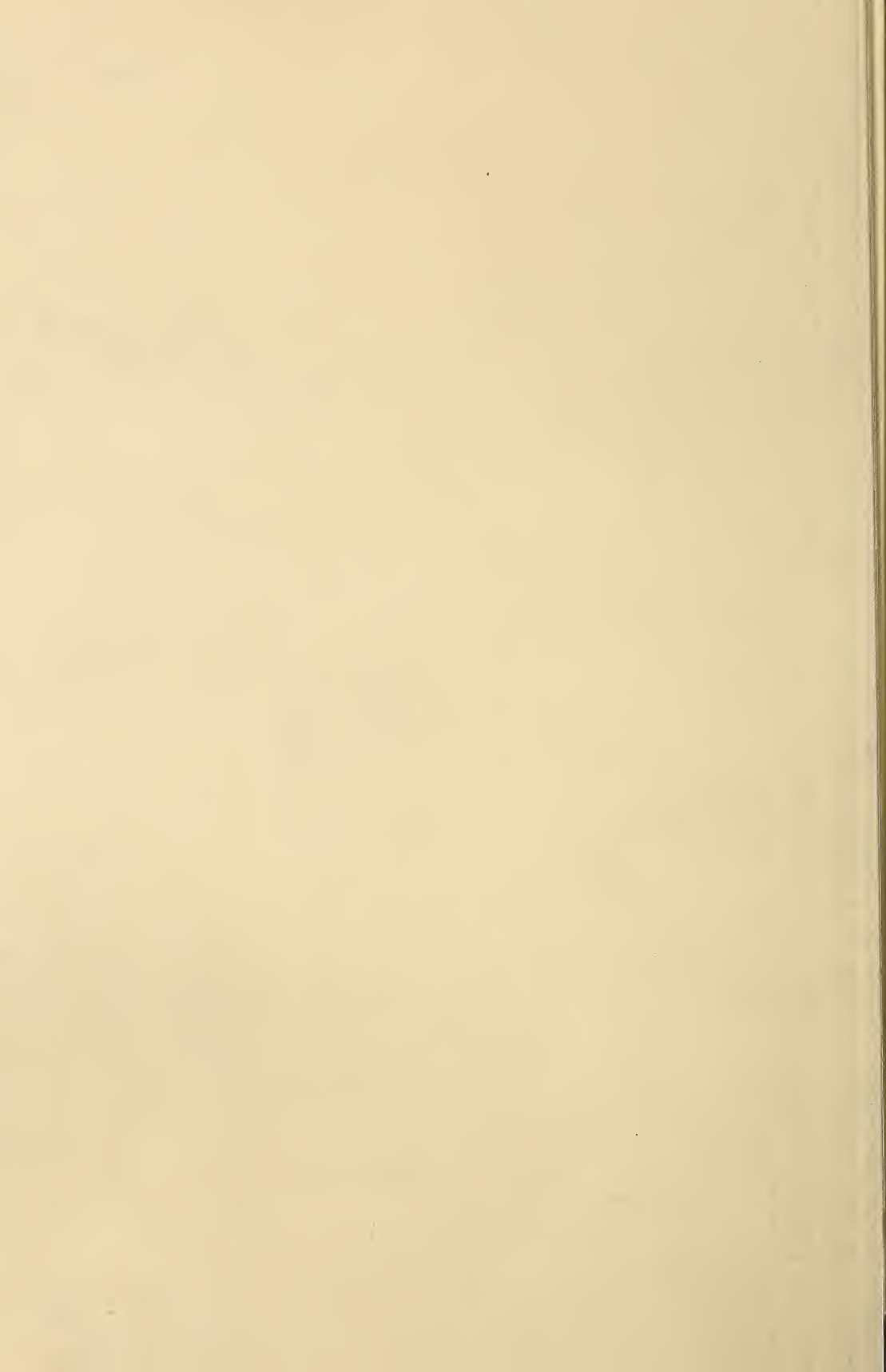


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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

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THE STRIKING STATEMENT is made in *Review* that J. F. Otto keeps from 250 to 300 colonies in one apiary in Wisconsin, and that in many cases he has had two queens living together more than a year in one colony.

PROF. CARLET has pointed out in *Le Naturaliste* that the books are wrong in saying that no wax is secreted by the first and last ventral rings. The first and second secrete none, and of the remaining four the last secretes the most.

WHATEVER the advantage of equalizing in any case, there is one objection. If you mix bees in any way, it hinders keeping exact tally of the performance of each queen in surplus, and that's important if you are breeding for improvement.

FIVE TO TEN DAYS before the commencement of the honey-harvest you wish all of your increase made, says Bro. Doolittle, p. 351. Right, for his locality, his chief harvest being linden. Wrong for my locality, with little linden to speak of, and clover the main harvest.

THE MEMBERSHIP of the N. B. K. A. is a little more than 500. It's sad that it's so small; but there's encouragement in the thought that never before were so many beekeepers banded together in one body in the country. And the number is all the time growing.

UNCLE LISHA, have you been keeping close watch of Doolittle? Page 347 you make him stand with Deacon Strong in believing bees will swarm, and it's best to let 'em. I think that's where he used to stand; but I doubt that there's another man in the ranks to-day with his teeth shut tighter with the determination to find a plan to head off the bees from swarming.

IN WORKING BEES from other frames to Dovetail frames, one way is to put the hive with brood over the Dovetail hive, an excluder between, the queen below. But the queen

is very slow about laying, apparently thinking she ought to get above to lay. A better way is to brush all bees from the old comb into the new hive, and put the beeless brood over another strong colony with excluder. If desired, this brood may be put back over its original queen ten days later.

JOHN R. MILLARD gets some sound instruction on page 352. The problem being to get a stock of drones from a choice young queen, this might be worth trying: Add brood from other colonies so as to get the young queen's colony very strong. Then have plenty of drone comb in one or two of the central combs. As soon as the queen fills these drone-cells, take the comb and give to another colony, and replace with fresh drone comb as fast as taken away. [The idea is a good one, and we will adopt it in our queen-rearing yard.—ED.]

FRIEND A. I. ROOT, if you want to see an ivy-leaved geranium at its best, grow it in a hanging pot. Some of them have foliage with a delightful fragrance. Rub a leaf lightly between the thumb and fingers, then smell your fingers. [You probably had it hung up in your house; but unless you and Emma or Mrs. Miller particularly called my attention I should never see it. I am really sorry that I do not appreciate and admire flowers; but I do admire landscapes, photographs, and in general all art work of the decent sort.—ED.]

A. GUSTIN says in *Le Rucher Belge* that his bees when working $1\frac{1}{2}$ miles away brought no pollen. The number of pollen-bearers increased on nearing home, the most being found within ten rods of the apiary. [This is an interesting fact—none the less so because I believe it to be true. Just now while the dandelions are out in profusion, and from which bees get but little if any honey, those yellow heads nearest the apiary have the most bees on. Those bees that come from a distance seem to be either carrying water or honey from the willows.—ED.]

EQUALIZING COLONIES is all wrong. And it's all right. Depends. In the spring, take two colonies, one with three frames filled with brood, the other with enough brood in three frames to make one full frame. Take a frame

full of brood from the strong and give to the weak, and you have equalized the brood. Three weeks later there will not be as much brood in the two hives as if you had let them alone. But let them alone till the stronger has six or eight frames of brood, and then you will gain by equalizing. The secret of it is that a colony with brood enough to fill only one frame full stands nearly still, while one with three or four frames booms right along. [I guess you are right.—ED.]

DOOLITTLE talks sense, p. 350, when he favors leaving queen-cells and young queens with the bees from start to finish. And he will probably agree that for the best results it is desirable that the cells be in a strong colony at least till they are sealed, and that it is at least a little better that the young queen be in a strong nucleus till she lays. We are not likely to reach the time when good queens can be reared for nothing. [I have said a good deal in favor of bees for business, and have rather decried the evident rage for color, which rage now seems to have all but died out. Would it not be well to talk about high-priced queens? One reared by the most approved plans in a strong colony, under the swarming impulse, or same impulse brought on artificially by feeding, ought to be worth twice as much as one reared in the old-fashioned method in a queenless colony without feeding—a method that is apt to result in small, inferior queens.—ED.]

GEO. G. SCOTT takes up half a column of the *American Bee Journal* in saying that hive tools and other things likely to be lost should be painted a brilliant red. The advice is worth all the room he has taken. [Say, you are just right. I am one of those unfortunates who have a habit of losing tools in the apiary; and then I have walked all over them in a search for them, and have not seen them. Painting all such tools a bright red, forming a strong contrast with the grass and surrounding objects, would, I think, save a great deal of annoyance, and perhaps in some cases some "self-cussing." W. L. Coggshall manages to remedy this trouble to some extent by having his tools tied to him with a string. Of course, it would be impossible to paint a smoker this color; but screwdriver, pries, etc., could be painted red. This idea strikes me so favorably that I have just marked a heading for our A B C book, entitled "Tools," and in it I shall give friend Scott credit.—ED.]

MR. EDITOR, you've got me all mixed up about Devauchelle and Bingham. I think you are right that both believe in strong colonies; but Devauchelle thinks the best thing for a poor locality is a big brood-chamber all the time, while friend Bingham says, "The time is likely to come when such a hive in a poor locality may be the only means of getting nice honey in paying quantities." And by "such a hive" doesn't he mean one reduced to a very small brood-chamber? Perhaps the main point of difference is that Bingham believes in contracting for the honey-flow, and I lean in the direction of the smoker man. [I do not see how you should be mixed up, doctor.

Mr. Bingham, I take it, is an expansionist—if not politically, then apiculturally—that is, I take it he believes in a small hive for a poor locality, and a large hive for a good one, because he can have a large or small hive at will. Now, is it not possible that Devauchelle has a large hive which he can not reduce? You know it is easy for us to believe that what we have is just right; and it is also easy to confine our ideas and practices by the limits of the devices we use. Of course, you and I are not guilty of any such bad things; but Devauchelle *et al.* are.—ED.]

HAVE YOU TRIED the French way of using the Porter escape? Instead of having the escape open into the hive below, have it open *outside*, in front, above the hive. One advantage claimed is that you can see if the springs of the escape do not work exactly right. [This method is all right under some conditions. H. R. Boardman has practiced it for years, and I do not know but he is using it now. It has the advantage, according to Mr. Boardman, of getting the bees out of the supers a little quicker, because the bees work toward bright daylight. The young bees that happen to be in the supers come out in front of the hive, and naturally find the entrance, so none are lost; but as a general rule Porter escapes are put on at night between brood-nest and sections, and the next morning the supers are *supposed* to be free of bees; but according to my experience they are not *always* thus freed, for I have found anywhere from thirty to forty bees in the super next morning. I suppose H. R. Boardman, by his plan, induces the bees to leave earlier, with the result that the work is accomplished in less time, and more thoroughly. It might be well to try this matter this coming season.—ED.]

A HARD THING it is to be always clear and not take too much for granted as being known by the inquirer. At least it's hard for me, and I see ye editor keeps me company, p. 253. A raw recruit would understand that in all cases stimulative feeding is necessary, and that the queen-cells must be in the same story in which the queen is laying. I don't believe he thinks either necessary in the time of full flow in hot weather. There, I've made the very same mistake by not saying that I'm talking about the reply to E. J. B. about queen-rearing. [There, now, doctor, you mix me all up. Instead of giving the right page, 352, you read the figures backward, and make it 253. Well, I have found the place now, and we will start over. In my remarks in question I had in mind the season during which they would come before our readers, which would be from the fore part till the middle of May, and I do not know of any place in the United States in which there will be a natural honey-flow then unless it be in the extreme south. However, your point is well taken, for a beginner reading what I said, in the month of July or June, would in all probability feed during the entire honey-flow. While this would do no harm, it would do no good, and might teach the colony to become lazy.—ED.]



Drying winds and heavy frosts,
Now and then a rain;
Things are mixed, and so betwixt
The bees get little gain.

AMERICAN BEE JOURNAL.

A correspondent asks C. P. Dadant if whisky fed to bees in honey would not make them bold enough to rob other people's bees. Mr. Dadant disposes of so foolish an idea by saying what ought to suggest itself to every one, that bees know nothing about human ownership. They care for nothing but their own needs as a colony. Wherever they can get honey, though out of an adjoining hive, they will do so, no matter who owns it. There is no doubt that the effect of whisky so administered would be injurious.

The Department of Agriculture, in the last Year Book issued, classes sweet clover among the pleasanter weeds. Mr. Dadant says, "If an out-yard or a waste corner is to be left growing in weeds, it is much better for it to produce such a plant as sweet clover, which spreads a pleasant smell in the air, injures no one, and enriches the soil, while, on the other hand, it may be very readily destroyed if need be, than to have it overgrown with the stinking ragweed, the poisonous jimson weed, or datura stramonium, or thistles. The opposition to sweet clover as a weed where weeds must grow is beyond my understanding, for I have never known this weed (?) to do any harm to any one, as it is most readily exterminated when the soil it occupies is put under cultivation."

BRITISH BEE JOURNAL.

The Transvaal and Orange Free State Governments have prohibited, under severe penalties, the sale of any thing, not the natural product of the bee, under the name of honey. Syrups may be sold as such as long as they are not called honey.

An Italian bee-journal reports the case of a girl in Switzerland suffering severely from poverty of blood, and who could get no relief through medicine. At last she tried a honey cure, which restored her to permanent health in something over a month. The treatment was as follows: Morning and evening, honey dissolved in hot milk; honey water at will. Honey taken during the day, in all about 2 lbs. each week.

A charge of adulteration of honey was recently brought before the authorities in Cologne, Prussia. Wm. Jaegersberg, a wholesale dealer, was sentenced to a fine of \$250, his wife to \$75, and the auctioneer who had been selling the stuff, to \$5.00 and six weeks'

imprisonment. Jaegersberg had carried on a large business, supplying a number of tradesmen under a guarantee of pure honey. During 1898 and '99 he disposed of 67,397 lbs. of manufactured honey, consisting of four-fifths syrup and the rest honey. To us on this side of the water it looks as if they were having a paroxysm of honesty in Europe. Such frauds and poisoners general get no mercy there when detected.

LE PROGRES APICOLE.

A merchant, R. Hornik, of Beuthen, Upper Silesia, had in stock 1300 kilograms of honeyed syrup, which he sold for pure. Taken before a tribunal he was fined \$75 for violating the law concerning adulteration of food. In Schleswig Holstein the inspectors have taken not less than eight samples of honey adulterated with sugar syrup. The editor says, speaking for his own country, Belgium, "We have also a law designed to repress the adulteration of honey; but the eye of the inspectors seems to be obstinately closed in regard to the introduction into the country of a lot of mixtures that have no honey about them but the name." Our thanks are due to the editor for his friendly remarks concerning the Home of the Honey-bees, based on an article written by Mr. J. Verliinden.



BLEACHING TRAVEL-STAINED COMB HONEY.

The Full Process Explained; a Valuable Article.

BY A. E. WHITE.

I will try to tell you how we bleach travel-stained honey. We first fumigate with sulphur, then place the combs where the sun will shine on them, and that is the whole process.

I build a frame on the south side of my honey-house, and cover the same with cotton cloth. A door opens from the honey-house



WHITE'S BLEACHING-HOUSE FOR SOILED COMB HONEY.

into this room. I place shelves on the side and ends of this room, the bottom shelf being a wide board to be used as a table. I place

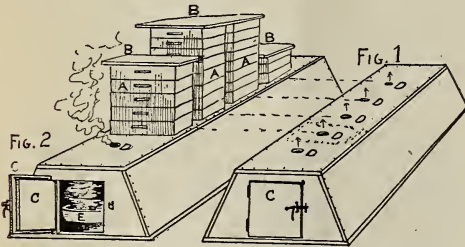
the combs on these shelves so that the sunlight will strike them. Dark combs will require several hours. This plan will whiten dark combs here in California. If you fumigate a few combs, then place them on a window-sill where the sun will shine on them, you will be convinced.

In placing the sections on shelves in the morning, I find the following plan good: On the shelves at the east and west end of the room I place sections end to end lengthwise of the shelves, two rows on each shelf, one row on the outer and the other on the inner edge. The morning sun strikes one side, and the afternoon sun the other side. On the front shelves I set them crosswise of the shelf, far enough apart so as not to shade each other.

I pack them away every evening; all not white I put out again next morning. Some of them will bleach quite slowly, but I have been able to whiten the worst ones by perseverance.

HOW TO MAKE THE SULPHUR-BOX.

Perhaps your readers would like to have a handy arrangement for fumigating honey or combs. I make a box like a watering-trough, the bottom as wide as my hive is long. I place



WHITE'S SULPHUR-BOX FOR BLEACHING.

this bottom side up where I want to use it. In one end I put a door to allow me to put in an iron dish holding the sulphur. About two feet from this end I bore a two-inch hole; measure off the width of my hive, and bore holes on down the box. I place the supers over these holes; tier up, and cover the top one. If my combs are stained I sulphur thoroughly, keeping them in the furnace two or three hours. If this box is placed in some building, hives filled with combs may be kept free of moths by fumigating once in a while. Pala, Cal., Mar. 27.

[I will explain to our readers that I sent the manuscript to our artist, requesting him to make drawings, and submit the same to Mr. White. These were approved after some slight changes had been made, and we now submit them showing Mr. White's idea.

When I visited Mr. Walker's place in Chicago, I learned, as I have already explained in these columns, that Mr. W. could bleach only one kind of soiled cappings, and that was the kind made yellow by propolis or pollen stains. But he makes use of the sun's rays only. Mr. White does not state whether there are some kinds of travel-stained, pollen-stained, or dirt-stained sections that he can not bleach. In the absence of any statement to that effect, we are led to believe that he is able to bleach

all kinds of soiled-faced comb honey. According to Mr. Walker's experience he bleaches by sunlight alone, and that only one kind of discolored section; but as Mr. White makes use of sulphur, a well-known active bleaching agent used in the arts, we may assume that the sulphur is a part of the process; and what is not accomplished by this agent is completed by the direct rays of old Sol. I am sure our readers would like to hear from Mr. White as to whether he is successful in bleaching all kinds of discolored sections.

