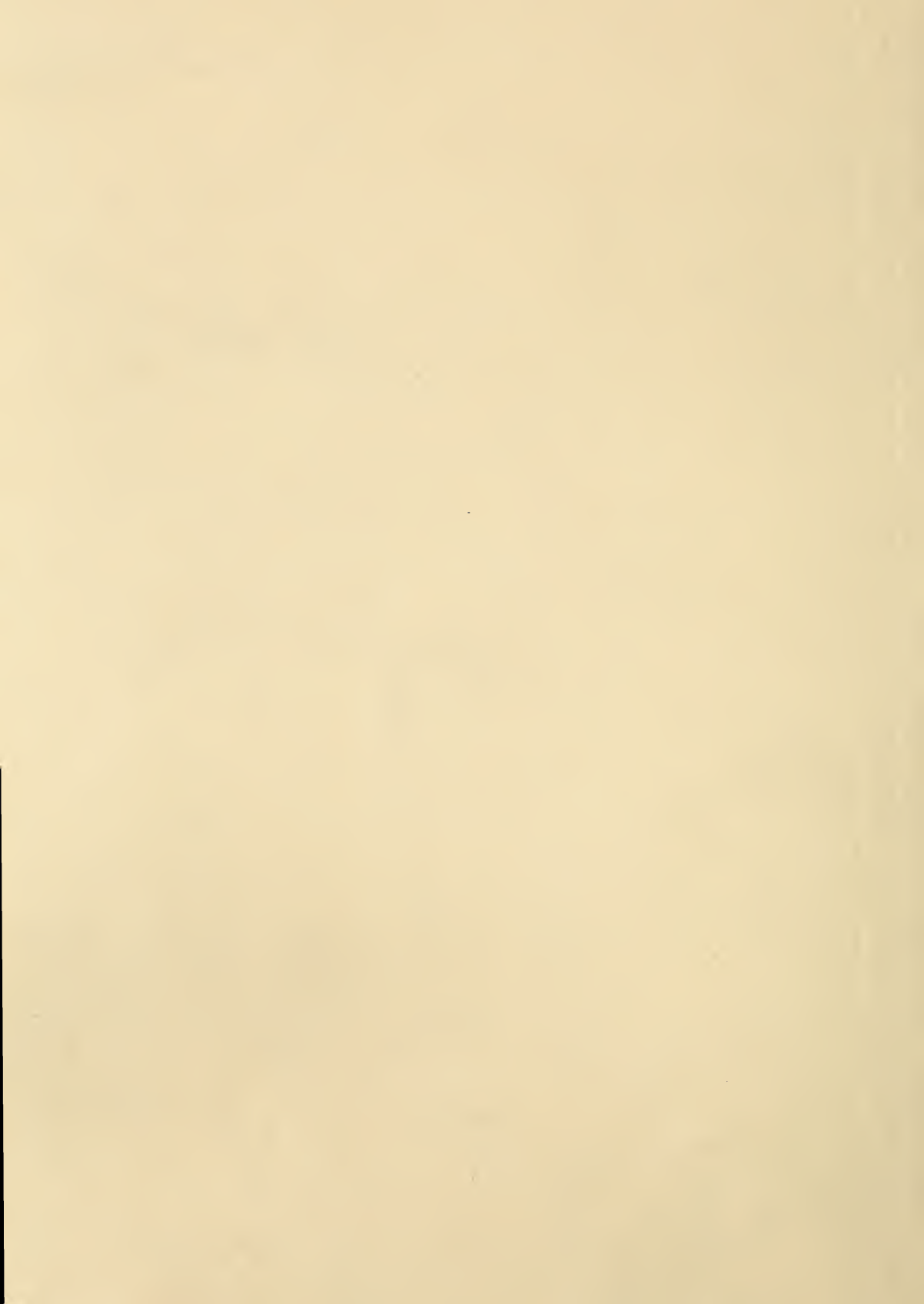



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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

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SUGGESTIONS

For the Wide-awake Beekeeper of Today

If you hired a carpenter to repair your barn, and he arrived without his tools, he could not give results even if he were the best carpenter in the country.

It goes without saying that you, a beekeeper, must look to the future or the honey season will be on and your needed supplies will be tied up in some freight car—**EMBARGOED.**

Order from us **NOW** allowing for slow freight deliveries and your supplies will reach you in plenty of time.

