I HAVE tried wintering in cellar, but have never had them breed up early as I have had them do when wintered outside. Hamlin Miller calls Iowa beekeepers bullheaded who try to winter their bees outdoors. I live considerably north of him. Unless he thinks of something worse than that to call me, I shall keep on wintering outdoors.''—J. B. Ratcliff, Blue Earth County, Minn.

''Bees wintered well, but are light in stores. There will be loss thru starvation, if the bees are not looked after carefully.''—J. D. Oliver, Fenelon Falls, Ont.

''As the Government of the United States has prohibited the exportation of honey for the present, the prices here are merely nominal.''—Adolfo Marzol, Matanzas, Cuba.

''My bees are breeding well and are 200 per cent strong for May 1. Clover looks extra good and everything looks like a big crop.''—W. L. Lovejoy, Oakland County, Mich.

''I am one of the old veterans. I began taking Gleanings when it was run by a windmill, and expect to continue taking it until the Lord calls me.''—J. V. Caldwell, San Bernardino County, Calif.

''The weather here has been exceptionally bad during fruit bloom, and bees got practically nothing with which to rear brood on and have used up nearly all their remaining stores.''—Theo. Scharff, Greene County, Mo.

''I wintered 48 colonies and they are in fine condition now for the apple bloom which is just coming on. I enjoy working with the bees now just as I did 40 years ago when I was 10 years old.''—F. M. Taintor, Franklin County, Mass.

''Will a queen leave her hive and go to another and remain there? I say yes. Last year I had a queen leave and go into a hive of blacks that had a laying queen. The Italian queen was accepted and the old one killed. Please don't let anybody call me a liar.''—Herbert Coffee, Seminole County, Fla.

''Many beekeepers, if their attention was drawn to it, would be glad to give wax to help in the making of L'ambrine to heal the wounds of our soldiers without making a scar. My bees are very patriotic. They have bought Liberty bonds, and have a bank account. They are working with might and main now to help with the food supply and to make wax to give the Red Cross for the making of L'ambrine.''—Miss Julia King, Liberty County, Ga.

''While there is a lot of blackberry bloom here, the bees are somewhat handicapped by wet weather and cannot gather as much honey as otherwise. The bees got but little good out of apple bloom here this spring. Too cold and wet; and they got even less out of cherry.''—John A. Steel, Morgan County, Ala.

''After my experience of last season I think it more profitable for me to give my attention to the honey part of the business this season. I have decided not to rear queens or ship bees this season.''—E. A. Leffingwell, Hillsdale County, Mich.

''Over 90 per cent of the bees in this county are dead. I predicted this last fall when I packed my bees for winter, as they had nothing but aster honey and mostly unsealed on account of the cold weather, and it was impossible to get sugar to feed in place of it.''—S. B. Post, Washington County, Pa.

''Three of our four colonies have now been completely destroyed by wasps, and we have not found one nest. I am told by a neighbor that these small wasps make their nests in the ground, where they have hundreds of bees that are paralyzed but still alive, on which they feed.—S. J. B. Esser, Rustenberg, South Africa.

''Wife and I started in an automobile with a camping outfit from Hibbing, Minn., for Florida, on Sept. 10 last. As I am a beekeeper I was always looking for hives, and I actually believe I saw the old box gums as often as the removable-frame hives—even saw one swarm in a barrel.''—G. C. Petrie, St. Louis County, Minn.

''Perhaps no other woman in the Dominion of Canada is adding to the country's food supply in quite the same fashion as Lady Vincent Meredith, wife of the president of the Bank of Montreal, as she is keeping bees in her bedroom. She advocates beekeeping for women as one way of helping to meet the food shortage.''—Newspaper Item.

''My bees have made good this season. When I came down here in November, I found their supers filled with honey. Since then some of them have made 100 pounds of surplus. I run for bulk comb honey. This I consider by far the easiest and most profitable system. I sell my honey at 25 cents per pound.''—Joseph H. Collins, Volusia County, Fla.

''Winter losses in New York range from 30 to 80 per cent with the small beekeeper, and 30 to 50 per cent with the larger beekeeper. Cold winds and cold cloudy weather has caused a heavy loss of old bees. Thirty per cent of colonies are out of commission for this season's honey crop. This will give us about one-half the number of colonies

for the honey crop that we had last year. Crop conditions are very favorable.''—S. D. House, Onondaga County, N. Y.

''James Bachler on page 234, April Gleanings, says that by increasing the amount of honey he consumes he is bothered but little with rheumatism, etc. I have just passed my 82nd birthday; have kept bees since 1864; have not eaten two pounds of honey per year; consequently, I never had the rheumatism.''—J. L. Anderson, McHenry County, Ills.

''I don't think our loss will exceed 30 per cent at the most. Have reports from a number of men in this locality that run from 50 to 80 per cent loss, and they all report bees very weak. I have fed one yard about 300 pounds of sugar. Had to feed all our bees during April. I don't think I ever saw clover look any better.''—A. L. Coggshall, Tompkins County, N. Y.

''Things are looking good to us here on the Tombigbee River from a honey standpoint. The bees are working overtime on tupelo. Beekeepers report their bees in better shape, with fewer losses and more brood and honey than they have ever known before. We beekeepers here will surely get into the next Liberty loan in great shape, if Uncle Sam needs it.''—J. E. Sutton, Clarke County, Ala.

''A letter by Lafayette, date of June 28, 1827, just presented to Consul-General Skinner in London as a gift to the American Government, speaks of the invention of a bee hive and of his interest in agricultural development generally. Possibly you may be able to follow this up so that we may all know to what extent Lafayette was interested in bees.''—Wm. H. Ellis, Chester County, Pa.

''I am constantly receiving letters from my old customers inquiring about queens. I regret to have to disappoint them, but there does sometimes come a time in the life of a queen-breeder when it is absolutely impossible to raise queens. The fearful drouth in southeast Texas has put me almost clean out of the queen business. I have often wished that there was some way in which I could tell each and every one of my customers just how badly hit I have been.''—H. D. Murry, Lamar County, Tex.

''Our pleasant March weather was followed by a very cold and disagreeable April. Three times during that month the thermometer registered 20 degrees F. Three good drizzling rains prepared the soil for what now appears will be a record breaking season for crops of all kinds. May opens up very warm, and is fast overcoming the setback by cold weather in April. The pastures present green blankets of white clover and the fruit bloom is profuse to the limit. * * The severe winter losses keep percolating thru and were not overestimated at any time. There are yet beekeepers who still try to winter in a barn, or a shed, as well as those who leave them on the summer stands. There was an abundance of winter stores in most instances.''—Hamlin Miller, Iowa.

''In his address to the beekeepers of our country Prof. Baldwin of the Department of Agriculture emphasized speeding up of all colonies to the limit of production, saying there would be an approximate sugar shortage of 20 per cent this year and beekeepers were expected to make up in part this shortage. He strongly urged the production of extracted honey, and, if not extracted, then chunk comb honey, in preference to section honey which he said, was a 'frill' and we had no time for frills when at war.''—S. H. Burton, Daviess County, Ind.

