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# GLEANNINGS

## IN BEE CULTURE

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THE A. I. ROOT CO.

MEDINA

OHIO



U.S.A.

Western Edition



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\* These dealers buy our goods in carload lots but supplement them with local-made goods.

# The A. I. Root Company, Medina, Ohio, U. S. A.

# GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED  
SEMI-MONTHLY  
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A. I. Root doesn't know that he has had experience with blue grass, but he has with June grass, page 1201. Friend Root, blue grass is *Poa pratensis*, and so is June grass. They're one and the same thing.

So A. I. ROOT "will go back to his old love, the bees," p. 1177. Good! But say, Bro. A. I., don't go so crazy on bees that you can't stop now and then to give a whack at humbugs, rotten politics, and some other things.

I AGREE perfectly with you, Mr. Editor, in the ground you take, p. 1174, as to the importance of having piles of sections well ventilated. I didn't raise any question as to that; but my question was as to the need of another set of receptacles for it, instead of piling up in the supers. Possibly friend Green has receptacles that are more open than supers, but I didn't understand it so. [I stand corrected.—ED.]

A QUESTION is asked of me by that canny Scotchman, D. M. Macdonald, *British Bee Journal*, p. 425. Referring to what I say of that group of teachers so grittily holding on to their bee-covered combs in that picture in GLEANINGS, page 914, he says: "Thanks, Dr. Miller, for what you say of my young brethren in the group; but why leave out the gentler sex? I think they are so *bonnie* that they must all be of Scotch descent. What can I say more than that?" Friend Macdonald, I don't know any thing better to say of them.

"I HAVE OFTEN TRIED to satisfy myself as to whether the bee is more profitable from the standpoint of wax or honey, but I can't do it," says Stenog, p. 1177. If you mean whether one can make more money by producing honey or wax, you ought to be able to satisfy yourself easily. You proba-

bly never saw a bee-keeper who made as much money from his wax as from his honey. The fact that there are a few places where wax is more profitable cuts little figure in the case, I think. I believe it is not because wax is so profitable, but because honey is so unprofitable, the expense of getting to market eating up all the profit on honey. If it costs 6 cts. per lb. to reach the market, and on that market brings 6 cts. and wax 30, the honey will be practically worthless, while the wax will bring a paying price.

PROF. BIGELOW, I respect your plea, page 1187, for attention to some other things than simply those that pertain to getting the most honey from bees; but we may as well recognize the fact that naturalists and bee-keepers are in two separate classes. We look up to naturalists as a superior order of beings, but it would hardly do to have nothing but naturalists. Shoemakers are needed; so are bee-keepers. So please don't blame us too much for being bee-keepers, and don't blame us for looking at things from a bee-keeper's standpoint. When bee-keepers find in a periodical professedly published for bee-keepers the statement that those who practice tanging are not fools, you may always expect that they will be unnaturalistic enough to think such a statement comes very close to advising tanging. With all this, I am still thankful to you for trying to have bee-keepers enjoy some of the higher delights of the naturalist.

"IT IS ALWAYS advisable, where it can be done, to put cellared bees into protecting-cases when they are set out in the spring," page 1179. That raises two questions: 1. Where can it not be done? 2. Would it pay me to use such cases? [Where can it not be done? Some would object on account of the expense or extra work. Would it pay you? I am inclined to think it would. I have noticed this: After a colony is set outdoors, and there comes on a severe cold spell for four or five days or a week, many of the bees die. They have been getting old, and after their long confinement in the cellar they suffer more or less from exposure when set outside with only the single walls of the



hives to protect them against the cold. Suppose, doctor, next spring you put a dozen or so cases over a part of your colonies and carefully note the results. If these colonies seem stronger, and go into the supers sooner than those that are not protected, the cost of the winter cases when divided up over a series of years will be more than made up by the saving in the bees over winter. I believe it is always an advantage to set bees out as early as possible to get the advantages of early cleansing flights; then if they are warmly protected after that, a cold snap for several days will not do very much harm.—ED.]

THE QUESTION is asked, p. 1180, "If gentleness were their only redeeming quality, would that be sufficient reason for introducing into this country Caucasian bees?" I unhesitatingly answer, yes. There are some, of whom Prof. Bigelow is an extreme type, who care little or nothing for the amount of honey secured, but they care much for bees as an interesting study. I hasten to offer a provisional apology to Prof. Bigelow for venturing to use his name in that connection, for it is just possible that for him the sting itself is one of the most interesting subjects of study. Others have such a fear of stings that they are debarred from keeping bees, although they would be glad to keep bees that would not sting, even if they secured only half a crop. Still others, who do not care particularly about stings themselves, are debarred for fear of close neighbors being stung. The needs of these three classes are a sufficient reason for introducing bees that will not sting, even if that be their only recommendation.

The question, however, was no doubt intended to have a more general application, asking whether gentleness alone would be a sufficient reason for bee-keepers in general supplanting their present bees with those which had no other recommendation than greater gentleness. No, a thousand times no. If we were told, "Here's a bee that will give you a fourth more honey, but it will give you a fourth more stings," I think the majority of bee-keepers would take the extra stings for the sake of the extra yield. A large number would probably not want bees at all that didn't sting. I, for one, wouldn't have them—not that I like stings; but I want bees for whom thieves will have a wholesome respect. [I meant to say the same thing; but you have said it in so much less space, and so much better, that I simply say amen to all you say.—ED.]

"DON'T WE KNOW that, beyond peradventure, certain conditions, such as dampness and cold as found in the average refrigerator, are detrimental?" says a footnote, page 1173. If you will give the matter close attention you may be surprised to find that material put into a refrigerator, instead of becoming moister, dries out. That's the way it does "in this locality" at least. I have known section honey that had been roasted in an attic to suffer no harm at all

from zero weather in the same place the following winter, and have wondered whether that same honey would not just as well stand the temperature of a refrigerator. [Possibly you are right as to the question of moisture; but the constantly melting ice in the same compartment with the food stuff would suggest a damp cold. But granted that the refrigerator was dry inside, the temperature somewhere about 38 or 40 would be just right to hasten granulation. Tightly corked extracted honey put on my window-sill, where it is quite dry, will candy, usually, before December. But let me tell you, doctor, honey is not liable to candy in extreme cold, especially when the temperature is below zero. We tried last winter, and the one before, to make different lots of honey candy in zero cold, but failed. When it got warmer it began to "cloud up" very nicely. It will candy a good deal quicker in a temperature of 30 or 40 than below that. It will candy quicker still in a temperature that alternates from moderate cold to warm. Our experiments for the last two winters have shown these facts to us very clearly; so it would appear that honey that will not candy in a garret when down below zero proves nothing in favor of the conditions afforded by the ordinary refrigerator.—ED.]



Continuing the list of foreign bee journals there is but one more to mention that is printed in French—namely, that old standby, *Revue Eclectique*, printed at Sainte Soline, par Lezay, Deux-Sevres, France. It covers a wide range in modern bee-keeping.

I now come to our pile of German exchanges. The first I pick up is the *Deutsche Imker aus Boehmen*, having a circulation of 9500. It contains a great amount of reading-matter, and is up to the times. It is printed in Prague, the capital city of Bohemia, Austria. Our German friends will be pleased with this journal I am sure.

The *Muenchener Bienen-Zeitung* is edited by J. Fink, Munich, Bavaria.

*Bienen-Zeitung* is in its 20th volume, edited by J. B. Kellen, Limpertsburg, near Luxemburg, Germany.

*Praktischer Wegweiser fuer Bienenzuechter* is published in Oranienburg-Berlin, Prussia.

*Bienen-Vater* has reached the venerable age of 37 years, with a circulation of 10,000. It is a great bee journal, and stands, probably, at the head of German bee literature. It is printed in Vienna, Austria.

*Bienenzucht* is published by F. Gerstung, in Ossmannstedt, Prussia.

*Illustrierte Monatsblaetter fuer Bienen-*

zucht is published by Theodor Weippl. a celebrated bee-keeper, in Vienna, No. 10 Leopoldstrasse.

*Schweizerische Bienen-Zeitung.* This is the most beautiful foreign bee journal we get so far as its printing is concerned, and its contents are excellent. It is edited by Goldi-Braun, Altstatten, Canton of Saint Gall, Switzerland.

*Pfalzer Bienen-Zeitung* is edited by Ph. Reidenbach, in Reyborn, Prussia.

*Leipziger Bienen-Zeitung* is a very prominent German bee journal in its twelfth year. As its name indicates, it is printed in Leipzig, Germany.

*Rheinische Bienen-Zeitung.* I believe this is the oldest bee journal in the world, being now in its 56th year, making it about a dozen years older than the *American Bee Journal*. It has a very fresh appearance, however, and is an excellent journal. It is edited by Anton Schulzen, Viersen, Prussia.

Concerning the total number of bee journals published, I append the following, just handed me by the senior editor, A. I. Root:

Now, friends, suppose you guess how many periodicals there are in this world of ours, devoted to bee culture, honey, etc. Well, as you will never guess right I will tell you. There are 83 in all. Only 7 of the 83 are published in the United States, and there is only one in Canada. The others are published across the water. The above statement gives us an idea of how little we are. There are almost if not quite a dozen periodicals published in regard to navigating the air, but not one of them is published in America; and it is a little sad to think that, with all these publications, some having run for fifteen or twenty years, the first real flying that was ever done was right here in America, and yet we have not even one journal devoted to air navigation.

Probably not over half of the above number reach us. A list of all not so far mentioned will appear in our next issue.



#### WHICH WAY SHOULD COMBS RUN IN HIVES?

"Say, Mr. Doolittle, I came over to have a little chat with you regarding the way combs should run in the hives. Have you a little time for such talk?"

"Yes. But which way do the combs run in the hives you are using?"

"They run toward the entrance."

"Very good. And is not that the way they should run?"

"I had supposed so till lately. The past fall I cut several bee-trees and found that the combs almost universally ran crosswise of the entrance, while a day or two ago I examined some old box hives I had stored away, from which I had transferred bees a few years ago, and to my surprise I found that the most of the attachments where the combs had been were on the sides of the hives, or

to that part of the hive, each side of the entrance, rather than to the front and back part of the hives. Since I have seen these things I have been wondering if we were not making a mistake in having the combs run toward the entrance as we do. It would seem that, if the bees place their combs crosswise the entrance while in a natural state, it would be right for us to do the same. Would it not?"

"Your experience has been different from mine in this matter, for in the cutting of a dozen or more bee-trees, and in transferring bees from box hives by the score, I have found that the bees built their combs at any and all angles to the entrance, where there was nothing in the tree or hive in the way of little projections to start them building their combs in a certain direction. Where there is some little projection of wood downward from the top of the hive or tree, having a knife-like edge, the first comb is almost sure to be started on that; and as runs the first comb, all the rest are likely to follow, unless, perchance, there are some other like projections running angling, or in an opposite direction from the first started on, in which case the combs are likely to run in any and all directions throughout the tree or hive."

"That part of the matter is something I had not thought of, and, come to think of it, the box hives I examined had strips across the top, with openings between these strips, so that the bees could more easily enter the supers when they were put on."

"Exactly. And thus you have only the trees to hold up your ideas, for the bees would build on the strips with a hive fixed at the top, as you say; and as I have found the combs in trees running in all directions, it would seem that nature has no choice in the matter, and, if so, then we are at liberty to do as we please unless we have better reasons for running the combs one certain way of the hive instead of any other."

"You may be right. If so, why do most of the apiarists have the frames in their hives run lengthwise to the entrance?"

"I think this matter has been discussed during the past to some extent; but I do not now recall just what the reasons were that were given for having the entrances at the ends of the frames."

"But you must have some reasons for having yours run that way."

"Yes."

"What are they?"

"First of all, if our bees are to thrive the water from rains and snows should not be allowed to go inside of the hive any more than they should be allowed to run all over the floors of our houses in which we live. Our houses are provided with doors and thresholds, but this can not well be provided for a bee-hive; hence to overcome this water matter we set the hive on an incline, or give it a pitch toward the entrance, so that, should any water beat in there, it would immediately run out and away from the habitation of our pets."



"Well, what has that to do with the matter of which way the combs run?"

"Very much, for nature has so ordained that the bees always build their combs perpendicular, or 'plumb,' as we generally speak of this matter; and so if we have the hive tip or slant toward the entrance, in order that the water may run out, and at the same time have the frames run crosswise of the entrance, the bees, in building their combs, will start right at the top; but in going downward in a perpendicular direction the bottom of the first comb next the entrance will strike the side of the hive before it comes to the bottom of the frame, and all the others will have their bottoms over in the next frame thus making the combs not interchangeable even should they be considered movable. But where the frames run with the entrance, the hives can be leveled crosswise of the entrance, no matter how great the pitch the other way, and all combs will be built true in the frames."

"I can see that part now you speak of it. But the hive could be set level while the combs were building, could it not?"

"Yes. But if the hive is tipped toward the entrance, even after the combs are built the bottom of the first frame is liable to be glued to the end of the hive from its swinging against it, and other frames will be glued to the bottoms of others on account of their not swinging equally in accord to the tip of the hive. And, even did they not do this, there are other things to be considered."

"What are they?"

"Most bee-keepers prefer to have their sections run the same way that the combs in the hives do; and, if so, the bottom of the foundation in the sections is swung to one side, where the hive is inclined toward the entrance, which causes bulged and irregular combs in the sections, with the prospect of their being fastened to the separators, so that they are torn in taking out in a way that much of the honey is rendered unsalable. And where only starters are used in the sections, matters are still worse, as then we have the same trouble to contend with that we did in the filling of the frames in the hive."

"Well, surely there is more to this thing than I had thought about. Have you any other reasons for having the combs run toward the entrance?"

"Yes. Where the combs run lengthwise of the entrance the bees returning from the fields can run up between any range of comb they like; while where they go crosswise it tends toward the massing of many bees on the first one or two combs, so that the nurse-bees have more trouble in taking the loads of nectar from these field-bees as they come in, thus massing a lot of bees right at a spot where it is necessary to have the passage-way clear, not only that the going and coming bees may have plenty of room, but that sufficient room be given for ample ventilation of the hive. I have noticed that, where the combs run crosswise of the entrance, there were many more fanning bees at the entrance trying to keep up a proper circula-

tion of air (and that even on moderately warm days) than there would be with those hives which had the combs running the way they usually do; and when it came so warm that the bees were crowded out, these crosswise-frame hives were the first to show bees on the outside."

"Well, I guess I will not make my hives for the crosswise frames this winter, as I was intending to do before we had this talk."



Now is a good time to clean up your old slumgum and run it through some form of wax-press.

THE wealth of illustrations that we shall have in our Dec. 15th issue will more than please our friends.

In our Christmas number it will be explained why Mr. Alexander is able to run so many colonies (750) in one place, and how it will be possible for him to increase that number to 1000 all in one locality.

WE have just devised a metal-spaced Hoffman frame which is pronounced by all who have seen it to be the best self-spacer ever yet brought out. It will retain all the features of the Hoffman, and remove the very last objection that some of the critics have named against the standard Hoffman. There will be illustrations describing it shortly.

#### CUTTING BEE-TREES.

LEST some bee-keepers should forget to ask permission before cutting down a beech on land belonging to a neighbor, we wish to call the attention of our readers to a newspaper clipping taken from *The New Era*, of Hillsboro, Mo., that was sent to us by one of our correspondents. This is a timely warning, for it illustrates the folly of the appropriation of property not our own.

H. B. Drake vs. V. E. Canepa; trial by jury, and verdict for \$50 for plaintiff.

The case of Drake v. Canepa, tried in the circuit court here last week, resulted in a judgment for Drake. This is a bee-tree case, and we have been requested to make mention of it. W. A. Canepa located a bee-tree on land claimed by Drake, and in company with five or six others cut the tree down. Drake filed a complaint of trespass against Canepa before Justice Osterwald, where the case was tried and lost by him. He brought it to the circuit court on appeal, and the court instructed the jury that if Canepa with others cut down a tree standing on Drake's land they should find the issues for the plaintiff, and assess his damages at whatever they found to be the value of the tree. The law is plain; and the cutting of any timber, standing or growing, on the land of another, is trespass, for which the owner may sue, and recover treble the value of the timber so cut down.



NEARLY 25,000 SUBSCRIBERS, AND NEW ONES COMING IN AT A RAPID RATE.

As an evidence of the way our subscription-list is jumping up, I will state that we received something over 1000 new names last month. Some days we get over 100 new subscriptions. The improvements that we are making in our journal, and the special-issue numbers that we expect to get out during the coming year, evidently take well with our subscribers, new and prospective. And, by the way, very few old ones are dropping out. Our list to-day is very nearly 25,000, and we confidently expect to push it up to 40,000. The liberal patronage that we have been getting from bee-keepers will enable us to make the journal more than ever like a standard magazine—one that will be indispensable to the honey-producer.

“HAVE MORE CHARITY.”

The foregoing is the title of an editorial in the last issue of the *Bee-keepers' Review*, which has a good deal of practical hard common sense in it.