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The Fred W. Muth Co.
214 Walnut St., Cincinnati, Ohio

"Quality Counts With Us."

GLEANINGS IN BEE CULTURE

FEBRUARY, 1918

EDITORIAL

LET US AGAIN emphasize that the beekeeper who has not yet ordered supplies for the coming season

Don't Delay— do so at once. At
Order Supplies this writing, Jan.
Now. 15, freights, espe-

are congested as never before in railroad history. Many carload shipments have been lying unmoved on the railroad tracks for over a month.

The Administration at Washington has taken over the railroads and it is hoped that the present congestion will be relieved. In all events, war material and food stuffs have the preference.

The situation became so acute that a representative of Gleanings conferred at length with several representatives of the Sugar Division of the United States Food Administration, explaining that carloads of bee supplies and less than carloads were very much delayed and unless the beekeeper could have his goods in time it would materially cut down the production of honey, and we asked that bee supplies be given a preferential standing along with agricultural implements. While the Sugar Division could not give us any definite promise, an official told us that if we would furnish the Sugar Division with the car numbers, routing and other particulars regarding less than carload shipments, that office would do what it could to hasten delivery.

The railroad companies are powerless until the Food Administration makes a discrimination that will allow certain freights to be moved.

We don't hesitate to say that it is a serious situation that confronts the beekeeper today. In many cases supplies have been ordered and will be delivered soon. In other cases goods have already been received. The man who has not placed his order for his entire requirements for 1918, unless transportation conditions improve, may be in a sorry plight in March and April if he does not order at once. To get goods by express is very expensive, and that's what many who order late will have to do if they get their goods at all.

Just as we left Dr. Phillips, in Washington, the apicultural expert of the Bureau of Entomology, said: "You can't make it

too emphatic that bee-supplies should be ordered at once, if not already ordered."

THE EDITOR of Gleanings has been in the East to look up the sugar situation. Conditions are improving and the Food Administration, Sugar Division, at Washington, as-

sured us that there ought to be no lack of sugar within 30 or 40 days. As stated in January Gleanings, where beekeepers need sugar at once to prevent starvation, they should make a statement of the facts, the number of colonies and the amount of sugar needed, when the Food Administration will issue a permit by which they can secure the sugar required. Address the United States Food Administration, Sugar Division, Washington, D. C.

In one or two cases beekeepers have written us that they have gone to their local and wholesale grocers with a permit, but were unable to get sugar, as there were no stocks on hand, not even enough to take care of the limit allowed to the householder. In that case, we would recommend that the beekeeper apply to the next nearest wholesale grocery house, either thru his local grocer or in person himself, and continue the search from grocery to grocery, retail and wholesale.

Dr. Burton N. Gates, of Amherst, Mass., has made arrangements by which beekeepers of his state can get bee candy of the local dealers. They should apply to H. H. Jepson, 182 Friend Street, Boston, Mass.; A. C. Andrews, Springfield, Mass., Box 1474; Ross Bros. Co., 90 Front Street, Worcester, Mass.

Mr. B. F. Kindig, East Lansing, Mich., State Inspector of Apiaries, has arranged for beekeepers to secure sugar. Michigan beekeepers may write to him and he will issue a form by which they can secure sugar thru the Federal Food Administration for Michigan, which has directed that wholesalers supply beekeepers with sugar, so far as possible.

Where beekeepers are not able to secure sugar, or can't wait to get a special permit, as a last desperate resort we suggest that they ask for common cane molasses, sometimes called New Orleans molasses, for



spring stimulation and when all danger of the bees being confined to the hive by cold is past. Cane molasses has not been commandeered and, we are advised, can be obtained in small quantities. The objection to cane molasses is it contains a considerable amount of gum, according to Dr. Phillips, and will cause dysentery; but for use in the spring, for spring stimulation or as a last resort to prevent starvation, or at any time after the bees can fly once or twice a week, it will cause no trouble.