''If such conditions were prevalent every year as now, this would be some bee country. The bees today (Apr. 29) are what might be termed fairly strong colonies only, but the weather is warm, and many colonies with only half to two-thirds population are full of honey and the queen is honey-bound. In my own apiary I have hives two stories, 10-frame each, from which readily could be extracted 40 pounds of honey, all from maple. Never before in my experience has there been such a flow and such weather to gather it.''—E. J. Ladd, Multnomah County., Ore.

''Stress of work has given me little time to inquire into the way in which the Arabs store and collect honey here. The Sultan of Alakalla presented the mess I am in—headquarters mess—with another tin of honey a short time ago. It was very carelessly collected, being full of young and capped brood and pollen. It was supplied in the usual round tin they make use of, about a five-pound tin, I should say. The honey itself is decidedly good, of rich flavor and savors of the date. I have examined the date-palm flower, and do not think it gives honey—not in any quantity.''—R. H. Macdonald, Capt. L, 1st South Lancashire Regt., Aden Field Corps, Arabia.

''The eastern part of the Uintah Indian Reservation is in Uintah County and the western part has been organized into Duchesne County. The altitude is about 5,300 feet, and the precipitation runs from 5 to 12 inches. Most of the Indian allotments that have been improved have been in charge of white men who leased the land from the Indians thru the agency officers. The agency furnished alfalfa and sweet clover seed to sow the land with, and the leaseholders were under contract to grow and sow these crops and have a large proportion of the land producing them at the end of their lease. In consequence of this policy, which has scattered the seed of sweet clover over all of the waste ground where the water runs, the honey-producing industry is growing fast, and these two counties will soon produce more honey than all the rest of Utah.''—Joab Collier, Uintah County, Utah, Mar. 27.

GLEANED BY ASKING

E. R. Root

QUESTIONS.—(1) If I should remove a queen from a hive for a few days, keeping her in a nucleus, could I return her to her original hive without introducing? (2) Could I take two frames of brood with queen and bees, put them in an observation hive with a screen over the entrance, keep the hive in the house for two days, and return all to the original hive? (3) If I should buy a hive of bees in our neighborhood, how shall I keep the bees from returning? It has been said that putting bees in a dark cellar for two days cures them of returning. Could I not confine them in the hive on the new stand, giving plenty of ventilation and darkening the entrance, and thus secure the purpose of a cellar? I have no cellar. (4) I have been asked repeatedly, "When do bees sleep?" As it is dark within the hive, night and day would be the same. Do their labors cease at nightfall?

Pennsylvania. Bert Boland.

Answers.—(1) No, she would then need introducing just the same as she would to a strange colony. (2) Yes, if the weather were not so warm as to make them uncomfortable from the long confinement. But when returned to the original hive, they should be united with such precautions as one usually takes in uniting any two colonies. (3) As stated in the Talks to Beginners, in the May issue of Gleanings, the best way is to move them to a place two or three miles away. Then a few weeks later move them to the desired spot, for by that time the original location will have been forgotten. We strongly advise that the bees should not be confined to their hives for several days. This would cause the bees to so worry and raise the temperature of the hive to such an extent that it would seriously damage and probably kill the colony. (4) Whether or not we have a right to call it sleeping, we cannot say, but bees do take periods of rest, not only at night, but also during the day. Between their trips to the fields, the workers crawl into their cells and remain quietly resting for a few minutes or perhaps for half an hour at a time. The drones and queens also rest, but not usually in the cells. During the honey flow, most of the honey-ripening and comb-building are carried on during the night. And sometimes when a great deal of honey is gathered during the day, this work may continue most of the night; but usually the work stops before midnight and the entire colony rests until morning.

Question.—In "Gleanings" I read of a plan whereby a beekeeper feeds back unfinished sections, by placing them in supers, tiering them up in the honey-house, and, when all is in readiness, opening the door and letting the bees remove the honey, afterward leaving the honey-house door open for two weeks until every vestige of honey has disappeared. I found the plan works satisfactorily and with no robbing; but I fear the bees have ruined several hundred sections for me, for in their eagerness to remove the honey, they gnawed holes entirely thru the foundation, or bottom of the cells, and many of the sections look very ragged. Also, small particles of wax are sticking in the cells and cannot be shaken out. If I put these sections on at the start of the honey flow, will the bees repair the foundation and remove the particles of wax, or had I better cut all the old comb out of the sections and reset with new foundation? Harry E. Garey.

Pennsylvania.

Answer.—The plan you mention for getting sections cleaned is a good one for old combs, or for any combs, if there are plenty of supers for the number of colonies that have access; but if not, the empty supers should be stacked in piles about as high as one's head, and in each stack an opening left only large enough for the admission of one or two bees at a time. It is a poor plan to reset the old sections with new foundation. Old sections usually need replacing as much as the combs. If the sections are much soiled, or if the mid-rib is very badly torn, the sections should be replaced by new ones containing foundation. Otherwise, we would leave the bees to attend to small particles of wax and ragged edges, for altho the resultant sections will not be as fancy as those stored in new sections of foundation, still they are exceedingly valuable as bait combs for getting the bees started to work in the super. Bait sections at each corner or outside row and one in the center of the super would be worth much more to you than the same sections filled with foundation.

Questions.—(1) When is the best time to put new queens in hives? (2) Would the bees kill the new queen, if you took the old one out when the new one was put in? (3) How soon would the new queen begin laying? Chas. Floding.

Ohio.

Answers.—(1) Probably the best time for introducing is along toward night during a good flow of honey. (2) If the new one is introduced by means of the mailing cage, at least 24 hours will elapse before the bees gnaw thru the candy and liberate the queen, therefore it will be perfectly safe to introduce the new one at the same time the old one is removed. (3) Usually within two days, if introduced during the summer. If shipped a long distance it may be several days or even a week before the queen recovers sufficiently to begin laying.

Questions.—(1) Describe the making of individual cakes of comb honey used in dining-cars and hotels. (2 How can I keep the different kinds of honey separate in the hives—that is, honey of different flavor, such as fruit, clover, alfalfa, whitewood trees, locust, and goldenrod? I think Allen Latham has a theory. (3) If I have a scale hive, how can I tell the amount of honey coming in, as the brood must weigh something also.

Massachusetts. George A. Stedman.

Answers.—(1) The small individual cakes of comb honey are made by cutting the regu-

lar-sized sections of honey into the desired size and then allowing the honey from the cut cells to drain from the comb. (2) It is impossible to keep flavors entirely separate from each other. The best than can be done is to use shallow supers and carefully watch the different flows, removing supers when necessary to avoid mixing flavors. We do not recall the particular theory to which you refer. (3) Of course, the increased weight recorded is not an exact index of the amount of new honey acquired. There is some increase in the weight of brood and pollen; but there is also some loss of weight from the dying of old bees and also from the honey used by the bees. It should be remembered that a great deal of honey is used in brood-rearing—much more than the increased weight of the brood. Therefore it is quite impossible to keep a scientifically accurate record of the exact amount of surplus gathered each day.

Question.—Please suggest method of fastening foundation in shallow extracting-frames.
Tennessee. Haskell D. Ferguson.

