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GLEANINGS

IN BEE CULTURE

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GLEANINGS OF
BEE CULTURE

A JOURNAL DEVOTED TO BEES AND MONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
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No. 3



HUBER, page 72, raises a question that makes me think he might be suited with Arthur C. Miller's cover made of cheap lumber combined with cloth, paint, and paste. I believe it's a good cover.

E. D. TOWNSEND says in *Review* that, when a man talks about increasing his yield by stimulative feeding and spreading brood, it shows his location is not properly stocked. "Just add a few more colonies, and the result will be the same."

I THOUGHT I had reached the limit of simplicity in my hive-stands. E. F. Atwater describes his in *Review*, and I must confess he has gone beyond me, and, what's more, I think his are better—just a plain rim of 1x4 fencing, large enough for two hives.

A. I. ROOT takes up a page or so talking about automobiles, and is evidently a little disturbed because it may be thought out of place in *GLEANINGS*. Don't you worry, Bro. Root. Not one in a thousand of your readers has an auto, but a whole lot of us are looking forward to the time when they will be so improved in performance, and so lowered in price, that we can no longer afford to keep horses. Give us all the encouragement you can.

MORE THAN ONCE I've seen the North American spoken of as the largest organized association of bee-keepers in the world. I think more than one beats it. Only yesterday I was reading in an Austrian journal about their association nearing 8000. [Just after that editorial had gone to press I recalled to mind that there are organizations in Germany that probably have a larger membership; but somehow we do not hear about their kicking up very much dust.—ED.]

DER DEUTSCHE IMKER AUS BOEHMEN contains the statement that there are in Germany 20 manufactories of artificial honey, and a single one of them sells three times as much as the natural honey of all Germany! Is it as bad as that in this Yankee-tricky country? [It seems to me our esteemed cotemporary must be exaggerating. Such statements sound a good deal like the old Wiley lie of years gone by. Certainly it is not as bad in this land of Yankee trickery.—ED.]

MADAME SALLEROI is the name of a geranium in common use for borders. I never saw any flowers on it, but the foliage is beautiful—green and white. Sometimes there will be a branch whose leaves are all pure white. Years ago I thought it would be a nice thing to have a plant all white. Attempts to root a white slip always ended in failure. To make a sure thing of it, I took an established plant with a strong root, and broke away all branches with any green, leaving the one branch that had only white leaves. It died, root and branch. The leaves couldn't support the root without having in them that green thing talked about on page 77—*chlorophyll*. [See reference to "avocation" in footnote to the last *Straw* in this issue.—ED.]

DZIERZON, notwithstanding his burden of 93 years, is keenly alive to what is going on in the apicultural world. In the January *Bienen-Vater* he seems to chuckle over the black eye given to Gerstung's theory, that food for larvæ of different ages is prepared by nurses of corresponding ages, and that, as soon as a nurse-bee becomes a fielder, it has no longer the ability to prepare larval food. Word was given to all the Swiss experiment stations by President Kramer to establish colonies containing field-bees only. These old bees nursed brood, secreted wax, built combs, and behaved as in normal colonies. [Somehow I have great respect for one who, at 93, seems to be in possession of all the mental powers that characterized him in his younger days; for he is remembered that Dzierzon is the Langstroth of Germany.—ED.]

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"WHERE ONE KNOWS how to manage," Geo. W. Phillips says, one needn't imprison nuclei to make 'em stay, p. 79. Please tell us so we shall know how to manage. There's some good stuff on page 80. [Mr. Phillips has gone to school, and so is not here to answer your question; but from what I know of his methods I think he meant the giving of hatching brood, and a larger proportion of *young* bees to the nucleus, to avoid the nuisance of confining a few days. The methods described by Mr. Phillips are those that have been tested over and over again, season after season, in comparison with other methods, so that we believe one will not go very far astray if he follows us implicitly. Rearing thousands of queens, as we do, we feel that we can speak with some authority.—ED.]

"IT IS JUST as easy to produce sections averaging 16 ounces as those that average $14\frac{3}{4}$ ounces," p. 65. True for you, Mr. Editor, for one is just as impossible as the other. Seasons differ, localities differ, colonies differ; and with exactly the same management on the part of the bee-keeper there is no certainty of having them twice alike. [You are too mathematically precise in constructing the statement. It is well known that a $1\frac{1}{8}$ beeway section will come very near a pound, but not quite, on the average. The two-inch will reach it, some sections being a little over and some a little under a pound. What I meant to say was, it is just as easy to produce a section of honey weighing approximately a pound as one that always runs short of it. Of course, I understand that the management, season, and bees may change these averages somewhat.—ED.]

I WONDER, now, I wonder, if there isn't some mistake, p. 64, where the editor thinks he saw my double covers slightly warped and checked, and A. C. Miller says they twist badly. Seems to me I ought to have noticed it. Remember, there are two thin boards or series of boards with grain running in opposite directions. If nailed firmly together, how can one warp without making the other warp the wrong way of the grain? [No, I do not think I was mistaken. If you will remind me the next time I visit you, and let me look over your covers, I think I can show you quite a number of them that are slightly warped and checked. Of course, A. C. Miller had not seen those particular covers that you have; but he has seen and tested the modified Miller covers, such as we have been selling. We use the very same principle in that the grain of one set of boards runs across the grain of the lower set, the whole being nailed and cleated together so that the warping and twisting tendencies are corrected as much as possible.—ED.]

WHEN I ASKED, p. 73, "Why is it that in Cuba the honey harvest is in winter instead of summer?" there was no joke about it. I was (and am) ignorant, asking for light. F. L. Craycraft says, p. 17, "We

are now at a date when a half of the crop should be harvested," and his letter is dated Dec. 21. I might think there was some mistake in that date; but immediately after him comes W. W. Somerford, who says bees are starving "right now during the time of harvest," and his date is Dec. 15. To clinch the matter he speaks of "the commencement of the honey-flow in October," and says, "the flow is over with March." If Cuba were in south latitude I could understand it; but it's 20 degrees north of the equator. The Gulf Stream does some queer things; has it any thing to do in the case? [In Cuba there are no frosts. It is a land of perpetual flowers. In summer it is too hot. In fall and winter it is just right for the best secretion of nectar. In Arizona the bee-keepers told me that nectar was not secreted nearly as fast on the hottest days as in more moderate weather. To answer your question directly, the Gulf Stream or some other influence has so tempered the climate that the calendar months have nothing to do with the honey-flow.—ED.]

EVIDENTLY you do not yet understand me, Mr. Editor, from what you say, p. 65. I do not think there is any thing wrong in producing or selling sections underweight, overweight, or any other weight. I don't think it's any worse "to buy or sell sections by the piece than to buy or sell eggs by the dozen." I think it is wrong to sell a light-weight section with the understanding on the part of the customer that he is getting a full pound. In all this you and I exactly agree. Here's where we differ: You think that consumers always understand, when buying light-weights, that they *are* light-weights. I think they sometimes buy them with the understanding that they are full-weights. I don't suppose there's as much of this as there formerly was, for in time consumers must learn what's what. But I think that the case I put, p. 96, shows that some of it is still left. When a grocer will not pay as much for 12 pounds of full-weight sections as for 11 pounds of light-weights, I'm afraid he expects and *intends* that at least some of his customers shall be deceived. I shall be glad to agree with you if you can explain the transaction so that it shall appear entirely honest. [I do not think we disagree very much, doctor, except that you appear to have the impression that many retailers sell by the piece with the *intent* to deceive. The full-pound section has been on the market so many years that the public must be very dull indeed if it thinks it is getting an even pound of honey when it buys a section for so much money. The original intention was to make a section that would weigh approximately a pound; but in practice it did not do so. The $1\frac{1}{8}$ and $1\frac{1}{8} \frac{3}{4}$ beeway sections were supposed at one time to do this; but we know that in actual practice they fell short. To remedy the difficulty by making the section full two inches wide only aggravates an evil that already exists

—that of making the cells too deep. In practice the bees seem to prefer a comb somewhat thinner for storage; but just how much thinner I will not attempt to say. The tendency at the present time is to make something weighing 14 ounces or less in order to get thinner combs—to make shallower cells in order to get better and quicker filling. Departing, as we have, from the exact pound weight for so long a time it is perfectly legitimate *now* to sell by the piece, just as we sell eggs by the dozen.

There can be no difference of opinion in regard to the grocer mentioned in your next to the last sentence. If he *intends* to deceive, then there is something "rotten" in his heart.—ED.]

A JOKE on the editor of *Review* is a little too good to keep. He heads an editorial, "Stick to one thing," and refers to 30 years of hard work fitting himself out in bee-keeping, and a little further along mentions incidentally that 10 of that 30 years he studied and practiced photography "just as you and I have studied bee-keeping—reading all of the journals and books on the subject." But it's all right, W. Z.; if a man sticks to one thing as a vocation, he'll do that one thing better if he has something else as an avocation. Moreover, you made photography serve you to do better work in your chosen vocation. [The average person, I think, does not discriminate between *vocation* and *avocation*; but as *you* use the term, and correctly, too, *avocation* is not a business or means of livelihood, but a delightful *diversion* from one's regular bread-and-butter work. The average person will live longer—certainly those who are engaged in professional work—if he can have something to relieve the strain on his mind, totally different from the train of thoughts that occupy his attention during the day of bread-getting. A. I. R. would have been dead long ago if he had not had some hobby to ride; and I fear that I myself would lose interest in bees very soon if I could not break the monotony once in a while by thinking about cameras and automobiles. If you could hear father and me talk autos you would think we had found the "fountain of eternal youth;" and certainly it is a fountain to both of us. Photography has been one of my diversions; indeed, I believe it was I who urged on Bro. Hutchinson the advisability of taking up the matter of picture-making; and the next thing I knew he was at it as if it were his cooling stream of youthful vigor. As in the case of Mr. Hutchinson and myself, it has worked nicely along with our regular business—that of putting out illustrated journals. And say, doctor, while talking about avocations, diversions, and fountains of eternal youth, why couldn't you have told us about those roses and the posies, and other things that help to keep you young? In another Straw in this issue you almost go into ecstasies in telling about the geranium. Indeed, if I mistake not, you could hardly restrain yourself

from bubbling over a little more than you did; but you felt that you must confine yourself to beedom, and you do by offering a splendid illustration of the truth made by the French scientist in our last issue.

And speaking about diversions reminds me that Prof. George Frederick Wright, the world-renowned geologist, of Oberlin, was once a minister in a small pastorate, at \$600 a year. In his spare moments he found great pleasure and profit in studying the rocks in the neighborhood. He kept up these studies until scientific men came to know about him. He went to Oberlin, and there evolved his talks on the "terminal moraines" of North America from which new facts in the world's history have been brought forth. He has been sent to Alaska with a party of scientific men, and now he is recognized as authority throughout the whole world. *Avocation*—yes, that is what it was. If it had not been for hobby-riding, A. I. R. would still be a jeweler. Bees became with him an avocation, and after a time it became necessary for him to have another avocation—first, gardening, then greenhouses, bicycles, and automobiles.

Going clear back to Hutchinson and his avocation, you can not imagine how much pleasure he and I have had in talking over picture-making—negatives, developers, lenses, cameras, etc.; and when I see you I am only too sorry that I am not up on roses so that I can discuss this beautiful subject.

Perhaps this seems like a long footnote, and out of place in a bee-journal; but stop and think a minute. There are a good many *more* persons in this world who are taking up bee-keeping as an *avocation*, or *diversion*, than there are who take it up as a *vocation* or a means of a livelihood. Is there *any* thing in all this wide world that furnishes to the busy man—the merchant and the farmer, the lawyer and the doctor—any more *restful* thought than the study of bees? I am sincerely glad that I can help to create a new world of pleasure for tired brains.—ED.]



REVUE INTERNATIONALE.

In retiring from the editorial chair which he has filled so ably for the past quarter of a century, Mr. Bertrand makes a short review of his career as editor of one of the best bee journals in the world. As might be expected, his words are of special interest to his readers at home; yet I do not feel

that I am encroaching on valuable space in giving here a translation of nearly all he says as he lays down the scissors and the pen, especially as his work was, all this time, so ably seconded by the late Charles Dadant, of Hamilton, Ill.

At the moment of taking leave of my readers, it is incumbent on me to express to them the regret which I feel on leaving them, and to thank them for their support—particularly the subscribers who have accorded me their assistance from the very beginning, and who have remained faithful to the end; and also those who have contributed by their communications to augment any interest which the journal may have had to be able to offer.

I wish likewise to state here how much I am indebted to those of my colleagues who have aided me with their pen; namely, Mr. J. Jeker, the former director of the *Swiss Bee Journal*, who has enabled me to profit by his experience, and who was good enough to edit, the first year, the monthly calendar for beginners. Without his concurrence and encouragement I should not have dared to launch my modest *Bulletin*. Some of my original co-workers are, alas! no more in this world. My teacher, Charles Dadant, wrote for my journal up to the time of his death—that is to say, for twenty-three years. Mr. George de Layens sent me his articles for thirteen years, and Mr. Matter-Perrin did so up to a very advanced age.

More recently it was my dear friend Ulr. Gubler, the worthy president of the Societe Romande; then the eminent writer Mr. Crepieux-Jamin a great lover of the bees, and Mr. Camille P. Dadant, the son and associate of my venerated teacher, whom I called on, and to whom I extend my thanks for the service they rendered me in continuing my journal up to the present time.

If I take a retrospective glance over the field of activity covered by the *Revue* during the past twenty-five years, I find that, at its beginning, things were different from what they are to-day. The rearing of bees in hives having movable frames was practiced by but few persons, either in Switzerland, France, or Belgium. In France the bee-journal that was most widely read was still resisting the introduction of the new methods. To-day their superiority is no longer contested except by a few hold-backs. These new methods are indor ed in France by a score of bee-journals and by a dozen in Belgium.

My *Revue* was devoted to a description and recommendation of the modes of culture that were more practical and less complicated, without falling into an exaggerated simplicity.

It has made a deep study of foul brood; and the observations and researches which it has published on the subject have contributed in a great measure in rendering more effective the struggle against this pest of the hives.

By its numerous translations of works and articles in foreign languages, it has taught its readers concerning apicultural things in other countries, such as England, Germany, Italy, the United States, where the culture of bees is greatly developed. Likewise it has published two works from Thos. W. Cowan, the English apicultural expert, "The British Bee-keeper's Guidebook," and "The Anatomy of the Bee," besides a complete treatise on foul brood by Mr. F. C. Harrison, professor of bacteriology in Canada.

I have had the good fortune to publish a large number of unedited letters by Francis Huber, the eminent author of "New Observations."

Finally the *Revue* has made its organ of the Societe Romande d'Apiculture, whose proceedings it has published.

When in 1887 I adopted for my journal the name it now bears, *International Review*, which name was suggested to me by Mr. Gaston Bonnier, several of my colleagues in Switzerland made a little sport at that name, which they considered somewhat inflated. It has, nevertheless, been justified by communications which have come to me from all quarters of the globe, and by the number of countries where we have subscribers.

It remains for me to perform one more agreeable task—that of thanking warmly my brethren of the press, as well as many of my subscribers who have expressed to me their regret on the occasion of my retirement. I am greatly touched by the favorable judgment which they extend to my journal and to its director—a judgment which permits me to hope that my work will have contributed in some measure to the progress of apiculture.