If he is, he is the first to announce the fact. To be able to bleach any kind of section would sometimes make all the difference between profit and loss in the net earnings of an apiary. In extreme cases 75 per cent of the crop is stained, and only 25 per cent would sell at the top of the market. The difference between discolored goods and pure white is anywhere from one to five cents—suppose we say three; and let us imagine, for instance, that the crop of honey was 10,000 lbs., $\frac{3}{4}$ of which is stained. If all of it were pure white, and brought 15 cents, the crop would net us somewhere about \$1000 after deducting commission, cartage, freight, breakage, leakage, etc. But only $\frac{1}{4}$ will bring the 10 cents net, or which would mean \$250. The balance at 8 cents would net only \$600, or a total of \$850. Now, then, if the 7500 lbs. could be bleached so as to bring the same price as the 2500 lbs., the process would save us a clean \$150, less the cost of handling and bleaching, which would be small.

In the foregoing figures I am taking the basis that when comb honey is quoted at 15 cts., the bee-keeper is supposed to get net (after taking out commission, freight, cartage, breakage, leakage), 10 cts. Several expert honey-salesmen once figured this out in Chicago at one of the meetings, basing their figures on actual experience; and we were all surprised to find that $\frac{1}{3}$ of the actual market price was absorbed in commissions, freight, drayage, and I might say occasional pieces of rascality on the part of unscrupulous commission men.—ED.]

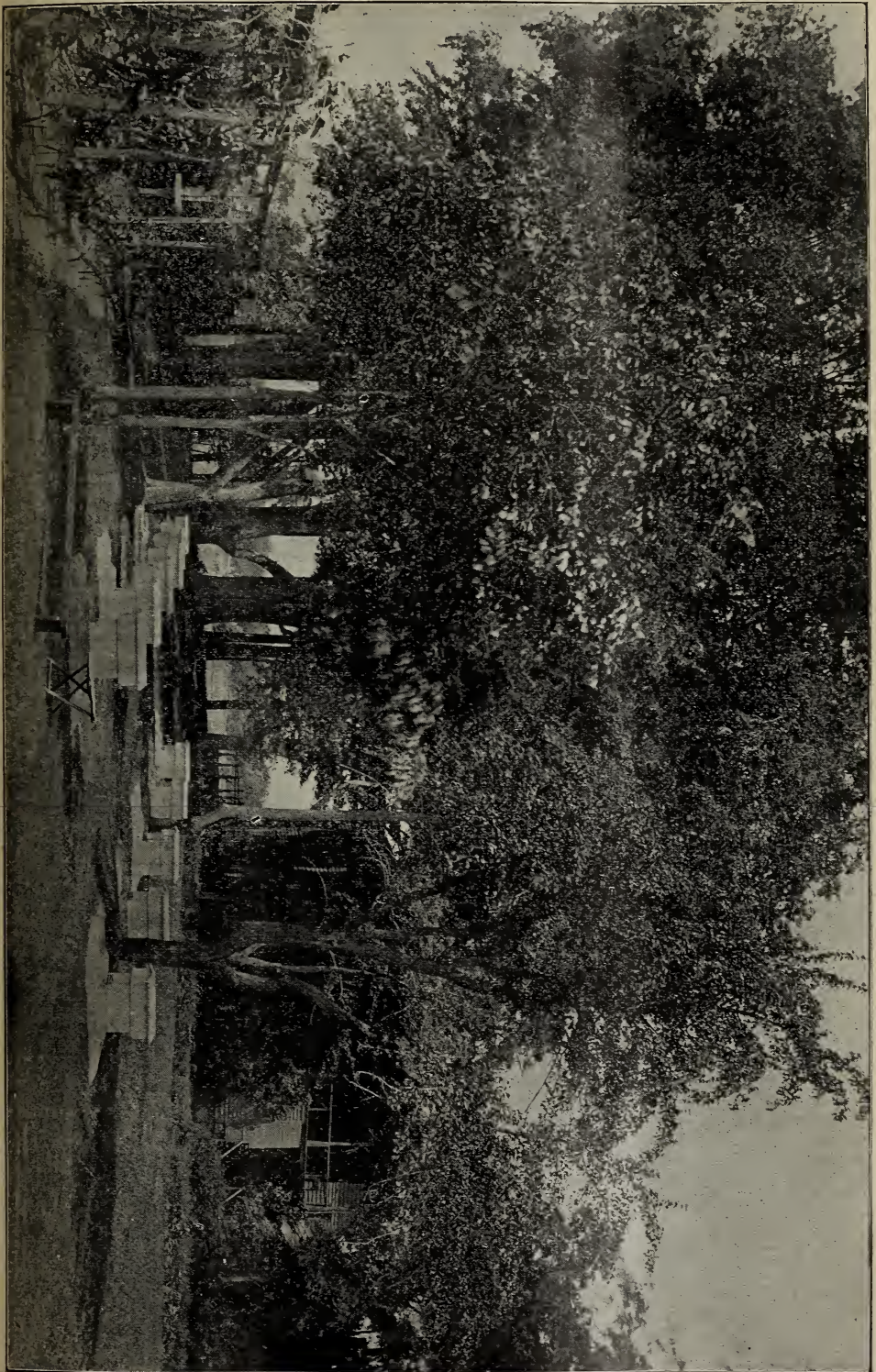
WIDE AND DEEP ENTRANCES.

How Honey-laden Bees Alight at the Entrances of the Hives; Pettit's Reply to Doolittle.

BY S. T. PETTIT.

Mr. Root.—Will you kindly allow me to make a short reply to Mr. Doolittle's criticisms of my method of taking comb honey?

First of all, in order to make a valid criticism it is necessary that the critic should possess accurate knowledge, and be free from prejudice. In that little imaginary talk with the bees of which he has told us, he did not seem to know that his sprawling posture right at the very door of their peaceful dwelling would frighten and confuse the workers as they were coming home with their loads, and cause them to make a great effort to fly clear inside the hive, and to act differently from what they do under normal conditions.



“HRR-KEEPING FOR PLEASURE.” SEE EDITORIALS.

Mr. Doolittle seems to think he was having a real nice confidential talk with the bees; but they did not so understand it, and their inferred replies to his imaginary questions were not answers to them at all, and proved nothing, only that they were badly frightened, and who can wonder?

Both Dr. Miller and Mr. Root have expressed themselves as agreeing with Mr. Doolittle that loaded bees on returning from the fields swoop through the entrance and catch on to the bees or bottom-bars. Now, while a few bees do so, we all should know that, as a rule, in actual working practice many of them drop outside the entrance, and a good many quite a distance away.

Well, gentlemen, a suitable time will soon be upon us again, and I hope you will make further observations on this line, and report. The great mass of bee-keepers everywhere know without further observations.

Here is what Mr. A. I. Root says touching the subject, on p. 8 of the ABC of Bee Culture, last edition:

"Several years ago we had a fine colony suspended from a spring balance. It was in the height of the clover bloom, and the hive gained in weight during the day an even 10 lbs. As the hive was raised two inches from the ground to suspend it, the bees at about 9 o'clock had fallen on the ground in quite a little cluster, where they paused to take breath until they could again take wing to get into the hive. At this time the spring balance showed a gain of an ounce every five minutes. To help them, a cloth was tacked from their old alighting-board to the entrance of the hive. They then crawled in in a steady stream, and the dial of the balance at once showed a gain of an ounce in every four minutes."

Just now, right here, I wish to interject that, if the hive had been provided with a large entrance by the use of the Pettit wedges, many of those bees would have crawled up the sides of the hive, and comb-building and comb-filling would have gone on just about as rapidly at the outside sections as elsewhere in the super—that is, if the super were provided with good dividers to accommodate and hold a double bee-space full of bees out against the super side walls.

Years of careful observations in actual practice have proved the truth and value of my claims in that regard. I have no money in view in making these claims. Prejudice is a mighty factor in warping our minds. The first reference from Mr. Doolittle to my method of taking comb honey, that came to my notice, was made to poke a little fun at it. For some cause, I presume unknown to himself, he seems to have become prejudiced, and his criticisms seem to bear the same bent ever since.

It was Mr. A. I. Root, many years ago, who first called my attention to the importance of good and well-adjusted alighting-boards. I seldom look down a row of hives in the working season, and witness the cheering sight of thousands of loaded bees dropping down upon their alighting-board, and streaming so earnestly into the hives but Mr. Root's vivid de-

scription of the matter comes fresh to my mind.

Friend Ernest, when I first gave my method of taking comb honey, and a description of the divider and its uses, you said it was old, and that, if I would give you time, you would look it up. I know you are always busy, and you must have more time if you want it; but I beg to say that, if any one before me advocated and described a method of creating a double bee-space, where and for the purpose set forth by me, then he should have the credit for it. Now, please don't confound the divider with the perforated separator. These two implements are different in construction, and their uses are very different indeed.

Aylmer West, Ont., Can., Feb. 24.]

[You have not given us the references, friend Pettit, to what you refer. So far as I am individually concerned I did not know that I had ever made the statement that *all* the incoming laden bees would swoop through the entrance, and grab hold of the cluster of bees. That many of them do so, I know from long and careful observation at different times. I realize that an observer must get behind some bush, or just far enough in the background so as not to frighten or disturb the bees unduly, and probably Doolittle observed this precaution—at least he would be a poor bee-keeper if he didn't.

On one or two occasions Mr. Vernon Burt and I spent an hour or two watching the bees laden with honey go into the hives. These all had wide entrances, and a large number—I do not remember exactly the proportion of them—went clear through the entrance without alighting, and landed squarely on the cluster of bees hanging below the frames.

You speak as if the great masses of bee-keepers everywhere knew more about this than friend Doolittle and your humble servant. I have not a doubt of it so far as my knowledge is concerned, and it may be that I am wrong; but I have watched this thing for hours at a time, in our own, in Mr. Burt's, and in Dr. Miller's yard, each time getting back behind some natural barrier so the bees could not see us. On all of these occasions I am very sure that the incoming workers knew nothing of our immediate presence.

Now, there is one thing, friend Pettit, that perhaps you have not yet considered. When bees are working on basswood two-thirds of them—yes, three-fourths—will drop in the grass near the entrance; but when they are working on clover they are not so heavily laden when they come in, and hence are able to steer their flight a little more accurately.

I well remember the experiment made by A. I. R. with the hive on the scales, and I myself watched them with him many and many a time as the bees came in. But if you refer to the statement you will see that the bees at this time were working on basswood, and consequently would drop down on the entrances as I have explained.

With regard to your system of producing comb honey, we have had a large number of favorable reports; and so far as I am individ-

ually concerned I am convinced that your statements regarding the workings of this are abundantly borne out by the facts. So favorable were the reports that we finally incorporated the system in our hives. If any one is interested in the system, and desires to try it, all he will have to do is to call for any combination that has the letter C in it; for instance, CE64P | 8 calls for a Pettit bottom-board with a set of fences (dividers, as Mr. Pettit calls his), on the outside of each outside row of sections. Indeed, all fence supers made by The A. I. Root Co. (and probably by the other manufacturers) have this feature, with the exception of the Danzenbaker M super. By selecting any hive or any super, and putting with it the bottom-board designated C, one will get the Pettit system pure and simple. The only difference between our dividers and those of Mr. Pettit is that ours use horizontal oblong openings instead of round holes; but practically the results are the same.

But say, Mr. Pettit, I did not mean to give you the impression that I considered your system old, and would soon point out some one who antedated you. The footnote to which you refer is doubtless that which is given on page 288, April 15, 1897. What I meant was that a cleated separator with holes was old; and in proof I referred to our English cousins. But your manner of using the same is, so far as I know, new; at least, in the three years that have gone by no one has pretended to lay claim to it.

The Pettit system was first described, I believe, in our issue for Jan. 15, 1897, page 52, and those who are especially interested can refer to this back number.—Ed.]

POLICY IN BOOK-MAKING.

Especially the Making of Bee-books.

BY PROF. A. J. COOK.

Dear Mr. Editor:— I wish to present a matter which I think is quite important in the policy which you and I should adopt as makers of books. I refer to the matter of giving a mention, and also the character of the books and journals which treat of the subject which the book considers. I do this because a good friend of mine, and a person for whose judgment I have the greatest respect, urges me to leave out of all succeeding editions of my work the notices which I give in the early pages of the work of the several journals and books which treat of bee-keeping. I do not agree with my friend, though from your practice I take it you do. My friend urges that it is not for my interest; that the other authors do not do this, and so it handicaps me. I advertise them and get no return. He also adds what seems to me a more important reason, that books grow old and cease to be published, while the journals even die outright, and so the information is often unreliable.

I wish now to give my own opinion, and ask you in an editorial to expose all its weak points. In the first place, it seems to me that the wisest author is he who keeps his readers

in mind and not his own interests. True, this may not pile up the ducats so rapidly; but I am quite sure that you agree with me in believing that a grander thing was never said than those beautiful words of the Master, "Man shall not live by bread alone." There is nothing that I am more interested in, in studying any treatise, than to know fully of the literature of the subject; and if there are good notices of the books, so that we may know something of the contents, I value this still more. That I am not alone in this appears from the fact that all of our leading treatises in science in these later better days give a full bibliography. I hardly know of a good book on any scientific subject published in the last few years that does not add what to me seems one of the best parts of any treatise.

I am sure that you will agree with me that, if this is a right policy, we have no business, nay, not for a moment, to consider what may be to *our* financial advantage.

I have always felt that in bee-keeping we were writing for more than ordinarily intelligent people. I think our bee-people are readers, and are very generally students of no mean rank. If I am right in this opinion, then the readers will rarely be satisfied with any one book, and will wish to purchase other books intelligently. Surely you and I with all our study and experience can give a review of the books which will aid them greatly in just this direction. If I am right in my view of this matter I feel that I can not afford to omit this part of my book, even though such a course might contribute never so largely to my pocketbook. You have given to the apian world a splendid treatise. You must have thought this matter all over. I know you too well to think for an instant that any selfish argument has had any weight with you. Therefore it is that I feel greatly interested in knowing your views regarding what seems to me a very important policy. To put the case in a nut-shell, I would say we write for the best interests of our readers. The best of our readers are most interested in the literature of the subject. Therefore we must include a full bibliography.

[The mention of bee-books and bee-journals was left out of the last edition of our A B C book for several reasons. First, we desired to make use of the space which it occupied, as the subject-matter of the main part of the book was crowding upon the smaller departments in the latter portion of it. Second, as your friend very correctly says, books stand on the shelves for years; and whenever one turns to the book notices, unless the volume in hand is just fresh from the press the mention of the various treatises and journals relating to the subject is apt to be very much out of date, not to say stale. I was reminded of that quite forcibly in reading some of the notices in our book regarding certain other books and periodicals. Some journals had passed from the scene of action. The editorial management of others had been changed as well as their general character. Some books had been revised, and others were cut of print. All this

led me to feel that the same space might better be taken up with something else. Of course, it might be said that the subject-matter as a whole will get out of date too. That is very true; but if one follows implicitly the methods recommended in any old bee-book, he will meet with a reasonable amount of success. The only difference is, he will not be in position to compete as well with his brother bee-keeper who has been reading a later volume, giving later methods and describing later devices having for their object a greater product with the minimum of labor in the production of the same.

Third, I have attempted to write book notices, but found that I was liable to give offense to some, especially the younger ones aspiring for journalistic honors, because I did not give their productions as extended, careful, and flattering notices as I had given some of those longer in the field, with larger experience. In the case of new bee-journals, one in justice to his readers is compelled to ignore them altogether or else give them very meager mention.

In the fourth place, *current literature* is so much better for the mention of books and periodicals that it has rather seemed to me that that matter should be delegated almost entirely to that class of reading rather than to the kind that is put away on shelves, and possibly does service for ten or twenty years.

I am heart and soul with you in believing that the financial argument should have nothing to do with what should appear in our books. The truth should be told, no matter where it cuts.—ED.]

PLAIN AND BEEWAY SECTIONS.

Comparative Filling in the Same Super.

BY JOS. HANEY.

I notice there is still some harping about those fence separators. Those who think they are not right, let them try them themselves, giving both kinds an equal show. That's what tells. I herewith send you a photo of some, all produced from one hive. The supers I use are in halves, each holding 16 sections each, or 32 to cover brood-nest once. One division of one of these supers was filled with plain sections and fences, and the other division, or half, with beeway sections and plain separators. As both sets were on one hive they were each given an equal chance. Now for results:

The 16 sections on the left in the photo I send you are the plain sections, and speak for themselves—even the end boxes were filled. The 16 on the right are the beeway sections. This is all buckwheat honey. The swarm was a very weak one—the boxes being put on the 10th of June for light honey; but they were so weak they did not start in sections till dark honey came. The super was not molested till after dark honey was over, so all had an equal chance. Sheets of foundation were of all sizes in both divisions or halves of the super, and were put in on purpose to see how they

would use it. The experiment satisfied me, and I thought it might some others experimenting.

I should like to know about rendering beeswax by steam. I have the steam, and have rendered with it for five years, but do not feel satisfied: that is, I can not get it out clean enough.

Hayt Corners, N. Y.

[This experience of yours in the case of the one super seems to indicate very strongly that plain sections are not only better filled, but entered more quickly than those of the beeway kind; but, as you know, one swallow does not make a summer. I have noticed myself that bees will sometimes commence on one side of the super for no apparent reason, notwithstanding there were the same kind of sections and the same kind of foundation used all through the super. I can give no explanation except that they just *happened* to do so. In this connection it might be well to state that Dr. Miller has had experience quite as positive, but just the reverse—that is to say, he divided several supers, putting beeway and plain separators on one side and plain sections and fences on the other. I do not remember whether in all of his supers so prepared the plain sections suffered by comparison, but we have had a good many other cases just like this, where the plain sections were better filled; but up till this time I have been able to explain them all in this way: A weak colony would enter beeway sections with plain separators more quickly than it would those of the other kind because the first named are like so many little rooms; the separators being solid to a certain extent, shut off the air currents; but *weak* colonies are not in a normal condition for honey. When colonies are strong, then the plain sections will be entered first, and be filled better. But in your case you say the colony was weak. I give it up.

But in all this we must understand that the only difference between beeway sections and plain sections is in the matter of separators; and, again, the question hinges, shall the separator be solid, or composed of slats? The very fact that a great many are ordering slatted separators for beeway sections because they consider them an advantage after having given a preliminary trial, goes to show that separators with openings, under normal conditions, are probably better than those that are solid.