Answer.—In order to fasten foundation into shallow extracting-frames, the frames should be held with the top-bar downward and the sheet of foundation inserted in the groove, holding the frame tilted with the bottom-bar furthest from the operator. A fine stream of hot wax and rosin, or else paraffin, should be fed between the foundation edge and the wood top-bar, cementing them firmly together. For doing this a Van Deusen wax-tube fastener should be used, or, if this is not available, a spoon with bowl bent into a narrow trough may be used.

ANSWERS BY C. C. MILLER.

Question.—Please tell me the difference, if any, between the queen bees, advertised as leather-colored Italians, and other Italians. L. S. Harner.
Colorado.

Answer.—There is a discernible difference in the color found in the rings of Italian workers of different strains. In some the color is quite a bright yellow, while in certain regions they are found with a yellow much like the color of fair leather, and these are the ones that are called "leather-colored," and are preferred by a good many to those of brighter color.

Question.—When from two to five swarms come out and cluster together, I put in the combined cluster from two to five hive bodies containing frames of comb or foundation, and the bees separate themselves into their original clusters, so that before dark, they can be placed on different stands. For several years I have always been very successful with this method, but having never seen the plan mentioned, I would like to know what you think of it. Edward L'Esperance.

Answer. This is old. I remember, years ago, seeing instructions given to put, I think it was into a big box, several twigs, or branches, and then dump in the cluster of united swarms so that each queen might settle separately with her own bees. I don't remember seeing reports of failure with the plan, but failures are not usually reported. Having never tried anything of the kind I don't know what might be. I do know that two small colonies may be at the same time in two sides of the same hive, but I don't know how long they may remain so. So there is nothing impossible about two or more queens in a cluster separating into two or more hives, each queen attracting its own adherents. Yet altho the thing is possible, if it has happened regularly with Mr. L'Esperance I should count him exceedingly fortunate, and if I should find three queens alive after 24 hours in one case out of ten it would be as much as I would expect with my bees. But as already stated, I don't know.

Questions.—(1) Is the fact that the old clipped queen remains in the hive conclusive proof that the bees have not swarmed. (2) I have one hive where the queen is a poor layer. She has twice this spring laid in queen-cells. Thinking she was merely superseding herself, I let the cells remain. I saw the new queen after hatching and killed the rest of the cells. After remaining in the hive about a week with the old queen, the young queen disappeared. The old queen is now on her third batch of cells about four days old. What is the trouble?
Virginia. J. Smith.

Answers.—(1) There are exceptions to the rule that when the old queen is found present the bees have not swarmed. If a queen has her wings clipped, the colony will swarm just the same as if her wings were whole; as a rule, the swarm will return, and the queen will crawl back into the hive. In that case, finding the queen in the hive the next morning would be no proof that the colony had not swarmed. The same thing would be true if by any means the queen should be unable to fly. But by looking in the hive you would judge something of conditions by the presence of queen-cells. If you find no queen-cells present, if brood in all stages shows that there has been no interval of cessation in egg-laying, then it's a safe guess that there has been no swarming. There have been reports of cases in which the colony swarmed and returned, the queen being unable to fly, and then after the first virgin emerged a swarm went with this virgin, leaving the old queen in the hive. So it is just possible that by your question you mean to ask whether the presence of the old queen is conclusive proof that a swarm has not issued with a young queen. I wish I could be sure of the answer to that question. I have just a little doubt that such a case ever occurred. At any rate such cases are so rare as to be hardly worth considering. (2) Likely you were right in your supposition that superseding was intended; indeed the proof to that effect is quite clear, for if swarming had been intended the swarm would have gone with the old queen or else with the young one when only a day or two old, whereas you say she remained about a week. The likelihood is that the virgin was lost on her wedding trip, and that a virgin from the next batch will be more successful. Yet sometimes, when superseding is intended, if the harvest is stimulating, the bees change their minds and decide to swarm.

TALKS TO BEGINNERS

By the Editor

AT the opening of this month, if our directions of the last issue have been followed, we are now in possession of good strong colonies with clipped queens. There is the equivalent of one or more solid combs of honey and seven to ten frames with brood in each hive, and most of the colonies probably have at least one shallow super of drawn combs. If necessary, frames of foundation may be given, tho combs are better if one is able to obtain them, for bees always begin work in them much more readily.

Condition of Strongest Colonies.

The strongest colonies already have brood in two stories, and the queen access to both. Also, those who desired increase have, whenever they found queen-cells started, placed on the old stand a hive containing the queen, frames of comb or foundation, and one comb with eggs and young larvæ. Above this they have placed a queen-excluder and the hive of brood with all the capped queen-cells torn out, intending in eight days to move this upper story of brood to a new location, and, after contracting the entrance, to leave them to raise their own queen or introduce one. It may now be found that such colonies, because of rainy weather, a scarcity of nectar, or the extra super room given them, have entirely given up their swarming intentions. Possibly at the end of eight days no queen-cells may be found in the hive, or perhaps queen-cells may be found with a hole torn in the side of each, showing that, for the present at least, the danger of swarming is over.

Advisability of Increase.

If the bees can be kept contented without increasing, they will be able to store much more honey than if divided. Therefore we would direct our energies to the prevention of all increase; but if some increase is desired, then we would allow it only in extreme cases. If one wishes to purchase new swarms from some neighbor (as suggested in our last lesson, page 303), now is the time to supply him with the new hives, for the swarms obtained this month will be decidedly worth while. Those obtained next month may not gather enough to winter on.

Opening Hives too Often.

There is always a strong temptation for the beginner to open his hives continually, just for the fun of it, simply to watch the little workers. This seriously interrupts the work of the colony. Necessary work, of course, must be done.

Room and Ventilation.

Doubtless the increased size of the colonies has caused the removal of all packing ere this. If not, it should now be removed and the entrance-blocks also withdrawn in order to give sufficient ventilation. Whatever manipulation we described as work for last month, may still be profitably employed whenever the occasion arises. Thruout this month, and until all danger of swarming is over, the colonies should be examined every seven or eight days in order to make certain that they remain normal and in a continued state of progress. They should always be provided with plenty of room in the supers and brood-chambers. During a heavy honey flow the honey comes in very rapidly. In fact, an extra good colony might store as much as a shallow super in three or four days. So one should always leave more super room than seems actually necessary. Toward the end of the season they might be piled even five or six high. We do not advise removing the honey until after the season, because the best honey is that which has been on the hives until nice and thick, and thoroly ripened by the bees.

Condition of the Queen.

Whenever a queen begins to fail she should be replaced by a good Italian queen (see "Requeening," in May issue, page 305). Still, before taking such action one should be certain that her decreased egg-laying is actually due to a defect in the queen and not to unfavorable conditions that surround her. It may be that the colony is so very prosperous, and the hive is so crammed with honey and brood, that no cells are left for the queen to lay in. Such being the case, the colony usually starts queen-cells, but not always. This congested condition may easily be relieved by placing part of the brood above and replacing with empty combs from the upper super. On the other hand, it sometimes happens that the queen ceases laying, not from an excess, but from a lack of stores.

Lack of Stores.

