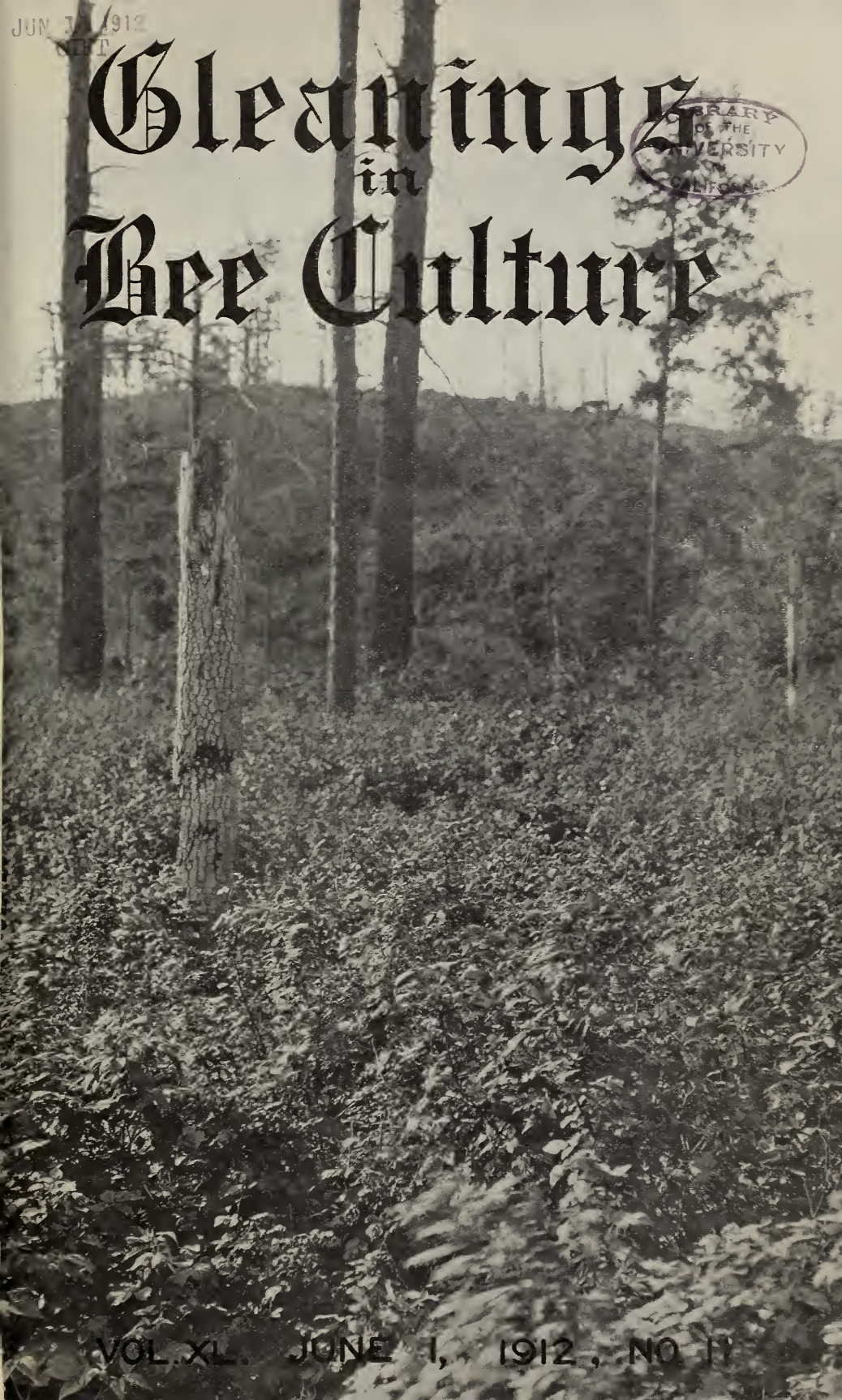
Gleanings in Bee Culture



VOL. XL. JUNE 1, 1912. NO. 11

ROOT'S BEEKEEPERS SUPPLIES

You may have a catalog of supplies; but if you haven't ours for 1912 you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Old customers are writing us frequently letters like the following:

> Your catalog for 1912, designated ROOT'S BEEKEEPERS' SUPPLIES, is received, and I certainly thank you for this book. I have had your catalog on my desk for years, and have used Root's supplies all along. I note the enlargement and improvement in your new catalog, and notice many things I expect to add to my apiary.
> Crystal City, Texas. C. W. Cox.

Our catalog this season also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

Quick Deliveries

Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

Send Your Hurry Orders

to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever Your Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "ROOT" in connection with bee-supplies means the best of every thing in this line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

> I have just received my goods, order No, 10,739. I am more than pleased with them. I had intended to make my hives, but when I received the sample hive and saw the No. 1 pine lumber from which it was made, and considering the workmanship, I am satisfied I can buy cheaper than I can make them; enough cheaper to save the price of the lumber. O. C. MILLS, Barton Ldg., Vt.

BRANCH OFFICES

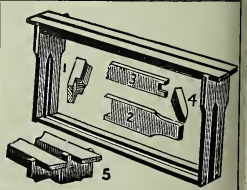
New York, 139-141 Franklin St.
Philadelphia, 8-10 Vine St.
St. Paul, 1024 Mississippi St.
Chicago, 213-231 Institute Place
Des Moines, 565 W. Seventh St.
Syracuse, 1631 Genesee St.
Washington, 1100 Maryland Ave., S-W.
Mechanic Falls, Maine

Distributing Depots in Many Large Centers

The A. I. Root Company

Executive Offices and Factory

MEDINA, OHIO



Gleanings in Bee Culture

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VOL. XL JUNE 1, 1912 NO. 11

Editorial

LOSS OF 600 COLONIES OF BEES BY SMELTER GAS.

We have heard that there has been a loss of 600 colonies of bees within a radius of three or four miles of a silver-smelter located at Smithville, Ontario, Canada. There is some talk of bringing an action against the smelter company; but whether any thing of this kind will be done or not we are not advised.

OUR COVER PICTURE.

The front cover of this issue represents a characteristic piece of raspberry bee pasturage in Northern Michigan. The photo was made by the late W. Z. Hutchinson. Raspberries do best away from cultivated land in territory that has been lumbered over, with a growth of small trees just high enough to shade the bushes. Such pasturage unfortunately is not permanent, because, as the trees grow taller, they choke out the bushes, and the first forest fire cleans them out entirely. For that reason, two years ago many beekeepers had to move their apiaries from the raspberry to other territory that had not been devastated by forest fires.

Raspberry honey, by the way, is regarded as one of the finest honeys in the world. Mr. W. Z. Hutchinson had no trouble in selling all he could produce of it at two or three cents above the market price.

BEES FOR SALE

In view of the severe winter losses, and with a desire to help out those who wish to make a start again, we promised to give a list of those who have bees for sale. The following have sent in their names:

Geo. E. Smith, Hampstead, Md.; S. W. Taylor, Shickshinny, Pa.; H. E. Zech, Seven Valleys, Pa.; J. I. Elliel, Punxsutawney, Pa.; G. W. Strangways, Creek Bank, Ont.; R. J. Smith, Ticonderoga, N. Y.; J. H. Manchester, Preble, N. Y.; S. J. Alexander, Fisher, Ark.; Mrs. Almeda Ellis, Fremont, Mo.; Frederick, Ill.; T. F. Hudson, Norfolk, Va.; Vern O. Derby, Wileyville, West Va.

The only caution we wish to enter is that the purchaser make sure that the bees are free from disease of any sort, and that he give instructions to have the hives before shipping screened at the top and bottom. No very strong colony should be sent by rail. The extra-strong ones should be divided and put into separate hives. Frames should be securely fastened, and combs, if not wired, should be well attached to the top-bar and end-bars at least.

Those in need of bees would do well to write to the parties named; and do not forget that the express on small lots will be one and one half times the ordinary rate.

TROUBLE IN CALIFORNIA.

Just as we go to press, information comes to us that Prof. A. J. Cook, State Horticulfural Commissioner of California, is being severely censured by the fruit-growers because he summarily removed Chief Deputy Quarantine Officer Brenner, who has charge of keeping fruit pests from being imported into California.

And there seems to be also some trouble over car load shipments of bees from Utah and Nevada into California, on the ground that they would be overloading territory that is already overstocked, and of the danger of bringing bee disease. At this writing we have insufficient data upon which to base any judgment as to the merits of either case. Our California editor, Mr. P. C. Chadwick, will doubtless have something to say on the matter later on.

A REMARKABLY SUCCESSFUL SHIPMENT OF 500 THREE-FRAME NUCLEI FROM FLORIDA TO OHIO.

We sent our apiarist, Mr. J. E. Marchant, early this spring down to his father's, in Sumatra, Fla., after a carload of bees. We had previously shipped down 500 three-frame nucleus hives in the flat. These were nailed up and filled with bees, and started northward May 6, arriving here on the 13th in splendid order in spite of the extremely hot weather at the time of starting, and very cold and rainy weather, ending in a snowstorm, just before they arrived at Medina. So successful was the shipment that Mr. Marchant has been sent down for another carload, and we expect him to arrive at Medina on the 3d of June. Full details, with illustrations, will be given in our next issue In the mean time we feel that we have a fine lot of Italian bees from the territory where foul brood was never known to exist. In fact. so far as we know there is no foul brood—either European or American—in all Florida at the present time. Years ago a little was known on the east coast; but in the Appalachicola region of

Northwest Florida foul brood has never been known.

The first car of bees arrived in time to catch the fruit-bloom flow, and a second shipment will arrive in ample time to catch clover and basswood. The bees did not leave Florida until they had gone through the heaviest of the tupelo flow. We are, therefore, making the same bees do service through two honey-flows.

MORE BEES KILLED FROM SPRAYING FRUIT TREES WHILE IN BLOOM.

EVERY year we get more or less of complaints about the time fruit trees are in bloom, showing losses of adult bees while the trees are being sprayed. The following is another sample of some of the letters we get:

Can any thing at all be done to secure legislation in Ohio relative to the spraying of fruit trees? The seriousness of the condition demands that some very stringent action be taken at once by beekeepers, and all interested in that pursuit, if beekeeping is ever again to be profitable in this State. A customer at Etna, Licking County, Ohio, writes me that he has lost ten hives of bees on account of spraying done by his neighbors. This is but one of many complaints of this kind. It seems that, in spite of all the information on this subject circulated by Government bulletins and agricultural and apicultural publications, a large proportion of the fruit-growers persist in doing their spraying while the trees are in full bloom. Is it ignorance or sheer devilishness? I am inclined to think it is a little of both.

If the weather for the last month or six weeks has been as favorable elsewhere as it has been in this immediate vicinity, the amount of spring dwindling ought not to be excessive, and I am inclined to believe that not a few of the cases of dwindling reported can be traced to this spraying nuisance.

Surely the apiarian interests of this State, if combined, are powerful enough to secure legislation that will afford some relief from a condition that is becoming intolerable.

Zanesville, O., May 17. E. W. PEIRCE.

Now, we don't know whether an anti-spraying law could be secured in Ohio or not. One is in force in Michigan and in New York, and, if we are correct, two or three States in the West have similar legislation. Some believe (and they are men whose opinions are worth considering) that these losses are due rather to the presence of bee disease than to the spraying liquids. We hardly share this view, for the reason that these complaints come regularly just about the time that the trees are in bloom. As the bees are found dead in front of the entrances of the hives, and as foul brood and European foul brood attack only the larvæ, or bees in the brood stage, we can not get away from the belief that the bees die because they are sprayed at the wrong time. We should be pleased to get further reports.

A POSSIBLE LOOPHOLE IN THE RECENT POSTOFFICE RULING RESPECTING THE MAILING OF QUEEN BEES.

DOOLITTLE & CLARK draw our attention to the fact that the postal ruling concerning the mailing of queen bees, and given on page 292 of our last issue, does not make it obligatory on the part of the breeder to boil the honey he uses in his queen-cage candy providing he can furnish a copy of a certificate to the effect that his apiary from which queens were taken was duly inspected by a State inspector, and found to be free from disease. It would thus be possible for a careless queen-breeder whose queen-rearing apiary has been inspected, to buy honey of unknown source, make queen-cage candy of it without previous boiling, and still keep within the postal ruling. Evidently here would be a loophole by which the disease could be carried in queen-cage candy. Messrs. Doolittle & Clark take the view (and we share the same opinion), that the Postoffice Department, in making this alternative ruling, had in mind those queen-breeders who would not be able to secure the services of a State or Government inspector except at a prohibitive price, that it made the alternative ruling so that such breeder could continue to send out queens, providing he boiled the honey which he used in making queen-cage candy. While technically it might be possible to send bee disease and not violate the ruling, yet we believe that all right-minded queen-breeders who are desirous of fostering and protecting the very industry from which they derive their own bread and butter will comply, wherever possible, with *both* regulations —that is to say, they will send out a copy of a certificate from their State inspector showing that their apiary has been inspected, and found free of disease, and likewise a statement that the honey used in making their queen-cage candy has been boiled. We are doing this with all queens we send out. All honest breeders we feel sure will unite in supporting our Postoffice Department in making such regulations as will prevent the spread of bee diseases through the mails; and yet no one of us desires to remove any competitor when, by reason of his locality, he is unable to secure the services of an inspector.

BABY NUCLEI FOR QUEEN REARING BEING ABANDONED AT MEDINA; QUEEN REARING SIMPLIFIED FOR THE HONEY PRODUCER.

A NUMBER of years ago the general plan for mating queens was to use one and two frame nuclei, using standard-sized frames. Later on, the late E. L. Pratt, of Swarthmore, Pa., claimed he made a success of using baby nuclei containing only from 100 to 200 bees in miniature frames. This same idea had been tried out before Mr. Pratt's time, but abandoned as being impracticable, for the simple reason that these "babies" would swarm out on the least provocation—very often when young queens went out to mate. But Mr. Pratt proved that these "babies" could be made to mate queens. We demonstrated that we *could* do it also, but finally concluded that the 100 or 200 bee baby nuclei were too small. Later on we adopted larger "babies" that contained something like 1000 bees, and two frames that would have the combined area of two-

thirds of a standard Langstroth frame. These nuclei worked much better—that is to say, they are more dependable. But even *they* showed a considerable tendency to deport themselves unseemly, much after the manner of their smaller prototypes.

During the last year or so we have been trying the full-sized two and three frame nuclei, and also the larger "babies." While the small nuclei, we thought, would mate the queens more cheaply than nuclei using standard frames, yet the latter, because of their greater reliability, and because they can be developed into colonies of bees, will, in the end, produce queens more cheaply than or as cheap as the unreliable "babies."

We can illustrate it more specifically by putting it this way: Suppose a "baby" will mate a queen for 25 cents, and a full-sized standard nucleus for 40 cents. At the end of the season, the full-size-frame nuclei will be fair colonies, or in shape to unite with full colonies, while the "babies" are practically good for nothing. The frames will not fit any thing, and the small bunches of bees growing smaller and smaller as the season advances are not worth fussing with. The veteran queen-breeder, the late Henry Alley, who used large-sized baby nuclei for many years, made it a practice at the close of the season to shake the bees all off the frames of his "babies" on to the ground. While they *could* be put together in one lot, such a heterogeneous mass of bees, he claimed, would never make a decent colony to winter.

And he was right. This queen-rearing proposition may not be interesting to a certain class of *honey*-producers except in this way: It will convince them that, with very little trouble on their part, they can make up queen-mating nuclei; and when they have all the queens they need for their own purpose they can unite these nuclei back into colonies, especially if they take these nuclei from an outyard and bring them to a home yard where they do their uniting. It takes a great deal of skill and fussing to make the "babies" behave themselves as babies should, and the average honey producer has neither the time nor the skill to make them "behave."

ADVERTISING FIVE-BANDED BEES.

On page 126, March 1, we made the statement that we did not believe there were a dozen colonies showing *all* five-banded bees in all the United States. On previous occasions we have protested against the advertising that *claimed* to furnish five-banded bees, and *actually* furnishing three and four banded ones instead.

Mr. Geo. M. Steele, of Philadelphia, challenged our statement on page 126, that there were not a dozen colonies showing *all* five-banded bees. He said he had sixty colonies that would go one better than five bands in 95 per cent of the workers, and that he had some five colonies that would run gold to the tip in 100 per cent of the workers.

Two years ago a representative of ours called upon Mr. Steele, and found that he had very fine yellow stock, and hoped that, when a favorable opportunity came, we would editorially make mention of the fact. This we did in our April 15th issue. Since that time two of Mr. Steele's customers have come back at us, saying that the stock they had received did not come anywhere near the standard claimed. We referred this matter to our representative, who called upon Mr. Steele again last summer, and found that the bees, at the time of his visit, were not up to the former standard; but at the time we wrote the statement on page 126 we were not aware of his second visit.

It appears that Mr. Steele had been having an extraordinary run of orders for queens, and used up all his extra-yellow stock, and in endeavoring to fill his orders he had used other yellow stock, which apparently was not equal to his own original yellow blood. Mr. Steele has just written that he will make the matter good, and we have no doubt that he will, but it is due our subscribers to state the facts as they are.

In the meantime we still insist that advertisers of yellow bees should be very careful about making statements concerning their stocks. If they run out of the special grade of queens advertised, and have to secure other stock, they should notify their customers of the fact. When a breeder offers to furnish yellow-to-the-tip or five-banded bees, he should furnish precisely that stock. If unable to do so he should charge less or return the money. In our judgment it is a great deal better to advertise extra-yellow or four and five banded stock; then if the breeder is able to furnish better—that is to say, yellow all over, or strictly five-banded bees throughout, his customer is more than pleased, and in all probability he will send a duplicate order for more bees and queens. In most if not all cases, those who have advertised the five-banded stock have been perfectly willing to send additional queens that will meet the standard; but that does not avoid complaints in the first place, nor does it release us of our embarrassment in adjusting these differences.

In the meantime we have heard from several other advertisers of five-banded stock, claiming they have stock that will run *all* five-banders. While we do not question their word, we want *proof* that will be satisfactory to our *readers* who are beginning to doubt whether there are any queens that will furnish *all* five-banders.

Later.—Mr. Steele guarantees to prove that his "breeding queens will and do produce 95 per cent over four-banded bees," and that his "drone mothers will produce drones, 99 per cent of which will be golden to the tip. This is a considerable recession from the first statement, where he said he had "60 colonies that would go one better than five bands in 95 per cent of the workers." This we interpreted to mean that they would be *six-banders*, while now the guarantee is for 95 per cent over *four-banded* bees only.

Stray Straws

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

BOTTOM STARTERS ¼ inch deep in sections are advised, *Australasian Beekeeper*, p. 85, and I've seen the same thing elsewhere. The bottom-starter was born "in this locality," and many years of experience have approved ⅝ as a proper depth for thin foundation. For extra thin, ½ would likely be better; but when too shallow the bees are likely to gnaw it down.

J. E. CRANE, p. 295, I think that "mixture of honey being darker than either kind separate" meant when mixed by bees. I don't know whether that would be different from your mixing or not. Moreover, I can imagine that a mixture of two shades nearly alike might be darker than either, while a mixture of very light and very dark would be lighter than the dark.