PREVENTION OF SWARMING AT AN OUT-APIARY.

"Oh my! isn't the snow deep? Did you ever know so much in any winter before, Mr. Doolittle?"

"I think I did when I was a boy, Mr. Brown. But that was years ago, before you were born. But I never saw so much in the apiary here before. Even the roof to the bee-repository, doors and entrance, are all under snow. Just look!"

"Yes, I see. I find it snowed a foot last night; and this, on top of the two to two and a half feet we had before, makes a struggle for any one to go anywhere outside of the beaten paths and roads."

"Yes, and the roads have snow in them anywhere from two to ten feet deep, just in accord as the wind has piled it up. I thought yesterday morning, Jan. 13, it was going to thaw; but instead we have had this big fall of snow, and now the wind is coming west again for another cold spell. How did you enjoy the cold of the first of the month?"

"Enjoy it? Why, we could hardly keep from freezing. In fact, those three mornings of January 3, 4, and 5, when the mercury stood at 20, 21, and 20 degrees below zero, 'beat the record' here in Onondaga County. Then Monday, the 4th, it never got above 6 below zero, with the sun shining bright in the middle of the day. Why, on Monday night water froze on our stove, and that, too, with fire in the stove; and neighbor C. said some potatoes were frozen which were left in their oven, with fire in the stove at the same time."

"Tut, tut, that is entirely too fishy!"

"I did not say how much fire there was. I know that there were two coals as large as the end of my little finger buried down deep in the ashes in our stove, and I have told nothing but what can be proven by our oldest boy. But this is the first day of the bee-keepers' institute at Syracuse. Did you intend to go?"

"Yes; but on looking out this morning I saw it was going to be impossible to get six miles to the trolley, and now it is blowing a gale, which will stop all travel for the next 24 hours. But if you came over to talk bees we can have a bee convention all by ourselves, and perhaps get some profit in that way, though not as much as we would could we meet with the others at the convention. What shall we talk about?"

"The question I wanted to ask you is this. If you were going to run an out-apiary for comb honey, how would you manage to prevent swarming?"

"Well, that is quite a large question, and one I may not be able to answer fully. But as I have an out-apiary I can tell you how I manage that, if it would be to your liking to have me do so."

"That is just what I should be most pleased with."

"If I wish a small increase I proceed as follows: Placing a hive all rigged with frames filled with foundation or empty combs (or with only starters in them if it is preferred) on the stand of one of the populous colonies which I think may be preparing to swarm, I next set the sections from the old hive on the new, when I proceed to shake all the bees off their combs and out of the hive, letting them run into the new hive I have set on their former stand. I now place the combs of brood back in the hive again and carry the whole to the stand of another populous colony, setting this last colony on a new stand from 20 to 100 feet away, or distant from where it stood when I came to it. The sections are now taken from the moved colony and put on the hive of brood, into which the bees returning from the field are now pouring. When they find that this is not their old home they are somewhat homesick; and if their old home is nearer than 15 or 20 feet, many of the bees will find it, and, setting up the joyous hum of 'home is found!' will call the most of the bees away from the brood, which is not a desirable thing; hence I place the removed hive from 20 to 25 feet or more away if it is possible to do so."

"What about a queen for this made colony?"

"I generally carry along with me some nearly mature queen-cells, and give this made colony one of these in a queen-cell protector. This protector keeps the bees from destroying the cell till they realize their queenlessness, which happens a little before the queen emerges, so that, when the queen comes out, she is kindly received, and in due time becomes the head of the colony. In this way one new colony is made from two old ones; all desire for swarming is broken up, unless the season of surplus honey is long drawn out, while all three are in the best possible condition to store surplus after a week or so has elapsed."

"Then you would make such colonies about a week before the honey harvest arrives, would you not?"

"Yes; I calculate to do this from five to ten days before white clover is yielding honey bountifully, with all good strong colonies, leaving the weaker ones till about that much before the basswood opens."

"But, suppose you did not wish any increase."

"If I wish no increase I have a little different way of working, which is, to proceed as with the first colony till all the bees are off their combs and in the new hive, with the sections they were occupying on the new hive, as before stated. Then the hive of beeless combs of brood are set

top of another colony (with a queen-excluder between the hives), not quite so strong as was the one just shaken from their combs. This gives this colony so much extra room that they will not think of swarming for a week to ten days, notwithstanding the vast numbers of young bees emerging from both hives of brood."

"That looks reasonable. But go on."

"At the end of a week or ten days, as most convenient for me, I go again to the apiary and make these two-story hives swarm, or shake them as I did the one-story hive at first. This gives rousing "shook" colonies; and as this shake comes just at the commencement of the honey harvest, great results are often accomplished."

"I see. But what about the hives of broodless combs now, as you have two instead of one?"

"As the weather has now become generally warm, fewer bees are required to take care of double the amount of brood than was the case at the first shake, so these two hives of brood are placed on a still weaker colony, and a queen-excluder is placed top of the weak colony so that the queen will not have access to these combs, and thus the brood is fast emerging from them. In about two weeks these three-story colonies are shaken; and as this comes right in the very height of the honey-flow, and each three-story colony gives a great host of bees, they will do a work that will surprise any one not acquainted with what bees will do under such circumstances."

"Well, well! I am glad I came over, for it is easy to see how such a course would result in good yields of honey with no swarming. But what about the three hives of brood this time?"

"These are placed over one of the very weakest colonies I had in the spring, or, if none such are left, then a nucleus or two have been formed a week or more previous to take care of such combs of brood. And I often put the hives which come from two shakes on one of these weak colonies, putting the two hives the queen had access to on top first (using a queen-excluder on top of the weak colony so the queen has access to none of the combs put on), while the four hives having only advanced brood are put on last. In this way this weak colony can care for the whole seven stories."

"Whew! What a hive that would make! How do you keep it from being blown over?"

"Some props are put against it if in a windy place. Otherwise a ten or fifteen pound stone laid on top is all that is necessary."

"What is the further management of these seven hives all in one?"

"They are generally left as they are till it is safe to store away the combs for winter without fear of the combs being harmed by the larvæ of the wax-moth, for the preservation of the combs is the most we care for after the last shake. However, if the

flow from fall flowers is good I often have much honey in these combs for extracting, or for feeding purposes for any colony short of stores either in the fall or the next spring."

"Well, I thank you for this 'bee convention,' and I think I have learned something that will be of much value to me next year, as my great trouble with my out-apiary, which is worked for comb honey, has been swarming. With the one worked for extracted honey I have no trouble, for the comb room given them seems to be sufficient to keep them from swarming, except in cases of supersedure of queens; and where all young queens are at the head of all colonies, I have no trouble from that score."



FURTHER advices from Cuba and California go to indicate that the season will be almost an entire failure in both places. The probabilities are there will be very little Cuban or California honey, of this season's production, on the market. This will have a tendency to stiffen prices for next season.

W. F. MARKS, of Clifton Springs, has been re-elected president of the New York State Association of Bee-keepers' Societies for the seventh time, by a unanimous vote. He has been chairman of the board of directors of the National Bee-keepers' Association for two years, and during his term of office he has been an active and efficient worker.

A CORRECTION.

IN our last issue, page 80, the accompanying illustration should have been for

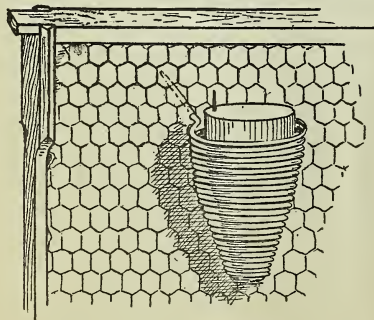


Fig. 10 in place of the one that did appear. In some way the cuts got transposed after the proofs were made up.

THE DZIERZON THEORY AND ITS AUTHOR.

AFTER my editorial in regard to Samuel Wagner was written I noticed Dr. Miller's Straw about Dzierzon, recalling to mind that the man is still living who wrote that book about forty years ago; and if it does not stand entire, clear up to the present day, it comes pretty near it. How I should like to take the old gentleman by the hand, and talk with him! That Dzierzon theory, coming out at the time it did, was to the bee-keeping world, on a small scale, what Columbus' discovery of America was to all mankind. Can not the whole bee-keeping world unite in a vote of thanks to this veteran before he is taken away?—A. I. R.

THE BOARDMAN HONEY CANDYING AT LAST.

IN the Sept. 15th issue of GLEANINGS, and again Oct. 15th, last year, I referred to some honey that Mr. H. R. Boardman had sent us in a jelly-tumbler, which had kept liquid for us for two whole years. During one winter it had been set outdoors on the sill of a window in my office, where it was subjected to all kinds of zero weather. I was surprised to see that, during the following summer, it was as clear as when we first received it. But we have been having exceptionally cold weather this winter so far; and this afternoon, Jan. 18, I accidentally cast a glance at that sample of Boardman honey, when, lo! it was *candied solid*. When Mr. Boardman wrote about it, Oct. 15, he said: "I am very confident—yes, sure—that I can do what I claim—put up honey that will remain liquid indefinitely—not almost but quite, and in any temperature." But, in the language of another, "the best-laid plans of mice and men gang aft agley." The Boardman honey stood it for two years; the continuous cold weather, however, often down to zero, was too much. The honey candied in spite of itself. It is so solid it can be put up in a bag, and be sent safely by mail.

But somebody—I think it was our friend Farmer, of Boston—said that a small per cent of glycerine would keep honey liquid indefinitely. Who has tried it? And that reminds me that I will put the thing to a test to-day. I will take a certain sample and divide it. Into one part I will put a small part of glycerine, and leave the other one as it is, and set them out on the aforesaid window-sill. More anon.

IMPORTANCE OF PUTTING THE HONEY ON THE MARKET EARLY.

WHEN I was east, visiting our agent, Mr. Wm. A. Selser, in New York city, he gave me a letter he received from a subscriber in Wisconsin, whom we will call X. Y. Z. About December 1, Mr. Selser received a letter from Mr. Z., asking him what he could get for about ten thousand pounds of comb honey, which was very nice. Mr. Selser said that he has tried continually to have the producers of comb honey realize the fact that the largest call for comb honey

is from September 1st to December 1st. *There is more honey sold in these three months than all the other nine months of the year put together*; in fact, he says the call is during these three months almost exclusively. He has been trying for years to have the producers of comb honey (which is produced generally in June and early July) get their honey crated up and sent to the market by the last of August; but he says they hold it back trying to force the market by not revealing how much of a crop they have, and then, *in the beginning of winter, when it is so hard to ship comb honey*, write in that they have a lot they would like to have disposed of. Mr. Selser has made a specialty of this for ten years, and could tell almost to the week when grocers would want comb honey.

WAKE UP.

So he wrote our subscriber, in reply to his letter asking if he had been, like Rip Van Winkle, asleep for a long time, and where he had been with his honey for the last three months, telling him that, had he known of his lot of honey sixty days earlier, he could have got a customer at once, and he would have had his cash for it long ago; but as it was, he could find no customers at this time of the year. He received the following reply:

Yours to hand. You say you are very sorry that I have just wakened up to the fact that I had some honey to sell or offer. Now, from the tone of your letter you probably think I am some "old pluck of a hayseed" who didn't know any other way to sell honey than through the middleman; but in that you are somewhat mistaken. You say if I had written you sixty days sooner I would have had my honey sold without any trouble, just as if you were the only man in America who could dispose of my honey, and that now I would probably have to eat my own crop to get rid of it. I soon expect to make a trip to sell my extracted honey in glass cans and tumblers in three different States, so do not worry. I will probably get rid of that honey without eating it up. X. Y. Z.

We believe Mr. Selser is right, for it is in line with our experience. We have tried to emphasize this matter, and impress on the producers of honey that they should get their honey in shape to ship as early in the summer as possible. We have found but one year in the last ten where honey has brought as much after the first of the year as before, and the biggest prices are generally realized in the early fall. The trouble is, our bee-men are very busy with their other farmwork; they put off getting their honey in shape until all outside work is done. Could they "wake up," as Mr. Selser says, to the fact that it is highly essential to their pocketbook to get their honey in shape for market at once, or as soon as it is gathered, they would realize better prices.

HOFFMAN AND CLOSED-END FRAMES FOR EXTRACTING.

MR. E. F. ATWATER, of Boise, Idaho, writes a very interesting and readable article in the January issue of the *Bee-keepers' Review*. Among other things he gives it as his opinion that hanging frames are

best for producing extracted honey. No hive, he thinks, is suited to the economical production of extracted honey that contains closed-end frames; that we can not afford to use the same spacing for the supers, owing to the ridiculously thin comb left after uncapping; that "the proof of the folly of using closed-end frames for extracting-supers is found in the fact that no extensive producer of extracted honey is using them."

This may possibly be true when applied to the *strictly* closed-end frame; but the half-closed end, or Hoffman, is used by very many extensive bee-keepers for extracting. Some of them use these frames spaced close together ($1\frac{1}{8}$), and others put them from $1\frac{1}{2}$ to $1\frac{3}{4}$ inches from center to center. I call to mind one of the most extensive bee-keepers in the United States, who uses Hoffman frames for extracting, and will use nothing else—Mr. William Rohrig, of Tempe, Ariz. Last year his crop of honey reached the enormous aggregate of 72,000 lbs. I once heard Mr. Rohrig debate this very question—that the Hoffman frame could be spaced as wide as the loose frame, because he could use it at any time in the brood-nest after extracting. There is no greater mistake than to suppose that such frames can not be spaced wide. In Cuba (and honey is extracted there very extensively—in fact, that is the main product) ten Hoffman frames are used to any other, among modern bee-keepers.

It would be interesting to know, if it is really a fact, that there are no extensive producers of extracted honey in the United States using closed end frames. Capt. Hetherington, for many years the most extensive bee-keeper in the world, used such frames very largely; and he produced, if I mistake not, both comb and extracted honey.

BLACK AND FOUL BROOD IN NEW YORK; A REPORT FROM THE DEPARTMENT OF AGRICULTURE OF THE EMPIRE STATE; SOME SURPRISING DEVELOPMENTS.

ON page 586, July 1, last year, appeared a statement, by N. A. Moore and Mr. G. F. White, bacteriologists of the Department of Agriculture of New York, showing that probably the black brood, or New York bee-disease, was nothing more nor less than the old foul brood, recognized by Cheshire and Cheyne as *Bacillus alvei*. They had examined numerous specimens of brood sent in by the inspectors purporting to be black brood, that contained the familiar microbe of *Bacillus alvei*. As the report offered by the two bacteriologists above named differed so diametrically from the report of Dr. W. R. Howard, of Fort Worth, Texas, it seemed there might be a mistake somewhere. I stated at the time that the black brood I had examined in New York, and specimens that had been sent from that State to me, differed in a number of important respects from the foul brood I had seen in Ohio, Wisconsin, and Michigan—certainly

different from the foul brood which we had years ago here in Medina.

It appears that Mr. Moore and Mr. White have gone over their work again this year, examining many more specimens sent in by inspectors, with the view of confirming the conclusions reached in their inquiries of the year preceding; namely, that the prevailing disease of the State which was so destructive was the foul brood of Cheshire and Cheyne. They also conducted various experiments to determine the value of the new treatment with formalin for foul brood, and at the same time investigated other diseases, such as pickled brood and bee-paralysis.