Where one cannot obtain any form of molasses or sugar, we would suggest the use of karo—for spring stimulation only and when the bees will not be prevented from flight by cold. While bees will not take raw glucose, yet the fact that karo contains 15 or 20 per cent of cane sugar or refiners' syrup, we are told, makes it acceptable to bees. We would not consider karo, however, equal to molasses made from cane but it may prevent bees from starving in the spring. Karo could be obtained probably in any quantity anywhere.

We caution our readers that the use of cane molasses or karo in the spring is accompanied by danger of unfavorable weather conditions that may keep the bees from flying and so result in dysentery.

To those beekeepers, in states where officials have not informed them as to how and where to get sugar for feeding, we say again: Write direct to the U. S. Food Administration, Sugar Division, Washington, D. C., stating your needs.

We suggest to all beekeepers needing sugar that you fill out the blank form* printed at the bottom of this page, swear to it (or affirm it) before a notary public or other official who can administer an oath, and send

such filled-out form to whatever source you apply for sugar for feeding, whether it be the Sugar Division, U. S. Food Administration, Washington, D. C., or a source nearer home. It will make your application doubly certain and forceful and more likely to secure promptest attention. Either copy this form as given below, filling out the spaces left blank, or cut out the blank below and fill it out.



THE EARLY WINTER prevailing generally thruout the East and Middle West, followed



**General
Wintering
Conditions.**

by zero cold with almost no break, has caused some concern to beekeepers. There is no doubt

but there will be some winter losses in the East and northern central parts of the country, and particularly in the New England states, where winter packing has not been practiced to any large extent. In most cases where the colonies have been put in the cellar or properly packed, the losses will not be above the normal, providing that zero weather does not continue unduly.

Conditions in the far West are much better. While beekeepers lost heavily in Idaho and Montana a year ago, the winter thus far in that section has been much more favorable.

As a rule, early cold, if it does not continue unbroken, does little damage except to bees in single-walled hives. Unfortunately many beekeepers, relying on their success in wintering in such hives during normal winters, are going to be caught this winter.

So far, no one needs to be alarmed unless he failed to pack his bees or has not pro-

***APPLICATION FOR SUGAR TO FEED BEES.**

STATE OF.....

County of

I,, being duly sworn, state upon oath (or affirm) that the following statements are true:

I am the owner or have in my possession.....colonies of bees. The bees above mentioned will need sugar for food in order to live or be in suitable condition for gathering surplus honey during the season of 1918. I estimate that I will need..... pounds of granulated sugar for the purpose of feeding. If I am permitted to secure this sugar or any part of it, I will use it for food for the bees and for no other purpose, and if any remains unused at the beginning of the surplus honey flow, I will return it to the dealer from whom I purchased it or to whomsoever the Federal Food Administrator shall direct.

My postoffice address is.....

My nearest shipping point is.....

(Signature)

Subscribed and sworn to before me this.....day of....., 191..

Notary Public.

My commission expires.....

vided them with sufficient stores. Fortunately, as noted elsewhere, the sugar situation is likely to so improve that beekeepers will be able to get all the sugar they need to feed those colonies that are short of supplies.

THERE HAVE BEEN various conflicting reports in regard to drifting when bees are wintered in packing-cases, four colonies to the case. R. F. Holtermann and others who

have used the plan extensively in Canada say they experience no trouble with them. Others, however, who have tried it out complain that they have a good deal of drifting, with the result that one colony will have many bees and the other will have too few. The former may be starving and the latter may be dying of winter cold.

The cause of this drifting is plain. There will be little or no drifting providing the colonies are put into winter cases early in September. This is not so much because they need protection at this time as to get the bees to become accustomed to the changed appearance of their home. During the fall months they will gather pollen and nectar; and, with packing, all the brood will hatch. The result is that the early packing means young bees early in the fall. With lots of packing, young bees, and plenty of stores, a colony is almost sure to winter, and there will be little or no drifting.

But when bees are packed in November and December there will be more or less confusion and drifting. It is our rule, when we pack bees in quadruple cases, in November to move them in from an outyard and put them in the home yard or at another outyard in these big cases. They then have to mark their locations anew.