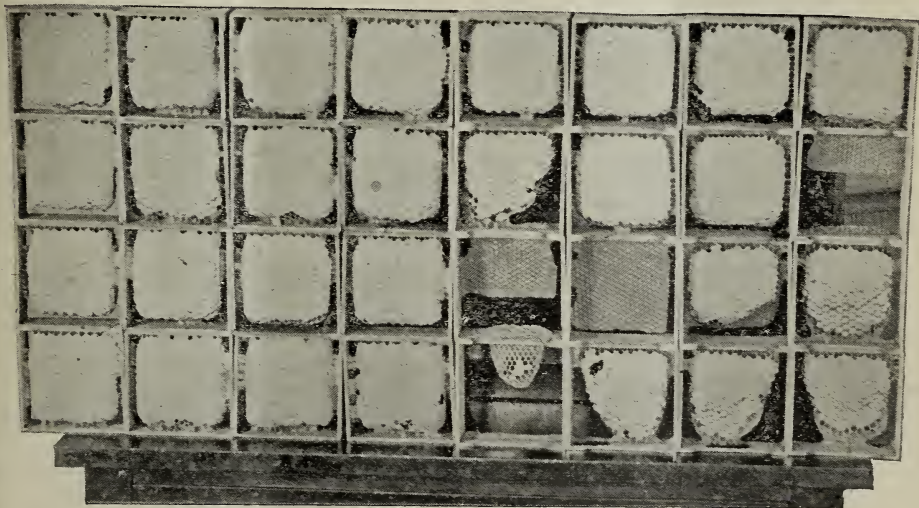
I said that the only difference between the plain section and beeway is in the separator. That needs qualification slightly. In the case of the plain sections, the beeway (as provided by the fence) reaches clear across the width of the section, a quarter of an inch *down* from top, and the same distance *up* from the bottom, thus making them partly open-corner. There is quite an amount of evidence to show that even beeway sections of this kind will be better filled at the corners because the bees can pass from one section to another without going up and around, as in the case of the old-style sections. If my supers were all adapted for beeway sections, and I felt satisfied that

they were the right kind, I would certainly adopt what we call the open-corner sections—that is, sections that are open clear across the top and bottom, and half way up and down the perpendicular sides. With such a section and solid separators and plain sections, with solid separators *cleated*, to provide for the beeways, the conditions would be identical. But it is needless to say that the plain sections in this case, when placed on the market, would look better because there would be no beeway projections, which almost invariably give the comb honey a lean, sunken appearance.

About rendering by steam, we find no trou-

careful not to stir it up. When the wax is dipped down to within six inches of the probable water-line, dip no more, but allow the remnant to cool in the barrel, after which remove the cake, scrape off the bottom, and use it at the next rendering.

I omitted to state that the wax, as fast as dipped off, should be placed in tin pans or pails that have been greased. After the wax cools, turn the pails bottom up, and, presto! you will find nice yellow cakes of wax. If, perchance, they are too leather-colored yet, next time use a little more acid; but do not use more than is necessary.



PLAIN AND BEEWAY SECTIONS FROM THE SAME SUPER (PLAIN SECTIONS ON THE LEFT.)

ble along that line. We run a jet down into our tank, and let it snap for half an hour. But there is perhaps one thing that we do that Mr. H. does not, and therein lies his trouble. I would advise him to place about two pailfuls of water into a barrel holding about 31 gallons. If it is of the 50-gallon size, then use three pailfuls. Into the water pour from one-half to one pound of commercial sulphuric acid, such as can be bought at any drugstore—that is, providing the wax is very dark. If the wax is of a leather color, and it is desired to bring it to a lemon color, put in only about 4 ounces of the acid. Turn a jet of steam down into the water, using a common half-inch steam-pipe. Let it snap until the water is hot, and then add the chunks of wax gradually until the barrel is nearly full of melted wax and water. Allow it to snap for a few minutes, seeing that the water, acid, and wax are thoroughly mixed. Remove the steam-pipe, put the lid on the barrel, and cover the whole with old blankets, old carpets, or any old thing that will help to confine the heat in the barrel, keeping the wax in a liquid condition as long as possible. At the end of three or four hours, or longer if possible, dip off the wax from the top, a dipperful at a time, being

In cleaning tin utensils, never scrape, for that will remove the tin, and the iron, or steel, rather, will rust. To get the wax off, turn a jet of hot steam right against the inside of the pails or pans used. This will disengage every particle of wax.

If one does not have steam he can use an ordinary iron kettle, being careful to observe about the quantity of acid and water. The vinegar, for such it really is, will be so weak that it will not attack the iron enough to cause any serious trouble.—ED.]

THE HAKES-HEDDON ADULTERATION MATTER.

A Report from the National Bee-keepers' Association.

Mr. Editor:—I inclose a copy of the report of Dr. A. B. Mason, Secretary of the National Bee-keepers' Association, who went to Jackson, Mich., at my request, to attend the trial of M. G. Hakes, a groceryman, who was arrested for selling adulterated honey. The report will explain itself, and you are at liberty to use it in the columns of your journal if you so desire.

As the National Association has undertaken

the work of aiding prosecutions against the sale of adulterated honey, it becomes my duty to lay before our members, many of whom are readers of your journal, the facts gleaned in the performance of that duty, no matter how unpleasant the facts are to me personally.

Yours truly,
EUGENE SECOR.
Forest City, Iowa, May 3.

Hon. Eugene Secor, General Manager of the National Bee-keepers' Association,

Dear Sir:—In complying with your request for a report of the proceedings in the case of Mr. M. G. Hakes, of Jackson, Mich., who was arrested, and tried in the Circuit Court of Jackson County for the sale of adulterated honey, I have this to report:

On the 22th of January, last, I received a request from you to attend the trial of Mr. Hakes, as the representative of our Association, and do what I could to help in the prosecution of the case that was to be tried on the 23d. In compliance with your request I attended the trial. I learned that, last fall, Mr. W. D. Soper, a bee-keeper living near Jackson, Mich., and who also deals in honey, discovered that what he thought was adulterated extracted honey was being placed upon the market at Jackson. He bought a sample of the honey, and sent it to the Michigan State Dairy and Food Commissioner. On September 29, 1899, Mr. Carl Frankie, a State Food Inspector, of Monroe, on his regular inspection tour at Jackson, called at Mr. Hakes' place of business and purchased of him two one-pint cans of what he was selling for honey, one of them being labeled, and ready for the market, and the other was taken from the original package, a five-gallon can. Mr. Frankie explained to Mr. Hakes that it was his duty "to keep tab on all the foods that were exposed for sale, and also on honeys," and asked him to sell him a package of honey, which he did willingly. The cans were labeled "M. G. Hakes, Pure Honey, Jackson, Mich."

At the trial of Mr. Hakes in the Circuit Court for the county, in Jackson, Mr. Frankie stated, in substance, while on the witness-stand, that when food samples were procured for inspection, certain records were made, and in this case the record of the Inspector showed that, in the sale of this adulterated honey, Martin G. Hakes acted as agent, and that the manufacturer was James Heddon, of Dowagiac, and the package was marked "Pure Extracted Honey," and was purchased of Mr. Heddon about Aug. 21, 1899.

Another witness, the Food and Sanitary Inspector of Jackson, testified that the original package from which the sample of honey in question was taken had not been opened till Mr. Frankie opened it, and that Mr. Hakes acted as agent "for a Mr. Heddon, of Dowagiac."

Mr. Frankie, on cross examination, testified that other samples from Mr. Heddon's place, than the one under consideration had been sent to the State Analyst, and all were adulterated to about the same extent as this, except one of comb honey.

Mr. R. E. Doolittle, State Chemist, of Lansing, Mich., testified to having examined the sample under consideration, and found it to be adulterated honey. The per cent of adulteration I do not now remember, but it was large; I believe about 57 per cent of glucose.

Mr. Doolittle, in reply to a question by the attorney for Mr. Hakes, said that he had always had the impression that Mr. Hakes was only the agent for Mr. Heddon, and that Mr. Heddon had done the mixing.

In reply to the question, "Was this honey represented to you as pure by Mr. Heddon?" Mr. Hakes testified that, a few days before he was arrested (he was arrested Oct. 11, 1899), he was told that he was selling adulterated honey, and he said that he wrote Mr. Heddon a letter, telling him that one man, a stranger, had offered to bet him \$25.00 that the honey was not pure, and Mr. Hakes told him that he "would put up the money with him any minute; but before I would do it I sat down and wrote a letter to Mr. Heddon, and said to Mr. Heddon, 'I want to know now, Mr. Heddon, if I am selling pure honey, or if I am not.' He wrote me back, stating that 'if my honey goes from me to you, and from you directly to your customers, just as you get it from me, rely upon it, it is strictly pure; but,' said he, 'I would not bet;' that is the first thing that opened my eyes."

At the close of Mr. Hakes' testimony the court instructed the jury, and they returned a verdict of guilty, without leaving their seats.

I felt pretty well satisfied that Mr. Hakes supposed he was selling pure honey, and I believed that the

members of our Association cared more for the conviction of those guilty of selling adulterated honey, and stopping the practice, than to punish a party who seemed so innocent of fraud as Mr. Hakes; and, being under that impression, I asked the court to impose the lightest penalty the law would allow, which the court did, fining him \$25.00, which I believe was paid by some of Mr. Hakes' friends.

As an officer of an organization that has for one of its objects the prevention of the adulteration of honey I was very much interested in this case; and as the evidence seemed to indicate pretty clearly that Mr. Heddon was guilty of selling adulterated honey, and that he did the adulterating himself, I have taken some pains to learn if he really was engaged in such business; and the first thing to hand is Bulletin No. 50, of the Michigan Dairy and Food Department, and under the head "Honey" I find this:

"No. A 298. Sample of honey (brand 'Pure Extracted Honey') taken from original package at Jackson, Sold (1899) by M. G. Hakes, Agent, Jackson Producer, James Heddon, Dowagiac." Then follows a statement of the analysis of the sample, and following this are the words, "Glucose flavored with honey."

On the same page of the Bulletin on which the above appears are three other similar reports in which each sample examined was marked "Pure Extracted Honey. Producer, James Heddon, Dowagiac," and each exhibit is marked "Glucose flavored with honey."

On the next page of the Bulletin are two more reports, similar to the above, in which James Heddon appears as the "producer" and Mr. Hakes as "agent," and I believe it is claimed there was about the same amount of adulteration in each sample as in the one for the sale of which Mr. Hakes was convicted—about 57 per cent.

In an article which appeared in the *Farm Journal*, of Philadelphia, for January, 1900, in an editorial, under the heading "Food Adulterations" the editor says, "Some important facts on this subject are found in the recently issued Bulletin No. 50 of the Dairy and Food Department of the State of Michigan. . . . Eight samples of honey, variously marked as 'Pure Extracted,' 'York State,' etc., were found to be only glucose flavored with honey. Six of these samples claimed to be produced by a person having a name well known and honored among bee-keepers," etc. The other two samples are marked "Producer, Steele-Wedels Co., Chicago, Ill."

On Feb. 8, 1900, Mr. Wm. A. Selsler, chemist, of Philadelphia, makes this report: "This is to certify that I have analyzed the sample of honey sent, marked No. 1, bought of James Heddon by L. H. Warren, Jennings, Mo., and found the same to be 52 per cent to 54 per cent adulterations of glucose," and on the same date Mr. Selsler certifies that another sample sent him and "bought of James Heddon by L. H. Warren, Jennings, Mo.," was found to contain "58 per cent to 60 per cent of glucose."

Wishing to know what Mr. Warren had to say, I wrote him, March 12, ult, and in his reply, dated March 17, 1900, he says, "I bought seventy 60 lb. cans of extracted honey from James Heddon, which I received as follows," and gives the number of cans received at different times, 5 cans in September, 1899; 15 cans at each of two shipments in November, and 35 cans by two shipments in December.

Mr. Warren says "It may seem strange to you that I bought so much, and will explain. The first lot of 5 cans which I got as a sort of sample was adulterated very little; but every lot got worse; a small sample of this lot which I have on hand now has granulated solid, but streaked; another lot only looks cloudy. The last lot does not granulate any more than any other glucose. Analysis of this shows 58 per cent to 60 per cent glucose. . . . Only about 200 lbs. of the last lot was turned back on me. . . . I had no suspicion of this honey being adulterated until I had disposed of nearly all of it. After I found out that the honey was not pure I wrote to Heddon, asking for a written guarantee of its purity. . . . He wrote back, 'I take pleasure in certifying that I shipped you pure extracted honey.'"

Mr. Warren is a member of the firm of Warren & Mange, dealers in staple and fancy groceries, flour, feed, and general merchandise.

In a letter written by Mr. Heddon on Feb. 15, 1900, he says that Mr. Hakes "never sold honey for me. He bought of me, paying cash in advance. . . . I shipped him pure honey, and I rather think that he sold it as I shipped it to him. Of course, I do not know; and, so far as my personal interest is concerned, I do not care. . . . I think I have had ample evidence that chemists can not tell adulterated from pure honey."

It appears they *guess* at it. . . . In view of Mr. Hakes' testimony, as reported from his customers, if the honey I sent him was adulterated, it would probably be beneficial to both producers and consumers if all honey was adulterated in the same way."

Several years ago, perhaps twelve or thirteen, some well-known bee-keepers felt satisfied that Mr. Heddon was engaged in adulterating honey, and selling it to his customers, and since that time several have complained that the honey purchased of him as pure was adulterated before it reached them, and have stated that the packages they received showed no signs of having been changed or tampered with in any way from the time they were shipped till received by them.

A little over six years ago there was an impression that Mr. Heddon was engaged in adulterating honey; and a chemical analysis of some honey, claimed to have been bought of him, showed that it was adulterated with at least 50 per cent of glucose, as was shown in GLEANINGS IN BEE CULTURE at that time.

It is possible that this report is too long, and may contain matter that may not have any bearing on or connection with it; but I thought it might be well, in every possible way, to expose the adulterators, whoever they may be, and so put producers, dealers in, and consumers of honey on their guard against the adulterators; and if but a small portion of the statements and affidavits before me are true, one of our own number has gone astray, and, if so, should be exposed.

Very truly yours, A. B. MASON,
Sec. of the National Bee-keepers' Association.

[In publishing the foregoing we have assumed a very unpleasant and disagreeable duty, to say the least.—ED.]

GREASY SECTIONS.

The Queen the Cause; A few Facts in Support of the Proposition.

BY J. A. GOLDEN.

Dr. D. A. McLean, in the March 1st issue of GLEANINGS, has given us quite an amount of testimony in regard to the greasy appearance of cappings of section honey; also W. M. Whitney; and the latter seems to be very anxious to buy all such queens from apiarists who hold that the queen is responsible. Dr. D. A. says he wishes to lend his assistance to "sit on" Dr. Miller and other writers who advise the killing of queens that are held responsible for producing the greasy appearance of cappings of comb honey. Now, Dr. McLean, I make a specialty of producing section comb honey, and have always held the queen responsible for the greasy appearance spoken of, and I am still of the same opinion, unless you can unravel the following:

I will give only one instance, and upon this you can see conclusive evidence, I think, if you will turn to GLEANINGS, 1898, page 690. Now, from the reading of your observations it seems that you base your conclusions upon the condition of the weather and flow of nectar. This being so, why was it that all my colonies during 1897 and '98 produced just as beautiful white capped honey as is shown in view No. 1 and 2, page 690? and one colony producing the greasy-looking capped honey, both 1897 and '98, as shown in 3 in same view?

In presenting the view of section honey shown, it was a test case of three different styles of separators; and it so happened that No. 3 was produced by the queen's colony that produced nothing but greasy, smeared, capped honey, both brood as well as section honey; and in presenting the view I then asked for the opinions of the brethren as to the cause of

No. 3 showing so dark. Of course, any honey-producer could have told the cause; but, coming up as it did, all would naturally think the separator had something to do in the matter; but if you turn to page 844 you will see my answer as previously promised, and the queen lost her ruling, notwithstanding she was the most valuable honey-gathering queen I ever owned; and if Mr. Whitney is a producer of extracted honey he is quite wise indeed in purchasing such queens.

Reinersville, O., Mar. 9.



I didn't see any thing of the deacon again for more than a week, when one day, just as I had finished putting starters in my second thousand of sections, he came in.

"Say, Lisha," said he, "have you got any grapes yet? Old Lydia Morton has been ailing all winter, and I thought I would see if I could get some and take over to her. She is very fond of them."

I went and brought out a nice basket of Vergennes that looked fresh, and had that rich deep wine color that only choice grapes can show.

"I declare!" said he; "those look good for February. How in the world do you manage to keep them so fresh?"

"Not much of a trick," I replied. "In the first place, you want a good keeping variety. Some varieties won't keep much better than early apples. I have found the Vergennes one of the best. The Lindley is good; so is the Merrimac, a black grape, and some others. When they are fully ripe, pick them carefully so as not to bruise them, and put in shallow boxes with slatted bottoms. I use old supers for this. Leave in a cool dry place until the stems shrivel, and then pile one on top of another, six or eight deep, and cover the top one with a board or paper, and keep in a cool place—the cooler the better if it doesn't freeze. In this way I keep them most of the winter, and sometimes I have had them in May."

"That is worth knowing," said the deacon; and after he had hemmed a little he went on. "I have been thinking, since I was in the other day, about that idea of having dominion over every thing. I am not sure but there is something in it. I thought how you managed your bees. You clip the queens' wings, and change them about and keep them from running away; but I guess it is a good deal against their will sometimes. And then I thought of old Bill Sykes' son Silas that ran away. You knew him. Now, Bill might have broken one of his boy's legs, or maimed him some way as you do your queen bees, or shut him up, but it would have been a pretty barbarous way of retaining his dominion over him till he was twenty-one. How much better it would have been to bring him up to work, and be dutiful,

and then he would have stayed at home because he loved to. And so I can see it would be better if you could make the bees want to stay at home and work, and not swarm; but it's nature—a natural instinct to swarm. Can you change or eradicate an instinct, a *primary instinct*, as Mr. Culley says, by breeding or domestication?"

"Heavens to Betsey! Talking bees yet," exclaimed my friend Simpson. "Why, you know enough about bees to make a book. But I came over to see if I could borrow a dozen ten-penny nails—some of them 'ere round ones."

