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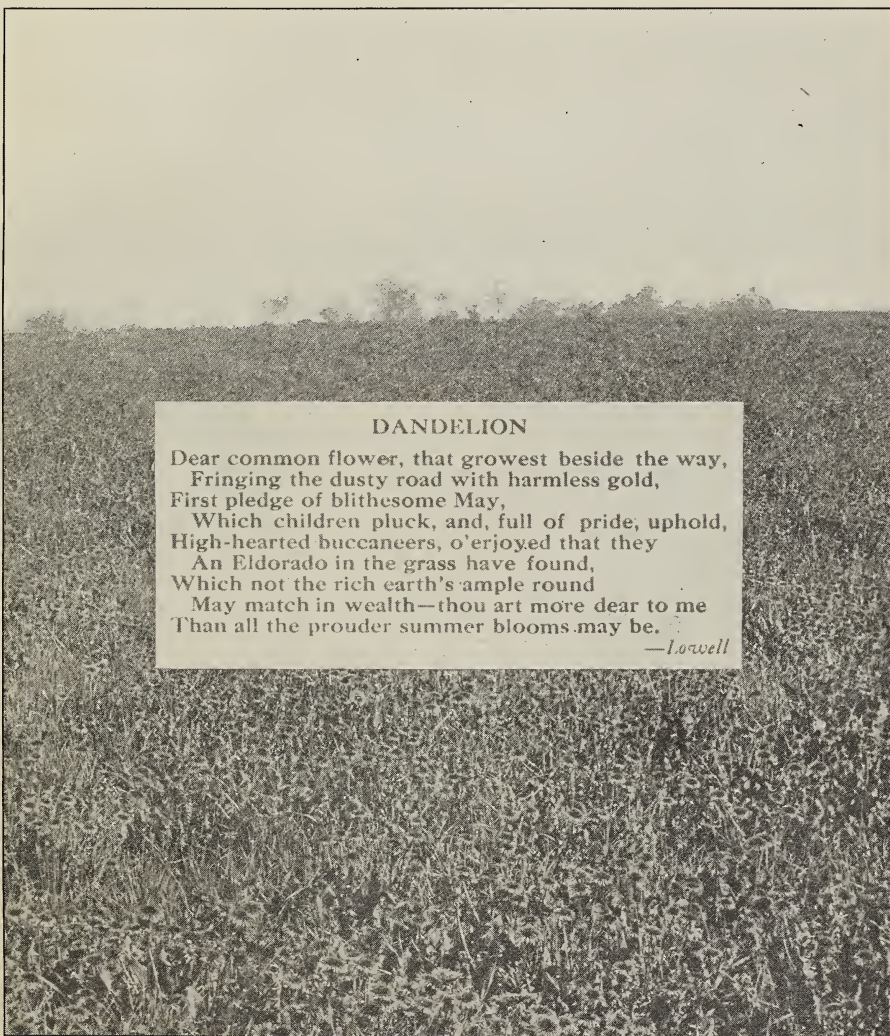


Gleanings in Bee Culture

VOL. XXXIX

JUNE 1, 1911

NO. 11



DANDELION

Dear common flower, that growest beside the way,
Fringing the dusty road with harmless gold,
First pledge of blithesome May,
Which children pluck, and, full of pride, uphold,
High-hearted buccaneers, o'erjoyed that they
An Eldorado in the grass have found,
Which not the rich earth's ample round
May match in wealth—thou art more dear to me
Than all the prouder summer blooms may be.

—Lowell

Order From DES MOINES

THE A. I. ROOT COMPANY Branch at Des Moines had a most auspicious start through our good fortune in taking over the old and well-established supply-business of Jos. Nysewander. Thorough acquaintance with all bee-keepers in this section and with their general requirements has placed this branch in an enviable position for giving satisfactory service. Needless to say, it is our aim to conduct all transactions at this branch in a way that will creditably reflect upon the good reputation that ROOT'S GOODS have gained among bee-keepers in Iowa and throughout the Middle West.

Let us tell you of advantages in dealing in Des Moines:

1911 Supplies and Stock

We are fully prepared to meet the demands of the coming season, which bids fair to be a big one. Our warehouse, completed last fall, gives much greater capacity for stock than we have previously enjoyed. This, with the older building, gives us the advantage of arranging our stock in such a manner that orders can be packed very quickly with no waste of time. Carlots of fresh supplies continually come from our factory to keep our stock complete.

Shipping Facilities

Des Moines is favorably known as a shipping center that has few equals. With our warehouse conveniently located and our facilities for quick and careful packing we can get goods off on the numerous steam or interurban lines in very short order. Through trunk lines, a net work of trolleys running in practically every direction—all these insure not only the saving of time but a desirable saving in freight or express charges as well. No delay in filling even the largest orders at Des Moines is our policy.

Packing

We do not charge for packing, boxing, or delivering to freight or express offices in Des Moines. We do not prepay any charges unless goods are to be delivered to a prepaid station, as all our prices and quotations are F. O. B. Des Moines. If no agent at your station, notify us and we will prepay, and bill charges after shipment. Often during the busy season much time can be saved by ordering small shipments sent by express. Your local agent will tell you about what charges will be from Des Moines.

Careful Attention and Prompt Service is Our Aim. We Try to Ship Mail and Express Orders the Day They are Received. Freight Orders are Filled in Order of Receipt. No Order is Too Small or Large for Our Personal Attention.

Root Goods are Standard Goods!

Remember that ROOT'S Bee-keepers' Supplies are recognized all over the world as the STANDARD—standard in dimensions, standard in quality. Every part and place fits exactly in the place it was intended for. All parts are made with the utmost care and accuracy, and can be placed in any other hive of the same style without a hitch in fit. Our lumber is selected with a view to getting the best to be procured. It is carefully sorted and thoroughly seasoned. And no less care is taken in the choice of any material whatever that goes into a product which, when finished, is to bear the ROOT label.

The Des Moines Branch has the benefit of the experience of a manager who thoroughly understands the requirements of those engaged in this business either for profit or pleasure. He couples with his knowledge the desire to make his service valuable to you upon any occasion. Do not be afraid to make known your wants—come to Des Moines, or write and we will show you every possible consideration.

The A. I. Root Co., Des Moines, Iowa

Iowa Phone 968

Formerly Jos. Nysewander, Bee-Supplies

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Editorial

INCLOSING STAMPS WHEN WRITING.

SOMETIMES our friends forget, when they write to some of the correspondents of GLEANINGS, asking for further information, to inclose a stamp. One man in particular said he recently had answered upward of a hundred letters, and in not one case was a stamp inclosed. We know this is thoughtlessness on the part of our readers; but when a correspondent takes the time to sit down and write a private letter he ought to be reimbursed to the extent of a stamp if nothing more. Our correspondents need not inclose stamps in writing to us, however.

A PAINFUL INJURY; PROMINENT BEE-KEEPER LOSES THREE FINGERS IN A MACHINE.

We have received a letter from G. W. Haines, of Mayfield, N. Y., written with his left hand, in which he explains that he caught his right hand in a cutter-head and lost three fingers just below the second joint, and his little finger at the first joint. He says that he will have time now to read bee-journals.

Mr. Haines built a capping-melter that he used with good success last season. We have an engraving which we will use in an early issue to illustrate the plan.

LOCATING A BEE-YARD; THE ADVANTAGE OF HAVING HIVES IN PAIRS.

SOME bee-keepers will move some of their bees to pastures new. Before they do so we wish to suggest a caution. Locate the yard at least 200 feet from any common highway, and an equal distance from any line fence, or from any cultivated field. A meadow is not so bad as a cornfield, because the plowing and the sowing will be done at a time when bees are not flying much. It is only when the hay is cut that there is any danger of the horses being stung; but in the cornfield the conditions are much worse because of the necessity of frequent cultivation, bringing sweaty horses with their switching tails into the flight of the bees. When a honey-flow is on, bees are almost sure to offer attack.

For the best results in brood-rearing we would locate the apiary out in the open rather than in a dense shade. Small bushes or trees, not over 10 ft. high, afford excellent protection; but usually the right kind of shrubbery can not be found; and hence during the height of the season, when the weather is hot, we advise shade-boards. We will have some illustrations showing the various types that may be used to advantage later on.

It will also be found to be highly desirable to locate the hives in pairs. If one colony is a little weak, its brood can be given to the hive next to it, when the weak hive and all can be removed, throwing its little strength over to the other colony. When doing this care, should be exercised in the selection of a queen. We would advise caging the one that is the better at the time of uniting; then allow her to eat her way out, or, rather, allow the bees "to eat her out" in the usual way through a plug of candy.

But it is in the fall of the year or early spring that the scheme of having hives in pairs offers particular advantages, for then it is so easy to unite; for it is infinitely better to have one good strong colony than two halfway affairs.

THE HONEY OUTLOOK FOR 1911.

IN the Northern and Central States occupying that portion of the country known as the "clover belt" the prospects are exceedingly bright. Many reports are coming in that show that fruit-bloom was the best for years. The weather was cold or chilly up to about the first of May; then it finally warmed up and fruit-trees as well as the maples opened up in all their glory. Prior to that time the backward spring had put the bees in bad condition; but, so far as we can ascertain, fruit-bloom more than made up for lost time. The season looks favorable for a clover-flow.

The bee-keepers of Texas have been having a remarkably good season; but as Texas usually markets her own crop within her own borders, her seasons, good or bad, do not usually affect the Northern markets.

The prospects in California were exceed-



ingly bright early in the season; but the weather turned bad after the copious rains, so that the mountain-sage honey fell far short of expectation. Whether there will be any of this honey in the Eastern markets we can not say; but it is safe to assume that the amount will not be large. We have not been advised as to the prospect in the alfalfa regions of the West; but as nearly as we can gather from our general correspondence, the spring has not been unfavorable, and we may expect a fair yield from alfalfa.

Florida, one of the principal honey States, will fall far short of her usual production. The splendid tupelo regions that yield thousands of barrels of fine table honey in other years will have only about one-fourth of a crop. In the palmetto regions the crop will be light. We have not yet been advised as to what mangrove will do.

As to prices that will rule during the coming season, it is yet a little early to offer a prediction. But the failure of California and Florida, both of which ship enormous quantities of honey to the Eastern markets, will have a tendency to stiffen prices. Even if the crop from white clover is large this year, the demand for it is so great that it will be impossible for it to glut the market, and it may therefore be expected that prices will be firm. If there is a large crop of white clover in the Eastern regions it will have a tendency to depress slightly the price of alfalfa; but we have no fears along that line, for clover is reported killed out in a number of localities last winter.

THE FINE TYPE USED IN OUR "HEADS OF GRAIN;" QUESTIONS AND ANSWERS IN GLEANINGS.

EVERY now and then complaint comes in to the effect that the type used in our Heads of Grain department is too fine for our subscribers to read readily; and the question is often asked why not use a larger face, like that used in the main part of the journal.

Our question-and-answer department, as appears in the Heads of Grain, is a very important part of our journal. Indeed, we believe we could better afford to cut out the general articles, and even our illustrations, rather than omit this. Then why don't we put it on a level with other matter, by putting this matter in what printers call "eight point" rather than six point?

Our Heads of Grain are important because they help solve many little problems that come before the bee-keeper. But what is one man's difficulty is not another's; therefore the question-and-answer department, valuable as it is, is used more as a reference, like a dictionary, than any thing else in GLEANINGS. The reader will notice that we use strong black headlines at the top of each letter in Heads of Grain. The purpose of this is to enable the reader to pick out the question or item that helps him to solve a like difficulty that confronts him. For example, one man will skip every thing relating to robbing, wintering, and feeding; but

he is eager to get hold of any scrap of information that explains why his bees do not rear brood as they should, or why they do not go into his supers. The result will be that he will read, perhaps, a small part of the matter in Heads of Grain and skip all the rest. The other fellow does not care any thing about the question of bees going into supers or breeding up, but he wants to know why his bees died during the preceding winter, and so he skips every thing that the first man sought. Heads of Grain covers a very large field, and consequently a great variety of subjects. In order to accommodate all our readers with their individual problems we are obliged to condense the text itself as far as we can. If we were to use eight-point type, with the same number of pages, the amount of matter given would be reduced at the rate of from 16 pages to 9, or, about 43 per cent. In other words, we could get in only a little over a half of the questions and answers that we do now.

Our regular articles require *consecutive* reading and careful thought; and therefore it follows that, when the eyes have to be held to the page continuously on any class of matter, large type should be used to relieve the strain on the eyes. But when the Heads of Grain pages are consulted, to pick out here and there a short item, it is not a hard strain on the eyes if those eyes have to stand the strain only two or three minutes.

TWO IMPORTANT FOUL-BROOD BULLETINS FOR FREE DISTRIBUTION.

THE Bureau of Entomology of the United States Department of Agriculture has just issued for free distribution two important bulletins by Dr. E. F. Phillips, in Charge of Apiculture. The first, Farmers' Bulletin No. 442, entitled "Bees and Bee Diseases," takes up the whole subject in a brief but comprehensive way. It discusses the nature of diseases, names of diseases, symptoms, methods of spreading, precautionary measures, treatment, inspection of apiaries, and the diseases of adult bees. A most excellent photograph showing the work of the larger wax-moth on a comb is shown on page 6. Various illustrations show just how to differentiate between American and European foul brood. These drawings are particularly valuable to the bee-keeper unfamiliar with one or both diseases, and we hope to secure the loan of them so they may be presented in these columns.

Taking it all in all, this bulletin is the most up-to-date and reliable of any thing on the subject of bee diseases that has ever been issued; and when we consider, on a conservative estimate made by Dr. Phillips, that the loss to bee-keepers from disease alone reaches a *million dollars annually*, or five per cent of the entire crop of the honey produced in the United States, it would seem that every bee-keeper in the land ought to secure a copy of this bulletin. Write to the Secretary of Agriculture, and ask for Bulletin 442, by Dr. Phillips.

The other bulletin, No. 138, entitled "Oc-

currence of Bee Diseases in the United States," can likewise be secured by addressing the Secretary of Agriculture, free of cost. The object of this publication, in the language of the author, is "to present the data on this subject acquired by the Bureau previous to March 1, 1911. It is not claimed that the work has been completed, for this is, obviously, not the case. . . . The Bureau makes it its policy not to give the name of the person sending samples of bee diseases. The records are made only by counties; and it is believed that no bee-keeper will consider this a betrayal of confidence."

For some years the Bureau has been gathering information, and filing the same in a card index that shows where foul brood has been located; that is, in what counties and States. Some of these data showing where disease exists by counties are contained in the before-mentioned bulletin. The list will be valuable to the one who is thinking of buying bees from a particular locality or going into a locality to embark in business. It is best that one should know where the diseases are located, or at least be placed in position where he can secure the information.

As Dr. Phillips intimates, it does not necessarily follow that because Adams or Butler Co. in any State has disease that the disease necessarily exists in every apiary in those counties.

Perhaps there are some bee-keepers living in some counties which they suppose contain no disease. It may be worth while for them, if they don't positively know, to send for this bulletin. They may be surprised to know that disease is within a few miles of them.

In this connection the Bureau of Entomology will be glad to examine infected samples of foul brood, free of charge. Don't send them to Medina.

FOUL-BROOD LEGISLATION.

THE foul-brood bill, passed by both Houses of the Pennsylvania legislature, as previously announced, was signed by the Governor.

The Michigan foul-brood bill passed both Houses, but was vetoed by Governor Osborn, April 24. The Michigan bill provided for an appropriation of \$1500 per annum, and this, according to newspaper reports, did not coincide with Governor Osborn's economy plan. Either the Governor was misinformed as to the importance of the bee-keeping industry in Michigan or else acted on the theory that bills requiring appropriations should be vetoed to conserve the funds of the State. But the Michigan bee-keepers are not going to give up. We understand they propose to go at the thing again with renewed vigor when the next General Assembly convenes.

Tennessee has just passed an efficient foul-brood law. J. M. Buchanan, of Franklin, says especial thanks are due to A. Gibbs, President of the Tennessee Bee-keepers' Association, and also to the Representative from Williamson Co. Mr. Buchanan is too modest to give himself any credit; but if we

are not very much mistaken he was very active in securing this needed legislation.

Minnesota is another State that has recently enacted an efficient foul-brood law. This was approved April 20, and will compare favorably with any law in force in any State. A good start has already been made looking toward a chair of apiculture at the Minnesota Agricultural Experiment Station.

So the good work is going on in all of our important honey-producing States. While Michigan and Illinois did not succeed in getting such foul-brood laws as they desired, it should not be understood that there is no bee-disease legislation of any sort in either of those States. Michigan and Illinois both have foul-brood laws; but because they are defective it was thought best to enact new measures.

Illinois, unfortunately, has one or two persons who style themselves bee-keepers who have opposed foul-brood legislation of any sort in their State, for the last two or three sessions. What their motives have been we do not know. It is hard enough to get legislators to see the necessity of protecting our industry from the ravages of disease; worse still, when any one who is a bee-keeper goes before those law-makers and represents that there is no need of such laws—that the only people who want them are the supply-manufacturers and dealers, and the publishers of bee journals. The silly argument has been advanced that these laws require the burning of thousands of hives; therefore the manufacturer of bee-supplies would sell thousands of new hives. The fact is, no law of any State requires the burning of hives except in some very extreme cases. Intelligent treatment, using the old hives, melting up the combs, is all that is required.