THE BEES needed feeding, and the whole family was on the sick list. So I took the laziest plan possible. I set a tub in a sunny place, dumped in sugar and water, stirred it up, and threw in some cork chips. Worked perfectly. It was open to neighboring bees, but I could afford that for the saving in labor. Of course the strongest colonies got the lion's share, but it was easy to take frames from them and give to others. [This is a good scheme; but you do not say how much sugar you used to the water. While that is not, perhaps, so very important, yet the beginner will wish to know. Ordinarily we think it is well to make any sugar mixture for outdoor feeding very weak. Anywhere from six to ten parts of water to one of sugar is about right.—ED.]

THE TITANIC disaster has caused much comment, and there is clamor that something should be done about it. That's because it's unusual. If it occurred weekly some people would say it is all right. "How do I know?" Please tell me what is the weekly loss of life from drink as compared with the Titanic loss. [Just so. One Titanic disaster caused by an iceberg creates commotion throughout the world. As you say, there are Titanic disasters occurring every week from drink; but we are so accustomed to them that they fail to stir us up. But the world does move, and Titanic disasters due to liquor will (in another generation at least) be a thing of the past. The liquor people are beginning to see the handwriting on the wall already.—ED.]

MR. EDITOR, that's a good comparison of square beeway and 4 x 5 plain sections, page 315, but in a few points some would disagree. You don't mention that the tall section tips over easily. The plain surface makes it easier to scrape, but the greater care required in handling overbalances that, so that on the whole it is harder to clean than a beeway section. It takes less room in a case, but one large dealer says that's against it, for the smaller case looks of less value, and the grocer goes for the bigger case. "Any article of food looks better. . . . that is taller than broad." For instance, a cooky, pie, or orange. The important place for the looks of a section is on the plate. On a square or round plate the square section looks better; on an oblong plate, the tall section. Are honey-plates mostly oblong? "There is no excuse for a clerk punching his fingers into either section." Does that in the least change the fact that clerks do punch plain more than beeway? [The statement that "any article of food looks better that is taller than broad" refers to *packages* and not to the article itself. Orange-boxes are oblong. Packages holding cookies, such as are put out by the National Biscuit Co., are taller than broad. A section holding comb honey is a package. When that section is put into a carton the shape of the carton is more in conformity with other packages of food stuffs.—ED.]

LOUIS SCHOLL, you're just right as to the importance of good tags for hive-numbers; and if you can wake up manufacturers to the importance of listing them you'll deserve well of your fellows. I've been on the hunt for years. If I found any thing good, the price was prohibitory. The Root Co. printed some on heavy manilla, but they don't last. Aluminum tags are advertised in German journals. I sent money for a sample, but never heard from it. Until you can buy them, you can make them like mine, which are entirely satisfactory, and good for 25 years or more. Cut tin 4×2½ inches. Paint one side white, and then put on black figures 2 inches high. Fasten on hive with a single one-inch wire nail at the upper end, driving the nail in one-third length, so it can be easily drawn out with claw-hammer.

If they can find nothing better, I suggest the following for manufacturers: A metal tag 2½×1½ (possibly less than 1½), with figures 2 inches high, a single figure on a tag. Of course there will be all the figures from 1 to 0; then if you want to tag No. 134 you will use the three separate tags, 1, 3, and 4. This will not be so convenient as the three figures on one tag; but I suppose it can be furnished cheaper. [The objection to the metal tags is the expense. If the demand were large enough, the numbers might be lithographed on the metal, making the cost merely nominal; but as a matter of fact the demand is very limited. But what is the matter with the manilla cardboard tags boiled in paraffine? We use them exclusively here at Medina, and have for the last four or five years. They are cheap enough so that, when they become soiled or faded, a new number can be put in their place.—ED.]

NOTES FROM CANADA

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

I have just learned of the death of Mr. Checkley, one of the inspectors of apiaries in eastern Ontario. Only a few weeks ago friend Chalmers, another inspector, also passed away. Truly death is taking a heavy toll among Ontario beekeepers the present season, for in addition to these two named, Mr. Pettit, father of our Provincial apiarist, passed away in the early spring.

An article on tobacco-raising in GLEANINGS! Whew! I happened to open March 15th issue, just at the page where the article started. First the article was read, and then I turned over to find the explanation, which was sure to be there somewhere. Well, Mr. Editor, the explanation is satisfactory, even if our finer susceptibilities did receive a bit of a shock at the unexpected; and now who knows but that, in the near future, we may see honey advertised as being slightly mixed with tobacco? Let me say that such an advertisement will not entice this honey-eater, as some of my friends have given it a bad reputation, and I will not take any chances in the matter. Last fall these friends referred to attended a church conference down in Pennsylvania; and while visiting at a home there honey was served. On asking what kind it was, they were informed that it was "tobacco" honey. With considerable misgivings they started to eat the honey, but soon found that it wouldn't go, as they tell me it had the genuine tobacco taste. Of course it may be a matter of getting used to it, as these same friends of mine told me that they could not stay in the tobacco barns on account of the burning that would affect their eyes and nostrils, while to the "natives" no harm resulted.

"Things do move" in the work of bee-journal men, the same as in other occupations. While I had been given a hint relative to the fact that the *American Bee Journal* was changing hands, the May number of the *Review* gave me a genuine surprise when I learned that the latter was being taken over by the National Association. While I regret very much to see friend York retiring from the *Journal*, yet I feel that it could not very well have fallen into better hands; and with a host of others, I wish Mr. Dadant abundant success in his new sphere of labor. I say "new," but after all that is hardly the word to use, as Mr. Dadant has been a well-known writer for apicultural journals, both home and foreign, for a long time—in fact, for so long a time that some of us younger fellows can not remember seeing bee journals without some reference to him.

The change in the *Review's* management is indeed an experiment for this side of the world. As to my private opinion in the matter, so far as the National is concerned, perhaps it would be best to reserve judgment for the time being; at any rate, being a Canuck I am somewhat of an outsider, and might be accused of patterning after "Butinsky" if I offered any comments. I believe the general impression is that friend Tyrrell is "making good."

No doubt many have heard of the story of the chronic grumbler who lived on a certain farm. On being congratulated because of the very heavy crop in his field he replied, "Yes, it is a good crop all right; but such heavy yields are awfully hard on the land." I was reminded of the story to-day as I was driving home from one of the outyards, when I recalled that it was with mingled feelings that I found many of the colonies in the apiary so full of bees and brood that something will have to be done before fruit bloom to keep them from swarming, if weather conditions should be favorable for the next two weeks. This is a late spring, and to-day (May 10) the pussy willows are still in bloom in some places in the shade. As I drove to the yard, the first time for weeks, I was hoping that the bees would not be *weak*, but *just* strong enough so that they would not have to be supered for fruit bloom. The reason is that I am shipping a load of bees, and am so rushed with work that I do not know how soon I can go to this yard again. Instead of the "just right" condition I had been hoping for, as already stated, some of the colonies were clustered out at the entrance, although the brood-nests were equal to 12 Langstroth frames, and we have had only a few warm days so far this season. It is needless to say the culprits were not Italians, as the latter were not so precocious, and will not suffer for a week or two, although most of them are in fair condition.

Some have reported a heavy consumption of stores the past winter; but such has not been the case with our bees unless they were stronger than usual last fall. For some reason, although we have had an abnormally cold winter and a very late cold spring, the bees that came through the winter well are very strong for the time of year. I am sorry to say, however, that in our section a good deal of the little clover we had left last fall is killed by the late spring frosts. By the way, just a few days ago one of my friends chided me for giving such pessimistic views of the prospects in our section, and remarked, "Why, the most of the fellows over the line think that Canada is about as big as a postage stamp; and when they read your notes in GLEANINGS they will come to the conclusion that there will be no honey in Canada in 1912." For fear this might be true, let me say that, in many parts of our country, the prospects are good; yet, on the other hand, many localities have but very little clover, owing to the terrible drouth of last summer.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

PARCELS POST.

What advantage is it going to be to the beekeeper to have a parcels post with a limit of eleven pounds, and a charge of twelve cents a pound to send it, when he can send merchandise by express clear across the country for half that amount, and no limit as to weight? It looks as if our servants were listening to the express companies, and also perhaps accepting their franks. We shall not get relief until the postoffice competes with the express companies, which will mean that they will be forced out of business. Why are they allowed to operate in violation of the law, as they are doing? Perhaps we should not ask for parcels post at all but should demand an enforcement of the law.

WHAT MAKES BEEKEEPING WORTH WHILE.

The ideal home is one of many interests. But one point about this ideal home is that all the interests center in and radiate from the home. The children stay at home because they would rather be there. The girls help with the housework, and practice on the piano. Then there is the workbench, and the garden and horse and cow for the boy to help with. Games and children's magazines, and music in the evening, will easily make home most attractive to children. If home is bright and pleasant it will not hurt the children to get out once in a while either.

One of the happiest memories of my boyhood was the fact that my brothers and I had free access to all the tools on the place, and we used them at the workbench. We had a cigar-box telephone from the house to the barn, and we could hear the pigeons cooing in the barn; and when we were in the barn we could hear sister playing the organ in the house. Then we had a stone-derrick in our cellar, like the big one in the stone-quarry near by. We made it ourselves, and cars and track. Practically all our playthings we had to make, which was good for us. Then we had each a piece of garden and a hive of bees. Pa would sell any thing to us that was on the place, and let us pay for it out of the sales. Brother and I bought the chickens, and sold eggs and chickens at the college boarding-houses. Then I went into Belgian hares and raised over a hundred. I didn't make much, but it was lots of fun. But the pigeons! ah, they were the real pleasure, with their cooing and fighting, and mother protesting because they would alight on the roof, and that did not improve the rain water. But we kept the pigeons. We had commys, just common pigeons, you know; then we had fantails and tumblers. We could tell every one of our birds on the wing half a mile off. And what rejoicing when one of ours would coax a mate from some other farm! and what a sense of loss when one of our fantails got coaxed to some other place!

Nothing is finer than a home with children all alive and interested in the work and pleasures to be found on a small plot of ground, and a roof with love permeating it all. I think father and mother enjoyed their children's enthusiasm, and bravely stood the care and worry the younger ones could not know.

Do not these things make the life of a beekeeper worth while? If you are a beekeeper, and do not have this community of interests in the home and its life, I assure you that you are missing some of the richest things in life.

SELLING HONEY FROM DISEASED COLONIES.

Do you know the law in regard to foul brood in Colorado? Perhaps you are violating it unwittingly.

How to produce honey in a foul-brood district, and at the same time be reasonably sure that no diseased honey is sold, is a problem. But it can be done, and there are a few who are doing it profitably. Inspection and treatment will, perhaps, be necessary three times during the season. Inspecting and treating every diseased colony early in May or June will prevent the storing of much diseased honey later in the season. During July or August, another inspection can be given, and all honey stored by diseased colonies should be treated the same as the honey in diseased brood-combs. All colonies found diseased during this inspection should be treated the same as during the first inspection in June.

A large amount of fine honey may be obtained from these colonies; but it should be extracted or rendered, and labeled as foul honey. It can then be boiled thoroughly and fed (a questionable practice), or it may be made into vinegar. Such honey can be used to good advantage by bakeries if the empty cans are cleansed with live steam and not thrown out on the garbage-pile. The laws of some States prohibit the sale of honey from diseased hives; but it is difficult if not impossible to prove the violation of the law in most cases, so honey is constantly sold in this way. It is useless to have a clause in a law that can not be enforced.

If honey from foul-brood hives is sold to bakeries it would be a good plan to instruct the bakery of the nature of the honey, and to require those in charge to report the treatment and disposition made of the cans. It might be well to have these cans shipped back to the producer of the honey, and require the producer to obtain a permit to sell diseased honey. A record could then be kept of the whole transaction.

Conversations with Doolittle

At Borodino, New York

SIGNS OF SWARMING.

None of the books say much that is of any service to the ordinary apiarist, about the reliable signs of swarming. How do you know that a colony is about to swarm?

I suppose the reason the books have little to say about "the reliable signs of swarming" is because these reliable signs are mostly missing in an outside diagnosis regarding the issuing of the first or prime swarm from any colony. Of course there are indications that point toward the time when the prime swarm may issue; but it frequently happens, after all, that the season for watching for swarms may pass away without the issuing of a single swarm. Again, some of these signs may not appear at all; yet a swarm will issue, and one can hardly believe his eyes in seeing the bees pouring forth from that colony which he supposed would be the last to swarm.

There is no need of watching for swarms before the fruit trees blossom, in any locality where such trees abound, as these are the first which give nectar enough to tempt swarming; and, as a rule, with colonies in normal condition, not one swarm issues during fruit bloom, even in large apiaries, more than one season out of five. To digress:

If a colony supersedes or loses its queen five or six days before fruit bloom opens, then one may expect swarms from that colony about the middle of fruit bloom, if the colony is strong in bees. But such a swarm could not be considered a prime swarm, although it might properly be called a first swarm. A prime swarm is one issuing with the old or mother queen which has lived in the colony over winter. To be a little more definite, any swarm with the accompanying queen being the mother of the bees composing the swarm, can be properly called a prime swarm. All other swarms, or those having virgin or unfertile queens, should be classed as after-swarms, even though they are the first swarms of the season. But no swarm need be expected during fruit bloom, except from very strong colonies, and such colonies are the exception at this time of the year in the greater part of the United States. Swarms during fruit bloom are hardly frequent enough to pay any one to neglect other work to keep watch.

We used to have a good flow of nectar from the black locust, which came long enough before the clover so that considerable swarming was done at the beginning of clover; but the most of these trees, being of value for fence-posts, have been cut down, so that source of supply is cut off. When clover appears, one may expect swarms from all colonies which have become strong enough so that the bees cluster out on sultry days; and by the time the clover bloom has yielded nectar for a week or ten days, swarms are likely to issue from any colonies which may be considered fairly good ones.

The above is about all that can be said from merely outside appearances. Some say that bees scraping the outside of the hive, many drones flying, or any strong colony that has been at work with vigor, and then appears listless, are sure signs that a swarm will issue within a day or two; but from over forty years of experience I fail to find these any thing more than a "happen so."

If one looks inside the hive he can get much closer to indications regarding the issuing of the prime swarm; but even this is not altogether satisfactory. If he finds queen-cells with drawn-out thin side walls, in any strong colony at the beginning of clover bloom, he naturallly comes to the conclusion that eggs will soon be deposited in these, when, as a rule, the swarm will issue eight or ten days later. If eggs are in these cells, then he may figure that the swarm will issue from six to nine days later, according to the length of time these eggs have been deposited; for the rule is, three days in the egg and six days in the larval form, at which time the queen-cell is sealed up; and with the sealing of this first cell comes the issuing of the prime swarm, unless unfavorable weather interferes. But for the apiarist with from 100 to 500 colonies, this examination for queen-cells of different ages is a task seldom undertaken.

I said that, as a rule, the prime swarm issues with the sealing of the first queen-cell. But at times the exceptions will almost equal the rule. During a year when the bees seem to get the "swarming fever," little attention is paid to rule, swarms issuing with the laying of the first egg, or the hatching of the first larva, or at any point between the egg and the sealing of the first cell. Then bad weather may keep the swarm back until the young queens, which mature seven days after the sealing of the cell, may be cutting their way out of these cells.

Over forty years of experience have taught me that, four years out of five, nineteen out of every twenty swarms issue according to rule; and the smaller the apiary, the nearer to the rule do they issue; that when they do issue according to this rule, the first young queen emerges from her cell seven days after the prime swarm issues, begins to pipe on the evening of the eighth day, and the first after-swarm issues during the afternoon of the ninth or the forenoon of the tenth day after the issuing of the prime swarm. The second after-swarm issues two days later; and where more are tolerated, an after-swarm will issue every day till the colony becomes so weak that swarming is given up. After-swarming may be prevented easily by cutting off or destroying all queen-cells during the early morning of the next day after a piping queen has been heard the night before.

General Correspondence

ISLE-OF-WIGHT DISEASE

Infectious Paralysis is Curable

BY SAMUEL SIMMINS

In your issue for Jan. 15, 1912, our friend Mr. D. Macdonald gives a very gloomy view of the above disease; but his conclusions are in some cases based on error. The disease is curable and can be prevented.

While Mr. Macdonald refers to only a tithe of the large apiaries that have been wiped out, your readers will be interested to know that, almost without exception, the bees thus suffering were mostly blacks or common hybrids; and in many cases no foreign blood had been introduced for many years.

In 1908 terrible havoc was caused among the bees over a large district in California by a plague of infectious paralysis. New South Wales was visited by a similar trouble in 1894 and other parts of Australia in 1906, when over a large area it was almost impossible to find an apiary without some trace of it.

The trouble has been referred to at various times by a number of American contributors to the journals—from Florida, Michigan, Ohio, Mississippi, etc., from 1890 onward. A notice in GLEANINGS for July 15, 1896, expressed the editor's fear that bee-paralysis was spreading over the whole of the United States; but such has not been the case, apparently, and never will be, for just here we come right to the true reason why such a dire event can not result in fact. Bee paralysis will never make headway where the majority of owners use only Italians. I am not saying that these bees are absolutely immune; but should they become infected they more readily recover. I believe the same partial immunity will be found in the case of Carniolans and Cyprians.

In my own apiary I keep no native bees, and I am exempt from the disease. I know of apiaries, in the center of the ruins of hundreds of native stocks; but the former, consisting of a high grade of Italians, remain, and do well all the time.

THE CAUSE OF BEE PARALYSIS.

This is patent to any observant beekeeper; and without troubling as to the actual origin, the practical beeowner will see how easily the malady may be overcome. Instead of being a more serious trouble than foul brood, as many panic-stricken beekeepers declare it to be, it is really one of the most simple of any bee disease to deal with. Fortunately neither the queen nor the brood is affected, so that there is a good foundation to work on.

The complaint can not be said to come as a thief in the night. Mr. Macdonald himself, as well as many others, introduced it to their apiaries by buying swarms from infected places. But where not actually contracted by robbing, it is well known that the disease may exist, and has done so, in an apiary for a whole year, or even longer, before the beekeeper is awake to the reality of the visitation; and he finds he has been asleep for months while the thief has been with him all the time in broad daylight.

The only reason why the sick bees wander about on the ground, or climb on to the blades of grass, without being able to fly, is because the spiracles are practically closed, and the air sacs and trachæ are congested. This is the cause of the final trouble—constipation, or inability to evacuate.

We therefore need not concern ourselves much about the origin or the definite disease germ causing the first symptoms. We have simply to remove the obstruction by enabling the bee to fill again its air sacs and trachæ, while at the same time applying a suitable medicinal agent.

MOIST HEAT OR GENTLE STEAMING

has been found to be the basis of recovery, while adding the necessary curative agent. In the *British Bee Journal* for Oct. 5, 1911, I assured my readers that a paralyzed and bloated bee picked up from the ground, as it crawled helplessly about (in the hot sun at a temperature of 100°) would fly after being held in the closed moist hand for a few seconds. This is a most simple fact; for, though the dry heat could not help the sick bee, the warm moisture immediately acts upon the air-vessels, which are at once filled with life-giving oxygen, and the bee is off on the wing before relieving its overloaded bowel—an event afterward accomplished because of the normal pressure then exercised by the intake of air.

I have offered my numerous unfortunate correspondents a method of effectually steaming the whole contents of the hive with most satisfactory results; and after my letter to the *British Bee Journal*, as above, the moist-heat basis of cure was repeatedly proved to be a fact in truth and deed.

Readers found that, after the application of warm moisture, as I had directed, those hitherto helpless bees were enabled to fly again as well they ever did; while in other cases, where my definite treatment of saturating the bees (short of drowning them), with a warm curative solution, has proved eminently satisfactory.