I supplied his modest request, and proceeded. "I don't see, deacon, why instinct can't be bred out as well as bred in. Let us see. There is the silkworm. I am informed that they have been bred so long on shelves or pa-

irksome duty of incubating and bringing up a family, and so on. But I want to call your attention to another instinct. Audubon, that great naturalist, or ornithologist, perhaps, I ought to call him, tells how birds of the same species build their nests very differently in the North from what they do in the South, owing to the difference in climate. Then there is the instinct of fear I was speaking of the other day. Every thing, almost, has it. You know Noah and his sons were told in that same book of Genesis that the fear of them and the dread of them (and that meant his descendants as well) should be on the beasts of the field and the fowls of the air and the fish of the sea, and all the creeping things on the earth (and that meant every thing). And I could not help but notice last summer, when I went a fishing, how the fish would



"FASSET MAKES ONE ON THE 'SQUIRE."

per, and fed with leaves picked by hand, that, if you place them on the leaves on the trees, instead of beginning at the edge of the leaves they are liable to begin and gnaw off the foot-stalk, and drop to the ground and perish. And then many of them lay their eggs without sticking them to the surface of any thing. They have lost some of their instincts. Again, there is the migratory instinct of birds. You know how most of them in a state of nature would perish if they didn't have it. It is one of the most important; and yet see how soon they lose it when domesticated, as, for instance, ducks and geese. And then there are some wild birds that seem to have lost the incubating instinct, like the English cuckoo or the American starling. They just drop their eggs into some other bird's nest, and shirk the

scatter as soon as they saw me, like a flock of wild geese. You remember how Livingstone tells us that even the lions in Africa were afraid of a man, and a lion is the king of beasts, you know. This fear is a marvelous instinct, I tell you. Who told those little fish or the birds or the deer that there was danger when a man comes near them? Probably not one of those little fish had ever seen a man before."

"That is mighty curious and pretty interesting talking," said Fasset, who was listening from behind the stove.

"But it is as true as Scripture," said the deacon. "It is a divinely implanted instinct, and is over every thing, over all his works."

"And yet," said I, "when I opened my barn-door the other morning our tabby cat

bounded to my shoulder, and rubbed her head against my neck as much as to say, "Good morning—how d'ye do? Pretty well, how are you?" No fear here, I said to myself. May be cats are an exception to the rule; but I soon discovered that my horse was just as glad to see me, and my cow was only too pleased to have me come to her side with a milk-pail—not one bit afraid, any of them. And then I thought, how, when man has gained dominion over animals by kindness, the fear is taken away. Fear was necessary for their preservation when in a state of nature, or wild, but not under domestication. You see, deacon, as I said, we must compare Scripture with Scripture if we would get its full meaning."

"But what has all that to do with a breed of non-swarming bees, I should like to know?" inquired Fasset, from his seat on the nail-keg.

I noticed the deacon looked thoughtful, and I went on:

"Just this: In a state of nature the swarming instinct is as necessary for the increase and preservation of bees as the instinct of fear is to animals, or the migratory instinct in birds for their preservation, while with the skillful bee-keeper it is *worse* than useless."

"But bees have been under domestication for thousands of years, and this instinct for swarming appears as strong as ever. At what date of the popular era before it is likely to disappear?" queried Fasset, with a twinkle in his eye.

"Yes, that is true after a fashion," I replied; "but their domestication has been little more than giving them hives to live in, and then robbing them of their hard-earned stores, and then feeding them, perhaps, when there is danger of their starving. I believe the real domestication and cultivation or improvement of *Apis mellifica* has only just begun."

"I am inclined to think you are right," said the deacon hopefully.

I felt encouraged, and continued:

"Already I see signs of most important changes in the character of some of our best strains of bees. The nature of bees seems to be a bundle of instincts. They have the brood-rearing instinct, the honey and pollen gathering instinct, the swarming instinct, the comb-building instinct, and the instinct for defending their brood and stores, and the instinct for gathering propolis and dabbing it over the insides of their hives, to say nothing of others. The best of these we want to improve and develop, while others we must get rid of or modify so as to be harmless. Now, there is the propolis instinct. We all know how that, in a state of nature, or for wild bees that live in hollow trees or cavities in rocks, it is a very desirable instinct to fill up all the cracks and crevices to keep out enemies; but with improved and carefully constructed hives it is no longer necessary. We know how one colony sitting beside another will be bringing in propolis and spoiling what surplus they have already gathered, while the other will keep on storing honey without gathering any propolis to speak of. Now, we must get rid of it by breeding from the queens of those hives that store the least of it until bees lose

the disposition or instinct, so to speak, to gather it."

"A capital idea," said Fasset, from his seat on the nail keg.

"Yes," I continued, "it is a nuisance, and no more necessary than horns on sheep or cattle. Horns were desirable and necessary to defend themselves from wild animals in a state of nature; but when man has subdued all the carnivorous animals horns are not needed, and he is getting rid of them. The sheep are already mostly hornless, and the cattle-men, or at least the dairymen, are fast following suit, and dehorning their cows."

"That's so," said Esquire Fullam. "Over at our meeting of the Dairymen's Association at Jonesboro we voted almost unanimously in favor of dehorning. You see, our winters here are pretty cold; and when we turn our cows out of the stables to drink, unless they are dehorned they are jabbing or raking one another with their horns; and, besides, dehorning makes them gentle. I tell you, with our dairy cattle dehorned, and the sweet feed we have, we can beat the world making butter. Our dairymen are going to make an exhibit at the World's Fair in Paris next summer. I don't know whether the committee will place it in the same room with inferior grades of butter or not; but they are going to have a large canvas background with some mountains painted on it." Here he coughed for a minute or two, and then gasped an apology. "I tell you, our air is so exhilarating it makes me cough."

I noticed a twinkle in Fasset's eye. He is not naturally quite so enthusiastic as the 'squire. I knew something was coming.

"Say, 'squire," said he, "you think more of our State than a member of Congress who lived down South in antebellum days did."

"How is that?" inquired the 'squire.

"Oh!" said Fasset; "when he saw the strong anti-slavery sentiment up here in our State he introduced a bill directing the President to have a ditch dug around it and the whole thing floated out into the ocean."

The deacon laughed heartily. I was glad, for the deacon, as I told you, is a little quick-tempered. I have heard that, within six months after he was made deacon, Elder Grimshaw was going by his place one cold afternoon in January, and he heard him training his cattle around his barnyard in great shape, with his pitchfork, and using language much more emphatic than pious. The elder stopped his horse, and, standing up in his sleigh, just inquired, "Is Deacon Strong at home?"

"No, he isn't," said the deacon; and the elder drove on with a heavy heart. It was just Zebadiah Strong as he used to be; but a fortnight later, when the elder called, the deacon was as humble, penitent, and loving as Peter at the sea of Galilee after he had denied his Lord.

Do not forget to write to your Congressmen, asking them to support the Brosius pure-food bill. The time to do it is RIGHT NOW. If you wait till to-morrow you will not do it.



HOW TO MANAGE SWARMS HAVING QUEENS WITH THEIR WINGS CLIPPED.

"Good morning, Mr. Smith. What can I do for you this morn'g?"

"I see by GLEANINGS for March 1 that you advise clipping the wings of queens where natural swarming is practiced. A friend of mine tells me that clipped queens cause much trouble in swarming, and I came over to have a talk with you on the matter, so I may learn your methods of managing swarms that have clipped queens."

"What your friend tells you seems strange to me, for I would rather care for three swarms whose queens have their wings clipped than for one where the queen is not clipped. Your friend can not understand the best plans of managing such swarms, it seems to me, or he would not talk about trouble with them."

"Very likely he does not. Will you tell me something about your ways of working with such swarms?"

"Certainly. The first thing necessary is two or three light strong poles. I use three—one 10 feet long, another 14 feet, and the third 18 feet. This is so I can secure a swarm from any tree in or about the apiary, and hold it for any length I may desire before hiving, or hive it before all of the bees get clustered, just as I desire, for there is nothing so nice as to know that you are master of any situation that may arise in the apiary."

"That sounds very nice; but how do those poles help you to master the situation during the swarming season where the queens have their wings clipped?"

"Give me time and I will tell you. In the small end of each I bore a hole of suitable size to receive the iron or handle end of one of Manum's swarm-catchers, keeping both the catcher and the poles in a handy place in the apiary."

"Yes but I have not got a Manum catcher. What shall I do in such a case?"

"I do not think I can give you better advice than to tell you to send to some of the Root Company's supply houses and get one, for this catcher is the most convenient thing I know of to have about the apiary in swarming time, no matter whether you have the queen's wings clipped or not."

"Do you put the clipped queen in the catcher?"

"Yes and no. Besides the catcher we want a small round wire-cloth cage, called a queen-cage, the same being about an inch in diameter, and four or five inches long, with a permanent stopper in one end and a movable one in the other, having a piece of pliable wire attached to the cage near the end having the movable stopper."

"How is this used?"

"Seeing a swarm issuing I take this round cage and step to one side of the front of the

hive, and stand five or six feet away, so I can take a view of the whole front of the hive, and several feet of the ground in front of the entrance, at a glance, when, if the queen is out, I almost instantly see her, and if not out I see her as soon as she issues. I used to get close to the entrance to look for her, and often looked a long time before I found her, owing to the short range of vision which contracted the breadth of field seen at one time."

"When you found her did you catch her and put her in the round cage?"

"When the queen was found I put the open end of the wire-cloth cage down so she could crawl into it, which she does immediately, as it is natural for a bee or queen, which can not fly, to crawl up any thing and every thing she comes in reach of. Having the queen in the cage I place my thumb over the open end and go to the front of the hive; and as soon as she turns in the cage to go toward the end having the permanent stopper in it I put the open end to the entrance of the hive, holding it there till twelve or fifteen bees run in as they are tumbling out of the entrance to go with the swarm, when the queen and bees are to be secured by putting in the stopper."

"What do you want those twelve or fifteen bees with the queen for?"

"They will set up a buzzing pretty soon, and help to call the swarm to where the queen is, for this cage of bees is to be secured to the inside of the swarm-catcher by means of the wire that was attached to it, and the iron to the catcher inserted in the hole in the end of one of the poles which was provided, when the catcher is held up among the thickest of the flying swarm."

"And will the swarm alight in it and on it?"

"Yes, quite generally they will, but sometimes they will begin to alight on some limb while we are caging the queen and getting the catcher ready, especially if we are a little slow."

"If they begin alighting on a limb, what then do you do?"

"As soon as I see that they have begun to alight I know there is little use in trying to get them to alight on the catcher by holding it up in the air, so I take the right length of pole that will make the catcher reach them, and as soon as a quart or so have settled on the limb I put the opened catcher under the cluster, jarring the limb at the same time by suddenly pushing up on the pole, which causes all of the clustered bees to fall into the catcher. With a downward motion the cover of the catcher is brought over some limb in such a way that it is closed, when I have the bees prisoners. The bees in the round cage with the queen now set up a humming noise, which causes those in the catcher to do the same, and this loud humming, or 'call,' as it is termed, attracts the flying bees which remain outside of the catcher, and soon we have the whole swarm in and on the catcher."

"And do you hold the pole and catcher all this time?"

"No. As soon as the bees begin to alight on the catcher the big end of the pole is set on the ground in such a way that the pole

may lean against some limb of a tree, and it is left thus till I wish to care for the swarm. Mr. Manum provided legs for his pole so it could be set up anywhere in the apiary; but as there are plenty of trees in and about my bee-yard I like this way best, as the poles are not so inconvenient to handle without the legs. If not convenient to hive at once, the swarm can be left in and on the catcher all day, if desired, and no danger of their taking any hurt or running away to the woods."

"But suppose you wish to have the swarm as soon as possible, is it necessary to wait for all to cluster on the catcher?"

"No. If the place of hiving is within four or five rods of the alighting place, I wait for only about half of the bees to get clustered in and on the catcher, when I take it to the hive and start those I have to running in, when the whole swarm will come."

"Do you use this plan altogether?"

"No. As the season advances, so that the new swarm needs some help to give the best results in comb honey, I use what is known as the Heddon plan, and here especially is a clipped queen a decided improvement over those having their wings."

"How do you proceed in this latter case?"

"I catch the queen as before; and as soon as I have her I get a new hive and bring it to the old stand. I next turn the old hive half way around so it faces in an opposite direction from what it did, and place the new one just where the old one stood. Next, I place the cage, with the queen in it, endwise to the entrance, one end being within an inch of the center of the entrance. The bees returning from the fields, and which have, during the process of changing hives, been hovering around, now find the queen when they set up a hum, and fan their wings, soon attracting the swarm that now comes pouring into the hive by the thousands. As soon as the majority have gone in, and the bees become somewhat quiet, the stopper is removed from the cage, and the queen runs in with the swarm. If the queen is released as soon as the swarm begins to return, they will sometimes begin to swarm out again, not seeming to be satisfied that they have done all the swarming they ought to have done."

"I think I understand now, and will not bother you longer. Good day."

"Hold on a minute. I have not told you the best part that comes from having the wings of all fertile queens clipped. In all apiaries having more than four or five colonies, there is always sure to come a time when two or more swarms will issue together. If two or more swarms come out at once, I always use the catcher as first given, using one of the queens to secure the swarms. The other queens are caged with a few of their bees, and left in a shady place till I get all in readiness, when I place one at the entrance of each hive prepared to receive a swarm, except the hive that is to have the queen now in the catcher. I now carry the combined swarm around to the hives, placing one-half, one-third, one-fourth, etc., of the bees in front of each, according to the number in the combined swarm,

letting a queen go in with each part, when the work is done. In this way it is no more trouble to manage several swarms where they come out together than it is to have them if they were to come out singly. Thus much of the dread which used to be experienced when two or more swarms come out together is done away with."

"Well, this last is a part I had never thought of, and I am glad you kept me from going till you had told me. But I must be off. Good day again."



[I solicit questions for this department; but they must be put on separate slips of paper, and marked "GLEANINGS Department." If you desire an immediate answer, say so at the time of writing, and a private reply will be sent you in advance before your question with answer appears in these columns; but questions that are mixed up with business matters will not only be subject to considerable delay, but possibly will receive no answer at all.—EDITOR.]

CANDIED VS. LIQUID HONEY IN COLORADO AND THE EAST.

Friend Root:—GLEANINGS has come to hand, and I am pleased to notice that my article is published. Of course, I read your footnote the first thing. I was surprised to read where you say I might change my mind if I were to study the markets in Colorado, and in the same paragraph you take exactly the same position that I did. Then I "smiled a smile." Just turn to page 304, and read the paragraph commencing about the middle of the second column, and then own up that I've caught you napping. If I change my mind you will have to change yours too. May be you see my whole article was intended to advise against putting candied honey on the market in the East instead of liquid, as I believe it would work incalculable damage. There is a lot more that might be said yet, but I will wait developments. I will say to you, though, of my crop of 8000 pounds that I raised last year, about 6000 was choice clover and basswood extracted honey which is all sold at about double the prices mentioned by Mr. Aikin, and I am not going to give up without a fight. I must, however, disagree with you where you call alfalfa honey the "best in the world." I got about 40 lbs. from your people that was very thick, but it was no thicker than my clover honey, and I have yet to find a single person who does not like the clover the better, and the great tendency of alfalfa honey to candy is very much against it, for I hold that it is an unnatural condition. CHALON FOWLS.

Oberlin, Ohio, Apr. 23.

[Yes, I grant that you did say something about locality and its bearing on this question; but the allusion is so brief, and the other remarks so prominent, that you lead one to think you would advise all bee keepers to sell uncandied honey.

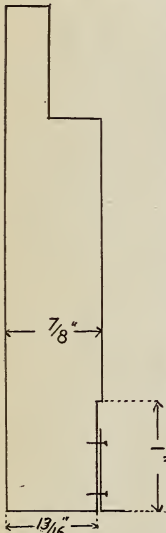
If you can get twice as much money for your liquid extracted as Aikin can for his can-

died, then you have a big argument in your favor. But here again you miss the one point of locality slightly. In the West, Colorado and California, where honey is produced in so much larger quantities, and larger amounts per colony, and so far from the best markets, honey is cheaper than in the East. We must not forget the relative difference in prices. Mr. Aikin goes on the assumption that honey must compete with ordinary sugars or people will not use it. He says his locality, at least, will not take it if they can buy other sweets cheaper; but if your market will pay you your extra price you have a right to get it, and would be foolish if you did not; for your honey, as you put it up, is doubtless worth all you ask for it as compared with some goods that are sold in the same markets. By the way, did you notice Dr. Miller's Straw where he speaks about what Muth did in the candied-honey line?—ED.]

ANGLE TINS TO SUPPORT SECTION-HOLDERS AND SECTIONS INSTEAD OF FLAT TINS.

On page 54, Jan. 15, Mr. W. B. Ranson calls attention to the fact that the flat tin that supports the section-holders was "too frail."

I had the same objection to it, and also another one: Very often, when I went to pry the super loose from the hive, the screwdriver end of my scraper would pry the tin partly off. I found a way to avoid both objections. I have some galvanized iron (steel) cut into strips 12 in. \times 1 in. Then in a folder, bend over one edge $\frac{1}{4}$ in., inside measure, so as to make a right angle, thus: The lower inside edge of the end of the super should be cut out all the way across between the lock corners one inch wide and $\frac{1}{16}$ inch deep.



The L shaped strips can then be nailed in, the under side just even with the lower edge of the super. See sketch enclosed. The iron should be galvanized, otherwise it will rust. No. 26 iron was the thickness that suited me best. Something thinner would answer, but I wanted to be very sure it wouldn't bend down under the weight of honey.

If the strips are put on as I have described—under side even with the lower edge of the super—then the bottom-bars of the section-holders will be raised above the lower edge of the super by the thickness of the iron used in making the strips. But that is no objection, as the bottom-bars are sure to sag that much through the middle.

The rabbet could be a little less than 1 in. wide, but it shouldn't be less than $\frac{1}{8}$ inch deep, even if the sheet iron isn't that thick. The reason is, that the strips—with the ordinary tinner's folder—can't be bent so as to form an exactly square corner; i. e., it will be

rounding at the point of the bevel instead of a sharp square corner. By having the rabbet a little deeper than the thickness of the sheet iron used, the rounding corner doesn't touch the bottom-bar of the section-holder, and so, of course, can't raise that out of position as it might otherwise. JOHN S. CALLBREATH.