In the report for this year, which, through the courtesy of the Department, has been submitted to us in manuscript before its publication in book form, the conclusions of last year have been confirmed. A large number of samples of black brood have been examined, and in every case *Bacillus alvei* has been found. Specimens were received from Columbia, Albany, Schoharie, Montgomery, and Greene Counties. The bacteriological findings in every case were *Bacillus alvei* but no *Bacillus milii* of Dr. Howard; the conclusion is that the so-called black brood that has made such fearful havoc in New York is nothing more nor less than the old foul brood of Cheshire and Cheyne.

TWO DISTINCT BROOD DISEASES IN NEWYORK.

They do find, however, the specimens of brood which the inspectors have diagnosed as *foul* brood differ from the specimens designated as *black* brood; that the foul brood which the New York inspectors had diagnosed as such was the same as the foul brood of Wisconsin, Canada, and Ohio. If this is true, then we never had foul brood here, but had a milder form of disease, but almost as destructive and contagious.

One fact is clearly brought out; namely, that there are *two* very *distinct* diseases in New York, both of which are destructive, one more so than the other. From the very first I have been satisfied that the disease we have called black brood was quite different from what we have had here at Medina.

Mr. Moore and Mr. White both appear to discredit the work of Dr. Howard; for, besides *not* finding *Bacillus milii*, they were not able to discover the bacillus of pickled brood, designated by Dr. Howard as *Aspergillus pollinus*.

THE FORMALIN TREATMENT.

The new drug treatment with formaldehyde was tested in various ways, but found to be not entirely effective. Their conclusion seems to be that, if the fumes of it are applied long enough inside of an inclosure that is hermetically sealed, it will kill all the living germs. Two or three hours of fumigation is not deemed by them sufficient, nor even 24 hours, in a hive no tighter than an ordinary bee-hive. Combs should be inclosed in an air-tight apartment, and then subjected to the action of fumes for a period of two days. The affected matter when so

treated was then examined and found to be free from any live germs.

The formaldehyde gas, it is shown, is a good disinfectant for certain diseases; but it penetrates very slowly, and 24 hours of application of the gas on combs in the manner usually employed is not sufficient to kill all the spores in the decayed larvæ.

THE ORIGIN OF THE BLACK OR FOUL BROOD IN NEW YORK.

It appears that the disease, whatever it is, came from the South. "From the history of the disease in New York State," so state the authors, "we find that it was probably introduced into the State about eight or nine years ago by the importation of some diseased colonies from Tennessee. These colonies were shipped to Sloanville, N. Y., and from this center the disease seems to have spread."

This report, as a whole, is interesting and valuable. The ordinary layman for the time being, until more evidence has been furnished by scientific men generally, will be somewhat at sea as to whether foul brood exists or has existed in some portions of the country, or whether there is any such thing as real black brood. Perhaps Dr. Howard may be able to offer some solution of this matter.

SAMUEL WAGNER, THE ORIGINATOR AND FIRST EDITOR OF THE AMERICAN BEE JOURNAL; WHAT I KNOW ABOUT HIM.

In the introduction to the A B C of Bee Culture I have told about getting acquainted with Mr. Wagner through L. L. Langstroth. About as soon as I had looked over the literature of that day, and found what had been done with the honey-bee, I learned from my good friend Langstroth that an American bee-journal had been started, and that Samuel Wagner kept it going one year, and then, through lack of encouragement, together with the breaking-out of the American rebellion, it was discontinued. I at once wrote to Mr. Wagner, and a very pleasant correspondence ensued. A copy of the first volume, started in January, 1861, and kept up till December, was secured from him, and was read over and over again. More especially was that part of it read and re-read pertaining to the Dzierzon theory. I urged Mr. Wagner to re-commence the journal, which he did in July, 1866, and I with others very soon became a regular contributor to its pages. I am pleased to notice that one of the advertising sheets has been preserved in our bound volume; and among the advertisers I see H. A. King & Co., Nevada, O.; C. P. Bigelow, Perkinsville, Vt.; Adam Grimm, Jefferson, Wis.; A. Gray, Royal, Butler Co., O., and W. A. Flanders, of Shelby, O.

Very soon I began to talk about comb foundation made of wax; and my good friend Samuel Wagner was enabled to send me a piece of foundation, or "artificial comb," as we called it then, made of black

rubber. I think the impression was made by setting up types made of ordinary type metal.

Information came in somewhere about 1867 of a comb-emptying machine, and from directions I got from friend Wagner I soon had a machine made, all of metal instead of wood as the Germans made them. Langstroth briefly described the German machine in a circular put out in 1867.

While I was at work on comb foundation and the honey-extractor, both Langstroth and Wagner encouraged me and gave me all the information they could obtain in regard to the matter. Many of Wagner's letters during those years seemed to me of more value than the articles with which he used to fill the pages of the *American Bee Journal*. It seems to me unfortunate now that I did not save them. Wagner (*unlike* your humble servant) kept himself and his personal affairs very much out of sight in his editorial work.* The pages of the old *American Bee Journal*, away back, were principally occupied by contributors. He very seldom added a footnote, nor interfered unless we got to bearing on each other a little too hard. On one occasion he administered quite a sharp reproof to "Novice;" but it was a little paragraph at the end of my communication that might have meant myself or any or all of the rest of the correspondents. When it came to exposing swindles Mr. Wagner came out pretty severely and plainly. But there were only a few occasions on which he did this.

The *American Bee Journal* for March, 1872, announced the sudden death of our beloved editor. The article was written by father Langstroth, who was at the time paying a visit to his old friend Mr. Wagner. These two, Langstroth and Wagner, were a pair of God's noblemen. As I look over the pages and recall the past, I fall to wondering whether we have any, *just* such as they were, left. May be not exactly like them, but God forbid it should ever be said truthfully that the good men—the real *noblemen*—are *all* dead and passed away.—A. I. R.

MRS. O. L. HERSHISER.

THOSE of us who had the pleasure of stopping with Mr. and Mrs. Hershiser, at their residence, 301 Huntington Ave., Buffalo, during the Exposition, will not soon forget the hospitality extended to us by the lady of the house. When she was first married she knew nothing of bees, but took up the work with a keenness and interest seldom equaled by any good wife of the home. At the time of the Exposition she

*Our good friend Wagner was such an exceedingly modest man that he never had his picture taken, although his friends often urged him to do so. When the bee-keepers' medley was published I was so anxious to have Mr. Wagner among the crowd that my good friend Langstroth said he could get me a picture of a man who looked so much like Wagner that his best friends often got them mixed up; and this picture, with the above explanation, now appears in the medley.

knew all the bee-keepers far and wide, and could talk bees and honey with the best of them. Whenever her husband (who was superintendent of the apiarian exhibits at the Pan-American) was absent, she assumed charge; and those of us who attended that exposition will probably recall that she was quite the equal of her other half in demonstrating the practical workings of the hive.

It may be interesting to note that a prize of \$25 was offered by Mr. Danzenbaker for the best twenty sections of comb honey stored in his hives, and \$15 for the next best. Mrs. H. secured the first prize, and Mr. H. the second. More than half the colonies at work on the exposition grounds were from her apiary, for it appears there was an individual ownership and a pleasant rivalry between them as to who should



MRS. O. L. HERSHISER, THE LADY WHO SECURED THE \$25.00 PRIZE FOR THE BEST COMB HONEY SHOWN AT THE PAN-AMERICAN EXPOSITION.

produce the finer and better honey. At that exposition she won out, taking first honors. Her husband writes me that she has on occasion opened a hive, and removed the comb honey without gloves, veil, or smoke—something that professionals usually do not care to undertake.

This seems like a late day to tell this story; but the fact that at least some of the points related did not reach me till a few days ago will account for this, and therefore I am glad to introduce Mrs. Hershiser to her old friends and acquaintances, and to the many new friends who have not had the pleasure of her queenly hospitality.



Our Symposium on Candied Honey.

HOW TO KEEP IT LIQUID, AND HOW TO HASTEN THE PROCESS OF SOLIDIFYING.

The Marketing of Candied Honey; Eastern Candied Honey Successfully Bagged; Some Valuable Data.

BY CHAS. STEIGER.

Page 1044, last issue, contains a request by the editor for information on the subject of hastening the granulation of extracted honey preparatory to putting it in paper sacks to be sold in the candied form. Having read Mr. Aikin's excellent article on paper honey-packages, March 1, I decided that the innovation was at least worth a trial here; and now, having brought the same to a successful conclusion, I can best offer my information gained on the subject to readers of GLEANINGS with the statement of my experience.

Having ordered 100 of the $\frac{3}{2}$ -lb. paper sacks from Medina I filled five ordinary lard-cans with white-clover honey just as it was taken off the hives and extracted, and set it away by itself in a room where it would keep coolest. Later, at the close of August, when the nights were becoming cool, I commenced stirring three cans of this honey, leaving the other two cans undisturbed. Every two or three days, when I would happen in the room with the honey, I would stir this honey for about a minute with a small stick placed in each can for this purpose. Oct. 10 I sold one can of this stirred honey to a customer who was so well pleased with its white, glossy, taffy-like appearance, that he much preferred it to any other. The remaining two cans of this stirred honey I put in the paper sacks, using a large spoon. Unusually warm weather for the season prevailed at this time, but by the last of the month this honey was candied solid, while the two cans of unstirred honey, and all the other of my clover honey, except some in barrels, was only slightly granulated. I account for the advanced granulation of the honey in barrels with the rolling and consequent stirring it received in the process of occasionally driving the hoops to keep the barrels tight, they being not quite full.

To begin stirring while the honey is yet clear, not only assists granulation but causes it to granulate much finer and more evenly, and adds greatly to its solidity in the candied form. The results of a trial, I think, will convince any one of the reliability of this statement.

The sacks are easily filled. Any one with ordinary care can do it neatly. I fill them on scales to insure correct weight. For the $\frac{3}{2}$ -lb. sack I use boxes with inside dimensions $13\frac{1}{4} \times 19\frac{1}{2} \times 7$ inches; 20 sacks placed therein give them about the correct shape when the honey hardens.

For each box, prepare a rim of sufficient depth to extend the ends and sides of the box up level with the tops of the unfolded sacks; lay a paper on top to exclude the dust, and the bottom of the second box will make a cover for the one beneath. When the honey hardens, remove the rims, and, taking out one sack at a time, fold each one the same way, and return to its original position in the box, when it is in good condition for final disposal.

In regard to the utility of paper sacks as a honey package, I am prepared to speak in their favor. My trial of them has convinced me of their entire practicability. In this locality the different honeys — clover, basswood, heartsease, and Spanish needle, or a mixture of any or all of them, will candy sufficiently solid to serve all the purposes of handling in sacks, at least during the winter months. There is a growing demand for candied honey. I believe three-fourths of my customers prefer it. Why not assist them in indulging this taste by offering their choice in a package which does not materially advance the cost? In retailing, this is important — five and ten cents added by the cost of a jar or pail too often makes the difference between a sale and no sale at all. For testimony on this point consult your grocer.

I consider the $\frac{3}{2}$ -lb. sack the size most convenient for general use. With the sack peeled from around it, this amount can be served entire on a plate, with the advantage of appearance and attractiveness not attained by the same laboriously dug from out a glass jar or pail. The size of package which will permit of the contents being served in one symmetrical whole, is, in my opinion, better adapted for the consumer's table than the larger sizes which, having part of their contents removed, will, I fear, too often be exposed to such unfavorable conditions as will permit of the sack being an unfit receptacle for its contents. With the sack partly peeled away it may be exposed to dust, and other unsanitary conditions; or, if allowed to become warm, the honey will adhere to the sack, making it a mussy job.

Here is one plain defect of the paper honey-package, but which can be easily remedied by using the smaller sizes as suggested, or instructing the consumer in the proper use and care thereof.

In introducing the paper package in my locality I have been quite successful. I meet my customer, and he is at first amused at the idea of honey in paper sacks, and inclined to be a bit funny. This is just the way I want him. A few words explaining the merit of honey offered in this form seldom fails to excite his desire for possession

of some, to the extent of affecting his purse.

The encouragement offered by its ready sale, and the praise it received, has led me to decide to offer all my candied honey in this form the coming season; and that tells, without saying, my success with paper honey-packages.

Spring, 111.

HOW TO MAKE HONEY CANDY QUICKLY.

BY S. T. PETTIT.

Mr. Root:—If I am not mistaken, a large majority of bee-keepers will rejoice that you are taking an intelligent interest in the candying of honey, indicating in a marked degree your watchfulness over the best interests of our chosen and sweet profession. Having been, since I started in the bee business, an advocate of selling honey in the candied form, I have studied not only how to make it candy quickly, but to do that other thing of much more importance—viz., to have it candy with a very fine smooth grain. Such honey is always more pleasing in the mouth—better to eat—and hence better to sell than the coarse-grained article; and, more, the latter is more inclined to leak or drain than the former.

First of all, I will say that, in order to have the best quality of candied honey, it is absolutely necessary that it be left with the bees until all or nearly all is capped; and in the second place, the extracting must be done in dry weather or on a drying day. A pinch of salt on a board in the honey-house, in the absence of an hygrometer, will measure the moisture of the atmosphere with sufficient accuracy for the purpose. At any time, if the salt is wet, just wait until it becomes dry. Honey takes in water as readily as salt, and more so.

The honey in the supers contains more water in damp weather than in dry; hence the necessity of handling honey in drying weather.

Extracted honey should be covered to exclude the air as much as possible. But, more to the question, agitation, jarring, or rocking the honey slowly, hastens the candying process.

A very effective method is, at the last of the season's extracting, to put the extracting-combs away in a dry place, uncleaned, until the honey is coming in pretty freely the next season. The fact is simply this. If this old granulated honey be left in the combs to mingle with the new it will unmistakably hurry up granulation. But if the supers be put on too early the bees may clean it all out. Another way is to mix some old candied honey with the new, and stir it once or twice or oftener each day. But right here I wish to enter a protest and caution against the two last methods, inasmuch as honey so treated is pretty sure to be coarse and rough in the grain, and, besides that, frequent stirring, or stirring at all, allows more or less of the

aroma and flavor to escape. Another thing, stirring incorporates air with the honey; and if it be kept any considerable length of time, the incorporated air will impair the quality. Of all methods known to me, the following is my choice:

Any movement in honey, however small, encourages, assists, and hastens candying; and the smaller the movements and the slower the motion, the better will be the results. The honey will be finer in the grain and smoother in the mouth, and, if it has been well ripened by the bees, and properly handled, it will not leak or drain in the least.

When the time comes for bagging the honey, or putting it into small containers, on a warm day, the honey should be thoroughly stirred from top to bottom. The specific gravity of dextrose is greater than that of levulose, and hence the former gradually finds its way more or less toward the bottom of the tank. The stirring should be done on a warm day for two reasons. First, when the honey is warm the mixing can be more thoroughly done; and, second, whatever air through the stirring may be mixed with the honey can rise to the surface and be skimmed off.