But two or three malcontents can not long stop legislation. So many States now have foul-brood laws that it will be comparatively easy to get other States to fall into line by the mere force of example. It is a powerful argument to put up to a State without a foul-brood law, that 27 States have passed such laws. When bee-keepers act unitedly, and make sure that the governor, as well as the members of the General Assembly, is properly informed, they are usually successful.

THE following list from J. L. Byer, of foul-brood inspectors in Ontario, came too late for insertion in his regular department, so we give it place here:

J. S. Schrank, Port Elgin.
D. Chalmers, Poole.
John Artley, Blantyre.
W. A. Chrysler, Chatham.
James Newton, Thamesford.
James Armstrong, Cheapford.
Arthur Adamson, Erindale.
Henry Johnson, Craighurst.
Homer Burk, Highland Creek.
W. Scott, Wooler.
Alex Dickson, Lancaster.
I. B. Checkley, Linden Bank.
Herbert Doherty, Long Bay.
Morley Pettit, Guelph.
R. C. Fretz, O. A. C. Guelph.
G. L. Jarvis, O. A. C. Guelph.
F. E. Millen, O. A. C. Guelph.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

A CEMENT BEE-STAND is advertised in *Schweiz. Bztg.* with a little trench around the edge. Oil or water in this trench bars out ants. Why not?

AN AVERAGE SAMPLE of honey contains .003 per cent of formic acid. That means that in 333 parts of honey there will be one part of formic acid.

E. M. GIBSON, page 275, you're right; it's easier to stand by a hive on a bench than to stoop to one on the ground. But isn't it still easier to sit by one on the ground?

GEO. W. RICH, p. 254, I suspect that you will find your two queens will live in peace if the old one is old enough—not otherwise. But I'm afraid you'll find that two queens will not prevent swarming.

F. GREINER, it may be remembered, vigorously opposed the use of full sheets of foundation in sections. Now he frankly says, *B.-Vater*, page 104, that he has gone over to the enemy's camp, and for a couple of years has used full sheets.

A RIM OF HONEY above the brood in deep frames is considered a bad thing, page 238. Now, how deep must frames be to have that trouble? I don't have that trouble with Langstroth frames. [We have had it in Medina.—ED.]

TWO DOZEN postoffices in the United States are named after the bee. There are 9 named Bee; 2, Beecreek; 2, Beehive; and one each, Beebranch, Beecamp, Beecaves, Beegum, Beehouse, Beelick, Beelog, Beespring, Beesvill, Beetown, Beeville.

A. G. WHITE, your plan, p. 258, will work well if you put one frame of brood with the queen in lower story filled out with foundation, with excluder over the lower story. It's the plan given years ago by G. W. Demaree, only I don't know that he put any brood below.

"AGAIN, it is generally useless to undertake shaking after the bees have got the mania for swarming," page 283. I wonder, now. [Don't you remember the reports that showed that, after bees are well under way to swarm, it is almost useless to shake?—ED.]

E. D. TOWNSEND, page 277, puffs a little smoke in the hive-entrance as a preliminary step. I supposed every one did so; but leading writers in the *British Bee Journal* do not do so, and raise the question whether it is a common practice. How is it on this side? [While we think the practice is all right, the practice is not common on this side of the line.—ED.]

A. T. ATWATER uses three horizontal wires in his brood-frame, and reinforces the part where most of the sag occurs with two splints four or five inches long, or for light brood foundation four splints five inches

long. "This not only prevents sag, but is a very valuable reinforcement in extracting." He fastens in the splints before putting the foundation in the frame, pressing down two splints at a time with a flat block worked by a lever.—*Review*, 105.

INSTRUCTIONS for using bottom starters are oftener wrong than right. As the bottom starter is my baby, I'd like to see it used right. Sometimes the instruction is to leave a space of $\frac{1}{2}$ inch or 1 inch between top and bottom starters. That's a saving of foundation and a double loss in honey, also a hindrance to the work of the bees. If the space between starters is small, the bees join the two together the first thing they do. Cut the starters of such size that the two together shall be $\frac{1}{8}$ inch less than the space to be filled. Then when put in with a hot plate the space between the two will be $\frac{1}{4}$ inch. The depth of the bottom starter is nearly always given too small. Even so reliable a book as the A B C and X Y Z says $\frac{1}{4}$ or $\frac{3}{8}$ inch. It should never be less than $\frac{3}{8}$. My assistant is an expert at putting in foundation, and she says it is twice as much trouble to put in a $\frac{1}{2}$ -inch starter as to put in a $\frac{3}{8}$. Besides, the bees are likely to gnaw down too small a starter. If I were using extra thin foundation, I would still use thin for the bottom starter, and stick to the $\frac{3}{8}$. [The matter has been marked for correction in our next edition of the A B C.—ED.]

FORMIC ACID, how does it get into the honey? Some have thought through the blood of the bee; others in some way through the comb; and even the foolish idea that the bees dropped it into the cells from their stings has not been without its advocates. In *Leipz. Bztg.*, 51, Dr. Rudolf Reidenbach gives an exceedingly interesting series of experiments which seem to prove conclusively to the lay mind that the formic acid is formed by the oxidation of the sugar in the honey. Dr. von Planta had found no formic acid in freshly stored honey, and as much as .0045 per cent in sealed honey in old comb. But it did not occur to him that the honey itself was the original source of the acid. Dr. Reidenbach reasoned something after this fashion: "If the acid is generated in the honey, exposure to the air outside the hive ought to produce it." So he made honey slightly alkaline, exposed it in a thin layer on a plate, and obtained .0063 per cent of formic acid! After distillation he repeated the experiment three times, and in the four series obtained a total of .0241 per cent of formic acid from the same mass of honey. So it would seem that honey makes formic acid simply by rusting! Formic acid is such an important element in honey that it will be watched with interest whether others confirm Dr. Reidenbach's conclusions.

Bee-keeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

As soon as any bee-keeper writes of his location, it seems to be a foregone conclusion on the part of his neighbors that he is booming the country, and that the district will soon be overstocked by in-rushing bee-keepers. While some places are surely overstocked, considering the country as a whole far more is lost from slipshod methods. Mr. Gibson makes one point, page 274, May 1, that is well to keep in mind, and that is, that it is very desirable to have at least a few really up-to-date bee-keepers near enough so that sales of honey may be made by the carload every year. It is well to have neighbor bee-men, but we don't want them too close.

Mr. Fouch mentions, page 278, May 1, having many queens balled when hiving swarms. I have noticed the same thing to a limited extent. Early last September it seemed as though a hive could hardly be opened without the bees immediately balling the queen. No honey was coming in, and it was at the end of a season devoid of a honey-flow. One day four queens in succession were balled, and the mood for this kind of performance seemed to be so general that work with the bees was discontinued for the day. This, however, was the most noticeable instance of balling which attracted my attention during the fall. It looks as though there might be some conditions affecting this that we do not yet understand.

Mr. Southworth says, page 268, May 1, that all the honey his association puts out goes through a clarifying and refining process which removes all the pollen grains and ferment germs. I can see how heating would remove ferment germs, whatever they are; but it certainly takes a fine strainer to take out the pollen grains. How are we to test honey to know its source if the pollen grains have been separated from it? I do not know what advantage there would be in removing them from honey, any way, unless they were so thick as to affect the taste of it; and I never saw any thing of that kind here. I shall await further enlightenment from Mr. Southworth with interest.

FAILURE OF THE COLORADO FOUL-BROOD BILL.

Our foul-brood bill did not go through the legislature for a number of reasons. The principal one, no doubt, was that we could not have one or more men camping at the capitol all the time, interesting the legislators in the need of its passage. We did not get any of the senators nor representatives really interested in the bill. Another reason was the fact that this was the most useless session ever held. Mayor Speer, of Denver, want-

ed to be United States Senator; the Denver machine tried to elect him, and the opposition prevented his election. Consequently the energies of the session were expended in the fight, though they did find time to appropriate \$600,000 more than the State's income. One-third of the bills introduced called for appropriations. We shall have to try again.

I have had considerable to say about shipping-cases; and as Mr. Crane has expressed surprise, p. 239, April 15, that the subject of corrugated shipping-cases has not been discussed more, I will give some of the reasons why I do not think they will gain an extensive hold here in the West.

The majority of Colorado bee-keepers (and I believe also the majority of Western bee-keepers) have adopted the double-tier wood shipping-case with glass front as their standard. The trade that we supply want honey in this case, and will pay more for it. Having admitted that honey will ship better in the corrugated case in local shipments, it still remains that probably not over a tenth of Colorado's comb-honey crop ever goes to market other than in car lots, and double-tier wood cases handle easier, pack better, and ship as well in car lots as any case made. The double-tier case, when filled with alfalfa comb honey, is the handsomest one that is on the market. I make this statement without a doubt in my own mind. Looks help sell honey, and this will help to keep the double-tier case in the front window.

Then cost is a mighty consideration. The double-tier glass-front cases with two-inch glass cost us 16½ cents each here, and I get them nailed together for one cent each by neighbor boys. Now, if Mr. Crane could supply the corrugated case for the same money would we change? Not until the buyers demand it. They are the ones to be interested, for they have to stand the blame in breakage when reshipping, for we ship in car lots. Will comb honey go as well in corrugated cases, uncrated, as will double-tier wood cases sent in carrier crates? If it will, then we shall see the more general use of the corrugated crate where local shipments of comb honey are the rule. I do not expect to see the corrugated case supplant the wood case here unless it is cheaper or unless our market conditions change.

There is one more objection to the corrugated-paper case, and that is, that the partitions make it difficult to remove the sections of honey. Grocers' clerks have trouble enough with the ordinary wood case in taking out the sections, and I fear many a finger and thumb find their way into the comb of fancy honey when the section sticks tighter than usual. What are the advantages of the corrugated case where honey is not shipped other than in car lots?

Bee-keeping in Southern California

MRS. H. G. ACKLIN, Glendora, Cal.

I never realized before what a job it is to paint bee-hives, especially when the hardware man furnishes inside paint for that purpose.

It was almost a disaster to bee-keepers in the orange districts that the cool and cloudy weather during the middle and latter part of April lasted so long. Trees were in full bloom, but the bees were able to work only part of the time.

According to the editorial, April 15, p. 236, Congress has given an extra \$5000 to the bee-keeping industry of our country, making a total of \$15,000 for this year. Now, if our State legislatures could only see our interests through those same spectacles, what a load would be lifted from the minds of bee-keepers!

I see by an editorial in the April 15th issue, p. 233, that the next annual meeting of the National will be held at Minneapolis, Minn. That city is a twin to my old home, St. Paul, and I can assure a rousing good time to all who go. Besides, it will give an opportunity to visit the Minnesota State Fair, which is one of the greatest institutions in the United States. I hope many bee-keepers will plan to be present.

A statement was made at one of our club meetings that bee-keepers are often deceived by local commission men and honey-brokers sending out representatives to our apiaries to offer big prices for honey early in the season. When the genuine buyer does come, bee-keepers hold their honey at the price they have been offered, which the buyer will not give, and the honey is left on their hands. Later these same brokers get the honey at a greatly reduced price. I give this for what it is worth, hoping it may put bee-keepers on their guard against such swindlers.

Mr. Albert Dodge, formerly of New Hampshire, has located in Pasadena, and has started keeping bees. The energy and enthusiasm he puts into it indicate success, provided the seasons are favorable. Some weeks ago we visited him at Pasadena, and he took us all around in his touring-car. We went first to the upper end of the Arroyo Seco, where Mr. Blake has an apiary. Further down this same arroyo are the famous Busch Gardens, a spot beautified to the highest degree. Mr. Blake's apiary of 120 colonies is protected on all sides from the wind, and it was summer time down there, while on the bluff the air was cold and raw. He commenced stimulative feeding the first of January, and consequently his bees were sending out a large force of workers, and he had had many swarms. I wondered, though, whether they would not get chilled when

they reached the higher ground. This apiary is run for comb honey.

From there we went over to Mr. Dodge's Lavina Ranch apiary, west of Altadena, where he has 52 colonies. This is a beautiful spot, affording such a fine view of Mt. Lowe that it seems very near. This apiary is run for extracted honey, and has a new honey-house screened in. The whole place looked so tidy that I felt sure it would be a pleasure to work there. We circled around in many directions before we covered the five miles intervening between this and the Kinneloa apiary, east of Altadena. Altadena is between Pasadena and the mountains. We actually rode along Millionaire Drive, but my sensations were no different than when on any other road, as I was interested in the corners which we turned sharply at right angles. We went over some of the good roads which our county is building, and up hills where I thought the auto might balk, but it didn't.

We finally reached the apiary intact. Here we found 177 colonies run for extracted honey, and an abundance of supers and every thing to work with. This, too, is a fine spot, but the outlook is more toward vineyards and orchards than mountains, although the mountains are not distant. The bees are in a cosy little canyon, while the honey-house and other buildings are near the entrance. Mr. Dodge had been doing stimulative feeding, but did not commence until March, so his bees were not swarming. There is considerable black sage and other mountain flora near his apiaries, as well as fruit-orchards and vineyards.

Mr. Dodge uses a feeder which he makes himself, which is similar to the Doolittle feeder, and wherever he places it in a hive he has a small hole in the cover through which he pours the syrup through a funnel. When not in use, the opening is closed with a cork. By this method the colony need not be disturbed nor robbing started.

Mr. Dodge has worked out a very plausible theory by which queen-rearing can be carried on without the usual amount of work; but as his paper explaining the whole scheme will appear later in the *Cultivator* I will not enlarge upon it at this time. He uses only one wire with full sheets of foundation in extracting-frames, and runs hot wax along that after it is imbedded. He also uses narrow top-bars, as he likes finger space when manipulating combs.

Bottom Ventilation Prevented Swarming.

This season I tried, with good success, bottom ventilation to stop swarming. As soon as the bees began to hang out I put blocks, about ¼ inch thick, under the hives. By the next day all of the bees had gone back into the hive; then, just as soon as they began to fly again, I put on a super in order to give them plenty of room. The plan is so simple that more bee-keepers ought to try it.

Sacramento, Cal.

FRED JACINTO.

NOTES FROM CANADA

J. L. BYER, Mt. Joy, Ont.

The season here in York Co. is about two weeks later than last year. At this date, May 12, wild plums are just opening, and for the past three days yellow willows have been in bloom. While there is an abundance of nectar in the plum-trees, the wind has blown a gale for two days in succession. Today I tried to do some queen-clipping, but gave it up in disgust at noon, as no head-way could be made when the wind was strong enough to blow the bees off the combs. Aside from that they seemed irritable. (Who could blame them when nectar was abundant and the weather warm, but a thirty-mile breeze blowing to buffet them about?) In one case a colony balled its queen.

Dr. Miller, in commenting on the migratory bee-keeping practiced by H. C. Ahlers, p. 196, April 1, says, "Strenuous, but 32,500 pounds." It must have been strenuous work to do all that moving, and I think Mr. Ahlers earned every pound of the 32,500. From 180 colonies, that would mean about 180 pounds per colony; but last season a man in Eastern Ontario produced from that number of bees 46,800 pounds, or 260 pounds per colony, and, in addition, he increased about 75 per cent without moving a colony out of the yard. Of this amount, 160 pounds per colony was very choice clover honey. Of course, this was somewhat extraordinary for Ontario, and a yield that probably will not be duplicated for some time.

In that trouble between the buyer and seller of bees as chronicled on p. 205, April 1, my sympathy is entirely with the purchaser. Any man who has kept bees should have enough "horse sense" to know better than to attempt to ship bees a long distance on combs drawn from starters, but not fully completed. Such combs, without any wires in them, are too fragile to use in moving bees in hot weather, even if never trusted to the tender mercies of express handlers. Again, what is more exasperating than to wait for weeks to get an answer from a man to whom you have sent money for bees or queens? While attending the Wellington Co. meeting this spring the question was raised as to why it is so much harder to introduce queens from some breeders than from others. Mr. Pettit said he had found, as a rule, that those queens are more easily introduced which are received from men who put the stock up in neat cages and in good shape, and who promptly answer all letters, than those from bee-keepers who send out slouchy parcels, and who are slow in replying to letters of inquiry. The moral is obvious, and "a word to the wise is sufficient."

While at the Wellington Co. meeting we had the pleasure of calling on Mr. Pettit at the Agricultural College, and of having a

pleasant visit with him. He is certainly the right man in the right place, and we believe that he will be successful in the work he is outlining for bee-keepers. He is doing a lot of conscientious work; and the short course in bee-keeping mentioned on page 193, April 1, can not fail to be helpful in spreading a lot of useful knowledge. At the college the students have an apicultural club, and, through Mr. Pettit's assistance, different speakers have been obtained through the winter months to come to address them. Among the men who have addressed the class are Mr. Sibbald, who spoke on the essentials of bee-keeping; Mr. Miller, who gave an illustrated address on the Heddon hive, and Mr. Hurley, who spoke on bee-journalism. All of these men are thoroughly qualified to handle the subjects mentioned; and first-hand information of a nature of this kind is very helpful to the students in connection with the theoretical training received in the lecture-room. Judging from present developments we surmise that, in a few years, Ontario will have an apicultural station second to none on the continent. Certainly it will not be the provincial apiarist's fault if this is not the case.