Glen Spey, N. Y., Mar. 5.

[We have considered the advisability of using angle irons, or angle tins, in place of flat tins to support section-holders. In the first place, there is the objection of the expense; and then no one can really be sure that it will be any stronger. Our flat tins are all heavier now, and we do not believe that such would give any trouble. And, again, angle tins could not be used with the super for $4\frac{1}{4}$ plain sections. If you will look at the drawings of this super you will see the reason why. There is no doubt that the flat tins of a year or two ago were a little too light; but as they are now made we are of the opinion that they will obviate the difficulties of the past.

This idea, however, of using angle tins is very good; and if there should be demand enough for them we could supply them.—ED.]

HOW TO FIND THE QUEEN; GENERAL DIRECTIONS FOR BEGINNERS.

Will you please tell me how to find the queen in a full colony of bees? I am thinking of putting in some other queens after a while.

GRANT BAILEY.

Smith River, Cal., Apr. 9.

[If the bees are Italians, queens can usually be found at least on the third or fourth frame taken out of the hive. A practical bee-keeper will first pull out the center frame, and look for freshly laid eggs. Failing to find these he will take out another frame from another portion of the brood-nest. If he finds the eggs, then he has reasonable assurance that the queen is somewhere in this part of the hive. He looks the frame over carefully, and, failing to find her, he takes out the next one, each time following in the wake of the eggs. While it is no sure rule that the presence of freshly laid eggs in any portion of the brood-nest is evidence that the queen is in that part of the hive, yet, generally speaking, she will be found near them. If, for instance, I have found no fresh eggs in the center frame, and none in the next frame that I may have out on one side of the brood-nest, then I take the opposite side till I find the eggs. But suppose I have found them, and I do not find the queen. Well, it sometimes happens that a queen will suddenly leave a large fresh patch of eggs in one portion of the brood-nest, and then go clear across the whole hive to the other side, and begin operations there.

It not infrequently happens that one has to look over every frame, not once but twice. If she is not found on the frames then she may be on the bottom-board or inside of the hive. If the bees are black, and the queen of the same race, she will be more than likely to be in a bunch of scrambling bees in one corner of the hive.

If the queen is not found at the first or

second going-over of the frame, I shut such hive up and go back in the course of an hour. This time I use very little smoke, and proceed as quietly as possible so as not to disturb the bees. If the queen once gets frightened she will run and hide. If the bees start to running and buzzing again, better shut the hive again to be visited later, for there is no use in wasting time.

I remember I had once been hunting for a black queen for perhaps fifteen or twenty minutes. I finally called to one of the boys in the apiary, and we together scanned both sides of the frames at once—he on one side of the frame and I on the other, for I thought I had caught a glimpse of her going on the other side of one comb just the moment the frame was turned toward me. Having caught sight of her, we watched her for the fun of it. My friend got back of a clump of bushes where he could not be seen. Curiously enough, this queen would hover around in a little space between the bottom of the comb and the bottom-bar. Whenever I turned one side of the comb toward me, she would quickly go on the other side. Upon my word, if she did not dodge back and forth as I turned the comb! No wonder I could not find her, for she had learned her trick of dodging, and kept it up. I have seen this with other black queens, and perhaps with hybrid queens, but I do not know that an Italian queen among Italian bees would ever do this. One very valuable quality of the Italians is their perfect at-homeness on the combs, whether the hive is open or closed; and one very mean trait of black hybrids and blacks is their fashion of running and scrambling over the combs, scaring the queen in their general rough-and-tumble confusion, one bee over the other. Whenever I have had occasion to find black queens in populous black colonies, I always feel that I have a "job" on my hands. About the first thing I do is to tuck my pants down my stockings; and then if I can have an assistant, he is asked to use his eyes.

Some bee-keepers, when they desire to find black queens, take all the combs out, take the hive and dump it in front of the entrance, set it back, and clap an entrance-guard over the now empty hive. The bees are all shaken off the combs, and the entrance-guard is eagerly scrutinized to see when her majesty strikes the obstruction. I do not know but, all things considered, this is about as quick a way to find black queens among black bees as to undertake the very uncertain and laborious method I have already described.

Some of those who use shallow brood-chambers advise shaking the black bees out of the combs by shaking the whole chamber, and then watching the bees as they crawl toward the entrance. It is said that the queen can be easily seen among the bees, and picked out. I have tried this a number of times, but have never been successful. In the first place, it took more strength than I had to do a thorough job of shaking; and in the second place it takes a pretty sharp pair of eyes to see the queen among a lot of bees an inch or so deep, all of them working toward the hive.

Unless one wishes to clip a queen's wings, to replace or sell her, it is a waste of time to try to find the queen. If one sees eggs regularly laid, and brood in all stages, sufficient stores, there is no need whatever of hunting a queen. Beginners often spend a lot of useless time in this way, sometimes leaving the combs exposed to the sun. Robbers start in the meantime, and there is a "general row."—
[Ed.]

BEEES AS A SPECIALTY; IS IT ADVISED? WINTERING OUTDOORS IN MINNESOTA.

1. Would you advise a young man who likes the bee-business better than any other to go into it exclusively?

2. If not, what other occupation could be conveniently engaged in along with it, to insure good returns? Give location in United States.

3. Where is the best location in the United States to make bee-keeping a specialty?

4. Could bees be *safely* wintered outdoors as far north as this, with the regular hive protected by a Dovetailed winter case only? They could seldom fly from Dec. 1 to Apr. 1, and would probably be covered with snow most of that time.

5. Would it be safe to leave out-apiaries packed thus where they will receive no attention from December to March or April?

6. If a person is in a locality where he can average about 50 lbs. of comb honey per colony, spring count, would it be wise to seek a better place to build up an apiary, or build up one where he is, taking severe winters into account?

R. O. CLARK.

Lake Crystal, Minn., Apr. 10.

[1. No. Bee-keeping is too uncertain as a business for one to rely on it exclusively for his sole income. There are a very few specialists; but they either carry on the business very extensively, having 400 or 500 colonies, or else they live in a favored location. I always advise that bee-keeping be combined with some other industry.

2. Poultry-raising, fruit-growing, farming, practicing law, teaching school, any and all of them, according to circumstances and conditions, may work well with bees. Among the bee-keepers of our country are many professional men who keep bees not so much for the profit there is in them (although that is a consideration), as for the recreation and outdoor exercise that they afford. Then many farmers who are progressive* can keep a few colonies to considerable advantage. Twenty-five colonies in a location where there are no bees will very often pay much better than the same amount of capital invested in poultry or fruit-growing. Many a bee-keeper has found that, when he had a few colonies that could secure an average of 100 to 150 lbs. of honey, after he gets more into the business, and is actually running from 100 to 200 colonies, his average is cut down to 50 or 75, and generally much less than that.

3. I do not know where the best location is.

* One who is not active, and up to date with farming, would probably be a very poor bee-keeper.

Some of the best, although they are generally taken up by residents on the field, are in Central and Eastern New York, Colorado, Arizona, New Mexico, Nevada, and California. In some of our newer States there are quite a number of fine locations that are not yet taken; but they are so far from the markets that the expense of transportation stands in the way.

4. Yes, providing that there were suitable windbreaks on the west and north sides—or, better still, windbreaks on all four sides. It makes a vast difference whether outdoor-wintered colonies, no matter how well packed, are properly sheltered from the piercing winds.

The presence of snow, and plenty of it, will be beneficial, providing it does not melt, run down into the entrances, freeze, and hermetically seal the same. The entrances must be kept reasonably clear, so that air can be obtained.

5. Yes, if protected by windbreaks, and if in sight of some farmhouse, or sufficiently near some dwelling to prevent the depredation of thieves. Thieves and mice are apt to make rather bad work on outdoor-wintered colonies. While out-apiaries may be left the whole winter long without examination, it is far better to take a look at the hives, even from the outside, occasionally. It has been our practice of late years to bring our out-yard home, for the simple reason that thieves have a fashion of tearing open the colonies for just a morsel of sweet. While they steal only a few cents' worth of honey, they actually rob us of a good many dollars' worth of bees and comb.

6. Better stay where you are by all means. If you can *average* 50 lbs. of comb honey you have a good location.—ED.]

HONEY FROM CALIFORNIA PRUNE-TREES; HOW MUCH MORE EXTRACTED THAN COMB CAN BE PRODUCED?

How much more honey ought bees to make in running for extracted honey than in running for comb honey when the flow is plentiful? How much would you estimate it per day per colony?

Prune-blossom yields an abundance of nectar here. Reading in the ABC book of the basswood-bloom, and the amount of nectar, reminds me of the prune-bloom and its nectar. I was plowing in prunes here during the bloom, and my clothes got all wet with the nectar. It blooms here about the middle of March, and lasts about ten days. What I am trying to get at is, if it would pay to keep bees here for the prunes in an extensive way.
Orangevale, Cal. D. C. JENKINS.

[Just how much more extracted than comb can be produced is something that can not be answered in definite percentages, as so much depends on the conditions, location, style of the hive, size of the combs, and the kind of honey-flow. A few bee-keepers claim that they can produce just as much of the one as of the other; but the great majority agree that more extracted can be secured than of comb. Some put the figure at 25 per cent. Others go even so high as to make it 50 per

cent more. It is not to be understood that bees will gather more honey in the extracted form than of comb; but more of the former can be gotten *in marketable shape*.

I have never yet heard of honey being gathered from prune-tree blossoms; and if the amount anywhere near equals the amount from basswoods, the prune-trees in your locality must be tremendous yielders of nectar. When you get a good sample of genuine prune-tree honey, that you are sure has no other honey mixed with it, I should be glad to have you send me a sample by mail. I have never tasted of such honey, knowingly, and should like to know what it is like.—ED.]

REQUEENING A WHOLE APIARY; HOW SHOULD IT BE DONE?

Friend Root.—By request of a friend I write this, and ask your opinion as to whether it will be best for him to buy several select tested queens from such men as Doolittle, Alley, Root, Miller (and perhaps others), to raise queens from, or buy an extra-good imported Italian, and breed from her. I have charge of his apiary, and shall want at least 250 or 300 queens, possibly more. Last October Mr. M. bought queens from several breeders, both north and south, and I must say I never saw so many *worthless* queens in one apiary. As the number he bought was about 180, you see the outcome was a losing one to him. Breeders who put out the finest advertisements sent the poorest queens. Fully four-fifths of them were impurely mated. One breeder sent a select tested, and I think she must have been so, from the number of *black* bees she produces. Naturally Mr. M. is a little shy about buying queens *this* year. We shall want the queens in June, and I advise buying an extra good imported one and raise our own. Mr. M. wants your opinion. We want pure Italians, but don't care for bright colors; but we want bees for *business*. Personally I have never yet found any thing better than leather-colored Italians.

[I never would advise requeening an apiary by purchasing all the queens, or a large part of them, from the different breeders. In the first place, it would be too expensive; and in the second place, queens that have been through the mails are never quite the equal of those that have never seen Uncle Sam's mail-bags. Of course, this is only an opinion, but it is based on quite an extended observation, and on the fact that queens reared in the yard seem to be better than the great majority that are purchased. Those reared by the old-fashioned methods will not be as good as those raised by the Doolittle plan under the stimulus of the swarming fever, or a stimulus brought on artificially by feeding a little every day.

In the rearing of queens, one of the most important things to be considered is stimulative feeding, especially during that time when cells are being reared by the cell-building colonies. All such should be very strong; and on being fed a pint or half a pint daily they very lavishly supply the cells with royal food, and this is what makes good queens.

I am afraid some queen-breeders, in the rush of the season, are not always as careful to observe this point as they should be; and to fill orders promptly they may sometimes yield to the temptation of taking queens that look well, but which have been reared either out of the swarming season, or else the colonies that built their cells were not stimulated as directed.

My advice would be to purchase four or five select queens from as many different breeders—queens to be the very best. Now, although each breeder will be honest, and endeavor to give you his best stock, either the journey through the mails or some unaccountable circumstance will result in one or more of the queens not coming up to expectation. Not all queens will come anywhere near matching the qualities of their mothers which the honest breeder had selected for the very purpose of breeding a superior stock.

Where one wants to requeen a whole apiary he should himself rear nine-tenths of the queens. Until some one finds a better method I would recommend the Doolittle plan; but if one has only a few colonies, and has not had much experience, he had better buy his queens unless he wants a little fun in learning how to do the work himself.

For general purposes there is yet no better stock than the leather-colored imported. Some of them are exceptionally good.—ED.]

IF A JUMBO HIVE IS THE BEST FOR EXTRACTED, WHY IS IT NOT EQUALLY GOOD FOR COMB?

I have been much interested in the discussions appearing in GLEANINGS concerning the proper size for hives; and while the weight of testimony seems to be in favor of the 8-frame L. hive, or near that size, for comb honey, I believe it is quite generally conceded that a larger (or jumbo) hive might be best in most localities for extracted honey. Now, I infer from what has been said upon the subject that the Dadants extract nearly all of their honey from supers, and the puzzling question that confronts me is this: If, under similar conditions as to season and locality, bees will store more honey in supers in a large than in a small hive when run for extracted, why will they not when run for comb honey? As I have paid but little attention to bees of late years I should like it if some competent beekeeper would lead me, and may be others, "out of the woods" in this matter. In GLEANINGS for Dec. 15, 1899, appeared a good article on the subject by Mr. L. Stachelhausen. Will he not be kind enough to contribute his promised "method" in his next article soon? Cobleskill, N. Y. S. A. BURNER.

[If it is a fact that a large hive is best for extracted, it is perfectly natural to assume that it will be equally good for comb, and I am not sure but the assumption is correctly drawn. This whole question is one of locality. Where the honey-flow is short, lasting only two or three weeks, and only moderate, and no honey worth speaking of at other times during the whole season, then unquestionably the

eight-frame Langstroth capacity is large enough. With a larger hive in such a locality, the surplus would probably all be crowded in the brood-combs. But in a locality where the honey-flow continues for a month or six weeks, or where there are two or three such flows aggregating anywhere from two to three weeks each, then the large hive for extracted honey is unquestionably the better; and I should be inclined to believe that it would also be better for comb. But we must not forget this one fact: That, while the bees will gather as much honey whether running for extracted or comb, it is not so easy to get so much marketable honey in sections as that in a liquid form.—ED.]

QUEEN-EXCLUDERS FROM FOUL-BROODY HIVES.

Having purchased a number of queen-excluders that had been used one season over bees badly affected with foul brood, what precaution should I take in using them again? Would it in any way endanger others, or should they be discarded altogether?

Tilsonburg, Ont. W. E. YOUNG.

[While there is a possibility that queen-excluders in foul-broody hives *might* not carry infection to colonies in hives on which they were placed, yet I would never take any chances. I would put the whole bundle in a kettle of water and boil not less than two hours, this extent of time being necessary to kill the *spores*; for, as Mr. Cowan points out, spores are very different from microbes.—ED.]

DISCOURAGING FOR SOUTHERN CALIFORNIA.

It has been another dry winter in Southern California. It has rained only about 8 inches in this locality. The sage is in bloom now, a month ahead of time, but it does not amount to much. I don't think there will be any surplus honey here this season; and from what I can hear it is worse down south.

San Benito, Cal., May 2. A. BORGMAN.

EXTRACTING-HOUSE ON WHEELS.

I would thankfully hear from any reader of GLEANINGS who has had experience, how best to build a practical and convenient extracting-house on wheels, to be set close to hives in out-apiaries, carrying all requisites along.

Utica, Ill., Feb. 21. A. MOTTAZ.

[I should be glad to receive photos and description of a good extracting-house on wheels.—ED.]

BEE-PROOF ARMOR-SUITS.

On page 94, Feb. 1, you mention Mr. Cogshall's bee-proof armor-suits. Can you not give a description of them so that they can be made from it? E. D. HOWELL.

New Hampton, N. Y.

[“Bee-proof armor-suits” was a name adopted by me as half a joke on the Cogshall bees to indicate their general temper. Why, don't

you know that Coggs shall trains his bees to sting, to keep thieves away from his out-yards, and any thief who would steal from one of the Coggs shall out-yards would be flying into the hands of fate. Joking aside, the bee-suits spoken of are nothing more than a pair of cowhide boots, pants tucked in, a pair of gloves with long sleeves that reach well up on the arms, and an ordinary bee-hat and veil—sometimes veil and hat are part of the waist. In all other respects the clothing is the same as that used by any one else.—Ed.]



A. B. C., Ida.—Killing off the drones before the swarming season may possibly have a slight effect in the prevention of swarms; but I should place very little reliance upon it. To destroy drones, use entrance-guards, or, better still, Alley traps. But it is better to prevent these undesirable drones in the first place by giving the bees nothing but worker-combs; and if any of the combs you have have a good many drone-cells in them, better cut the wax out, melt the wax up, and give the bees frames of foundation instead. It is very expensive and wasteful to rear drones in large numbers and then destroy them afterward by trapping.

F. F. S., W. Va.—We can scarcely advise what hives to select for your locality without knowing some of the special conditions. If you desire to run for extracted honey only, and your honey is medium or dark-colored, or what is called southern honey, we would recommend you to select the ten-frame Dovetailed hive. If you find your best market is for comb honey, and your locality furnishes white clover and basswood, and some other equally good honey, we would recommend to you the eight-frame Dovetailed. The Danzenbaker is considered by many to be the best comb-honey hive in existence. The capacity of the brood-chamber is about the same as the eight-frame Dovetailed standard Langstroth frames.

QUEENS FROM THE SOUTH; ARE THEY INFERIOR TO NORTHERN BRED?

S. C. M., Wis.—While we might be able to rear a very few queens in April, yet our locality is such that we should probably sacrifice one or more colonies in doing so. We can not do much at queen-rearing before the middle of May, as a rule. Some years we might raise queens the first of May, and possibly the last of April; but taking one year with another we should not be able to rear queens before the time I have named. It is true you may be further north; but you may be in a locality more protected, for the isothermal lines of heat vary greatly from the direct lines of latitude. New York, for instance, while in about the same latitude as Medina, is very much

warmer than the locality of Cleveland; and Chicago, also in nearly the same latitude as Cleveland, is very much colder. Oregon and Washington have, in the main, the warmth of the Carolinas and northern part of Florida. The coldness of Labrador is proverbial, and yet Paris, on the same line, has the average temperature of New York. But are you sure you are right in deciding that southern-bred queens are not as good as northern-bred? Some statements were advanced to that effect, but I have never seen any proof of it. Some of the hardiest queens we have come direct from southern Italy, even in spite of their long journey to this country.