I wish our great family of bee-keepers would have more charity than they do for one another. Perhaps the majority do think well of their fellows, but there are a few who are too much given to fault-finding, to seeing a man's faults and failings instead of his good qualities. I don't say that men or their actions ought never to be criticised or condemned; but many times are men fairly *abused* for something for which they are not to blame. I sometimes get letters accusing me very sharply of something for which I am not in the least to blame. If you think that a man has made a mistake, or has done wrong, it is not always best to ignore it or keep still about it; but before condemning a man, ask in a kind and courteous way for an explanation. Don't be so ready to impugn a man's motives until you know all of the circumstances.

While I am about it I might as well say I indorse still another editorial on the use of a *nom de plume* by the same writer.

As a rule I do not approve of the use of a *nom de plume*. There are cases when modesty might be an excuse; where a man, or more likely a woman, might be willing to write but did not care for the resulting publicity. But when a man enters into a critical argument, and proceeds to “roast” some opponent, he ought to come out fair and square with his own signature. To strike a man in the dark, and then dodge behind a *nom de plume*, marks a man as a coward.

SHALL WE TAKE MORE THAN ONE BEE JOURNAL?

I HOLD in my hand a very complimentary letter from one of our subscribers regarding the improvements that have been made in GLEANINGS from time to time. He thinks it covers the whole ground so thoroughly and so well that there is no use of his taking more than one bee journal. While we appreciate most thoroughly this voluntary expression of our correspondent, I desire to say that I believe he is mistaken. If any one keeps bees for the money he can make out of them, he ought *by all means* to take not only one journal but two or three of them. GLEANINGS does not pretend to cover the whole field of apiculture. The personal bias of an editor, even though that bias be unconscious, may cause him to emphasize certain developments of bee lore to the total

neglect of all others. As I look over our exchanges I can see fields that they are covering that GLEANINGS is not; and, conversely, I can see fields that we are covering that they do not.

W. L. Coggshall, perhaps the most extensive bee-keeper in the world, once said to me that he could not afford not to take all the bee papers published in the United States; and that, moreover, he could not afford not to scan every page after they came into his hands. “But,” you say, “he owns and operates some two or three thousand colonies, while I have only fifty. One journal is enough for me.” Let us see how nearly correct that is. Suppose the average annual surplus is 25 lbs. per colony, of comb honey. I am purposely putting the figures low so as to give my friend the benefit of the figures. We will say that he sells the honey for 15 cts. at the commission man's, and that it nets him 10 cts. clear. That will make \$2.50 per colony, or \$125 in all. I do not know of a bee journal published but may contain some hint that will be worth several times the subscription price for the year. If three bee-journals cost \$3.00, or on a clubbing basis \$2.50, it would be very strange if our friend with fifty colonies could not get more than \$2.50 out of them. While the net earning would be \$125 from fifty colonies, if those earnings can be increased on a conservative basis of only \$10, take the benefit of the doubt and invest in two more journals at least. The farmer who takes only one agricultural paper, even the very best one, may miss some valuable hints which his more progressive neighbor is availing himself of, and, consequently, will be getting ahead of him in a business way.

THE ADVANTAGE OF SELLING HONEY AROUND HOME; HOW DAN WHITE SELLS HONEY.

BEE-KEEPERS should learn to do more and more of their own marketing. Educate your own community to the wholesomeness and genuineness of both comb and extracted honey. The local bee-keeper may just as well as not get a reputation for several miles around his vicinity. If he tries peddling he may not be able to sell very much on his first trip; but let him try it again. In time he will become acquainted, and consumers will have confidence in the honeyman. After a time he can get them to send their orders without having to go after them.

W. Z. Hutchinson, in the *Bee-keeper's Review*, points out a case where one extensive bee-keeper, Mr. E. D. Townsend, of Michigan, sold his entire crop of 20,000 lbs. around home at 7½ cts., while other producers who sent their honey to the jobbers got very little over 6 cts., and had to pay freight in addition.

But some bee-keepers are not born salesmen. Well, then, let them call in the service of some one who is, and sell on salary or commission. Go with them and learn how. But better by far go yourself, and let

it be known there is a real honey-man producing and selling real bees' honey in the vicinity.

But some one says he will "not descend to the tactics of a book agent." You don't need to. Just go around as Dan White of this State does, and tell the good housewives that you are "not selling honey to-day, but giving it away." Of course, the frown will melt into a smile, and the lady will bring a sauce-dish and a spoon. Dip out a good big tablespoonful, and hand out a postal card with your address printed on it, and say to her that, when she wants some of that honey, she may drop you a card, as you will be coming around that way on the next trip to make delivery.

That reminds me that we have a leaflet that tells all about Dan White's way of peddling honey, and we send it out free to all subscribers if they will inclose a one-cent stamp for postage. It is the best scheme of peddling honey that was ever published.

#### THE ONE GREAT OBSTACLE IN THE ADVANCEMENT OF PRICES ON COMB HONEY.

THERE is one obstacle in the way of advancing prices on honey. What is it? It is the common belief among consumers that comb honey is manufactured. The more fancy and perfect the filling of the sections, the more sure the supposed connoisseur is that it is not bees' honey.

GLEANINGS will admit that it has harped on this matter a good deal, and I suppose a good many of our readers, when they see the first few lines of an editorial of this kind, skip it, and go to something else. The trouble is, the average bee-keeper does not believe that the general public has such an erroneous idea about his business. He has educated his local trade, and hence he thinks all the rest of the world is like his locality.

I wish our readers could come in contact with some of the traveling men who come into our office from time to time. I wish some of them would go into the great cities and talk with consumers; then hunt up the traveling salesmen at hotels, and ask them to tell them something about the honey business. If, after their investigation, they are not astonished that there is any demand for honey at all, then I shall be surprised.

In the days before the Wiley comb-honey canard got a start, comb honey was bringing far better prices. As the population has nearly increased with the number of bee-keepers, there is no reason why comb honey should not bring nearly the same figure it formerly did, but for the common impression that comb honey is manufactured, and therefore prospective customers buy something else.

I suspect it would be hard to convince our readers that what I am saying is true; but until we can get those same bee-keepers to believe it, and organized into a working force like the Honey-producers League it will be

difficult to advance our prices or even to hold our own. This year especially there is a great scarcity of good comb honey. While the market is somewhat firmer, prices have not advanced to a point where they would otherwise have gone if the conditions were different. The Honey-producers' League is doing splendid work in securing corrections and retractions in cook-books, encyclopedias, and newspapers. But until these standard works with their lies and misrepresentations are, years hence, consigned to the gullets or waste-baskets, we shall have bobbing up every now and then a rehash of the old canard. Bee-keepers should see to it that new editions of all these standard works have correct information about bees and honey; and then they should personally follow up every newspaper that slanders their business. Don't wait for the editor of the bee paper to do it. We can not blot out, as they tried to do in Russia, what is already printed; but we can, if we only go at it right, see that new literature with general information to the public is correct so far as it relates to the subject of bees and their products. Then we should have current articles in magazines and papers giving the facts about honey. One of the officers of the League has secured a number of such write-ups. The Honey-producers' League was organized for the very purpose of boosting prices; and the majority of bee-keepers have held back, waiting to see how it would turn out; and a few have withheld their support, believing that the officers were trying to serve some selfish end. In these days, when so much graft is being exposed in high places, it is not much to be wondered that some people should imagine that all the leaders in every department of life have gone wrong. But if the men who are back of the Honey-producers' League were grafters, it would not be very long before they would suffer in a business way that would mean absolute ruination. Until a thing is started it needs business men of experience to push it forward. If Editors York and Hutchinson and Dr. C. C. Miller, for example, can not be trusted, then we are in a bad way indeed. The Honey-producers' League will be needed more in a year when there has been a good crop of honey than when it is scarce. We have had two backward seasons; and, according to the law of averages, next year ought to be a fairly good one.

#### HOW LATE TO LEAVE BEES OUT BEFORE PUTTING IN THE CELLAR.

THE editor of the *Review* believes it is bad management to leave the bees out for two or three weeks after it has become freezing weather, hoping for one more last flight that may not come. If the colonies are of only moderate strength, I believe he is right; but if they are good strong ones in a climate that will probably give that fly day, I believe I would advise taking the chances. A good deal will depend on locality. In some places there will be no warm flying days



after the first freeze sets in. There will be a steady continuous cold until spring comes; and when it does come, the cold weather will be clear out of the way. Here, obviously, better not wait. In other localities, such as we have here, for example, we may have two or three weeks of chilly weather interspersed with hard freezing days and nights, followed finally by three or four days of what we call here Indian summer. When the bees can fly on such days it does them a world of good. The shorter the period we can keep the bees in the cellar in the case of strong colonies, the better.

#### WINTERING PRATT BABY NUCLEI IN A CELLAR NOT A SUCCESS.

WE tried the experiment of wintering a few Pratt baby nuclei in the cellar on two frames, six to the Langstroth size. Most of them had all died out at the end of three weeks, showing that the cluster was altogether too small for the bees to be able to winter there. One or two baby nuclei of larger size in twin hives, such as are described elsewhere in this issue, are holding their own in nice shape. Here we have a cluster divided by a very thin partition, which is the equivalent of  $1\frac{1}{2}$  Langstroth frames all squeezed down to a cube.

#### MOVING BEES.

REPEATEDLY we are being asked if it would be possible to move bees after cool or cold weather sets in. Most certainly. There is no danger of suffocation, and a whole yard of bees can be picked up and moved without much trouble, either a short or a long distance. I would, however, avoid very cold weather, selecting a moderate day when the mercury is above freezing.

DON'T fail to attend the local conventions that may be held in your vicinity; and if possible be sure to attend the big meeting in Chicago, of the National.

#### Convention Notices.

The New York State Association of Bee-keepers' Societies will hold its annual meeting at Geneva, N. Y., at the Nester Hotel, Tuesday and Wednesday, Dec. 18 and 19. New and interesting subjects are to be introduced and discussed at this meeting, and all bee-keepers of New York should make arrangements to be present. Good and reasonable accommodations have been secured. Headquarters will be at the Nester Hotel.  
Romulus, N. Y. C. B. HOWARD, Sec.

A series of bee-keepers' institutes have been arranged to be held in New York State as follows: Amsterdam, Dec. 11th; Syracuse, Dec. 12th; Watertown, Dec. 13th; Fulton, Dec. 14th; Auburn, Dec. 15th; Romulus, Dec. 16th; Geneva, Dec. 18th and 19th. Dr. E. F. Phillips, acting in charge of apiculture, United States Department of Agriculture, will attend and address these institutes on subjects pertaining to bee-keeping.

A bee-keepers' institute will be held in the parlors of the Central Hotel, Market Street, Amsterdam, N. Y., on Monday, Dec. 11, 1905. This meeting will be held under the direction of the Bureau of Farmers' Institutes of New York State Department of Agriculture,

by the Fulton and Montgomery Counties Bee-keepers' Societies, assisted by the United States Department of Agriculture. Dr. E. F. Phillips, acting in charge of apiculture, United States Department of Agriculture, will attend and address the meeting. A good attendance is earnestly desired. T. I. DUGDALE, Sec.

West Galway, N. Y., Nov. 18.

On account of the change in the time of holding the National convention in Chicago, the Minnesota Association has decided to hold its annual convention as usual, Dec. 6 and 7, at First Unitarian Church.  
Minneapolis, Nov. 18. MRS. W. S. WINGATE, Sec.

Another slight postponement of the National convention seems to be unavoidable. The fat-stock show, upon which we have depended for reduced rates on the railroads, has been postponed two weeks. The reason given is "the inability of the builders of the amphitheater to secure structural steel for the same," and they don't wish to hold the show out of doors, hence the delay. Of course there will be no excursion rates during the first week in December; and as it would be suicidal to attempt to hold a convention without excursion rates the Executive Committee has decided to postpone the convention two weeks in order to take advantage of the stock-show rates. The dates for the convention will now be December 19, 20, and 21.

The place of meeting has also been changed to Brunt Hall, in the Bush Temple of Music, corner of Clark and Chicago Aves. This was done because it was feared that the accommodations at the Revere House might prove too limited. The Chicago bee-keepers, with their customary enterprise and liberality, will pay for the use of the hall. It is only five minutes' walk north from the Revere House, which will be headquarters for the members. This new place of meeting is in a new building where everything is modern. There are adjoining committee-rooms, toilet-rooms, good drinking water, and elevator service, both day and night.

W. Z. HUTCHINSON, Secretary.

#### PROGRAM FOR THE NATIONAL CONVENTION.

The National Bee-keepers' Association will hold its annual convention at the Bush Temple of Music, corner of Clark and Chicago Aves. during the fat-stock show, when exceedingly low rates may be secured on the railroads. The dates for the meeting are Dec. 19, 20, and 21. The program is as follows:

##### FIRST DAY.

Evening session, 7:30.—"Wax-rendering Methods and Their Faults," O. L. Hershiser, Buffalo, N. Y.; "Can the Tariff on Comb Honey be Tinkered to the Advantage of the U. S. Bee-keeper?" by Hildreth & Segelken, New York.

##### SECOND DAY.

Morning session, 9:30.—"How many Bees shall a Man Keep?" by E. D. Townsend, Remus, Mich.; "Short Cuts in Bee-keeping," by M. A. Gill, Longmont, Colo.; "Producing Comb Honey and Extracted Honey on the same Colony," by Jas. A. Green, Grand Junction, Colo.; question-box.  
Afternoon session, 2:00.—"The Control of Increase," by L. Stachelhausen, Converse, Texas; "Migratory Bee-keeping," by R. F. Holtermann, Brantford, Can.; "The Dietic and Hygienic Relations of Honey, by Dr. Eaton; question-box.  
Evening session, 7:30.—"Contagious Diseases among Bees, and how to Distinguish Them," by Dr. Wm. R. Howard, Ft. Worth, Texas; "Experimental Apiculture," by Dr. E. F. Phillips, Washington, D. C.

##### THIRD DAY.

Morning session, 9:30.—"The Honey-producers' League—Can it Help Bee-keepers?" by R. L. Taylor, Lapeer, Mich.; "The Business End of Bee-keeping," by N. E. France, Platteville, Wis.; "Successful Experience in the Making of Honey Vinegar," by H. M. Arrid, Chicago, Ill.; question-box.  
Afternoon session, 2:00.—"In what Way can Bee-keepers Secure Their Supplies at Lower Prices?" by W. H. Putnam, River Falls, Wis.; "How the Producer and Dealer may Advance their Mutual Interests," by Fred W. Muth, Cincinnati, Ohio; question-box.  
Evening session, 7:30.—"What have We to Hope for from the Non-swarming Hive?" by L. A. Aspinwall, Jackson, Mich.; "Poultry-keeping for the Bee-keeper," by E. T. Abbott, St. Joseph, Mo.

W. Z. HUTCHINSON, Sec.



## THE EDUCATIONAL VALUE OF BEE CULTURE.

Reasons Why it is such a Valuable Study.

BY R. B. M'CAIN.

Fads and fashions are not unknown to the educational world of to-day; and, while we may not approve of some of the fads which have been introduced, we can see a steady progress toward more reasonable and practical methods of mental development. One of the good signs of the times is the introduction of nature study in the common schools. One would devoutly wish that this may not prove a "fad," but that it may be developed sanely and along practical lines in order that the graduates of these schools may have at least a passing acquaintance with the many and varied forms of life which abound all about them in both the vegetable and animal kingdoms.

The suggestion that the study of nature be made practical does not necessarily carry with it the thought of making money, but, rather, the idea of turning the commonplace things of life into educational values.

It would be hard to find a more delightful subject for study than the honey-bee. As an introduction to the great subject of nature study, no other form of life seems so well adapted. The bee is not only a most marvelous piece of creation as to its physical structure, in which it shows its wonderful adaptation for the work it has to perform, but it is the living link between the members of many families of the vegetable kingdom, and becomes the active agent in cross-fertilization in the perpetuation of their species. It will thus be seen that one can not progress far in the study of this little insect without discovering one of nature's most mysterious processes.

### HONEY-BEE PRESENTS A HIGH FORM OF LIFE.

It is true that the honey-bee is but one of many thousands of the great insect family, any one of which might be profitably studied, and yet there are many reasons why the honey-bee can be studied more profitably as an educational discipline than any other form of insect life. One of the chief of these reasons is that it presents such a high form of life. It would be hard to find any thing more interesting than the little realm bounded by the walls of the bee-hive. When we enter that domain, or, better, observe it through a glass wall, it is to find a most orderly and perfectly regulated commonwealth. Its thousands of inhabitants labor in perfect unity and harmony. The beauty

of all the waxen structures, the energy and the industry of the little toilers, together with the deliciousness of the finished product of their labor, unite to make the study peculiarly fascinating; and the deeper we penetrate, the more wonderful and the more fascinating the study becomes.