In my own opinion it is sheer folly to destroy any thing unless it be old quilts or possibly soiled combs—the latter seldom occurring with genuine Isle-of-Wight disease or infectious paralysis. Where soiling has been noticed, it can be only a case of severe dysentery, or this trouble overtaking the sick and degenerate bees. Otherwise the paralysis is often evident with no sign either of accumulations in the intestines nor any unusually distended state of the abdomen.

Even in summer the paralyzed bees are

more numerous after they have been confined by dull weather for a few days, many workers dropping to the ground as soon as a general flight is attempted. The very simple plan of spraying these affected stocks with nothing more than warm water daily, while they are thus confined, would alone save the whole of these otherwise condemned bees; but this does not imply that they would be permanently cured without a suitable medicinal agent. The want of water alone is a very serious detriment to the sick bees, not only when the weather does not permit of flying, but from the first state of infection the bee requires that moisture, although it is becoming too lethargic to make any attempt to secure it.

I had a serious experience with bee paralysis in 1878, and had no difficulty in overcoming it without loss of stock; consequently I do not share that feeling of panic and the hopeless outlook exhibited by the majority of English writers to-day.

CHANGE OF QUEENS.

In my early experience referred to I found great benefit result from the removal of the queen, giving a vigorous young one just laying. This plan must always be considered a great factor in the cure of any bee disease, as I have always pointed out from the issue of my earlier works.

The addition of fresh healthy brood and young bees is almost equally important. Black bees, and also any but young queens of any race, must be condemned where there is any fear of this malady. Some contributors to GLEANINGS, perhaps ten years or more back, declared that they disposed of the trouble by collecting and destroying the crawling bees daily, and until they did so there appeared to be no abatement of the disease. This would probably be a sufficient remedy in some localities where Italians were used; but it is one that should be rigorously carried out in all cases of paralysis.

I do not consider that the honey is affected. Combs transferred from diseased hives have been known to transmit the disease, but that does not prove that the honey contains germs of the disease; neither is there any reason for supposing robbers carry home the germs in the stolen sweets rather than by contact with the general contents of the hive they may visit.

As a matter of fact, both hives and combs are readily disinfected without removing or unsealing the honey; and I certainly would not advise any unfortunate owner to expect permanent recovery from any treatment unless he also thoroughly cleanses his hives and fumigates the combs with sulphur, or otherwise disinfects them, as they may be removed free from brood.

Heathfield, England.

[Our correspondent seems to imply that the Isle-of-Wight disease, so called, is nothing more nor less than our old friend the enemy, bee paralysis. When we went over the Macdonald article in our Jan. 15th issue, it was our purpose to attach a footnote calling attention to the fact that the symptoms of the Isle-of-Wight disease were almost the same as those given for bee paralysis; but the form containing it went to press while we were absent, and consequently the footnote did not appear; but since this article has come in from Mr. Simmins, we are more than ever convinced that the Isle-of-Wight disease is our old friend, bee paralysis. We do not know much about the moisture scheme of cure; but we suggest that some of our friends in this country who have the disease try it out and report.

In this connection it may be interesting to know that the Bureau of Entomology, by the direction of Dr. E. F. Phillips, in Charge of Apiculture, has sent one of its men, Mr. Demuth, to Florida, to study bee paralysis. We are glad to know that Uncle Sam is going to study this hitherto unknown disease. While we do not believe, as we formerly did, that bee paralysis is going to prove serious over the whole country, yet if we could know its real cause we would be in a much better position to handle it.—ED.]

EUROPEAN FOUL BROOD

Is it Necessary to Kill the Queen or to Melt the Diseased Combs? Shaking Bees on Clean Combs, and Placing Diseased Combs Above an Excluder

BY PERCY ORTON

Mr. V. V. Dexter, North Yakima, Washington, March 1, p. 145, asks for articles on producing extracted honey and keeping bees healthy in yards where foul brood exists. If he means European foul brood or black brood I am willing to give my experience. I wish those California (and all other) beekeepers would give this a trial, and not worry so much. I used to worry: but since discovering how easy it is to rid combs of the disease, and to secure large crops of extracted honey without destroying any combs or killing any queens, I have taken real pleasure in the work.

When foul brood first appeared in my yard I was told to melt up all combs, which I did, including some from colonies which were perfectly healthy. Among them was one colony of Carniolans with an extra amount of healthy brood. I questioned the advisability of doing so; but my informant said it would be safer, for it would be only a short time before all of the others would be diseased. I repeated this same wasteful and useless method until I could not raise money to buy any more foundation to fill the frames.

One day I took 50 Hoffman frames of diseased brood and stacked them over a colony with an excluding zinc between, and left them for a month for what healthy brood there was in them to hatch out before melting. Upon examining them at the end of 30 days I found that they were all cleaned out nicely, the cells being polished like

glass. Unbeknown to our good inspector, I concluded to try to use them again for brood-rearing, and I am happy to say these combs and hundreds of others can be seen in my yard this summer, that were very badly diseased in 1906.

Next I wish to say that European foul brood or black brood does not always injure a queen. Hive No. 37 had a Caucasian queen of the 1908 rearing, which was clipped in 1909. This colony showed black brood developing. The combs were removed, and drawn ones were put in their place. An excluder and hive body were placed on top, the bees and queen from the diseased combs, shaken and run into the lower hive body on the empty drawn combs, and the diseased combs put in the top story. The way I manipulate combs to effect a cure, the queen can not deposit eggs in the combs on account of being unable to pass through the zinc, and the bees have ample time to clean them up in 30 days. If the combs are not wanted elsewhere, they may be left for extracting. In 1910 this same colony, No. 37, was the first one to show any signs of the disease. The queen was found; and, being clipped, I knew she was the one in the hive in 1908. The combs were manipulated in the same way again, and this queen produced bees that gathered over 175 pounds of extracted honey, not allowing for any that went with the cappings.

I have used this plan for the last five years without killing any queens, and have taken as high as 261 pounds from a single colony thus treated. What more can be desired? Why the cruel killing of good queens? Do you think I fear black brood? I would not care if a beekeeper located a lot of bees with European foul brood just over the fence from mine if overstocking did not rob me of the nectar that my bees should gather.

I once saw a picture in GLEANINGS of a group of men who, the editor said, were college-bred men inspecting for disease. I wondered what help they would be to some poor beekeeper who had European foul brood in his hives. Those college-bred inspectors would say, "Mr. Jones, we find your colonies have European foul brood. Now, you shake every one of them on to starters to-night." (The next day about half of them would swarm out from the sudden change from combs of honey to starters, according to my experience.) "And at the end of two days shake them on full sheets of foundation. If it reappears, repeat the same operation until a cure is effected."

Now, is that very encouraging to the man who has about 100 colonies to treat? He can figure on spending $100 for comb foundation, and have no honey to sell, and his old trouble may break out again. If he should have any extracting combs on hand at the time, the chances are these inspectors would recommend melting them for fear there might be disease in them.

If the Alexander method of treatment, which is the killing of the queen and requeening in 28 days, or mine, by the use of another set of combs, not killing the queen, but keeping her laying, and the bees gathering a crop of honey, had been urged upon the beekeepers of the land by the bee journals, this European foul brood would not have caused the expense it has to the beekeepers and to the government. This treatment does not tend to increase the sale of queens or comb foundation. Both are good when used at the proper time, but not for the sure cure of European foul brood.

Northampton, N. Y., March 20.

[A sharp distinction should be drawn between European and American foul brood. While it is probably true that under some conditions we can save combs that have been affected with the *European* type of the disease, it is not possible to save those which have been affected with the other type; namely, the American.

The Orton treatment in some respects is similar to the Alexander method that was exploited so much some three or four years ago. Mr. Orton, in his treatment, uses the same basic idea; namely, keeping the queen away from the combs for a period of thirty days. During this time, the bees clean up the combs, polish out the cells and apparently render them fit for use again. We remember looking through Mr. S. D. House's combs at Camillus, New York, which he said had been rotten with European foul brood some years ago, but at the time of our visit were perfectly clean and contained healthy brood.

We were not aware that either American or European foul brood in any way affected the queen bee. Our correspondent seems to take the view that some authorities hold that the queens themselves are "injured." We have so far seen no proof to that effect. —ED.]

A CAUTION IN REGARD TO THE AFTER-TREATMENT OF FOUL BROOD

Disease Carried by Combs Reserved from a Previous Year, Although no Suspicious Brood had been Found that Season

BY G. C. GREINER

For the last two or three years, being surrounded by foul brood within a few miles of my place, and expecting a call from the dreaded visitor at any time, I have taken extra pains to read every thing I could find on this subject, to prepare myself for a successful combat whenever occasion should force it upon me.

Well, the disease appeared early last spring; and by the time the white-clover flow opened, the whole apiary, with the exception of a few scattering Italians, was fairly rotten with the disease. During the clover flow, every diseased colony was shaken off on starters, Italian queens were introduced, and the contents of all infected hives burned up.

When the spring had nicely opened, I found myself the possessor of a large lot of

empty hives; and, for reasons that I can not explain, all the last colonies had died from queenlessness. There was not a sign of brood of any kind to be found in any of the combs; and as all of them had been built on full sheets of foundation they were what we would call perfect combs in every respect. Later on in the season, as I had not seen the first suspicious sign of foul brood in 1910, I had no fear of using these combs. I knew well enough that nearly all the new combs built on starters by the shaken-off colonies would be more or less irregular, and I intended to use these good (?) combs to exchange with them and fill out the hives later on. All, or nearly all, the *new* colonies I had reduced to five or six frame capacity, according to the strength of the colony at the time of shaking off, and I considered these combs, in addition to the full sheets of foundation, just the thing to fill out the hives.

With the advancing season, which brought us a fairly good honey-flow or flows (we had clover, buckwheat, and fall flows), the progress in the hives was all that could be expected. The starters were rapidly drawn out, and stocked up with brood by the introduced Italian queens, and nowhere could the reappearance of the disease be noticed. As combs grew larger and brood began to hatch, I deemed it advisable to begin sorting out undesirable combs, especially those that were nearly all drone comb, replacing them either with full sheets of foundation or with some of these reserved combs mentioned above. Whenever the conditions of the different colonies would admit I inserted foundation or combs in the middle of the brood nest or began to remove the division-boards I had used for reducing the hive space, and filled out in the same way.

I hardly need to say that I kept close watch on all growing brood; and just when I began to flatter myself of my achieved victory I received a setback that caused me no little anxiety. Many of those inserted combs showed again signs of disease. To be sure, only a few scattering cells were visible; but the disease was there just the same. However, later in the season all affected brood disappeared again of its own accord. What the outcome will be, whether the trouble will reappear this year or not, is a matter of conjecture. Time will tell.

The foregoing experience shows very forcibly that we can not be too careful in battling with the disease. Although I had a little fear of using these old combs, this was removed by the opinion of our foul-brood inspector. When the latter called at my place last spring we examined these combs very closely; and after I had given him the history of them he did not think it would be dangerous in the least to use them again as I proposed.

I can not say positively that those old combs were infected. The disease might have appeared on perfectly sound combs any way; but as no signs of infection were noticed on combs the bees had built themselves from starters, nor on any they had drawn out from inserted full sheets of foundation, the appearance leans a little in that direction. If I had to repeat the whole program I would rather err on the right side. I would consign all combs, sound as they may seem, to the furnace, or, as in this case, to the wax-press, and use full sheets of foundation instead. The actual loss, outside of the trouble of making the wax, would not be of sufficient consequence to run the risk of making a failure of the treatment, for the wax so obtained would nearly if not quite pay for the foundation used.

We are advised to render all diseased combs into wax, and thus save at least a little from the destruction. From a financial point of view this may seem plausible; but to handle this rotten mess is a most disagreeable job, to say nothing of the danger connected with the work. All our tools and appliances used in making the wax would necessarily be infected with the germ of the disease; and instead of putting a stop to its ravages we would assist, or be liable to, in spreading the disease. The best, safest, and (in the end) the cheapest way of disposing of all the diseased combs and other contaminated traps is to annihilate them in the quickest and shortest way that will accomplish it. This, from experience, would be my advice.

La Salle, N. Y.

[If there are only a few diseased combs it undoubtedly would be cheaper in the end to burn them; but if there are a good many the loss of the wax amounts to considerable. If the old combs are boiled in plenty of water—not simply brought to a boil, but boiled and stirred, and boiled some more, there is no danger. Such work, if not done in a screened building, should be done at night, and all cans or utensils that came in contact with the comb before it was boiled, or with the honey dripping from them, should be thoroughly cleaned and boiled out. All old boxes, sacks, or baskets holding the comb should be burned.—ED.]

HOW PROPOLIS IS COLLECTED

Some Further Notes on Pollen-collecting

BY F. W. L. SLADEN

Thinking it would be impossible for the bee to pass a gummy substance like propolis through the leg to the corbicula, as it does the pollen (March 15, p. 172), I removed a cover from one of my hives and exposed it in the apiary to the warm sunshine to see what would happen. A bee soon alighted, and, after making several futile attempts, succeeded in detaching with its mandibles a little bit of propolis. Seizing the fragment in its fore legs it dashed it on the left corbicula with the left middle leg, patting it on the corbicula with the metatarsi of this leg. Further fragments were detached, and passed on in

the same way, some being transferred by the left middle leg to the left corbicula, and others by the right middle leg to the right corbicula. It is possible—though the motion was too quick for me to see it—that the fragments were caught by the middle leg on the angle between the tibia and metatarsus, and held by the spur on the tibia.

Thus the bee loads its corbicula with pollen in one way, and with propolis in another way, the former substance being combed into a receiver below the corbicula from the metatarsus of the opposite hind leg, and squeezed out on to the corbicula by the straightening of the leg, and the latter being plastered direct on to the corbicula by the middle leg of the same side. It is possible that the latter process is sometimes used in the case of pollen, and I have seen honeybees patting the pollen that is on the corbicula with the metatarsus of the middle leg. This patting is evidently an essential part of the process of loading the pollen on the corbicula; for when I load a dead bumble-bee's corbicula artificially I find that the pollen stands out and needs to be patted down in order to make it lie on the corbicula as it does in nature.

Hoffer, in *Die Hummeln Steiermarks*, Vol. I., p. 37, states that the bumble-bee brushes the pollen out of the body hairs with the two first pairs of feet into the mouth, and there chews and kneads it with honey and saliva into a sticky paste which is conveyed back again with the feet, and pressed with the help of the middle legs, on to the corbicula of the hind legs; and Crawshaw has lately drawn attention to the fact (which may be easily verified by watching bees working on the many flowers that are now out) that the honeybee often gathers pollen direct from the anthers with the mandibles, which are used to knead it. This kneading of the pollen in the mouth explains the source of the honey in the pollen, and makes it unnecessary to assume that the legs are moistened with honey to make the pollen adhere to them. Nevertheless, from observations I have made I believe that the legs are moistened in some flowers.

Ripplecourt, England.

FORMING NUCLEI OVER STRONG COLONIES FOR QUEEN-REARING

BY ISAAC F. TILLINGHAST

By the modern methods of commercial queen-rearing, fully described in the books on the subject, it is comparatively easy to produce a large number of first-class virgin queens from selected mothers; but it is more of a trick to carry them forward past the period of impregnation and into fully developed motherhood. To accomplish this in quantities greater than is required for home use, some form of nuclei is required.

The system of baby mating-boxes in general use by many breeders has never appealed strongly to me, mainly on account of the expense and trouble required in getting them started. I much prefer confining myself to the use of standard-size frames which may at any time be transferred to and from my full colonies; and then when through queen-rearing for the season, may either be built up to a size suitable for safe wintering or united and reduced in number as circumstances seem to require.

The best way of making these nuclei that I have ever tried is, first, to tier up as when planning for extracting or for increase by the Alexander plan. If the colony contains a queen which one wishes to breed from, and cells are desired, a complete cut-off of wire cloth or paper is put on the queen-excluder, and left from 24 to 48 hours, when it may be removed. The advantage of a sheet of paper is that the bees themselves will attend to the removal by eating or tearing it away so that they may pass readily from one compartment to the other; but in all cases the queen-excluder must remain in order to confine the old queen below; and if cells are once started they will not be abandoned on account of the removal of the complete barrier.

The colony is then left until the tenth day from the time of division or tiering, when the upper portion is divided into as many two or three frame nuclei as desired, giving each a cell ready to hatch, replacing the wire-cloth cutoff, and after three or four days' confinement giving each an independent entrance and exit, which is usually a ¾-inch hole placed on different sides. These bodies should be carefully prepared with tight division-boards, thus forming separate compartments. Each should contain two frames of brood and one frame of honey. At any time after ten days, when all the brood is sealed, any or all of these nuclei may be transferred each to a full-sized hive body and removed to a new stand, where, by feeding and confining them for a few days, nearly all will remain, and there will be no loss of brood by chilling or lack of nursing, which is sure to take place where removal of unsealed brood is made direct from the parent hive.

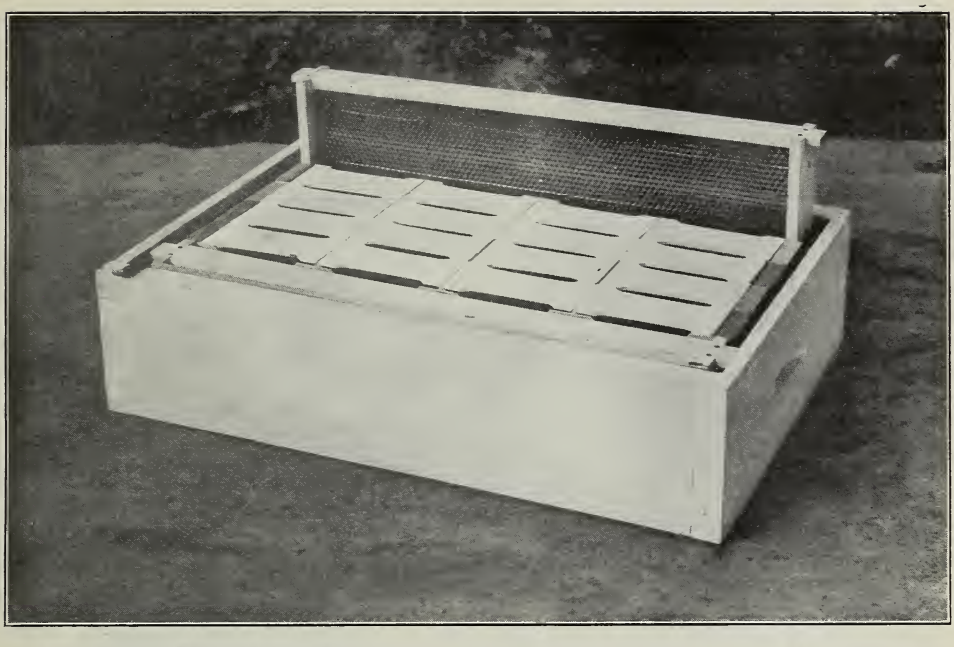
Our preference, however, is to leave them on the parent hive, or remove a portion of them to the tops of other strong colonies where they may be benefited by the warmth arising from the bees below. We have but little difficulty in securing fertilization of queens in this way, but find that the wire cloth as well as queen-excluder is necessary in order to make a complete separation.

Factoryville, Pa.