During brood-rearing, great quantities of stores are consumed; and unless close watch is kept the strongest colonies may easily, within a few days, be reduced to actual need. If one is so neglectful as to allow this disgraceful condition to arise, the queen will diminish, and perhaps entirely stop, egg-laying. Many drones may, perhaps, be found out in front of the hives where the bees have driven them, for drones are always sacrificed by the bees whenever the welfare of the colony demands conservation of the food supply. More than this, the unsealed larvæ may be starved and carried out at the entrance, all of which will mean a daily lessening of a pint or more of bees at the time of the honey flow. Should this take place, the colony should be fed immediately and

given a comb of eggs and larvæ in order to put them into a more normal condition.

Feeding Dampened Sugar in an Emergency.

In case of an emergency, if one has no syrup, candy, nor maple sugar, and needs to feed quickly, light-brown sugar may be dampened and given the bees, altho the bees may waste a small per cent of it. The feed may be placed on the bottom-board at the back of the hive, leaving the hive tilted slightly backward so there can be no chance for the dampened sugar or sweetened water to run from the hive and thus start robbing. When feeding in this way it is well not to give the full entrance, as this would afford the robbers too easy an entrance. After the feeding is over the hive should be left with a slight forward tilt and perfectly level from side to side.

Robbing.

Before the honey flow, or when honey, on account of unfavorable weather or insufficient nectar, is coming in but slowly, there is great danger of robbing, and during such a time no sweet should ever be left exposed; and hives should be opened only when absolutely necessary, and then closed as quickly as possible, the entrance-block being inserted until the colony seems perfectly quiet again. At such times a robber-tent is quite invaluable; but for the small beekeeper, without question, the better plan would be to wait for more favorable conditions before handling.

Opening of Flow.

In clover localities one may usually count on the beginning of the flow taking place from seven to ten days after the first few blossoms are discovered. At this time those colonies that have quite a few bees in their first super should be given a second one—that is, all the best colonies should at this time have the equivalent of one deep super; and until a week or so after the opening of the honey flow we think it a good plan to allow the queen access to two stories, keeping some brood in each.

Spacing of Frames in Supers.

If the supers contain foundation, the frames should be closely spaced until the foundation is drawn out. After that at least one comb should be removed and the extra space evenly divided between the combs. This will give a little more room for storing honey, and will result in combs so nicely bulged that uncapping at extracting time will be a real pleasure.

Natural Swarming.

In this article we have explained how to manage the bees in such a way that it would be perfectly feasible to leave them during six days in the week and still feel certain that the bees were well cared for. Some of those, however, who intend to be always within sight and hearing of the apiary may prefer to obtain their increase by means of natural swarming. If so, do not raise brood nor tear down queen-cells, but just allow the first swarm to issue, which they will probably do as soon as the queen-cells are sealed. If one happens to be near the hive just before the swarm leaves, he may notice unusual activity of bees running about the front of the hive; and if the hive is opened, there he may find great excitement and a busy rushing of bees here and there in every direction. In a few minutes the bees begin pouring from the hive by thousands until the air is filled with a great cloud of humming bees. Usually they cluster on the branch of a tree not far from their hive, waiting to make certain that the queen is with them before they leave for their new home which has already been chosen by the scouts sent out several days previously.

If the queen has been clipped, as described in our May lesson, she will be found climbing helplessly about on the grass out in front of the hive attempting to join the swarm, which, of course, she is prevented from doing on account of her clipped wings. After caging her in a spiral queen-cage, or in a small box punched with holes so that she may have plenty of air, put her in the shaded entrance of the new hive of combs or foundation which has been placed on the old stand facing in the same direction as the original hive. This hive should also contain one comb with young larvæ (very important in case of a queen with wings), and above it should be placed the supers removed from the old colony, for the new colony will now go to work with renewed vim, while the old colony will be composed mostly of young bees, and will probably be without a laying queen for a week or more, and will not be in condition to store any surplus for some time.

In a short time the bees will discover that the queen is not with them, and will, therefore, return to the hive. After they have begun running in nicely the queen should be liberated and allowed to run in with the rest. In order to prevent after-swarms from the old hive, all queen-cells except one may be torn down, and in a week or so the colony examined for eggs. If none are found, it will either mean that the queen has not yet begun laying, or that she was lost in mating, and the colony is queenless. In either case the best thing to do is to give them a frame containing eggs and young larvæ. If a queen is in the hive, she will probably begin laying all the sooner because of the presence of the larvæ; and if the colony is queenless, they will undoubtedly begin queen-cells, in which case a ripe queen-cell could be given them in a cell-protector or else a good queen be introduced.

In order to hive a swarm that is accompanied by a queen with wings, the colony should be shaken into a basket attached to the end of a pole and placed on the ground in front of the entrance. If they do not seem inclined to enter, shaking them on to the ground will usually start them. Generally a few of the bees take wing and return to the clustering place, so that it may be necessary to take them from the tree several times in order to make certain that the queen is also captured.

OUR HOMES

A. I. ROOT

Give us this day our daily bread.—MATT. 6:11.

And God said, Behold I have given you every herb bearing seed, which is upon the face of all the earth, and every tree, in the which is the fruit of a tree yielding seed; to you it shall be for meat. —GEN. 1:29.

Prove thy servants, I beseech thee, ten days; and let them give us pulse to eat, and water to drink. Then let our countenances be looked upon before thee, and the countenance of the children that eat of the portion of the king's meat; and as thou seest, deal with they servants.—DAN. 1:12, 13.

MY good friends, I am in trouble. Perhaps I should change it, however, and say I am a good deal worried. The thing that worries me is an article in the magazine entitled *Good Health* for March. I think the publishers will excuse me if, under the circumstances, I copy the article entire. It is from our good friend Dr. J. H. Kellogg, who has been an advocate of a vegetarian diet for lo, these many years. I have met Dr. Kellogg once or twice, and I visited the Battle Creek sanitarium and wrote it up years ago in these pages. Perhaps I should explain that for four years of my life I was a vegetarian. Of course I ate butter, cheese, eggs, and milk, but no meat. Again, later in life when my health failed on account of being too much indoors, I lived on a diet of lean meat—mostly beefsteak *for 18 weeks* —not a crumb of bread nor a taste of fruit. Thus having been on both sides of the fence in the way of actual experience, I think I can consider the question understandingly. Below is the article from *Good Health*:

HOW TO MAKE FOOD PLENTIFUL.

The high price of food stuffs is not due to food scarcity.

There is food enough in the country at the present moment to feed every man, woman, and child in the United States, England, and France for two years or more.

Food is plentiful.

Then what's the matter?

There's only one thing the matter.

The cattle and pigs are eating up our food stuffs.

Probably most of our readers are not aware of the fact that only ten per cent of our 3,000,000,000-bushel corn crop is eaten by the people of the United States.

What becomes of the rest of the great corn harvest?

Some hundred million bushels are made into beer and whiskey. A few million bushels are exported, but the greater part is eaten up by fattening steers, sheep, and hogs.

It is true that these animals are fed largely on grass and roughage; but before being shipped to market they are always fed up for three to six months on a ration consisting largely of corn. During this fattening period of six months a steer eats twelve to fifteen pounds of corn daily. A sheep eats one or two pounds and a hog two to four pounds.

According to Prof. Henry, dean of the Agricultural Department of the University of Wisconsin, a three-year-old fat steer has eaten 4,000 pounds of milk and 6,000 pounds of concentrated food of which at least 4,000 pounds may be reckoned as corn, a daily average of five pounds.