### INTIMATE ASSOCIATION BETWEEN MAN AND THE HONEY-BEE.

Another reason why the study of the honey-bee is eminently fitted as an educational aid is that there is such close and intimate association between man, the highest form of life in the family to which he belongs, and the honey-bee, the most perfect of its kind. There can be little doubt that the honey-bee was divinely destined to minister to the needs of man and to supply the very necessary means of adding to health, happiness, and long life. Honey is one of the most perfect foods in existence; as a confection it can not be equaled by the art of man; and the fact that its use prolongs life is attested by so many witnesses that one would hardly dare to doubt the statement.

### BEE CULTURE A GREAT INDUSTRY.

A very practical reason for believing that the honey-bee was destined for man's oversight and use is found in the results of modern scientific bee culture. The stock of the honey-bee has been wonderfully improved by man's management in the application of the principles of scientific bee culture. This improvement manifests itself in the production of bees which are better adapted to particular localities, also for particular kinds of work. The quantity as well as the quality of honey has been affected by the improvement in the stock. The disposition of the race may be and has been improved in many cases, so that, because of gentleness, work with some stock is attended with far less danger from stings than with others. The point at which improvement seems most evident is the "soul of the colony," the queen. Color, prolificness, length of life, have all been the object of man's attention in the effort to improve the stock, and at all these points he has been, in a measure, successful.

### NATURE STUDY VALUABLE AS A MIND-TRAINER.

This much has been said to hint at the possibilities of bee culture as an introduction to the great subject of nature study. But when one remembers the prime object of any study in a prescribed course—that of training the mind to think and the eye to observe—it at once appears plain and practical that nature study is second to none in usefulness. We do not need to disparage other mental exercises in order to magnify nature study as a means to this end. But if nature study is to be employed (and that seems pretty well recognized now as a settled question) why not the study of nature at the point of the *useful* and the *practical*? It has taken us a long time to outgrow the



habit of observing the unusual, the monstrosous. Our attention is attracted by specimens of other ages and places, when, as a matter of fact, we ought to be trained to observe what is most ordinary and commonplace about us, and to see the beauty and utility of things near at hand. And it is doubtless a fact that it requires a higher order of mental operation to center the attention and observe correctly with reference to commonplace things than it does in cases where curiosity is aroused by some peculiarity or strangeness of the object observed. Perhaps this will explain why the majority of people who live in a settled civilized country could tell better how wild beasts are kept and treated in captivity than they could tell how to keep and treat a horse or a cow in their neighbor's barn. It is this that makes every one remember that a bee stings. It has become such a fixed notion in the minds of the majority of people that the honey-bee stings that one would think, from the way many people talk, that the chief business in life for the bee is to sting; whereas the one who has worked with them long will tell you that, while the greater number of the bees in a colony can and will sting, as a matter of fact very few of them ever sting at all, and those few sting only under great provocation.

The universal fear of the honey-bee has come about because of an ignorance of the simplest and most apparent principles of bee culture. The direct cause of this fear is the sting of the bee; but the sting was inflicted because of the ignorance of the intruder, which brings about a reversal of the time-worn saying, "ignorance is bliss."

#### THE EXTENT OF THE STUDY.

But one other thought presses for recognition in this connection, and that is the fact that the employment of bee culture as an educational factor will greatly enlarge the mental horizon of the student. Few of us begin to realize the magnitude of the forces in operation about us in the material world, and fewer still know any thing about the means by which the marvelous results of nature's processes are accomplished. Only a very few favored ones can have the means of penetrating the depths of the heavens to explore them, or to add to the sum of human knowledge along the lines of the great applied sciences; but any one with an eye to see, and a mind to grasp and use the results of correct observation, may walk afield and find the world a great hive of industry in which the myriad forms of insect life are working out world processes. It is coming to be more and more essential to know about these little creatures. Some of them are enemies of the human race; but the most of them, perhaps, serve some beneficial end as regards man's welfare. At the head of the list of the friends of man among the insects stands the honey-bee. An acquaintance with it will inspire confidence, and will lead to larger attainments.

Coal City, Ill.

#### AMOUNT OF HONEY PER COLONY.

What can we Reasonably Expect to Obtain  
When we Give our Bees the Best of Care?

BY E. W. ALEXANDER.

This is a question which we are often asked by those who know but little about bees, and I sometimes think it might be a good question for each one of us to ask ourselves, and then do a little thinking along this line. For some time I have been thinking this matter over, and I have come to the conclusion that I never gave my bees what might be called the best of care, neither have I ever seen a man who did. Now, why is this? Simply because we have got the idea into our heads that we must have a great number of colonies in order to make a little money. Now, this is a big mistake, and the sooner we realize it the better.

Let us apply the same management to bee-keeping that we see put into practice by all the successful business men of the country. They make the most out of every thing connected with their business that they possibly can. Is it so with us? I don't think it is. There are but very few who give their bees extra care, consequently their surplus is small per colony, and they may become discouraged. Now let us look this matter over and see if we can not do much better in the future with fewer colonies than many of us are now doing with several hundred; and, by way of explaining this matter, I will suppose that, on April 15, you have 100 fairly good colonies that were just taken from their winter quarters, and that each colony contains a good well-developed Italian queen not over ten months old that has been reared from some good honey-gathering strain of bees. I shall take it for granted that your hives are filled with nice worker combs.

We will commence the season's work by putting a feeder under every hive and giving each colony about  $1\frac{1}{2}$  cents' worth of extracted honey, or sugar syrup, which must be made very thin, of about the consistency of nectar, and feed them about this amount every day that the weather is such they can not gather any thing from flowers until about the last of May. This will require on an average, one season with another, about 50 cents' worth of honey or sugar per colony; and, if properly done, you will have, May 25, every hive crowded with brood and maturing bees at the rate of 2000 or more a day.

About two weeks previous to this we should start the rearing of four or five hundred queen-cells, which are now, May 26, about ready to hatch. Now we will divide our 100 colonies, making two of each, and fix them so that the queenless part will mature two or more of these ripe queen-cells or virgins into nice laying queens; then about the last of June we will separate these colonies that have two or more laying queens, making 100 more increase, or 300 colonies all together.

The old colony, or the part that has had

the old laying queen from the first, we have kept busy drawing out frames of foundation into nice extracting-combs, and we have also kept them from any desire to swarm by taking their combs of capped brood away as fast as they had some to spare, and giving this brood to this newly made increase.

In this way of managing your bees you have no swarming to bother with, and at the same time you have increased your 100 colonies to 300, and all are in good condition for any harvest that commences after July 4.

Now, what I consider a fairly good location (and no man ever ought to bother trying to produce honey in a poor location) will furnish a surplus of three or four pounds of extracted honey per day for as much as 35 days during July and August. This will give us about 100 lbs. per colony, or a total surplus of 30,000 lbs. from our 100 colonies, which we started with in the spring. This, at the wholesale price of 6 cents per lb., brings us \$1800. Then we have 200 colonies of an increase, worth about five dollars apiece, which gives us \$1000 more, or a total income of \$2800 from our 100 colonies we started with in the spring. Now we will deduct the necessary expenses.

First, \$50 for the honey or sugar we fed them to stimulate early breeding; and there, my friends, is the key that unlocks all the rest. Then we have \$400 for the expense of new hives filled with foundation for our 200 increase; then the matter of hired help will cost about \$125, and the necessary barrels to ship your honey in will cost nearly \$100 more, making a total expense of about \$675. This, subtracted from your income, leaves a net balance of \$2125 — a very nice income for less than six months' labor which is not very hard at any time.

Now, don't say that this is overdrawn, and borders on the visionary, for I know it is not. I have several times taken a few colonies in the spring and given them special care as I advise in the above, and in every case they have done still better than this. No, my friends, there is nothing in the above that is overdrawn.

The trouble with us all is, we try to keep too many colonies, and in doing so we do not give them the care they ought to have.

Some time before spring I will take up this subject again and explain to you how to have surplus laying queens on hand to use in making this large increase, for I intend to prove that this nice income can be made from the 100 colonies without buying any queens to help it along. The man who requires 500 colonies to give him an income of \$1000 a year is not half as good a bee-keeper as the man who will make that amount or more from 200 colonies.

Study your business so as to keep fewer bees and better bees, and make more money; also have less idle capital invested; and I know you will have less to worry about than if you continue as many as you are doing. I repeat, study your business until you understand it well for I assure you that ignorance of any thing connected with our busi-

ness is far more costly than all the bee-books and journals we now have.

Think this subject over well this winter; and when another season comes, have all your plans well laid on a good foundation, the cornerstone of which must be strong colonies early in the season; and the only way I know of to secure these is to stimulate early breeding by early feeding; then all the rest is easy enough. Don't think for a moment that I advocate taking any steps backward — far from it. I like to see men push ahead in their business, and make it a success, whether it be with 100 colonies or 1000; but in doing so, do as our successful business men do—look well to the amount of capital you have invested; look close to your annual income, and then, with a critic's eye, look to the net profits of your whole business.

Delanson, N. Y.

[While we must admit that Mr. Alexander has a splendid locality, yet a careful reading of this article shows that he has not lost sight of the importance of the right methods at the right time to get all that is possible out of that locality. Judicious feeding at the right time to get a strong working force of bees is, I believe, a very important factor in his success.

But when Mr. Alexander tells us that what he would consider a "fairly good location" is one that will furnish three or four pounds of extracted honey per colony every day for over a month, he almost takes our breath away. The most of us would consider such a locality an extraordinarily good one. Very possibly Mr. Alexander's methods would make an ordinary one or two pound surplus per day swell up to four or five.

At all events, this is an article that will bear very careful reading, as it is preliminary to some other very valuable and interesting matter from the same writer. He speaks not from the standpoint of theory or guess, but from actual experience with actual results in crops of honey that run away up into the carloads. Such a man commands not only our respect but the most careful study of his methods, especially when he is perfectly willing to give all the secrets of his success.

There may be something in making a good locality out of a poor one; and if that is true, then it is very important for us to know *how* that may be done.—Ed.]

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#### PROTECTION FOR SUPERS.

The Value of Protection; Why Supers Should be Kept Warm.

BY S. SIMMINS.

If I understand Dr. Miller, he considers that protection can make no difference to the actual weight of honey collected. In my opinion it is the one thing that makes a mountain of difference. I think I can pres-



ently convince him he is standing on unsafe ground, and that he is from thirty to fifty per cent poorer in his annual yield of honey than he need be while he stays just there.

One of the reasons why so much more extracted honey can be secured, is, as we all know, because the bees can be provided with so much storage space in the shape of drawn combs in advance of their requirements. Then how can the owner expect his bees to go and do likewise when, in regions that have cool nights, he checks the comb-building instinct for several hours out of every twenty-four? Consequently his willing workers can put in only half time; and, when warmed up again next day, a large army of workers restart—yes, let it be repeated, restart wax-working, only to do what should be and would have been done through the night, ready for the early morning gathering.

I may still be asked, "What difference will this make to the ultimate yield?" It is just this, as I am aware very many have long since found out, that, not having the new surplus combs sufficiently in advance of the rush of honey, much of it is stored below, thus crowding down the queen. This process is a sadly progressive one (in a backward direction) if once allowed to make headway. Not only will the bees remove some of the brood, but, as a natural consequence, the incoming pollen, being little in request, becomes an accumulating plague, still further restricting the queen's powers. We now begin to see a stationary if not a declining population, which is a great calamity when occurring long before the end of the season.

This means just an ordinary surplus; whereas an open brood-nest, with nearly all the incoming honey going upstairs where cells are always ready for it, shows a constantly increasing population, and a yield so much greater, even to the extent of one hundred per cent, where judicious protection is given to the supers. When the bees once start comb-building, nothing should, if possible, be allowed to check them for a single half-hour. If bee-men would only stop to consider they would find they are losing yearly more than the value of those thin-cased supers—better by far pay a little more in the first place for double-sided supers for comb honey, and these again sheltered by an outer case, as shown on pages 149 and 155 of "A Modern Bee Farm." It is a question whether manufacturers are to blame for offering the cheaper thin cases or the purchasers for insisting upon having a cheap but certainly not economical super. Our little friends are strict economists, and, with the least reduction of temperature, they are prepared to "strike" work, or to cease comb-building the moment they see nothing "in touch" to reward them for their labor.

In this country we have a great number of amateur bee-keepers with a few hives. Many of these people just put the hives down in the garden; in due time they put on

a rack of sections, and often at the end of the season seem surprised the bees have stored but little if any honey above. The reason is simple. The super is put on, whether the bees are crowded or not—more often not—and, with insufficient covering above, the bees crowd the stock combs with honey and masses of pollen, so that there are never sufficient bees to boil over into two or three tiers of supers.

I have seen many such instances, where there has been no management; and not always is it among amateurs that the real secret of honey-production is little understood. Consequently I have endeavored to fix a honey-barometer to meet the case, working something in this way: Allow your stock combs to become sealed one-third of the way down with honey, and the loss is 25 lbs. of surplus; when sealed one-half, then you lose 50 lbs.; and if three-fourths of the brood-combs are thus choked with stores, then undoubtedly there is a loss of 100 lbs.; i. e., over and above an ordinary surplus yield. The whole thing centers upon a proportionate depreciation of population; the loss of life from actual working, and other causes, is enormous during the busy season; and therefore requires constant renewal.

[Mr. Simmins strikes on a very important subject—one which I hope will be very thoroughly discussed between now and the time when we shall be in condition to test the value of protection as advocated. We shall be glad to hear from a number of our subscribers who may have been in a position to test the difference between no protection, *i. e.*, that afforded only by the single-walled hive, and plenty of protection with double walls.—ED.]

#### A HISTORY OF A DRONE-LAYING QUEEN.

Can Such a Queen, by Feeding Extracted Honey, be Made Over into a Good Queen?

BY WM. M. WHITNEY.

Some time ago I promised to tell you something about that queen I got of you, so here it is. In June, 1903, when she was received I made a colony by division and introduced her on two frames of brood and bees—the rest, frames of foundation. The colony built up strong for winter, though the latter part of the season was not favorable. June 24, the following year, division was made by removing the queen and three frames of brood. The season was very unfavorable, yet the colony built up strong, but I was obliged to feed for winter stores. I fed granulated-sugar syrup. Last spring I found the colony weak, the queen looking slim and poorly nourished; in fact, she was "spring poor."

A large proportion of the worker-cells used contained drone brood, and, of course, I naturally concluded that the queen had passed her days of usefulness; but, disliking to supersede her if I could avoid it (as I

wished to secure more of her stock) I commenced feeding the colony sparingly, each night, good extracted honey. In the course of ten days there was a marked improvement in the appearance of the queen. She assumed the bright orange color, and looked as fresh and plump as the year before; and in a short time the drone brood disappeared from the worker-cells entirely, and soon seven frames of a nine-frame hive were largely filled with worker brood. On the 20th of June she was again removed to an observatory hive in which I wished to exhibit her at our midsummer fair. By the way, I took a first prize. On the 27th I made four nuclei from the frames left with their queen-cells, which are now strong colonies.

After the fair I removed her with her bees to an ordinary nine-frame hive with double walls, which she with a fairly populous colony now occupies; but I notice that she has begun drone-egg laying in worker-cells again, which indicates the end of her days. I expect to transfer the pet colony which I have kept in my room all summer to the second story of this hive, leaving the old queen in the first while she lives. She has given me most excellent service; yet I've not made the most of it so far as increasing her stock is concerned, as she has been treated (until this season) like any other queen in the yard. Her bees have been very gentle, beautiful, and great hustlers.

But the thing I wished to call attention to particularly in this article is the fact that careful feeding in the spring with good honey, instead of sugar syrup, produced such wonderful results by changing a drone-laying queen to as good a worker queen as there was in the yard. Take notice, there was plenty of capped sugar-syrup stores in the hive when I began feeding. Now, it may be that, if sugar syrup could be taken by the bees as nectar is, and retained long enough to become converted into grape sugar before being deposited in the comb, it might be as good food for bees to winter on as honey; but when taken in the hive, as is the case in feeding, and being immediately deposited in the comb, I do not believe it compares with honey produced in the ordinary way, for feeding bees. I believe that extracted honey at \$7.00 a hundred is cheaper to feed than the best granulated sugar at \$6.00 a hundred, which is less than I can buy it at any of the groceries in this place at the present time.

Again, why does careful feeding cause a drone-laying queen, apparently sterile, to become one of the best worker-laying queens? I have a theory regarding the cause of this change, but want to hear from some of the *big fellows* on this matter. The result was so wonderful to me that it seemed to open up the question of the cause of the production of drones and workers.

#### DO BEES IN FLIGHT NOTICE NOISES?

There is another matter which I wish to mention, that appeared as startling to me

when I discovered it. A few days ago I set about cleaning up some odds and ends in the honey-house; in doing so I extracted honey from partly filled sections. The extractor stands near the door in one corner, a screen door opening inward, and an outside door opening outward—the last at this time standing ajar. Bees were flying in front of the screen, seeking an entrance into the house. The wooden handle on the crank of the separator is loose, and, when rapid motion is obtained, it makes a shrill screeching sound. When this noise was produced, the majority of the bees backed up and lit on the outside door. As the extractor slowed up and the noise ceased, the buzzing in front of the screen commenced again. This experiment was repeated several times with the same result. Will some one explain this phenomenon? May it not be that the present advance bee-keepers are a little "previous" in laughing at those who have been in the habit of blowing horns, ringing bells, and drumming on tin pans to cause swarming bees to cluster? May it not be that there are certain lengths of sound-waves which have a marked effect upon the auditory nerves of bees, that others do not? I think it a recognized scientific fact that certain lengths of waves are recognized by some forms of hearing organs, but not by others. Will some entomologist or physiologist, or anybody else who knows any thing about such matters, tell us what he thinks about it?