Proof of the Value of a Bait Section

I put one full-comb section with perhaps a dozen cells of honey in the center of the super late in the season. When I took that super off, that bait section was filled full and capped white, a fancy filled section, and scarcely another section in that super had been touched.

Lincolnville, Me. FRED BREWSTER.



T super containing two extracting-frames with wide end-bars, so that they take the same amount of room as a section-holder.

COMB AND EXTRACTED HONEY PRODUCED IN THE SAME SUPER

Is the Production of Comb Honey without Separators Advisable?

BY E. D. TOWNSEND

Mr. E. D. Townsend:—There is one thing in regard to the production of comb and extracted honey in the same super that is not quite clear to me. You have referred to the regular dovetailed super with 4¼ x 4¼ x 1⅞ two-beeway sections and *plain* separators. Now, then, my supers are all of the above-described style, ten-frame size, with slotted separators. Can I use these in with the shallow frames, or must I have the plain separators?

Again, would it be safe for me to leave out the separators and follower and springs, and space the section-holders and shallow frames equally?

The reason I mention this is that some of my customers complain that the 1⅞ section is too small; i. e., too much *box* for the honey it contains. What would please me (if I could use it in the regular super) would be the two-inch section; then I could make them hold 1 lb. of honey, or very near it. As before stated, my supers are all regular, of ten-frame size, and, with the separators and follower, hold 28 1⅞ sections. Mr. Mondeng, of Minneapolis, tells me he produces nice marketable sections without separators, and has no difficulty in getting the bees to go into them; but I want the shallow frames.

Elroy, Wis. CHAS. SHELDON.

I can see no reason why a shallow extracting-frame will not interchange with any section-holder in your ten-frame super. The end-bars of the extracting-frame should be made the same size as the end-bar of the section-holder, and the top and bottom bar but ⅞ inch wide, so that the comb may be uncapped more easily. The slotted separator ought to work well with this combination.

Good comb honey *can* be produced without separators, but it is not advisable in your case. It is a fine art to produce nice comb honey without separators, and it would take you years to acquire the "knack" of producing honey that would come anywhere near up to the standard of that produced between separators. I have seen a few beekeepers who have acquired this knack, but these were some of the older ones who began before there was much done along the line of separators.

In arranging the super where no separators are used, sections that are partly full of comb from the previous season's use should be grouped together, according to the amount of work that has been done in them. The sections that are nearly full of comb should be put by themselves, and a super filled with them. Those sections that are only partly full or comb should be arranged in supers containing combs of about the same thickness. New sections containing only foundation starters or full sheets, as the case may be, should also be put in supers by themselves. If one were to alternate sections of drawn comb with those having but foundation, the sections containing drawn combs would be drawn out into great thick combs, while those having nothing but foundation would be very thin, some being hardly touched, and therefore not marketable. By keeping each kind of section by itself, as explained above, very good work can be expected without separators.

One of the more important reasons for using separators at the present time is that the finished sections must all be about the same size and finish, as they sell by the

piece, in most cases. Some 15 or 20 years ago grocers weighed out nearly every thing they sold. Sugar, coffee, rice, and spices of all kinds were bought in the bulk and weighed up in any amount that was wanted. The grocer now hands out a fourth or a half pound, all done up in a nice package. With this method of handling goods there is no shrinkage, and the grocers like it, and will handle nothing but package goods, in many cases, on this account. This is the way that comb honey will be handled in the future; and to make this possible, separators must be used in the production of the honey.

As only two springs can be used to advantage with this combined arrangement of the super, the separators between the extracting-comb and the first row of sections ought to be made as thick as possible so as to hold the sections in place near the center.

With two extracting-frames to the super, one at each outside, any one can get the bees to enter the supers readily, if he will follow the very simple rule of putting the supers on at the first opening of the clover, not waiting until it begins to yield honey, as that would be too late.

I admire your desire to please your customers; but I am very sure you have undertaken a hopeless task. No one can please every one, and the better way is to keep near the beaten trail and produce your comb honey in the orthodox section. Your customer who complains of your selling him too much wood with his 14 ounces of honey would likely complain were you to produce sections of honey weighing 16 ounces and charge him a nickel more for it. The thing that would really please this customer would be for you to produce full pounds of honey, then sell it to him, charging him for only the 14 ounces as usual.

I would advise that you continue to use the $4\frac{1}{4}\times4\frac{1}{4}\times1\frac{7}{8}$-inch two-beeway sections and separators. Use two extracting-combs in each super, one at each outside. When your honey is ready, crate it in the double tier or Colorado shipping-case. When ready for the market, quote your price by the *case*, not by the pound.

Remus, Mich.

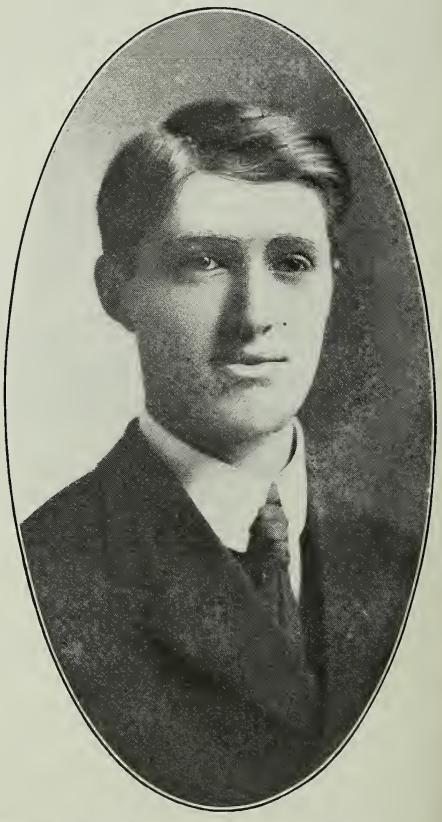
WHY IT PAYS TO PAINT HIVES

BY FRANK F. FRANCE

In traveling over the country I have run across whole apiaries of unpainted hives, often close to apiaries owned by adjoining beekeepers in which every hive was painted, and I have not failed to notice the great contrast, both in durability and appearance, between the two. Here in the North, if the hives are not painted, at least occasionally, the moisture that soaks into the wood will cause trouble when freezing and thawing takes place. The illustration shows a hive that has never been painted. The nails are pulled out about an eighth of an inch, and the lumber has sprung apart at the corners. This would not have happened if the wood had been thoroughly painted in the first place, so that the moisture could not be absorbed. A hive left unpainted in this way for four or five years will require more paint to get it in shape than it is worth; and on this account a little paint well applied at the beginning is worth a whole lot in the end. Neglecting a matter of this kind is to spare the cent and lose the dollar; in other words, it means a new hive just a little quicker. This is a serious matter, for the quality of lumber is slowly deteriorating and the quantity diminishing, so that the price is steadily going higher.

WHAT PAINT TO USE.

By all means use pure paint. Pure linseed oil and pure pigments properly united are always the cheapest in the end. Some department stores sell paint by the mail-order plan; but I have found it is best to deal with the very best standard companies who make paint a business alone, for then one is much more likely to get pure material.



FRANK F. FRANCE, SON OF N. E. FRANCE, PLATTEVILLE, WISCONSIN.

Mr. France spent a year in California to get some experience with the producers of the far West, and now he has returned to his native State to take up beekeeping in earnest. May he have as much success as his father and grandfather!

The most durable pigments are oxide of zinc, white lead, lampblack, yellow ocher, and venetian red. There are many others that are good, but I have found these the most suitable for hives in this locality. I have had opportunity of testing many colors in sign-painting, and in old signs I have found that letters painted with lampblack or white lead show the longest.

The paint most recommended for durability is one coat of pure linseed oil thickened with pure yellow ocher well brushed in, and one coat of oxide of zinc or white lead ground in linseed oil to a good body and well brushed in. What I mean by brushing in is rubbing the paint well into the wood and applying the second coat only when the preceding one is thoroughly dry. Two coats of paint thus applied will last two or three years. Many complain of white lead "chalking." This difficulty would be overcome if more linseed oil were used. Lead beautifies and fills the surface, and the oil holds it there.

A hive which has never been painted, showing how the nails are drawn and the corners permitted to gap apart.

Many have asked whether it is practicable to paint the hives while the bees are in them. There is no objection to this; but it is well to add a little drier, such as japan and turpentine, so that, if the paint is put on in the afternoon, it will be dry by the next morning.

Any one who has done any buying of late years can understand why the price of linseed oil, pigments, etc., has advanced. The question of the supply and the purity of the product make these high prices. In many of the States I believe there is a law specifying the purity of linseed oil and turpentine, so that those who sell them dare not label them pure unless they are. I am informed that in one State some of the merchants are selling their oil and turpentine as adulterated, though purchased and sold in good faith as being of the highest quality, simply to protect themselves in case of a possibility of adulteration.

But even at the present prices, good paint is to-day the cheapest commodity we have to buy. Paint is a form of insurance that prevents the slow type of burning known as decay. Painters claim that only 25 per cent of the perishable property of this country is protected by this efficient form of insurance. Shall we not insure our hives?

Platteville, Wis.

FRAMES WITH BOTTOM-BARS HALF AN INCH THICK

Are Not the Standard Bottom-bars too Thin?

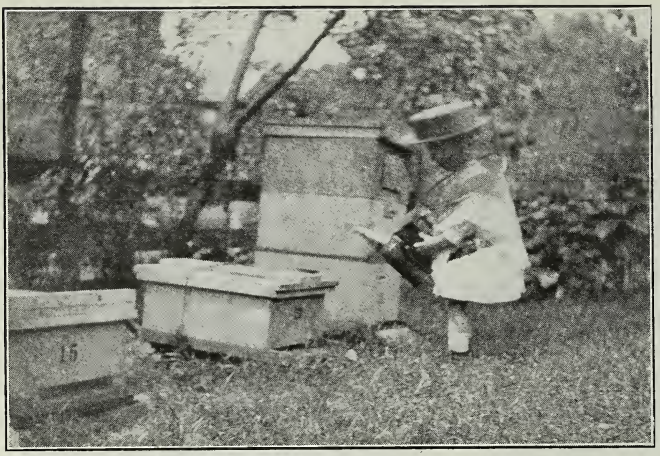
BY FRITZ BOHNE

Some six or seven years ago I made all my brood and extracting frames myself (by hand), and made all the bottom-bars in both brood and extracting frames half an inch thick, and the bottom-bar with an offset or rabbeted end, so that I could nail it both ways by driving a nail through the bottom-bar into the end-bar and one through end-bar into the end of the bottom-bar. This gave the frames more strength. It is almost impossible to break or pull the bottom-bar from a frame made in such a manner.

The main reason I made the bottom-bar half an inch thick was to start the bees to building the comb lower down in the frame — especially in those extracting-frames which were almost entirely filled with comb, and the comb fastened in most instances to both the bottom-bar and the top-bar.

Then with frames having half-inch bottom-bars I did not run the risk of tearing the comb loose from the bottom-bar nor of splitting it in the middle, as would sometimes happen when taking out a frame with a quarter-inch bottom-bar having the comb fastened to bottom-bar.

The half-inch bar does not bend as the quarter-inch bar does when the bees fasten the extracting-frames to the brood frame



Undecided whether to use smoke at the entrance.

with propolis. In the part of Texas in which I live the bees gather a large amount of propolis.

I have all my bees in one apiary, but I can examine them now and find that the hives containing frames of my own make, with half-inch bottom-bars, are almost all filled out with comb which is fastened securely to the bottom-bar, while the hives containing factory-made frames with quarter-inch bottom-bars have the comb coming within half or quarter of an inch of the bottom-bar, and in some instances fastened to it. I do not mention this in a boasting way, but simply in connection with my experience with bees and frame hives.

Has any one made similar observation? If so, I wish to hear about it. I stopped making my own frames, although I know how to handle tools, because I think I can buy frames much more cheaply than I can make them by hand. If frames with half-inch bottom-bars were manufactured I would have no other.

Washington, Texas.

BEEKEEPING IN CINCINNATI, A MILE FROM THE HEART OF THE CITY

BY ALBIN PLATZ

Believing that it may be of interest to the readers of GLEANINGS to learn of the feasibility of keeping bees profitably and without the slightest danger or annoyance to neighbors or passersby in large cities, I venture to write a few lines on the subject, and enclose a couple of photos of my little apiary. My work confining me indoors eight hours and more every day (I am a letter distributor in the Cincinnati postoffice), I looked about for some means of recreation in the open air and sunlight. In beekeeping I found every thing and more that I could have wished for. It is, without doubt, one of the most fascinating and healthful of recreations. I keep my colonies (seven Italians and one Banat) in the rear of my yard, which measures but 34×126 feet. My home is situated on Mt. Auburn, a thickly populated suburb of Cincinnati, and within one mile of the heart of the city itself.

I have often been asked whether bees are not a nuisance to my neighbors and others. Decidedly they are not, and I have yet to hear of any one being stung by my bees, or annoyed in any way. My little boy, of three years, often plays among the hives, and even climbs on top of them, and still the bees do not molest him. I have never heard a complaint—in reality, most people are interested in the little creatures, and it often keeps me busy answering questions regarding them.

As regards the amount of honey secured, despite the limited pasturage, my bees do pretty well. Last year was a complete failure, and, moreover, American foul brood was very prevalent in this locality; but in 1910 I started the season with four colonies; increased to 6; secured 300 lbs. of fine extracted honey, and about 25 lbs. more in sealed combs, which I held over the winter. My honey sells readily for 20 cts. per lb., and the demand exceeds by far the supply; so it is very evident that bees are profitable as well as a pleasure.

I am sure the gentle art of apiculture is steadily growing in popularity in this city; for in the last few years quite a few recruits

Apiary of Albin Platz, in the back of a city lot, Cincinnati, Ohio.

Mr. and Mrs. J. B. Mason, of Mechanic Falls, Me.

have been added to the ranks, and I know of several more who are going to start this spring. With the aid of the several good text-books on this subject, and GLEANINGS, the heretofore mystery of beekeeping becomes so simple and clear that the most timid and uninformed beginner can soon become adept in the business, and find new pleasures in it year after year.

Cincinnati, Ohio.

BEEKEEPING FOR WOMEN

The Advantage of Being Skilled in the Use of Tools

BY INEZ A. BEALS

Perhaps many who patronize Mr. J. B. Mason, of Mechanic Falls, Me., may not know that Mrs. Mason is so closely associated with her husband's business. I hardly see how he could do without her assistance, since she knows every detail of the work. I am an infant in the bee business myself; but last spring I was in need of some hives and supplies, so I went over to Mechanic Falls. I had heard of the supply house, and wanted to see the different things kept for the bee business. I found Mr. and Mrs. Mason like friends I had known for years. She invited me into her cozy home. Women who are interested in bees are not as plentiful in the East as in the Western States, so I presume she thought I would not care to visit the supply rooms; but I told her at once that this was just what I had come for. So we went out into an open room, the first of which was Mr. Mason's office; thence into a large high room piled high on either side with hives and furnishings (in the flat) of every description. I wondered how a beginner would know which one to choose.

I was much interested as Mrs. Mason sat down to nail up a double-walled hive. I think it is fine for a woman to be a carpenter; and surely if she is in the bee business she can apply her skill to very profitable advantage. I bought two L. hives complete, and did all the work of nailing them, wiring frames, etc., and I thought it fun. If I had had a good many it would have been just that much more enjoyable.

Mrs. Mason does a great deal of work of this kind, and Mr. Mason knows well her worth. She showed us a stack of hives she had just painted.

We passed on into another room where we saw beeswax, fine and yellow; also all kinds of tools used by beekeepers. Another room was for the jars.

Two years ago I purchased a fine swarm, as an investment. It paid me well that year. The first thing I did was to hunt up and clip the queen. The hive was boiling over with bees, as it was quite late; but she was superseded, so they came out later only to be put back, for the honey flow was at its height, and I wanted honey instead of bees at that time. A swarm issued later, so I had two colonies to winter. Last spring I purchased another.

I am always very glad when I can read something written by a woman beekeeper, for so few women are in the business. Let us hear from them.

Lewiston, Me.

TRANSFERRING BY MEANS OF THE SIMMONS SWARM-CONTROLLER

BY DR. L. A. SIMMONS

The task of transferring bees from a box hive, nail-keg, or any old substitute generally employed by those who keep a few bees in the country, is one not to be desired when done by old methods in general use. If often becomes necessary for the beekeeper to purchase bees in hives of every description, of neighbors, in order to get them out of the way. Transferring by the use of the swarm-controller converts this unpleasant task into play. The swarm-controller is adjusted to an empty hive body, as seen in Fig. 3, page 139, March 1, on left side. This hive is provided with frames with full sheets of foundation. The hive on the right is supposed to be the box hive containing the bees to be transferred. This hive is to be adjusted to the swarm-controller, so that the bees are compelled to work out through

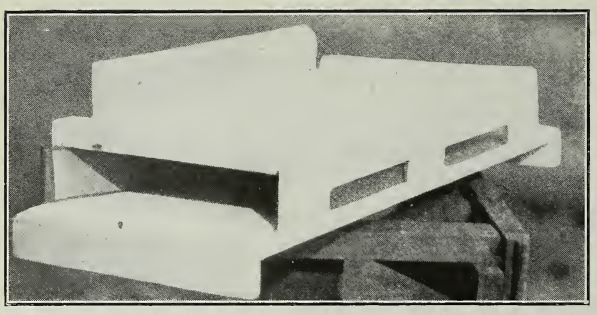


FIG. 6.—Another view of the switching-device by itself.

it, as seen in the cut. The entrance to the hive on the left, containing the foundation, is left open. The rear openings of the controller between the two hives are closed, and the feeder end closed with a shutter. The bees now have access to both hives across the front vestibule of the controller.

Thus arranged they may be left to work and investigate the new combination, and become established in using the new entrance. Transferring should be done when the bees are flying well, but may be done at any time if circumstances demand. If there is a honey-flow, and the bees are well afield, about noon, push in the slide on the right side, seen on top of the swarm-controller, provided with a Porter bee-escape, closing the entrance to the box hive containing the bees. The bees can now leave this hive, but can not return. Returning to the common entrance in the controller they enter the new hive on the left. There will be some commotion for a time on account of the absence of the queen. Two combs of honey and brood can be given in the beginning from some colony that can spare them, and this will very greatly aid in satisfying their discontent. If, however, they are black bees, as they generally are, a laying Italian queen is given in the evening of the first day. When the bee-escape is adjusted, closing the entrance to the old hive, the bees having become established in using the controller entrance, the box hive may now have an entrance or exit made on the side opposite the controller entrance; and all bees leaving this exit will return to the controller entrance and enter the new hive. A sufficient number of bees should be left in the box hive, however, to nurse the brood. In fourteen days the escape is removed, and in its place a slide of perforated zinc is fixed; then smoke the remaining bees from the top of the box hive, and they will go over to the annex. All the entrances between the two hives, front and rear, should now be open except the perforated zinc, so that the bees may readily retreat from the smoke. The call of their comrades will draw them over, and the trouble of clearing the old hive of the remnant of young bees is thus greatly facilitated. Do not forget to place a slide of perforated zinc over both openings of the box hive to prevent the old queen from entering the new hive with the young bees. The old queen can now be killed by fumigating. As the box hive is not joined to the controller (simply set against it), it may be set aside some distance while fumigating. It is now returned to its original position against the controller, all slides removed, giving the bees free access to the hive, front and rear. Mutilate the combs by pushing a stick through them, breaking the honey-cells. This will induce the bees in the new hive to transfer the honey in a short time.