From reports received to date I would judge that the bees have wintered well, as a rule, throughout Ontario and Quebec. In most sections clover has also come out well; but I regret to say that a few counties report the clover badly injured — in some localities about all of it being ruined. Naturally, I am sorry that my own district is among the unfortunate ones in this respect, as fully half of the alsike is a failure. However, it might be worse; for wherever the clover was seeded on fall wheat it wintered well owing to the long stubble protecting it. As there was a large acreage of fall wheat last year, some alsike went into winter quarters protected by the long stubble, and, as a result, I think that we have about 100 acres left within reach of each apiary.

The counties of York, Ontario, and Victoria seem to be affected the worst; and from north, east, and west of these counties have come reports of good wintering of the clover and wheat. Lack of snow explains the difference, as with us what little snow we had left early in March; and then for over a month we had dry cold windy weather with freezing by night and thawing by day. In many cases the clover died without being heaved out of the ground—a very unusual occurrence with alsike clover, although more frequently true of the red variety. In many cases, even the alfalfa was killed, although the roots extended into the ground for a great depth. Continued exposure seemed to cause the crown of the plant to die; and when the warm weather finally came, the top of the plants seemed to be rotten, and in many cases they have not cast forth a sprout.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York

* DIAGNOSING.

"What is meant by diagnosing the inside of a bee-hive? When you examine a colony carefully from the outside is it to determine whether the bees are diseased?"

"Not generally, although one experienced would be quite apt to recognize it if that colony had a disease peculiar to bees."

"Is it essential that the person making the diagnosis be skilled?"

"Certainly. A banker could neither diagnose the human body nor a colony of bees within a hive. One should have some idea of what to expect when he opens a hive, in order to judge properly whether every thing is as it should be.

"As much of our literature on bees does not mention this subject, the desired knowledge has to be gained through a series of observations covering one, two, or more years. And perhaps this is wisest, after all; for in no two hives will exactly the same conditions be found. Again, what is observed to-day will be different from what was found in the same hive when it was last looked over. In fact, after many years of observation it may not be the easiest thing for the best of apiarists to give in words any thing like a definite answer to the question, 'What ought a person to find inside a bee-hive?'

"But if you so desire I will attempt in a general way to tell you what you may expect to find in a hive containing a colony of bees. If they have been left to do as they please after having been hived as a swarm, there will be drone comb in different places amounting to from one-tenth to one-fourth of the contents of the hive. If the apiarist has given frames of foundation, or has controlled comb-building, there may be only a few cells scattered here and there, amounting possibly to between three and six square inches. In this locality these drone-cells are not likely to contain brood except during May, June, July, and August. After the honey harvest they may contain honey. As a rule they never contain pollen."

"I have read that drone-comb cells are so large that it takes only four to measure an inch; then how is it possible to diagnose any thing from the outside as to how much comb having cells of this size is to be found?"

"You can tell nothing about it from the outside except during the months mentioned. Suppose you stand in front of a populous colony for an hour in June, about one o'clock in the afternoon. If the hive has one-fourth of the comb in cells of drone size, the rush and roar of the drones going and coming from the entrance will make you think there is a swarm in the air; while if the apiarist has excluded them, or if the bees had a very vigorous queen at the time of comb-building, and so made only a few inches of drone comb, only one or two drones will be seen going from the entrance during the time there were hundreds in the other

case. You yourself would not try to diagnose for drones in the fall or early spring. You would do it at the right time; and if you saw them by the thousand going from the entrance of any hive you would be sure of a superabundance of drone comb.

"We will talk next about the worker brood.

The queen in a colony wintered on its summer stand will often begin laying eggs in worker-cells in January, and generally in February. If the colony is wintered in a cellar giving the best results, it is not likely to have brood started much, if at all, before being brought outside. The queen begins by laying a few eggs daily, in a compact form, right in the center of the cluster of bees, no matter in what part of the hive it may be, filling a space in one comb on either side about as large as a silver dollar. Brood will soon be found in three combs; that in the first having increased in size to a circle from five to six inches in diameter, while in the other two it will not measure more than two or three inches. Soon she will be laying 300 to 400 eggs daily, which will give brood to about one frame solid full, if it is all together. By May she will be laying from 1000 to 1500 eggs daily, if the season is favorable—the latter figure being as high as some queens ever reach. But such a queen I would not consider fit for any thing but supersede as soon as it could be done profitably. From the 25th of May to the 10th of June the queen should be at her best, when she will lay from 3000 to 4000 eggs daily; and, if so, where a ten-frame Langstroth hive is used, eight of the combs will be nearly solid with brood, while quite a little brood will be scattered about in the two outside frames, generally considerably mixed with the pollen and honey. Now, with an inferior queen you will see no large force of bees going in and out at the entrance, and their work in the super will be under the average. On the other hand, three weeks later, if you should pass in front of the colony having the queen that could lay 4000 eggs daily, if the harvest is good, you would think there was a mighty army rushing to and fro after the nectar. No need of opening these two hives. A look at the entrance and the supers tells you, and you will instinctively mark the former for a supersedure of its queen, and very likely the latter for a breeder. Then if you see many bees standing about the entrance, with little work being done, it shows that they are queenless; or, in case of a strong colony in the swarming season, they may have the swarming fever. If the bees are shiny, have swollen abdomens; move about with a trembling motion while other bees are pulling at them, and if dead bees are scattered about in front of the hive, such colonies may have bee paralysis. So examples might be multiplied indefinitely to illustrate what a glance at a colony will show to an experienced bee-keeper."

General Correspondence

THE POWELL GRAVITY STRAINER.

Eight Tons of Honey Clarified per Day, with No Attention from the Operator.

BY R. POWELL.

[Of all the gravity honey-strainers that have come to our notice, the one here described seems to have the most desirable features. We have always felt that there should be a screen used in connection with the gravity plan, to insure good results, and the screen could be made quite fine too, for the most of the impurities do not reach it. This outfit may have its objections; but they do not occur to us now. At any rate, we expect to test it thoroughly the coming season, and we suggest that others give it a trial also, and report.—ED.]

I have read GLEANINGS for over thirty years, and have yet to see a good practical honey-strainer described, so I thought I would tell how to make one that I have been using for over twelve years in large California apiaries. Others have adopted it, and they call it "Powell's Gravity Strainer."

First make a galvanized-iron can the depth (or a little deeper would be better) of the honey-tank, 14 inches in diameter at the top, and 12 at the bottom. Solder on a two-inch coupling within 4 inches of the top, to run the honey in, and another two-inch coupling as near the bottom as possible (on the opposite side). Solder one more coupling 1½ inches in size for a honey-gate to empty the strainer at the close of the day's extracting.

Inside of this can place another can with a strainer bottom, so made that it will slip in to the outside can below the coupling that lets the honey in, and remain supported within 4 inches of the bottom of the outside can. This inner can must fit snug at the top, so nothing can pass down between the two.

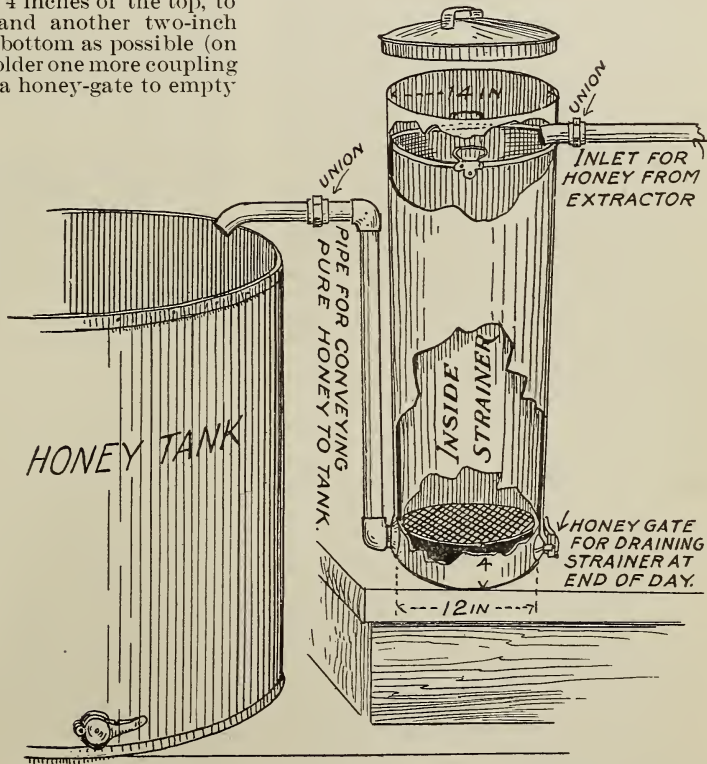
To connect the strainer with the honey-tank and extractor, use two-inch galvanized-iron pipe, placing a union between the extractor and the strainer. Have the strainer at least 12 inches higher than the honey-tank, so there will be plenty of gravity flow. The pipe

from the strainer to the tank should come up to a point eight inches from the top of the outside strainer-can, and then turn with an elbow over to the tank.

The strainer will always be full up to the level of the outlet, and all the impurities will stay on top of the honey, and the screen will have little or nothing to do, and will never clog (unless there is granulated honey in the combs that would find its way to the bottom and choke the strainer). At the close of the day's extracting draw out the honey from the strainer by means of the gate, and during the night the refuse will be drained clean of honey, so that the inside can may be lifted out and washed.

It is best to fill the strainer at least half full with clean honey so as not to stick wax, etc., on the screen to start with; after that it will take care of itself by the aid of gravity.

This strainer will do just as good work without the inside strainer, but it would be hard to clean, and one could not strain the honey left in the can. The capacity of this



POWELL'S IMPROVED GRAVITY STRAINER; CAPACITY EIGHT TONS OF HONEY PER DAY.

outfit is from four to eight tons of honey a day, and no attention whatever is required.

HIVES PAINTED INSIDE AND OUT.

The last few years I have painted my hives on the inside as well as on the outside; and after testing the plan for five years on several hundred I find it pays, as the boards never warp out of true, and the bees don't use much propolis on the smooth white paint surface. Bees winter just as well, seemingly, as in hives not painted; but this might not be true in a cold climate as regards the prevention of warping. Just stop and think of the effect a large swarm of bees must have on an unpainted hive while evaporating honey until the moisture fairly flows out of the hives. Is it any wonder that the hives warp so?

Riverside, Cal.

A BEGINNER'S TROUBLE IN INTRODUCING QUEENS.

BY REV. GEO. A. WALTER.

In July, 1909, I decided to Italianize one of my four colonies of hybrids; and as I did not want to risk too much I ordered a select tested Southern Italian queen. When she arrived I shook the colony in front of the hive and found two dark queens among the bees. I took these queens into the house and put them under a glass tumbler. The moment they discovered each other there began a "battle royal," which lasted probably 30 seconds, when one stretched out, stung to death, conquered, while the other promenaded around triumphantly, apparently feeling highly elated over her victory. The new queen was introduced according to directions on the cage. In about 48 hours she was released and accepted. Exactly three weeks later I saw some very pretty golden bees among the dark hybrids at the entrance, and in about seven weeks I had a colony of pure Italians. I was as proud of that queen in a way as I was of my twins in our house, and again and again I brought her forth to show her majesty to visiting friends, many of them never having seen a bee-queen.

In September, while looking them over I was surprised to find half a dozen or more queen-cells all capped over in different parts of the hive; but my "beauty" was missing. The hive was full of bees, so I thought I must have overlooked her, and that they were making preparation to swarm, so I cut out all the cells. Later it dawned on me that perhaps my queen had died or was lost. I shook the colony out, and, sure enough, my queen was gone. These bees went into winter quarters queenless, and to the graveyard the following spring.

During the winter I contracted for some select tested Italian queens, some to come in two-frame nuclei. One of these queens I wanted early in 1910, to take the place of a poor queen in one of my other colonies of hybrids which went into winter quarters after having done nothing all summer. I

received her early in April, and introduced her by hanging the cage between the frames in this weak colony, having removed the dark queen first. After several days I found her on one of the combs among the bees, apparently contented. The weather continued quite cool, and about two weeks afterward a friend of mine told me he had seen a small cluster of bees, several days before, hanging on a hitching-post about a block from my home, and that, upon investigation, he had found a fine Italian queen among them. We went to my hive and found the queen gone. She swarmed out, apparently because her family was too small. The same day she was found dead on the ground near the place where the cluster had hung. She hadn't laid a single egg before she left the hive. The bees killed the next queen. I bought some colonies of hybrids just then, and out of one of these I took the queen with a frame of brood and the live bees on it, and transferred it to this stubborn weak colony, putting it in the center of the brood-nest. This plan worked all right, for the colony began to build up at once.

From the two-frame nuclei with the select tested queens which I had purchased I determined to raise my own queens later in the season, and Italianize my whole apiary, which had now increased to about 15 colonies. But in July the American foul brood hit my apiary so hard that all but a few colonies became badly diseased. Every effort to hatch queens during this month failed, the queen larvæ dying, apparently, from the disease, just as the worker larvæ died after the cells were capped over.

I determined to make one more effort before the season ended, so I moved two of my Italian nuclei, which were now strong eight-frame colonies (with the disease in a milder form) to an isolated location several miles out. I built three two-frame "baby" hives, and ordered three virgin queens. When they came I shook bees from three of my colonies into a wire-cloth box and took out to this isolated place. The baby hives (into each of which I placed one frame filled with honey, and another partly filled with brood and honey), I wet the bees and queens thoroughly so they could not fly, and dumped about one-third of the lot, with one queen, in front of each of the baby hives, letting them run in together.

One week later I found a laying queen in each one of these hives. I caged No. 1 successfully; but when I tried to catch No. 2 she took wing and flew out. Although I waited a full hour she did not come back, so I lost her. No. 3 I caged without any trouble. One of these I introduced by the reliable cage-and-candy method. She was received all right, and was safe in the hive four days later. However, I had put the dark queen, which I had removed from the colony to which I introduced the Italian queen, in a hive-body with two frames of brood and bees, on a new stand not far away. A week later I found this black rascal back doing business at the old stand, and my young

queen gone. The other one I tried to introduce by the "tumbler" method.

I allowed one bee to come up through the hole I had made in the oil-cloth cover. How she chased her majesty around, tugging first at her legs, then pulling her wing! In about five minutes she changed from a hostile to a friendly attitude. Then I admitted several more bees, repeating the operation until I had enough bees in the tumbler, all of them treating the queen kindly. When I thought all were in perfect harmony I allowed the queen to go below. The next morning I found her dead in front of the hive. They had not received her. This queenless colony raised its own queen.

I ordered three more virgins; but owing to a delay in getting them the season was so advanced that I couldn't get a single one fertilized, although some remained in the baby hives several weeks.

Later in October I purchased a fine-looking select tested Italian queen cheap from a bee-keeper who had a surplus of queens. Having run the gauntlet in experimenting with queens I determined to try the flour method. This time I caged the dark queen in case I should fail again. I sprayed the whole colony with peppermint water, and literally buried the bees and queen with flour. In 36 hours I found the queen dead on the bottom-board.

Thwarted again and again in my year's efforts in experimenting with queens I am far from discouraged. I can hardly wait until the season opens again to continue this fascinating work.

Ashton, Ill.

MENDELSON'S MODIFICATION OF THE CHAPMAN SWARMING-BASKET.

BY M. H. MENDELSON.

In Nov. 15th GLEANINGS, pages 722 and 725, I note your article describing Mr. S. D. Chapman's method of hiving swarms with a bushel-basket. I use a similar kind of swarming-basket; but the difference between mine and Chapman's is that I have a handle over the center instead of the *sides*, so as to carry much more conveniently. The handle is fastened securely to each side so it will not move or swing, for a movable handle cuts off and kills many bees. I take a heavy, No. 8 galvanized wire and cut it long enough to make a hook on one end. The opposite end I fasten by twisting around the center of the handle. This is for the purpose of hanging on limbs of trees by hooking over some limb convenient for the alighting of issuing swarms. As you are aware, after the first swarm has once clustered the succeeding swarms will be drawn by the odor of the previous swarm and cluster on the same limb, from which the swarm can be easily taken care of. When clustered quietly, I catch and remove to a vacant hive in the apiary; and if other swarms are near, then I place a duplicate basket in its stead. I prevent confusion of swarms by

handling quietly. You will find the center handle a great convenience.

Ventura, Cal.

WHAT IS THE ORIGIN OF FOUL BROOD?

BY LESLIE BURR.

A few days ago I visited an apiary in which there had been a light flow of honey. The bees were strong for that time of the year, and the queens prolific. There had been sufficient rain, and other conditions were favorable, so the outlook could not be better.

But, about forty per cent of the colonies had here and there a cell affected with American foul brood. The facts are, that, early in the season, two colonies were found which had been robbed, and their brood-combs showed that they had been badly affected with the disease. Now, it is safe to wager that about every colony in that apiary has stored away somewhere in the combs the germs of American foul brood. The natural question is, "Where did it come from?" The owner of the apiary said he did not know. He had never had any colonies affected with the disease before, and accepted the situation as a decree of fate.