HOW TO PREPARE FOR A LONG BICYCLE TOUR IN THE WEST.

F. J. C., Ida.—Replying to yours of Apr. 9, I would state that about as much luggage as you can afford to carry on a bicycle, if you have one of the modern machines, is somewhere about 25 or 30 pounds. I would not attempt to carry any bedding, but take along an army blanket and rubber blanket which you can lay on the ground to keep dampness off. To keep warm on a cold night, put your head under the covers, and your breath will help to keep up the warmth. You will also need to take along plenty of matches, so that you can build a fire wherever there is any loose material to burn. If you go through a wild country you will need the fire to keep off cayotes. You need to see that your machines are in first-class order before you start, and then take along with you repair tools, as spokes, an extra inner tube (if it is a double-tube tire), plenty of tire tape, a good lamp, cement, needle and thread, as well as a little brush broom with which you can dust yourself off when it gets too thick. It may be advisable, if you are going through a wild country, to take along a revolver. Dogs are sometimes very troublesome, and I have had to defend myself against them at the point of a gun, as some of the larger dogs are pretty fierce. You should not neglect to carry along with you a bottle or two of milk; for when your strength begins to fail, there is nothing that will "brace one up" so much as a good drink of milk. You can buy at the drugstore Horlick's milk powders, or, better, Horlick's milk-powder tablets, which the Horlick Milk Co. put up especially for bicyclers. There will be days when your strength will be well nigh given out for want of nourishment, and you will need something concentrated that you can use in emergency. I would not drink too much water on the route; but whenever you can, take a good drink of milk at a farmhouse, paying for it, or at least offering to do so, as it creates a better feeling. The majority of farmers' wives will not take pay for milk.

The Brosius pure-food bill is now up for consideration in Congress; and every bee-keeper interested in the suppression of glucosed adulterations is requested to write to his Congressmen at once; and not only that, but get as many of his friends as he can to do likewise.



Now that the Interstate Commerce Committee has reported favorably on the Brosius bill, it is the duty of bee-keepers now to bring a pressure to bear on the speaker (Henderson) of the House so that the bill may get a hearing at an early date.

W. A. SELSER, familiarly known as the honey man of Philadelphia, is very sick with typhoid fever, and for a time it was thought that he could not recover. Although he is still a very sick man we are glad to inform his many friends that the crisis has passed, we hope, and if he does not have any setback he will get well.

How to find a queen seems like a simple thing to an old veteran; and yet all of them know it is often a very difficult task. On page 396 I have described the methods that many bee keepers practice, and now I desire to know whether any better or any other method has been devised. It will soon be necessary to go through the apiaries to clip the queens' wings and replace others. How to find the queen quickly is something worth knowing. Let us hear from the brethren.

If you have not yet written to your Congressmen, urging them to support the Brosius pure-food bill, please do so at once. Do not assume that some one else with a little "more political pull" will have more influence than you. Congressmen like to hear from their constituents; and you may rest assured if the good people of this land, who care for pure-food legislation, do not write to their Congressmen, that the glucose interests, and all other interests connected with adulterating, will see that the pure-food bill is killed. It is a splendid measure, and ought to receive the support of every member of Congress.

As the reader will see by consulting the columns of this issue I have crowded in a great deal of editorial work, and in consequence some of our contributed matter has been left out. It is much easier to get out a journal largely if not all contributed matter; but the editor, from his peculiar position, is enabled to take a bird's-eye view of the field at a time, and he ought to be broad enough to state the best practices in vogue, without regard to locality or individual colorings and prejudices. If our readers prefer less of the editorial and more of the contributed matter, I should be glad to have them tell me so.

PYRETHRUM FOR KILLING BEES.

VERY recently, being suspicious of one colony in our yard, and fearing it might have some contagious disease, and not desiring to take any chances, we gave the colony a good sprinkling of pyrethrum powder. This was

done at night. In the morning every bee was "as dead as dead could be." The entrance was closed, and all taken to the boiler furnace and burned. The object in using pyrethrum was to prevent any bees from escaping while the hive was being removed to the place of destruction. In bad cases of foul brood, as a precautionary measure it might be well to kill the bees with pyrethrum powder, then the whole can be burned or destroyed. Of course, in any ordinary case of foul brood it is not necessary to kill the bees; but when one attempts to burn a very bad case, a few live bees are liable to escape, and so carry the infection to other hives which they will surely visit if they can not find their own, which, of course, has been removed to be burned.

DR. MILLER'S BEE-HORSES.

WHEN Dr. Miller and I arrived at his home after the Chicago convention we found that the bees were having a little bit of fracas among themselves. They had gotten into a hive from which the bees had died, and as a result there was a "general row." I suggested that, inasmuch as the combs were dry, they be left just as they were.

"Yes, that is my practice, in such cases," said the doctor. But during that afternoon, when we went through the apiary there were plenty of skirmishers ready to sting whenever one showed himself. Well, Dr. Miller's horses wanted to drink, and he was equally anxious to accommodate them. They were unhitched from the buggy, and leisurely walked down toward the apiary near where the pump was. I could see at once that they knew that cross bees were in the air by the way they switched their tails and tossed their heads. At first they hesitated, but finally they walked right through where the cross bees were flying. Notwithstanding the bees were so cross that Dr. Miller and I were both veiled to keep from being stung, those horses continued right toward the cross colony, near which was the trough. The animals seemed to think that, if they could get their heads *down into* the trough, the bees would not attack them, and such was the case.

Dr. Miller began pumping, and the horses plunged their noses deep into the water, and drank, and drank, and drank, to their fill. Once in a while they would raise their heads and take breath; but when there was an onslaught of bees they would duck their heads down again into the water.

When they started back they would keep their heads shaking and dodging, for all the bees seemed to concentrate their attacks at the horses' heads. But the horses got back into the barn without so much as a sting. "I doubt," said the doctor, "whether they would be so unconcerned if they were hitched up to the wagon."

DOOLITTLE QUEEN-CELL CUPS BY THE PECK.

I PRESUME some of our readers are not familiar with the Doolittle method of making cell-cups with a single stick. For the benefit of such I will say that Doolittle takes an or-

dinary wooden rake-tooth, whittles and sandpapers the end down to the shape and size of a queen-cell cup as made by the bees when about half built. This stick is dipped into water, then dipped into melted wax a little more than half an inch. It is twirled in the air, to permit of even cooling, and to prevent a drop of wax from forming on the end. It is then dipped again, but to a less depth, or to within $\frac{1}{16}$ inch of the former dipping; and each time the stick is twirled between the fingers so the wax will cool evenly; and when the cell-cup is finished the stick will look like a small drumstick, the head being the cell.

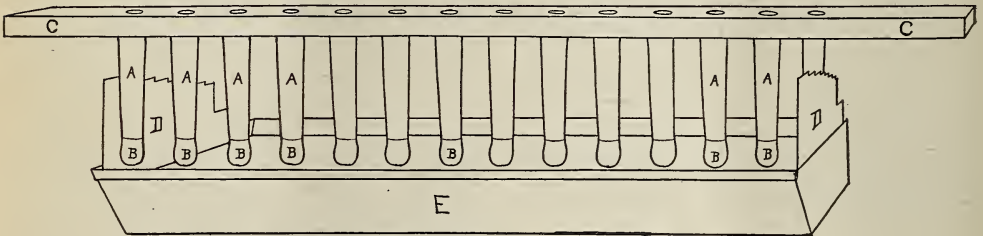
An improvement on this method of making is to take a dozen or so such sticks and mount them in a cross-stick, about an inch apart or what would make when completed practically the head of a wooden lawn-rake. Mr. W. H. Pridgen, of Creek, N. C., told us it was not necessary, as we had supposed, to have the

use two dozen or any number. W. H. Pridgen writes that with twenty pegs in his arrangement he can dip at the rate of 2000 an hour; and as Mr. Pridgen is one of the best-posted and most expert queen-breeders in the country he might be prevailed on to sell queen-cups. I have no doubt many would prefer to buy them rather than make the apparatus as above shown. I do not know that the device illustrated is the same as that used by Mr. Pridgen; but it is one we evolved from some things that Mr. P. said.

"BEE-KEEPING FOR PLEASURE;" SEE PAGE 385.

In our last issue I promised to give a picture of an ideal shade, and on page 385 will be found the one I had in mind.

Some of the shade-board advocates will claim at once that there is altogether too much shade—trees are too large, and foliage too



sticks revolve, each one simultaneously with the others. The teeth of this rake-head are to be dipped into a pan of wax, about $\frac{9}{16}$ inch; that is, each head or cell-forming stick will be plunged into the melted material that depth. It is then drawn out, when immediately the surplus will run down and form in a bubble or drop at the end of each stick. The whole rake-head is then given a quick jerk, dislodging each drop.

The device that we have used is shown in the accompanying diagram or sketch. C C represents the back of the rake; A A the rake teeth; B B B the finished cell-cups at the last dipping. E is the pan of melted wax kept hot by two oil-stoves. D D are two pieces of tin, notched like a pair of steps. At the first dipping, strip C C rests down in the lowest notch on each side at D and D. When in this position the ends of the sticks are submerged $\frac{9}{16}$ of an inch in the wax. The whole rake-head is then withdrawn, held a moment while the films of wax cool; and as the bubble forms on the bottom, the whole head is given a quick jerk as explained. At the next dipping the stick C C is set down on the steps next higher up. This leaves the cups dipped to within $\frac{1}{16}$ as deep as they were before. In this way the dipping is continued, each time the stick C C resting in the steps next higher of D and D. When the rake, so to speak, reaches the top step, the work is complete. The cell-cups are removed by immersing the heads in water, after which they may be easily pulled off with the fingers. Any one with ordinary ingenuity can make one of these; and if twelve sticks do not make enough he can

dense. I have another photo showing a different view of the yard, and in this it is shown that the hives are not under the big trees in the rear, but under smaller ones in the foreground—fruit-trees of modest height, and a moderate density of foliage.

My ideal location for an apiary, as I have before stated in these columns, is an orchard or a young grove having trees with foliage not too dense. In either case the limbs should be trimmed high enough so the sun's rays may strike the hives till about nine o'clock, and again at three. As the leaves of all deciduous trees fall every year, there will be practically no shade on the hives during at least six months of the year, when the sun's rays are most needed. When they are not desired, nature automatically throws a beautiful mantle over the entire apiary.

And yet there are some, I suspect, having the best kind of shade-trees, ideal in every way, who will set their hives out in the open, where the apiarist and the colonies under so-called shade-boards will be subjected to the influence of a "boiling hot sun." Notwithstanding that these artificial make-shifts project at front and rear, only partly protecting the hive during the day, and require to be held down by a stone weighing 15 or 20 pounds, those same apiarists probably will insist that this form of shade, in spite of its disadvantages, permits of earlier breeding, and more honey than those shaded by nature in the manner I have described.

One who will scan the picture closely will see that the hives stand on cement bottoms or foundation. While this will effectually pre-

vent all growing of the grass and weeds near the hives, and make it easy to handle the lawn-mower, I should be inclined to believe that so much solid masonry during the winter would be a rather cold bed-fellow.

As one looks over this apiary he can not but envy the owner the comfort he apparently enjoys in taking care of bees for pleasure as well as for profit. Imagine the delightful coolness of working over the hives on a hot summer day in such a yard. There would be little or no hanging out of the hives, probably, and the bee-keeper could set the combs down here and there without danger of the sun melting them or in any way injuring the bees.

The photo was sent us by a friend whose name I have misplaced; but he evidently resides at Ballston Spa, N. Y. I should be glad to have the sender of it give me his name.

SPRAYING FRUIT-TREES WHILE IN BLOOM.

THE following letter, just received from Prof. W. J. Green, of the Ohio Experiment Station, will explain itself:

Mr. A. I. Root:—I inclose a letter from the *Farmer's Guide*; also a clipping from that paper, which was sent me by the editor. I knew some time ago that there were people who believe that spraying trees when in bloom is more beneficial than just before or just after, but I was not aware that any one would give such advice as Mr. Stahl does. Mr. Stahl's position is such that he can do great harm in this way, because he has numerous correspondents, and it is quite likely that he will induce a great many to spray trees when in bloom.

I was present at the New York State Horticultural Society meeting last winter, and heard the statement made that there were fruit-growers in the State who intended to spray their trees when in bloom, and pay the penalty if fined, as there is a law in that State against spraying trees when in bloom. If this sentiment becomes at all universal among fruit-growers it will work great injury, not only to bee-keepers but to fruit-growers as well.

W. J. GREEN.

May 9.

The letter referred to from the *Guide Publishing Co.*, of May 7, is as follows:

Horticulturalist, Experiment Station, Wooster, Ohio.

Dear Sir:—Herewith find page of last week's issue of *The Farmer's Guide* in which we criticize the advice given by William Stahl, of Quincy, Illinois, on spraying fruit-trees in full bloom. We are in receipt of a letter from Mr. Stahl in response to our criticism in which he says:

"I regret that you are just a little behind the times in giving your advice. Spraying in full bloom is nothing new to me, as I have been experimenting in this direction for several years. My own trees have not only been sprayed once, but have been sprayed twice, and I have most excellent prospects. It may be well to state, in connection herewith, that in the grape-growing section of Nauvoo, which is only fifty miles north of here, and consists of five hundred acres, almost every acre will be sprayed this year in full bloom."

Mr. Stahl enclosed a copy of a letter from Mr. J. H. Fishel, a fruit-grower of Grant County, Indiana, in which he says that he has been spraying in full bloom for three years, and that his fruit is ninety per cent perfect, and that he has plenty. He intimates that he has kept his plan a secret, and adds:

"I am aware that the idea prevails that it kills honey-bees, and I have found, also, that it is not necessary to have bees to fertilize the bloom of fruit. I have been frequently asked why I have such perfect fruit and so much of it when others have scarcely any, and what they have is not worth any thing. I do not tell my secret, for fear of being blamed of killing bees."

Now, if we are behind the times we want to know it and to know the safe, sure, and good way to catch up. If spraying in full bloom is better than otherwise, if bees are not needed in fertilizing and pollenizing, and that it is right to kill them in secret, or otherwise, we should like to know it.

We are addressing this letter to seven experiment stations besides yours, and await the replies with considerable interest. THE GUIDE PUBLISHING CO. Huntington, Indiana, May, 1900.

The clipping from the *Guide*, which we believe to be absolutely correct, is as follows:

A farmer came into *The Guide* sanctum Saturday, bearing a look of unusual disgust. He had recently ordered one of Stahl's spray-pumps, and with it had received a letter from the manufacturer vouchsafing to him a great secret, which is furnished with every spray-pump upon request, which secret is as follows: "Give your vines and trees one additional spraying this year when in full bloom, using for this spraying Bordeaux mixture, and adding thereto Paris green in the proportion of one pound to 160 gallons of Bordeaux mixture."

The manufacturer states that, where the spraying was done when the trees were in full bloom, the results were simply wonderful. If the sprayer manufactured and sold is of as much doubtful utility as the above advice is unsound, then would we hesitate to buy it or advise its purchase. Any benefits that spraying might have on the fruit while the trees are in full bloom, over omitting the spraying at this time, is surely overcome by the destruction of the fruit-growers' best friends, the bees. Spraying with Paris green at the rate of one pound to 200 gallons of water is sufficient to destroy injurious insects; but when the amount of Paris green is increased, the destruction of the honey-bees and other pollenizing insects is enhanced. This is so plainly recognized in Michigan, New York, and other States, that laws have been passed forbidding the use of poisonous spraying mixtures while fruit-trees are in bloom.

We have gone through the bulletins of the experiment stations on file in this office, and do not find in any of them a recommendation to spray while the trees are in full bloom. On the contrary, we find advice to never spray a fruit when it is in blossom. This we find italicized in Bulletin 142, Cornell University Experiment Station, Ithaca, N. Y. Following the above words are: "You can reach the insect and fungus enemies just as effectively, and in some cases more so, either just before or just after the trees bloom."

The foregoing bulletin is by Prof. M. V. Slingerland, one of the best entomologists in this country, and what he says upon the subject is reliable, and is at variance with the advice given by the manufacturer of the Stahl sprayer.

This man Wm. Stahl, while prominent as an advertiser, may not know very much about the subject of spraying. To tell the editor of the *Farmer's Guide*, and practically say to all experiment stations that they are "just a little behind the times," is as egotistical as it is impertinent. It is to be regretted that the State of Illinois does not have a law against the spraying of fruit. Such laws are already in force in Michigan, New York, Colorado, and bills have been or are being introduced before many of the State legislatures. When I was in New York recently I learned that the most progressive fruit-growers are not in favor of spraying during bloom. They state that it is not only unnecessary, but that it actually kills their very best friends, the bees. Of course, there are a few who are of the contrary way of thinking, but they do not represent the up-to-date growers.

EXCESSIVE BICYCLE-RIDING AND HEART TROUBLE; A WARNING TO THE BOYS.

OUR readers will remember Harry Howe, one of W. L. Coggs's lightning operators—a man who, with three helpers (boys), actually extracted 1400 lbs. of honey with a non-reversing extractor, taking the combs out of the hives, shaking the bees off, carting the combs to the extracting-house, and returning the supers again to the hive, putting the honey into

220 kegs—in the short space of an hour and a quarter. It was this same Harry who had the reputation of doing about four men's work in a day. He was young, active, lithe, and in the very pink of health. Besides making some big records in bicycle-riding he climbed the Ithaca Hills—something that I believe no man besides himself ever did, without dismounting. Well, this same Harry went to Cuba, and in going over the island to look up locations he used, of course, his ever faithful steed the wheel. I have just received a letter from him, and from it I make a short extract which is full of warning to other young ambitious boys who sometimes overestimate their physical strength. Harry writes :

I have been sick for some time, and unable to attend to business. I am at present in one of the United States military hospitals. This will explain why I have not ordered those hives. My trouble came from too much bicycle, etc. It is a form of heart trouble. The doctors have not decided yet how I am to come out.

This tells its own story, and carries its own lesson.