Lake Geneva, Wis., Oct. 21.

#### THE GOVERNMENT DISTRIBUTION OF QUEENS.

Conditions under which such Queens may be Obtained.

UNITED STATES DEPARTMENT OF AGRICULTURE,  
BUREAU OF APICULTURE,  
WASHINGTON, D. C. }

*Dear Mr. Root:*—I inclose a circular letter which outlines a plan of distribution which is to be followed by the Bureau of Entomology in the future. If you wish to do so, you are at liberty to publish it in your journal, as it may be of interest to some of your readers.

E. F. PHILLIPS,  
Acting in Charge of Apiculture.

[The circular in question is as follows:]

It has been customary in the past for the Bureau of Entomology to distribute a limited number of queen-bees of the more rare varieties to bee-keepers. This distribution is not intended to be general, since that would be impossible; and, to prevent misunderstanding, the following method, to be used in all future distributions, is announced:

It is desired that some of the less common varieties which have proven so good may become more widely known among the bee-keepers of the country, to take the place, in as far as possible, of the common black



bees and of certain strains of Italian bees which seem to have deteriorated.

Carniolan bees are very prolific, and are, at the same time, gentle; and there are records to show that as honey-producers they are excellent. The recently introduced Caucasian bees, which have attracted considerable attention, are the most gentle bees known at the present time; and records of honey production now coming in indicate that they are excellent. The Cyprian race, which has been criticised on account of its temper, ranks second to none in honey production.

Of these races, the Carniolans are sold in this country to some extent, and the Cyprians in less numbers. So far no queen-breeder has offered Caucasian queens for sale, and there is, without doubt, an opportunity for a wide sale of these queens, as is evidenced by the requests which come to the Bureau of Entomology.

The Bureau can do more toward the wider introduction of these races by inducing reliable men to take up rearing of pure-bred queens than by a more general distribution. It is not the purpose merely to give away queens, and the future distributions will be limited as follows:

To any experienced queen-breeder who will guarantee to rear queens, and mate them purely in considerable numbers for general sale, the Bureau will send, as far as the supply will allow, one high-grade breeding-queen, purely mated and carefully tested. In addition, several queens whose matings are not known will be sent for drone production, since drones are not affected by the mating; all queens, however, will be from good stock, the number to depend on the supply on hand. The breeder making the request must give evidence of his ability to rear good queens; must agree to offer at least two hundred pure-bred queens a year for sale to the general public, and must not ask for them an exorbitant price. It is the opinion of the Department that twenty per cent more than the current price for Italian queens would be fair. It will also be expected that in future years the breeders will do their utmost toward the improvement in honey production, at the same time maintaining the purity of the races. The Bureau will be glad to aid breeders of this class to its utmost ability, but will not aid in any way a breeder who offers for sale or sells crossed hybrids of the various races, except in the case of untested queens, and even in that case every possible effort should be made to get pure matings.

After this distribution, all inquiries to the Bureau will be answered by giving a list of reliable breeders, including those who have received stock from the Government apiary; and the name of any breeder who knowingly sends out inferior stock will be dropped. It is not the purpose to interfere with the private business of the persons receiving these queens; but these precautions are taken to protect the bee-keepers of the country.

No applications for queens under other

circumstances will be considered. All applications will be considered in the order of their receipt.

L. O. HOWARD,  
*Entomologist.*

JAMES WILSON, *Sec. of Agriculture.*

#### BEE-KEEPING IN NEVADA.

The Alfalfa Question, and the Trouble with the Cattle-men; the Law on Adulteration in California.

BY TRANSIENT.

The honey-flow here in the Humboldt meadows has been a long and very slow one, and is now about ended. The crop has been about half of what we expect in a fairly good season.

The agitation of the question between the cattle-men and the apiarist, whether bees do injure the alfalfa hay or not, still goes on. Attempts were made at the last session of the legislature to pass a law compelling every bee-man to own one hundred and sixty acres of improved farming land or cease handling bees. It did not leave the committee room however. It will be brought up again at the next session, when they tell us "something will be doing."

The weather in this great valley has been marvelously fine this summer, and has aided the bee in struggling for what little it has obtained for us in the shape of nectar.

The grasshoppers have been the cause of our loss of half a crop this season. They have been with us for the past three seasons, but do not seem to multiply as in other regions or we should be eaten up this year.

One carload of white alfalfa honey went forward last week to England, and was the product of our principal apiarists, the Tyler Bros.

The honey crop here this season will not exceed, probably, seven carloads.

The problem of wintering the bees has not been solved here yet. Fully a third of our bees were lost in wintering the past mild winter. It is probably the hardest spot on the earth to winter safely one's bees, but the problem may yet be solved.

The grasshopper, the heat, the high winds, the animosity of the cattle-men, and the excessive freight rates, both east and west, prevent this broad valley from being a bee-man's paradise.

Foul brood has got its grip on many of our apiaries. Some have been wiped out, while others are in such bad shape that the owners are disconsolate.

Our bee society organized and met once. It seems to have fallen into a deep sleep.

Can not some one competent to handle the question scientifically, as well as from a practical point (Prof. Cook, for instance), write us an article for GLEANINGS, showing that the bee in its work of gathering nectar from alfalfa does not in any way deprive the mown hay of any of its weight or of its saccharine matter? We can then have said

article copied in our local papers, where it will educate the hay-producer, and in the end benefit or perhaps save the bee-man.

The cattle-men, with their thousands of head of cattle to fatten each season, say to Mr. Farmer, "We can not longer pay you your price for your alfalfa hay, as it is not as sweet and fattening as it was in former years when no bees were here to draw from it its saccharine qualities." The farmer naturally is influenced as it reaches his pocket and deprives him of a revenue, his only one here, as every thing is alfalfa-raising; hence the feeling, an honest one, against the bee-man, and adverse legislation is certain to follow.

I am very much interested in the fight against honey adulteration here in the West, and am sending to you a copy of the law on the adulteration of our product. I hope you may use it to our benefit.

LAW IN CALIFORNIA WITH REFERENCE TO THE ADULTERATION OF HONEY.

The following act applies especially to the adulteration of honey in the State of California. It is an act passed and approved on the twenty-third of February, 1897, and will be found in the Statutes of 1897, commencing on page 12, also in the late Penal Code, published in 1903 by Bancroft-Whitney Co., of San Francisco, on pages 559 and 560, and is as follows:

An act to prohibit the adulteration of honey, and to provide a punishment therefor.

(Approved February 23, 1897. Stats. 1897, p. 12.)

SECTION 1.—No person shall, within this State manufacture for sale, offer for sale, or sell any extracted honey which is adulterated by the admixture therewith of either refined or commercial glucose, or any other substance or substances, article or articles which may in any manner affect the purity of the honey.

SECTION 2.—Every person manufacturing, exposing, or offering for sale or delivering to a purchaser any extracted honey shall furnish to any person interested, or demanding the same, who shall apply to him for the purpose, and tender him the value of the same, a sample sufficient for the analysis of any such extracted honey which is in his possession.

SECTION 3.—For the purposes of this act, "extracted honey" is the transformed nectar of flowers, which nectar is gathered by the bee from natural sources, and is extracted from the comb after it has been stored by the bee.

SECTION 4.—Whoever violates any of the provisions of this act is guilty of a misdemeanor; and, upon conviction thereof, shall be fined not less than twenty-five nor more than four hundred dollars, or imprisoned in the county jail not less than twenty-five days nor more than six months, or both such fine and imprisonment. And any person found guilty of manufacturing, offering for sale, or selling any adulterated honey under the provisions of this act may, in the discretion of the court, be adjudged to pay, in addition to the penalties hereinbefore provided for, all necessary cost and expenses, not to exceed fifty dollars, incurred in analyzing such adulterated honey of which such person may have been found guilty of manufacturing, selling, or offering for sale.

SECTION 5.—This act shall be in force and take effect from and after its passage.

In addition to the foregoing, there is in the Penal Code one section which applies generally to the adulteration of foods, drugs, medicines, liquors, etc., and which can be found in the Penal Code hereinbefore referred to on page 159, or in the Statutes of 1903 on page 351, and which is as follows:

SEC 382.—Adulterating food, drugs, liquors, etc. Every person who adulterates or dilutes any article of food, drink, drug, medicine, spirituous or malt liquor, or wine, or any article useful in compounding them, with the fraudulent intent to offer the same, or cause or permit it to be offered for sale as unadulterated or undiluted; and every person who fraudulently sells, or keeps or offers for sale the same as unadulterated or undiluted, or who, in response to an inquiry for any

article of food, drink, drug, medicine, spirituous or malt liquor, or wine, sells or offers for sale a different article, or an article of a different character or manufacture, without first informing such purchaser of such difference, is guilty of a misdemeanor; provided that no retail dealer shall be convicted under the provisions of this section if he shall prove a written guaranty of purity obtained from the person from whom he purchased such adulterated or diluted goods. Enacted February 14, 1872. Amended 1903, 351.

[The conditions reported by our correspondent are very unfortunate, and the bee-keepers in all that section of country should make sure that no ignorant prejudice shall result in legislation unfavorable to their interests. The idea that the bees suck some of the strength out of the alfalfa plant, so that the hay from it is not as sweet as it otherwise would be, is utterly ridiculous, and only shows the length to which ignorant prejudice will go. It strikes me, first, that the bee-keepers' association that is now "sleeping" should be awakened out of its slumbers. It may take a big jolt to do it, but something ought to be done, and that very speedily. Let that organization see that suitable printed matter is put in the hands of the ignorant and prejudiced. Furthermore the organization could get the opinion of scientific men and experiment stations everywhere that would refute utterly such nonsense. GLEANINGS will be glad to publish any thing that may be offered, and we hereby call on our scientific friends and our experiment stations to give us the truth, let it cut where it may.—ED.]

#### FACTS ABOUT BABY NUCLEI.

Their Use Means Economy in Bees; Queens Fertilized at the Rate of One in Four to Seven Days.

BY E. G. PHILLIPS.

In the bee-keeping world, as in every other department, there are two classes of men — those who possess a go-ahead spirit, and who are willing to probe thoroughly every new idea that is suggested, to improve on it if possible, and to adopt or reject it according to the results obtained. Opposed to our enterprising brethren are those who seem rather intolerant of innovation and change, and who are not only satisfied with what knowledge and implements they happen to possess, but regard all new methods as new-fangled ideas, and those who adopt them as veritable cranky. This seems especially the way that baby nuclei and their owners are regarded. At first they were ruthlessly condemned by many, and declared by some incapable of producing queens at all; and when they were found capable of accomplishing the desired results the queens were sarcastically spoken of as box queens, which were destined to be short-lived, poor layers, etc. As the contrary has been demonstrated by most of our leading bee-keepers, who have found the queens as good in every respect as those fertilized from full colonies, I deem it unnecessary to say more on this point.

One of the chief advantages to be gained



by using baby nuclei in preference to larger nuclei is the economy in bees. The greatest demand for queens occurs in the early spring, at just the time when it is hardest to supply them. The colonies come out of their winter quarters in a weakened condition, and can ill afford to be robbed of bees for making nuclei, especially if we hope to be benefited by the early fruit bloom. To take a two-frame nucleus from a colony at this juncture means robbing them of about a third of their original strength; while taking a baby nucleus and about two or three hundred bees hardly affects them at all. The other points at which they score—saving in hives, combs, time, etc., and the ability of the bees to protect the small combs from insect enemies—have already been discussed, and ought to be so obvious to all as not to demand exhaustive discussion here.

It is my intention, in the rest of this, to discuss only such facts as might be found useful to any who have tried or who are mindful of trying baby nuclei.

The process of making baby nuclei is very simple. Have your boxes fitted out with one *light* frame of honey; the other of unsealed brood and a caged virgin. From three to five nuclei may be taken from an ordinarily strong colony without seriously affecting its strength. The nuclei should be made sufficiently strong at first to allow for the loss of bees in confining. This loss may, however, be greatly minimized by having the boxes well ventilated, and keeping them in a cool place while in confinement. If your intention be to keep them in the same yard in which they are made, they should be confined for at least three days; if at another locality, not less than a mile away, from 36 to 48 hours will be long enough. In both cases they should be released at dark, the entrances being turned in opposite directions. While in confinement the boxes must not be placed close together; for if they are, the bees will become acquainted in some way of which we are not quite certain. It may be that they acquire the same body odor, or, having been made from the same colony, they retain their old acquaintanceship, and will be almost sure to unite if released the ordinary distances apart. There will also be an aptitude on the part of the virgins, if they fly soon after they are released, to mistake their hives.

The bees used for this purpose should be selected from the gentlest strains, as not only will cross bees necessitate the use of smoke, and so incite balling, but in many cases they won't accept virgins.

The spot selected for keeping nuclei should be one that affords warmth and shade at the same time. It must be always borne in mind that baby nuclei are just what the name insinuates—they are babies, and should be given all the care and attention conducive to the well-being of babies.

The virgins will not mistake their hives, because they look so much alike. Close observations have satisfied me that no fear need be entertained along this line.

A larger nucleus, say one-third of a Langstroth frame, might give better results in cold climates; but after careful attention to about 200 of the small ones all summer I have concluded that they make very efficient substitutes for the old two-frame nuclei. Under normal circumstances, working these on the dual plan, they averaged a queen in about seven days. In fair warm weather the average of the very strong ones was one queen in from four to five days.

Granville, O., Nov. 8.

[In most localities a nucleus frame one-third the size of a regular Langstroth will give better results I think. See article which I had prepared before reading yours, which follows.—Ed.]

#### THE PRATT NUCLEI.

How they were Actually Used in the A. I. Root Co.'s Queen-rearing Yards Last Season; their Good and Bad Features.

BY E. R. ROOT.

During the height of the queen-rearing season we had nearly 200 Pratt baby nuclei in actual use. The foreman of our yard thought we ought to have as many as 500; but I objected somewhat, saying I would rather rear some of our queens in full-sized Langstroth-frame nuclei at a greater expense for bees and hives than to put into actual use so many boxes of bees. The final wind-up of the season has justified the wisdom of my decision—not that the baby nuclei were a failure—far from that—but because during the season we have learned how they can be improved. One of the faults that we had to find with them was that they had to be re-peopled with bees too often. At most there would not be more than 200 in them at a time. Some of them would die off, and many of them would go into large queen-cages; with the result that there would soon be dry combs, no brood, and no bees. It is not true, as was confidently predicted, that they would continually swarm out, though they did do this to a very limited extent, but not enough to cause any trouble. Sometimes we put into an export cage something like 40 bees. If there were 200 bees in the first place, the number would be cut down over a fourth. After we had had three or four queens mated and caged out of the same set of bees, there would not be many left; indeed, we have time and again taken out the very last bee to fill the queen-cage along with the queen just mated.

Aside from the fuss of renewing these little boxes of bees every so often, we struck on another difficulty that was not quite to our liking; namely, that, after a queen was mated, the small area of comb available for her would make her very uneasy. She might fly out, and with her the bees. We therefore found it necessary to take out the queen the very day she began laying. But this is not all. No brood would mature under

these little frames, showing that 200 bees were not sufficient to keep up the body heat.

Aside from these objections these little mating-boxes were an unqualified success.

We present a view showing one of our baby-nucleus mating-yards out in the open. The boxes are put up on little wooden crosses secured to the same by means of staples hooked over on nailheads, *a la* Pratt. Through the top of the mating-box is a hole just large enough to admit a circular queen-cage or a little feed-bottle with a slot in the cork. The purpose of these little bottle feeders was to give these little clusters a small amount of feed—just enough to tide them over the dearth of honey.

Those who are at all familiar with the Pratt system will remember that six of those little brood-frames are fitted inside of a Langstroth standard frame. A set of these large frames so filled are put into a standard hive with a good force of bees and a queen. As soon as they are filled with capped honey and brood in all stages, the miniature frames are pushed out of the large ones with adhering bees, and hooked on to the cover of a baby nucleus by means of bent staples. This hatching brood with a good supply of capped honey tends to make the bees contented. They are put into the box and shut up for two days.

But the plan that we usually preferred was to make up these baby nuclei at an out-yard from sectional frames fitted into large standard frames; then when these boxes of bees were brought to the home yard they would stay right where they were placed.

The small engraving shows an enlarged view of the baby-nucleus box with the cover and its adhering frames lifted off for the purpose of inspection. If the queen is not found on the two outside surfaces, the lid will sit down on the top of the hive, bottom side up. One of the frames will be unhooked, leaving all the surface of the little combs exposed to view.