The incident started a chain of thought in which I recalled scenes that I have witnessed, and stories of foul brood which I have heard during the years of my wanderings.

My first experience with the disease was when a lad at home. It was on the prairies of Illinois, and the only apiaries in the vicinity were those of two neighbors and that of my father. The nearest yard was half a mile distant; the other, a mile. So far as we knew, there were no other bees within miles of us. Foul brood made its appearance in my father's apiary, and later in that of the nearest neighbor. Previous to that time the disease was unknown in that part of the State. Where did it come from?

The next picture in my mind is in Cuba, just after the "Government of Intervention." Those who have read Rambler's description of the apiaries along the Calzada have, no doubt, a fair conception of that string of apiaries that sprang into existence along that noted highway, and will recall "Windy Brown of Tulapan," "Somerford, the man who talked," the energetic Harry Howe, and the droll Harry Beaver, and G. E. Moe, the man who one month did not know the difference between a queen-bee and Adam's off ox; and the next was one of the most extensive and successful apiarists on the island. West from Harry Beaver's location was a long stretch of barren savanna, about ten kilometers, where there were no bees; and, so far as it was known, no foul brood; yet it appeared almost simultaneously in Moe's apiaries along the Calzada. And, again, there was asked the question, "Where did it come from?"

In Eastern Cuba, four hundred miles from any known foul brood, Captain Fatjo built up a series of apiaries. The only bees he had bought, except some queens, were from

Jamaica—an island where the natives boasted of the absence of foul brood, although there were whisperings to the contrary; but it appeared in Fatjo's apiaries. And again there was the question that was not satisfactorily answered, "Where did it come from?"

From the Atlantic to the Pacific, similar instances have come under my personal observation. American foul brood mysteriously appears in the apiary of some progressive bee-keeper, and in like manner has been the progress of European foul brood, or black brood, as it is sometimes called.

A few years ago it appeared in New York, and now we have it on the Pacific coast; and again the question comes, "How did it get here?"

I was in Havana one July day several years ago, and was discussing the subject of apiculture with a man who had come to the island and had been interested in bees before the introduction of the frame hive. "Foul brood," he said, "prior to the introduction of the frame hive, did not exist in Cuba. But a progressive bee-keeper arrived, and scientific bee-keeping had its birth. Queens were imported from the United States and other countries." He stated that a firm in the United States that reared queens had colonies which were affected with foul brood, and, during that time, shipped queens to him, and the disease made its appearance in his apiary. How did it originate?

While on a trip to California a few years ago I visited the apiary of a well-known bee-keeper who was at that time advertising "sage queens" for sale. It happened that he was not at home, so I wandered around and investigated his queen-rearing outfit, and found foul brood.

On another occasion, while at the home of a prominent New York bee-keeper, I met two of the State inspectors. In the course of our conversation they stated that, a short time before, they had visited a well-known queen-breeder in whose apiaries foul-brood existed. He was then advertising queens for sale in the principal bee-journals, and continued to do so during the rest of the season.

Among bee-keepers throughout the country I have found the idea quite prevalent that certain physical conditions will produce foul brood. One told me that moldy combs placed in the brood-nest are its cause. Another thought that sour honey, if fed to the brood, would have that effect, and still another, that a spell of damp rainy weather during the summer is the cause.

In answer to these arguments it is only necessary to state that, if they are true, spontaneous generation is a reality. However, careful experiments have been made to find out whether life can be produced spontaneously, and they have always failed to produce even the germ. So, Mr. Bee-keeper, if you have foul brood in your apiary you got the germ somewhere.

Banning, Cal.

EUROPEAN FOUL BROOD IN NEW YORK STATE.

Some Instances Showing that Italian Blood is Absolutely Essential in Permanently Curing the Disease; Not Necessary to Destroy Combs.

BY S. D. HOUSE.

Since in many apiaries the disease known as foul brood will appear for the first time this year, perhaps it may be well to give some of my experiences with European foul brood and its cure. I understand that it exists in forty-five counties in New York, and in thirty-nine States in the Union; also in Canada; and a disease so widespread and destructive in its work can not be given too much attention if we are to check so great a loss. I believe in the old saying, that "forewarned is forearmed;" therefore I will state a few cases to prove that the cure and extermination of European foul brood must depend upon Italian bees, and that the spread of the disease will not cease until the bee-keepers of this continent Italianize their apiaries before the appearance of the trouble. Many bee-keepers neglect to grasp the advantage of some system or method given by those who have been through the siege and gained their experience at a great loss of time and money.

I have had this remark made to me often, of late: "If I had only taken your advice, and Italianized my bees, I would have saved several hundred dollars." I do not wish to convey the idea that the Italian bees are entirely immune to the disease, for they are not; and I find that the different strains vary in combating disease as much as they do in other characteristics. However, I will say that a pure Italian apiary will not contract the disease unless it is directly introduced. On the other hand, the disease can not be cured to *stay* cured upon the same ground, no matter what method is followed, unless pure Italians are introduced. Finally, the disease will not destroy a normal pure Italian colony, even if no assistance is given them except a natural flow of honey. Fig. 1 shows an Italian colony in my home apiary, one of three that never had European foul brood, although it raged in this apiary for three years. At one time 160 colonies were badly affected. The queen of this colony, at the time the picture was taken, was seven years old, and a granddaughter of the A. I. Root Co.'s red-clover queen that was so renowned for honey-gathering propensities. Fig. No. 2 is one of her frames of brood. She was superseded some three weeks later. Figs. 3 and 4 show one of the hives and a frame of brood that the European foul brood first appeared in, in the spring of 1905. This hive was one of fourteen that were purchased in the fall of 1904, and the only one I have holding this style of frame, the combs of which I should judge to be twenty-five or thirty years old. I have kept this hive and combs to show to visitors, and prove that *European foul brood can be cured to stay cured, without destroy-*

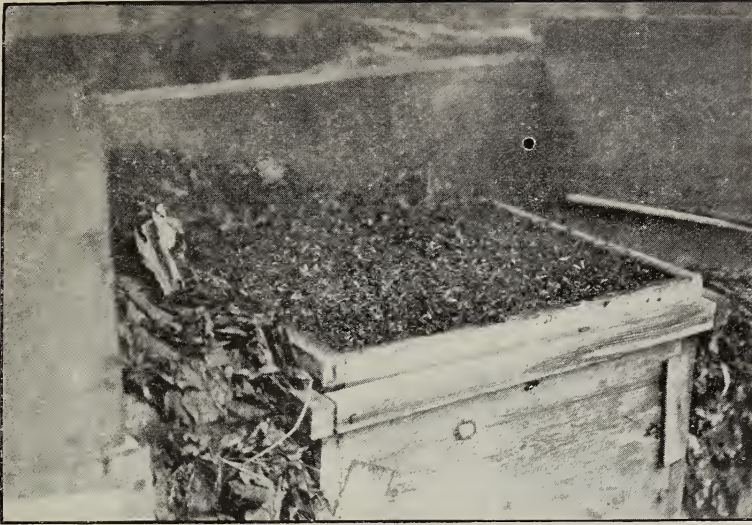


Fig. 1.—An Italian colony that remained perfectly healthy, although for three years in an apiary where there were 160 colonies diseased with European foul brood.

of the colonies in this apiary upon new frames filled with foundation. The hives and bottom-boards were singed with fire on the inside, and great care was taken in all of my manipulations to avoid spreading the disease. At the close of the season I discovered that many of these same colonies that had been shaken on to new frames

ing the combs. About May 1, 1905, this hive contained a colony of black bees, and about ninety per cent of the cells had dead larvæ in one stage or another. About this time the queen was killed. Ten days later a ripe Italian queen-cell was given, and in due time I had hatching brood which appeared healthy; but as the queen filled the combs with eggs the second time I found an occasional dead larva. On further examination I found about forty colonies that had been treated in the same manner, still showing the disease. I at once shook the majority of those forty colonies. The colony in Fig. 3 was so reduced in numbers that they were not worth shaking; nevertheless, the queen was removed, and, later, having a choice queen-cell, and no place to use it, I gave it to this small colony, which now was mostly Italian from the first queen given; and as the second young queen's brood looked so healthy I decided to leave them alone and make a test of the treatment given. The result is that they rid themselves of the disease, and have remained free from from it to the present time. During this time I had shaken the greater part

of foundation had contracted the trouble again. (These colonies had the same queens they had before they were shaken.)

The following spring, every colony that showed black bees to any extent whatever had signs of the disease, while all pure Italians were free from it. This same spring, two of my out-apiaries were badly diseased, and the above facts were demonstrated throughout several hundred colonies. For

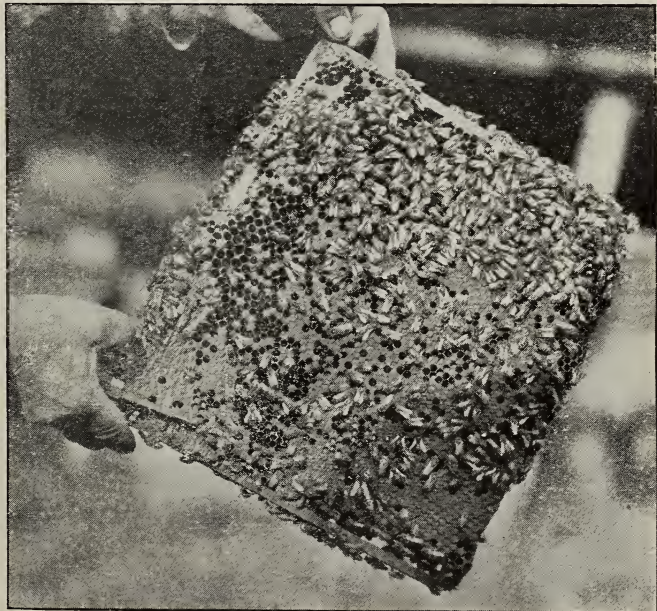


Fig. 2.—A frame of brood from a seven-year-old red-clover queen,



Fig. 3.—An old comb where European foul brood first started in S. D. House's apiary.

the past four years I have given some attention to apiaries surrounding me, and in each instance found black or European foul brood wherever I found black bees. F. A. Salisbury, of Syracuse, N. Y., has had from six to fifteen colonies of Italian bees, and never saw any diseased brood among his bees, and I know that the disease has existed on all sides of his apiary; in fact, its first appearance in this county was within two miles of his apiary, and has spread to every other apiary known to me within the county.

If European foul brood makes its appearance during May, and the greater part of the brood is affected, I would dequeen at once, and, from ten to fifteen days later, the length of time depending upon the race of bees being treated (it takes twice as long for the black or brown bee to clean out the cells as it does the Italians; some hybrids will clean up quite fast), after destroying the queen-cells that are in the hive I give a queen-cell from good Italian stock that will hatch within a short time, or a virgin queen. This period, during the time that the virgin is becoming a laying queen, is of great value in the treatment of the disease, as the bees will show a greater activity in removing the scales and polishing up the cells in anticipation of brood-rearing again; and by the time this young queen gets to

laying, there will have been time for all the brood to hatch that will hatch. In case the colony is weak in numbers I place another light queenless colony above, with an excluding zinc between the two brood-chambers, the combs above being used later for extracting-combs. Often I find some scattered cells with dead larvae from these young queens; but as soon as we get Italian workers in sufficient numbers the dead larvae disappear. I have had good results from feeding when there was no honey-flow, after this young queen commenced laying.

Those colonies where the disease appears about the time the white-honey season opens I shake into a new hive. If the colonies are not strong enough to do good work during the honey harvest I shake two into one hive, shaking the frames alternately from each hive and killing the queen from the most diseased colony. The diseased brood I stack up and allow to hatch, if there is any that will hatch, and then give a queen-cell, as above stated. Later the queen should be confined to one of these brood-chambers by excluding zinc. Any combs that are old and badly diseased might as well be melted into wax, as the wax from them will pay for new foundation.

If the disease appears *after* the main honey-flow is over I proceed the same as earlier in the season.

When the trouble has once appeared in the apiary there should be no interchang-

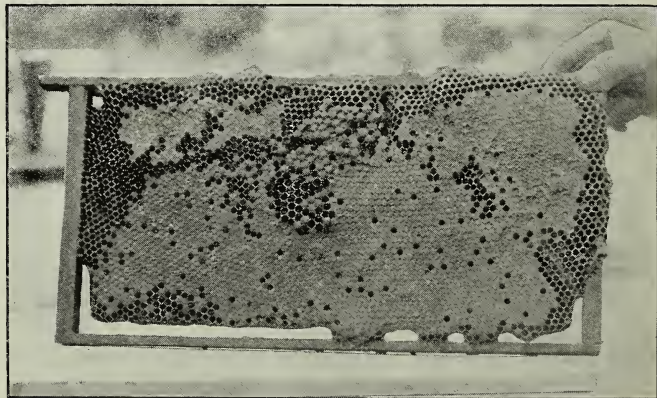


Fig. 4.—A healthy comb that was badly diseased in 1905.



Fig. 22.—W. S. Hart's honey-room, showing part of the season's crop. In all, there were 101 barrels (or 20½ tons) of honey from 116 colonies—over 350 lbs. per colony.

ing of brood-combs from apparently healthy colonies for any cause whatever, as many times the disease exists unrecognized, and it might be the means of spreading it to colonies that possibly might have escaped it.

Another source of spreading the disease is through the use of natural queen-cells given to requeen colonies that have cast swarms during the season. I have found colonies which showed symptoms of trouble only in queen-cells, and then not until the larvæ were sealed. I account for this in two ways: First, the queen larva consumes a greater amount of food than the worker larva, which increases the chance of receiving the germ; and, again, since the queen larva is sealed at an earlier age than the worker larva there is less chance for discovery on our part, as usually a queen larva dies after being sealed, while the greater part of the diseased worker larvæ die before. And some colonies will remove the dead larvæ at once; and by their doing so we would not discover the presence of the disease until too late.

Those colonies that are shaken at the opening of the honey-flow, with the queen that was present at the time the colonies became affected, should be dequeened and a laying Italian queen introduced. No queen should be kept whose colony allowed the disease to get a foothold, as such a colony will certainly take the disease again, it matters not what treatment is given. Such queens are either affected by the disease or their progeny will not resist the disease. I have taken queens from diseased colonies and introduced them in healthy colonies, and the disease appeared in those colonies in a very short time. Again, I have dequeened a diseased colony, allowed the bees to raise a queen from their own brood, and

later found the brood from this young queen badly affected from the very beginning. This fact led me to believe that the fault was in the strain of bees instead of the queen herself. The bees I am referring to were hybrids.

When a larva is first attacked it turns from pearly white to a creamy color. At the center there will be a distinct yellow or brownish spot, and the larva will soon move to the bottom of the cell and die. Then it flattens and grows darker in color. At this stage the substance becomes watery, and it is difficult for the bees to remove it; but it soon dries to a dark scale. The larva is usually attacked after the fifth day, sometimes not until after it has been sealed; and it is these sealed diseased larvæ that the bees are loath to carry out. In fact, it is almost impossible for them to remove such a soft sticky mess. After a time the air dries it so that the bees can carry it out. It is these cells that prolong the presence of the disease after the treatment.

When black bees are treated there should be at least twenty-five days of no egg-laying within the hive.

Camillus, N. Y.

Sour Smell Caused by a Species of Mushroom.

Last August I noticed a very sour smell near the hives, and looked over every thing in vain. Finally I started to the house; but upon going back I noticed a snow-white object sticking up out of the ground. It was three-fourths of an inch thick, hollow, and shaped like a finger—a kind of mushroom. This proved to be the source of the fearful smell, which was noticeable 15 feet away. After removing it the odor was gone. About two weeks later there was the same sour smell in the yard (in New Jersey). On going to the old spot I found that the plant had grown again. It looks like cooked macaroni.

Brooklyn, N. Y.

H. KRONE.



BEE-KEEPING IN FLORIDA.

Migratory Bee-keeping.

BY E. G. BALDWIN.

Continued from last issue.

Florida bee-keeping has had its golden age and its tragedy. Along in the '80's, many bee-men, living inland or in localities affording but one main source of honey (as, for example, orange or palmetto), were in the habit of migrating to the coast lands for the honey from the black mangrove that then grew most luxuriantly all along the islands and keys of the East Shore. This truly wonderful tree gave results that are yet the wonder of the apicultural world—never before equaled, and never since approached (see Fig. 6, page 213, April 1), for a view of a mangrove thicket in the foreground. By migrating at the proper season—that is, *after* the orange and palmetto—many bee-keepers secured a double or treble harvest in one and the same season. To cite a good instance, Mr. A. F. Brown, then of Huntingdon, Fla., would secure there his crop of orange honey; then he would move to the flat woods or the hummock lands for the honey from the saw palmetto; then to the coast in time for the combined mangrove and cabbage palmetto. The vicinity of the Hillsborough and Indian rivers on the East Coast was the Mecca of mangrove honey-seekers at that time.