The average daily ration of a sheep may be estimated as at least one-half pound of corn, and of a pig as an average of one pound for its whole lifetime.

According to the U. S. Bureau of Crop Estimates, there were in the United States January 1, 1917, 40,800,000 cattle other than milch cows. A simple calculation will show that these domestic animals consume each year corn or other equivalent grain in the following amounts:

		Bushels of corn
40,800,000	cattle consumed..	1,000,000,000
48,483,000	sheep consumed...	147,000,000
67,453,000	hogs consumed...	820,000,000
156,936,000	animals consumed..	1,967,000,000

Let us suppose that domestic animals are put upon a war ration of one-half the usual amount of grain, the annual consumption will still be a billion bushels of corn or 60,000,000,000 pounds, or enough to supply one and one-half pounds of corn daily to 109,000,000 people for a year. Such a ration would furnish 2,400 calories daily, sufficient for the average person.

It is evident, then, that the high price of corn, and consequently the high price of meat, and we may justly add the high prices of most other foods, are the result of the diverting of food to the feeding of cattle, sheep, and hogs.

It is true that the flesh of these animals has food value; but it is small compared with that of the corn consumed to produce it. According to Prof. Henry, about five pounds of corn is required to produce one pound of beef; and the beef, being more than two-thirds water, one pound of it has only about half the nutritive value of a pound of corn. So, for ten pounds of corn fed to a steer we get back only one pound of water-free food.

Now, what is it that worries me? It is the closing paragraph in Dr. Kellogg's article given above—the closing sentence, in fact, that we must feed ten pounds of corn to a steer to get only one pound of meat food. And according to Prof. Henry, above, one pound of meat has only about *half* the nutritive value of one pound of corn. Just now, a large part of my diet is a mush made of cornmeal, oatmeal, and wheat ground up in a little home mill. This when made into a mush, and set in the oven before each meal, is eaten with butter and honey, (or maple molasses for a change) and is, I think, the most satisfying and delicious food I ever ate. With a cup

of milk right by my plate to take a sip of at intervals I take "real comfort;" and I can do more work, or certainly just as much, as on a diet of the best beefsteak. Occasionally I have an egg with my mush and honey and milk. For the last meal of the day, at 5 o'clock, I have baked apples and milk. During the last winter I have changed from raw apples to baked apples because they seem to be more digestible, and I am saved the trouble of paring the raw apples as I used to do; and when it comes supper time I can, from the bottom of my heart, thank the Lord for such a delicious evening meal as baked apples and milk, with a little bit of cheese for an appetizer. Of course I have other fruit according to the season, to take the places of apples more or less; but baked apples are the great standby.

Once more, why should I worry? Well, to get right down to the point I feel worried because it seems every man, woman, and child *must* admit that Dr. Kellogg is right or largely so. A pound of steak just now would cost, say, 30 cents; but a pound of corn, even at the present inflated prices, would cost only about three cents, and yet we are told the beefsteak has only about *half* the nutritive value of a pound of corn. Therefore feeding the corn to a steer, costs us 20 times as much as to eat the corn ourselves instead of feeding it to the steer. Perhaps there is some exaggeration in this. But there is a large bit of truth that we *cannot* get around.

Then there is another thing that troubles me. I have all my life been quite a "chicken man." Would the same kind of reasoning apply to feeding corn to chickens in order to get eggs, instead of eating the corn in the first place? Some of you folks can figure it out. Let me digress a little.

My vegetarian-diet experience was when I was in my teens. I was keeping chickens. My chickens were my pets. They would run to me and eat out of my hand, and sing their songs of praise and thanksgiving with trusting confidence close to my side. During the last winter I have had about 50 Eglantine pullets. I have seen many of these Eglantines come from the nest where they have laid about their first egg; and I have stopped and listened to their juvenile cackle; and I have said to myself, "If there is any music from any feathered songster equal to a pullet's first cackle, in the way of sending a thrill of joy and thanksgiving, I have never found it." Now, how much *money* would it require to induce me to take that beautiful, innocent cackling pullet and *chop her head off*, that I might have a "chicken dinner"? Well, away back when I was a boy I decided in my own mind that I was going to get along without depriving any animal of its precious life, given by the great Creator, in order to satisfy my appetite. I have heard it argued pro and con for more than 60 years in regard to vegetarian and meat diet, so we need not take time or space to go over it here.

The dear Savior, when he made a little repast for his followers, gave them fish and honey in the comb. It has been argued from this incident that *he* set the pace for at least a mixed diet. Well, it has just occurred to me that we do not feed our corn to the fishes in the sea. Years ago, when German carp were my hobby, I did talk about (and practice) not "corn-fed" *beef* but "corn-fed" *fish*. But as a rule, where we use corn to produce beef, mutton, or pork, we do not waste the corn in producing fish food. This terrible war is teaching us many lessons. If it should happen that the whole wide world will be forced to eat less meat, I think it will certainly be a profitable lesson for the world. Our great doctors are almost unanimous, if I am correct, in saying the health of humanity would be better with *less* animal food, especially the diet that necessitates taking life to get meat. Of course we have got to have milk—that is, I take it for granted that milk is a necessity for babies; but, if I am not mistaken, everybody agrees that mothers' milk is away ahead (for the health of the little strangers entrusted to our care) of milk from any other source. Possibly goats' milk might sometimes be an exception. I feel satisfied just now that it would be better for us to use much less animal food, on account of high prices at the present time, and the waste of grain, as Dr. Kellogg puts it. If he is not exactly right about it, he is largely right, and there is no use in trying to dispute it.

Mr. Collingwood, of the *Rural New-Yorker*, thru that same *Rural* has been a long-time friend of mine. I met him and had a chat with him just once. Well, he talks so much about baked apples that I owe him a vote of thanks for having largely influenced me to get on the baked-apple diet—at least for the last meal of the day. Right here I wish to make a clipping from the Hope Farm Notes in a recent issue. He writes:

MILK.—The average working man will say that he must have meat in order to keep up body and strength. Do you know that from experience, or are you guessing at it? After trying all sorts of food

and diets, I am satisfied that cottage cheese and entire wheat will fully substitute for meat in the diet of any well-matured person. I am willing to make up a little contest with any man of my age and work it out. The other man may eat all the meat he wants. I will balance my ration with milk, cheese, and eggs. We will stand for an examination before we begin, and have careful records made of what we do, how the body stands it, and the cost. I have seen so many men who felt that they could not live without eating great quantities of meat "come back" after being forced to give it up that I feel very sure of my ground. The scientists tell us that a quart of good milk contains as much food as a pound of beefsteak. Many a man will listen to that and smile. Then he will sell the milk for five cents or a little more and go and pay 30 cents for the beef. I know the scientist is right, and I think this plan of selling all the milk and paying five or six times as much for meat is one big trouble in the dairy business. . . . . A farmer will sell three cents' worth of grain and pay 12 cents for the same kind of grain, crushed or partly cooked, and packed in a little box. By using a small hand grinder, that farmer could prepare the grain into a better "cereal" than he can buy.