While we do not condemn the Pratt baby nuclei, yet the two or three defects already enumerated call for some slight changes. I now believe it would be better to have these nuclei a little larger, and made in pairs, so that the combined heat of the two clusters would be utilized, thus making practically two forces of bees out of one cluster, each rearing its own queen. Instead of making the little frames, six to the L., we have concluded that a size of three to the L. frame, the divisions made on perpendicular lines, will give better results. This is the size that was adopted years ago by Mr. Frank Benton in the government apiaries, and found to be entirely satisfactory. Detachable metal projections, or ears, the same as he uses, are secured to the top-bar after the little frames are filled with comb and brood in the large frames so that they can be hung in a double baby nucleus like ordinary loose unspaced frames.

From some preliminary tests of these double nuclei this fall we have concluded that there will not need to be any renewing

of bees, and that the brood can be reared right through the season, and that mating will go on the same as in the smaller nuclei. As a queen will have just twice the egg-laying room, or the exact equivalent of two-thirds of a Langstroth frame, it will not be necessary to get her out of the box the very day she begins to lay. Then the force of bees will be twice as strong, and this in turn will be practically doubled, since one cluster, separated from another by a very thin board partition, will have all the heat units of a cluster four times as large as the original Pratt size. While these double boxes will cost slightly more than the small Pratt nuclei, they will be very much warmer and more satisfactory in every way.

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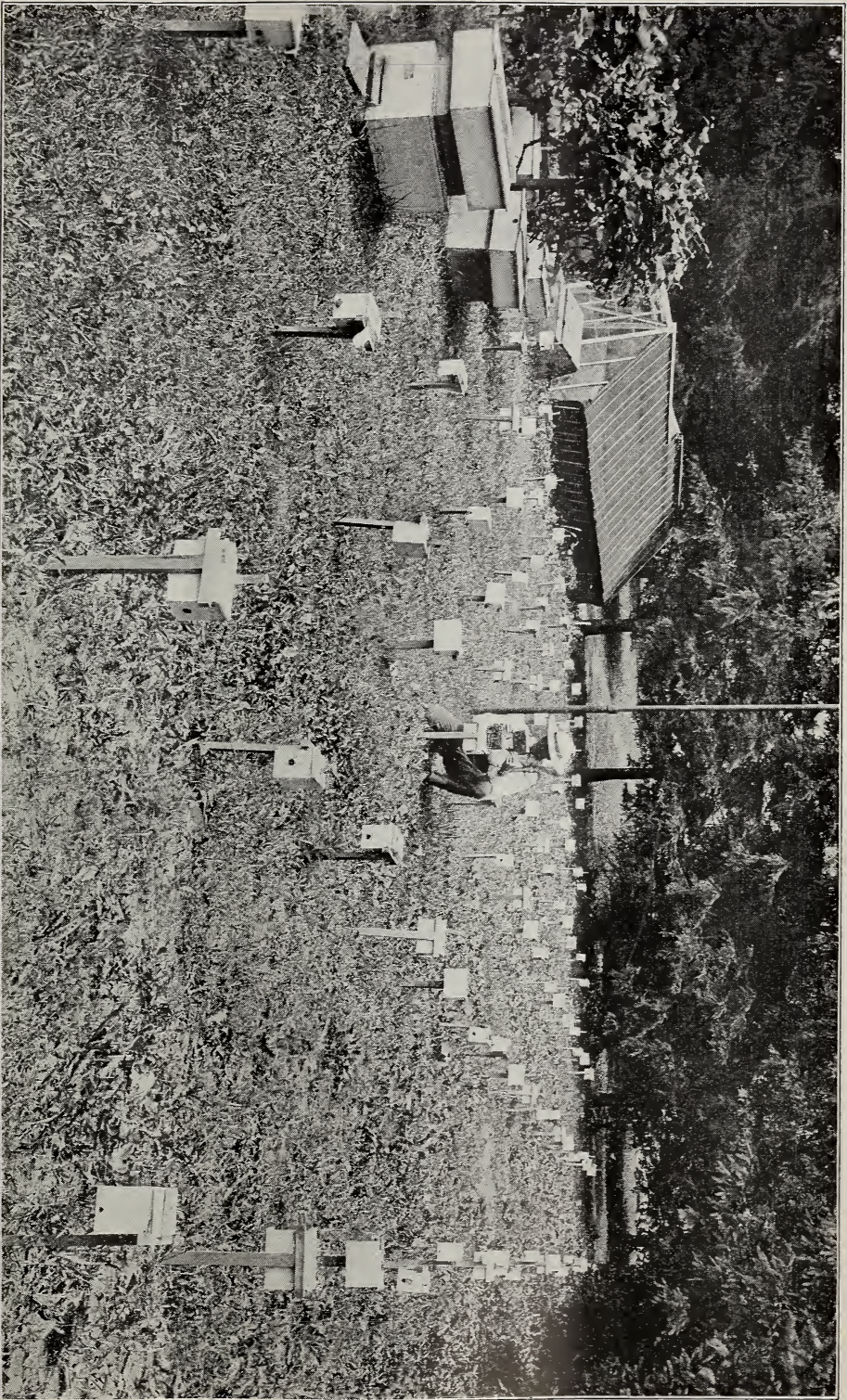
### THE BEES ON THE ROOF OF OUR OFFICE BUILDING IN NEW YORK.

A Brief History of the Celebrated Case between the Root Company and the Candy-man; Other Cities where Bees are Kept on the Roof.

BY E. R. ROOT.

Our readers have not forgotten the notoriety that The A. I. Root Co. received at the hands of the general press concerning the bees on the roof of our office building in the city of New York. As is probably well known, we have a branch office in the metropolis, where we keep carloads of supplies for distribution to foreign ports as well as for the local trade. We occupy the second, third, and fourth floors, and, until a month or so ago, occupied the roof with some forty or more colonies. These were put there as a reserve for filling orders for bees and queens, and for the purpose of making demonstrations to prospective customers. But it so happened that there was a candyman in the city, by the name of Loft, having something like 300 girls making candy in a three-story building within a stone's throw of the aforesaid roof. Unfortunately, our bees were in the wake of the prevailing wind; and whenever Mr. Candyman was boiling his big vats of sweetness the mellifluous odors would be wafted across our roof apiary. Apparently the bees paid but little attention to this until there came a dearth of nectar, and then they made it apparent that *they* liked candy as well as did those sweet little lasses across the way who make the stuff; but those aforesaid lasses did not like the bees, and would strike at them. Some of them were stung, so it was alleged. Mr. Candyman complained to the Board of Health that the bees were a nuisance—that they were eating up his candy, stinging his girls, and hindering his work. Instead of coming to us, he went straightway to the Board of Health, which, unfortunately in this case, has more authority than the Supreme Court. Indeed, I have been told it could even order down the City Hall if it saw fit to do so.





THE PRATT BABY NUCLEI IN FULL BLAST, AS THEY APPEARED AT OUR HOME YARD LAST SUMMER.



As soon as we received the order to remove the bees we requested a stay of proceedings, which was granted, and in the mean time we called on Mr. Loft. He was obdurate. He would listen to no suggestions to the effect that we would screen the windows at our own cost, and would guarantee he would have no further trouble from our bees, nor any other bees, in fact. In vain we protested that the bees were a necessary part of our business. When we told him we would screen the windows he said it could not be done short of a thousand dollars; but we estimated it would not be over a hundred. It did not make any difference. We had to get the bees off that roof instanter. He kept at the Board of Health, and we in the mean time kept getting a stay of proceedings. We finally agreed to remove them within a week. In the mean time Mr. Loft insisted that the Board of Health demand the immediate removal of the bees. This it finally did, and the bees were removed.

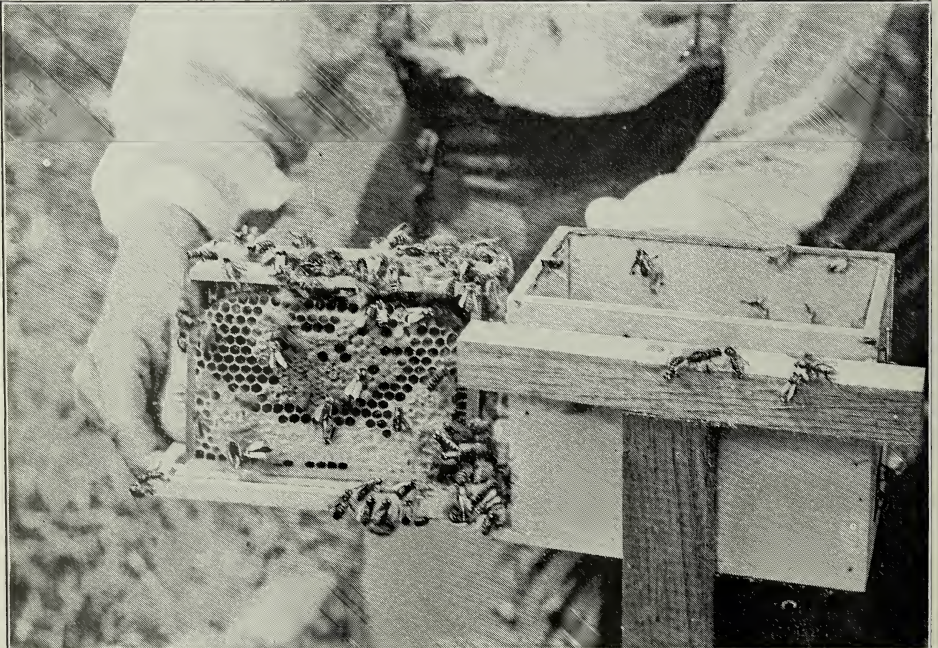
Mr. Loft's candy-building is not shown in the accompanying illustration. If the picture could show it, it would be seen at the upper left-hand corner overlooking our roof; and right here was where the trouble was. So long as our bees were in sight they were blamed for all the alleged annoyance. As a matter of fact there were other bees almost as near, and they probably were just as much in evidence as were ours. If Mr. Loft were to insist that the Board of Health order all the bees out of New York, including those in the parks belonging to the city, he

would run up against a proposition. Instead of getting a few bees after his girls he would have all the bee-keepers in the city buzzing after *him in particular*. The National Bee-keepers' Association, as well as the Honey-producers' League, and the New York State Association of Bee-keepers' Societies, would probably take a hand in the matter.

We may make a test case of this next summer, as there are other bee-keepers who have certain interests in this matter. At the present time we have not decided just what course we shall pursue. We know this, that Mr. F. H. Farmer, of Boston, who is a candy-man, and candy is his principal business, keeps some 25 or 30 colonies right in front of his windows; but they are screened. There are other candy-makers in the city, but they have never entered any complaint regarding the Farmer bees. There have been bees in the city of New York for the last fifteen years, on several of the roofs; but there has never been any complaint lodged against them, to our knowledge. In Philadelphia, on the roof of its office, the A. I. Root Co. has been keeping bees for several years, and there are candy-factories and stores all round. Yet there has been no complaint.

Mr. Weber, of Cincinnati, as well as Mr. Muth, of that city, for many years prior to his time, kept bees on his roof, and has been keeping them there for many years.

If Mr. Loft had been disposed to be at all reasonable, we would have seen to it that he



PRATT BABY NUCLEUS OPENED UP FOR EXAMINATION.



was put to no inconvenience; and without cost to him we would have screened his windows from flies and other insects as well as bees. He has now put himself in a position where other bees can visit his premises, and he is not nearly as well off as he would have been if he had listened to our suggestion.

We asked the girls in the other buildings, that show just beyond, if they had had any trouble from the bees, and they answered in the negative. So did all the others in the immediate vicinity.

Whether or not Mr. Loft stirred this matter up in order to get newspaper advertising for his business we can not say. At all events, the Root Co. estimates that its office and business in the great metropolis have secured a publicity throughout the city, and the country as well, that would have cost us in actual advertising thousands of dollars. Most of the news items were favorable and sympathetic to the bees, while a few, and a very few, averred that we put the bees on the roof for the very purpose of letting them feed on Mr. Loft's candy.

The whole affair was not without its humorous side. The newspapers for weeks fairly teemed with cartoons and funny write-ups.

The photo was taken by me when in New York, about a month or so before this case came up, at that time little dreaming that this lot of bees would receive the publicity it did throughout the great newspaper world. Historically it is now of more than ordinary interest. There are many buildings that are

higher, round about, and the bees were in plain sight of a good many operatives, especially working-girls.

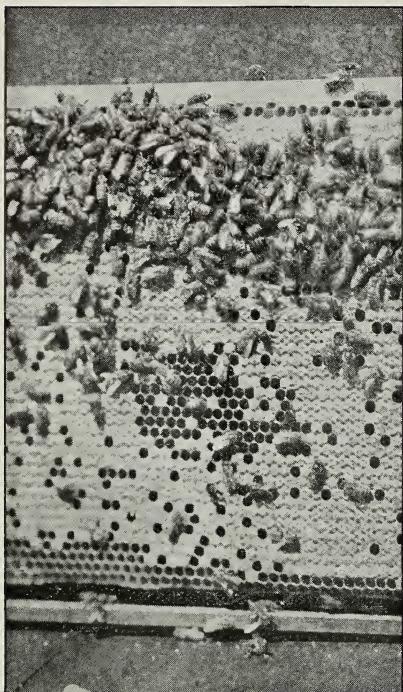
#### BLACK BROOD CURED AT E. W. ALEXANDER'S.

In our issue for Nov. 1, p. 1125, it will be remembered Mr. Alexander described his cure for black brood. When Dr. Lyon and myself were visiting at his apiary the former took a photo of a frame of brood which, a few months before, was about as rotten and bad a specimen as one would often see, according to the testimony of Mr. Alexander and his help; but at the time of my visit the comb was clean and sweet, and as healthy as one could wish to see. A photo was taken, and a section of it is reproduced on the next page. The colony had been cured some four or five months; and the condition of this comb, and the brood in particular, speaks for itself. One can readily see how nicely marked are Mr. Alexander's bees, for they are all three-banded Italians, mainly Alexander's honey strain.

When one sees brood as shown in the photo, with an even homogeneous appearance, without flattened or sunken cells, he can generally conclude it is healthy; but there may be only here and there a cell, all the rest of the brood looking good; so, be careful. In hunting for the evidence of brood diseases it is very important to cast the eye on every square inch of surface to be able to catch the early stages. When there are only two or three diseased cells in the whole hive, with foul or black brood, it makes the



THE ROOT BEES IN NEW YORK THAT SUDDENLY BECAME FAMOUS THROUGH THE PAPERS.



A COMB CURED OF BLACK BROOD.

A specimen comb and brood from the Alexander yard that was, early this season, rotten with black brood, but at the time the snap-shot was taken was entirely cured.

problem of cure comparatively simple. But when either one gets the start, so there is scarcely a healthy cell of brood, then the situation is not so easily handled; and especially is this true of foul brood. At the present time, however, we have a hope that the Alexander cure will take care of black brood either in the early or last stages; but it is better, of course, not to take any risks.



DRONES LATE IN THE YEAR.

Why is it that one of my colonies is producing drones so late in the season? While looking at my bees yesterday I noticed one colony flying drones as though it were June or July. They were abundant. I have been keeping a few colonies the past ten years, but this is the latest I have ever seen drones in any hive.

JOHN KLINGLER.

Lykens, Pa., Nov. 6.

[The presence of drones late in the season may be due to a drone-laying or a failing queen. A queenless colony or one with a laying worker would explain the same phenomenon. In any case the condition is abnormal, and a good queen should replace whatever is responsible for the excess of drones.--ED.]

#### HOW TEMPERATURE AFFECTS THE SALE OF HONEY; CAUCASIAN BEES.

In regard to the article on page 1124, I beg to differ with Mr. Boyden where he says he doubts the temperature having any thing to do with the demand for honey. I think the temperature has *all* to do with it. It is generally conceded that, as the cool weather begins, our systems call for more heat-producing foods, and honey is one of them, the same as the buckwheat cakes, corn bread, and fat meats, on the same principle as the consumption of honey by bees wintered outdoors as compared with those wintered in cellars.

In regard to Caucasian bees, I will say that I have one colony. I procured the queen too late to form any opinion as to their merits, further than that they seem to have a very mild disposition, and, so far as flying in cool weather is concerned, and the taking of food, they seem to show as much energy as the Italians or blacks, so far as I can see now, and I am feeding them and some others yet. They all had a gala day today. Should I succeed in wintering these Caucasians I may have more to say with reference to them. The *worst* I can say of them now is, they resemble the blacks too much.

ELIAS FOX.

Hillsboro, Wis., Nov. 12.

#### CAUCASIANS TAKE FEED READILY.

Just a word in connection with the editor's remark on page 1124 about Caucasians. I don't know what Mr. Pritchard calls a "common feeder," but I have a Caucasian colony which took 20 lbs. of syrup from a Miller feeder in 12 hours. Again, yesterday morning at sunrise the thermometer here registered 40°. All my bees flew freely throughout the day, and the Caucasians seemed to come out just as soon and as numerously as the others. I presume we can charge this to the old standby—locality.