The years from 1890 seemed to grow steadily better every year, with one exception, till 1894. That was a record-breaker. Old-time bee-keepers still point back to "the phenomenal year" of 1894. That year the colonies built up earlier than usual. Spring was very far advanced early in the year, and all things were favorable from the outset. The hives were full of orange-blossom honey by the middle of March (a time when they are usually only well into the supers). By the middle of May, honey was coming in freely from saw palmetto, and extracting was begun fully a month earlier than usual from this source. Mr. J. B. Case, of Port Orange, says: "I extracted from 40 colonies, and then moved them 13 miles by wagon and boat to the Indian River, near a mangrove swamp. By July 3 we extracted 2500 lbs.; two weeks later we took off 3000 lbs. more; and at the close of the season, 1500 lbs. more, making a total of 420 lbs. per colony for those moved, and 300 lbs. per colony for those not moved."

That moving paid, and paid well. Those located right in the mangrove sections reaped a golden harvest. The results they secured were almost dazzling. Mr. Harry Mitchell, of Hawks Park, secured 600 lbs. from one colony, on scales all season, getting as high as 15 lbs. per day. His bees averaged 380 lbs. per colony *from mangrove alone*. Mr. W. S. Hart secured 20½ tons of choicest honey from 116 colonies, spring count. Two of his colonies gave him 600 lbs. each. Fig. 22 shows how his honey-house looked at the end of the season, even

after about one-third of the barrels had been shipped.

The crop harvested by the combined beemen of one locality, Hawks Park, marketed a total of 200,000 lbs. Other sections along the same coast fared likewise. That year honey was not counted by pounds or gallons. Cases and barrels were hardly mentioned. When the bee-men met or spoke of their yields it was "How many *tons* have you?" Bees were at a premium, and their owners planned big things for the coming year. But, alas for the coming year! Winter came on with an ominous fall in temperature. A strong wind drove back the sea from the roots of the mangrove, and a sudden cold spell froze the mangrove-trees back to the roots. The orange-trees fared likewise, and so a double source of surplus was cut off at one fell swoop. Ordinarily, mangrove will recover in five years after a freeze, if no more than the trunks are killed; but if the roots are injured it takes almost three times that long. Migratory bee-keeping was almost at an end then, for there was nothing to migrate to. It has taken mangrove 15 years to come back into bearing. The first freezing of it was in 1835, the earliest recorded by the white men; the second was in 1886; by 1890 it was blooming again, and steadily improved till 1894, with the one exception of 1893. In 1894, as stated, it froze worse than ever before in the history of white men in Florida. Formerly it grew to a tree 18 or 20 feet in height, the giant stumps and trunks of which can still be seen—mute, gaunt monuments of those earlier days, pathetic witnesses of an age gone by. The year 1909, in the vicinity of Hawks Park, was the first year since the big freeze when mangrove has given any surplus honey. Conditions have never been the same since that time. Whether those days are gone for ever, remains to be seen. Mr. Hart says, "Black mangrove is getting of good size again, and I see no reason why yields should not come back to the old figures once more."

Before the freeze of 1894, Mr. O. O. Poppleton and Mr. E. M. Stover kept bees three-fourths of the year at the fork of the St. Lucie River, north of Stuart, Fla., and then would migrate 150 miles to the vicinity of Hawks Park for the mangrove. They secured excellent results, says Mr. Poppleton. Since 1895, the migrating practice has become a habit with Mr. Poppleton, and he has continued to migrate, but in an opposite direction. He no longer went north but south from the St. Lucie to the large keys of the southeast coast of the peninsula. He still moves his bees over this route every spring. More of this later. Bee-men still sigh for the "olden golden glory" of the mangrove days.

It is probable that "trekking," to use a Boer term, has had its day. Henceforth the out-apiary system will supplant migrating in great part, if not entirely, unless conditions assume exactly the phase exhibited between the years 1886 and 1895. That the



O.B. METCALFE'S WAY OF CARRYING SUPERS OF EMPTY COMBS TO THE HIVES AFTER EXTRACTING.

out-apiary has come, and come with a vengeance, is shown by what follows.

De Land, Fla.

To be continued.

RETURNING EMPTY COMBS TO THE HIVE.

Robbing Liable to be Started if the Work is Not Rapidly Done.

BY O. B. METCALFE.

In putting empty combs back on the hives, more robbing is started than in any other way. With a big outfit like ours frames must be put back when there is no honey coming in; and it is not always handy to wait until evening, hence the necessity of a system that is quick.

We use a wheelbarrow to bring the honey in, and we formerly used one to take back

the empty frames in the supers; but we have found that one man can carry from four to six supers, and do it much more quickly than a load of about the same number can be taken on the wheelbarrow. We used also to take the supers of empty frames back by the buggy-load, but found that this method started too much robbing while unloading the buggy, and we never were guilty, after the first two weeks, of taking the combs out of the supers and carrying them to the house in a comb-basket while the empty supers stood on the hives waiting for the return of the empty frames.

Fig. 1 shows Mr. Wayne picking up a load of hive-bodies where they had been passed out at the flap door of the honey-house and placed on some empty supers. Just before him another man had gone into the yard to throw off four covers, and in Fig. 2 Mr.

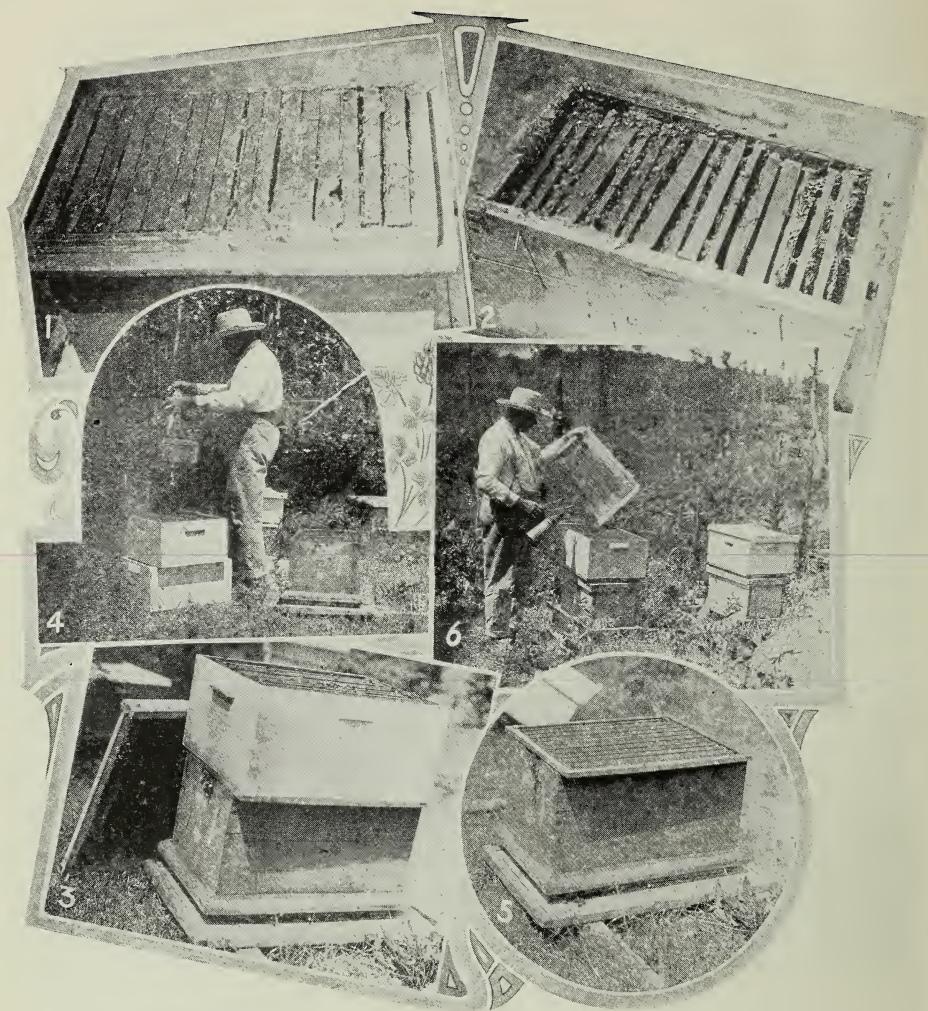


FIG. 1.—METHOD OF TRANSFERRING AS CARRIED OUT BY E. D. TOWNSEND.

Wayne is seen setting the pile on the first of these uncovered hives. When the honey-house is close by, as it was in this case, or when he is carrying for one "spacer" only, he then distributes the supers to the other hives from where he first set them down. If he is rushed he goes back for the next load, and the spacers distribute the supers to the hives.

In Fig. 3 my partner, H. L. Parks, is seen spacing combs, and in Fig. 4 he is using a canvas inner cover to make some combs stand up straight and stay spaced when they do not want to, because the bottom-bars rest on the top-bars of the old hive below. This little trick is done by holding the frames spaced until the canvas is laid on at one end so as to stick to them and hold them in the desired position.

Mesilla Park, N. M.

BEE-KEEPING FOR BEGINNERS, ILLUSTRATED.

Transferring Direct into the New Hive.

BY E. D. TOWNSEND.

During the season of 1910 we transferred 30 colonies of bees by the Guernsey method. The plan is something as follows: At the approach of the main honey-flow (which is from clover here at Remus, where this work was done) a set of brood-combs from a hive in which the bees died the previous winter is set on top of the colony to be transferred. In a week the queen will have taken possession of these combs, and will be found laying above. At this time a queen-excluder is slipped in between the two hives. In 21 days, or as soon as the brood is hatched out of the combs in the old or undesirable

hive, it is removed and the colony in the upper hive is given a bottom-board and the work is done. If foundation is used instead of drawn combs, a frame of unsealed brood should be placed in the center of the new hive to entice the queen above. The combs in the old hive may now be set out and the honey "robbed out," so that they can be rendered for wax. A beginner might wonder why it would not be better to use empty frames instead of foundation, as they would be cheaper; but these bees are not in condition to build good combs, hence combs with $4\frac{1}{2}$ to 4 cells to the inch (drone size) would be built, which must not be tolerated. The colony would likely be worth more in the old hive than to be transferred by this plan without either drawn combs or full sheets of wired foundation; for the combs in the undesirable hive were likely built by the bees of a new swarm that were in condition to build a large per cent of worker combs.

In detail the plan is as follows: In Fig. 1, No. 1, a hive is shown with cover removed. This hive, as will be seen, was filled just as full of brood-frames as it would hold before the swarm was hived. There was, by actual counting, just three short spaces between the top-bars of the frames, where bees could pass up above. This was not as much opening as we desired, for we knew that the queen

would never pass up through such small openings and take possession above. We inverted the hive as shown in No. 2, and found just what we wanted—i. e., wide spacing. The party who made the brood-frames used more narrow material for his bottom-bars than for the top-bars, and consequently at the bottom there were plenty of open spaces for the bees and queen to pass above through. Box hives, or hives with immovable covers, are inverted and transferred in the same way.

The brood-nest of combs that we wanted to transfer these bees into was now set upon this inverted hive, and in a week we found that the queen had taken possession above. We tried three plans to get the queen above the excluder, in different colonies. During the middle of warm days the queen is most likely to be expanding the brood-nest, and is then more apt to go above. We found that, if we began looking for the queen while the new hive was still over the old one, the queen would get frightened and run down below; so now we quietly lift the upper off, as in No. 4, and set it on an empty body while we are looking for the queen. The second plan was to lift off the upper body quietly, as before; but instead of looking for the queen, we place an excluder on the hive as in No. 5, then set the body back on as in



FIG. 2.—E. D. TOWNSEND CONSIDERS A WHEELBARROW THE MOST PRACTICAL MEANS FOR CONVEYING HIVES AND COMBS.



BEE-KEEPERS IN ATTENDANCE AT THE FIRST ANNUAL MEETING OF THE OKLAHOMA BEE-KEEPERS' ASSOCIATION, HELD AT STILLWATER, JAN. 19, 1911.

No. 3, and cover up for about four days; then, if eggs are found above the excluder, the queen is in the right place; if not, the excluder will have to be removed and another trial made.

The third plan was to drive the bees from the lower hive by pounding on it, and when the major part of them were up in the new hive, we slipped the excluder in between; in the majority of cases the queen would be found above. This latter plan was worked upon some hybrids with which we had bad luck in getting the queen above. The hybrids were well adapted for this method, as their nervous disposition caused them to run about as soon as the pounding upon their hive began.

It will be noticed that these old hives that we transferred were about the size of the eight-frame L. hive, and that we transferred them into the ten-frame width of hive. Engravings 3 to 5 make this plain. The excluder projects over the edges about two inches. This space was left open during the three weeks or more it took to shift these bees into our regular hives. As it was during the honey-flow, and as they were all full swarms, there was no danger of robbing. Neither did this abundance of ventilation seem to do them any hurt, for it was summer time.

THE WHEELBARROW IN THE APIARY.

In Fig. 2 the different uses of the wheelbarrow are shown. The fact is, there is hardly a day nor even a manipulation about the yard but that the wheelbarrow is put to use. All our empty stories are wheeled to the different hives, and the Daisy is along with us again, as usual. Many of our yards

are located upon very uneven ground—uneven ground in the woods or pasture. A wheelbarrow is much better than a two-wheeled cart on uneven ground. Engraving No. 2, Fig. 2, shows the start with a wheelbarrow-load of honey for the extracting-house, while No. 3 shows the same load ready to enter the house. Doors, 32 to 36 inch, are provided in our extracting-houses, so the wheelbarrow, loaded with honey, passes through easily, and we run the load right in close to the uncapping-table, so there is a minimum of lifting.

Remus, Mich.

OKLAHOMA BEE-KEEPERS ORGANIZE.

BY N. FRED GARDENER.

The engraving shows the bee-keepers in attendance at the first annual meeting of the Oklahoma Bee-keepers' Association, held at Stillwater, Okla., Jan. 19, 1911. The association was organized in December, 1909, and incorporated shortly afterward. The principal place of business was declared to be Stillwater, and it has been planned to hold each annual meeting at that place during the farmers' short course of lectures and demonstrations furnished each year free of charge by the staff and faculty of the Oklahoma Agricultural and Mechanical College of that place. The people of Oklahoma in all branches of agriculture are taking advantage of the high class of knowledge to be secured in this manner, and the attendance will soon be very large. The officials in charge of the course kindly provided a comfortable classroom for the business meeting

and program of the bee-keepers, and gave them a place on the general program.

Prof. C. E. Sanborn, the entomologist at the college and experiment station, has had quite extensive experience with bees and their diseases, and is an enthusiastic member of the association. He has charge of the bees of the station. If Oklahoma bee-keepers will rally to the support of Prof. Sanborn and the association, much can be done toward getting in on the ground floor in controlling disease, etc., in Oklahoma. The association is thoroughly organized, has drafted a bee law, and is only waiting for the opportune time for its introduction. In the mean time the support of every bee-keeper in the State is needed, and that support can best be given by sending in the membership to Arthur Rhoads, Secretary, Stillwater, Okla. The present officers are, N. Fred Gardiner, Geary, President; Geo. H. Coulson, Cherokee, Vice-president; Arthur Rhoads, Coyle, Secretary; G. E. Lemmon, Nashville, Treasurer.

HONEY-BEES AND ROSES.

Mullein Flowers; the Robbers of the Scarlet Runner; Bumble-bees Puncture the Nectaries; Honey-bees Probably do Not.

BY JOHN H. LOVELL.

Mr. Webster's interesting note, page 258, April 15, does not call for any special reply; but I should be glad to correct the wrong impression which, unintentionally, I have given him and perhaps some other reader. I do not in the slightest degree doubt his explicit statement that he has seen honey-bees gathering *pollen* freely from roses. Why should they not do so? The roses contain a great abundance of easily accessible pollen. I have seen honey-bees collecting pollen from the spindles of Indian corn, and from the staminate aments of the common alder. Both of these plants are pollinated by the wind, and contain no nectar. Mr. G. M. Doolittle, a careful observer, related in GLEANINGS some time ago how he had seen honey-bees visit the elms in early spring for pollen. The flowers of the elm are also pollinated by the wind, and contain no nectar. He said, "When I went out I thought they were robbing, as there was such a roar in the bee-yard; but upon looking I found the bees hustling in the hives with great loads of yellowish-green pollen. . . . I took a circuit around the apiary to see where they were going, and found them headed for a swamp. After breakfast I started out; and when I got over there the elm-trees, which compose the timber in the swamp to a great extent, were just roaring with bees; and where some of the branches came down I could see the bees at work. I wish you could have been there and seen them." In a word, it is quite probable that honey-bees may visit, sooner or later, any flower from which they can obtain nectar or pollen.

I was emphasizing in my article the fact

that the roses *do not contain nectar*, and perhaps passed over the visits of bees for pollen too briefly. I did not, indeed, touch at all on the way in which the roses are pollinated. Mueller long ago observed that the roses were visited for pollen by honey-bees, bumble-bees, leaf-cutting bees, mason-bees, and species of *Andrena*, *Halictus*, and *Prosopis*. These observations have been confirmed, and still other kinds of bees added to the list. The species of *Prosopis* are little coal-black bees, which look not unlike ants. I have seen as many as three on a single rose eating pollen, but they are so small that they are probably of little use in pollination. Large bees, like the bumble-bees, are the most efficient pollinators of the roses; for when they alight on a flower they can hardly fail to come in contact with the stigmas, while small insects usually alight on the petals or stamens, and may not even touch the stigmas. They are frequent visitors to these flowers, and I find in my collection a female and worker of *Bombus terricola* taken on our common wild rose (*Rosa humilis*) July 10.