During the past winter, as I have been telling you, I have been out in the open air from daylight till dark, with hardly a day's exception; and I have carefully noted what food stayed by me best for my work in the garden. I very soon informed Mrs. Root that when I had the oatmeal mush I have mentioned (with the honey), I held out better than on any other diet—better than when I had fish or meat without the oatmeal. But if oatmeal were omitted entirely, I felt used up before dinner time; and much the same experience came with cottage cheese. The latter seemed to be a very important part of the menu in order that I might do a lot of work and not become tired. You will notice Mr. Collingwood seems to agree with me entirely.

I now wish to call particular attention once more to the importance of having a little grinder in every family, to cut off the expense that comes between producer and consumer; and I am just now planning to have a little patch of wheat in my garden and give it "high-pressure" cultivation and fertilization as I have been doing with potatoes. This wheat flour is so difficult to get just now, what is to hinder not only grinding our own wheat flour but growing it in our "war gardens?" Threshing it out in small quantities at home, may be something of a problem; but I am pretty sure I can cut off the heads of grain, put them in a stout bag, and pound out the wheat with a club, just as we have been doing with beans in our home garden for years past.

Now, friends, are we not ready to show Germany that with "pulse to eat and water to drink," as did Daniel, that we are more than a match for even Satan himself?

Later.—After the above was in type it occurred to me our Ohio Experiment Station had made some experiments in regard to the cost of beef, and I wrote my "long-time friend," Prof. Thorne. Below is his reply:

Replying to yours of May 1, I would say that it is generally assumed that it takes about 10 pounds of grain to produce a pound of beef. In some of our experiments we have produced a pound of increase in liveweight from seven pounds of grain; in others it has required eight and from that up to 10, owing to how the grain is fed; so that there is no doubt that the necessary cost of human nutrition is greater when meat enters largely into the diet. On the other hand it is quite likely that we use more grain than necessary in producing meat, and that a larger portion of our meat might be made from the waste products of our crops. I regard this line of investigation as one of the most important now before the Experiment Stations; that is, to see how we may reduce the grain and increase the other constituents of the ration in producing meat.

While the Chinese and East Indians have got along with less meat and less milk than we are in the habit of using, yet I believe that it is generally held by those best qualified to judge, that we cannot afford to attempt to do without milk, for the sake of our children.

Yours cordially,

CHAS. E. THORNE.

Wooster, Ohio, May 3, 1918. Director.

The electric windmill with the builder of the tower (Mr. Leon Wheeler) on the platform, 45 feet up. The highest point of the wheel is 60 feet from the ground.

THE ELECTRIC WINDMILL AND SOME MORE PICTURES.

Mr. L. C. Kaiser, who has charge of the electric windmill in my absence, reports even better success in charging the storage batteries than we had when I left. The hydrometer I had been using proved to be defective, so that he really had a better charge in the batteries than the instrument indicated; and while 1275 degrees is said to be a full charge, he had one set of batteries up to 1300. The first picture shows our neighbor Wheeler, who built the tower, standing on the platform above. His residence, just over the fence from our own, is shown below with the ladder leaning against it.

Mr. Wheeler, Mr. Sisson and "A. I. R.," with a glimpse of the tower at its base.

The second picture shows Mr. Wheeler once more, who, by the way, is the author of the article in this issue on the Florida everglades. The good friend who stands between Mr. Wheeler and myself is a resident of North Dakota, and an acquaintance of our good friend Manikowske.

FLORIDA EVERGLADES, LAKE OKECHOBEE.

The writer of the following came from Michigan with his wife and three children. He has been quite a successful beekeeper, is now located close to our home, and has built, unaided, the wooden tower for our electric windmill. With this preface we will listen to our good friend Wheeler.

THE EVERGLADES AND MOORE HAVEN.

Moore Haven is very much in the public eye of late. So many stories are told of the place, the soil, and the crops, that many are wondering just what is true and what is not. I have made two trips there lately, and, as I am not interested in any land projects there and do not have any other interests in the place, I can write an unbiased account of the things I have seen.

The trip across the prairies from Arcadia is an interesting one. The distance is 70 miles, without a house on the way, and across almost unbroken prairie with occasional sloughs where one has to drive thru water. The road is not muddy usually, as it almost always has a hard sand bottom. Birds and animal life abound and the plains are everywhere dotted with the inevitable range cattle..

The town of Moore Haven is built on a canal just a few miles off the shores of Lake Okeechobee. It is, like most towns of the mushroom type, largely built up of temporary wooden buildings. Some brick and cement structures are going up, and more would undoubtedly be built, if material could be secured. The town has for its chief executive a beautiful young woman, who is at present one of its chief promotors. She is Mrs. O'Brien, formerly Miss Howitz, and is almost idolized by her people.

One of the chief drawbacks to the town up till now has been the lack of a railroad; but this objection will soon be gone, as the track has been laid to within four miles of Moore Haven, and will probably be completed before this article is put in type.

Like most new places, especially where the population is made up of homeseekers from all parts of the country, the people are very cordial and hospitable.

But the thing of vital interest here is the soil, which is of the kind that not only needs no fertilizer but is in itself a fertilizer of real value. Dr. Wiley has pronounced it to be actually worth $9.35 per ton for fertilizer. Then it is peculiar in that it needs no cultivation. In fact, it seems to do better when not cultivated. About all there is to do after the crops are planted is to pull out the occasional careless weeds which grow there. These weeds grow to be four or five inches in diameter up to fourteen or even eighteen inches, and are so strong that a full-grown man can stand in their branches. Naturally these weeds are not allowed to grow in cultivated lands.

The water is very fair in the deep wells, but has a pronounced taste of iron in it. Many shallow wells are used; but these are dangerous, as such wells always are. Sickness is very little known, the few cases being mostly traceable to drinking canal water or that from very shallow wells.

Some of the interesting things to be seen on the big farms are the great tractors hauling as many as six large plows at once, and as many as forty disks when disking. Great pulverizers are used to tear out the roots and put the new ground in condition to work. These throw the roots all on top of the ground, where they are burned. This soil is different from any other mulch soil I ever saw, for it will not burn—probably because it is so full of moisture. One can dig at any time and find moist earth within an inch or two of the top.

The farmers grow almost everything in the line of crops, altho having the poorest success with celery. I have farmed or lived in a farming community all my life, and have been in several States, but have never seen cabbage to equal what I saw there. The same thing can be said of onions and many other crops. Frost damage has made many fields look ragged; but wherever there was no frost the crops are tremendous. There is one field of cabbage seven miles out from Moore Haven, of from 300 to 400 acres, from which they are hauling two or three carloads a day, and cannot begin to keep up with the growth. The manager, it is said, has refused $100,000 for the cabbage in the field. I saw one onion field of 150 acres, and many from 20 to 40 acres. As the ground needs no cultivation, a second crop is often planted between the rows of the first when it is half matured, so that much of the time two crops are growing at once on the same field. The yields are enormous—so great that I dare not tell you the amounts for fear you would not believe me. One must see with his own eyes or else he cannot believe the reports about Moore Haven crops.

I drove down the southwest side of the lake to where the Miami canal enters it; and the further

I wen , the less evidence of frost appeared. During the last few miles everything was green, even to eggplants, peppers, and other tender plants. Here we entered a very fair imitation of a tropical country, with it avocado pears, its pineapples, guavas, etc., all green and uninjured by frost. The hotel grounds on the canal are certainly beautiful with their great variety of tropical plants and trees. Besides those mentioned above were the royal palms, Australian pine, fig trees, rubber trees, traveler's palm, eucalypti, and many others. Peaches were forming, and some pineapples were still on the plants.