I agree thoroughly with the rest of the article, however. I can take the cover off my hive, blow in among the bees, pound on the tops of the frames, etc., with no smoke about whatever, and they don't stir up a bit. Our government people here tell me that they have very good reports, from a honey-gathering standpoint, from some of the queens they sent out early last spring.

J. A. PHILLIPS.

Washington, D. C., Nov. 13, 1905.

[We are very glad to get this testimony, for the truth is what we want. So far, re-



ports generally agree in stating that the Caucasians are gentle.—ED.]

EXTRACTED HONEY BRINGS BEST PRICE LATE  
IN FALL.

I just finished extracting, using a new 15 Cowan, two-frame, for the first this year. I had used a Novice for 15 years, and apparently it was good for a longer time yet. But I was surprised to see the improvement made in the construction of the new over the old. It is worth more than the difference in cost. I am sorry to say that the editor's advice in GLEANINGS, to sell honey early, is no good for extracted-honey men. For several years I have had my honey ready early, but never could get an offer worth considering till late fall. Early prices are unsettled, and it seems buyers are afraid. Last year, while large dealers were offering me 5½ to 6, by advertising I sold my honey for 7 to 7½, and no freight to pay.

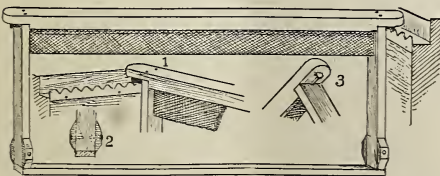
Forest, O., Aug. 11.

C. G. LUFT.

[You probably do not quite understand what we meant by "early." New honey, just off the hives, during the fore or latter part of July, usually has a good demand. During September there may be a lull, and this lull may continue until cool weather sets in. This is something, however, that varies according to the locality. But we have yet to find a case where it is advisable to wait until after the holidays before marketing of northern or eastern honey. So many beekeepers are penny wise and pound foolish that they leave their marketing until a time when they can "get around to it."—ED.]

A NEW END-BAR FOR A SELF-SPACING FRAME.

I inclose a pattern of a new end-bar for the Hoffman frame. Please tell me just what you think of it. I have used them in my apiary for the last three years, and they have given the best of satisfaction. I have never yet broken one of them, and they space just as accurately at the bottom as at the top, and no one can fail to nail them



correctly. I made my end-bars ½ inch thick; thus the wire never sags and buckles the foundation.

Matanzas, Cuba.

C. E. WOODWARD.

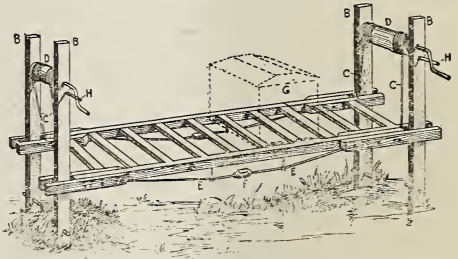
[As you ask me to tell you just what I think of your frame I will be frank enough to say that I do not like it. I believe it is always a mistake to have the spacing in the hive-rabbit. The free lateral movement back and forth, of frames, where the spacers are on the frames themselves, is a fea-

ture we can not afford to sacrifice. Your frame would be far better, in my opinion, if you would use the spacing-button (same as you have at the bottom) at the top also. Such a frame would not be a bad one to handle. This exact form of a frame was made the subject of a patent a number of years ago, but I believe the patent has run out.

There is another objection to your notched rabbit that occurs to me; and that is, in moving bees your frames would be liable to hop out of the notches, making very unequal spacing at the top. When the spacers are on the end-bars or top-bars the frames always have to be just so far apart.—ED.]

A WET-LAND HIVE-STAND.

In answer to the question asked by Prof. R. F. Smith, page 642, I would suggest the plan shown in the accompanying drawing.



When the flood approaches, send the negroes, who, he says, are afraid of the bees, to the windlass and wind up the hives to an elevation above the danger-line, and replace pin H to hold the hives in an elevated position until after the abatement; then let them down again, and the bees go on as if nothing had occurred.

G. B. HERBERT.

Corydon, Iowa, July 28.

[Your elevator hive-stand is all right, but altogether too expensive for the purpose. There is not enough profit in bee-keeping to have cogwheels, pulleys, and ropes, and we must reduce every thing down to the simplest point possible. If the locality is liable to be inundated, better by far make hive-stands sufficiently large to carry fifteen or twenty hives with a platform elevated above high-water mark the year round. I found such hive-stands in California, some of them six or eight feet high. They were cheaply constructed out of fence-posts, with cross-bars suitably braced. Each stand would hold from 25 to 50 colonies, placed in two rows, with an alleyway between for the apiarist to use. Illustrations of this are found in the back part of our A B C of Bee Culture.—ED.]

QUESTIONS CONCERNING FEEDING BEES.

Assuming that a hive of bees contained no honey, how many pounds of granulated sugar would be necessary to feed an average-sized colony to insure ample stores for outdoor wintering in New England?

Does syrup made by dissolving one part

sugar in two parts water often crystallize? Is it then entirely useless as food for bees?

What would be the effect of feeding a colony all of the syrup they would carry into the hive? If there was a surplus in the spring would it be a benefit, i. e., would the bees begin working sooner in the super?

Why remove the cover of the hive in putting on the winter case? Why not pack the chaff around it, place a sack of the same over it, and then put on the winter case?

Waldoboro, Me., Oct. 27. J. H. LOVELL.

[Sealed stores of sugar syrup, when properly evaporated and ripened, would be of the consistency of from 15 to 25 per cent of water, and from 85 to 75 per cent of sugar. A good deal depends on conditions. Usually 20 lbs. of stores is sufficient for an outdoor colony. In that case you would need to figure on anywhere from 15 to 18 lbs. of sugar to the hive. I would generally feed it half sugar and half water, because this more nearly approaches nectar, giving the bees a better chance to ripen it, or, to speak more scientifically, "invert" it. A thin syrup would be very much less liable to crystallize than a thick one, for this reason. Where one desires to stimulate, a two part-water and one-part-sugar mixture will be better than an equal-part solution.]

For winter feeding I would not advise feeding a colony all the syrup it will take. It should be permitted to have a clustering-nest of empty cells in the center of the brood-nest, with sealed stores all around them. To jam in the feed until every thing is full of sealed stores would be going altogether too far.

On the other hand, it is true that a colony that has an over-supply of stores will be in much better condition in spring than one that has a scant amount; but a golden mean is better still.

Where the winter case will permit it, it is better to leave the outdoor winter cover on the hive just as the bees have sealed it. To break the sealing and then put on the winter case after cold weather has set in will give the bees no chance to seal again, and because of that fact some heat will escape.—Ed.]

#### A FEW SUGGESTIONS AND QUESTIONS.

In increasing this year on the three-from-two plan I did not put *any* brood in the "brushed-swarm" hives, and in one case a super was half filled with bee-bread.

As the outside frames in the body of a hive are mostly filled with honey, would not their removal give needed room and discourage swarming? If comb honey were desired, their place could be taken by frames with starters put in the center of the body: if extracted, the empty combs could be replaced in the middle.

In preparing shipping-boxes the pieces which hold the glass might be used to carry a statement of the shipper's name—"Pure Comb Honey from Apiary of—"

Perhaps The A. I. Root Co. would put it

on as above, leaving space for the insertion of name and place by shipper. If both strips had it on, the legend could be read either side up.

I find that I can use the Miller feeder more easily by adding a board on the bottom so that it can be put on top of the brood-chamber without using a super.

Kensington, Md.

C. G. DICKSON.

[When you speak of a three-from-two plan of increase you do not make it entirely clear to what you refer. In the absence of any statement, I will assume that a part of the bees from two hives are brushed into a third, this third one having no brood. Why was the super filled with pollen in your case? Probably because you put these two lots of shaken bees on to foundation, or starters, in the brood-nest. If the bees happened to draw out the foundation in the super first, they would probably store pollen in the first drawn comb. You do not say whether you gave this third hive, made up from the other two, any kind of queen. Correspondents in asking questions should be explicit in details, otherwise we are handicapped in giving intelligent answers.]

The removal of the combs of honey at the sides would tend slightly to discourage swarming; the putting in frames of starters would be all right providing the queen occupied the comb as soon as it was drawn or partly drawn from the foundation.

Your suggestion regarding the use of the wording "Pure Honey from Apiary of—" on the horizontal rails of shipping-cases is a good one. We should like to hear from our readers as to whether there would be any objections or whether the former wording could be improved.—Ed.]

#### A COLONY OF BEES LIVING IN THE OPEN AIR WITHOUT A HIVE.

Having had a little experience a few days ago which I regard as something unusual I will relate it to you and ask if it is often that others have like experiences.

I was called away some distance from home by a message over the telephone, to the effect that the sender had discovered a swarm of bees hanging in an apple-tree, building comb. I was, of course, convinced that he had found a swarm of bees, but I thought that, from the amount of comb they said there was, it was mostly if not all imaginary. But when I arrived at the place and was shown the bees hanging on a limb of a Ben Davis apple-tree, about 12 ft. from the ground, I concluded it was a rather large cluster; and upon blowing smoke in them I discovered, sure enough, that there was comb and considerable of it at that.

When we got the limb down and examined it we found that there was plenty of comb honey and brood hatching out. We tied three frames full of brood and had enough comb to fill a good-sized dishpan left, with from one-half to one gallon of honey which ran out of the comb.

I thought myself that this would have been



a sight worth photographing; but as there were no cameras near, and I had not time to go back, I gave it up.

The bees are at present in the hive working away. They have a nice large hybrid queen.

E. J. SPAUGH.

Burney, Ind.

[We have had instances of a swarm of bees clustering in an ordinary tree, and building combs as if they expected to live there permanently. The older editions of the A B C of Bee Culture contained a fine illustration of such a colony without a hive, with some seven or eight combs of honey, and brood in all stages. This colony prospered, and had occupied those quarters for some two years. But this was in California, where the climate is mild. In one like yours, the colony would probably have succumbed to the first winter, for all other hiveless colonies in this climate have died so far as we have had any reports of them. I am sorry you did not get a photo of them, as cases of this kind are comparatively rare, and are interesting if nothing more.]

I wish to say to our subscribers that, when they see any curiosity of any kind relating to the subject of bees, if they will employ a good photographer to take the picture, and send it to us, we will pay all expenses.—ED.]

#### FRAME-SPACERS THAT ARE NOT IN THE WAY.

As everybody else has invented a frame-spacer, I too will take a hand. Put a small button, similar to those used in trunk-trays, for fastening the different compartments on each end of the top-bar. When turned crosswise of the top-bar, the ends should extend out past the edge of the top-bar just half the distance of the space desired between top-bars, so that the ends of the buttons will come together in the center of the space between the bars. I would have the ends of these buttons rounded—not square-cornered. In opening up the hive, all you have to do is to turn these buttons parallel with the top-bar, and you are at once ready to take the frames from the hive and uncap, as the buttons are entirely out of the way of the uncapping-knife. It is not even necessary to remove the division-board from the hive, as your frames are all loose and ready to lift out as soon as the buttons are turned; and this can be done in much less time than is required to pry out the division-board.

I know you will make your usual objection, that they can not be handled in pairs or trios; but, as some one pointed out a short time ago, frames are not handled in that way to any great extent, and certainly not at extracting time.

J. D. ROWAN.

Chesterville, Miss., Oct. 11.

[About fifteen years ago, furniture-nail frame-spacers were illustrated and described; but they never came into general use, for the reason that it was not possible at that time to get such nails of the right depth or height in order to make the proper spacing. The principle is all right, and perhaps

it is as good as or better than any thing else that has ever been suggested; and it may be that it will pay, some time, to get up suitable dies for making spacers of exactly the right size. No less an authority than Dr. C. C. Miller has been clamoring for something of this kind for years, averring that such a spacer would secure practically all the advantages of any spacer, without the disadvantages.—ED.]

#### THE DEFECT IN THE OHIO FOUL-BROOD LAW.

This association has appointed a "Committee on Law" whose duty it is to devise ways and means to secure a foul-brood inspector for this and adjacent counties. As the law now stands, it is ineffective. In section one it reads, "That whenever a petition is presented to the board of county commissioners of any county in the State of Ohio, signed by three or more persons, all of whom are residents of said county, and possessors of an apiary or place where bees are kept, stating that certain apiaries within said county are infected with the disease known as foul brood, or any other disease which is injurious to bees or their larvæ, praying that an inspector be appointed by said county commissioners, said board of county commissioners may, within five days after the presentation of said petition, appoint a person as bee inspector who is resident of said county, who shall be a skilled bee-keeper, having thorough knowledge of foul brood and other diseases injurious to bees and their larvæ, and the treatment of same."

The word *may* makes it optional. This should not be. The word *shall* should be substituted, making it imperative. Our committee represents five different counties of this State, all practical bee-keepers, whose duty it is to see the members of the Ohio legislature of their respective districts in regard to the above misconstruction; also to explain to them the necessity of foul-brood inspectors, and eventually secure their appointments.

HENRY REDDERT, Sec.

Cincinnati, O., Oct. 29, 1905.

[I do not remember now just why the word *may* was substituted for the word *shall*; but I am under the impression that the law would have failed of passage had not this change been made. The bee-keepers who had this matter in charge probably concluded it was better to have *something* rather than nothing. While it would be better, of course, to get this change made if possible, the thing to do now is to get on the right side of the county commissioners at the start. Let there be a goodly number of bee-keepers who can explain the terrors of foul brood, and the need of having some one man appointed who can, at very slight expense, at the beginning of the thing, keep the disease in check. I should be glad to hear from any of those who had the bill in charge while it was before the General Assembly, as to whether the substitution, if substitution there was, was forced into the measure.—ED.]



Train up a child in the way he should go, and when he is old he will not depart from it.—PROV. 22: 6.

The sermon that I am going to give you in this Home paper is by the request of Mrs. A. I. Root; but before giving it I wish to tell you just why she selected this sermon among all the other sermons we have listened to since the Home papers have been published—that is, toward thirty years—and asked me to stand aside and give place to it. I need not tell you that *A. I. Root* is full of hobbies and new inventions. Mrs. Root, during all her life, has had just *one* "hobby." Hobby is not just the word to express what I mean, but I will let it go for want of a better one. Mrs. Root's lifework has been, first, last, and always, *education*. She did not have the advantages I did in youth, and perhaps she did not take hold as easily as I did naturally. It would not be any thing strange if she at times, especially in her early life, joined in with the excitements going on with the rest of those of her age, and did not give as much attention as she might have done to the privileges afforded by the schools of that day. But as she grew older she began to realize more and more the importance of education. After we were married we had happy times together in trying to keep posted as to what was going on all over this world of ours. When the five children came trooping along one after another, she bent her whole energies toward giving them all the advantages the times afforded. Just as soon as Ernest was old enough to go to school he was started off promptly *on time*, and *every day* in the week. She made it her business to see there was no failure and no tardiness. She helped him get his lessons before he started, then met him at the gate at night and asked him how he had succeeded. In a little time he was as glad to tell her his triumphs as she was glad to hear them. In this way it was kept up with the whole five. There was no let-up day or night. She followed them with their studies, kept pace with all the school was doing, visited the schools occasionally, knew the teachers personally, and kept it right up till the *last one* had gone off to Oberlin to finish. No, she did not give it up even then.

When we were first married I rather looked down upon her from the lofty heights(?) of my intellect and masculine mental powers. May God forgive me. I knew what she was doing for the children, but I turned it all over to her, and had but little to do with it. I did not know, *the children* did not know, and probably she herself at that time did not comprehend what good would come from it in later years. I presume that she had read the beautiful little text I have put at the head of this talk; but I am not sure her faith was equal to grasping the won-

drous truth in the latter part of it. Our children, like all others, were at times contrary and wayward. They did not want to go to school, and made excuses. They got lazy, and wanted to lag behind. But there was no escaping that keen indefatigable mother of theirs. Ernest has written about the "lightning operators" in bee culture. Mrs. Root has for the greater part of her life done her own work with the children's help; and if ever there was a *lightning operator* in bringing up a family and getting them to go to school, she was "it."

After I became a follower of the Lord Jesus Christ I began to get a glimpse of the wife God gave me; and instead of looking down on her efforts I began to take a lower seat, and to look up and admire her untiring zeal for education. If I were sure Mrs. Root would not get hold of this paper I should like to say right here that, during all those years of such strenuous work, she was laying the foundations of the future prosperity and success of The A. I. Root Co., Medina, O., and the busy little woman did not know it; and if she were to see it in this paper she would tear it out and say it was not so. I think the children will all agree with me, however, and we will try to get it into print without her seeing it.

Now for the sermon that captured Mrs. Root, heart and soul. It was to be preached just before our Medina schools opened, but sickness prevented Bro. Hill from preaching it any sooner.

And Eli perceived that the Lord had called the child. I. SAM. 3: 8.