Now we are ready to bag, bottle, or tin our honey. It should be done when somewhat warm, as the honey moves quickly in that condition, and takes in and holds less air than when cold and stiff.

Now that we have our honey or a portion of it in the small containers ready for the market except the candying, make it as nearly air tight as possible. Place it in some thin-walled building—a building that will cool off quickly, and take on about the same temperature as outdoor air. On very warm days the place must be aired to keep the temperature from rising too high, as heat retards granulation.

Well, Brother Root, I have indicated our part, and Nature will do the rest as follows:

The daily, alternate contraction and expansion of the honey, caused by the cool nights and the warmth of each succeeding day as it passes, will furnish a 1 the necessary movements in the honey for best results in the finished article. The daily variations of temperature are strong factors in candying honey. They move the honey in itself.

This is an important matter, and I wish to say that, if we get in too much haste, and put upon the markets candied honey that is not of good quality, or so handled that the good qualities will perish, it will be a grave mistake. It is much more easy to hold a good position than to regain it once lost.

With our present experience, my impression is that we had not better undertake to carry much honey in bags very far into the heat of summer. Mr. A. I. Root makes a good suggestion when he advises keeping the honey air-tight.

RECAPITULATION.

To produce perfect candied honey, smooth

and fine, in the grain, and that will not drain:

Let the bees ripen and cap before extracting.

Extract on a drying day.

Keep the honey well protected from the air. Stir and mix well before putting it into small containers.

To candy it, jar, agitate, or rock the honey while in the small vessels. This can be done by machinery. But I prefer to let the changes in temperature caused by day and night do it. Place the honey in a thin-walled building—in one whose inside temperature changes rapidly with outside changes. The expansion and contraction furnish the necessary movements in the honey.

NOTE 1.—Thin unripe honey candies coarse and rough, and it is ill-flavored, and will drain; and, more, the selling and keeping qualities are of a low grade.

2. With plenty of combs you'll get as much capped honey as of the thin stuff, and the wax will pay for uncapping. The young bees that do not go to the fields anyway are just anxiously waiting for the job. Aylmer West, Ontario, Can., Jan. 8.

HASTENING THE CANDYING OF HONEY.

I find that, to have candied honey in the tank when extracting, and pouring the honey in and letting it mix thoroughly, it will cause the whole to candy at once, and solid. Our honey here requires a lot of cold weather to candy, sometimes not granulating the whole season; but this summer, when I began extracting, I had a few pounds of candied honey in my tank, which holds 3600 lbs. I poured in on this from the extractor, and I drew the honey from the uncapping-box in half gallon jars. The honey from the box is liquid yet, not granulated a particle; but the honey in the tank was solid long ago. I drew out of the tank when full during extracting in August, and all stored in the same place, all subjected to the same conditions; and as to keeping honey liquid, I am convinced that the liquefying of honey per Weber is correct, and I will give my reason. To liquefy thoroughly, and not get too hot, will take nearly 36 hours. If there is a particle of granules in the honey it will candy again. One will think he will have the job complete, when, on close inspection, there will be granules in the mass.

I don't claim the discovery as to mixing granulated honey with liquid to cause it to candy. But I know that it is the best way yet discovered, and is a complete success with me.

J. T. HAIRSTON.

Salina, I. T.

[Some interesting facts are brought out by the three correspondents. First, that agitation does hasten the process of solidifying. Even the driving of the hoops of the barrel, and rolling the barrel on the floor, seems to have quite a perceptible effect; while honey from the same source, and the

same cans, left without agitation, will remain perfectly liquid.

Another fact quite clearly brought out is that old candied honey mixed with new extracted also hastens the process, on the principle that "a little leaven leaveneth the whole lump." Granulation in honey is a process of crystallization; and therefore when crystallization is once started it spreads, shooting out in different directions. I have had bottles of honey exposed in front of my window; and I have noted particularly that the entire mass of honey would remain clear for a considerable length of time; but just as soon as the least particle of cloudiness appears in any portion of the mass, the cloudiness will increase very rapidly from that time on.

Another interesting fact is that Eastern honey can be successfully bagged. I have been a little fearful for some time back as to whether or not the Aikin paper package would be suitable for Eastern bee-keepers; but it appears from the testimony offered by our correspondents that it will probably be all right.

To sell candied honey it seems to be necessary to introduce it to the trade in person. The customer must have confidence in the purchaser or seller, for he is not inclined, in view of all the stories of adulteration that are afloat, to buy brown sugar under the name of honey. But when he is fully persuaded that it is the genuine product from the flowers, gathered by the bees, that candying is a natural characteristic of nearly all honeys; and when he is induced to take home and test a sample, and learns that it has a most delightful flavor, he becomes an eager and willing customer for more of that kind of goods.

While agitation, and the mixing of old candied honey with new extracted are considered important requisites, yet, after all, a low temperature (the colder the better) is the most essential condition for rapid candying.—ED.]

A MODEL APIARY.

Hives on Individual Hive-stands.

BY T. C. CRAGON.

In position for the winter I have a separate stand for each hive, made 8 inches high, and strong enough to hold any reasonable weight. The hives are placed with the entrance to the south; the back of the hive is raised one inch higher than the entrance, which is full width of the hive. The bottom-board is made to allow a four-inch alighting-board, and so that the body of the hive will project $\frac{1}{8}$ inch over the bottom at the back on either side. It is fastened with a $1\frac{1}{2}$ -inch screw on each side, so that the screw can be removed without moving the hive. Handhold cleats are nailed on all hives and supers. The covers are made of plain boards one inch larger each way than the body, and held at each end with cleats

$\frac{7}{8} \times 1\frac{1}{2}$ inches, nailed on the under side. It is then covered with cotton cloth secured with tacks around the edge, and painted three coats of oil and lead. This makes a cover that will keep out the wet and weather. I have had very good luck wintering for years.

T. C. CRAGON.

Smithfield, Utah.

"IMPROVED QUEEN-REARING."

A Reply to Mr. G. W. Phillips' Article, Nov. 15.

BY ARTHUR C. MILLER.

Lest the reader may think I am putting my fingers in another man's pie, I will commence by saying that this article is written at the request of the editor and also of Mr. Alley.

A concise statement of Mr. Alley's system, just as I have many times seen the veteran himself use it, will assist in making plain further discussion.

1. Selection of exceptionally strong colonies.

2. Deprived of brood, queen, and combs, and kept confined for six hours. The deprivation is so made that the bees fill their sacs to the limit of their capacity; termed, for convenience, "cell-starting colonies."

3. Strips of comb containing an egg in each alternate cell are stuck to sticks in a frame or frames. These in turn are alternated in a hive with combs of *pollen* and

honey, and the confined bees released on them.

4. Twenty-four hours after the "starting" colony *began work on the cells* the frames bearing the cells are taken away and given to colonies dequeened twelve hours previously, but not deprived of their brood.

5. Five days later the now completed cells are taken from these colonies, and gathered in one strong queenless colony.

6. Two days before queens are due to emerge, the cells are put into the cages and returned to the same queenless colony.

Alley's system differs from the so-called "cell-cup" plan, as at present used and taught, in just two particulars; i. e., method of supplying eggs or larvæ, and of securing full feeding of the larvæ. In other features it is but the same as now advocated by all good authorities, only carried on with the utmost pains.

The great fault of Mr. Alley's book, and it is almost a vital one, is the mixing of a description of the construction of his appliances with a detailed statement of their use. Also, he wanders from one part of his subject to another in a most confusing way.

Mr. Phillips justly criticises the "Method No. 1" as given in the book. As described, it certainly appears most laborious. Let me explain why Mr. Alley does some things, and their true relation to his system will be more evident.

He uses large numbers of colonies of black and hybrid bees for cell-building.



A MODEL APIARY IN UTAH.

These colonies are protected with drone-traps (as are all but those flying his selected drones). That none of the objectionable drones may escape, all handling of the colonies is done indoors. To handle them comfortably there, it is necessary to subdue them pretty thoroughly by thumping and with smoke. Incidentally this causes the bees to gorge with food so that, when they get to the larvæ, they have a superabundance of pap.

Those of us who can do such work out of doors can save much of his labor; but we must take equal pains to secure the requisite gorging with food.

He keeps his breeding queen in a hive with frames 5×5 inches. He keeps this colony well populated with young bees by frequent additions of combs of emerging brood, and also by constant feeding. He does these things because he can always

hive for the eggs, cut the comb in strips, stuck them to the bars, destroyed the alternate eggs, placed the frames in the food-stocked hive, and admitted the bees to them, was just two minutes. This is a speed which I venture to say is not habitual with any user of the "transferring-larvæ plan."

Mr. Alley takes particular pains to have food always present in all cell-building colonies, and he keeps filled feeders constantly on all such. He takes no chances with intermittent honey-flows. He takes the cells from the starting colonies, and places them in the middle of dequeened but not broodless colonies that the queen larvæ may have the benefit of young nurses all through their growing period—in other words, be in the most favorable condition possible.

As soon as the cells are capped he takes them away from these colonies merely as a matter of economy, such colonies having their queen returned, and at once resuming their normal condition. He has certainly reduced the economical use of colonies to a fine art.

Now comes the only fault with the Alley plan. It is the caging of the cells. In his hands it is a quick and simple though sticky and dauby job. Cell cups built on wood bases are certainly much more readily and neatly caged; but beyond this I have yet to hear of any *valid* claim to their superiority; and at what a cost this little advantage is secured!

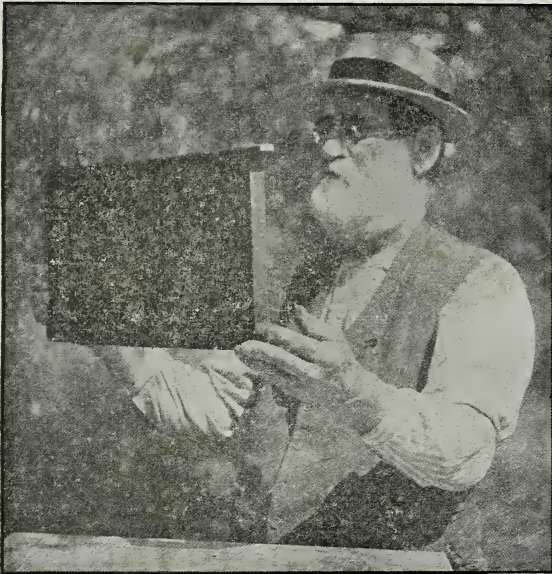
Mr. Alley enables the bees to feed the larva from the first moment of its life, as their instinct directs. By the transferring plan, larvæ whose ages vary from a few to many hours are used, and many things happen to them thereafter if we may believe the writers.

By his system Mr. A. produces the most superb queens I ever saw—virgins looking larger and stronger than many fertile queens I have seen; and the worker bees of his strain are

of but normal size.

Mr. Phillips cites p. 24, lines 21—25, of Mr. Alley's book as a statement by the latter condemning the "Method No. 1." What he does condemn is the putting of the started cell cups over an excluder above a colony containing a laying queen. I trust Mr. Phillips will look again. Possibly Mr. Alley's nucleus system will be improved; but as handled and operated by him it is wonderfully simple, and is economical to the point of perfection.

As to his tobacco smoker, I do not see what he could do without it. Sooner or later the rest of us will come to it for queen-rearing work, even if we have to devise some substitute for tobacco. It is



MR. ALLEY IN HIS QUEEN-REARING OPERATIONS.

get eggs *just* when he wants them; know their age almost to an hour; do it with little danger to his queen; do it rapidly and with little physical effort. and without the loss incident to disturbing a full colony. In a large colony or in a nucleus with full-sized frames, eggs laid to order are not regularly possible.

One of the little-combs supplies eggs for 50 to 60 queens, and these eggs hatch within an hour after they are given to the queenless bees, so nicely does he time his work. From this it will be seen that the to be queens receive a surfeit of food from the instant of their birth.

I timed Mr. Alley one day (unbeknown to him), and from the time he went to the

the embodiment of convenience and efficiency.

Mr. Phillips' reference to the "sear and yellow leaf" hardly has to do with criticism of Alley's system of queen-rearing, and impresses one with the feeling that Mr. Phillips consciously or unconsciously harbors some personal or commercial antagonism to Mr. Alley. It had better been omitted.

Though well along in years, Mr. Alley is as active and enduring as many a man far his junior. Mentally he is as keen and alert as he ever was; and as he goes from hive to hive and from nucleus to nucleus, telling before he opens it just what is within, one envies him his wonderful memory; and yet he has been through trouble and sorrows which would crush most of us.

There is nothing spectacular or sensational about Mr. Alley, his system, or his queens; but they "get there just the same," and in a most satisfying way.

Providence, R. I., Dec. 30.

[You give us a very clear exposition of the Alley system, and I would suggest to Mr. Alley that, when he gets out a new edition of his book on queen-rearing, he incorporate your description instead of his own. His last book is somewhat confusing — too profuse in some details, and woefully lacking in some others, to make it easily understood.

The two essential differences between the Alley system and that of others seem to be, 1. A cell-starting colony queenless and broodless, confined for six hours; 2. Strips of natural comb, each alternate egg destroyed in lieu of artificial cells or wooden cell cups.

It may be that the queenless and broodless colony confined will have more pap for young larvæ than an ordinary queenless colony lavishly fed with syrup, but I should somewhat doubt it. As Mr. Phillips has already pointed out, it is a lot of work to make a colony broodless, as this brood must be taken out and taken care of.

The artificial cell cups or wooden cups do not involve as much work as would ordinarily seem. True, they require grafting; and right here there may be one item of labor not found in the Alley system. But a grafted cell gives an operator a selection of larvæ, and saves mutilating otherwise good combs.

We have for some two years practiced the Alley as well as the modified Doolittle system. The two have been worked side by side in order that we might be able to judge between them. Our own individual opinion is that the modified Doolittle plan, such as we have described and illustrated, is as simple as any, and gives as good queens as are furnished by any plan known. While the Doolittle system involves the grafting of the cells, it saves labor *after* the cells are once grafted, because they can be handled like hickorynuts. A cell made from a piece

of comb is apt to be irregular in form, and requires trimming to get it into a queen-cage later on in the process. It was our own experience, after two years of trial, that the trimming of the Alley cells required more time than the grafting of the artificial cell cups, which, when built out and completed, are always clean and perfect. When the wooden cup is used, the cylindrical form makes it just right to plug up the hole in the cage or cell protector; and, what is of considerable importance, it can be shoved into the side of a comb without mashing or injuring it.

It was my privilege and pleasure to meet Mr. Alley at Boston, on a recent trip to that city. I was surprised and delighted to see how robust and healthy he seemed to be, even if he had reached the period of the "sear and yellow leaf," so far as age was concerned. He seemed to think it a great joke that he should be regarded as in his years of decline*. I remarked to him as I saw him, that, if the average man at forty were as strong and vigorous as he was, he might consider himself very fortunate indeed. Said I, "Mr. Alley, if you had your mustache trimmed off the same as Dr. Miller, there would be a strong resemblance between you — of the same height (short), of the same square stocky build, and of the same general facial expression." He remarked with some warmth that he considered it a compliment to be compared to Dr. Miller, even in mere physical appearance.