The box hive now contains nothing but the empty combs, which should be removed, torn down, and the wax rendered before the worms get into it. After the old queen in the box hive ceases laying, and has been deprived of her bees for a time, she shrinks, becoming smaller in the abdomen; and there is then danger, by the above process, that she may slip through the perforated zinc along with the bees when smoked out, and thus endanger the safety of the valuable queen in the new hive. To obviate this risk, the old queen in the box

FIG. 7.—Storing empty extracting-combs in extra bodies over the "annex."

Sweet clover harvested for seed by a self-binder.

hive may be drummed out in the beginning, with as many bees as convenient, and then killed. The hives are adjusted as above described, and as seen in the illustration on page 309, last issue, and the bees drummed out and dumped at the entrance. All subsequent steps are the same as above described and illustrated.

STORING EMPTY COMBS.

Mention was made of storing frames of honey in the annex, taken from the brood-chamber during a good honey-flow. I would here emphasize the importance of this measure as a means of relieving the congestion of the hive at a time when it aids in controlling the swarming impulse. These combs are not taken from the bees, but they at once divide their forces to care for them in their new location. This division of work depletes the hive of a class of workers that naturally retire to a place of least resistance as they grow old and less fitted for the arduous duties of field work, thus adding another element in swarm control. Fig. 7 illustrates my method of storing empty extracting combs over the annexes after the season is over. The few combs with a little honey in, at the last extracting should be left, and also some partly filled sections, as food for the guards while taking care of these empty combs. These should be scattered through the stacks of supers. So long as the weather is warm enough for the bees to leave the cluster they will be found scattered through the piles of combs, and the combs will be kept free from worms and mold, and perfectly sweet.

In closing these three articles I wish to add that, if this discussion had been written for the veteran beekeeper alone, very much might have been omitted. In fact, it is only necessary for the veteran to see the cuts and illustrations, and get the principle of the method, to see at once the large field of the device. But these articles were intended to explain fully in plain language merely the chief uses of the controller for the beginner and veteran, and therefore it was necessary to give a detailed description of the various manipulations mentioned.

Auburndale, Fla.

THE HARVESTING OF SWEET CLOVER FOR SEED

The Best Time for Cutting; How to Save All the Seed

BY FRANK COVERDALE

The accompanying illustration shows a field of white sweet clover shocked and dry. We stacked this later, and did not hull it until it had gone through "the sweat;" then it hulled out very nice and clean. If hulled when tough and damp much seed would be left in the straw, and a good deal would also be left unhulled.

The harvesting of sweet-clover seed is very easy, as the self-binder ties it up perfectly and without strain. A big field can be tied and shocked in one day; and when in shock it is safe from all elements that might scatter the seed. If the field is harvested when still somewhat green the straw makes considerable roughage for the cattle and horses; but the seed crop will be lighter and of poorer quality. For this reason we now believe that it is best to let the field stand until well ripened—in fact, just as ripe as

possible without having it shell out. If a field stands well filled with ripe seed, a thunderstorm with a high wind ahead of it may blow much seed to the ground; so it is easy to see that the operator should be on the lookout and get the binder in before such a thing happens. The time to bind it is when the field looks well loaded with black seed with but little green seed showing.

If a field has been cut twice for hay, and then is to be cut for seed, a mower with a buncher will be the best to use. If it can be gathered next morning, while dew is on it, into small cocks that can be handled at one forkful, it will be in shape to haul in to the stack or huller at any time. When dry a canvas should be spread over the rack to catch the scattering seed, and this canvas can be emptied into the stack or huller once in a while. Much fine seed will thus be saved, and the canvas will pay for itself very soon. No one should attempt to haul the seed without a canvas over the rack.

The straw turns water splendidly; and if at all well stacked it will be found nice and dry for winter use for bedding or for live stock to pick over. We formerly cut our seed so green that the straw made fair hay, but have since found out that it pays far better to let the seed ripen more, for the yield will be easily doubled by so doing.

One acre of the field shown in the picture was measured off and hulled alone, and produced 11½ bushels. This, by many bushels, broke all records that I have ever known of as a yield of clover seed, and it was in a season when no one else had any clover on his farm, either for hay or seed. This fact makes the sweet-clover business look good to me.

I have used a Birdsell huller, and it does first-class work with this clover. I have also used a common thrashing-machine, and prefer it to any other outfit, as it gets it out very rapidly, and does the work well. An extra set of concave teeth is put in for this purpose, and these are often used for hulling clover. Our machine men arranged the choppers so as to carry off nearly all the finer choppings behind the machine. This made the work go much faster. It is not difficult to run out 150 to 200 bushels of this seed in one day, and this can easily be hulled for 50 cts. per bushel, and even less if sufficient is grown to keep a machine in the field for a one or two weeks' run.

The thrashing-machine has no recleaner attachment, so the seed has to be recleaned from the machine. We count on having our machinist attach a recleaner, then all will be in first-class shape when done.

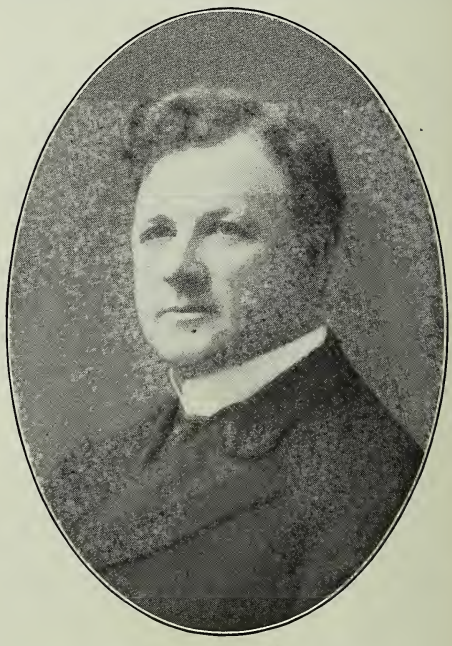
We cut our stubble ten inches from the ground, and the stalks sprout and bloom all the fall, and ripen more seed, which falls to the ground to reseed if one wishes to let the field grow up to sweet clover the coming year. We have such fields, and will just let them reseed themselves for hog pastures next summer. The bees are very busy on these fall stubbles until frost. In a few days the stubble shown in the picture was nearly white with bloom, and indeed it was a pleasant sight to see one great row of bees flying to and from this field all the fall.

Delmar, Iowa.

COURSES IN APICULTURE AT OUR COLLEGES AND UNIVERSITIES

BY E. R. ROOT

More and more our colleges and universities are beginning to recognize bee culture, either by establishing regular courses for the study of bees or by establishing a small apiary where students of entomology and botany may, on the side, study not only the domestic economy of the hive, but learn something about the intimate relations that exist between bees and fruit. The Ohio State University at Columbus, for example, has been having, for a number of years back, lectures on bee culture for the benefit of the students in the short winter agricultural courses. The University has also had practical live-bee demonstrations and field work during the summer.



DR. G. C. CREELMAN.

A college President who is enthusiastic over the Apicultural Department at his institution.

The Massachusetts Agricultural School, as announced in our last issue, on page 21, has regular courses in apiculture under the direction and management of Dr. Burton N. Gates, formerly of the Bureau of Entomology, Washington, D. C. Splendid work has already been done, not only in teaching methods of management but in equipping students so that they become efficient foul-

brood inspectors. What Massachusetts is doing is also being accomplished by the Ontario Agricultural College at Guelph, Can. The apicultural courses are under the direction of Mr. Morley Pettit, lecturer and provincial apiarist. We had the very great pleasure of visiting both schools in apiculture, the one in Massachusetts and the other in Canada. The faculty of both institutions, including their presidents, are much pleased with the work done; and it now looks as if apiculture would become a permanent part of the college work.

But this time we wish to speak particularly of the work done at the Ontario Agricultural College. We asked Mr. Morley Pettit, lecturer and provincial apiarist, to tell something about his apicultural school —not only of the work accomplished, but of the plans for the future. In a letter just received he writes:

We have not an apicultural school as such. Our work is in the direct line of the other work at this college. Roughly speaking, there are three classes or courses at this college—the two-year course, which leads to an associate diploma, the four-year course, which leads to a B. S. A. degree, and a number of short courses on special subjects, lasting a few weeks or months each. Students entering for the two-year and four-year courses all take the same subjects for the first three years; then in the fourth year they choose one of three or four options which are provided by the curriculum.

The work in apiculture consists of twenty-five practical lectures and demonstrations to the first-year students; also a short course was held in May, 1911, and the second shortest course in apiculture ever held here was the one which you attended. A few of the students have shown a preference for this subject, and have asked that an apiculture option be provided in the fourth year; but this provision has not been made as yet. It is probable, however, that the subject will be made a major in one of the other options next year.

The students who are specially interested in apiculture have organized a club which has been quite largely attended. It has been addressed by such practical and scientific men as Messrs. Sibbald, Byer, Miller, of London, Dr. Hewitt, of Ottawa, and others.

My work consists in directing this department, also the inspection work of the province and the co-operative experiments in connection with the Experimental Union. The membership of the Experimental Union is made up of students and ex-students of the C. A. C., and the list of experimenters extends over any who are interested in conducting the experiments sent out, such as testing seeds, grains, vegetables, and the like. In apiculture we send out instructions for testing special methods. The last two years we tested methods for the prevention of natural swarming. This will be continued next year. Remarkably good results have been secured.

In addition to this work I have done a lot of organizing in counties and attending local conventions to encourage beekeeping in the different parts of the province. In fact, my traveling is upward of 10,000 miles a year in Ontario alone.

I consider one of the most important lines to be the special course which we give to students preparing for inspection work. Those who do well in the subject in their first year, and wish to specialize, are placed with practical beekeepers for the summer as assistants, where they secure plenty of experience; then during the next term they are given some special preparation on diseases of bees, and their second and third year vacations are spent inspecting apiaries.

Guelph, Can., March 5. MORLEY PETTIT.

Any reference to the apicultural school at the Ontario Agricultural College would be incomplete without a mention of its president, Dr. G. C. Creelman, one of the ablest and strongest men we have ever met in any institution, and we have seen a large number of them in the United States. Dr. Creelman is particularly enthusiastic over the work done in the apicultural school. Indeed, he takes pride in it, as he does in every department of the institution; and during his administration the college has made a most rapid growth. In the year just closed there were in actual attendance in all its courses 1557 students, representing 22 different countries, including several States of the American Union. The staff is composed of more than forty professors, lecturers, and administrators. One of Dr. Creelman's assistants said of him that "he directs the work with a happy manner and ready smile, and with absolute impartiality. It is a pleasure to see him at work, for one feels that he has a grasp of the whole situation, and knows just what is going on everywhere, all the time." This is true, every word of it.

Dr. Creelman is right in the prime of life. The students, individually and collectively, love him, and well they may, for his personality is magnetic and inspiring. What struck us particularly was that there are very few presidents of our agricultural colleges who know more of bee culture and its important relations to general agriculture than Dr. Creelman. In fact, we doubt if there is a college president on the continent who can give a better address on bees. The one we heard was sparkling, entertaining, and instructive—so much so that the students who heard him must either have resolved to keep bees for the honey they produce or to pollinate the fruit trees and clovers; for, be it said, Dr. Creelman is an enthusiastic believer in the value of bees in helping to produce more and better crops on the farm and in the orchard.

Later.—After the foregoing was written we received the following regarding the Massachusetts apicultural school:

The Massachusetts Agricultural College has instituted, in its regular curriculum, instruction in beekeeping. We note with particular interest, marking the beginning of an epoch when beekeeping shall be more generally taught in the United States, that they have erected what we presume to be the first building in the country to be devoted exclusively to apicultural instruction. The beekeeping work is under the direction of Dr. Burton N. Gates, of the Department of Entomology. On the 7th and 8th of February Dr. Gates held a convention of inspectors of apiaries of the eastern United States and Canada. We hope to present in the near future more details of this new movement for advancing apiculture which is centered in Amherst, as well as an account of the inspectors' meeting.

With respect to the admission of students to the college for regular enrollment, beginning with next fall the tuition is free to residents of Massachusetts; yet students coming from without the State will be obliged to pay.

A spring course in apiculture, lasting two weeks, and beginning May 24 will be given. A detailed announcement and program may be obtained from the Director of the extension service, Massachusetts Agricultural College. This is essentially a "cram course" for the laymen: and, while its membership is necessarily limited, any beekeeper from any State is eligible.

And here is still another from Wisconsin:

Following a resolution adopted at the Feb., 1912, convention of the Wisconsin Beekeepers' Associa-

tion, requesting the Wisconsin College of Agriculture to introduce work with bees with an offer of a donation of bees and supplies if such resolution were accepted, the Wisconsin University Board of Regents, about the last week in April, 1912, decided to introduce an elective course in beekeeping. This course will be given by Prof. J. G. Sanders, probably the last half of next year—that is, from about Feb. 15, 1913, to about June 15, 1913. An apiary of about ten or twelve colonies will be owned by the college, and be used by students and for experimental use.

From my acquaintance and work with Prof. Sanders I can state that he is interested in beekeeping, and is especially well fitted for giving work in it.

I drop you this little notice as a bit of news, which, perhaps, you may associate with data concerning college recognition of beekeeping.

Madison, Wis., May 4. L. V. FRANCE.

THE YELLOW FLOWERS OF NORTH AMERICA

BY JOHN H. LOVELL

Owing to the great abundance of buttercups, goldenrods, and sunflowers, yellow is more predominant in the floral landscape of North America than any other color. Yellow may well be our national color, and the goldenrod our national flower. It is the most bright and cheerful of colors, since it reflects the largest quantity of light, and it is doubtless for this reason that yellow flowers enjoy so great a popularity.

Yellow flowers owe their hue to a solid pigment called carotin, familiar to every one in the root of the carrot. It usually occurs in petals in small round granules called plastids. It is insoluble in water, but readily soluble in ether. It invariably accompanies chlorophyll in leaves, and is widely distributed in seaweeds, fungi, lichens, mosses, and ferns, in autumn leaves, and in fruits and seeds. The yellow plastids of flowers are not always round, but are sometimes angular, as in the garden nasturtium. In the tomato, asparagus, thornbush, and in some species of rose, the plastids of the fruit are spindle-formed, or irregularly shaped, and are fire-red, orange-red, or yellowish red. In yellow leaves the plastids are round; but in autumnal leaves they occur in irregular masses.

The scarlet poppy, tulip, and fire-red canna owe their colors to a mixture of yellow plastids and red cell sap. On the other hand, dingy or dull colors result from a combination of violet sap with yellow granules. In a few flowers and fruits, as the yellow snapdragon, dahlia, and the peel of the lemon, the color is due, not to carotin, but to another yellow pigment (called leaf yellow) dissolved in the cell sap.

Yellow is an old and primitive color, which in its natural state does not vary readily. This may be shown by the following experiment. If the carotin contained in a few slices of the root of the carrot be dissolved out in ether, the yellow solution will not lose its color under ten days, while the green hue of a solution of chlorophyll will disappear in twenty-four hours. But under cultivation sudden variations from yellow to white have been observed. A double yellow hollyhock turned one year into a single white kind, and a chrysanthemum has been seen to bear both yellow and white flowers. The bright-yellow flowers of the golden currant and the bush honeysuckle in fading change to rose or red; and a species of forget-me-not is at first pale yellow, and changes to sky-blue.

There are 790 yellow flowers in northeastern America which vary greatly in size and form. Usually they are wheel-shaped as in the buttercups and five-fingers; but not infrequently they are very irregular in form, as in the pea and figwort families, where the corolla bears a more or less fancied resemblance to butterflies and the heads of reptiles. As a whole, however, they are much less specialized than red or blue flowers. Irregular yellow flowers probably owe their hue largely to the great persistency of the yellow pigment, carotin.

Both yellow and white flowers are common in primitive families. For instance, in the buttercup family there are 38 yellow and 26 white flowers; in the mustard family, 46 yellow and 54 white; and in the rose family, 39 yellow and 35 white. Since carotin is very widely distributed in the foliage of plants, and petals are only modified leaves, it is not difficult to imagine how the first yellow flowers were developed.

While trees and shrubs with white flowers abound everywhere, as has already been pointed out, trees and shrubs with yellow flowers are comparatively rare. A number of common trees have small yellowish or greenish-yellow flowers, as the rock-maple, striped maple, chestnut, and basswood; while among shrubs there are the barberry, fly honeysuckle, jessamine, and bush honeysuckle; while under cultivation the *Forsythia*, golden currant, and yellow rose are familiar examples. The willows owe their yellow hue to their stamens (they have no perianth), and are, like the basswood and rock-maple, most valuable honey-plants.

Most plants with yellow flowers are herbaceous. When the blossoms are of small size they are usually like small white flowers, grouped with level-topped clusters, as in the mustard, saxifrage, carrot, and thistle families. The most important sources of nectar in this group are the mustard, wild parsnip, and goldenrods.

In the pink family, though there are 56 white flowers, there are no indigenous yellow species; and in the aquatic water plantains the entire 19 species are white; but, on the other hand, in the St. John's-worts there are 22 yellow and 2 red flowers, while white fails entirely. Yellow is very common among the primroses and night-shades, but rare among the heaths and gentians. Yellow blossoms vary greatly in size, from the large campanulate cups of the squash to the small flowers of the creeping buttercup.

In the aster or thistle family (*Compositæ*) there are 262 yellow flowers and 134 white. Though this is the highest of plant families, the central florets of each head are very small, and the floral leaves have been very

little modified; consequently they retain their primitive hues. In the common field daisy the disc florets number about 500; but in the goldenrod each head consists of from 6 to 15 florets, and conspicuousness is gained by massing immense numbers of them into dense panicles. The goldenrods form a genus of beautiful and stately plants which bloom from midsummer to late fall. Several kinds secrete nectar freely, and are great favorites with the honey-bee. On the Canadian goldenrod 146 different kinds of insects have been observed in search of pollen or nectar. The bright-yellow color of the flowers renders them conspicuous, both by day and evening; and as the temperature of the inflorescence at night is several degrees above the surrounding air, they sometimes serve as a refuge for insects.

And in the evening, everywhere,
Along the roadside, up and down,
I see the golden torches flare,
Like lighted street-lamps in the town.

I think the butterfly and bee,
From distant meadows coming back,
Are quite contented when they see
These lamps along the homeward track.

Among the plants with yellow flowers which are of most value to the beekeeper are the willows, dandelion, basswood (greenish-yellow), barberry, cucumbers, squashes, cotton, mustard, wild sunflowers, and goldenrods. The sensitive pea (*Cassia Chamæcrista*), or partridge pea, Mr. Baldwin says, is abundant in the high pine lands of northern Florida. "In summer the woods are yellow for miles with it, as far as the eye can see."

Waldoboro, Me.

IS THE LANGSTROTH FRAME TOO SHALLOW FOR SUCCESSFUL WINTERING?

BY SAMUEL SIMMINS

Mr. F. P. Clare appears to lay more stress upon the size than the depth of this brood-frame, March 15, p. 179. If it can be proved that the Langstroth is too shallow, then it will be considered that it is too small for the most profitable work. Many frames may contain the same equivalent in square inches, and yet all are not suitable for the best methods of management

The depth of the puny British standard frame was largely a matter of working with nine-inch lumber. A similar consideration (apart from encouraging bees into badly furnished supers) appears to have ruled the construction and large adoption of the Langstroth frame.