There is an unusual pathos in the story of the old priest and his young attendant. Eli had two sons. They were both wicked. The excellent behavior, the affectionate and dutiful manner of this young attendant in the temple, brought comfort to the old man in the time of sadness. One night the boy was awakened in his sleep by hearing his name called. He arose, thinking the prophet had called him, and he went to him and said, "Behold, I am here." He found he was mistaken; the priest had not called him. Three times did this experience occur, and at length Eli perceived that God had called him. This is not an exceptional but a specimen case. When we read of the great heroes in the Bible, the great deliverances, the great endurances, we are apt to think of their being written for our admiration rather than for our imitation. The method of this call was unusual, but it is not unusual for God to call His people early in life. If the proof of God's interest in the young is to be found in the witness of the Scriptures, the testimony of religious biography through the ages, and the testimony of Christian experience in every age of the world, we must conclude that the great and the good have often been called in childhood. Parents, teachers, and guardians, and others who have anything to do with the young, are warranted, not only in desiring, -ut in expecting that those under their direction shall find themselves walking in the way of righteousness from the very beginning. The voice of parent and teacher is often and ought always to be the call of God to the child. When Patrick Henry made his immortal speech before the Virginia convention, two future presidents of the United States, as schoolboys, had come over from a neighboring college to hear the speech. Those boys made the policy of the nation long after Patrick Henry's work was done. When Henry Clay made a stumping tour through the woods along the Ohio River, a lank, uncouth, backwoods boy listens to his speech, and for the first time thinks of being a lawyer and a statesman. In after years it is that backwoods boy who, in the hour of dark-



ness, pilots the nation through the darkest voyage she ever took. Illustrations of this nature from secular and religious history confirming this fact are constantly occurring, so that we are compelled to acknowledge that child instruction is a theme of vital importance.

Fifty years makes many changes, but none more radical than the changes in literature touching childhood. Fifty years ago books were written by grown people for grown people. Authors were the denizens of a childless world. Science, art or invention took no notice of children. One of the things for which the close of the 19th century will always be noted is the *discovery* of the child. For the first time men began to realize the value and importance of the utterance of Him who said, "Except ye be converted and become as little children"—in sincerity, humility, simplicity, faith and genuineness—ye cannot even see the kingdom of God.

God ordained three institutions to bless mankind. The first is a government. To secure the peace, prosperity, and safety of a nation, a government is necessary. The second institution was the church. But before either of these was possible there was instituted the family. Even heathen moralists insist upon the family as necessary to public virtue. There can be no true public life where the family is corrupt, any more than there can be a solid structure where the foundation stones are soft. Society rests upon the family. Social morality depends upon true family life. Christianity emphasizes the necessity of a normal family life. Greece and Rome violated the law of the family, and impurity and selfish indulgence sapped the life of these great states. Where family life decays, the state is in danger, and civilization rests upon quicksand.

A close ally to the family in the development of the young is the public schools. In another week you will have heard the buzz of voices, the song of the school-bell, and teachers will be able to testify out of a full heart, that forty children in a single room have enough pent-up energy to run a dozen Corliss engines. The most significant day in a child's life is its spiritual birthday, and the next most important is its intellectual birthday. Whatever your children may accumulate and acquire in the future, their one inalienable possession will be their education.

The only orders of nobility that are possible in a republic are education and character. Education is the process that makes fully developed men and women. Someone asked an old philosopher to define man. He said, "Man is a two-legged creature without feathers." But when a clever wag brought the philosopher a plucked rooster he had to recast his definition. Man is a creature with a body which is inhabited with a mind, heart, and will. The condition and development of that body, mind, heart and will determine a man's happiness and his usefulness far more than any outward possession. It is the pride of the nation that the republic provides every child a chance to secure a liberal education. It is sometimes the shame of our nation that some do not make a better use of their opportunity. Every new school year is the beginning of a new epoch for children, parents and teachers. Broadly speaking, a child can have anything he wishes, but he cannot have everything. He must make choices. He must believe in the doctrine of election. The better must always be sacrificed for the best. It is fitting, then, that, on the threshold of the school year, we should think of the *relations of the home and school*.

Washington Irving has given us an account, in perhaps the most charming English ever written by an American, of the school and schoolmaster of Sleepy Hollow. I trust you are all familiar with Ichabod Crane, his short sleeved coat with flapping tails and his pantaloons which came to an end so prematurely; his nasal psalm-singing and vast appetite for dinners and ghost stories, and his fondness for little children who had good cooks for mothers or pretty grown-up sisters. His school-house, locked by slanting stakes and twisted willows, harmonizes with the picture. Within, the pedagogue perched upon a high stool teaches the "three r's"—reading, riting and rithmetic; meanwhile, with the redoubtable birch rod, he watches the buzzing pupils who con their lessons half aloud, for Ichabod is a firm believer in the maxim that "to spare the rod was to spoil the child;" and, as

Irving quaintly remarks, Ichabod's children were not spoiled. The inventory of the schoolmaster's property and library after his luckless wooing and mysterious disappearance from Sleepy Hollow is suggestive as to the pay and literary qualifications of such a position. "Two shirts and a half, two stocks for the neck, a pair of worsted stockings, a pair of corduroy small clothes, and a rusty razor;" and for the library "a book of psalm tunes, Cotton Mather's History of New England Witchcraft, a New England Almanack, a book of dreams and fortune telling." Hans Van Ripper, as executor of the estate, consigned the books to the flames, and took his children out of school, observing that he "never knew any good to come from this same reading and writing."

We may not know exactly what was Irving's intention in writing this account, but he has given us a weird and beautiful picture, an exquisite romance, and a faithful picture of an institution which has ceased to be. Every American ought to read about those wonderfully prosaic schools, with their dirty rooms, their brutal floggings, their narrow routine of studies, the ignorance of teachers and governing boards, the nigardly and superstitious teachers, and the communities with their Hans Van Ripper who never saw any good in that same reading and writing. You ought to read it, not only as a matter of history, but to show you what a hundred years of effort on the part of teachers and educators has done for the public school system. In the consideration of our theme, then, there are three things I desire to emphasize.

1. *Let us magnify the importance of an education.* There are fourteen and a half million children enrolled in the public schools of this country. Twenty-three percent of the entire population of this country answers the call of the school-bell; \$2.24 every man, woman and child pays for the support of the public school system. The average number of schooldays in a year in the whole country is 134. As a matter of preparation for citizenship our nation requires that we attend school for eight years. But when you remember that every day of the average 134 schooldays, 36 out of every 100 pupils, or one in every three, missed school, it does not seem as though education were as important to every father and mother as it is to the state. Massachusetts has the best attendance in the nation, and Minnesota is guilty of the sin of having the worst. When your child is absent from school for every ache or pain, or every time the routine of the home is disturbed, you can hold the public schools responsible for nothing.

One says, "Knowledge opens the furrows and sows the seed; knowledge curves the sickle and reaps the sheaf; knowledge builds the mill and grinds the corn and converts it into bread; knowledge touches a forked stick and turns it into a steel plow." We have it on high authority that wisdom is better than rubies. The richest man of his day, the king of his country, and the wisest man of all time, declared that wisdom and knowledge have their own certain reward.

When Matthew Arnold visited this country he was struck by the democratic institutions of the nation. One day he went into the reading-room of the city of Boston, and saw a little bare-footed newsboy sitting in one of the best chairs of the reading-room. The great essayist was completely astounded. "Do you let barefooted boys in the reading room," he asked. You would never see such a sight as that in Europe. Mr. Arnold went over to the boy and engaged him in conversation, and found that he was reading the life of George Washington, and that he was a young gentleman of decidedly anti-British tendencies, and for his age remarkably well informed. Mr. Arnold came back to the desk and said, "I do not think I have been impressed with anything else that I have seen since arriving in this country as I am now impressed by meeting this barefooted boy in the reading-room." What a tribute it is to democratic institutions to say that, instead of sending that boy out to wander alone in the streets, they permit him to come in here and excite his youthful imagination by reading such a book as the life of Washington! The reading of that one book may be the means of changing the whole course of that boy's life, of making him a useful, honorable and worthy citizen of his great country.

Mr. Arnold touched the secret of our power. We are the wonder of modern times to Europeans. Democracy to a European is a mob government, and yet we have attained heights of power and glory as a nation. We have stood the strain over one hundred years, the shock of the bloodiest civil war since the morning of creation. Today our prosperity is to them a constant source of amazement. The secret of it all is that our fathers built the republic on free boys, free brains, free libraries and free schools. When our fathers wanted to make the voter a Christian they founded a free church; when they wanted to make a man a patriot they gave him his political rights and a share in the government; to make him a scholar they founded a free school, the academy, and the college. And this is why, when the new emigrants have come by the millions with their note of anarchy, with their hatred of all government in the state, with their opposition to ecclesiasticism in the church, they have been transformed into patriots and citizens of good quality—the strong and useful leaders in the city and state and national life.

Not less important is education in the accumulation of wealth. Give a thousand dollars to your boy and he can soon spend it; but he can never spend a thousand dollars given to him in an education. The interest of a thousand dollars is \$60 per year; but the difference in position which two or three years of schooling will give to a boy is worth anywhere from \$300 to \$1,000 a year. Investments which pay from 33 to 100 percent are not common; education is such an investment. A liberal education equips a man for one hundred chances. Failing to open one door he has the keys to ninety-nine more. Well-educated men rarely starve, and rarely go to the poorhouse. There are not many high school graduates among the beggars and paupers and tramps of the country. Money in the education of a child is a good investment.

Education contributes to the wealth of a nation. Ignorance ruined the soil of Palestine and the hillsides of New England. Ignorance has wasted the lumber of our great forests. Ignorance brought pestilence through the lack of the principles of sanitation. See the loss of life in our great epidemics. Education in farming has increased the production so that we raise more wheat per acre in Ohio today than we did in the day when the soil was rich in its virgin conditions. Looking back to the time before the Civil War we see that the South was growing poorer, and the North was growing richer and richer. Slave labor represented ignorant labor. The slave bought no newspaper, no books; his ignorance starved the press; he had one coat and one pair of trousers; he had no amusements; he had no use for the sewing machine, the cottage organ, nor any of the comforts of life, and so there was no need for manufacturing towns. Free labor is educated labor. Good workmen are usually good buyers; they hunger for beauty, friendship, hospitality and comforts, and these develop new needs and people become prosperous by leaps and by bounds. Rudyard Kipling paid two cents for paper, ink and pen; he made some marks upon the paper and called them the "Recessional." He sold it to the *London Times* for \$2,000. The raw material cost two cents; the rest was education and training.

The story went the rounds of the papers a few years ago of a machine which broke down. The owners sent to the city for a specialist, who repaired the broken machine in thirty minutes. He charged them \$50.50. They asked him what the fifty cents was for, and he replied, "It was for fixing the machine, and the \$50 was for knowing how to do it." There is a cave of diamonds, and knowledge finds the path to that cave; therefore, "with all thy getting get understanding."

II. *The helpful relations of the home to the schools requires the home to magnify and appreciate the work of the teachers.*

The essence of all criticism should be helpfulness. Thoughtless and useless criticism is cheap. A fakir dentist stood upon the streets of our town a few weeks ago, a man who could not make his living for more than two days in any town at a time, and who, as a preface to the sale of his quackery at enormous prices, which some of you bought, he attacked schools, all professions, government, religion, and wound up with the astounding statement that he "would not allow his boy

to graduate in a high school, because he did not want him to be a blot on civilization, and anyway, that nineteenth-twentieths of all that we know is false." And the thoughtless ones laughed. A few years ago a prominent divine, whose sermons were published in many of the dailies through the country, preached a sermon which was widely circulated, on the cramming, crowding, stuffing and jamming of a child's intellect, and, in connection with a lot of other baseless utterances, said:

"Girls ten years of age studying algebra; boys twelve years of age racking their brain over trigonometry; children unacquainted with their mother tongue crying over their French, German, and Latin lessons; all the vivacity of their nature beaten out of them by the heavy beetle of a Greek lexicon. And you doctor them for this and you give them a little of that medicine for something else, and you wonder what is the matter with them. I will tell you what is the matter with them. They are finishing their education."

"In my parish in Philadelphia a little child was so pushed at school that she was thrown into a fever, and in her dying delirium all night long she was trying to recite the multiplication table. In my boyhood home I remember that in our class at school there was one lad who knew more than all the rest of us put together. If we were fast in our arithmetic he extricated us. When we stood up for the spelling class, he was almost always at the head of the class. Visitors came to his father's house, and he was almost always brought out as a prodigy. At eighteen years of age he was an idiot. He lived ten years an idiot, and died an idiot, not knowing his right hand from his left, or day from night. The parents and the teachers made him an idiot."

The only trouble with that utterance is that every word of it is false. If the case of the idiot cited was correctly diagnosed, it was not the school system nor the teacher that ought to be indicted, but the father and the mother. We are not warranted in forming general conclusions from specific instances.

If a teacher is to be held responsible for a knowledge of each child's condition and capacity she must have omniscience. The curriculum of the schools is not made by teacher, superintendent nor by the school board only indirectly. It is the result of an observation over a wide area of territory, and is adapted to the mind of the *average* child. If, because of hereditary tendencies, or of sickness or of rapid development, your child is not able to cope with the studies of her class, what is a parent for if not to guide in such a case?

To hear some criticize the schools, one would think that the children were always angelic and the teachers were always diabolic. Strange how we are prejudiced in favor of our own children! How to us, all virtue and excellency run in our own families.

I believe it is not customary to interrupt a minister in the midst of his sermon; but I am sure my dear brother will excuse me if I ask him to wait a bit and let me add emphasis to his further remarks as follows:

You have the only boy that amounts to much in the world—so have I. His hair doesn't look much like mine, but he has more of it; his eyes are not the color of mine, but his caught the blue out of the sky as he came through; his face is not shaped like mine, but he smiles twice where I smile once; and when the dimples come in his face it makes one think of the angels; and he is smart. He knows just when to go to sleep and when to wake up, and that is more than you can say of your child. If he continues to improve in four years as he has in two I shall want the school-board to employ Harper to teach him. That's the way I am tempted to feel about my boy—and there are others. You think that nonsense? There is more sense than otherwise in that description.

After Mr. Hill had made the above remark he paused in his sermon, and a peculiar smile lit up his face that the audience had learned by past experience always prefaces some bit of pleasantry. He pointed his thumb toward himself, and then went



on. (By the way, he put a blue mark on the margin, suggesting that we leave out the part about his own boy, but we have not obeyed instructions.)

Mrs. Root only once in her busy life has consented to stand up before an audience and speak. It was once when I talked to our country school in Northern Michigan. After I had finished, the superintendent courteously asked if Mrs. Root had not something to add to what had already been said. Then came one of the happiest surprises of my life. Mrs. Root got up and spoke. She said I had already mentioned the importance of being on hand every day; and she said that, in training a family of children, and in helping to make a success of their education, she had found it of equal importance to have them on hand *promptly* when the school opened, every day and every week—no tardiness. She said that, as a mother, she had labored hard not only to have the pupil on hand promptly at the opening of the school, but to have his lessons in mind so there would be but little probability of a failure in his recitations. She said such rigid training seems a little hard at first; but after the child gets used to it, and takes it up every day as a matter of course, he does not find it so very hard after all; and she felt sure that this one lesson of punctuality would be worth much to them in after-life. She closed by urging parents and teachers to try hard to have the pupils on hand every day so that there would be no failure or break in their regular lessons.

With this preface, friends, you can understand why Mrs. Root was so intensely interested in the following part of the sermon. She did not say amen out loud, as I often do, but no doubt there were many amens in her heart.

It is natural that we think well of our children, and so we are carried away with our interest in them, so as to be unfair toward the painstaking, conscientious, patient teacher. The most irrational conduct I think I have ever seen has been on the part of parents toward the nation's greatest benefactors—parents with little minds, darkened by ignorance, warped by prejudice, and saturated with an amazing conceit, who have assumed knowledge greater than that possessed by the school board, superintendent and teachers combined, because they have been blinded by love of their children.

We may justly expect certain things from the teacher. First, she must be a student of child life. Some knowledge of the child growth and development, the way to approach the child mind, the changes that are taking place in the physical as well as the mental life of the child—these the teacher must know as the farmer knows his land. We may justly expect, too, that she shall know the tools with which she works, and these tools are largely the subjects which are taught in the schoolroom; and the teacher's knowledge ought to pass beyond merely knowing the contents of the subject in the book; she ought to know how it affects the mind and how it works upon the mind. The editor of the *Sunday School Times*, usually so clear and correct, recently said: "Knowledge is the goal of secular education; character is a by-product. Character is the goal of Sunday School instruction, and intellectual knowledge is the by-product," to which statement both Sunday School teachers and public school teachers all over the country are seriously objecting, for it prophesies sad days before us if it shall ever become the object of the public school to make character a by-product, or the Sunday school to make intellectual

knowledge a by-product. The National Association of Teachers at its last annual meeting in July took occasion to affirm, as it had done before, that "the ultimate object of popular education is to teach the children how to live righteously, healthfully and happily," and said they "desired to record their approval of the increasing appreciation among educators of the fact that the building of character is the real aim of the schools and the ultimate reason for the expenditure of millions of dollars for their maintenance." And this we have a right to expect of the teacher.