As the plums contain nectar, if there are any honey-bees in the vicinity they will be very likely to visit the flowers. In the case of the small plum-orchard, which I mentioned, I intended only to say that the wild bees were mistaken by the farmer for honey-bees, though I saw none there at that time. So there are various wild bees which visit the roses, which might easily be mistaken for honey-bees. In this locality, when our wild rose is in bloom the honey-bees are very busy bringing in nectar. Incidentally I may remark that very little is known about the bee-fauna of Alabama; and if he cares to investigate it, Mr. Webster has a wide field before him for observation.

The roses are also visited by flies, especially syrphid flies, which feed on the pollen. Many beetles have likewise been taken on the flowers. So common, indeed, are certain kinds in Europe that Delpino, an Italian naturalist, once asserted that the geographical distribution of the roses was determined by certain families of beetles; but this, of course, was a mistake. Beetles are often not content with consuming the pollen, but destroy the petals as well. I have often seen wild roses with the corolla partially or almost wholly eaten by small green beetles (*Nodonota puncticollis*). The common rose-bug (*Macrodactylus subspinosus*) is also very destructive to roses. It is covered with scale-like yellow hairs, which give it a yellow color.

Among the pollen flowers, besides the roses, mentioned in my paper, were the mulleins. Now, some of the species of mullein contain a small quantity of nectar. They are, however, visited by insects, especially bees, chiefly for pollen. If you will examine the stamens you will find them clothed with violet-colored hairs which afford a good foothold to the visitors while they are gathering pollen from the anthers. In at least one species no nectar seems ever to have been

freely when once they have been made. It will, perhaps, be asked how I account for the absence of *Bombus terricola* during the latter part of the season of 1910. I can only guess at the reason; but it seems probable that there were no nests in the vicinity of my garden, while in the previous season there were. I intend to repeat the experiment this summer, and have considerable curiosity to watch the result.

Waldoboro, Me.

STIMULATIVE FEEDING IN THE SPRING.

The Plan Should Not be Discouraged.

BY ROBERT B. M'CAIN.

I have practiced stimulative feeding, both with a few colonies and with a larger number, and am convinced that it is a mistake to discourage the practice, as many experts do. I am not among the number of those who have a right to that title; but I know what I have done, and will set it down in the hope that some one will be benefited by the experience.

Two of the strongest colonies I ever had were brought to their high degree of prosperity by stimulative feeding. One of them occupied a two-story ten-frame Langstroth hive. At the beginning of the honey-flow I counted 16 frames of brood in that hive. There were probably an average of 3000 young bees, in all stages of development, in each of those frames, making in all 48,000 young bees in the colony. Nor is it an exaggeration to say that there were at least 75,000 worker bees in the colony. I used this colony for queen-breeding exclusively, and do not know how much honey it stored that season.

The other colony of which mention has been made was not as populous as the one just described; but there were enough bees to crowd the first super that I put on at the beginning of the honey-flow, after removing the lower story, and this colony stored 280 sections of fancy comb honey in Danzenbaker sections that season. I also took brood and bees from this colony to start two nuclei which built up into strong colonies before winter.

These two colonies are exceptional cases; but all the other colonies in my yard in those seasons were prosperous to a degree on account of stimulative feeding.

The secret of success with stimulative feeding lies, not so much in the quantity and regularity of the feeding as in producing an imitation of a real flow of nectar. The syrup should be made of the best grade of granulated sugar and pure water, in proportions of one of sugar to two of water; and it should be fed only when the bees can fly freely. Trays of wheat flour placed in the sunshine in a sheltered place will furnish pollen, and thus the fraud will be complete.

It ought never to be necessary to feed syr-

up in the spring to make up for shortage of stores. That is done, in my yard, by saving frames of honey from the fall flow. These frames may be inserted at any time when they are needed, no matter how cold it may be, and when there is nothing to take their place. With these in the hives in sufficient quantity to make the bees feel perfectly safe in going forward with brood-rearing on a large scale, stimulative feeding may be practiced with little fear of chilled brood. The word of caution needs to be spoken in regard to the time of beginning the stimulation and the protection of the hive from cold blasts.

By using the frames of honey to keep the colonies prosperous in early spring, stimulative feeding may be deferred longer, and will count for more in the end. If practiced three weeks or a month before the main honey-flow it will work marvels in the result.

Wenona, Illinois.

THE COLORS OF POLLEN.

That from Cultivated Plants Varies Considerably.

BY J. FORD SEMPERS.

The honey-bee with her load of pollen is a very familiar object to most people, whether they are bee-keepers or not. Frequently, by those who do not know otherwise, these pollen loads are mistaken for wax, because of the striking resemblance which the bright yellow pellets bear to newly rendered wax. Yellow, however, is only one of a number of the colors of pollen gathered by honey-bees. To some it may be interesting to know whence these varied-colored pollens come. In wild plants the colors are apparently constant for each species, so far as I have noticed. Among cultivated plants considerable variation prevails. The following list will show the average range of colors, and some of the pollen-yielding plants of this locality.

White, Missouri currant, sweet cicely, dewberry, tall blackberry, climbing hempweed, boneseed, impatiens, malva rotundifolia (cheeses).

Greenish white, pear, wild geranium, saealine.

Yellowish white, plaintain, ironweed.

Light yellow, apple, sheep-sorrel, smartweed, corn (maize).

Yellow, golden-bell, senecio, deutzia, wild roses, sundrops, commelina, ragweeds, goldenrods, asters.

Orange, dandelion, rudbeckia, asparagus.

Yellowish green, black alder, red maple.

Light brown, cherry.

Brown, winter cress, white clover.

Olive brown, plum.

Dark olive, buckwheat.

Brownish-red, horse-chestnut.

Dull blue, cultivated clematis.

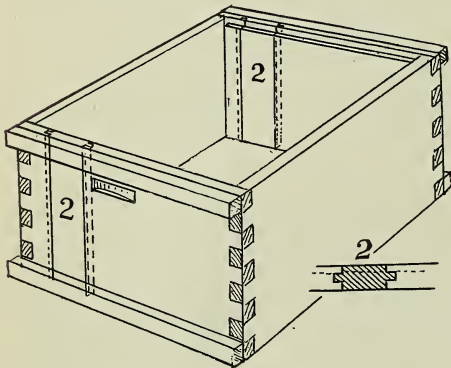
Aikin, Md.

Heads of Grain from Different Fields

Converting Eight-frame into Ten-frame Hives.

I have, at different times, met with an uncalled-for objection to the eight-frame hive, the objection reading something like this: "You can make an eight-frame hive out of a ten-frame hive, but you can not make a ten-frame hive out of an eight-frame hive." In a way this is correct. One can not make ten frames out of eight frames of like proportions; but one can change an eight-frame hive so that it will accommodate the furnishings of a ten or twelve frame hive.

To do the work you need a square, a saw, and a plane, something like what we use to match boards for floors—the tongue-and-groove plane. Mark your hive with a straight line, perpendicular to and parallel with the locked corners of the Dovetailed hive, somewhat nearer one corner than the other, so that you will not have the grooved hand-hole to work with. Saw the end of the hive on the line, and groove the edge of each side of the newly sawed end. Take a 3/8-inch board of the proper length (height of the hive-body), and the proper width, which will vary according to whether you wish a ten or twelve frame hive, and work this board down with a tongue on each side and the rabbet at the top end, and place the same (board) between the now two-pieced ends of the hive-body.



Nail one of the hive-cleats (such as Dr. Miller uses) at the top of the hive and another near the bottom, and put a ten-frame tin rabbet in place of the former eight-frame one. Perhaps the bee-hive factories will see fit to manufacture these boards.

Montpelier, O.

G. W. JOICE.

Reform in Grading and Packing; the Editor's Policy Indorsed.

I have just read your editorial on page 30, Jan. 15, with much interest. I have been handling section honey in this market for the past two years, and I find very little that does not require regrading to make it satisfactory to the retail dealers. I repack and regrade all I handle, and by so doing I have gained the confidence of most dealers. I had one dealer who said there were always enough damaged sections to absorb the profit. I told him to try one case of mine and be convinced, as I would pay him retail price for all damaged in any case I furnished. He tried a case, sold it out quickly, and has continued to handle it ever since.

In regard to the crating of section honey in carriers I have requested all who ship to me to pack the cases so that the combs will be parallel to the long way of the carrier. When so packed I have none damaged. The carriers are handled on trucks by the railroad laborers, and it is when they are dumped off that the damage occurs. When the sections are crated flatwise, to fore and aft, they are much more likely to break loose in the sections. I hope the good work you are doing toward reform in packing and grading comb honey will prove to be a mutual benefit to all concerned.

Chattanooga, Tenn.

G. E. LEAVITT.

The experience of our correspondent as to the necessity of regrading and repacking comb honey that is purchased to be sold again is largely that of

most dealers. It is a lamentable fact that many if not most producers do not grade and pack their honey as they should. If they would only take time to *learn how*, they could realize anywhere from 25 to 50 per cent more for their honey. It is said that none are so blind as those who *won't* see. We sometimes think none are so blind as those who don't *try* to see. So with some producers—they don't even try to learn how, after they have received their crop, to get the best price for it by putting it up in *proper shape*.

The suggestion of our correspondent, as to how to put the shipping-cases in the carriers, may be a good one. It all depends on *which way* the truckmen load them on their trucks. We should like to know what has been the experience of others.—ED.]

Bees Desert Clover to Work on Cherries Cracked Open because Overripe.

I have a few colonies of bees, and am able to get fairly good yields from them in this late spring. They work very fast and hard on fruit-bloom, poplar, and locust. Right after locust and poplar the clovers begin to bloom, and near the bee-yard we have large fields of red, alsike, and white clover, but, unfortunately, the cherries are ripe about the same time, and my bees spend nearly their whole time at the cherry-trees; and as we have a succession of fruits through the summer they never get down to honey-gathering again until fall.

During the time the bees are at the peach, plum, apple, or cherry trees, as the case may be, I find other bees from the woods, and a few of mine, out in the clover, but none compared to what are on the fruit-trees. The bees work on the fruit itself. It has been hot during cherry time for several years; and when a shower or rainy day comes it causes the fruit to crack open, and then it is that the bees seem to become demoralized; and as we have fruit all summer they work on one kind of fruit and then another.

We have large clover-fields around us; but I never get any honey except a little from fruit-bloom, and considerable from locust and poplar. When I think they should be working hard on clover they go to the fruit.

Sometimes I get a good flow in the fall. We have a succession of bloom all summer, if not too dry, and it would seem that they ought to get some honey all summer.

Some say that the bees are used to getting honey from the trees, and hence do not search as low as they would have to go for clover. I can hardly credit that, and think it must be due to some mismanagement of mine, as I have not noticed any complaint about it in GLEANINGS. Will you kindly advise me whether it is general? I have had a few bees for five or six years, and have always noticed the same thing.

Port Tobacco, Md.

MRS. J. A. GRAY.

[Your experience, to the extent that bees will desert the clover-fields for the juices of ripe fruit, is quite unusual. It goes to show that clover probably does not yield much honey in your locality. When the clovers secrete nectar well, the bees, after they have once started to the fields, except in the case of some old professional robbers, could not be induced to touch raw honey on the ground or exposed in open vessels in the apiary. Never have we known them to attack the juices of overripe fruit except during a dearth of honey, or in a flow so moderate as to be hardly worth taking into account. In no case that we have ever known have bees punctured or cut into sound fruit. Taking every thing into consideration, it seems very clear that, at the time your cherries become fully ripe, your natural sources of nectar supply are very limited, and hence the bees find it necessary to eke out a living on fruit-juices.—ED.]

Questions of Queen-rearing.

1. Is it true that a queen hatched from a grafted cell is short-lived, owing to having been torn from her previous cell, being attached to it by the navel cord? Is she in any way inferior to a queen that is hatched otherwise?
2. Is a queen from a cell on the side of a comb good to save? Is she all right, providing the cell is large and perfectly formed?

3. Is it good policy to save supersedure cells? or will they transmit supersedure in the young queens?

4. Is it necessary to cage a virgin for a day or so before introducing her to a nucleus of young bees?

5. Why is it, that, after bringing the virgin queens from larvæ to mating time, so many are lost or not accepted?

Heber, Cal., April 30.

P. S. MARTIN.

[Dr. Miller, to whom this letter was written, replies:]

1. That's all nonsense about there being any navel cord or any sort of attachment to break loose. All conditions being right, a queen from a grafted cell may be as good as any.

2. Yes, any location is all right where the cells are well covered with bees.

3. Supersedure cells are as good as any. I fear you have some wrong idea about supersedure when you talk about its being transmitted. Please remember that every queen, in the natural course of events, is superseded. If you could have bees that would supersede their queens always without any swarming you would have a bonanza.

4. If the nucleus has not been queenless for a day or so, and if the virgin is several days old, it requires care. The older the virgin, the more difficult to introduce. A virgin just out of the cell will be accepted anywhere, even in a hive with a laying queen; but in the latter case she will likely be killed as soon as she becomes old enough to put on airs.

5. I don't know — are they? I don't think I lose one in ten. Possibly bad weather may have something to do with it, and in some places there are predatory insects or birds that snap up the virgins on their wedding-flight.

Queen Larvæ Susceptible to Foul Brood.

Before me lies Circular 79, issued by the United States Department of Agriculture, the title of which is, "The Brood Diseases of Bees," its author being E. F. Phillips, Ph. D. In this circular, p. 2, he says, referring to American foul brood, "This disease seldom attacks drone or queen larvæ." My experience this past summer in my own apiary leads me to question the reliability of this statement. What colonies I owned last spring were hybrids. I determined to Italianize my entire stock before winter. To get pure stock I ordered six two-frame nuclei with a pure tested queen in each. These, as I stated in a former article, developed American foul brood, which, because of my ignorance of the disease, was soon spread throughout my whole apiary, only a few colonies remaining free from the disease. Some queen-cells I secured from one of my neighbors were grafted into some combs in one of my colonies which I had divided. I expected them to hatch out in due time. When I examined them I found only one left, and that larva was as putrid as any of the brood I had in the same stage of the disease. Later I made some two-frame baby hives, and gave them bees and frames with eggs from my pure Italian stock, and in not a single instance did they succeed in rearing a queen. They all died soon after the cells were capped over. My experience is that queen larvæ are as susceptible to the disease as the brood larvæ. I should like to hear from others on this subject.

Ashton, Ill., Jan. 13.

REV. G. A. WALTER.

The Yew-tree as a Honey-plant.

I know a territory about fifty miles distant where woods have grown all around the town. There are hundreds of acres of the yew-tree, commonly called the "tree of paradise" or "tree of heaven." I have seen these trees in small clumps about farmhouses, and have been told that they produce an abundance of nectar, but that they have a very peculiar strong smell, which, if retained by the honey, may render it unprofitable. I fail to find any mention of this tree in the A B C and X Y Z, nor in other bee-books to which I have referred. The poplar, or tulip, which I know to be an excellent source of nectar, is also plentiful in the neighborhood.

Kewanee, Mo. E. T. JOYCE.

[While the yew-tree may yield honey in your locality, it is not generally recognized as a nectar-bearing tree in most localities, if we are correct. Our A B C and X Y Z of Bee Culture, with few exceptions, attempts to take account of only those plants or trees that yield honey in commercial quantities. The exceptions refer to certain plants that are remarkable either for their beauty or for

their novelty. If any one can give us information showing that the yew-tree, or tree of paradise, yields honey in commercial quantities, we shall be glad to give it recognition in our A B C book.—E.D.]

Do Bees Draw Out the Foundation, or Build the Cells on it?

Is it true that bees take a sheet of foundation and draw it out into cells without the use of additional wax? or do they use the foundation for a guide, and, by the use of additional wax, build thereon the cells?

AN ABNORMAL CLUSTER OF BEES.

The other day I discovered a great number of bees busy building queen-cells in a hive whose colony died early this spring. I looked over every frame carefully, but could find no sign of either a queen nor of any larvæ; consequently I decided to take a frame of brood from another hive so as to give an opportunity for getting a queen. This I did, and to-day I see that the bees have a queen-cell in preparation on the brood-frame. In the first place, did I do right in giving the bees the brood? Next, where could those bees have come from without a queen? Could it be that, because I changed the position of the four other hives, some bees lost their bearings and all clubbed together in that old hive?

Poughkeepsie, N. Y., April 27. R. E. HOLLAND.

[Bees draw out started cells of the foundation, and also build on with wax of their own making to bring the comb to the proper thickness. It depends upon the weight of foundation used as to how far they can draw out the cells started. We are not sure that we can do more than approximate this distance; but we feel certain that they draw out the foundation so that the cells are from $\frac{1}{2}$ to $\frac{3}{4}$ inch in depth.