Editor Root seems to have tried for something deeper than the Langstroth; but he states that he was nonplussed by a difficulty in procuring lumber of a suitable width. Thus, again, greater permanent efficiency was sacrificed to mere initial convenience in construction. Mr. Clare also falls back upon this same lumber difficulty.

Why did Dadant discard the Langstroth frame? Think of it! The very man who extolled and revised Langstroth's book saw that he was losing dollars daily because the Langstroth frame was too shallow. He used them for twenty years, side by side with deeper, larger frames, and finally discarded the Langstroth for the sufficient reason that he wanted to lose no more dollars.

To use Mr. Clare's own expression, "laughable, is it not?" One can imagine Mr. Dadant smiling all over his face when he had finally destroyed those shallow brood-frames, and realized at last that he was going to lose no more dollars over those shallow frames.

Why did another very able beekeeper, Mr. Eddowes, of Jamaica, prefer to use the 16×10 frame rather than the Langstroth? Here are his own words: "My son tried the British standard in the Argentine and the Langstroth in Jamaica, alongside the Conqueror with 16×10 frames, and found them (standard and Langstroth) *nowhere*." The 16×10 frames gave him 330 lbs. per colony, while the shallow frames yielded 150 lbs., and, as he says, "with more trouble to look after the latter." "Laughable, is it not?" that a man should prefer not to lose 100 per cent by working with a frame too shallow.

Mr. Clare appears to have got a bit mixed as regards the population of a double 16×10 brood-chamber, resulting in the production of many useless bees too late to be any good. He is right off the track when he reasons that way. Certainly the double chambers should be filled with brood in the early part of the season.

Thereafter, the workers from such queens will see that there is never a surplus of useless consumers at the finish; and if they are worked for comb honey it will be the owner's fault if more than one brood-chamber is left when supering. The method he employs in utilizing the second chamber for plumping the working stock will gauge his own ingenuity.

Do I know of queens that will fill two 16×10 brood-chambers at the fore part of the season? Yes, friend Clare. I produce no others. Of course no practical beekeeper denies that one of the first essentials for ensuring successful wintering is an abundance of good food. But surely Mr. Clare knows that there are some half-dozen other very necessary conditions equally, if not more, essential.

Editor Root thinks if the writer were more acquainted with general conditions he would not consider the Langstroth frame out of date. Was Mr. Dadant unacquainted with general conditions of apiculture in the United States when he discarded the Langstroth frame, because he was losing hard cash by it daily? Was Mr. Eddowes acquainted with general conditions, with experience in the Argentine and Jamaica, when he found the Langstroth frame could be beaten hollow by another of scarcely more square inches, but so constructed as to give decidedly better results?

Was our mutual friend Editor Root acquainted with general conditions when he

tried to persuade beekeepers to use a deeper and larger frame than the Langstroth, or was there not at the back of his busy brain a practical development that assured him all was not right with the Langstroth frame?

Ultimate and permanent utility has been sacrificed to initial convenience through the supposed difficulty in procuring wider lumber than ten inches. Is this not a delusion? The writer has used only *eleven* inch lumber for more than 30 years, and this has come almost wholly from North America, principally from Canada? Of course, it is a mere toss, pitching those logs over here; but it is strange that my friends can not catch a few of them. "A little extra cost!" Oh, yes! but compare that with 20 years greater efficiency.

Heathfield, England.

[The point at issue, apparently, between Mr. Simmins and ourself is that he believes that a large frame is more efficient than a small one, while we contend that efficiency lies in a large colony with the right proportion of fielders and nurse bees. We have tested both large and small frames, have compared hundreds of reports, have traveled all over the United States, and our conclusion is that there is no particular merit in a large frame, but there is merit in large powerful colonies, whether on large or small frames. Mr. R. F. Holtermann, one of the best beekeepers in Canada, has decided there is no advantage in the ten-frame Quinby over the twelve-frame Langstroth—a hive that has practically the same cubic capacity; and while we do not advocate twelve-frame Langstroth hives nor the ten-frame Quinby, we do believe that in the production of extracted honey there are times when neither the Quinby nor the twelve-frame Langstroth will be large enough. Therefore it follows, sometimes, that a good queen will utilize two ten-frame hive bodies of Langstroth depth. When the season closes, the single hive is quite large enough.

For the production of *comb* honey the ten-frame Quinby or a twelve-frame Langstroth is too large for this country. Our authorities are practically a unit on this proposition. And right here, friend Simmins, do not forget that we said if you were more familiar with general conditions *in this country* you might change your mind. We did not say general conditions the world over, as you quote us. You ask, "Was Editor Root acquainted with general conditions when he tried to persuade beekeepers to use a deeper and larger frame than the Langstroth?" Here, again, you misquote us. We shall appreciate it very much if you will tell us *where* we ever advocated the big frames to the exclusion of all others. As editors of a publication that is going to people of all shades of opinion and diverse conditions so far as locality is concerned, we have put the Quinby frame and the divisible-brood-chamber hive with their shallow frames before the public, and have tried to let the public decide on their merits. We have never advised the shallow frames to the exclusion of *all other* frames. As we have said of all frames, each has its own special advantages in certain localities. See our catalogs for a statement of the comparative merits of each size and style of frames. As a matter of fact, our experience teaches us, and reports confirm it, that a divisible-brood-chamber hive, on account of the horizontal passageway between two sets of frames, will winter bees better than any other form of brood-chamber; but the everlasting nuisance of handling a lot of little frames has practically driven the divisible brood-chamber out of the market—not because Editor Root advocated or condemned it, but because the beekeeping public has found it wanting. As we said before, the Langstroth frame has held its own everywhere in the United States. We are not contradicting the experiences of the Dadants; but we do believe that an equal capacity of hives and smaller frames would give just as good results.

It would be well to bear in mind that the Dadants are producers of *extracted* honey, or at least were at the time they introduced the Quinby frame into their apiaries. If we are correct, their large following in Europe are largely extracted-honey producers or producers of chunk comb honey. There is no question that the Quinby gives excellent results for the production of such honey; but we doubt very much whether the ten-frame Quinby would do any better than a twelve-frame Langstroth. Indeed, we believe that a sixteen or twenty frame Langstroth hive in two stories, in the production of extracted honey, would excel either.—ED.]

Will it Pay to Cut Down Maples and Plant Basswoods?

Dr. C. C. Miller:—Alongside the roadside of my place I have 40 rods of very large trees of hard maple, soft maple, and catalpa, which I am thinking of cutting out and replacing with basswood. Would you consider the basswood better for bees than any of the above which I now have? I could make good firewood of them, and plant something better for bees. Any information you could give me would be very thankfully received. Do you know where I could buy linden trees? When is the best time to sow white clover?

La Fayette, Ind. W. H. ROBINSON.

[Dr. Miller replies:]

No other tree that will grow in your region compares with linden (or basswood) as a honey-yielder. However, it depends upon circumstances whether you will lose or gain by substituting lindens for your large maples. I never tasted a sample of maple honey, and probably never will. Yet I count maples of much value to me, since they come early and greatly help brood-rearing. Here's about the size of it: If there are plenty of other maples within a mile or so, and lindens not very plentiful, then you will gain greatly by making the change. If no other maples are in reach of your bees, then you would likely lose by the change. If no other maples are in reach of your bees, then you would likely lose by the change; for when early pasturage is scarce, a pound of honey in April may be worth more than ten in July.

You can get lindens from the American Forestry Co., South Framington, Mass.

White clover may be sown almost any time, as good a time as any being in the spring when farmers in your vicinity sow red clover.

Heads of Grain from Different Fields

Cause of European Foul Brood Unknown.

There was a time when I thought we knew that foul brood was caused by a certain bacillus (*alvei*). Then later *Bacillus milii and Bacillus brandenburgiensis* came in for a share, and were accused of being the mischief-makers, and possibly some other bacilli were talked of. I lost track of just what culprit was blamed most. It is a little surprising to me to note that Dr. Phillips, on page 88, Feb. 1, admits we are so at sea as to the bacillus that causes us so much trouble. Of course I realize that there must be several different causes for different diseases, such as European and American foul brood; but it seems to me that those who are familiar with microscope work and making cultures ought to be able to locate the chap and to ascertain the facts.

In the instance given on page 88, the prime swarm of Geo. Stephens may have issued with a virgin queen. There would be nothing strange about it, and I can see no evidence that this did not happen. I can not conceive of weather so unfavorable that a prime swarm could be held back six or eight successive days. It is just as true now as it was years ago, that the prime swarms appear after the first queen-cells are sealed. In practicing the Heddon method of preventing afterswarms, we depend on this.

Naples, N. Y. F. GREINER.

[Referring to the cause of disease as mentioned by Dr. Phillips, page 88, I may say that the cause of American foul brood has been definitely determined as *Bacillus larvæ;* but the cause of European foul brood is not known. While it is difficult to locate the organism, as Dr. Phillips says, of American foul brood, there is no trouble on the part of a bacteriologist or one who knows how to make pure cultures.—ED.]

Reflections on Beekeeping, Past and Present.

The writer remembers with what naive confidence he started in, as a boy, to manufacture honey in a couple of A. I. R.'s chaff hives—the kind he made along in the 80's. The only difficulty he encountered was that the bees refused to enter the section boxes of the upper story with business intent. Well, other work called him, and he was absent for ten years. When he returned, there was a surprising amount of honey stored, and, needless to say, he enjoyed it, notwithstanding the inconvenience of tearing the hives up to get the sweets.

So our venture into the realms of apiculture ended in something like disaster, and we have concluded that beekeeping is a rather perilous calling, not to be entered into without considerable prayerful thought, and the genius of common sense.

After a lapse of 25 years we were prepared to find that giant strides had taken place in the art; but what, in reality, has occurred? Merely this: the fraternity had changed to the eight-frame hive, and then changed back again, like the king of France and his ten thousand men. Is there a lack of imagination somewhere?

Well, the erosion of the ages wears away the tooth of time, or something like that. Let us study the virtues of the bee in connection with the faults of mankind; and if humanity must go to the wall, let no guilty man escape. One thing is certain—men will eat honey in whatever form, if they can get it. If Mr. Bee objects to working in section boxes, it is evidently a case of a round peg in a square hole, and we should try hard to give him a square deal or a round hole as the case may be.

Medora, Ind., Oct. 23. H. B. TURRELL.

Honey Butter; What it is and How it is Sold.

There has been some discussion about honey butter and candied honey in cakes often called by this name. However, as we understand it, honey butter is made from granulated honey and pure butter mixed in the proportion of one pound of butter to three of honey. If thoroughly mixed together, a spread is produced that many like, children especially. The best white-clover honey and the best grade of creamery butter should be used.

This product can be put on the market in a carton the same as butter, or in a wide-mouth glass jar, and sold at the same price as butter. There is good money in it, for the three pounds of honey at ten cents and the one pound of butter at thirty cents cost only sixty cents, and yet the four pounds of the mixture will bring $1.20. The price can remain fixed, or it can be varied like the price of butter.

Although honey is a preservative, the mixture will have to be handled as carefully as butter, as it is likely to become rancid and strong just as butter does if neglected.

One good feature about honey butter in winter is that it is always easy to spread. If desired, it can be labeled "Pancake Butter;" but the exact proportion of each ingredient must be stated on the label in order to conform to the pure-food laws.

Owosso, Mich. NORMAN F. GUTE.

Do Not Apply the Stings to the Particular Joint Affected by Rheumatism.

Will you allow me to caution G. Prentice Carson (and perhaps others who may wish to try stings for rheumatism) against applying the stings *upon the parts directly affected*, as he suggests on p. 82, Feb. 1. My own experience has taught me that it is better to apply the stings to some other part of the body, and to let the virus work through the system gradually.

Rheumatism attacks me, at intervals several years apart, in the back and legs, and I then take "a course of treatment," applying a sting *to each wrist* every day for about ten days, after which I am free several years again. I learned of the cure by accident, through handling bees, after having been unsuccessfully treated for several months by a good physician.

In one of my attacks I tried applying the stings to the joint of my right knee, which was giving me a great deal of pain. As a result of that *direct application* I lay in bed for five weeks, unable to turn over without help. I am a firm believer in the good results to be obtained from the stings, but have never again tried the application to the spot affected. My experience of about 35 years also inclines me to the belief that the effect of a course of treatment disappears in about seven years, the time in which doctors tell us our bodies are renewed.

Frankfort, Kan., Feb. 8. REV. L. P. HOLMES.

An Experience in Introducing by the Direct Method.

On Oct. 12, 1911, the writer dequeened a colony, and by the direct method ran in a queen which was about six weeks old. She had been kept in a small nucleus, and had been caged for three days prior to the above-mentioned introduction. When looking up the old queen, a queen-cell was found from which a queen had emerged within a few weeks. The queen, when found, proved to be a young one, and laying. The bees were dark hybrids, and very irritable. Robbing started whenever a hive was opened.

The following morning a dark queen—old but apparently not very aged—was thrown out from this colony. The newly introduced queen was found to be quietly at work. What would have happened to her had she been put in by the cage plan?

Providence, R. I. ARTHUR C. MILLER.

Ten and Eighteen Frame Hives.

We notice that an eight-frame hive is in favor in your country. That size would be of no use here, because it would arouse the swarming propensity, which in out-apiaries is such a nuisance. Hives holding from ten to eighteen standard frames are generally used, but the ten-frame hive with a couple of division-boards is really the most useful type of hive. It is usually doubled-walled, back and front, and the dummy boards make it double-walled at the sides. With plinths, and painted three coats, and the roof covered with thin flat galvanized iron over a thick layer of paper, this hive is warm, and absolutely waterproof. We have our own non-swarming system, and rarely have more than one swarm from a hundred colonies. We envy you your succession of honey crops, as you appear to have several harvests of honey in one season. C. CALVERT (Certificated Expert).

Cheltenham, Eng., Feb. 23.

The Beekeeper and his Hired Help.

I have never read any thing in GLEANINGS about hired help; so it may be of interest to some to give my experience. When advertisements appear in the bee journals they often contain a restricting clause something like this: "Users of liquor and tobacco need not apply." This I am pleased to note, for I always did and always shall oppose the use of liquor and tobacco. But to return to the beekeeper who employs an assistant. What does he do? Well, he tries to get out of his help all that he possibly can for the least money, with work every day, on Sundays, and even on the most important holidays. Then he engages some local help, which is easily done when the busy season is not yet at hand, and the work is not so hard and rushing, but when it is very much more interesting.

The employer seems to care little or nothing about the local man's using tobacco, for he puts him to work with the bees, and keeps his regular help at shop work, when he ought to be (according to the agreement) working with the bees and not all shop work. Shop work is all right. It is very nice and pleasant when there is nothing else to do; but working with the bees is by far more enjoyable.

Now about the salary proposition. We agreed on certain wages, including board and room. I had to travel 2000 miles to reach my destination, and all was lovely and well at the start. After the first month or so the employer found that the landlady at whose place his assistants got their daily bread charged too much for board, and accordingly informed his humble servants that they must change to another boarding-place, which we were willing to do. I say *we*, for there were two of us—myself and a fellow worker for the season, both treated alike. Upon finding bedbugs in the new place we both frankly refused to change, as there were enough of the vermin in the former place. Our first landlady was already making war and a desperate battle on the bugs, and succeeded in getting them pretty well exterminated. Bedbugs may be all right for the class of people who never knew what it is to be without them, having been brought up and raised with them, but we didn't happen to have been brought up that way.

Being unwilling to stay at the new place we had to pay the difference in the price of board. Right here I want to say that all beekeepers contemplating engaging future and necessary help had better make preparations before their employees arrive, and thus avoid hard feelings, or else keep their advertisements out of the papers, for some of them don't intend to live up to their agreement in the first place.

Then the likes of two bosses on one bee-ranch sooner or later prove irksome and menacing, and causes continual trouble. Throughout the whole season the boss is tearing hives apart, and his assistants are to take care of them and put them together again. By so doing some severe cases of painful *stinging* are encountered, which could have been dispensed with by each individual taking care of certain hives alone. In working alone at certain hives one takes more pleasure and interest in the work, and also accomplishes much more in the end.

I am not an amateur at beekeeping, neither am I boasting of myself as a professional in the ever-instructive art of the apiary. I am only giving a brief article on my last year's experience in working on an extensive bee-ranch on a large scale, with about 1000 colonies.

Lake City, Minn. E. A. KRINKE.

Splicing in Pieces of Worker Comb where Drone Comb is Cut Out.

I am cutting out all the drone comb I can find. Where there are corners or where the lower half is drone, I am cutting that out and taking other worker comb, cutting pieces to fit where the larger cells came out, and filling in worker. It has been my experience that bees will rebuild drone comb if not replaced.

Crestline, Ohio. M. F. SOULE.

[It has been our experience that if the combs contain any great number of drone cells, they had better be rendered for wax; for even if worker comb is substituted in the space made vacant by the drone comb removed, it will always be a patched up affair and there will be a good many drone cells along the line of intersection of the two pieces. However, if there is only a small amount of the drone comb in the corner say, it undoubtedly pays to cut it out and put a piece of worker comb in its place. As you say, if you put in no worker comb, the bees are likely to fill in with drone cells. —ED.]

More About the Census Figures in Regard to Beekeeping.

I note what is said, p. 259, May 1, concerning the United States census and bees. I was a census enumerator in 1910; and, while we had no instructions to gather statistics of bees not kept on farms, we were to take statistics of every colony kept on farms. By the census rules, three acres constituted a farm, I think Mr. Coburn is slightly wrong about the necessity of the product amounting to $400 before the apiary would be considered in statistics.

I agree that the statistics of the bee industry are not reliable, inasmuch as no count was made of bees in towns. However, the same condition holds true of the poultry industry.

Allenville, Mich., May 4. W. K. PALMER.

Another Reason Why the Census Figures were not Accurate.

I have read the editorial, May 1st, about the last census of bees. Let me tell you how it was taken here, or, rather, *not* taken. My mother, a widow, was at a neighbor's when the census man called there. He asked her to give in her list then, and she told him that she could not give him an accurate list, as we boys ran the farm and he would have to see us about the stock, etc. He never called, and some of us were at home all the time. He told my brother in town it did not matter much, as he always put down what he thought was right. I don't know he knew what was right. At that time I had 110 colonies of bees. He did not know that I kept bees, so none of these were listed. I know of several other small beekeepers who are farmers, who were not asked about their bees. I feel sure that not over 25 per cent of the bees in this (Bath) county were numbered. Is there any wonder why beekeeping has declined (in figures) so long as census-taking is only another pie-counter for the politician.

Sharpburg, Ky. RAYMOND SMATHER.

Swarm, Swarm, Swarm.

I think I can beat Mr. E. A. Day, page 280, May 1. I had a colony of bees in a log gum which cast a prime swarm April 22. I hived them on one-inch foundation starters, and they began to draw out the cells, but swarmed out and left the next day. A second swarm issued from the parent hive on May 2, but returned without clustering. They issued again May 3 and clustered, but returned before I could hive them. At 8 A.M., May 4, they came out again and clustered. This time I succeeded in getting them into a new hive, but they returned to the old one in less than half an hour. At 11:30, the same morning, they came out again and clustered. I hived them again, and they have been working nicely ever since.

On May 5 a third swarm issued from the parent colony and clustered, but returned in about 20 minutes. May 6 they swarmed out again about 8:30 A.M. and clustered. I was working about a mile and a half from home, so they had to hang on the bush until I came home to dinner. Just as I was preparing to hive them they let go the limb on which they had been all the morning, and left for parts unknown.