Mr. A. C. Miller secured a photo of Mr. Alley while in the midst of his queen-rearing operations. He had just caged a lot of his cells in Alley nursery-cages. The camera caught him in the very act, and I am pleased to introduce him to our readers, showing him the vigorous man that he is. — ED.]

IN MEMORIAM OF "THE PRINCE OF AMERICAN BEE-KEEPERS."

BY E. R. ROOT.

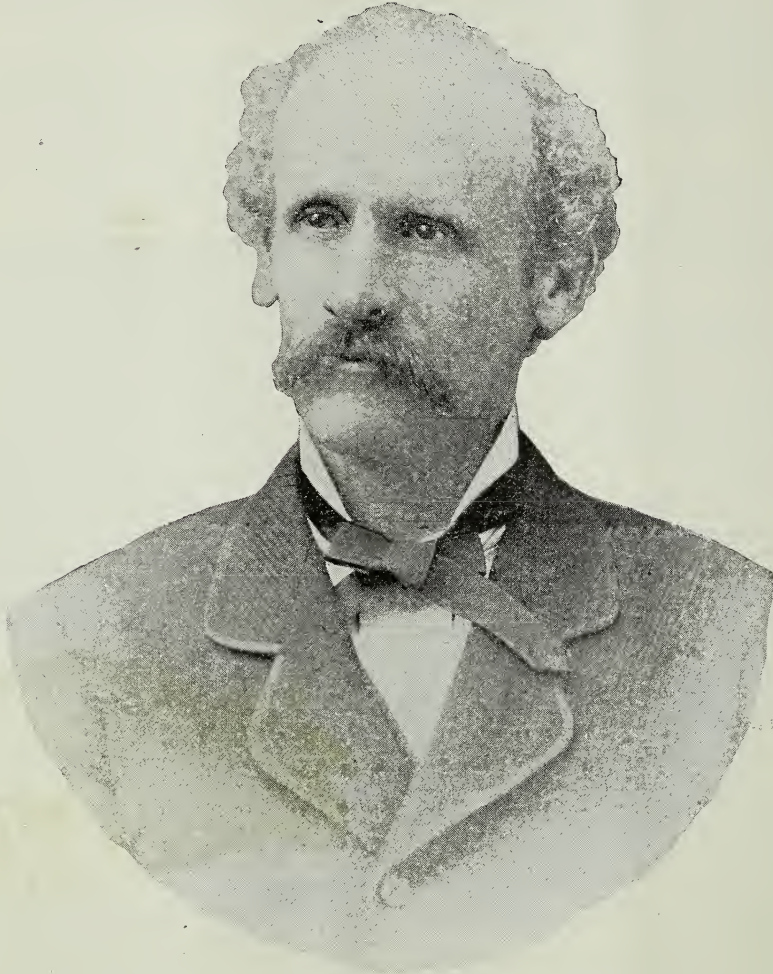
Capt. John Edwin Hetherington was born Jan. 7, 1840, in Cherry Valley, N. Y., where he always resided, and died there the last day of the old year. It has been said of him that he would have gained distinction in any occupation, for nature had endowed him with indomitable will power capable of organizing, and executive abilities such as would have quickly placed him at the head of any large undertaking. He was born of good ancestry, his father being an educated English gentleman, and his mother of the old Judd family, of Connecticut. His father died when he was but

*A mutual friend had written me a short time before, that Mr. Alley was in his declining years, sick, and not long for this world. Full of sympathy I had written him, expressing my regret over his physical condition, expressing the hope that he might hold out some years longer. My! what a letter I received! He desired to assure me that he was far from being a dead man, and hoped I might come and look him over.

three years old, leaving the training of himself and two brothers on the mother.

Distinguished as a soldier, he was not less remarkable as a bee-keeper, for his career was little short of marvelous. Intelligent, progressive, he probably handled a larger number of colonies for a longer period of time than any other man who ever lived, or possibly ever may live. While it is true that J. S. Harbison, of California,

his death the most extensive bee-keeper in the world is not important; but certain it is that Capt. Hetherington has been a very unique figure—not because his writings appeared in the bee-journals, nor because he attended the conventions, for he has written but rarely and attended but few meetings, but because he managed successfully 3000 colonies for over twenty years, and because he introduced many valuable im-



CAPT. J. E. HETHERINGTON.

at one time had 6000 colonies, it was for only a short period. It was Capt. J. E. Hetherington who enjoyed the distinction, for a period of over twenty years, of being the most extensive bee-keeper in the world, owning and operating over 3000 colonies during the greater portion of that time; but of late years I believe he did not keep quite so many. Whether he was at the time of

provements—improvements which, after the lapse of many years, were finally adopted and put into current use by bee-keepers all over the United States.

The captain did not follow in the beaten track of supply manufacturers by any means; but he acknowledged with considerable pleasure that Father Quinby did more to help him in his early bee-keeping

experience than any other man; and it was the Quinby system of hives and brood-frames which he adopted and subsequently ly improved. At one time the captain had nearly all his bees on the Hetherington-Quinby frame—a frame having closed ends or closed uprights; but, if I am correct, his colonies, at the time of his death, were divided on Quinby and what is known as the Van Deusen metal-corner open-end frame. For colder climates, I believe the captain preferred the closed ends; but in the apiaries of Virginia he used, as a matter of preference, the open-end Van Deusen.

I need not dwell here particularly upon his record as a soldier any more than to state that he was captain of a company of sharp-shooters in the Civil War—a position that means a great deal more than to be captain of an ordinary company of infantry. Three times he was wounded, and was finally discharged on account of disability from his wounds. At the close of the Gettysburg campaign his name was sent up to the War Department as one who had rendered gallant service for his country.

But it is of his record as a bee-keeper that I wish to speak more particularly. It may not be generally known, but he was the originator of the no-drip shipping-case that is now used almost universally throughout all civilized beedom. When we first introduced this case some years ago, it was brought to the attention of manufacturers by the commission-houses, who urged upon them the importance of making their cases on the no-drip plan.

Almost in the same way the tall section came into prominence. Where it came from no one seemed to know; but Mr. Danzenbaker, when he called at Medina, said he first saw them at the Centennial at Philadelphia in '76, filled with beautiful combs. He subsequently learned that it was the honey of Capt. Hetherington. That the captain was the first to introduce it, there can be no question, for all the evidence points that way.

Mr. Hetherington was the first to make a really practical thing of closed-end frames. True it is that Mr. Quinby invented them, and came very near adding to them their finishing touches. But as Mr. Quinby originally used them in his particular form of hive, the frames were by no means as easily handled as in the particular form used by Capt. Hetherington; and from this originated the Hetherington-Quinby frame and hive that are used so much in certain sections of New York.

In these latter days, when the matter of transparency in foundation is so highly prized, it may be well to remember that Mr. Hetherington was probably the first to get out what was really the first transparent foundation. Those of us who bought the Van Deusen flat-bottom article years ago will remember how beautiful and transparent it was, and that nothing has been made of late years that was any clearer or more beautiful. Whether it had the same pliable

qualities that are found in the Weed transparent foundation I can not say.

It was Capt. Hetherington also, I believe, who first conceived the idea of incorporating fine wire into the foundation itself. A patent was granted, and for years the Van Deusens made what was called their wired flat-bottom foundation under royalty from Mr. Hetherington.

In the matter of fish-bone in comb honey, it was Capt. Hetherington who first saw the importance of reducing the amount of wax in the base and putting as much as possible in the wall. We have talked a good deal about this of late, but really Mr. Hetherington was ahead of all of us in this.

Super springs, the exact form we are using to-day, a device for applying a *yielding* pressure on sections while in the super, were the invention of Capt. J. E. Hetherington—at least he used them away back in 1872, and has used them continuously till this time. This one fact alone speaks volumes for their practicability; and it is strange that we of these latter days did not discover their value sooner.

CELLAR WINTERING WITHOUT VENTILATION.

Some Contradictory Experiences.

BY IRA BARBER.

Friend Ernest:—I notice what you say in regard to my being located so far north that it may make a difference in keeping bees quiet in winter quarters. My bees years ago acted just as you say yours do. They would scatter out and fly about in the cellar every time the weather warmed up outside, and not quiet down until the weather became colder, if I did not give them ventilation from some source; and since I learned that it was fresh air that caused all the trouble I have seen no such scattering out, no matter how often the weather changed during the winter.

The cellars are made frost-proof if no bees are in them; and where there are bees enough put in to raise the temperature very much, the bees will bunch out at the fly-holes; and when the room cools down, the bees will draw back in and do not rouse up and fly about as one would suppose they would. The rise and fall of the temperature is so gradual that they do not appear to notice it.

I want you to come up here and see for yourself, for I think it would be the best investment you could make; for if I had known, 30 years ago, what I am telling you it would have been worth thousands of dollars to me; for I never could winter bees so they were ready for sections when set out (so far as bees were concerned), until I kept all fresh air from them while in winter quarters.

Your cellar under the machine-shop is a large one, and partitioned off with burlaps, as I understand. Now, that is altogether too airy a material to make a close bee-cel-

lar, for your bees get every change in the weather while they are in there.

I am not able to go around with you to the different bee-cellars in this locality; but Charles Halligus lives right in the Junction, and will carry you to his bee-cellar and to all the others in this section, free of charge; so all it will cost you will be your time and transportation.

I am out of the bee business entirely, and can not get around without crutches; but you are a young man, and have a double interest in the honey-bee; for if they do not come out strong in the spring, bee-keepers have little use for the supplies you furnish; and according to my experience of 52 years in wintering bees, your plan of airing bees in a cellar to keep them is malpractice of the first water, as I found it out more than 20 years ago, and I see no reason why you should succeed in doing the same thing that was a failure to all that practiced it here.

You say that your bees did not come out well where you had a four-inch ventilator last winter, and now you have a sixteen-inch ventilator in place of the four-inch. Now, I want you to see if the bees do not come out in still poorer condition next spring, and also those in the house cellar with no ventilation. If you come up to see the way bees are kept in cellars here, I think you can get a better pattern for a top-bar for brood-frames than you have, for I have never seen it in any of the supply lists. T. H. Barber was the first to make and use it. It is strong and cheap, and holds the foundation every time. Don't fail to come up.

IRA BARBER.

De Kalb Junction, N. Y.

[I came very near making you a visit, Mr. Barber, about a month ago while on a late eastern trip; but as I had been delayed, and as it was too early in the season, I finally decided to defer my visit till another time. In the early part of March, when bees are most apt to be uneasy, I may run up and see you, for this is a very important matter. In the mean time I have no reason to doubt your word; but what you say is so diametrically opposed to my own experience and observation from an extended travel that I am simply dumbfounded. Last winter we did have one cellar where the bees were confined all winter without any ventilation, or practically none. It is a wonder that they came through alive. The cellar bottom was literally covered with dead bees to the depth of several inches. This winter that *same* cellar, with about the *same* number of bees, has a 16-inch-square ventilator running up through the roof, and the bees *are in fine condition*. A year ago at this time they were very uneasy, and it looked as if they might all be dead by the opening of spring.

I can not understand why bees should be in a quiescent state, with the air foul, and probably warm. If the temperature were too high, or the ventilation too scant, it has been my experience, in *all* the cellars I have

ever seen in midwinter, that the bees were uneasy. I have stepped into cellar after cellar of this kind, shut the door, and waited a few minutes in absolute darkness. If there were no ventilation, or had been none, I could hear the zip, zip, zip of the bees flying out and dropping on the cellar bottom, and whirling around in the darkness among their dead fellows; and the stench and odor were simply awful.

In our own experience this flying-out stops immediately upon an infusion of fresh air, unless it is so near spring that their abdomens are distended from fecal matter. Nothing then but a flight on a warm day will bring relief.—Ed.]

SMOKERS AND FUEL.

An Interesting Discussion from the Standpoint of an Expert.

BY T. F. BINGHAM.

Very often have the remarks in the various journals relating to the fuel used in smokers come to my attention; but as it is presumable that I am interested in particular smokers, and probably biased, I have enjoyed the various dissertations and kept quietly on.

I greatly enjoyed the examination of the sketch and patent office explanation on page 1000, which seems entirely comprehensible and plain. As above, it might be inferred that, having been a close practical student of smokers so long, yet, though biased, a reasonable consideration of even a vital interest would not be entirely out of place.

It would seem a *coincidence*, at least, that watchmakers should invent smokers. The fact that patient analysis of principles nowhere finds a better illustration than in practical watchmakers' everyday lives may, in a certain sense, account for the smokers that have been devised.

No one will expect me to criticise any smoker, be it what it may; but there is one fact that will be of interest and value to bee-keepers. Smoke is the result of imperfect combustion. The lid or top or chimney, usually called a nozzle, is all there is in ordinary smokers to prevent the fuel in them from blazing—giving off no smoke of value. This curtailing of combustion, at the same time encouraging it, lies at the foundation of all modern smokers. You who have a doubt as to the effect of a blast of air on fuel in a smoker, please see how continuously and how slowly you can work the bellows for a few moments. The result will surprise you. As if by magic the fire will start up, and a small continuous stream of smoke will slowly issue, and the fuel will soon exhaust itself. If, instead, the bellows is worked frantically for the same space of time, the fuel will also be exhausted; but if, on the contrary, the bellows is allowed to rest until the nozzle and body of the machine are full of smoke, and then with gentle pressure of the bellows ex-

pelled, your object will have been accomplished.

It is this feature that renders large smokers so much more satisfactory. I have tried for twenty years to encourage bee-keepers to use large smokers; but from the fact that a small good smoker is so much better than none, and that a small good smoker is vastly better than a large poor one, and, further, that the small one can be made at a less price, the bee-keepers have, many of them, used what we would call small smokers. Of course, in my apiary I use only experimental smokers; that is, I try to use all the peculiar smoker ideas that the management of from 100 to 200 colonies matures or suggests. The bee-keepers are not expected to try all these various schemes for raising and managing smokers; but a maker of smokers would not be held blameless for the sale or advertising of an untried machine.

Answering the various and numerous remarks about the best fuel for smokers, it would be well to consider the kind and size of smoker, and the easy procurement of fuel. For instance, take Bingham's directions sent in all his smokers; viz., sound hard wood for fuel, etc. That is sound advice for his smokers of the smaller sizes, and would answer for all; but as any brittle bark from an old stump or log or woodshed could be readily obtained and easily pounded into small pieces, and whose coals would not readily set fire to any thing, yet, if perfectly dry, burn well in large smokers, it would be reasonable to use such fuel in large smokers, though not as good as split wood in small ones.

A smoker does not need working all the time if it will only go all the time without it. Good fuel *aids* in rendering a good scientific smoker always ready and willing to do its duty. The fact that a smoker *will* burn any thing affords no reasonable excuse for burning *every* thing.

Farwell, Mich.

MODERN QUEEN-REARING.

As Practiced at the Root Co.'s Yards; a Brief and Comprehensive Treatise on the Latest and Best Methods, Gleaned from all Sources.
Concluded from Last Issue.

BY GEORGE W. PHILLIPS.

Nuclei must be kept in a prosperous condition. A handful of half-starved broodless bees will never do well. They will not have enough energy to resist the attacks of rob-

bers, and, for some reason or other, the virgin queens which they contain generally fail to get fertilized. Don't remove the laying queen from them until they have filled the combs with eggs; and where they are unfortunate enough to lose many queens in succession, frames of sealed brood should be given. During a dearth of honey these little colonies must be stimulated: if not, the percentage of missing virgins will be great.