THE ORDER of the United States Fuel Administration, dated Jan. 16, placing a first five-day and an every-Monday prohibition of the use of coal for all industries east of the

Mississippi (except a comparatively few enumerated in the order) found beekeepers' supply manufacturers in an exceptionally fortunate position. We say this, judging from the manufacturing conditions of the A. I. Root Co., and presuming these conditions are the same in the other supply manufacturers. This fortunate position is that the plant can run full force and consume far less coal than if it lie idle and use only the coal necessary to avoid injury to the plant from cold and freezing. This is because the plant, while running full, produces enough shavings, wood dust and wood waste to fire the boilers with the use of less coal

in addition than is necessary to use when not running full but merely to keep the plant warm and from injury. Accordingly, at this writing, it does not seem that the manufacture of beekeepers' supplies should be interfered with by this drastic order of the U. S. Fuel Administrator issued to conserve coal. It is probably a necessary order, and will work no harm in closing many places of doubtful use (and worse) one day each week.

IN CASE of long continued cold weather, so extreme that the cluster is unable to move to the adjacent combs of honey, the bees will starve with quantities of honey but a few inches away. Altho opening hives in cold weather is always attended with more or less risk, and tho we do not care to be quoted as generally advocating such practice, still under the above conditions and having no other feed, it might be a good plan to remove an outer frame of honey filling the extra space with a chaff division board or packing, lay the comb over the cluster and again cover warmly. During this operation great care should be taken not to let too much heat escape, and not to jar the hive or disturb the cluster in the slightest. The beginner is specially cautioned concerning these last two points.

BEESWAX, the important by-product of the apiary, after having remained almost as constant in price as gold itself, has now for the first time in more than 30 years, jumped in price very considerably. In keeping with the increasing number of plans for saving and conserving, it is quite fitting that beekeepers pay special attention to the saving of beeswax, for there is danger (in the mad rush for more tons of honey) of forgetting the ounces of beeswax. Gleanings believes that this is a mistake, and therefore is glad to give extra space to the discussion of beeswax—ways and means of obtaining it cheaply—that appear in this number.

NO RECEIPTS

Will hereafter be sent to subscribers who remit for their own subscription only, unless a receipt is specially requested, as the date to which a subscription is paid is indicated in the course on the mailing wrapper of this journal. We will, however, send a receipt to persons remitting for others, in order that such person may have evidence of having forwarded to us money entrusted to them; we will also receipt to the sender for money sent to us to pay for a Gleanings subscription that is given as a present.

BUSINESS MANAGER,
Gleanings in Bee Culture.



Drifting Nuisance in Winter.



This May Save Your Bees.



Coal in Bee Supplies Manufacture.

BEESWAX is the most important by-product of the honeybee, and yet it has been neglected by beekeepers generally, and great quantities wasted. I can show where twenty per cent or more of the entire amount produced by the bees is thrown away or lost by carelessness or ignorance.

The Value of Wax.

First, let us consider its value. The demand is unlimited, and the price does not vary as greatly as does the price of honey. It would not be difficult for the producer to contract with any one of several firms to take all the beeswax he could furnish, and pay him a cash-on-delivery price during a period of several years. Could this be done with honey? Roughly speaking there are some two hundred million pounds of honey, about fifty million pounds of which is comb—an average of about twenty million dollars' worth of honey per year in the United States. The United States Bureau of Entomology estimates that the beeswax output is equal to about one-tenth of the honey value. Taking this as a basis, we have two million dollars' worth of wax. Now, if my contention is true that twenty per cent is lost to the producer, then the beemen are throwing away 400,000 dollars' worth of wax a year. If that money could be saved, and used to encourage the consumption of honey thru advertising and marketing, would it not be better?

Now, in our own state it is well known that we have shipped away over five hundred cars of extracted honey in one season, and we are beginning to use a lot of honey at home—not less than one hundred cars a year. If we produce six hundred cars of extracted honey, it would be worth something like nine hundred thousand dollars, and the beeswax ninety thousand dollars; twenty per cent of which would be eighteen thousand dollars. This, I believe, the beekeepers could use to advantage; and it is to bring it forcibly to their attention that I have taken this up.

From my constant association with the honey-producers for many years I have found that the average producer knows very little about beeswax and is not fitted with equipment to save this valuable by-product. Even some extensive producers who think that they are saving all it will pay to "fool with" are losing as high as thirty per cent, and only a very few are making an honest effort; and most of these, like myself, acknowledge only a certain degree of success; but I feel positive that I can extract twenty per cent more than was originally taken if I have all the waste, slungum, and scrapings from the bottoms of the cakes of beeswax.