The story of the trip would not be complete without relating our experience with alligators. The first one I saw was about 4½ feet long, lying asleep on the ground; and as it started to run into its hole I caught it by the tail. Another man placed in its mouth a stick which it seized in a viselike grip and in this way we carried the creature out of the swamp to where the rest of the party were. We thought to keep it alive, but finally decided to kill it. A native showed us just how to strike it an effective blow. This proved to be lucky knowledge later when a large alligator, nearly eight feet long, was found in the road, having been run over by the front wheels of a car. We were out of the car at once and after him. I picked up a spade and soon overtook him, when he turned for fight. He was indeed a formidable-looking antagonist, standing straight up on all four legs, back arched and head held low, while his powerful tail slashed viciously thru the air. A sudden dash and a quick strong blow, which went true, brought him to the ground, when I killed him after a lively tussle. We then roped him to the car and dragged him home.

LEON C. WHEELER.

Bradentown, Fla., Feb. 15, 1918.

Since the above article was written the railroad has been completed, and I am told it is doing quite a business, especially in carrying the crops away. The Florida papers every week or oftener are telling us of the wonderful things being done at Moore Haven—a great hotel for one thing, and other important buildings. In regard to getting great crops without fertilizer or cultivation, I confess I was at first a little skeptical about it but since then I hear from different sources that it is at least largely true. No doubt there are drawbacks to the locality that, for various reasons, are not mentioned; but we shall get them eventually. With the present demand for everything that will satisfy hunger, no doubt there are wonderful opportunities in this new region that is just being opened up.

SWEET CLOVER AND WHAT IT DID, FOR 10 ACRES OF CORN.

We clip the following from an article in *The Ohio Farmer of* March 23, written by E. Simmonds, Hamilton County, O.: (Where are the chaps now, who stubbornly insisted sweet clover would "ruin the farm"?)

SIMMONDS PLOWS DOWN SWEET CLOVER.

"By growing 65 bushels of corn to the acre I had been winning the Farmers' Week trip from Hamilton County in a local contest," says Mr. Simmonds, who has been a corn specialist for 37 years. "My land," he continues, "is a sandy loam on a second bottom slope and, of course, originally fertile; but due to 100 years' continuous cropping the yields were slowly decreasing each year.

"I followed the 1915 corn crop with rye; sweet clover was sown the next spring and a crop cut for hay following the rye harvest. About 10 acres had been sown to sweet clover, 200 pounds of fertilizer being used on the soil at the time of the rye planting. In the spring of 1917 I decided to use the 10 acres for the state contest. The season was late and not a furrow was turned until May 17 when the sweet clover was at least 24 inches high. With a good job of plowing I turned it completely under and planted the plot on May 22.

"Two weeks later the sweet clover turned under was almost completely rotted and the corn was growing rapidly. The corn grew so fast that I only got over it twice with a sulky cultivator, and a wet season later on prevented further working with a single-row cultivator.

"The land which received no clover crop produced its average yield of 60 bushels; but the 10-acre plot went over the 1,000-bushel mark, matured earlier and stood up better."

Simmonds grows Boone County White from a strain which he has been developing for a number of years. He selects seed from the standing corn. The 10-acre plot was drilled with graded seed, a grain being dropped every 15 inches.

The above is indeed a wonderful testimonial of the possibilities in regard to sweet clover, but in *The Ohio Farmer* for April 7 we find the following from the same writer. (Think of it! Corn at a cost of 19c a bushel, when it is quoted on the market at $1.75 or over!)

COST OF PRODUCING CORN.

In your paper of April 6, H. C. Bothwell takes issue with me on my being able in 1917 to produce corn at 19 cents per bushel. As Mr. Bothwell is not the only gentleman who doubts the correctness of my figures, I am sending to you herewith detailed explanation of my costs.

As this corn was raised in a contest under the auspices of the Ohio State University a record sheet was furnished us to be used for keeping our expense account, in which the prices were specified—15 cents per hour for man labor and 10 cents per hour for horse labor.

Before I give my tabulated account, permit me to state that on May 16, 1917, I plowed under a sweet clover sod and not a weed showed itself in my field; I also had a perfect stand of corn, and had no occasion therefore to use a hoe.

On another page of this same *Ohio Farmer*, L. L. Rummell, Ohio Experiment Station, commenting on the above, says:

Sweet clover turned under was the only plant food supplied to the crop of Mr. Simmonds. He regarded the fertilizing elements carried in the legume sufficient to meet the needs of a heavy corn crop following, and he applied no manure nor fertilizer.

Later: I find in the *Ohio Farmer* for May 11, four different letters from (as I take it) expert farmers, in regard to corn at a cost of only 19c a bushel. They insist it should be two or three times that figure, but, it I am right, not one of the four plowed under a heavy growth of sweet clover.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Fancy clover honey for sale by
Jos. Hanke, Port Washington, Wis.

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

FOR SALE.—New orange-blossom honey in new round jacketed 60-lb. tin cans at 15c a pound.
G. H. Adams, Gen. Del., Palmetto, Fla.

6,000 lbs. choice clover; 3,500 lbs. white aster. free from dregs; first-class in every respect, packed in bright 60-lb. tins, two in a case. Make me your best offer F. O. B. my station. If interested I will answer. H. C. Lee, Brooksville, Ky.

FOR SALE.—Finest table honey put up in one 50-gal. new barrel, and four 30-gal. barrels; 20c per pound, F. O. B. Bradentown, Fla. To any one who means business I will gladly send a large sample. M. F. Perry, Bradentown, Fla.

HONEY AND WAX WANTED

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

WANTED.—Comb and extracted honey.
J. E. Harris, Morristown, Tenn.

Cash at your bank for carlots and less of comb and extracted honey.
Wesley Foster, Boulder, Colo.

BEESWAX WANTED.—For manufacture into Weed Process Foundation on shares.
Superior Honey Co., Ogden, Utah.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston. M. V. Facey, Preston, Minn.

WANTED.—Extracted honey, carload or less quantity. We can supply 5-gallon cans for your crop if needed.
Hoffman & Hauck, Richmond Hill, N. Y.

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

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.

FOR SALE

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

FOR SALE.—Pure maple syrup in one-gallon cans at $2.50 per gallon. Six gallons or more $14.
The M. C. Silsbee Company, Avoca, N. Y.

Beekeepers, let us send you our catalog of hives, smokers, foundations, veils, etc. They are nice and cheap. White Mfg. Co., Paris, Tex.

BASSWOOD AND EVERGREEN TREES. — Send for list. Hansen Nursery Co., Niles, Mich.

FOR SALE.—Supers, frames, fixtures, etc., cheap. S. B. Hussey, 113 E. Cottage Ave., Haddonfield, N. J.

FOR SALE.—The Severin steam-melter and separator combined. Saves time, labor and money.
F. J. Severin, Imperial, Cal.

FOR SALE.—A lot of second-hand honey kegs and 60-lb. cans, two in a case, 500 4¼x4¼ sections. Write for prices. J. H. Taylor, Parksville, N. Y.