We will take it for granted that you have 18 nuclei, all of which contain fertilized or laying queens which you wish to remove

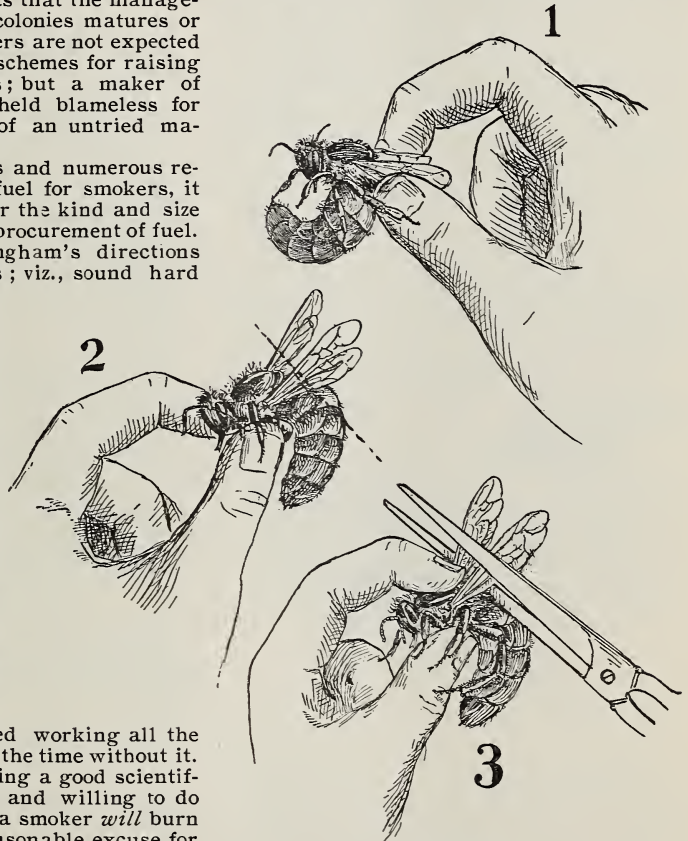


Fig. 15.

for sale, or introduction into some of the strong colonies in your yard. Go to the colony that contains the nursery of virgins; remove the cages; take the cells from them from which the queens have hatched; slip the tin cover over the hole, and let the tin shown in Fig. 1 cover the candy-hole. Take these 18 virgins in their cages, and put one (as shown in Fig. 14) in each of the nuclei having fertile queens. Three or four days after, remove the tin that covers the candy-hole, and let the bees release the virgin. At the same time this is done, another virgin should be given to each nucleus, to be released as soon as the second is laying, and

so on. By working in this way the getting of virgins accepted is rendered a comparatively easy matter, and the subject of queen-fertilizing is considerably simplified. Besides, the output of a laying queen from a given number of nuclei can be nearly doubled.

Before Mr. Titoff made his cage we used the Stanley and Miller cages—the Stanley as a nursery and the Miller as an introducing cage. The virgins then had to be transferred from one to the other, which, when a lot had to be done, was a tax upon the time and patience of the bee-keeper. The same might be said of almost every other kind of nursery-cage in vogue. In the cage here shown, both features are combined—the virgin hatching right into her introducing cage. By referring to Fig. 11 it will be seen how readily fresh candy can be supplied, and the tin on the bottom makes it easy to confine the queen or allow the bees to release her.

If you desire to make sure of your new swarms, clip the queen's wings. An opportunity for doing this is offered when they are removed from the nuclei for introduction into strong colonies. Take the queen from the comb by her wings with the right hand; hold the first finger of the left hand in front of her and let her catch on to it.

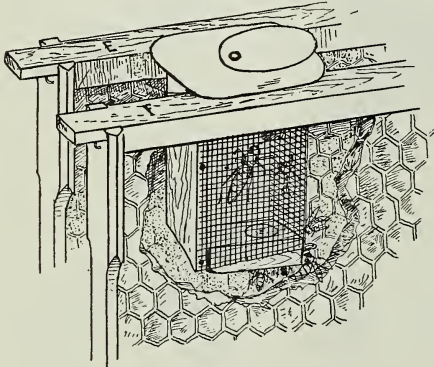


Fig. 14.

As soon as she does so, bring your thumb upon her feet; let go your hold on her wings, and, as she raises them in an effort to fly, clip off the membranous portion on each side symmetrically. Never hold the queen by one foot only, or she will swing round and round and attempt to wring it off.

In Fig. 15, 1 gives an idea of how the queen should be picked up; 2, however, is misleading. The queen is to be held in exactly the opposite position from that shown—her head turned toward the end of the first finger, her body resting flat upon it, and her wings extended. No. 3 shows another manner of holding her, and, for the beginner, perhaps a safer one. She is taken up by the wings as shown in 1, and the fingers of the operator rest upon the thorax, which, being harder, is less liable

to injury. Beginners had better clip the wings on one side only, as those on the other serve as a means of lifting her in the future.



LATE-MATED QUEENS, ETC.

1. Will a queen raised and mated in the fall, that has done no laying, be good for any thing? I have three that I know were mated late in the fall—too late to lay.

2. I have two or three colonies in hives the bottoms of which are wet, the water even running out of the entrance, although there has been no moisture of any kind for over two months. The bees seem perfectly healthy; but I can not understand the water in the hives in such dry weather. Will it do any harm? The hives are raised about four or five inches from the ground.

Bloomfield, N. M. FRED L. CLERC.

[1. Yes, such queens will usually lay in the spring, providing they have been mated in the previous fall; but unless there are drones flying late (and usually there are none) such queens would be worthless.

2. The condition described is not abnormal. A powerful, healthy colony will give off considerable moisture. If the bottom-board or sides of the hives are cold they will collect it in the form of numerous drops.—ED.]

SWEET CLOVER.

It doesn't seem to me to be quite right to scatter the seed around in roads and other people's lots. I have tried for several years to get our fence rows and waste patches seeded; but my sheep, goats, and horses seem to search it all out and keep it down.

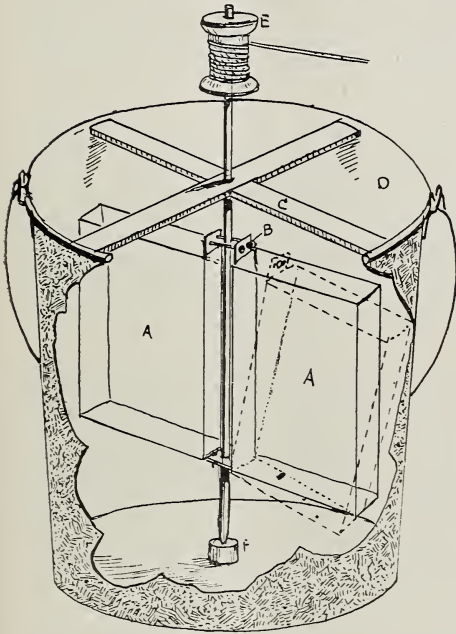
La Haye, Ills., Jan. 14. W. D. NULL.

[Why, friend N., your letter seems to answer itself. I do not know but some of our readers will think it a little bit of a joke when you say your conscience troubles you about scattering the seed around in waste places, and then to tell us that your "sheep, goats, and horses search it out and devour it" so as to prevent you from getting a stand. If you think your neighbors would complain if you should sow red or medium clover in waste places along the roads, or even if some of it should get over into their lots, then you ought to be pretty careful about sowing sweet clover. I do not know that I ever heard of scattering sweet clover or any other honey-plant seed on land that belonged to somebody else, even if it was waste land, and I would not recommend such a course. Yet all those who persist

in pronouncing sweet clover a weed should recognize it is just as much one of the *clovers* as mammoth, red, and medium.—A. I. R.]

CARL'S EXTRACTOR FOR UNFINISHED SECTIONS.

IN GLEANINGS, p. 928, Mr. C. R. King asks if unfinished sections can be extracted without breaking the combs. My brother has made a very nice little extractor for just such sections, and it works very nicely. It is made out of an ordinary-sized galvanized pail, and is operated by means of a cord,



A A, baskets to hold frames; B, pins to hold baskets; C, braces; D, common galvanized pail; E, spool and cord for power; F, sockets for shaft; dotted lines show basket tipped to receive combs.

by which means the speed can be regulated in accordance with the sections to be extracted. The frames can not be reversed; but the sections can be made to operate in the opposite direction. The whole thing is a very inexpensive affair, and will come in quite handy for those who have a great many unfinished sections which they do not wish to lose. Perhaps it can be made to accommodate four sections at one time—ours is for two. I send drawing herewith.

H. F. CARL.

Washington, D. C., Nov. 5.

[Where one has a full-sized extractor it is better to use a frame that will hold four sections at once or two such frames for a two frame extractor. A small machine such as is here shown *can* be made to work, but it will consume a lot of time for a few sections.—ED.]

WIDTH OF ENTRANCE FOR INDOOR WINTERING; DEPTH OF EXTRACTING-FRAMES.

1. I have my bees in a cellar. The bottom-boards to the hives give a clear space of $\frac{7}{8}$ inch under the frame. Do you consider that sufficient ventilation?

2. How deep would you advise making extracting-frames, and what weight or grade of foundation would you use?

Athol, Mass.

A. M. V. HAGER.

[1. Ordinarily the $\frac{7}{8}$ -inch space under the frames will be sufficient. Dr. Miller, however, prefers full 2 inches. The deeper space is, perhaps, better; but we have secured uniformly good results with a $\frac{7}{8}$ -inch space.

2. Anywhere from 5 to $7\frac{1}{2}$ inches is the usual depth for extracting-frames, preferably the latter. In any case, use some standard dimension to avoid confusion, so that you will be able to get your supplies at a reasonable figure. The two depths of shallow extracting-frames most commonly used are $5\frac{3}{8}$ and $7\frac{1}{2}$ inches deep.—ED.]

GALVANIZED STEEL ROOFINGS.

Seeing your editorial, page 956, on roofing materials, I should like to ask whether you know the galvanized steel roofing sold for house roofs to be durable, and whether it will be cheaper than zinc for hive-covers? Would it require painting?

R. B. HUNTER.

Brinkleyville, N. C., Dec. 2.

[The galvanized steel roofings sold on the market I think are all good—at least that has been our experience. Zinc would cost nearly twice as much. No paint would be required, but it would be advisable to put one coat of white on so as to draw less heat if the hives were exposed to the sun.—ED.]

ACID FOR REFINING WAX.

Will you kindly inform me which grade of sulphuric acid is used in cleansing beeswax, the common or the C. P.? How much stronger is the C. P. than the common?

WILLIS H. FREEMAN.

Westville Center, N. Y., Dec. 5.

[The ordinary sulphuric acid, the commercial article, is the kind to use. The C. P., of course, is all right, but too expensive.—ED.]

SOUR MOLASSES.

Having a chance to purchase a barrel of sour molasses, would it be fit to use for spring feeding, and should I purchase the same for that purpose? W. C. HAINES.

McComb, Ohio, Jan. 5.

[We would not advise you to use the sour molasses. It is not even fit for spring feeding.—ED.]

REPORTS ENCOURAGING

[There has been some objection made to this department, to the effect that it is misleading to pick out the good reports. This may be to some extent true; but for all that it is right that every one who undertakes bee culture, and fails for the time being, has a right to know and ought to know the possibilities of bee-keeping; and we all ought to know what is possible for an expert. Our old friend Dr. Miller has had so many discouraging seasons that, if I am not mistaken, he has once or twice almost felt like giving it up, that is, taking one year with another. But now is it not worth something to every reader of GLEANINGS to know what the doctor did during the past year—see page 13? Some of you may say it is accidental and there is no particular credit due the doctor, but I do not believe it. I think there may be slipshod bee-keepers in his own neighborhood (perhaps there are none, however), that may not have noticed the season was any thing remarkable. The great yield he secured was largely the result of rare skill, and the accumulation of years of experience. Now let us gird up our loins and be able to do something like it when Providence favors us with a bountiful yield of honey. It would be funny indeed if we old chaps have not accumulated just a little wisdom during the years a kind Providence has permitted us to live and learn. Is not that true, doctor?—A. I. R.]

FROM 1 TO 4, AND 250 LBS. OF HONEY.

Here is my report for 1903: I brought one colony when I came from Colorado last spring. June 5th I divided into four nuclei. I received 250 lbs. of nice comb honey, and I now have four good strong colonies to experiment on this year. T. J. LANDRUM.
Roswell, N. M., Jan. 10.

You ask for reports. My report, from 63 colonies, spring count, was 6415 lbs. of comb honey sold; considerable given away; increased by nuclei to 72.

De Kalb, Ill., Dec. 25. A. Y. BALDWIN.

From 32 colonies, spring count, I harvested this year 1004 lbs. extracted and 614 lbs. comb honey, which is considered good for this region. The season was cool and wet, but not so disastrous as the summer of 1902. Bloomdale, O., Dec. 24. M. N. SIMON.

I transferred in spring; increased from 59 to 83; got 1550 sections, all No. 1, and 325 lbs. of chunk honey. My average from the old-fashioned gum has been 20 lbs. for the last six years. J. J. WILDER.

Cordelle, Ga.

Spring, cold and wet; first swarm, June 28; excessive swarming throughout July, August, and September. White clover and heart's-ease were abundant. Average of 70 lbs. per colony. F. M. ROSEMAN.

Marquette, Neb., Dec. 26.

I send you my report this year, with 14 colonies, spring count; increased to 24; got 800 lbs. comb honey. I have owned and kept bees for 73 years. I can say this has beat all years for swarming.

Darlington, Wis., Dec. 30. JOHN CLINE.

I started one year ago with two stands of blacks, and sent to Moore for two of his long-tongued Italians, and raised my own queens. I have 14 stands, and I believe they are pure Italians. The one stand that I did not disturb stored 80 lbs. of comb honey.

M. M. BARRON.

University Park, Ore., Dec. 12.

I started in the spring with 11 colonies; increased by swarming 4 colonies; captured runaway swarms, 4. Total, 19 colonies. I got 4225 lbs. of honey, all extracted except about 300 lbs. of section honey, and got 19 lbs. of nice yellow wax from cappings. Bees are all rich in winter stores. Prospects are fine for a crop this year—white clover everywhere. WM. O. HEIVLY.

Raymore, Mo., Jan. 9.

My report for the year is 85 colonies, spring count; increased to 146. I have extracted 24 000 lbs. of honey, and 253 lbs. of wax. My average of 282 lbs. per colony is pronounced marvelous, and many doubt my statement. I can verify by indisputable data. I have been in the business only two years, and have made big money both years.

THOS. WORTHINGTON.

Leota, Miss., Dec. 22.

I have been a bee-keeper twelve years. I started with one colony, and have kept increase down as much as possible. Now I have 40. Lowest average was 20 lbs.; highest, 175 lbs. per colony; general average, about 50 lbs. I sell all my honey in the home market, at 15 cts. for comb (Danz. sections); 12½ for extracted; main harvest, white clover. I rarely have to feed. I winter outdoors; losses small. M. D. ANDES.

Bristol, Tenn., Dec. 23.