Huntsville, Ala. H. M. WEBSTER.

That Swarm that Did Not Cluster.

In my experience with bees of over sixty years, I have never known a swarm to issue and leave without clustering unless they had previously issued and returned to their parent hive, p. 284, May 1. In this case, sometimes the queen will be unable to fly; and, not returning with the swarm, the bees will issue later with a virgin queen. Such swarms are always very large, as hatching bees are added until the swarm is ready to reissue with a virgin queen. In this case of Mr. Grams, the bees no doubt had previously swarmed and returned to the hive, and in the interval had sent out scouts and located that tree.

South Bethlehem, N. Y. G. J. FLANSBURGH.

[See what A. I. Root has to say on this subject, p. 306, May 15.—ED.]

Our Homes

A. I. ROOT

Charity suffereth long and is kind; . . doth not behave itself unseemly; . . seeketh not its own; . . thinketh no evil; . . beareth all things; . . endureth all things.—I. COR. 13:4, 5, 7.

You will notice, friends, that our text is right along the line of that extract I made from the *Sunday School Times*, page 287, May 1, in regard to avoiding criticism. Love was the central thought of that extract, and divine love is the central thought of our text. Now the question has come up, and has been discussed, as to how far this great charity or love could be applied to the events of every-day life. There is one thing that should be considered, both in the clipping from the *Sunday School Times* and in the text I have chosen. Where we personally are concerned, and nobody else, the chapter is all right; but where the wrong-doer is injuring somebody else, or community at large, it is our duty to step forward and make trouble—yes, if need be make *war* and *encourage* war. The man who is making counterfeit money should be stopped at once, no matter what trouble it makes to do so, even to the extent of the loss of life; and I hope you will not quarrel with me if I say the liquor-traffic should be regarded in the same light. But for the present I wish to apply the beautiful text to a trip of 48 hours from Bradentown, Fla., to my home here in Medina. Mrs. Root could not stand the hot weather in Florida until May 1 as I had planned. She was so anxious to get back home among the children and grandchildren that she urged me to start as early as April 16.

As we had previously had trouble in securing lower berths for travel, I went to our agent two weeks ahead, and asked him to make application for a berth in the sleeper. He said three or four days ahead of the time would be ample to make sure; but as he had once before disappointed us I urged him to make application about a week ahead of the time. The great bulk of travel back to the North is during April, as you may be aware; and a great many times there is difficulty in securing a berth. I gave him my ticket and told him I would like some document to show that the berth was secured. As we got on the train I went to him for my reservation, when he gave me a copy of a telegram, which, although I did not understand, I supposed to be all right. When we arrived at Jacksonville, however, the agent said my telegram referred to another road, and asked if the agent at Bradentown had my *ticket* when he made application. I assured him he had my ticket in his hand, and looked it over carefully. There was barely a chance to secure an *upper* berth on the train that was almost ready to start. Let me explain here that, although much has been said about going to Florida to escape the grip, they *do* have it in Florida as well as here in the North—sometimes in a very aggravated form; and this was the case during the past winter. It seemed to be a sort of epidemic that went all through neighborhoods and perhaps towns. Mrs. Root was just recovering from a severe attack; and she said she did not see how she *could* climb away up into the "loft," for we had tried it before under the same or similar circumstances.

Our sleeper was crowded, and nearly if not quite every upper berth was occupied as well as every lower one. As it came time to retire, Mrs. Root said again she did not see how she could get away up there "under the eaves." The porter said there was not any help for it. All the lower berths were secured a long way ahead. Although it is comparatively common, I hesitated about going to an entire stranger and trying to get somebody to consent to make an exchange. I can not remember exactly, but I think my little prayer, "Lord, help," must have welled up as it almost invariably does when I am in trouble.

Let us pause a minute right here. Was it *my* duty to inform the Seaboard Air Line that their agent at Bradentown had *twice* gotten us into that predicament? In accordance with the spirit of our beautiful text, should I have remonstrated, or just let the matter drop? Charitably considered, it is almost impossible to travel without having more or less of these perplexities. While I was meditating a beautiful bright woman (and, by the way, what is there in this world of ours so bright and inspiring as a handsome woman in the full bloom of life and health, showing forth the spirit of the good Samaritan?) came to us and said, "My good friends, the berth below your own was to be occupied by our two little girls. Now, they are young and spry, and can easily get up into the upper berth, and they will not mind making an exchange, especially as you are elderly people."

Two handsome children seconded their mother's offer, and said they would just like the fun of climbing "upstairs;" and pretty soon their father, one of God's noblemen, like his wife, lifted them up into their sleeping compartment with much fun and frolic. We not only thanked our new kind friends, but I, at least, thanked God mentally for such quick and swift deliverance. Now let me explain.

Just as soon as the train started, the porter commenced at one end of the car to make up the berths. As we are elderly people I asked him if he could not skip along to ours, inasmuch as many of the passengers were in no hurry to go to bed. He said he could not. They had got to be taken in their turn. By the way, this porter, although he was a great stout muscular fellow, looked to me as if he was tired out when we started. Perhaps half a dollar would have enabled

him to change his mind; but I am most emphatically opposed to that kind of discrimination. Not only millionaires but men of moderate wealth are accustomed to being put ahead of common people by the aid of their money. I am glad to know there is a strong movement of late to do away with this whole "tipping" business. Well, the porter did not get to our berth until pretty well toward midnight, and Mrs. Root was very tired. Finally, when our berth was ready and the little girls sleeping soundly in the berth above, we were ready to retire. We were down in the region of hot weather, mind you, and the porter objected to more ventilation because the most of them did not want it. You know how Mrs. Root and I sleep—doors and windows wide open, no matter where we are. Just as soon as Mrs. Root got into her berth she said she could not *live* in that hot place—there would *have* to be a window open. After exhausting my strength without avail I applied to the porter. He replied he could not open the window and put in a screen for *anybody* until the berths were all made up. Should I have given him half a dollar, as in the case before? I was undecided, and I was urging Mrs. Root to put up with the bad air until the porter had got the rest "put to bed." She said she would much rather sit up all night than to stay in that hot place without any fresh air. I think my little prayer rang out again (like an alarm clock, as I have told you), "Lord, help!" and help came so swift that I was really startled (as I have been so many times before) at the prompt answer to my prayer for deliverance. A baby's cry diverted the attention of the crowd that was hustling to get to bed and to sleep. If there is any thing in this world that will rouse up Mrs. Root, and bring forward her best qualities, it is a baby's cry. She soon found out that it belonged to a young mother. The young mother was car-sick, and she, like ourselves, had been assigned to an upper berth, as there was no other. Now just listen. I had been trying to *persuade* Mrs. Root, ever since we had been assigned an upper berth, that the air was better, and I could manipulate the ventilators myself, etc. But she stoutly objected. When, however, she found out about the baby belonging to the sick mother, to be put upstairs, when she was already vomiting, our own lower berth was placed at their disposal in an instant; and Mrs. Root smilingly assured the mother she did not mind climbing up at all; in fact, that she was *glad* to make the exchange, which was true. Sometimes a little of that "love" for humanity we have been considering enables us to change our minds and "opinions" very quickly. Our new berth upstairs was about the last one to be made up. We did not get to bed until about midnight. I noticed the passengers had been climbing up without the usual step-ladders. When I asked the porter if there was not a step-ladder to enable Mrs. Root to get above he replied, "Sure; it is back at the other end of the car. If you want it just go and get it." You see the "half-dollar" came into view *again* just here. I started to go for the step-ladder, but a bright young woman (dear me! what glimpses of sunshine these *handsome* women do occasionally bring to this world of ours!) got past me, tripped to the back end of the car, got hold of the big step-ladder, and came rushing with it up to Mrs. Root, laughing in a roguish way as she did so, because she had "turned *porter*" for the time being. As I noticed her beaming smile, with a little hightened color from the exertion, I thought she was about the handsomest woman I ever saw—*except* Mrs. Root when she was a girl of about the same age. Now lest you criticise too severely that particular porter, listen to what Ernest said when I told him about it:

"Father, don't be too severe on these porters. During the height of travel they are overworked. This fellow had probably been working night and day, and he was tired out to start with, and with that car crammed full of sick babies and sick women he probably had had no chance to sleep much, for several nights past."

When I got into that upper berth I opened the ventilators—I think there were four of them; and everybody else seemed to be too tired and sleepy to object; so Mrs. Root had a very comfortable night's rest after all.

Just as we approached Cincinnati our engine, on account of its great load of passengers, gave out; and instead of making connections so as to reach Medina next morning we were obliged to stay in Cincinnati over night. As the locomotive kept bothering, it was again about midnight before we got into the depot. As a rule I avoid patronizing any hotel that keeps a bar. Two difficulties stood in the way just then, however—the lateness of the hour, and the difficulty *at any hour* of finding a hotel in *Cincinnati* without a bar. As we came out into the street several asked us if we wanted lodging. One of the most gentlemanly-appearing men of the lot took us into a hotel near by—75 cents each for a comfortable room. As we passed through a neat dining-room I asked him how much more for breakfast. He said, "The dining-room is a separate affair. But you can have a lovely breakfast here, as early as you wish, for only 25 cents."*

A little after our usual time we sat down at a very neat table for breakfast. I noticed at once that there were full-sized plate-glass mirrors on each side of the room. The mirrors, being exactly opposite each other, produced the effect of a series of din-

*As we passed into the good-sized bedroom I caught hold of a large window the first thing, to raise the sash. As it had evidently been undisturbed for a long time I failed to make it start, and appealed to our host. "Why" said he, "do you want the window open? Is there not a great plenty of air in a big room like this?" I submit this as a sample of the contracted ideas of a great part of the world. No wonder people are dying at such a rate that they keep the doctors busy in studying up names for "new-fangled" diseases.

ing-rooms as far as the eye could see on either side of this room. While Mrs. Root was joking about the "lovely" breakfast for 25 cents, the nice-looking fellow of the night before came and asked what we would have. I replied, "What have you for breakfast?"

He answered, "Any thing you want."

I replied that I would have a beefsteak, and Mrs. Root said that, as she was not very hungry, she would just have some bacon, with potatoes and bread that go with it as a matter of course. I remarked that my steak was rather better than one would expect for 25 cents; and Mrs. Root had some eggs with her bacon, which she did not order. When I came to pay the bill our host said, "Pay at the bar." And then I knew that this fine expensive dining-room belonged to a gilded up-to-date Cincinnati saloon that was just between us and the street. While I was watching the bar-tender and his assistant pour out drinks, the man of the "lovely breakfast" came up behind us and informed the bar-tender that our breakfast was $1.20! Of course, I paid it, but I turned on him, and said, "My dear sir, didn't you say that your 'lovely' breakfast was only 25 cents?"

"That is true, sir; but instead of ordering the regular breakfast you ordered special things, and we served them at the regular price."

Moral.—When you go into a saloon for any purpose whatever, remember the proprietor does not obey either man's laws nor God's, and that you are *sure* to get swindled in some way or other before you get out.

Now, in my hurried narration of the above I have made but little reference to our beautiful text. Let us go back a little. What was my duty, as a Christian man—one who is striving to win souls to Christ every day of his life? Of course, the above is not true when applied to myself; but we will, for the time being, *suppose* it to be true. Should such a person complain of the agent because he attended to his duty so carelessly? Should he complain at headquarters of the porter*—that is, to obey the spirit of this text? And, finally, should he object to the unfair method of the saloon-keeper to get twice the price of a breakfast? In looking back at the matter I believe I did *about* the proper thing; but it may be, after all, I have erred; because if these persons who are remiss in their duties at their important posts receive no reproof nor rebuke, they will probably keep on doing the same thing over and over again. May God help us to choose the golden mean which will include all humanity as our neighbors, and to strive to love our neighbor as ourself. I for one want to live in such a way that I can pleasantly shake hands with everybody I meet.

Some time ago I heard of a friend who had been educated for the ministry. He was a child of prayer—at least he *said* he was, and his parents spent much time and means in fitting him for his sacred calling. Well, when I saw an advertisement with his name appended, to the effect that *he* was agent for a gold-mine speculation, I wrote to him, remonstrating severely. I protested against the extravagant offers and promises (which he could not *possibly* keep) on his printed gold-mine circular. He thought I was rather severe. Some time afterward I suddenly came across him. I think he was present at a religious conference. I put out my hand to him, and, while looking him pleasantly in the face I said, "Mr. H., I am glad to see you; but I shall be gladder still if you can inform me that you are no longer urging people to invest in gold-mining schemes."

His contenance fell somewhat when he said he was still pushing that questionable work—questionable certainly for a professing Christian. But when he attempted to explain that Christianity and the circular he had been putting out were not antagonistic, I decided I could not give him any more of my time. I had done my duty. "Charity thinketh no evil." If I have been in times past too ready to "think evil" of persons or things, may the Holy Spirit rebuke and enlighten *me*.

*In justice to the porters of our various railways, let me say that I have never before found one so uncivil as this one. He was certainly an exception to the general run of his class. I noticed that, as we approached Cincinnati, when he took his brush-broom and went to the passengers one after another, only one man in that car saw fit to accept his services. He did not get the half-dollars he might have had if he had studied our text —"Suffereth long, and is kind."

CONSECRATED MILLIONAIRES; DR. CHAPMAN'S EVANGELISTIC WORK ON THE OTHER SIDE OF THE WORLD.

The following letter explains itself:

Mr. A. I. Root:—I am sending by this mail three copies of the *Outlook* containing reports of a mission that is being conducted on this side of the world by some of your countrymen. As you will see, great numbers are being led to Christ. Among them are our own three children. I feel sure, from reading your Home notes, that what is being accomplished here will interest you.

Green Island, N. Z., April 8. ROBT. H. NEILSON.

From the pages of the *Outlook* (published in Dunedin, N. Z.), as explanatory of this great revival I make two clippings. A reporter interviews Dr. Chapman as follows:

What relation had the John H. Converse bequest to the enlarged sphere of your work?

"Mr. John H. Converse, of the Baldwin Locomotive Works, of Philadelphia, was a wealthy Presbyterian layman worth ten million dollars, five millions of which he spent in religious and philanthropic work during his lifetime, and five millions of which he bequeathed to similar objects after his death. The bequest which I am entrusted to administer is to enable me to carry on evangelistic work in different parts of the world, and also to train up and send out suitable evangelists to carry on the same work that I am sent out to do."

Do you believe that, in the preaching of the gospel, is to be found the solvent for all social troubles?

"Certainly. Every thing else has been tried and has failed. The preaching of the old-fashioned gospel and the teachings of Jesus Christ will be found sufficient for all the different problems that face us to-day."

May God be praised for such devoted men as John H. Converse. I have long wished

and prayed that some of the millions that often do harm instead of good might be used to spread the gospel. As nearly as I can make out from a hasty review of the copies of the *Outlook*, the conversions run away up into the thousands. Yes, let me say it most emphatically, the preaching of the gospel *will* be found the solvent of all of our political troubles, and it is also (most emphatically) the *only* remedy. While I dictate, ex-president Roosevelt and President Taft, two men who have enjoyed the highest gift our nation has to bestow, are now engaged in filthy mud-slinging. God grant that our people may awaken from their mistaken lethargy, and decide that (if this continues) *neither* one of these men is wanted as President of a people who are proud to style this the "land of the free and the home of the brave."

POULTRY DEPARTMENT

A. I. ROOT

"LOCKING THE STABLE AFTER THE HORSE IS STOLEN."

On page 322, May 15, I made mention of 28 smart chicks, and said that not one of them had been lost up to the time they were two weeks old. Well, fully half of those 28 were three-fourths-blooded Buttercups. The way it came about, I selected from my flock a dozen laying hens, half Buttercups and half Leghorns, and gave them to my old full-blooded Buttercup rooster; and the 28 chicks were hatched from eggs from these selected half Buttercups. At least half of the 28 were finely marked Buttercups. As their wing feathers grew and showed the spots and the delicate pencilings, I thought that they were handsomer than the most gorgeously painted butterflies. In fact, I thought so much of them that I began to wonder if something would not happen to them while I was off to my northern home. I arranged with a near neighbor to look after the hen and the 28 chicks. They were put into a poultry-house where all openings were covered with poultry-netting; and the chicks were getting to be so lively with their wings that I expected them very soon to occupy little roosts about two feet from the ground. When I left, the chicks with the hen occupied a brooder box that had been out in the weather until some of the boards were getting to be pretty rotten. The day before I left Florida I planned to put inch netting a foot or more in the ground below the sills of this poultry-house, but I did not get at it. Now read the following letter:

Dear Friend Root:—Your letter came Saturday, and I was very glad to hear from you. Miss you? Well, I should say so! The ducks seem to be getting along nicely. They lay three eggs almost every day; two or three days we have gotten only two. Something got after the chicks. I did not know what; but they were so frightened that they did not want to go into the coop at night. I had to pick them up and put them in. Friday morning I found *four dead ones.* One was almost all eaten up, and one was hurt so it could not use one leg. Wife took it into the house and nursed it so it is almost well now. After that I shut them in, as I thought, securely in the little coop. This morning I went out to find them, and *every one was dead.* Almost all had their heads eaten off. Mr. Morgan thinks it is rats. He killed one rat among the ducks.

I shall put out some poison to-night, and see what the result will be. I feel very badly over it—more than if they were my own.

The watermelons are doing nicely, and I will hoe them out in the morning.

Bradentown, Fla., April 28. C. L. HARRISON.

Monday morning.—I got the culprit last night—a skunk. I "locked the barn door after the horse was stolen."

Oh dear me! I wonder if I shall ever learn to protect my chickens so there absolutely can *not* be any such mishap as the above. They had been having bread and milk and boiled eggs, and every thing that could conduce to their thrift. And just think of the time I spent, to get them past the danger period, and then went off and left them so a skunk could dig in the soft sandy ground and get under the sills, and then tear out the boards and mutilate and kill *every last one* of the 28! I have been feeling so sore and conscience-stricken ever since the above letter came to hand that I am seeking relief, and finally it occurred to me that I could get some satisfaction by warning others whose chickens were as yet safe and sound. What a piece of folly it is, any way, to waste feed and time and money, and then let some miserable "rodent" ruin it all! By the way, I was not aware that a skunk would kill a whole flock in that way. Is it not possible that it was the work of a weasel and not that of the skunk that *happened* to get poisoned? Of course no blame at all is to be attached to my good neighbor Mr. Harrison and his wife.

Do you want to know about the ducks I left? Well, here is a letter from Dr. Morgan's boy, scarcely twelve years old:

Mr. A. I. Root:—I thought I would write to you how the ducks are getting along. I get three eggs every day, but once in a while one of them skips a day. The ducks are almost all full grown, except the one small one in the bunch of the fifteen.

Papa got Mr. Raub's incubator and put fifty-two duck eggs in it. The ducks are real tame. Nobody has stolen them. There are still 30 of them.

I have five little ducks. I expect to have more before long.

Bradentown, Fla., May 7. REGINALD MORGAN.

By the way, it is, to me, astonishing that three ducks have kept on, winter and summer, giving three eggs almost every day. Will a flock of 25 or 30 do any thing like it? If nothing serious happens, I propose to answer the question next winter.