It might be that a small after-swarm with a virgin queen found this hive and entered it. Then, later, as the virgin queen went out to fly, if she missed her hive it would leave the bees in just the condition you found them. It is a little early for much swarming, and hence we do not know that this is the right explanation. If you changed the location of your four other colonies during a time of the year when bees were flying, and left this one colony near where the other colonies had been standing, then it is probable, as you say, that the bees that were lost in trying to find their old hive all went into this one hive and clubbed together to make up the abnormal colony without a queen. However, in either case you did just right in giving a frame of brood. A ripe queen-cell would have been even better if you had had one.—E.D.]

Comb Honey Produced in Thin Sections Without Separators.

Some time ago I read an article by W. K. Morrison on the use of special sections in which bees would begin work sooner than in other kinds. I took $4\frac{1}{2}$ x $4\frac{1}{2}$ x $1\frac{1}{2}$ two-beeway sections and worked them over, making them four-beeway — $1\frac{1}{2}$ at the wide part and one inch at the narrow part. I filled an eight-frame T-super, and the bees went right to work. All the sections except two rows on the outside were filled straight, even though I used no separators. The inner sides of the second rows of sections were all right, but the outer sides were bulged out half way into the outside rows, and the room left in the two outside rows was built in according to bee nature. Can you give us a few pointers on the use of such sections? I believe I should have had more honey if I had had more of these sections; but why were part of them so nicely built and the rest not?

Paola, Kan., April 7.

J. A. SHELHAMMER.

[Quite a number of bee-keepers are successful in getting comb honey built straight and even, without separators; but the majority have found that separators are needed in the long run. It takes good strong colonies, a quick honey-flow, and ideal conditions all around to produce comb honey, and these conditions must be well high perfect before comb honey can be produced right along without separators. We are not saying that those who succeed in producing good honey without separators are making a mistake; but we do insist that, in the majority of instances, the plan is not entirely successful.—E.D.]

Our Homes

By A. I. ROOT

Behold the fowls of the air; for they sow not, neither do they reap, nor gather into barns: yet your heavenly Father feedeth them.—MATT. 6:26.

Of course the above text refers to the *wild* fowls, the birds of the air. They are under the care of and cared for by the great Father above. He, without the aid of human intervention, furnishes what shelter they have, and also protection from the weather; and it is well known, and I believe it is generally agreed, that the wild fowls and wild animals are much healthier and stronger, and have more endurance, than our common domesticated animals. As an illustration, we go to the wild turkeys, wild ducks, and geese, to get new blood to give our domestic fowls endurance. They do better without artificial shelter, and very much better without any help from artificial heat. Some years ago there was quite an excitement about cooking food for domestic animals; but our experiment stations soon decided that it was a mistake. Even our pigs do better on raw food, unground, than with artificial help. T. B. Terry, you remember, regained his health, when he was pretty close to the grave, principally by using raw wheat (and "uncooked food") as a diet in place of food artificially prepared. There is an island somewhere in the great sea where a people existed for years, possessing remarkable health and longevity, and yet they wore no clothing whatever. We sent our missionaries among them, and the natives were greatly benefited in the way of morals and spirituality; but giving them clothes, houses to live in, and other things belonging to what we call modern civilization, enfeebled them so the race threatened to become extinct. The poor natives on this far-away island came near being "civilized out of existence;" and, my good friends, I greatly fear that some of us have already been civilized out of existence, and, as a consequence, we hear a great hue and cry, especially from the great cities, about "getting back to the land."

Now, I want to talk considerably about chickens in this Home paper; and, by the way, during the two winters that my chickens in Florida have roosted on trees, having no houses whatever for shelter, they were healthier, and laid fully as well (if not better) as when kept in houses. The objections were that the owls sometimes got them up in the trees, and they were so wild that it was a difficult matter to catch them when one was wanted or when we wanted to turn off the whole lot when going back to the North in the spring. Let us remember the fact brought out in our text before we go *too far* in adopting cooked food and artificial heat to keep our bodies warm. A little further on in the same chapter we read, "Take no thought for your life, what ye shall eat, or what ye shall drink, nor yet for your body, what ye shall put on."

"OUT-DOORSES, I DO."

These words were spoken by the little girl we called Blue Eyes about 85 years ago to her father when he was particularly interested in bee culture and the flowers. She was getting to be old enough to talk, and her papa had been in the habit of carrying her to see the bees work on the apple-blossoms (for it was springtime as it is now), and to show her the bees as they hurried into their hives with their loads of many-colored pollens. And she enjoyed these visits to the blooming apple-trees and the busy bee-hives so much that it was a hard matter to keep her indoors at all. She would keep saying, as I have explained above, "outdoorses, I do," and then pat her dimpled little hands on the top of her head, indicating that she wanted her little hat or bonnet so she could go outdoors. By the way, this same Blue Eyes is now the mother of three fine children; and as her health has recently failed to a certain extent, the doctor prescribed *outdoors*, so she and the children are in the open air the most of the time—that is, when the older children are not in school. She appropriated my little greenhouse before I got back from Florida, and now she is just putting her plants in the open ground, shading them and watering them with all the enthusiasm and enjoyment that her father has felt and told you about for so many years in the past. Some hens and chickens are near by also. Of course the mother hens are shut up, but the little chicks are hustling and happy all over her lawn and among the flowers.

A little more than 24 hours ago I was invited to talk on bees, chickens, etc., before the Y. M. C. A. in a college town near by. As I stepped into a car, the only seat I found unoccupied was by the side of a gentleman who was reading a paper. Finally he looked out through the open window and made some remarks about the green fields, the fruit-trees in bloom, etc. Of course, I shared his enthusiasm. After a little time he turned around and said, "Why, if you live in Medina you probably know some of the Root people." I smilingly informed him that I was A. I. Root. He put out his hand with eagerness, saying, "Why, Mr. Root, I have long wanted to see you, and to get your advice on certain matters;" but when I asked him if he had been reading our journal he replied, "I am sorry to say I have never seen a copy of it; but I have seen so many extracts in other periodicals from your talks that I have great confidence in you. Now let me explain that I am a physician. I have charge of the work in — Hospital, in Cleveland. I have been there many years—sometimes I think too many; but so long as I can extend a helping hand to poor unfortunate humanity I keep on with my work, even though I realize, and have for some time, that I *must*

get outdoors and have a change. I will say that my lungs are already affected. I went down to Texas, and stayed in the open air for a year. I got so much better that I ventured to go back and take up my work once more; but it won't do. I have *got* to give it up."

I expressed some surprise that he, a physician, and a prominent one too, should want *my* advice in regard to *his* health. I asked him if he slept in the open air. He said he did not. The open air in that great city, especially at the point where his home is located, is so full of coal smoke and dampness—that is, a great part of the time, both day and night, that he felt that a room with plenty of windows was just as good or a little better. I told him that all experience seemed to indicate that it was not. Our boy Huber is most emphatic in this matter. He says the best room in the world, with all the windows you can put in, would not compare with a bed right out in the open air with nothing but the stars above you. He says that anybody who has once tried it agrees with only a brief trial, and I am inclined to believe he is right. Now, very likely I shall continue to talk open air so long as God gives me life and strength to keep it up; and if I continue to *practice* what I preach I have much hope that I may have several years yet to talk "out-doors."

When I came back from Florida this same blue-eyed mother I have been talking about had purchased 25 day-old chicks. As the weather was cold and bad she had them in the bath-room where it was "nice and warm." But when I reached home quite a few of the chickens had died, and others were acting so dumpy she had separated them into two groups—the well ones and the sick ones. The minute I got my eyes on them I said, most emphatically, "Put them outdoors." But she urged that it was too cold and damp, but I insisted, "out-doors! outdoors!" I found there was a hen in the poultry-house that wanted to sit. I got one of my coops out of the cellar, and a bushel basketful of chaff from the barn. I dumped the chaff on the grassy lawn, and set the coop over it. Then I put the clucking biddy inside and gave her the chicks, both the well ones and the sick ones. It was some little time before she could catch on. She had wanted to sit for only about one day; but by a little persuasion the chicks were taught to get up under her wings, and pretty soon she took on the *role* of mother. The sick ones brightened up in response to her cluck and other baby talk, and not a chick died after that, except one that was so near dead that it was hardly worthy of being counted among the live ones. Then I went over to Huber's, and he too had 25 day-old Barred Rocks. Of course they were indoors, where it was "nice and warm;" but they had been dying about one every day, notwithstanding he had a lamp brooder. I had hard work to convince him that 25 chicks in the month of April need *no* artificial heat. In fact, the artificial heat

was a damage and a detriment. Why, I meet this thing at almost every turn; and I honestly believe that thousands of chickens are killed annually by artificial heat when they do not need it *at all*. Now, I would not spend so much time in talking about chickens were it not that chickens are *exactly* like human beings. Our little greenhouse has movable sashes that can be taken away when the weather is warm. We still keep some heat on the iron pipes, even when the sashes are removed, for the exhaust steam costs nothing. Two years ago, as some of you may remember, I purchased 25 day-old chicks; and as the sashes were removed so the greenhouse was practically open air, I put the chickens up by the warm pipes, and for a while I thought I had made "a great discovery." But my chickens were not doing well. They kept dying one after another, and the rest of them spent their time in hugging the warm pipes when I thought they ought to be running out in the grass. Finally I took what were left and fastened up the greenhouse so they could not get in around the warm pipes at all. At first they shivered and made a great fuss; but in a little time, recognizing, probably, that "what can not be cured must be endured," they commenced chasing about in the open air; and in so doing they brightened up and fleshed up at once. Not another chick died. Later on I had another bunch of chicks in a brooder warmed with hot-water pipes by means of a lamp. As the weather was bad I kept a little heat on at night. But *they* were not doing well; so I blew out the lamps and covered the metal pipes with some soft cloth, so they could not get up tight against them and thus become chilled. They at once ceased dying, and some that could hardly walk when they had the artificial heat, in a few days strengthened up, got their appetites, and made fairly good chickens. It seems as if I meet this same thing wherever I go; and even if our friend Philo *has* got a "pile of money" by what he calls his "system," I think he deserves the thanks of the whole wide world for doing so much to teach people that God's sunshine and pure air are *ever so much better* than any form of artificial heat that man has yet devised.

I wish you would turn back to that monkey story found on page 739 for Nov. 15, last year, and read it over and over;* and while doing so may God help you to recognize that the same lesson taught there applies to

*This matter is of such extreme importance that I want to quote briefly from the article referred to. "Nothing in years had delighted visitors so much as what had now become an every-day sight—one of those tropical animals, in zero weather, seated upon a snow-bank, contentedly eating a banana.

ALL THE INSIDE MONKEYS DIE.

"But the twenty monkeys that, early in the winter, had entered the steam-heated monkey-house in splendid physical condition had not fared so well. By spring not a single one was alive—all had died of tuberculosis. The artificial reproduction of 'tropical conditions' had killed them, as it had killed hundreds of their predecessors. The five outdoor animals, however, never showed the slightest trace of the disease."

chickens, and, I think I may say, to all other domestic animals; and last, but by *no means* least, to human beings. Thousands of people—especially old people—are not only losing their ambition and their health, but are going down to their graves *prematurely* because they are hugging up to stoves or radiators and other forms of artificial heat. I have abundant reason to believe from my own experience that hot-water pipes and hot-water radiators are the worst forms of artificial heating that were ever invented, because they do not *necessitate* any change of air nor any admission of outdoor air. A stove will not burn without air to give it draft; and fresh air must get into the room from some point to make up for what goes out of the chimney. An open fireplace or grate is far ahead of *any* stove; but a stove is better than dead hot-water pipes. You have seen a lot of loafers, doubtless, hanging around a stove in a country store or grocery, smoking or chewing filthy tobacco, breathing bad air, and, too often, I fear, feeding their immortal souls with filthy stories. While the fireplace is the best place for artificial heat, the heat that comes from bodily exercise is far ahead of even the open fireplace. Have a good big woodshed or outhouse where you can swing an ax, even when it rains and it is too stormy to be in the open air, and warm up by the exercise of your muscles instead of depending on artificial heat. You will remember our text where Jesus says, "Behold the fowls of the air. They toil not, neither do they gather into barns; and yet your heavenly Father feedeth them." Please note that our heavenly Father not only feeds them, but he keeps them warm, and he does it too without hot-water pipes or radiators, and without even an open fireplace. It is true that, when winter comes, the fowls of the air seek a warmer clime; and my impression is that

those of us who are ailing, and especially when along in years, had better seek a warmer clime. If you are strong and well, you can thank God for the fact, and stay here in the North and attend to the necessary work of this busy world. A great many times you think, like the chickens, you *must have* artificial heat in some form or other. Let me give you a little of my experience. When I take my daily bath every morning, I usually have the water warmed up to something *near* the temperature of the body—say 60 or 70 degrees. The shock seems to be too great to a person of my age to take even a sponge bath in a cold room with the water still colder. Well, a good many times it is not convenient to get warm water, especially when I am in a hurry. But I will tell you what answers just as well in my case, and perhaps better. Before beginning my sponge bath I take a minute or two to rub briskly my arms, chest, and body all over with dry hands. Work fast and give the bare flesh some good brisk blows, pounding the muscles, slapping the chest and back with the palms of the hands until a feeling of warmth is induced all over. Just try it.

When you get warmed up by this brisk exercise, the water does not feel at all unpleasant, even if it is rather cold.* If the room is very cold I bathe the upper part of my body and rub it dry with a towel before divesting myself *entirely* of my night-dress. Then something can be thrown over the head and shoulders while you give your feet and legs a thorough sponging and rubbing. Now, unless the weather is severely cold, I feel very much better by taking this sponge bath in a moderately cool room.

* I believe Terry does not use any soap at all; but I use soap on my hands and face; and a little soap, therefore, gets into the water that I bathe all over with. But I do not believe in using very much soap unless it is where it can be thoroughly washed off

HIGH-PRESSURE GARDENING

By A. I. Root

APPLES, APPLE-TREES, ABANDONED ORCHARDS, ETC.

Somebody asked one of the editors of one of our farm papers which was of most value to the world—oranges or apples. The reply was that apples were not only more wholesome but of more value to humanity than any other one fruit; and this I can heartily indorse. As I have mentioned, while down in Florida I was obliged to pay 40 cts. a dozen for Oregon Ganoes. There were apples I could buy for about 75 cts. a peck; but these big Oregon apples were always perfect—no wormy ones, no bad-shaped ones—always large, some of them very large, and of the very *best* quality—at least I should call them the best. I thought that, when I had got back to Ohio, I should be able to get some apples cheaper; but, lo and behold! the only apples in the town of Medina at the present time are these same Oregon apples; but they are a *nickel apiece*. Now, it is a burning shame that right here in the

midst of our Ohio hills, so specially adapted to apple-growing, apples should be a nickel apiece, even in May, and have to be carried a distance of about 2000 miles besides. A large part of our trip between Jacksonville and Cincinnati was over hills and mountains; and those hills and mountains could easily be covered with apple-trees; and our cold-storage-men can certainly keep them in good condition the year round for a much less price than a nickel apiece or \$10.00 a barrel. I expect to go up to Northern Michigan in a few days; and I said to myself, "Well, up there nice apples will certainly be cheaper." But just then I saw a quotation in one of the farm papers saying that a barrel of choice apples was recently sold in Traverse City for \$10.00.

Now, I have been making some discoveries in apple-growing, as well as with chickens. Here is one of them: Some time last September great big rosy apples were dropping off every day from my favorite tree, the Par-

adise Sweet, at such a rate that I decided I would pick them and put them in the cellar before they *all* dropped off. This was about the first of October—too early in this locality by a month for gathering winter apples; but I figured that, if they were all going to drop off and get bruised, I would forestall that dropping, and pick the apples and risk putting them into the cellar that early. Well, the boy whom I set to picking them picked about two bushels from the lower limbs, and then said he could not get those higher up, for it always made him dizzy to get up on a ladder. As there was nobody else available just then the matter was neglected, and I was greatly astonished to find that no more apples dropped off. The dropping, as I figured it, was because there were too many on the tree to get matured and ripen up. As no more apples dropped off, or not enough to be worth noticing, I let the rest stand until about a month later. There were about three bushels of the latter picking; and they not only increased in size but colored up very much better after the thinning out; and I am just now greatly enjoying these Paradise Sweet apples every evening when other people are eating their regular suppers. Of course, my discovery is right along the line of thinning out, so much practiced by fruit-men, only the thing is usually done when the apples are much smaller—not large enough to be of any value.

Quite recently our experiment station at Wooster, O., sent a man up here to teach our people how to prune old orchards and to give them a talk on apple-growing generally. Among other things he advised all those who had early trees, say Yellow Transparent, Harvest, Red Astrakhan, etc., to commence using the green ones just as soon as they are at all fit for sauce or pies—thus thinning out the apples when near maturity. They are not only delicious and wholesome as sauce, but they give what are left on the tree a chance for much better development and ripening up. Now a word about *old* orchards.

When our Ohio experiment station purchased the ground near Wooster they found a good-sized orchard of old apple-trees—trees that were past their usefulness, as most people would say. But they commenced experimenting to see what could be done for old orchards; and last fall it was my pleasure to go through this old orchard just before going south. First, the old trees received a tremendous pruning. I am not sure, however, it was all done at one time—probably not. The great long sprawling limbs away up in the air were shortened back; the ground was cultivated and manured, and the trees were mulched and thoroughly sprayed; and at the time of my visit, when some of the apples were beginning to be picked, there was the most beautiful fruit I ever saw in my life. The specimens were so large and fine that I failed to recognize my old favorites. And this kind of work of rejuvenating old orchards will pay tremen-

dously, especially if prices are going to continue at any thing like a nickel apiece or \$10.00 a barrel.