Mr. A. I. Root:—I just received GLEANINGS, and will send you my report. About this time in 1900 I didn't know any thing about bees. I bought a colony in March, 1901; bought more in fall; started with 6 in 1902; bad year—no honey, but increased to 15; bought more in fall; started with 45 in 1903; increased to 60; made 4950 lbs. extracted; sold it all at retail in San Antonio, except about 150 lbs. which I keep for home use. F. W. SANDAN.

San Antonio, Tex., Dec. 22.

The past season has been a very poor one for bees. From 125 colonies we extracted about 500 lbs. But some locations only a few miles away did much better. Year before last was also a poor season.

JAS. D. YANCEY.

Angleton, Tex., Jan. 6.

[Some of our reports seem to be a little discouraging as well as encouraging—the above for instance; but as we want the truth of the matter, no difference what it is.—A. I. R.]



Wherefore do ye spend money for that which is not bread? and your labor for that which satisfieth not?—ISA. 55:2.

As I dictate this, almost every man, woman, and child in the United States, and a great part of them, for that matter, in the whole wide world, knows about the Chicago horror where almost six hundred people, largely women and children, suffered a horrible death in something like ten minutes' time, and that, too, in the day time, right in that crowded city. It has been written up so fully in all its aspects that I need not go into details; and more prompt and vigorous measures are being taken now than perhaps the world ever saw before to prevent a repetition of such a disaster. It was a terrible lesson—perhaps the most terrible this country has ever known. Hundreds of vigorous editorials, not only in our dailies but even in our weekly periodicals, are coming up on every hand. But I have felt troubled and pained, in going over a great number of our home papers, to see how few even intimate that theaters and theater-going are any thing out of the way, even for professing Christians and followers of the Lord Jesus Christ. I am not sure that my own children would think it exactly right for me to make objection in public print to, say, our best class of theaters. The Chicago *Advance*, however, has ventured to suggest that "fire is not the only danger to be feared from our American theaters." It ventures to say in an editorial, "Some of them would be safer if they were burned up and burned down, and never rebuilt. A moral infection has been eating into them that is worse than fire." On another page, under the heading "We are Moved to Remark," they suggest that "the closing of some theaters makes it easier for some people to pay their rent and grocery bills." This latter expression alludes to the fact that the theaters of Chicago are at present closed until they can make changes in their construction so as to conform to the city ordinances.

Doubtless many of my readers will say, "Mr. Root, if *you* do not like theaters, and honestly disapprove of them, why not drop the matter and stay away, but at the same time let others who do not feel as you do exercise their own conscience in the matter, and go?"

Well, in view of the above I *have* kept still for a good many years. But I fear people misjudge me. I *do* like theaters—yes, and circuses—in one sense of the word. I am inclined to think there is hardly one among you who enjoys a first-class play with the keen relish that I do. A good many may say, "Why, if this is true, go by all means, and have a good time with the rest of us." But, my dear friends, I

can honestly add, "I not only enjoy theaters, but I should enjoy with a huge relish a *glass of beer* also." It is a long time since I tasted any, it is true. The last time I had a good taste, partly by mistake, of real first class beer (that was not what they called it, but that was its right name nevertheless) I almost groaned in spirit because my conscience told me it was absolutely *wicked* for me to drink any thing that "hit the spot" as exactly as that did. Oh, yes! it is true that I am a sinner, like the rest of mankind, and a good deal of the time I constantly crave the things I know from past experience, as well as present, would do me harm.

I can not tell you in this short Home talk all the harm that theaters do, but I think I can give you some suggestions. A short time ago a book called David Harum made a big sensation. I am glad, however, it dropped out of sight about as quickly as it came into prominence. The book defended not only tobacco and beer, and theaters and circuses, but it suggested a new and better kind of religion (?) than that found in the old orthodox creeds. It brought the tears to the eye of the reader, almost if not quite, in telling what a humane act it was to take a boy to the circus for the first time in his life—a boy who had a hard and cruel guardian. Perhaps I may as well grant that it was a kind act in some senses of the word; but if that boy, during that day, got a glimpse and a craze for circuses, and, later on, theaters, until he became unsatisfied with the regular duties of life, perhaps we may say such a life as had fallen to his lot, the act of taking him to a circus may *no* have been such a kind one after all.

Later on there was something of a stir about a little book called "Miss Wiggins' Cabbage-patch;" and some of my friends told me I would greatly enjoy reading it. I picked it up thinking it would have something to do with market-gardening. I threw it down in disgust; but when my youngest daughter urged me to read it clear through, saying it was a religious book, I finished it. I do not know but the majority of the world would consider it a missionary story. The writer tells how a woman of wealth took a poor family out of the slums and lifted them for a brief period from humdrum earth to the glitter of heaven by giving them as a treat a glimpse of an up-to-date theater for the first time in their lives. It is true, she gave them an "outing" that was the event of their life, and something to talk about and think of perhaps ever afterward, even if they never attended another theater. But the main point before us is, did this glimpse into wealth among the high classes fit them any better for the every-day duties of life? Did it make them any happier about their daily tasks? This

*The glimpse our young people get of life as portrayed on the stage is not that of *real* life. It is a make-believe sort of life. It costs a great deal of money, and it gives no adequate returns. The *Sunday School Times*, in commenting on the objections to the theater going, says this: "On the very face of it, the pro-

wealthy missionary lady might have given this poor family—shall I say it?—a “good old time” by giving them some beer or whisky, or, to be more high-toned, say a bottle or two of champagne. If judiciously administered I do not know but she might have made even the children happy in one sense of the word, for the time being, by the use of alcoholic stimulants; but would it have been a Christian act? David Harum did this very thing, and rejoiced over it. He got some old ladies, who were strict orthodox members of the church, to drinking champagne till they became “merry.”

No doubt, friends, you think I am putting the matter altogether too strongly. But consider for a moment the boys and girls of our nation who are working hard and striving for an education, or for advancement in life. These boys and girls have, most of them, a longing to see a real theatrical play. Many of them spend their hard earnings to go once in a while to a city theater, or, say, just once in a lifetime. Here in Medina we are thirty miles away from the city of Cleveland. An electric car during the season runs once a week to carry theatergoers and bring them back home. The pupils of our high school, and, if I am correct, many of the teachers, go to Cleveland to attend the theater. Some of them, as I happen to know, are overworked and in poor health. It is not only the money they can hardly spare, but the strength and endurance to take a trip of thirty miles, long past midnight, to get home. Would you expect a member of the Endeavor Society, for instance, and an earnest worker for the Lord Jesus Christ, to attend one of these theaters? If such a person did attend, would it add to or detract from his spirituality? I have tried it. Not only does my spirituality suffer when I go to a theater, but even the memory of it dims my love to God for a long time to come.* My nearness to my Maker, and my close relationship to him and daily communion with him, or, in other words, my spirituality, is worth more to me than any thing else this whole world has to offer. I am *afraid* to go to theaters and circuses; I am *afraid* to drink beer; and I am afraid to join in with sabbath-breakers, because I know by experience that these things interfere with my communion with God, and mar my happiness and peace of mind.†

fection of an actor stands all by itself, in demanding of its pursuer that his main purpose and endeavor shall be to seem what he is not; to appear something else than his real self; and herein lies the essential and irremediable evil of this profession.”

And, again, “A man who is, perhaps, at heart a good and a true man, and who has exceptional capabilities of good, devotes himself to seeming a bad man, and to exhibiting the semblance of the vilest passions or of the most abhorrent crimes. How can such a course fail of injury to a noble nature? Even if it in no degree lowered the tone of that nature, it inevitably restrains it within limitations all unworthy of its powers and destiny.”

†* A converted actor, after spending ten years of his life on the stage, writes to the *Sunday School Times* as follows: “The life is demoralizing and immortalizing. It sends spirituality glimmering.”

Some years ago while visiting a brother of mine in a distant State, Mrs. Root and I consented to go with him and his wife to a theater, because his wife was acquainted with one of the principal actors. The play was above reproach. There was not an indecent thing in it from beginning to end. It was like a beautiful story, but there was no particular moral to it. The whole object and aim of that play was to amuse and entertain, and the tickets cost us \$1.25 apiece. I shall have to confess I do not know now what it costs to attend a modern theater; but my feeling then and now in regard to it is, in the language of our text, “Wherefore do ye spend money for that which is not bread, and your labor for that which satisfieth not?” We were all professing Christians. Not only the admission fee, but the money it cost to put up at a hotel made it expensive for people of our means. Perhaps people do not figure the expense all around. Here is a clipping from one of our daily papers in regard to the present closing of the theaters in Chicago:

The closing of the theaters in that city, and the general scare of the people, has been disastrous to business in that line. The railroads carried any number of theatergoers into Chicago, and in addition carried several thousand theatrical folks there in a season. Now all of this business has stopped, and the railroads are feeling the loss rather severely.

If our young people could be induced to forego the pleasures of the theater they would have just so much more money for something else—say getting an education. Some of you may tell me that our best theaters are, in the best sense, educational. Even if this is true, I think it is an *expensive* kind of education. Better take the money and get your education in broad daylight, or, say, at an evening school that does not keep you up when the average boy and girl should be sound asleep. If you have read the papers you know something of the vast sums of money that are put into theaters and opera-houses.

The recent developments in regard to the tragedy at the Iroquois theater show us that different officials were paid good salaries for looking after the machinery of the theater in case of fire. There were police inspectors belonging to the city and that belonged to the theater, who received ample pay, but that was all. Investigation revealed an awful state of criminal neglect; and then the investigating committee found that *that* theater was not the only dangerous one. The ordinances of the city were not complied with in any respect; and this state of affairs not only confronts us in the management of theaters, but in the management of the entire affairs of city government. Men draw their pay and *do nothing*.

† Dear old Dr. Watts beautifully describes the point I wish to make, in one of his old hymns, when he says:

Is this vile world a friend to grace
To draw me on to God?

‡ Now, instead of the word “vile” in the above place, supply “theatrical” and then you have it. Will attendance at theaters lead the young Christian on to God, or the contrary?

The man who stands over them, and should keep watch, draws his pay and—*does nothing*. The policemen do still worse. They get pay from the city for enforcing the law, and then get *more* pay from the whisky-sellers for *not* enforcing the law. How shall we train up the rising generation so as to have a better class—a more honest and God-fearing set of men and women, for the women are also responsible?

Now, this is a solemn and serious question. In God's name I ask you to answer me—answer me while you are thinking of the future welfare of your own boys and girls. Will sending them to the theaters, or helping them to attend theaters, make them *more* godly and upright? Something comes in here that is not exactly in the line of theater-going; but it comes so near it, however, that I am going to give it as a fitting windup to this Home talk. It came to us in tract form.

A SCATHING INDICTMENT, BY REV. S. B. ALDERSON.

At a mass meeting in the Second Presbyterian Church of Portsmouth, O., on a recent sabbath afternoon, in the presence of over two hundred men, a converted gambler and ex-saloon-keeper made the following statement, which has created a profound impression, and I herewith transmit it to your paper, that it may do good in a wider sphere:

"I have been in the saloon business, with a gambling-room attached, for the last four years, and claim to know something about what I am going to tell you. I do not believe that the gambling den is nearly so dangerous, nor does it do any thing like the same amount of harm, as the social card party in the home. I give this as my reason: In the gambling room the windows are closed tight, the curtains are pulled down; every thing is conducted secretly for fear of detection, and none but gamblers, as a rule, enter there; while in the parlor *all* have a cess to the game; children are permitted to watch it, young people are invited to partake in it. It is made attractive and alluring by giving prizes, serving refreshments, and adding high social enjoyments. For my part I never could see the difference between playing for a piece of silver molded in the shape of money and silver molded in the shape of a cup or a thimble. The principle is the same; and whenever property changes hands over the luck of cards, no matter how small is the value of the prize, I believe it is gambling. Perhaps you have never thought of it; but where do all the gamblers come from? They are not taught in the gambling dens. A stranger, unless he is a fool, never enters a gambling-hell because he knows that he will be fleeced out of every thing he possesses in less than fifteen minutes. He has learned somewhere else before he sets foot inside of such a place. When he has played in the parlor, in the social game of the home, and has become proficient enough to win prizes among his friends, the next step with him is to seek out the gambling-room, for he has learned, and now counts upon his proficiency to hold his own.

"The saloon men and gamblers chuckle and smile when they read in the papers of the parlor game given by the ladies, for they know that, after a while, these same men will become the patrons of their business. I say, then, the parlor game is the college where gamblers are made and educated. In the name of God, men, stop this business in your homes. Burn up your decks and wash your hands. The other day I overheard two ladies talking on the street. One said: 'I am going to have a card party, and am going to the store to get a pack of cards. Which are the best kind

to get?' The other replied, 'Get the Angel card. It has an angel on the back.'

"Think," said he, "of dragging the pure angels of heaven into this infernal business."

After he had taken his seat another ex-gambler, who led the men's meeting in the Second Presbyterian church the following sabbath, arose and said: "I endorse every word which the brother before me has just uttered. I was a gambler. I learned to play cards, not in the saloon, not in my own home, but in the homes of my young friends who invited me to play with them and taught me how."

I send you these testimonials, hoping that you can use them, and that God will sound through them a note of warning to card-playing Christians. A number of men went home from that afternoon meeting and set up a new rule in their families, that never should another game be played inside their house; that their parlors should not become kindergartens for training young gamblers.

Tobacco, Cigarettes, etc.

TOBACCO AND CIGARETTES IN THE UNITED STATES.

Friend Root:—The clipping inclosed shows such an enormous annual increase of the consumption of cigars and cigarettes that I want to call your attention to it again—nearly 9 per cent of cigars and over 10 per cent of cigarettes. Does the membership of all the churches increase any thing near as fast? And is there any thing done by them to speak of to combat the evil? One of the churches here has had two successive pastors that have used tobacco, and one of them has had to enter a saloon and take his two boys by the collar to bring them out.

I think some, as I read our reform paper, that the tobacco-user need not wonder that his sons are drunkards or his daughters prostitutes. That, I know, is putting it rather strong; but something is needed. Even more Dowies would be welcome, so far as tobacco is concerned. To get rid of tobacco I would be willing to put up with a large—very large—amount of superstition.

Conneaut, O., Dec. 12.

D. CUMMINS.

Below is the clipping referred to:

ARE WE SMOKING TOO MUCH?

The tobacco bill of the American people has grown to an enormous size. The people of the country use more tobacco and snuff every year. While the men spend more money on tobacco the women are doing a larger business with snuff than ever before. There were 310,631,639 pounds of tobacco and 18,840,747 pounds of snuff withdrawn from warehouses for consumption during the last fiscal year, not counting 8,345,217 pounds withdrawn for export, making a total of the two articles of 337,840,603 pounds used, against 323,464,428 pounds in the preceding fiscal year.

A total of 7,787,454,105 cigars was withdrawn for smoking, an increase of 679,437,181 over the preceding year. Cigarettes smoked during the last fiscal year numbered 3,254,838,330, an increase of 357,213,403 over the year before.

There were 26,423 cigar and 517 cigarette factories in operation. Virginia manufactured 460,702,341 cigars, using 4,096,102 pounds of tobacco. North Carolina makes comparatively few cigars, putting most of her manufacture into plug and other tobaccos. North Carolina, for instance, used only 186,251 pounds of tobacco in cigars, and made only 9,423,046 cigars.