While I am about it I want to tell you of another lesson that I learned. I planned to carry 48 laying hens of a cross between Buttercups and Leghorns over to neighbor Abbott's; and as the weather was warm I had a wire-cloth cage made large enough to

take the whole 48. Now, this cage was ample in size, and well ventilated; but I forgot that it was to hold about *200 lbs.* weight; and just as four men were lifting it on the wagon the bottom pulled loose. The chickens were all in a heap, tangled in the wire cloth, and some of them were near smothering. I can not quite remember; but I am sure my little prayer, "Lord, help," came up of itself. I managed to get hold of the break, or partly under it, and held it up until it could be slid over on to the wagon-bed. Then we reached down through the top and pulled the chickens one by one out of the snarl. Not one was hurt, and only two got out. When I sent them away, the 48 laying hens were giving close to 40 eggs a day, and I am anxiously waiting for reports from them after they have been carried a couple of miles in the shape I have mentioned.

Now, instead of a moral I think we will have two of them something like this: One-inch-mesh netting costs only two or three cents a square foot. If you want to have "fun and profit" in poultry-keeping, make your precious little chicks *absolutely* safe from midnight prowlers so you can go to sleep at night with a clear conscience. The second moral is, when you wish to put forty or fifty grown-up fowls in one cage, bear in mind that the cage must be strong enough to hold 200 or 300 lbs. weight.

Mrs. Root has just received a letter from Mrs. Harrison in which she says the little chick mentioned by Mr. Harrison has recovered all right; it is one of those beautifully marked Buttercups that I mentioned, so there is *one* left of the flock of 28, after all. She says it is growing finely, and is very tame and docile, and comes up every night of its own accord to be shut up securely so night prowlers can not possibly get it. She also writes us something about the ducks. For some time before I left, one of my largest flocks could scarcely be driven past a certain point in their canal. Thinking it was a queer notion or whim of theirs I would drive them up and almost push them along past that particular spot—see diagram of their canal on page 255. Well, finally, rather than walk past that particular point they would all take wing and fly over it one after another. I still thought it was just a notion, but was delighted to see them spread their gauzy wings and fly so easily, while it takes such a lot of ponderous machinery with great spread of canvas for humanity to "get up into the air." Well, this letter explains why the ducks were so averse to going past that particular spot where the bushy bank extended a little over the water. I quote as follows from her letter: "Mr. Morgan told me the young ducks seemed to be afraid to pass a certain spot in their path to go down into the water. On careful examination he found a nest of water moccasins. He now lets the ducks of all ages go together; in fact, they have grown so they are all nearly of a size."

I confess I have never seen a "water moccasin" in Florida; and as I have never lost any ducks except those taken by the alligators, I think the ducks were more scared than hurt, and that was the reason why they would not go past their nest.

THE 48 LAYING HENS, AND WHAT THEY ARE DOING IN THE MONTH OF MAY.

Inasmuch as I have reported in regard to the small chicks and the ducks, I think you had better read the following from neighbor Abbott in regard to the 48 half Leghorns and half Buttercups that I left in his care.

Dear Mr. Root:—Your hens are in the pink of condition—a strong, active lot; but they are mixed up so with mine I can't tell you just what they are doing. Eggs are 20 cts.; wheat, $2.40; corn, $2.10; oats, out of sight. It would take far more figures to find the profits than to express it. We had a nice crop of potatoes; dug them in 70 days from planting. We are well, and have no trouble with cold feet. We were down the river the other day. A kingfish (that is, a mammoth mackerel), 4 feet and 3 inches long, jumped on shore, high and dry. I will send you a picture when I write again.

Bradentown, Fla., May 17. D. W. ABBOTT.

HURRAH FOR THE INDIAN RUNNER DUCKS! TWO EGGS IN ONE DAY, AND AN EGG APIECE THE NEXT DAY, ETC.

Mr. A. I. Root:—I read with great interest what you write for your magazine. In the last issue, May 15, I notice that you speak of ducks laying two eggs in one day, and one of which is usually a soft-shelled one. Well, I have a few of the Indian Runner ducks, and will tell you some of my experience which may serve to mix up matters a little worse. I had nine breeding ducks and two drakes along a small ditch. They laid the following for a few days: 10, 9, 9, 12, 8. Your opinion is that, when they lay two eggs in one day, they miss the next; but these seem to have gone one better, and laid the following day. In quite a few other cases they have laid 10 per day. On the 9th of May a raccoon killed one duck, and since then one day I got nine eggs.

Here is something I accidentally found: If your ducks are ever reluctant to lay, try this: Take a pail that has had tar in it, and make ducks drink their water from this. It seems to have helped in my case, and I wish you would see if it is good.

Bryan, O., May 21. CARLTON OPDYCKE.

Why, my good friend, your letter is one of the most "interesting" I ever got hold of. The information that two Indian Runner ducks laid two eggs each in one day, and then an egg apiece the day after, is a wonderful piece of news; and if such reports can be duplicated we may unite in thanking the great Father above for giving us more eggs, better eggs, and for a smaller sum of money, than the world has ever had before. In regard to the "better" eggs, I for one think I would rather have a fresh egg from an Indian Runner duck that has been "corn fed" than any other egg I ever ate.

INFERTILE EGGS; HOW MUCH HAS AN INCUBATOR TO DO WITH IT?

This matter is discussed on page 147, March 1. On page 256, W. C. Ellerin, of the Cyphers Incubator Co., has something to say in regard to the matter. Now, I am pleased to note that so good an authority as L. E. Keyser, of the *Western Poultry Journal*, backs me up as follows:

It is a fact that a good sitting hen will often hatch eggs that will not start in an incubator. I once placed a number of infertile eggs that had been

tested out of an incubator on the third day under a broody hen, thinking to give them to her for a short time only, and see whether she really meant business or not. I did not receive the eggs I intended to place under the hen, and no more attention was paid to her. What was my surprise when, at the end of about three weeks, she came off with three chicks! There were eight eggs in all, and I at once examined those remaining in the nest. Four were still clear and one rotten, showing that it had started to develop.

The above is a stronger corroboration of the superiority of the sitting hen than I had thought of or expected to get. Once more, what have the venders of incubators to say to it? And in order that this may be further tested, can we not have reports from eggs pronounced infertile by the incubator, say in five days, and afterward submitted to a sitting hen? This once more strongly suggests the idea of starting all the eggs under a sitting hen and letting the incubator finish the hatch. It would not be so very expensive to put all the sitting hens found on a large poultry-farm in a room by themselves; then give these sitting hens, all at one time, enough eggs to fill the incubator, or rather more - say enough to furnish fertile eggs to the capacity of the incubator. If there should happen to be a few more, let one or more of the hens finish them up; and in this way I think we might easily get a hatch of 90 or even 95 per cent, and probably avoid, at least to a great extent, "dead in the shell." As I have said before, this plan is one of the big secrets in the book "Poultry Secrets," from our good friends of the *Farm Journal*.

FLORIDA LAND SPECULATIONS, ETC.

Our readers are well aware that I have been holding up warnings against the schemes of land speculators for years past, or ever since I have made my winter home in Florida. I have again and again urged that no one should think of investing unless he has been on the spot, seen what he is buying, and made inquiries of old residents not having land for sale. Under the circumstances the following brief letter from an old friend of GLEANINGS comes as a surprise, and I confess it was not altogether a pleasant one:

A. I. Root:—In GLEANINGS for April 15 I find in an advertisement these words: "Low-priced lands. Easy terms. Plenty of water. Healthful climate, in the land of Manatee, on west coast of Florida. Net $500 to $1000 per acre." For shame! With all your boasted religion and pretense of a clean life, for the paltry amount you get for this advertisement you can stretch your conscience so as to insert this in GLEANINGS. Do you suppose such an advertisement as this would be inserted in the *Rural New-Yorker?* Never. The net amount stated is a bald lie, and is intended to deceive. Why, if people generally could be made to believe that statement, there would not be an uncultivated acre of land (or, rather, *sand*, for that is what it is) in Florida in a year's time. I have been in Florida, and know just what it is. Take the advertisement out.

White Hall, Ill., April 19. A. W. FOREMAN.

Permit me to thank you, my good friend, for your interest in the good name of your old friend A. I. R., and GLEANINGS also; but were you not a little hasty when you wrote the above? What you quote comes from the advertisement of the Seaboard Air Line Railway Co., and they have been our regular advertisers for years past; and I can not remember that we have ever before received any objection to the way in which they word their advertisement. In fact, I have many times advised inquirers to get and read their literature. The matter has been so much discussed in the pages of GLEANINGS that I will need to go over it only briefly.

As you say, the greater part of Florida is really sand; but if you will visit my Florida home in Manatee Co., I think I can astonish you by showing you what my neighbor Rood, right across the street from our place, is doing and has been doing for years. He has some excellent land that was formerly a sort of pond. It is now thoroughly underdrained, and also equipped with an artesian well to furnish water in times of drouth. Furthermore, in addition to neighbor Rood's horses used on his forty acres, he keeps quite a few Jersey cows, and sells milk; and he grows his own hay, and I guess the greater part of his feed for cows and horses. Let me say now right here that these Jersey cows are kept mainly, if I am right, for the manure; and his horses and cattle are kept in stables such as we have here in the North. Besides the stable manure, he buys load after load of commercial fertilizer.

You object to the statement in GLEANINGS of $500 to $1000 per acre. Well, Mr. Rood, during the past winter, if I remember correctly, received over $2000 for the celery grown on a single acre. After the celery was off he planted potatoes; and when I came away he had about as handsome a stand of potatoes as I ever saw. The fertilizer put on to grow the celery was all that was needed for the potatoes. They did not have a cent's worth more. The potatoes will soon be dug, and in their place will be put tomatoes or some other crop. He has been getting three big crops off the same ground year after year. And this is not all. Besides his reclaimed swamp he has some poor sandy land on higher ground. I supposed this pine land would not yield enough to pay, even with his skill and experience; but while I have been living there, and could watch operations, he cleared off that high and dry pine land, got out the stumps, worked it up thoroughly, put in tiles, put down an artesian well, and, much to my surprise and astonishment, he has this year taken off almost as good a crop of celery as from his reclaimed swamp. Of course it has cost a lot of money to do it, and it took a man like Mr. Rood to make a success of it. When I asked him what amount of fertilizer he put on that new land to get such a quick response, he replied smilingly that he put on all he could afford to, and then shut his eyes and put on some more. I ask

ed him if it exceeded three tons, costing about $40.00 a ton. He said he felt sure it would not be so much. But when buyers from the North came and looked over his crop they offered him something like *$1000* for the celery on that poor unpromising piece of land. (See GLEANINGS page 289, May 1st issue.) You say you have been in Florida. You had better go back there, my good friend Foreman, this present year of 1912, and see what is going on. I think there is plenty of land, perhaps, however, not near to market or transportation, as good as Mr. Rood's, that can be bought for from five to ten dollars an acre; but it needs *means* to develop it, and a live man like Mr. Rood to direct matters. Besides what Mr. Rood is doing, and some others like him, there is a general stampede to Manatee Co., as I have told you before. Houses are being built, and roads and cement pavements being constructed in and around Bradentown, at a rate almost unprecedented.

Finally, whoever sends for the literature sent out by any railroad company building railways through a new and undeveloped region, should, of course, understand that the railway companies present in their literature the *possibilities* of that region rather than the rule.

Perhaps it would be well to say in closing that there are all the time unfortunate individuals who start in to do as Mr. Rood is doing, and who make a failure of it, and some of them declare that there is more money thrown away in Florida trucking than is ever made out of it. But, my good friend, it is true that this same thing is going on all over the North as well as the South. Where one succeeds, there are many more who make failures, especially if they do not have a genuine love for the business aside from its financial possibilities.

Health Notes

BY A. I. ROOT.

"PREVENTION BETTER THAN CURE."

I think it was the *Scientific American* that said, recently, great progress has been made in recent years in preventing sickness, suffering, and death by means of improved sanitation. Many of us can remember when typhoid fever, diphtheria, scarlet fever, smallpox, etc., had to have their run. Sometimes the "run" took a whole neighborhood or a good-sized village, and not only incurred fearful doctor-bills, but sent a lot of people to the cemetery; and the *Scientific American* added that the greatest achievements in medical science were in the way of prevention by better sanitation. Just now there is a great raid being made on flies. I can remember when we could not eat our dinner in peace without slapping flies right and left; and one glorious part of it is, the children are helping. A good many times they are doing the work. I spoke about the wonderful things the *boys and girls* are doing in the way of raising more and better corn; and I said the same thing might be done with potatoes. Well, it is already done, as I see by the agricultural papers.

Now, all intelligent family physicians are telling us everywhere, not only in the cities but in the country towns and villages, how to prevent disease. They are teaching us modern sanitation. I am ashamed to say that, until about two years ago, I thought bathing every Saturday night was sufficient. *Now* you could scarcely hire me to go back to that way of living. Every inch of my body has a good wetting, and a good rubbing with a dry towel, every day of my life, either in the morning or before I retire, as is most convenient. Well, it is not only the better health I enjoy, but very much cleaner clothing. The wash-woman's task is lessened (down in Florida the dear wife does all the washing); my light underclothing at the end of the week is often so clean that, if I get it mixed with the new, I can not tell one from the other. The sheets on our bed are never soiled, even if I have been perspiring freely during the day, for in that case I take my bath before retiring. No matter what your occupation is, nor who you are nor how old you are, if you want to be up with the times keep yourself clean by a daily bath. You do not need a bath-tub. If the room is too cold, strip off to the waist, and when you are thoroughly washed so far, put something over your head and shoulders while you finish the rest of your body. With a little practice you can wash yourself thoroughly all over without making any slop where you stand. I forgot to mention in the proper place my nightgown. This, too, is so clean because I am well washed before it is used, that when Saturday night comes I hardly know it has been used. Now, so much for the body. If you are keeping up with the trend of thought, invention, and discovery, you are sleeping outdoors, or with so many doors and windows open (screened, of course), that you are practically out of doors. While I am about it, let me say, help the good wife to keep your living-room as clean as your body by being very careful to clean your feet whenever you come in to dinner or for any other reason. Wear some sort of overshoes when obliged to go out on ground that might stick to your feet. And, finally, be careful about the cellar. The Cyphers people, in their directions for making and using an incubator cellar, say that the walls and floor should be scrubbed thoroughly every few days, or mold will accumulate that will mean death to the chicks inside of the egg. The cellar should be damp, and this dampness is congenial to the

growth of mold and of injurious bacteria. Have it so made that you can let in some sunlight a part of the day, and then give it a frequent sweeping or scrubbing two or three times during a hatch. Now, if this is good for the chickens, it is also good for humanity; and the Master said, you know, "Ye are of more value than many sparrows." For the sake of the dear ones who live in the rooms above, and for the sake of preventing epidemic and contagious diseases that might harm your neighborhood, keep your cellar as pure and wholesome as you do your body and your dining-room. I am sure the good wife will warmly second your efforts.

If apples or potatoes or other vegetables are rotting in your cellar, overhaul them and remove the decayed ones certainly once a week. I sort over my eating apples every 48 hours; and late in the spring, when the old apples begin to rot badly, I sort them over every day, using every apple just as soon as it shows the *first symptom* of decay. In that way I always have nice ripe mellow apples, and there is almost no loss; and when apples are from 50 cts. to $1.00 *a peck* it does not pay to let them spoil.

Now let your wife read this little health talk; and may be it would be a good idea to show it to your neighbors. Tell them I am starting out to be a hundred years old; and I should like to have every (good) man and woman who lives, and all fellowmen, join in with the Century Band. At present our good friend T. B. Terry will make a very good leader.

HYDROPHOBIA, ETC.

Mr. A. I. Root:—I have just read your article, p. 771, Dec. 15, on hydrophobia. I want to thank you, and congratulate you for giving space and publishing that timely article. I only hope that every beekeeper and farmer, as well as dog-fancier, could read your words on a subject that demands our attention. I am going to do all I can here to get the taxes raised on dogs, and a law to compel dog-owners to muzzle their dogs. The loss of human life and valuable domestic farm animals can never be balanced with a pack of worthless dogs.

Just a few days ago I lost an animal in the way of a fine mule—one that $250 could not buy. The mule, a faithful trusty servant of our household, was bitten in the nostrils by a stray worthless cur that was not worth the powder and lead that were shot at him. Just 34 days from the time the mule was bitten it died in convulsions. Its sufferings were something terrible: and, to make it all the more so, we could do nothing to relieve its suffering, as one convulsion followed another in rapid succession until death relieved it. It suffered somewhere near three hours before death came.

Mr. Root, as soon as I read your article in GLEANINGS I simply had to write you this letter.

SAMUEL M. ANGEL.

Evansville, Ind., Dec. 26.

THE OTTAWA "LUCKY STONE," ETC.

I had fondly hoped that the days were past when people would put their faith in something carried in the pocket to bring "good luck." But just now I am pained to get a lot of printed matter with the heading above. These lucky stones are for sale, of course; and there is a lot of "testimonials" to prove that, if you have this thing in your pocket, all your investments and speculations will turn out profitably. I suppose that, if you should buy a lottery ticket, it would draw a prize every time, if you are a possessor of that lucky stone. Now, it is a disgrace to the present age, and a slur on the postal department, to permit such things to be carried in the mails, and I am going to carry the matter to the Postoffice Department authorities. In running over some of the testimonials I was wondering what it was that sounded so strangely familiar; and then I recalled that the testimonials in regard to Electropoise and Oxydonor were almost parallel. I wonder if the postal department will also decide that it is not their province to interfere with using the mails for traffic in these lucky stones. The venders even have the cheek to drag in the names of Lincoln, Grant, Edison, Carnegie, etc.

Just now the price is only the insignificant sum of $1.00; but owing to the "immense demand" they say the price will soon be boosted up to $10.00 each.

BIG POTATOES, ETC.

Mr. Root:—I want to ask you if the A B C of Potato Culture says that all potatoes will be big enough if they go only 40 to the bushel for the biggest ones. If so, we got you beat a mile. We grow potatoes as big as 3 lbs., and don't think much about it, although that would make only 20 potatoes to the bushel.

Comfrey, Minn., May 15. C. G. GABRIELSON.

My good friend, the potato book does not make mention of potatoes larger than 40 to a heaping bushel. No doubt we *can* grow them larger if we undertake to do it. But let me tell you of something that happened. My neighbor, James Hilbert, in Northern Michigan, grew, I think, about *1000 bushels* that he *could not sell* because they were so large that nobody wanted them. They were Carman No. 3. I told him, when he planted them the usual distance on his extra-good ground, that he would have trouble by having too many of his potatoes too large for market; and I suggested that he should plant them close, and use large pieces for seed so as to make the potatoes small. I think their usual rule up there is 3 ft. apart both ways. The potato book recommends, as you will notice, very much closer planting than this, in order to avoid getting potatoes that weigh 3 lbs. I suppose this present spring of 1912 big potatoes or little potatoes or any other kind will sell without any trouble, and bring a big price at that.

FROM AN 85-YEAR-OLD FRIEND

You did send me one of your catalogs, but I am no more able to tend to bees. I am going on 85 years, but I appreciate very much your sending me that. All I want to know is if, A. I. Root is alive yet. He was one of my best friends. I did deal for many dollars' worth of goods with him. He was an honest man. I am a veteran of the civil war. I was raised in Ohio, in Stark county. I am a Frenchman. Please take a little pains and let me know about Mr. A. I. Root.

Parkville, Mo, ED LANBELIN.

[My good friend, we are glad to tell you that A. I. R. is just now very much alive, and, through God's providence, he hopes to live to be as old as you are. We send you some of our back numbers in order to let you know how your old friend is busying himself during this year of 1912.]