Under date of May 9 the *Cleveland Press* has this to say in reference to this same matter:

The Wooster station has issued a bulletin telling of work done by its experts in Southeastern Ohio last year. One orchard of 14 acres that they treated returned a profit of \$6000; another, with 350 trees, of \$3100.

Just now, May 10, I am happy every night when supper-time comes, because my supper is to consist of half a dozen or more of these Paradise apples I have mentioned. Then I am happy after supper in looking over our orchard, and seeing which trees are going to give the fruit. By the way, I have recently expended ten or fifteen dollars in having our trees judiciously pruned. This pruning, as you will notice, is only another way to thin fruit so as to have what is left larger and finer; and I suppose it is a saving to remove the surplus when it is in bud or blossom rather than wait till the apples are partly grown or nearly full grown. I believe our friend Terry eats a variety of fruit; and a good many have wondered why I did not take the cheaper oranges while down in Florida rather than the expensive apples. Well, I have tried almost every kind of fruit that our kind heavenly Father has given us; but so far nothing agrees with me so well as nice mellow apples. I think grape fruit would come next; but that *alone* does not quite seem to hit the spot as do the delicious apples I have been having now for several years for the last meal of the day. If I take any thing else with my apples it seems to require an additional effort for my digestive apparatus. I do not sleep as well, and I do not feel as bright and full of vigor in the morning when I first get up. Now, if it should turn out with you as well as myself that apples, even at a nickel apiece, are cheaper than doctors' bills or "stuff you get in bottles," at the drugstore, don't you believe you had better follow me and take no other food into your stomach after your noonday meal than beautiful rosy-cheeked delicious apples?

THE AUTOMOBILE AND THE FARMER.

The *Practical Farmer* for May 15 has a "good-roads special;" and their Experience Pool has for its topic, "Give your experience with automobiles on the farm: are they as expensive to maintain as horses? what influence have they exerted toward better roads?" I believe somebody made an estimate that 70 per cent of the low-priced automobiles sold this present year have gone to farmers. Just a short time ago, as you will remember, our agricultural periodicals were, a good many of them (the *Farm Journal* particularly), fighting the automobiles, and very likely they had some pretty good reasons for so doing; but since the farmer has begun to use an auto, so that he can go to town and run on errands without interfering with the work of the big team that

pulls the plow, things have changed considerably. The editor of the *Practical Farmer* says in his summary: "Wherever you find automobiles you find an advocate for better roads—one who will talk and argue and fight for them." He says, "Farmers all over the country are now of one opinion—that the automobile has exerted the greatest influence for good roads." And even our careful and staid neighbor, T. B. Terry, suggests that even *he* may run an automobile when they succeed in getting a good road clear up to his farm. I wish every one of our readers would send for the copy of the *Practical Farmer* on good roads, even if they do not subscribe for it for a whole year.

PARCHED CORN AS A BREAKFAST FOOD.

I want to say that, from personal experience, parched sweet corn, ground fine, with plenty of

the "top of the milk" mixed in, and sweetened with white-clover honey, makes a dish good enough for even a farmer bee-keeper, saying nothing of a king.
Riceville, Ia.
A. F. FOOTE.

Thanks, friend F. We have not only talked parched corn several times in past issues, but I think many of us have greatly enjoyed it. Dried sweet corn, parched and ground as you suggest, will, no doubt, be an improvement; but I think I should find it "sweet" enough without the honey. I have often thought that not enough was made of the sweet corn and canned green corn which are already on the market. But a breakfast food made of *parched* sweet corn I think might be a good rival to any of the great and successful breakfast foods; and there is plenty of time to plant a good plot of sweet corn when this meets your eye, in order that you may have enough matured sweet corn to test Bro. Foote's suggestion.

POULTRY DEPARTMENT

By A. I. ROOT

"POULTRY SECRETS;" HOW TO TELL THE SEX OF BABY CHICKS.

I am inclined to think the "secret" business is rather on the wane; at least I have not seen many secrets offered for sale of late. By the way, several poultry-journals have been carrying an advertisement of a 25-egg incubator; and in this incubator advertisement mention is made of some big discovery in regard to hatching duck eggs. I wrote for their catalog, and mentioned that I wanted to get hold of all the late discoveries in the line of growing ducks. Now, what do you suppose this distinguished professor wanted for his secret? Only the trifling sum of *one thousand dollars!* He explained that his business was teaching his secrets to some of the great duck-growing establishments. He said if I were growing ducks on only a small scale he would make a price that would be reasonable; but I was so scared that I did not push the matter any further. Why should I? During the last winter every egg that I set, or almost every one, produced a duck, and every duck grew and prospered except the two that the alligator caught, and some other trifling accidents. May be it is a good thing to have somebody come out with a \$1000 secret; and it just now occurs to me he would be just the fellow to go in partnership with Kellerstrass. What a thriving business the two together might build up!

Oh, yes! I promised to tell something about determining the sex of day-old chicks. Here is the advertisement that was sent me.

TO TELL THE SEX OF BABY CHICKS.

At last we have the poultryman's *greatest* need—to tell the sex of baby chicks. You can tell in 3 minutes' time from the time the chick is a day old. Guaranteed. Inclose \$1 with addressed envelope to
THE KINSEY CO., Milton, Ind.

I can not tell you where the clipping came from; but I sent my dollar, and there is the secret for all of you. You just pick up the chick in your hand. Put your thumb around

its neck and give it a gentle squeeze. If it is a rooster he will kick and *keep* on kicking; but a pullet will kick only a few times and then be quiet. Now, there is, no doubt, some truth in this. We all know that the male chick is, as a rule, a little larger and stronger than his sister; but how about the chicks that are just half way, that keep on kicking a *little longer* than the ones you decide to be female? His dollar secret may help us to tell something about it; but I very much doubt whether it will enable anybody to sort out with any certainty a cockerel from a pullet when only one day old. When the chicks are two or three weeks old I can very often decide, *almost* to a certainty, by the growth of the comb. The cockerels will very soon show much greater development of the comb than the pullets. But this is by no means certain. When Ernest was visiting me in Florida we picked out some cockerels to send to market. He called my attention to the fact that he thought one of them was a pullet after all, and she was almost a full-grown hen, so I put her among the pullets. But two weeks later she was having a square fight with one of my big Buttercup roosters, and *she* turned out to be (or *he* turned out to be) a male after all. And I have found it to be true, that, although we can tell *generally* when the chicks are a month or six weeks old, there are certain cases where it puzzles almost any one to decide whether a *full-grown chicken* is pullet or rooster.

Please notice, in regard to the wonderful secrets, you not only have to send a dollar for about a dozen lines of instruction, but you must also inclose an addressed envelope.

A PULLET LAYS AT FOUR MONTHS OF AGE, EVEN DOWN IN FLORIDA, ETC.

There seems to have been an impression, and I confess that I shared it more or less, that pullets do not commence laying as

early in Florida as here in the North. Here is a report, however, that seems to indicate the contrary:

A. I. Root would be interested to know that we have a four-months pullet laying.
Sarasota, Florida. J. H. DENSMORE.

Sarasota is only a few miles from Bradentown, and the writer of the above, if I am correct, has the White Leghorn fowls. While I am talking about chickens, let me say I sold to a neighbor six pullets. I think they were nine or ten months old. He was obliged to keep them shut up in close quarters, and I explained to him something in regard to the Philo system. As the pullets were moved only a short distance they kept right on laying, three, four, and five eggs a day; and when *Sunday* came he had six eggs from his six pullets.

HOW MUCH DOES IT COST TO FEED CHICKENS? HOW CAN WE DO IT MOST CHEAPLY?

Can you give me some information as to the proper kinds of food for chickens? also the cheapest kinds of food to use, considered from the standpoint of giving the best results, and how much will it cost to keep 100 hens on the basis of 40 cts. per bushel for potatoes, 40 cts. per cwt. for cabbage, 65 cts. per bushel for barley, and 50 cts. per bushel for corn? What proportions of each should be used?
Green Bay, Wis., April 16. W. M. LARSEN.

My good friend, I do not know whether my answer will be satisfactory or not; but you strike on a problem I have studied on a great deal. Let me explain that our chickens are all fed in galvanized tubs, hung up by wires just high enough so the rats can not get in, but so any chicken can get in readily after it is three or four weeks old. In this tub we keep corn, wheat, and oats, putting in enough to last several days. If they pick out all the wheat first, then I put in more wheat, and the same way with corn and oats. Let them balance the ration themselves. Now, if you buy a good quality of corn, wheat, and oats (of course you can use barley, kafir corn, etc., if you choose), you will find these staple grains are very much cheaper than screenings or *any sort* of mixed feed. I have tried again and again different brands of mixed feed in the tubs, and there is always a lot of stuff left which the chickens will not eat. At the same time, the parties that prepare these mixed foods and do such extensive advertising make a profit over and above the cost of the grain. Buy your grain, if possible, from the farmer direct, and thus cut off the middleman. Besides the grain mentioned, you want green stuff—alfalfa clover, Bermuda grass, or in winter time cabbage and potatoes, carrots, mangel-wurzels, etc. At the price you mention, it should not cost you very much to keep your chickens.

In regard to the proportion you mention, I would let the chickens have what they seem to prefer. Let them do their own balancing. If you skip wheat for a few days you will notice they will all go for the wheat with great avidity, and the same with corn and oats; but I very much prefer to have

oats that have been soaked for about 24 hours; then if you bury them in the dirt so they will sprout, you have, perhaps, the best *green food*, and, besides, the exercise of scratching it out.

In regard to the expense of keeping a laying hen for, say, a year, the old figures were \$1.00 per hen. If on the farm, where they pick up a large part of their feed, perhaps 75 cents would be about right. If only a few are kept, however, 50 cents or less might pay for the cash out. Down in Florida it will cost from \$1.25 to \$1.75—perhaps on an average \$1.50 a year. A growing chicken, say after it gets to be two or three pounds in weight, will take as much food as a laying hen.

Now, if I am off in the above estimates I hope some of the brethren will straighten me up. By the way, potatoes are an excellent food for chickens. In Florida they will eat up every scrap of potato parings or small potatoes, or any thing in the potato line. In the North the potatoes may have to be boiled and mixed up with bran mash. I think it will pay every farmer to pick up every potato, little and big, and save the culls for our chickens in the winter time.

Just one thing more about a balanced ration. After the chickens have had grain, green food, and ground bones or beef scrap, they will take with avidity a wet mash made of bran and shorts. Do not make it wet and sloppy. At one time a pailful of bran mash made by my colored man was left where a chicken got into it and was *drowned*. While they will eat it in this shape, it is objectionable in many ways. The mash should be so dry that it will be crumbly. In this shape it may be fed on the green grass without any waste; and if you choose a fresh place every time, there will be no danger of disease from fermentation and souring of the food.

AN INDIAN RUNNER DUCK THAT PARALLELS MY PARTICULAR DUCK; ALSO SOMETHING ABOUT LAYING TWO EGGS A DAY.

See the following, which I clip from the *Rural New-Yorker*:

I have an Indian Runner duck which appears to me to be a remarkable bird. I have read a good many chicken stories that taxed my credulity to the limit, and it is quite probable that many who read the following statement will not believe it. The duck referred to has laid 98 eggs during the past 96 consecutive days, and the indications are that she will extend this wonderful record still further before taking a rest. I do not ascribe this abundant yield to my method of feeding and care, but rather to the exuberance of her productive nature. Eggs are large and white. I have been able to catch her on the nest but twice. I attach affidavit.

Maryland. E. S. KING.
Mr. King sends a signed affidavit in support of his statement.—ED.

In the above case the duck laid, apparently, a little more than an egg a day. The above report strikes also on a point recently brought out by a writer in the Jacksonville (Florida) *Times-Union*. This writer says that no hen lays an egg *exactly* every 24

hours. It is more often in 25, 26, 28, or 30, and clear up to 48 hours, which would be an egg every other day. Now, there are evidently a few hens that lay an egg every 23 hours; fewer still, 22, and may be less. These hens or ducks would, therefore, occasionally lay two eggs inside of a day. Such eggs, of course, would have to be laid, at least one of them, in the night time; and this might account for the eggs we find under the roost. On my Florida ranch they roost not only low down, say 2 or 2½ feet from the ground, but the sand under the roost is so soft that an egg is very seldom broken that is dropped in the night. This accomplishes two desirable things: The eggs are not wasted, and the hens are not taught the egg-eating habit by finding a broken egg under the roost. I would suggest that the duck mentioned above laid an egg in a little less than 24 hours; and therefore in 96 days there was a showing of two more eggs than an egg a day.

INDIAN RUNNER DUCKS.

The editor of that excellent poultry-journal called *Poultry* has been testing the Indian Runner ducks. Here is what he says about them:

We received the three ducks and the drake March 3. One duck laid March 12, and the next day two of them laid. Then all three of them began to lay regularly, and up to this time (twenty-five days after we picked up the first egg) we have got seventy-two eggs, lacking three of getting one a day from each duck for twenty-five days. Every one of these eggs has been pure white. Tested by cooking we have been unable to detect any difference between them and eggs from our hens. We are very much interested in these ducks of ours, and we are going to keep them going as long as we can, and raise as many of them as we can this season. If they continue as they have started out, we are inclined to think that our egg-ranch will be largely stocked with Indian Runners in the end.

Well, if his experience and mine are not the exception, no wonder he is coming to the same conclusion as myself—that all his chicken business hereafter will be considerably along the line of ducks.

THE PROSPECT OF A HONEY CROP IN THE EXTREME SOUTH OF FLORIDA, ETC.

The "general drouth in Florida," spoken of in *CLEANINGS* for April 1, has been broken in a few places in this county. There have been good showers in Alva, Caloosa, and this place. At the first two points the orange-bloom was delayed by the dry weather, but the rain has put the trees into full flower, and one could gather a great crop of honey if he would move his bees there. That is not the thing to do, however, for the saw palmetto is just blooming profusely, and the harvest here is beginning. The heavy rain which we had a week ago was in addition to that mentioned above, and put enough moisture in the ground to keep many acres in full flower for several weeks. It is too bad that tons of nectar are to go to waste for lack of bees to gather it. There are fine locations in this county for many large apiaries. It might be well for some of the friends to consider them carefully.

The largest bee-keeper in the county is a lady—Mrs. Brainard, postmistress at Captiva. She has 57 colonies at this time, and writes that she gets a crop of honey every year from sea-grape, mangrove, and cabbage palmetto, though not always a large one. There are not enough oranges and saw palmettos on the island to give any surplus from these sources.

Captiva is a long narrow island that is far beyond bee-flight from the mainland. I think her location is about as poor as could be found in the county.

Many enquiries have come to me about free government lands. I have had time to reply to only a few of them. The last one received asks that I reply through *CLEANINGS*. I will do that, telling what I think of the homestead proposition after a year's experience with it, if you care to have me. It does not look as rosy to me as it did when I first came to Florida.

Ft. Myers, Fla., April 20.

F. M. BALDWIN.

Friend B., I am very glad to tell you we had several good rains in Manatee Co. before I left. The last one gave us 1½ inches of water in one shower. By all means tell us about the government land. I am glad to see you own up that your experience is not quite equal to your anticipation when you first started in your Southern home.

THE CROWS—ARE THEY THE FARMER'S FRIENDS OR FOES?

I have always felt sad, and a good many times worried, to see the boys start out to hunt crows; and even when the crows are digging up the corn I have wondered—in fact, hoped—that there might be some better remedy than poisoned corn or even tarred corn. Well, the *Rural New-Yorker* has had several communications lately to the effect that it is better and cheaper to leave enough corn on the top of the ground for the crows, so they will not pull it up. In order to avoid having the corn cultivated under, and coming up as a weed in a corn-field, the corn is sprinkled along the dead furrows, where the crows can easily find it without pulling up the planted corn. One writer suggests that a peck of corn scattered about will protect a ten-acre lot; and it is not only the cheapest remedy, all things considered, but after Mr. Crow is satisfied with all the corn he wants, in order to make a balanced ration he needs some animal food, and he will go to work at the grubs and cut-worms with just as much relish as if he had not had so much corn. When we take into consideration the damage that worms and insects do because there are not enough birds to keep them under, is not the above a sensible and humane way to manage the crow? It has been suggested that even skunks as a whole are of more benefit to the farmer than damage; but, of course, this would not prevent us from trapping or shooting any *individuals* of the tribe that had got into the habit of visiting our chicken-coops.

SPECIAL NOTICE.

W. S. McKnight, queen-breeder, of Newton, Ala., has just informed us that his shop was destroyed by fire a few days ago, and that the loss includes most of the correspondence and queen orders he has received this spring. Unfortunately, Mr. McKnight has no duplicates of his orders, and can not tell who is entitled to queens. He has requested this announcement, and asks that his patrons kindly bear with him in his trouble, and let him know at once of orders they have sent, with the amount, and what for. This we trust they will do.