New Jersey produced more snuff than any other State, the total being 5,583,323 pounds, nearly one-third of all that was used.—Washington Star.

Of course, the question arises, "Are the figures given above true?" As the periodical quoted comes from Washington, the seat of government, I presume it is authoritative. We have not copied the whole article as given by the Washington Star, but there is no evidence in it that the writer was feeling troubled about it. He simply gave the facts and figures, without comment. My impression was that cigarettes were on the decrease; and, if I remember correctly,

* After the above was in type I found the following in a later copy of the Sunday School Times:

The following letter from a Chicago pastor, received just as this issue is closing, is of timely significance: "The Froquois Theater horror has shaken our city as it is seldom stirred by any interest. The theater question, morally considered, has become a living question with hundreds of Christian people who frequent such places. Several have intimated to me that they should never go again—nor solely through fear, but through an awakened conscience. Not only in Chicago, but the country over, the hour is ripe for gentle and tactful dealing with theater-going Christians."

there is at least one State in our Union that has banished by law the manufacture of cigarettes. The statement that there are 517 factories making cigarettes in this country is, I confess, quite a surprise to me. God forbid that it should be true, as friend C. hints, that the use of tobacco is increasing among ministers of the gospel. The agricultural papers, as a rule, are continually holding up warnings; and I am sure the use of tobacco is not on the increase among the readers of our *bee-journals*. How is it, brethren?

It may be a good plan to have the law of Ohio read over occasionally so that we may remember what it is.

Be it enacted by the General Assembly of the State of Ohio, That whoever sells, gives, or furnishes to any minor under sixteen years of age any cigarette, cigarette-wrapper, or any substitute for either, or any cigar or tobacco, upon conviction thereof shall be fined not less than twenty-five dollars nor more than one hundred dollars, or imprisoned not less than two nor more than thirty days, or both for the first offense, and fined not less than fifty dollars nor more than three hundred dollars, and imprisoned not less than five nor more than sixty days, for the second or any subsequent offense.

Now let me copy from one of our great Cleveland dailies, the *Press*. They, surely, are not extreme in this matter:

The effects of cigarette-using by young boys would be a startling revelation to many of their mothers if they understood of the alarming proportions to which it has grown in this country.

A magistrate in Harlem court, New York, made the following significant declaration the other day:

Yesterday I had before me 35 boy prisoners. Thirty-three of them were confirmed cigarette smokers. To-day, from a reliable source, I have made the grewsome discovery that two of the largest cigarette manufacturers in this country soak their product in a weak solution of opium.

The fact that out of 35 prisoners 33 smoked cigarettes might seem to indicate some direct connection between cigarettes and crime.

And when it is announced on authority that most cigarettes are doped with opium, this connection is not hard to understand.

The cigarette is to young boys very much like what whisky is to grown men. If it does not directly cause crime it at least accompanies it in nine cases out of ten.

It must be universally admitted that the majority of young boys addicted to cigarettes are generally regarded as bad boys. It is an addiction that does not ally itself with the high virtues of manly youth. It leads to bad associations and bad environment. He must be a strange boy indeed who can derive moral and physical good from cigarettes.

Opium is like whisky—it creates an increasing appetite that grows with what it feeds upon. Even pure tobacco has the same effect.

The growing boy who lets tobacco and opium get a hold upon his senses is never long in coming under the domination of whisky too.

Tobacco is the boy's easiest and most direct road to whisky. When opium is added, the young man's chance of resisting the combined forces and escaping physical mental, and moral harm is slim indeed.

It is a deadly combination in most cases. There are few, if any, cases in which it is not more or less harmful. Stomach and nerves and will power weakened for life is the common result, even though the habits be finally mastered.

May God be praised for the fact that President Roosevelt does not use tobacco in any form. His example here should be a beacon-light to the boys of the whole world.

LOCAL PROHIBITION IN TEXAS.

We clip the following from the *Independent* for Jan. 14:

Very interesting statistics of prohibition and crime

are reported from Texas, where the local-option law assures that prohibition of the saloons shall be enacted only where it can be enforced by public sentiment. There are in that state 23 prohibition counties that have no convicts in the penitentiary, and 9 with only 1 convict each. In 39 prohibition counties there are only 23 convicts in all. San Jacinto County alone, with a population of 10,277 and the open saloon, has 25 convicts, and Montgomery, with open saloons and 17,067 population, has 21 convicts in the State prison; and these are two poor counties in the piney woods. Collin County with 50,000 people and no saloons has 20 convicts; Lamar County, with 48,000 and saloons, has 96. A large part of Texas has no saloons, and has one convict in 1500 of population, while the territory with saloons has one convict for every 500 of population. Such figures teach a lesson.

I hope our readers will read the above over and over again, just as I have done; and then I hope the whole United States, if not the rest of the world, will wake up to the tremendous moral it gives us. Why will any State, any county, any town, or any nation on the face of the earth, side with the wets with the above facts staring them in the face? It is not Texas alone that has made or is making the discovery. Every State and every community in the United States, or, you might say, in the world, must own up, if they are honest, that the lesson taught us in the above extract is a true one. No saloons, one convict in every 1500 population; *with* saloons, one convict to every 500. Just now we are told by the *Chicago Advance* that the city of Chicago has the finest-equipped free hospital in all the world, and the institution is already bearing good fruit. Our large cities are making great progress in warding off contagious diseases, and in taking every precaution to save human health and life; but when it comes to the whisky business, or even the cigarette business, our great men—at least a great part of them—seem to be suffering from a peculiar kind of paralysis. Our railway companies and factories are coming to life, and shaking off the paralysis—at least to some extent. What is the matter with our governors, mayors, and policemen, and all the others who are looking after the welfare of the masses?

ELECTROPOISE, OXYDONOR, ETC., AGAIN.

Mr. Root:—I am a more or less devoted student of physical culture, and take the magazine of that name. It was, therefore, with sorrow that I noted in a recent issue an advertisement by the Electropoise people. I immediately wrote to the publishers, calling their attention to these people, their ways, etc.; and as I know you to have been on the track of these fellows for a good many years, you will be doing humanity a good deed by furnishing all the information at your command. The Electropoise people got \$20 out of me some years ago before you began showing them up, and all the benefit I derived was the experience.

Hinchman, Mich. E. A. BOAL.

[Thanks for your "experience," friend Boal. I have sent the publishers of *Physical Culture* some facts in regard to the matter. Just now it is only once in a great while that Electropoise or Oxydonor finds a periodical that will accept their advertisement; and it behooves us all to make a protest whenever we meet with any remnant in regard to any of our home journals. Friend Boal, you did exactly the right thing.—A. I. R.]



CATALINA ISLAND.

Everybody said, "O Mr. Root! you must not neglect going over to Catalina Island, and taking a trip in the glass-bottom boats."

When I asked more about it they only answered, "You go and see, and then write it up for us."

I told you something about the crowd of seasick bee-keepers on the way over to the island, on the steamer. When Dr. Miller and I secured a glass-bottom boat and started out to see the wonders, we were both too seasick to feel very much enthusiasm, especially in regard to the scenery at the bottom of the ocean. The glass-bottom boat does not differ very much from ordinary boats, only right along in the middle there is a big square box, and this box has a glass bottom to it. The sheet of glass is down as low as the lowest part of the boat, or pretty nearly as low. Of course, the boatman has to be very careful that a rock does not bump this sheet of glass, and not only cost him a whole lot of money, but perhaps send the whole crowd down among the fishes and "scenery." The railing around the box is just high enough so you can sit on a seat and lean over, looking down into a shallow well, as it were. When the waves are still, they are like a large looking-glass—there is no need of a glass bottom to the boat; but this glass bottom makes the surface of the water *always* quiet; and whenever you find it necessary to see clear down to the bottom of any clear piece of water, such arrangement will be a great help.

When I was in Bermuda they took a common wooden box and puttied a pane of glass over the bottom to make it watertight. By holding this over the side of the boat one could see down into the water to a great depth. It simply quiets the rippling of the waves on the surface. With this explanation I will tell you what the doctor and I saw.

All around Catalina Island there is a wonderful luxuriance of seaweeds. These aquatic plants that grow in the salt water are not only wonderful variations of the most beautiful fernlike foliage, but the colors are as gorgeous as the most lovely flowers; and some of these seaweeds are, I think, fully as large as ordinary apple-trees. Imagine yourself sailing right over the top of an apple-orchard in full bloom in May or June, and then anon imagine hundreds of other varieties of beautiful exotic plants waving in the breeze, with all the spaces between the plants filled with birds of the most gorgeous plumage, and you have something a little like it. Instead of a breeze, however, through the tree-tops, it is currents of water that sway the branches

more gracefully than the wind ever did; and instead of the birds it is fishes of wonderful brilliancy, of all colors of the rainbow. There are gold and silver fish; there are sea-urchins and sea-reptiles; there are things you never dreamed of, and all seem to be in harmony. The fishes glide among the branches, and come right up close to the glass bottom. There are tiny fishes not larger than cucumber seeds; and there are some monsters which, if not exactly large enough to swallow you whole, frighten you with their cool indifference to your nearness.

Some of you have, perhaps, looked over the pressed specimens of the wonderful seaweeds gathered out of the salt water along Catalina Island. When we got ashore we had time, before the steamer left, to go through hurriedly a wonderful salt-water aquarium. This contains specimens of all the strange monsters we saw through the bottom of the boat, and a guide stood ready to answer all questions an inquisitive Yankee could ask him; and I tell you there are some wonderful things for us to learn about the fishes that live and move away down at the bottom of the sea. There are queer creatures that seem to live and thrive on the line that divides plant from animal life; and there are creatures so hideous that the memory of them might give you the nightmare—that is, if you are in the habit of having nightmare dreams.

Before taking the trip back, the doctor and I decided we would try some dinner, as it was long past the regular dinner time. And here again we were agreeably surprised by having served to us a delicious fish like some we had seen through that glass-bottom boat; and in my case, at least, that dinner of fish "hit the spot" exactly, in spite of the seasickness that had been hanging around. Yes, I think it cured it for the time being.

On the way back our experience was varied by a wonderful treat in the shape of fishes that not only skimmed the water *below* the surface, but, just for the fun of it, they occasionally skimmed the air *above* it. Several times they came so near the steamer that one could almost catch the expression of their eyes. So far as I could learn, these fish never flap their glossy wings while in the air. The passengers I questioned thought the fish acquired sufficient momentum while in the water to get out into the air and sail about in most graceful curves, sometimes for almost or quite a minute at a time. This seems to me almost incredible, for they often take a curve and go up a rod or more above the surface, and then sail about like a hawk with its wings motionless. The brilliant crystal wings sparkle in the sunlight like mirrors; and while I enjoyed the sight so much I wondered that more had not been written about them.

We saw porpoises in abundance, and I think something that somebody said was a shark; and it was my fortune once to see a whale blow his fountain of water; and I

got a little glimpse of his great bulky body. In fact, I was so highly entertained that I almost forgot to be seasick. I really fared better than some of the bee-keepers who sat close by. Perhaps they would prefer not to have me mention their names in this connection, for peculiar reasons of their own.

Now, when you go to California do not think of missing Catalina Island and the glass-bottom boats.



THE SLOE PLUM; MORE ABOUT IT, BY E. C. GREEN, OF MEDINA, O.

In GLEANINGS for Nov. 1 Mr Root gave a very interesting account of this plum, which is, as he said, one of our wild or native plums. As usual his estimate was not far out of the way, for this is what J. W. Kerr, of Maryland, one of the leading authorities on the native plum, says of it: "The provident housewife finds this type of fruit unsurpassed for culinary uses of the plum. In any form that the Damson satisfies cookery ambition, the fruit of this group finds enduring favor. No uprightly black knot to enfeeble the trees; no uncertainty about a crop. Twenty-five years of experience leads me to look with about as much certainty to the annual production of a crop as to the coming and going of the seasons; and the planter who omits them from his family orchard is not living up to his license."

The group which Mr. Kerr speaks of is known as the Wayland, to which the variety known locally as the sloe belongs. This plum was brought to this county some thirty years ago by Mr E Triffitt, from Illinois. Just how it got the name I do not know; but there is another plum not nearly as good, that has a prior claim to the name.

I have seen the sloe in fruit for a number of years, and have had it fruiting in my own orchard for the past two years and there is no doubt that it is almost identical with the dark-red variety of the Wayland group which I have seen fruiting in the orchards of the Ohio experiment station. The Wayland group of plums is among the most vigorous and productive of our native plums. The fruit varies from a light yellow to a dark red. Nearly all the varieties are late in season. It may have been sold as the "Japan plum," as Mr Root said; but the real Japan plum is a distinct species of which a large number of varieties have been introduced in the past thirty years. But our native plum is an exceedingly interesting fruit, which varies greatly in growth and fruit. So great is their variation that they have been successfully hybridized with the peach on one hand and on the other with the cherry.

E. C. GREEN.

It is true there may be some who think our large cultivated varieties may be far ahead of this smaller-sized though handsome plum; but when we consider that it is absolutely proof (or at least it is here in our locality) against curculio, rot, and every thing else, so far as I know—is a rank grower, bears every year—I think we can afford to have a tree or two. It has, too, a peculiar wild flavor that to me is more enticing than any other plum in the world. Very likely it is largely owing to the fact that a wild plum-tree grew near my boyhood home, producing plums very much like the sloe plum. Every time I taste it, it makes me feel like being a boy again.

PUGET SOUND

Cabbage and Cauliflower Seed IS UNEQUALED!

There is only one part of the United States where cauliflower and cabbage seed can be grown successfully. This is the **Puget Sound** district. It is the equal of any European district; and this, combined with the superiority of American methods, makes **PUGET SOUND SEEDS** the best in the world. This strain of seed is highly praised by practical gardeners and

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Ag. Ex. Station, Urbana, Ill.

Messrs H. A. March & Co.:

I consider it superior to imported seed.

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H. A. March

I consider your cauliflower seed as **EQUAL TO THE VERY BEST** in the market, and as long as you keep it up to its present standard, I shall not hesitate to recommend it.

W. J. GREEN, Horticulturist.

MAINE.

Maine Ag. Ex. Station, Orono, Me.

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The plants from the seed you sent compare very favorably with those of imported stock.

W. H. MUNSON, Horticulturist.

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If you can raise such seed as you sent to us, on Puget Sound, there will be no more call for imported seed.

GEO. COOTE, State Ag. Col., Corvallis, Ore.

MINNESOTA.

University of Minn, Ag. Ex. Station.

H. A. March:—It seems almost superfluous for me to add that I have very much faith in the value of Puget Sound cauliflower and cabbage seed, since, as you know several years ago I made quite a trial, and gave you a very favorable report.

SAMUEL B. GREEN, Horticulturist.

The seed we offer is grown by Mr. March, and is his *best stock seed* from selected heads. It costs us three times as much as the ordinary commercial grade, and you but little more than the usual prices.

Select Very Early Jersey Wakefield Cabbage, per pkt., 5 cts.; oz., 20 cts.; ¼ lb., 90 cts.; per lb., prepaid, \$2.50.

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