It is said that confession is good for the soul; and I do not know but I had better tell a little of my history. Our older readers will remember how, when the bicycle first came out, I used to make long runs over the country, visiting bee-keepers, and how sometimes I would ride over a century at a run, one time making a run of 115 miles in 8½ hours, 80 miles in one afternoon, and again making 20 miles in 70 minutes, and this over common roads. While this time has been beaten repeatedly by two or three hours for the century by men who are trained up to it, yet I found it is very seldom that one who makes it a business to sit at his desk is *fool* enough to try to ride such distances in such time. Candidly, I should much prefer to brag about big records than to confess to being a "fool." That seems like a strong term, but I use it advisedly, as the reader will see by what follows.

Soon after making some of those century runs among bee-keepers, and after I had returned home, for weeks I could not sleep nights, and the following spring found me breaking down with nervous prostration. My friends sympathetically hinted about my having "worked too hard." Yes, I *had* overworked on the bicycle, but not at my desk. But this was not all. I was under the doctor's care for a year. I kept running down in weight until I ran down to 115 lbs., and my normal weight was 140. I remember one good friend of mine (I had just started on the beef diet) chokingly (not jokingly) saying, "Why, my dear man, you have one foot in the grave already, and you will die, sure." But I had a conviction all the time that I was "going to pull through." I had faith in beef and hot water to undo even excesses on the bicycle. I hung to the treatment; and by the advice of my physician, Dr. J. M. Lewis, of Cleveland, I rode the wheel some two or three miles a day—just enough to keep up a very light exercise; delegated my office work to others, and took things as easy as I could. In a few months' time I began to mend, and kept on mending, and putting on flesh, until I reached

155 pounds. I went off the diet gradually, and have been comparatively well ever since.

Right in this connection are two morals. One is, do not overdo on the bicycle. Second, when you get sick, and your friends begin to talk about your crawling into the grave, go on to the beef diet.

Perhaps the kind reader who has taken my advice on bee-matters wonders *why* it was that I rode to excess. Those of you who have never had any experience in the exhilaration of "second wind" know nothing of it. This new strength, or new something, comes on something like this: One starts off in the morning, perhaps for a hundred-mile ride. He may feel tired. He is weary of legs, and out of breath; but he keeps on, for by past experience he knows if he persists the so-called second wind will come. He begins to experience a feeling of exhilaration. This is soon followed by a buoyancy like unto flying, for the wheel shoots ahead as if on wings. Hills and rough roads seem not to be in the way. There is no labored breathing, and the bicycle really seems as if it were propelled by a motor.* I thought that, as long as I felt like this, could eat well, and could ride without fatigue, even at the rate of eighteen miles an hour, as I have done on some of my long rides, where the roads were good, I was perfectly safe. Indeed, on one of my last century runs I came into Medina on the bicycle at a fifteen-mile gait. I felt so well that I ran up the stairway to the office two steps at a jump. So deceptive was that second-wind sensation that I was prepared to do almost anything in the way of athletics—at least I *thought* I was.

While I was never intoxicated, in the accepted sense of the word, yet I believe when one gets what he calls *real* second wind he feels as if he could almost fly. It is this sensation of buoyancy and strength that leads many a rider on his bicycle to feel perfectly safe. Why, as long as he is not tired, and can outrun any one without fatigue, or without getting out of breath—*he's all right*. There never was a bigger mistake.

Now, in confessing my part of playing the "fool" I do not mean to implicate Harry in the same way; and yet he *may* have fallen into the same error I did—overestimating his strength *by the way he felt*.

*A teacher of athletics told me that the weariness comes about because the heart is not yet tuned up to the higher pitch. Continued labor calls for extra effort on the part of the vital organ; finally it yields to the pressure, and beats faster and harder. This, I was told, is a provision of nature to enable man or beast to perform more arduous physical labor than is his wont. This tuned-up condition of the system, or second wind, as we familiarly call it, if rightly and temperately used, is a good thing; but one needs to know when he has reached the danger-limit, and not think within himself, because he is not tired or out of breath, that therefore he can go on in the same foolish way.

Did you know that the Brostius pure-food bill is up for consideration? If you are a bee-keeper, and interested in pure food and the suppression of adulteration, write to your Congressmen at once, urging them to support it.



Peace on earth, good will toward men.—LUKE 2 : 14.
As ye would that men should do to you, do ye also to them likewise.—LUKE 6 : 31.

It is an easy thing to listen to good sermons, for there are plenty of them, if people would only attend the places of worship; and I came pretty near saying, it is an easy thing to *preach* good sermons, for most of us can do a little preaching occasionally, especially when we get to discussing the faults and inconsistencies of our neighbors; but it is another thing to put in practice the golden rule, and to work for peace on earth, good will toward men. A good many times we can better realize what these texts mean by making a practical application of them to some business transaction than by listening to sermons or by preaching little sermons in the way I have suggested. When we are discussing the ways in which other people fail to apply the golden rule, we are apt to be quite enthusiastic for truth; but when it hits our own *selves* and our own *pocketbooks* our enthusiasm is likely to grow faint. A great many of the friends are interested in gardening; and I wish to tell you at the outset that in this little transaction I do not mean to advertise our seeds nor to advertise myself as a seedsman, nor even as a Christian. Let me say in my own defense, however, I never thought of putting the following transaction in print when it occurred. The letters I wrote in regard to it were written without a thought that anybody would see them except the good friend to whom I wrote; and he is a good friend of mine, I am sure—yes a better friend because he tells me plainly and squarely wherein I have been guilty of *omission* if not of commission. And now for the story.

If you look in our brief seed catalog you will see that we advertise 10 lbs. or more of spinach seed at 12½ cts. per lb. This is quite a low price, and the margin is very close; but I enjoy helping market-gardeners by giving them low prices where they want a considerable quantity of staple seeds. For several years we have bought spinach seed by the quantity for 8 to 10 cts.; but last fall it ran up unexpectedly. In fact, we got an order some time in the fall, the money with the order, at 12½ cts. per lb.; but before I could fill the order I had to pay 15 cts. for seed. I explained the transaction to my friend, however, and he very kindly paid me what the seed cost, so I was not out of pocket. Of course, I must advance the price in the seed catalog; but this is something I hate to do, and I wanted to be very sure there was a *general* advance in the price of spinach. By a little correspondence I found two growers who would sell me seed at 10 cts. I considered them both to be good responsible men. I purchased a lot from each one, and commenced the year with spinach seed at the old price. The two following letters indicate the quantities of spinach we often sell to the market-gardener:

Dear Sir:—Find inclosed \$2.00, for which please send 16 lbs. of Bloomsdale spinach seed.
Water Valley, N. Y., Feb. 26. E. GRESSMAN.

Dear Sirs:—Find inclosed \$1.00 for 8 lbs. of Bloomsdale spinach seed. I got 16 lbs. of you a spell ago, so I thought you would give me the 8 lbs. at 10-lb rate.
Water Valley, N. Y., Mar. 30. ELMER GRESSMAN.

The orders were filled promptly, and nothing more was thought about it until the following came to hand:

Sirs:—The 16 lbs. of spinach seed I received from you in March is no good; and the worst of it is, I recommended your seeds to my neighbor, who took 10 lbs. It is going to be a hard blow on him, as by sowing now we can not come ahead of the rush and get the high prices. It may make half the difference. When I discovered the seeds were not good I would rather have lost \$10.00. I wouldn't have felt as bad, but I insisted on this man getting his seeds from you—that your seeds were reliable, and you used the same seeds you sent out, and knew what they were. It puts me in a nice place, you see. The first seeds he got were not good. It was only yesterday morning (Sunday) I found it out. I knew by driving about 30 miles I could get seeds even it was Sunday, so I concluded to go. Some of my people were opposed to it, but I said if I had to commit a wrong to make a wrong right I should do it, or to make right as much as I could my neighbor's wrong so he might have the seeds early Monday morning to sow, as it might rain Tuesday and Wednesday, and even longer, and away goes his crop.

I borrowed the money to get the seeds. My loss, besides, on the crop, is \$2.00 for seeds; 31 cts. for freight; 10 cts. for letter and sending money, making \$2.41. I replaced my neighbor's seeds, whether I get any thing or not. I have made up my mind never to recommend any more seeds no matter who the firm is. If I had let this man get his seeds where he wanted to, they would have been nearly up now, and would be several days ahead in the market, hence the difference in the prices.

It is difficult for me to understand how people can put a worthless article on the market to get good money for it. The second lot of seeds I sent for are coming all right.
ELMER GRESSMAN.

Water Valley, N. Y., April 24.

You may be sure I was a good deal worried when the above came. Our readers are perhaps aware that most seedsmen decline to be responsible any further than that they will replace any seed after they have had good evidence that it is bad. But this was a more serious matter, a good deal, than simply the value of the seed. I find by the copy-book I wrote promptly to friend Gressman as follows:

My good Friend:—I am exceedingly sorry for all the trouble you have had; but you are certainly mistaken in saying the spinach seed we sent you is not good. We sowed the same seed in the greenhouse, and it came up beautifully, and we are now gathering the nicest spinach we ever raised. There was certainly some other reason besides the quality of the seed for your failure. We will at once plant some more of the seed outdoors, and will report to you later how it comes up. If we sent you poor seed I will try to make good all you are out of pocket in the transaction. I do not see how there can be any mistake, because we bought 50 lbs. in one lot last fall. We sowed some of it then and some more of it in February in the greenhouse, and it is certainly all right with us.

A. I. ROOT.

Permit me to say in regard to the above, that I am not in the habit of *promising* to make good the consequences of poor seed. Any seedsman, or, in fact, almost anybody else who considers this matter, will see how impossible such a course would be. But friend Gressman's letter has the impress of truth on it. The circumstances are peculiar. He tried to do a neighbor a favor, and got into trouble. He promptly replied to my letter above as follows, giving still further particulars:

We sent to you for 16 lbs. of spinach seed in the first lot, but we found we were not going to have enough, and then sent for 8 lbs. later. We did not expect to receive that in time to sow with the first lot; but the weather did not become favorable until we had received the second lot, so we sowed about 4 lbs. of the first, and then could not sow again under four days; then we sowed the rest of the first seeds, and finished out our field with the second lot. It is all in one field, nearly square and level. The same fertilizers were used over the whole field. All was sowed by hand. Now, can you tell me the cause of the first lot not coming up, even that sowed the same day as the last lot of seeds? Neither of the first seeds sprouted, and the last lot of seeds was nearly up, and that lot is now coming up nicely. My neighbor's seeds were from the first lot, and sown the same day the last of mine were. His was not sprouted, but sown with a drill. We opened seeds, and they looked white, hard, and mealy, the same as slacked lime after it has baked and is broken apart. I will try to send you some of the seeds if I can get them. Mine were all sown, but my neighbor had some left, I think.

Water Valley, N. Y., Apr. 25. ELMER GRESSMAN.

It turns out, as you see, that the last 8 lbs. of seed was certainly unlike the first 16 lbs.; and this would indicate that of the two lots we bought last fall one was good and the other bad; but we felt sure we had tested both kinds, and both germinated all right. I find I wrote as follows:

Dear Sir:—Yours of April 25 makes it a little easier for us to get at the trouble. Last fall, when spinach seed was very scarce, we bought 25 lbs. of a man we have never bought spinach seed of before, and the sowing we made last fall we suppose came from this 25 pounds, but it is possible we made a mistake. Later we got another lot of California grown, of 50 lbs., and I think your last 8 lbs. must have come from this lot. I am very glad to know that at least one lot came up nicely. Will you please tell me if it is really a fact that none of the bad lot has come up at all? Is there not any part of the field or any part where it has come up partly? Also please send me some of the seed by mail if it is a possible thing. The strangest part of it is we have never had a complaint from anybody else, but we may get one later. It is remarkable to have spinach seed that won't grow at all, for it is very hardy, and ought to come up, even if it is several years old. And now, friend Gressman, I wish you and your neighbor would get together and figure out what your loss is by this bad spinach seed. I am afraid from the present outlook it will have to come out of my own pocket, for at present I could not take oath as to which of the two growers it came from. If somebody else reports bad seed, perhaps I can get at it, but I am the responsible party, any way, and I want it to be my loss instead of yours. Please tell me what I shall do to make both of you satisfied, and I will try to fix it up some way. It won't do for a seedsman to advertise that he will make good all blunders, because he might get imposed upon; but I know you are telling the straight truth about this whole unfortunate transaction.

A. I. ROOT.

He replies to this last, sending us a sample of the bad seeds, which we planted at once in the greenhouse. Market-gardeners will readily understand that the above statement is by no means exaggerated. I have known not only the loss of one day, but the loss of only two or three hours, to make a difference of several dollars in the value of a crop. Sometimes somebody has borrowed our tools, may be without getting permission; and just when every thing is ready to plant, the seed-drill is gone. Sometimes we are interrupted by the weather, or, more perplexing still, by somebody's stupidity or half-heartedness. Nobody thinks of what the little trifle cost till we come to harvest the crop.

There is something very strange about the way things sometimes turn out. The man who is abreast of his work, and is ready to take advantage of a little spell of good weath-

er or any thing else that comes along, makes a profit where his unfortunate neighbor makes a sad failure. Later, friend G. writes:

Sirs:—Yours of Apr. 27 is at hand. If you have not received the seeds I will send you more. Only a small percentage of them came—not half enough to warrant a stand. If half or even less came, we could have left it. I do not think over 10 per cent came. As to the damage, the price of seeds and extra trouble, I care nothing about. It is to get the first in market. We are a few days earlier than those near and around Buffalo in preparing the soil. We made extra calculations, and partly prepared the soil last fall in expectation of having an early crop. If it had been seeds of some other sort, where a few days does not make so much difference, it wouldn't have mattered any. That is why I was so disappointed, as spinach requires a very short time to grow. I should have tested those seeds; but as you have so many times stated in GLEANINGS that you tested your seeds and know what they are, etc., that is why we did not test them, having so much confidence in you, for you claim that has been the secret of your success in business, by gaining the confidence of the people. Now, this is no blunder of ours, but it is on your side of the house. It is really neglect and carelessness, and neglect in not living up to what you preach or advocate to the world, so it seems we ought not to be the losers; still, I have asked nothing, and do not know that I shall. It seems to me I can not feel satisfied to take any thing, because I believe it was not intentional on your part to get good money for a poor article. If such was the case I could have the heart to take all I could get.

I have written as I have because of what I read in GLEANINGS from time to time in reference to your seeds.

The damage could not be estimated until after marketing, so we could not make out a bill as you requested. I am going to leave the whole matter to you.

Water Valley, N. Y., May 3. ELMER GRESSMAN.

But please notice what a very kind and friendly letter this last one is. I should like to have such a man for a neighbor, even if he does bear down hard when things go wrong. He has never told me he is a Christian, but yet I think I see the spirit of Christ in his letters, even if he *did* go away on Sunday to get some good seed to help his neighbor out of trouble. If he is not offended when he sees his letters in print I hope he will tell me what he had to pay for the good spinach seed. The following is a copy of the last letter I wrote him:

Friend Gressman:—I thank you for your frank outspoken letter in regard to that spinach seed. We did make a test of the seed when we first got it, or at least we supposed we did; but we are now forced to conclude the seeds we used for test came from another lot grown in California. This lot was all right, and was the same we sent you last. It was either as above or else the seed was good last fall, and deteriorated during the winter, which we can hardly believe. I am sorry you and your friend do not agree on what amount would make up for your loss. You see it is next to impossible for me to guess at what the amount ought to be. I will write the man who sold us the seeds, and see if I can get him to help me stand the damage; and when you market your crop I wish you would tell me how much you are probably out. It is my blunder—that is, so far as I can see now, I admit, and I will try to shoulder it. After this I will try to see with my own eyes to the testing of every lot of seeds we buy. We are sowing spinach every little while, in both fall and spring, and sometimes in winter, for we grow it in the greenhouse, and transplant it, so I felt sure when I said so that we had given the seed sent you a test.

A. I. ROOT.

Now, several days after this letter had gone, something *else* unexpectedly turned up. When I sowed the seed I did not suppose it would come up at all; but after my last letter had been written, and after a little longer time than it usually takes spinach seed to germi-

nate, one of the boys told me that the bad spinach seed was coming up all right *after all*; and then I felt satisfied we *did* test both lots of seed last fall, but did not notice that one was slower to germinate than the other. In fact, in our seed-tests we have not been in the habit of noting exactly how many days it takes seed to come up. We have noticed, however, that the old seed, as a rule, comes up slower. After it came up we took the bad seed and counted out three lots of 100 seeds each; but even during this warm May weather, with such a genial shower as we are having to-day (May 8) it would be nothing strange if the objectionable seed should behave very fairly, when the same kind of seed would not come up promptly, and a good percentage die, during the cool and comparatively unfavorable weather in April.

My good friend Gressman suggests something that I have been long considering. Have I really *any business* to undertake to sell seeds with all I have on my hands, especially since I am getting well along in years? But after I give it up, may not somebody else manage it *still more* poorly than I have done? I think you would, as a rule, have to pay higher prices than I have been charging you; but if you get better seeds, perhaps you had better pay higher prices; but if you pay the higher prices, do you get seed that is up to all the requirements we have been considering in the above transaction? I have traded more or less with the large seedsmen of the United States, and I do not know of one whose seed is *always* exactly what it ought to be in *every* respect. Before the seed is offered for sale it is invariably tested by all of our great seedsmen. They are *sure* it germinates—perhaps a good fair proportion of it, but it is not always new seed of the last season's growth. Friend Black and others have told us that they do not dare risk celery seed and lettuce seed that was not tested the season before. Two-year-old seed is the only thing they *dare* use. My impression is that spinach ought to be grown the season before. Well, the seedsman can make sure the seeds will *germinate* promptly, and a goodly percentage of them. But this is not all. I once sold a man 20 cents' worth of celery seed that had been tested in our greenhouse. It was all right in regard to germinating, but it produced red celery instead of Giant Pascal. If I remember correctly I paid him about \$10.00 damages for that one twenty-cent deal; but if I am expected to do business that way right along, I should very soon go out of the seed business. You may say it served me right for purchasing seed of an unreliable party. But, hold on, friends. The celery seed was purchased of a well-known and reliable seedsman. Just before the concern became bankrupt, they sent out poor seeds for the first time. In spite of any thing that we can do, old reliable firms every now and then become bankrupt, and we must get along with the consequences as best we can. Where both parties in all these transactions have the spirit of Christ Jesus in their hearts, the spirit of fairness, of peace and good will toward their neighbors, as in the language of

our texts, it is a very easy matter to settle differences. And this spirit of peace and good will is contagious. Thank God that it is so. Our friend says in his letter, "It seems to me I can not feel satisfied to take any thing, because I believe it was not intentional." Then he adds something I do not like quite so well: "If *such was* the case, I could have the heart to take all I could get." Dear friend G., the Savior admonishes us to love our enemies—to do good to those who hate us. He did not just exactly say we should do a kindness to a man who has deliberately *cheated* us; but I think it includes that, at least in a measure. He did admonish us in another verse not to cast our pearls before swine—that is, we must not become reckless or foolish. We should study carefully the person we are dealing with; but if we make any error, dear friends, I am very sure it is best to err on the side of charity.