FOR SALE.—50 or 100 Root regular shipping cases for 4¼x4¼ beeway sections, with glass. Never been uncrated. F. W. Morgan, Deland, Ills.

FOR SALE.—I still have a supply of sweet clover seed and some spring-hatched queens for June delivery. E. C. Bird, 1032 Pine St., Boulder, Colo.

Pennsylvania Distributors for Root Bee Supplies, save time and transportation expense on all standard hives, sections, etc., at catalog prices.
Prothero, Bailey & Goodwin, Dubois, Pa.

FOR SALE.—100 good second-hand zinc-excluders for 10-frame L. hives, at 31c each, delivered south of the Ohio River, or express paid that far. Free from disease.
F. M. Baldwin, Mt. Vernon, Ga.

THE ROOT CANADIAN HOUSE.—73 Jarvis St., Toronto, Ont. (Note new address.) Full line of Root's famous goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

Bargain Prices.—75 ten-frame iron-end super boards, 12 cts. each; 1,800 No. 1 sections, 3⅞x5x1½ at $4.00 per 1000. One 12-inch foundation-mill for medium brood, good condition, $12.00.
I. J. Stringham, Glen Cove, N. Y.

FOR SALE.—150 Danz. supers for 32 4x5 plain sections for 10-frame hives and 150 supers for 28 4x5 plain sections; fits either 8- or 10-frame hive; supers complete, section-holders, fences and springs, all in good condition; 35c each. F. O. B., Spring Valley, Wis. C. H. Harlan, Spring Valley, Wisc.

FOR SALE.—Owing to the water getting in my bee cellar and drowning all my bees, I will offer my entire equipment, consisting of 8- and 10-frame L. hives with 100 extractor supers, with bright extracting combs. Will sell regardless of cost. No disease. Satisfaction guaranteed.
Wm. H. Keyser, Rt. 7, Schenectady, N. Y.

FOR SALE.—100 cases of 15 oz. round glass jars, with screw-cap, put up in corrugated re-shipping cases, 2 doz. to a case, $1.00 a case, in lots of 20 cases or more, F. O. B. Elizabeth. Also 2-frame Cowan reversible extractor for Hoffman frames, $14.00. T. Edward Diener, 28 Jacques St. Elizabeth, N. J.

FOR SALE.—2000 drawn combs in 8- and 10 frame hive bodies. hive bodies included, 25c each; 8 and 10 extracting supers with empty frames, 80c and $1.00. A few with drawn combs, add 5c per frame for drawn comb. Bees in 10-frame hives, $10.00 per colony. F. J. Rettig & Sons, 445-485 West Canal St., Wabash, Ind.

WANTS AND EXCHANGE

WANTED.—Four-frame honey extractor, comb pockets 12 inches wide.
Allenville Apiaries, Allenville, Ala.

WANTED.—A Buffalo robe. State size, condition, and price in first letter.
Cecil Shepard, Rochester, N. H.

WANTED.—A good honey location to start a line of apiaries. Will give suitable reward for the best reliable information. D. E. Lhommedieu, Colo, Iowa.

SITUATIONS WANTED

WANTED.—An experienced beekeeper over military age wants work in an American apiary. Address Box 57, Blencoe, Iowa. 657

WANTED.—Young married man thoroly experienced, all-around beekeeper and queen-breeder wishes position for summer months.
E. A. Harris, Albany, Ala.

WANTED.—Work wanted in apiary east of Mississippi by man over draft age who understands bees well, but who seeks experience of beekeeping on large commercial scale. New York preferred.
R. Scott, Fairhope, Ala.

Our Food Page—Continued from page 352.

minutes, and then bake in a moderate oven about one hour.

STEAMED CORNMEAL AND BARLEY BREAD.

1½ cups cornmeal
1 cup barley flour
½ cup honey
2 cups sour or buttermilk
1 teaspoon salt
2 teaspoons soda

Sift dry ingredients three times, add milk and honey, beat or stir for three minutes, put into well oiled molds, cover and steam three hours. This will just about fill three one-pound baking powder cans when done. Raisins may be added if desired.

BARLEY FLOUR BISCUITS.

2 cups barley flour
5 teaspoons baking powder
1 teaspoon salt
milk
2 tablespoons shortening

Measure the flour after once sifting, add the baking powder and sift again. Cut in the shortening with two knives and add sufficient milk or other liquid to make a soft

Continued on page 380

Our Food Page—Continued from page 378.

dough. Drop from spoon on oiled pan, shape into symmetrical biscuits, and bake in a quick oven. They may be rolled, but will be lighter if used as a drop biscuit.

POTATO CORN MUFFINS.

1 egg	4 teaspoons baking powder
1 cup milk	
1 cup riced potato	2 tablespoons melted shortening
1 cup fine cornmeal	
1 teaspoon salt	

Beat the egg in the mixing bowl, add the milk, the riced potato, and the cornmeal in which have been sifted the baking powder and the salt. Add the melted fat and bake in a hot oven about 40 minutes. For those who desire a sweet muffin a tablespoon of honey may be added.

PITTSBURGH POTATOES.

4 cups boiled potatoes diced	1 pimento
	2 cups thin white sauce
1½ cups cheese cut small	1 teaspoon salt

Put the diced potatoes and the pimento cut small in an oiled baking dish. Thicken the white sauce with rice flour instead of wheat flour, stir in the cheese, and pour over the diced potatoes. Bake in a moderate oven until heated thru. The pimento may be omitted.

BELGIAN BAKED POTATOES.

Wash, pare, and slice potatoes as for French fried. Lay the strips in an oiled pan or baking sheet, brush with melted fat, and bake in a quick oven; salt and serve. These taste very much like French fried potatoes.

All measurements level.

Special Notices by A. I. Root

THE ST. REGIS RASPBERRY UP TO DATE.

In the August 15th issue of GLEANINGS for 1915 I gave rather extravagant praise to the St. Regis raspberry, especially because of the fact that I obtained beautiful berries in only 80 days after putting out the little plants. I remarked at the time that the splendid results might have come about largely because they were planted where a poultry house and yard had been for many years. Well, a year later, in 1916, I did not get as much fruit, and that not of as good quality, as our other raspberries; but as no one else made mention I let the matter drop. Just now, however, since I see in several periodicals a disposition to dig up the plants and get rid of them on account of the poor quality and the regular swamp of raspberry canes that seem to be spread out unless a lot of work is done to keep them down, I have thought best to speak out, especially as I see the plants still advertised, with quotations of what I said about it years ago. Where the plant is allowed to grow up into a dense swamp the berries are poor compared with the Cuthbert and other raspberries, and but few of them. Perhaps if the plants were kept within bounds, we might get more and better fruit. But those who have tried it will, I think, find it quite a task. Notwithstanding what I have said, it is probably true, that you will get some nice fruit from the new plants in good soil in a shorter time than with any other berry I know of. But do not let them chase everything else out of your garden.

COLORADO BEEKEEPERS TO MEET.

A field meeting and basket picnic of the Colorado Honey Producers' Association will be held at Longmont, Col., on Saturday, June 15, at 10 a. m. Everybody interested in bee culture is cordially invited to be present.