We have a right to expect the parent to uphold the teachers in their aim. When things do not run smoothly with your children in the schoolroom it is not fair, first of all, to talk it over with your neighbors, your friends, your relatives, the school board, and the town in general, and then, when you have assumed the prerogative of a prosecuting attorney, judge and jury, and have arrested, tried and convicted, sentenced and crucified the reputation of your teacher, finally to hunt up your child's teacher and ask him if there were any reasons why the judgment should not be passed? Let us mix a little common sense in our relation to this bulwark of the nation. The conduct, progress and general relationship of your child in the schoolroom is, first of all, the business of no one but the child's teacher and yourselves. When your views do not coincide with those of the teacher it becomes a matter of consideration for the superintendent. Children would be happier, make more progress, and be better prepared for the duties of life, if the parents would talk with the teacher and superintendent concerning the education of their children, rather than, with acrimonious spirit, to gossip with their neighbors about things which a word of explanation would make clear and reasonable.

No one desires more than the teacher a peaceful relationship in the work of the school. To uphold a child against the teacher is to lessen the child's receptiveness to instruction, if not to destroy the teacher's effectiveness for the child. We ought to bridge over with parental tact the momentary breach between pupil and teacher. Teachers are not always perfect, parents are not always perfect, and children are not always perfect. These instructors stand in a representative capacity, and the child should be taught to respect and reverence them, partly for the teacher's sake and chiefly for the child's sake.

*III. I have dwelt so long upon the relation between the home and the school that there is time left but to mention those fundamental virtues that lie at the basis of all character, and upon which teacher and parent ought to unite.*

They are so trite that we are tempted to smile when they are considered as fundamental in character. First of all are *punctuality* and *regularity*. God is the greatest teacher of the universe. His models are always perfect. He has written it so deeply into the nature of things that they should obey these two laws that we can determine, for centuries to come, the rising and the setting of the sun and moon. There is not a calling in life where these traits of character are not a necessity, and perhaps no trait, when once acquired, sticks to us like these Horace Greeley is renowned as the hardest worker of the last century. He was for thirty years at the head of one of the greatest newspapers, that the nation or the world ever saw. The strongest editorials of his time were written by him. He knew every part of his own country, and traveled abroad. He farmed, and wrote a book to farmers on what he knew about farming. He was a student of history, and wrote two large volumes on the American conflict, and did them all while editor of the paper. His biographers declare it was possible for him to perform these Herculean tasks because he had for his friends those twin brothers—Punctuality and Regularity.

Oh, if I could only tell you how in the secular and religious education of the child, how in the development of the Christian life, how in the success and failure of business, all things depend upon these virtues, you would make them fundamental in your child's education!

*Obedience* is a prime virtue which a child should learn from both parent and teacher; for the school and the home whose combined teaching has failed to teach the majesty and the sanctity of law are

colossal failures. Order is the first law of heaven and earth. It has been said that one of the causes of the civil war was that the South had no public schools where the children were taught obedience. Miss Sarah Smith, who for more than twenty years poured her life into our schools, once said: "The relations between parent and child have changed in recent years; there is more freedom of intercourse, more comradeship, a better understanding, which, while an advantage in many ways enhances the difficulty of securing obedience." It is so much trouble for some parents to make their children obey. They would rather let things go and trust the Lord to bring all out right in due season. Faith is so much easier than works. John Ruskin one time told parents not to try to leave the child a million pounds, but to try unceasingly to teach the child *obedience*; that, if the boy did not obey nature, nature would grind him to powder. Ruskin knew her fires would burn him, her stones would crush him, her acids would consume him. She would not forgive one single act of disobedience. To give a child the gift of obedience is worth more than a million of pounds.

And let the child be taught that *character is the aim of all life's schools and teachers*. Life is not speculative. Love, duty, service, are its great watch-words. What better school could God have devised for character-building than that in which we live?—Nature with her lesson in variety, constant surprises and marvelous beauty; the home, with its joy, obligations, and affections; society proceeding from the home, till it embraces humanity at large, and makes men kin with it all, through sympathy, fellowship, and appeals for service. What power for Christian service in the uncertainty of life, in the memory of father and mother and early home, in the trust and love of one's children—in the devotion of husband and wife! by such influences God brings forth golden character from the material of ordinary lives. Let it be the prayer of old and young, "So teach us to number our days that we may get us a heart of wisdom."

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## Temperance.

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### THE "WHISKY BUSINESS" ALONG THE LINE OF PATENT MEDICINES; PERIODICALS THAT ACCEPT SUCH ADVERTISING.

Our readers are no doubt well aware that the United States government has at several different times during the past year or two undertaken a crusade against patent medicines, especially those that are but little else than intoxicating liquors with enough drugs of some kind in them to call them "medicines." Well, many of you have been a little perplexed and surprised to find that nothing came of it. A recent number of *Collier's Weekly* turns on a search-light that explains these matters somewhat. The patent-medicine men have formed a sort of combine. The people of the United States at this time pay something like \$100,000,000 a year for these medicines. It is an expensive way of getting whisky, it is true; but it is an avenue through which respectable people can get it and take it day after day. The manufacturers admit that they get awful prices for their whisky tinctures; but they excuse themselves by saying the expense of advertising is so great they can not sell cheaper. Yes, the expense of advertising is great. *Collier's Weekly* says that, of the \$100,000,000 that our people give for whisky alone in this shape, at least

\$40,000,000 of it goes to newspapers and magazines that advertise the stuff. The medicine men pay spot cash, and make big contracts, as you may see, probably, by looking into *your family paper*. Now, *Collier's* expose is this: In consideration of getting this good big fat advertising, the publisher of the paper signs a contract to see that nothing gets into his paper in the reading-columns, or anywhere else, derogatory to the medicine business, or that might injure the sales of peruna, swamp root, or whatever name the stuff masquerades under; then when an outraged public or even our government undertakes to ventilate this matter it is suppressed. *Collier's Weekly* says that one Cleveland daily lost \$18,000 in 48 hours by forgetting or ignoring their contract with the medicine men not to expose their nefarious business.

Now, then, friends, the periodicals of our land are lining up. Those like *Collier's Weekly*, *McClure's*, *GLEANINGS*, etc., that refuse to accept medicine advertisements of any kind, can speak out and warn the public, without disastrous losses. All the others—those that advertise these nostrums—are mum. There is a padlock on their lips. But this is not all. That contract, a copy of which is given in *Collier's Weekly*, binds these publishers by plain words to defend the use of alcoholic medicines; and you will see these periodicals coming out now and objecting to the crusade that is being started. One periodical that comes into our home, that I have always valued highly, not only advertises patent medicines, but defends their use. They say it is cheaper to buy the medicine at the drugstores than to go to the doctor. It says you are more apt to get pure unadulterated medicine if you get it already put up with fancy wrappers, etc. Peruna is made right near our home. The testimonials for it read much like those for Duffy's malt whisky, and yet the victims of alcohol and morphine are all around us. Some time ago one of the boys in our establishment felt bad, and got his eye on a peruna advertisement. It made him feel better, of course; but pretty soon he got to taking it, bottle after bottle. Nobody knew about it until he became unfit for work, and had contracted a habit that it may be hard to break away from. The State of Ohio is shutting up the saloons at a pretty good jog; but it is driving a certain class to the use of patent medicines. These medicines are also taken by educated and intelligent people who ought to know better—people who would be ashamed of having it said they drank whisky, beer, or even wine; and almost before they know it they find themselves bound with iron chains to alcohol, opium, cocaine, or some other vile drug. What shall we do? Tell the publishers of your home paper that you want a periodical that does not advertise peruna, Duffy's malt whisky, nor medicines of any kind. If they pay no attention to your suggestion, you can be pretty sure their hands are tied by the patent-medicine syndicate.





#### MULCHING FRUIT-TREES, ETC.

The *Rural New-Yorker* especially, and other agricultural papers, have been discussing for the past two years the mulching of fruit-trees instead of cultivation. Our Ohio Experiment Station has made some experiments, and they report very favorably regarding the mulch — that is, where there is sufficient to keep down weeds and keep the ground moist. When I visited the station in June I saw a heavy stand of clover cut and put around young fruit-trees. They reported great benefit, especially in winter. Mulched trees passed the severe winter apparently without injury, while those where the ground was left bare, and cultivated clear up to the time of freezing, were either killed outright or badly crippled. Well, I have been managing my peach-orchard in Northern Michigan on the mulched plan. One of my neighbors one day suggested that, if we should have a dry time, and fire should get into my orchard, the mulch I had around the trees would kill every one of them. Some time afterward I was burning a stump that had been in my way. It was during a dry spell in September. A heavy wind came up, and the sparks were blowing quite lively. Mrs. Root was in the hammock, a few rods away, and she said she would keep watch. She fell asleep, however, and was awakened by a crackling noise. Sure enough, the sparks had got into the mulch around one of my choicest early cherry-trees. In fact, it was the handsomest and most thrifty-growing tree on the place. I had often admired it and pronounced it a model tree in every respect. Mrs. Root at once jumped out of the hammock in double quick, and got a pail of water from the kitchen; but one pailful did very little good. By the time she got back the second time the big pile of dry mulch was going almost as before, and about the same with the third pailful. Just as she had exhausted all the water around the house she got the fire out, but she was so out of breath she said she could hardly stand up. Some of the lower branches of the tree shriveled up, but we are in hopes it will come out all right in the spring.

I have related the above as a caution. A mulch of almost any sort of stuff that will keep down weeds and keep the ground moist is a splendid thing, but you want enough of it to go out as far as the outermost branches of the tree. Those Hale's Early peach-trees near the door were in a heavy sod of June grass; but the generous mulch I piled around them killed the grass entirely, and kept the soil moist, even during the drouth. My peach-trees are only a rod apart, and planted like the cells of a honey-comb. If fire should get into the orchard, and get well

agoing, I presume it would probably kill every tree.

Trials at the different experiment stations seem to be rather in favor of cultivating the ground, especially around young trees, where it is done often enough; and as no cultivation is needed after July, under some circumstances this might be less trouble in an orchard than the mulch plan. When it comes to wintering, however, I think the mulch will generally be found ahead. But before you go into it, it may be well to consider the chances of fire getting in when nobody is around.

The above was prompted by the following, which I clip from the *Rural New-Yorker*:

The worst danger in a mulched orchard is fire.



#### SUN BATHS, AIR BATHS, AFTER-DINNER NAPS, ETC.

Dear Mr. Root:—I have been a silent reader of your Home and Health papers for some time. I do not wish to take any exception to the general trend of your ideas, nor to question in any serious degree the correctness of your instructions; but I have wondered a number of times if you meant them for such as I. I am a member of that large and useful company, the wage-earners. My capital consists of hands and brain, and my resources the time during which I can put them to use. The chief difference between you and me is that I must regulate my hours, habits, and private affairs to conform to my work, while you can make any division of your time you wish. The most serious fault I can find with your writings is that you apparently wish to help the common people; but, very few can follow your teachings under the conditions they must maintain.

You will agree with me that it would be ridiculous for the men in your institution to take an after-dinner nap, a sun-bath, and many other equally nice treatments you have recommended. Of course, you did not mean to be taken that way; but really I do not know just how you do want to be understood. Would you be kind enough to outline a program for me allowing for my work from 6 A.M. to 5:15 P.M.? I must sleep, eat, give the necessary attention to my family and myself. Of the many things you have mentioned as essentials to a successful life, which do you recommend to me, and show in your program how I am to avail myself of them? Please do not forget that I am an *employee*, and the law of every really faithful employee is, "Seek ye first efficiency for your employer, and his approval, and all else shall be added unto you." This often means, besides so many hours a day, the devotion of spare hours to the interests intrusted to me.

I am not writing this as a dissatisfied unhappy slave to circumstances, for I enjoy living and working as much as you do; but out of sympathy for those who are even less fortunate than I, and who welcome assistance to a higher plane of living. B. E. ECKARD.  
Medina, Ohio, Oct. 28, 1905.

Before answering the above I wish to explain to our readers that it comes from our chief engineer of steam, electricity, etc.—a man of talent, judgment, and education. In answering him I shall have to say that my suggestions are mainly in line for elderly people, or for anybody who feels that his health is failing. One who is in the prime of life and in good health, and who is required to put in the number of hours friend Eckard does, can well be excused from many of the things I would recommend for an invalid. I would, however, recommend every-

body to get as much fresh air as possible, and arrange things in the home so that frequent baths can be taken with as little trouble as possible. If the sun baths can not be taken on week days, or if it is next to impossible to get out in the sunshine during week days, I would endeavor to get as much sunshine as I could on Sunday. Comparatively few people are required to work 7 days in the week. In fact, all kinds of business should be so arranged as to permit every employee to give reasonable consideration to the matter of preserving health. Your version of my old favorite text has a lot of truth in it; and if your employer is a godly man he will surely see about the "things to be added." One of them is a reserve man who can take your place during emergencies. If there is no such man about the establishment, urge upon your employer the need of having somebody to take instructions in view of sickness and death that are likely to occur to anybody.

You ask which, in my opinion, is most important of the things we have been talking about. In my case it is the after-dinner nap. In fact, I suffered for years from a sort of nervous prostration before I found out that a nap of fifteen or twenty minutes would cure it every time. When one feels that his health is giving way along the lines I have suggested, he can usually make some arrangement with his employer, especially if he is a valuable hand, so the matter can be arranged to the satisfaction of both parties; and it often will not be any more expensive or difficult than to drop off entirely and pay a doctor's bill besides. There is quite a movement in the large cities at this very time for only eight or nine hours a day.

I often eat my dinner, and get my nap besides, inside of an hour. An hour and a quarter is better, however, and an hour and a half gives me all the time I could ask for. The sun baths, air baths, and pure air can generally be managed with less trouble than the half-hour's sleep after dinner.

Mr. Eckard handed us the following, saying he would like to have it put before our employees. It is taken from the *Technical World* for August.

#### HORSE SENSE.

If you work for a man, in heaven's name work for him.

If he pays you wages that supply you your bread and butter, work for him, speak well of him, think well of him, stand by him, and stand by the institution he represents.

I think if I worked for a man, I would work for him. I would not work for him a part of his time. but all of his time. I would give an undivided service or none.

If put to the pinch, an ounce of loyalty is worth a pound of cleverness.

If you must vilify, condemn, and eternally disparage, why, resign your position; and when you are outside, damn to your heart's content. But, I pray you, so long as you are a part of an institution, do not condemn it. Not that you will injure the institution — not that — but when you disparage the concern of which you are a part you disparage yourself.

And don't forget — "I forgot!" won't do in business.  
ELBERT HUBBARD.

#### THE WRIGHT BROTHERS' FLYING-MACHINE TO DATE; FLYING 24 MILES IN 38 MINUTES.

Our readers' attention is called to the articles in regard to the Wright Brothers' flying-machine in our issues for Jan. 1 and 15, 1905; also to the italics on page 1202 in our last issue. I have now permission to give you some further particulars. A great number of long flights were made during the past summer. Along late in the fall the machine made 24 miles, and was up in the air 38 minutes; and as this flying was all done in a circle, the speed was not as great as it might have been in a straight line. The reason why they have made no longer flights, say from one city to another, is because they are following the policy they adopted in the beginning, of working slowly and safely. This longest flight did not extend much outside of the inclosure I have described, where the building is located for storing the machine. For several reasons it is quite desirable that the apparatus should be put back in the house built for it, after every flight; and if they ventured very far away from where it is located there might be difficulty in getting it over fences or along highways.

In making these circles of about one mile in circumference they did not choose to go higher than perhaps 75 or 100 feet from the ground. In order to test the machine fully in case of accident the engine was shut off repeatedly while under full speed, and at a considerable height from the ground. There is no difficulty at all in lighting on any tolerably smooth field (that is, a field tolerably clear of trees, bushes, stumps, etc.) without accident to the machine or operator; in fact, they can strike ground at a speed of 40 miles an hour without injury. They even consider it safer to alight at a pretty fair speed than to drop straight down without speed. The reason why they stopped at the end of 38 minutes was because their reservoir of gasoline held only enough for that length of time; but as they carried along about 40 lbs. of cast iron for ballast, the machine is amply capable of carrying gasoline enough for an hour or perhaps two or three hours. As nearly as I could find out, the amount of gasoline required to run it is but little if any greater than is required for a two-passenger automobile. You see it is easier work *sliding on the air* than traveling over our best macadamized roads.

No one at the present time knows just what the outcome is going to be of this new achievement in the line of air navigation. I hope the friends who write me in regard to the matter will bear in mind that this apparatus has no balloon nor gas-bag of any sort. It can be started at any time almost as easily and as quickly as you start an automobile.

I am not at liberty to answer questions in regard to its construction more than I have given already, so there will be no use of writing me in regard to it. Until now they have endeavored to keep the matter from being mentioned in the papers as much as possible. These workers in this new field have not desired publicity.