Better do a bad man a kindness, even if it should be like casting pearls before swine, than to conclude hastily that somebody who means to do right has been trying to cheat you.

One more thing: The hard-working market-gardeners or bee-keepers are, as a rule, fair and honorable men. The man who never works if he can help it—the tramp, the frequenter of sa'oons—are the fellows who have no scruple and no conscience. They have no scruple about lying and cheating whenever a chance offers; but the man who gets up early in the morning, and works all day, in all kinds of weather, is, as a rule, one of God's noblemen. Sturdy toil seems to develop manliness and good sound common sense. Oh how I do love to meet *manly* men—those who are never afraid to have their acts or lives held up for investigation—those who *prefer* to earn their bread by the sweat of their faces!

Now for the golden rule. Friend Gressman and his neighbor got some poor seed because I was trying to find out where I could get seed at a price that would not necessitate advancing prices in the catalog—yes, and I did get it too. The California-grown seed is as nice as any I ever planted; but before I got that it seems I got hold of something that was not so good. Now, the golden rule would settle every thing in regard to what is right in such a matter, no matter if the market-gardener is poor and the seedsman rich; in fact, the seedsman who is well-to-do can all the *better* afford to do exactly as he would be done by; and if both parties seem willing to shoulder their part of the loss, then the market gardener should ask no more than he would be willing to pay if things were changed about, with the seedsman whose seed caused a failure of the crop. It is a pretty hard stretch on the average man to expect him to do exactly unto others as he would that others should do to him under like circumstances. But there *are* men who do it—yes, thank God, there are thousands of them, and they do *not* get into the poor-house by so doing, either. Did not *Jesus* say,

Give, and it shall be given unto you; good measure, pressed down, and shaken together, and running over, shall men give into your bosom?—LUKE 6:38.



BENEFITS OF SHADE.

There are times, during the extremely hot months of the year, when shade in the middle of the day is, without doubt, a benefit. Of course, we can not shade ordinary farm crops—that is, not in the same way we would provide shade for plant-beds or for limited areas where the crop is very valuable. For two seasons we have lost our Columbus gooseberries because they were literally cooked or baked by the hot sun at just about the time they were ripening. A baked apple is a very good thing; but a baked gooseberry—that is, one baked by the sun before it is fully ripe—is not particularly “to be desired.” While in Florida I studied the shaded gardens round among the tall palm and palmetto trees; and since so much interest has been manifested in ginseng, our people here in the North are making their beds out in the woods; but to do this we must make a trench clear around our plant-beds, every year cutting off the roots of the forest-trees that intrude. If you try growing garden stuff by making the ground very rich near any fair-sized tree, you will soon find that trees of any kind know “a good thing” when they find it. A market-gardener who realized the advantage of shade for celery-plants (just as we do) made his bed in the shade of some early cherries. The trees had never amounted to very much before; but with the rich soil and constant watering he not only had an enormous crop of cherries, but the cherries themselves were enormous. Lots of water and rich potting soil will make any fruit-trees do wonders. You may remember I mentioned about my neighbor Mr. Green, who had a mulberry-tree standing close to a little fountain in the midst of a flower-bed. The mulberries were so large I wanted a graft from that tree, and the tree kept growing berries right straight along during the whole summer season. He put in good drainage for the overflow of his fountain, and the ground was kept pretty well soaked all summer long. But it is expensive business to keep up both water and fertility. May be, with the cherry-trees it would pay, and they would give you just the right kind of shade. The above is to remind you of what you may expect if you use *growing trees* for shade.

Friend Slack, in criticising my flat-roof greenhouse, hinted at the effect of the hot sun, not only in June and July, but even earlier. Well, this season, even when we were having a severe frost every night, the sun was so hot in the middle of the day that it just scorched and roasted things. I began to wonder why I could not grow plants during the latter part of April as successfully as I did in December and January. Well, I decided that it was largely owing to the fierce sun at noonday. After I made some cloth curtains to roll up, supported on rods just below the glass, there was a marked improvement. It is some work

to roll up and unroll six curtains once and sometimes twice every day; but it just makes the “posies” smile, and the tomato-plants and cabbage-plants also. For instance, when you take a lot of plants out of the seed-bed and put them into a larger bed in the greenhouse, the sun must be kept off until they have got started enough to stand alone. A curtain comes in very nicely, and especially where we have six curtains, for then we can shade any particular bed or half a bed, letting the sun shine on all the others. Some plants will stand the sun—colei for instance—when they get well rooted; but others, like the begonia, will show scorched leaves around the edges, and finally die outright if you do not give them a shady place in the middle of the day. Just group your plants together that are to be grown in the shade, then you can manage nicely.*

In the open air we have been in the habit of shading plants with cotton cloth; but sometimes you want a shade when you do *not* want a confined atmosphere. And then, again, suppose a summer shower comes up, and you are not just on the spot. Your cotton cloth should be out of the way as soon as the first raindrop falls; and if the sun comes out again, with fierce heat, in a short time you will want your cloth rolled back. In order to avoid so much manipulation, the people who grow ginseng have a slatted roof over the beds, such as I told you about, that are in use in Florida and California, where they not only cover an acre, but gardens of many acres, with a slatted roof. This same slatted roof protects orange-groves from the frost. Well, for small gardeners the ginseng book describes and recommends a lath screen. Take common plasterer’s lath, placed an inch apart, then nail a lath across the ends; and in order to make the thing stiff and substantial, put a third lath through the middle. Weave this middle lath in and out, basket fashion. The ginseng book recommends beds 4 feet wide; but as the standard width for market-gardening is 6 feet, I would have these slatted shutters made the whole dimensions as our hot-bed sash—6 feet long by $3\frac{1}{2}$ feet wide. Then they can be used interchangeably. Nail your laths together with nails that will clinch; and to make them more substantial, sometimes a brace is put on diagonally. These slatted frames will let enough rain through to answer almost as well as if they were off entirely; and they never need to be taken off the plants unless you want to gather a crop or work among the plants. The author of the book on gin-

* These cloth curtains just under the glass are also a great protection against frost, and I think they might be so managed as to save a large amount of fuel in severe weather. We had a spell of weather in April when we found it profitable to cut off the sun along in the middle of the day. About three o’clock the curtains could be rolled back so as to give the plants sunshine until daylight disappeared, then the same curtains were unrolled again to keep the temperature of the greenhouse from going too low during the night. As soon as the sun began to peep through the glass next morning they were rolled up until the rays began to be too strong, and so on. This is some work; but it is not less work than to fire up and warm with hot water or steam-pipes? If you whitewash the glass you can’t have the sun during cool weather and cloudy days, oftentimes when it is *very much* needed.

seng culture, Morris C. Kains, who has furnished bulletins for the United States Department of Agriculture, gives us a short talk on the subject in the *Mayflower* for May. We copy it below:

SHADING MIDSUMMER LETTUCE.

In this climate it is seldom that the gardener can raise lettuce during the summer months without the development of a marked bitter flavor, and without great risk of loss from the plants going to seed. The cos varieties are less liable to these faults, and it is, therefore, somewhat singular that they have not come into more general use, particularly since they are naturally of finer flavor and texture. It has been found, however, that growing the plants under lath screens during the hot months has a marked influence for good upon flavor and texture. Grown in this way, the ordinary good market varieties compare very favorably with the crops raised at more congenial seasons.

The best screens are made of laths nailed at their ends to single strips, and made firm by weaving a lath across the middle. Spaces an inch or so wide are left between the laths so as not to exclude the sun's rays wholly. These screens, which are made in four-foot sections, are placed upon posts over the beds as soon as the seed is sown, and, if exposed to the action of severe winds, are tied or wired down. In even the most unfavorable seasons the seed will germinate far better than in the open ground, and superior lettuce can be grown under them when the plants unshaded will be a total failure. The same remarks may be made as to the cultivation of spinach and Swiss chard.

SCABBY POTATOES—HOW SHALL WE GET RID OF THEM?

In view of the fact that scab may knock off half the value of a crop of potatoes, it is exceedingly important that we know how best to avoid it. Treating the seed with corrosive sublimate is a perfect cure so far as my experience goes—that is, with the seed. Formalin may answer as well, but it has not with us; but we have tried it only once—last season. My impression is, that scabby potatoes are just as good to plant as any if treated with corrosive sublimate; but if your ground has produced scabby potatoes in former years, you are likely to have them so again, no matter what seed you use, unless you use some precaution. At the present writing, plowing under green crops, especially rye, is the best remedy I know of. From a recent number of the *Rural New-Yorker* I extract the following:

THE SCAB ON POTATOES; CURIOUS AND CONFLICTING RESULTS; WAS IT THE LIME?

Two pieces of ground were planted with potatoes last season, both of which had been previously used for growing onions. One of these pieces had been somewhat heavily manured with stable manure annually for the last five years, growing a crop of onions every year. The other had grown two crops of onions, and, previous to the first crop, had grown a crop of cabbage, at which time a light dressing of stable manure was applied, and also a coat of lime. The two crops of onions following this crop of cabbage had been grown by the aid of fertilizers alone. Last spring those two pieces were planted with the same variety of potatoes, New Queen, from Aroostook County, Me. The soil was perfectly free from scab, but at digging time the discovery was soon made that on the piece manured with stable manure for five consecutive years the tubers had no trace of scab while the other piece, with only one light dressing in that time, had scarcely a bushel of good potatoes, free from scab, in the whole field. The seed and soil were the same in both cases; in fact, there was only a 12-foot driveway between the two fields. How are we to account for the great difference in results, if, as generally supposed, stable manure is such a great promoter of scab? I present the facts as they are, in the hope that abler minds than mine may solve the problem. I will only add that the manure used was the same in both cases, having been got from the same source. My own conviction is, however, that the

dressing of lime applied in the rotation had probably neutralized the acid conditions of soil to such an extent that the development of such germs became a possibility; for it appears to be an established fact, in the minds of those best informed on such matters, that an acid condition of soil is fatal to the scab germs.

A GREEN CROP HELPS.

I have in a small way experimented with green crops plowed under while still green, and, as far as I have gone, it seems highly encouraging, inasmuch as the litmus test shows decided acid conditions. We think a crop of 800 bushels, once in two years, more profitable than half that quantity every year. The area of available soil being somewhat limited, we sow a potato-field with rye as soon as the crop is removed, say during the month of August. The following spring, the latter part of May, after planting is done, this crop is turned under and cow peas sown, two bushels per acre, with sufficient fertilizer applied to grow a crop of potatoes. The variety of cow peas sown is the Wonderful. I have wondered why it is that the people at Hope Farm prefer the Black, when the Wonderful makes so much more growth to turn under. Just before the frost cuts the vines, the whole crop is turned under with an Oliver Chilled No. 70, and a rolling coultter and chain. Rye is sown at this time, and turned under the following spring for potatoes. As I have already stated, the experiment, as far as I have gone, promises to be highly successful in more respects than one. An immense supply of humus being formed in the soil that last season, enabled us to harvest a fine crop without a soaking rain from start to finish. Another season I shall be able to speak more positively regarding the matter. The sulphur cure has been a disappointment with me.

M. GARRAHAN.

The above indicates that stable manure is not necessarily productive of scab, provided plenty of green rye is plowed under; and it indicates, too, that lime is almost sure to encourage the production of scab. From what experience I have had I am inclined to think that ashes act very much as lime does. Our wood-working rooms now furnish almost fuel enough to run our boilers. The result is, we have toward a ton a month of wood ashes to be applied to fifteen or twenty acres. I am afraid to use them all, even if applied to clover, to be followed by potatoes.

Can anybody who sees this tell us more about it—that is, whether ashes applied to clover would produce scabby potatoes? Perhaps if we plow under as much rye as Mr. Garrahan does it might be all right.

CIGARETTES AND THE WEATHER BUREAU.

You may be sure that I said right out loud, "May God be praised!" when I found the following in our Cleveland daily a few days ago:

MUST NOT SMOKE CIGARETTES.

AN ORDER TO MEN IN THE U. S. WEATHER SERVICE.

AN ORDER ISSUED BY THE CHIEF WHICH, HE SAYS, MUST BE OBEYED.

Washington, March 25.—A death-blow was given cigarette-smoking in the weather service Saturday when Chief Willis L. Moore issued an order prohibiting persons connected with the service from smoking cigarettes during office hours, and stating, further, that those who smoked cigarettes at any time would be mentioned in the confidential reports, which are made quarterly to him by chiefs of the several offices and divisions throughout the entire service.

The order is plainly worded, and the chief evidently means that it shall be obeyed.

Chief Moore said to day: "The order was issued after careful consideration and a thorough investigation of the evils resulting from cigarette-smoking. In this service we are compelled to maintain a very strict discipline in order to secure satisfactory service. Some

of our men who are regarded as the most thorough and competent, doing every detail of their work with the utmost promptness and accuracy, gradually became careless and lax. I sent inspectors to investigate, and in a number of cases it was found directly attributable to the use of cigarettes, I am not prudish, nor do I wish to assume any authority whatever over any privileges which employes of the service should have, but as a public servant I feel that it is my duty to correct any evil which may exist, even if in attempting to do so it may be claimed that I am overstepping my authority. I can state most emphatically that the order will stand, and it applies to the entire force of the bureau throughout the entire service. Cigarette-smoking must cease.

Willis L. Moore has always seemed to me to be a very level-headed sort of man. He has backed me up most substantially in showing up the quack weather-prophets; and when I found he was with me on cigarettes it seemed as if a glimpse of sunshine was coming along through our government work, especially through the Weather Bureau, if no further. And, by the way, there is something a little funny in regard to ruling out cigarettes. The chief of the Weather Bureau has found out that the men who smoke cigarettes deteriorate rapidly (how about letting immature boys use the same things?). Well, a while ago, when I protested because the government put out a bulletin telling our people how to grow tobacco, and even make cigarettes, a government official answered me to the effect that it was better to give the boys pure tobacco, if they would have it, than any substitute or adulterated stuff. But when I submitted the matter to United States Chemist Wiley, he was frank enough to declare he did not know any worse drug for either children or grown-up people than nicotine itself; and then some other chemists in our big cities (employed by tobacco-dealers, no doubt) declared, after having analyzed cigarettes found in the general market, there was no opium nor any drug of any kind in the cigarettes except tobacco. If this is true, why has the chief of the Weather Bureau made the above decision? There is something rickety or loose somewhere. But we can rejoice any way that cigarettes are for the present ruled out among those in the employ of the Weather Bureau of the United States.

PROF. WELTMER, OF NEVADA, MO.

If I am correct, GLEANINGS was one of the first to pronounce this man and his whole force, with all his outfit, as simply "robbers of sick people." When some of the Christian papers followed suit and exposed him, he sued them for \$20,000, and gained the suit. The town of Nevada backed him up, because, as they said, he had built up the town more than any other business enterprise that was ever started in that vicinity. I sent for his circulars, as you may remember, and also procured terms for instruction in the art of divine healing. These I forwarded at once to the Postoffice Department at Washington, asking why such a business should be permitted to use the mails. As I heard nothing further from it I began to fear the "healing" business was getting to be so thoroughly entrenched with the piles of money they were making, that they were something like the liquor-trust; but, may the Lord

be praised, there is a limit to this kind of raciality. The following, from the *Chicago Daily News* of May 5, tells us about it.

BAN ON DIVINE HEALERS; POSTOFFICE TO ISSUE ORDER DEBARRING THEM FROM USING THE MAILS.

New York, May 5.—A special to the *World* from Washington says that divine healers have come under the ban of the postoffice department, and in a few days an order will be issued debarring them from the use of the mails. The department has been gathering information respecting their methods for a month, and it is now so well conceded that their business is illegitimate that it is the purpose to institute a general raid.

The matter was first brought to the attention of the department by complaints from Nevada, Mo., where Weltmer, a so-called divine healer, conducting his business by mail, endeavored to collect payment for continuing to treat a patient after the patient was dead. Further investigation showed that he had attempted this in several instances, although, of course, he was not aware that the subject of his "absent treatment" had succumbed to disease.

Prof. S. A. Weltmer is president of the American School of Magnetic Healing, which is located at Nevada, Mo., and organized under the laws of that State. He claims to have treated 53,000 patients without personal consultation, and to have cured all but twelve.

The postal authorities have notified the officials of the Nevada school to appear on May 12 and submit arguments to show why a fraud order should not be issued against them.

Nevada, Mo., May 5.—Postmaster McAultry is in receipt of a telegram from the postal authorities directing him to hold all mail addressed to the Weltmer institute. As a result the American School of Magnetic Healing has laid off all its employees, and will do nothing further until the United States courts dispose of the fraud charges against the managers.

The Weltmer-Bishop trial, wherein Prof. Weltmer sued a Methodist minister for \$20,000 damages for making charges against the school, is said to have led to the department's investigation of the school's methods.

Let me say, in reviewing the above, that numbers of good honest people—yes, good Christian women—insisted that Weltmer was honest, and did a good work. One person put in a plea for him on the ground that Jesus himself said that his followers should do even greater things than he had done while here on earth; but if Weltmer is to be called a follower of Christ Jesus, may God help us. It never occurred to me, when I was denouncing the absent treatment, to assure people the doctor would keep right on after his patient was dead, for he would have to be a prophet indeed to know when said patient was gone, a thousand miles away. And now it turns out that he not only kept on the treatment, but tried to collect payment from a dead patient! And this lets out another fact: The absent healers do not *always* stick to their rule, "strictly cash in advance."

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