SAVING THE WASTE BEESWAX

The Importance of Beeswax as a By-Product of the Apiary; How to Render it for the Market

By Geo. L. Emerson

Never put a cover back that needs scraping. When uncapping, scrape all bits of comb from the outside of the frame. Do not allow moths to eat up comb.

If you cannot save them, melt them up. The wax will furnish you with nice new sheets of foundation and pay for your work besides. Melt up the drone combs at the end of the season. Do not leave them in the hive for the queen to lay in in the spring.

Equipment.

For those who produce extracted honey a capping-melter is a necessity. In these times of disease one cannot afford to have the old sun extractor around to spread contagion. The capping-melter, a good wax-press, a large wax-kettle (made of galvanized iron), and a wooden-settling tank, to hold as much wax as you would ever have to cake in one batch, and you have an equipment that will take care of all conditions, if you know how to use it.

Preparing for Market.

In preparing your wax for market, remember that the longer it is kept hot the better it will settle; and the principle worked on by the larger refiners is to have such a quantity melted at one time that it will remain from twenty-four to thirty-six hours in a liquid condition before it is drawn off in buckets and allowed to cake. Several faucets are put in the large wooden tank at various heights from the bottom, so that the clean wax may be drawn off and the refuse allowed to remain in the tank. Old five-gallon honey-cans are commonly used by the beekeepers to cake the wax in; but they should be clean, or the dirt which is on them will adhere to the wax and spoil the outside appearance of the cake. One should be particularly careful that there be no honey on these cans, for it seems to make the wax adhere to the tin so strongly that it is almost impossible to remove the cake without cutting the can from it. If there is any dirt or foreign matter on the bottom of the cake, scrape or hew it off and render the refuse over at the next melting. If you use sulphuric acid be sure not to use too much, and never use it when the wax is in metal, as the acid will eat off some of the tin or iron and darken the wax. Also, be very sure that there is no honey or honey-sweetened water with your wax when acid is used. The acid will burn the honey black and will darken the wax. Be careful not to burn the wax in cooking; keep plenty of of water under it; for if even the slungum burns to the kettle it will not only affect the color, but will leave a burned offensive odor in the wax that is very difficult to remove.

A simple and inexpensive method of re-

fining is to take the head out of an old barrel and strain the hot wax into it, having about two inches of hot clear water in the bottom. After you have the whole batch in, or the barrel full, pour in a teacupful of sulphuric acid, or less, in proportion to the amount of wax or the color of it. Wax from cappings is generally much lighter, and is better if very little or no acid is used. Wax taken from old combs is much more difficult to cleanse, owing to the presence of so much pollen. The wax should be as hot as possible when put into the barrel; and after pouring in the acid it should be stirred with a stick long enough to agitate it clear to the bottom. In half a minute you will see the wax change to a lighter color. Now cover the barrel so as to keep the wax hot as long as possible. Use old sacks, burlap, or even straw around the outside, so as to retain the heat. When cold, remove all the hoops except the bottom one and turn the whole thing over on a clean board. By using a little care the barrel may be lifted off the cake and the hoops driven back on again without allowing it to collapse. By keeping the barrel covered up

with a little water in it, it will always be in a condition to use again when needed again.

A great percentage of the refuse on the bottom of the cakes is wax; but it is so mixed with pollen and other matter that it is not practicable to render it over more than once, unless one has a large quantity. By keeping it hot for several days without boiling, or other agitation, it will gradually separate and leave another cake of wax on top.

Shipping.

In shipping wax it should be double sacked, the tags numbered on the back, and a record kept showing the gross and net weight of each sack. Then if one sack is lost in transit it is possible to tell the transportation people exactly how many pounds is gone. A copy of this record should be sent on to the buyer with bill of lading. Never wrap wax in paper, as the paper sticks to the cakes and makes trouble.

[The prices considered in this article are not war prices but based on normal conditions.—G. L. E.]



INTENSIVE WAX RENDERING

*How to Do Rapid and Efficient Work
with Only Half a Barrel of Water
and a Very Simple Equipment*

By H.⁵H. Root

several combs, placed them in the screened basket, and poured boiling water over them until they were reduced to a thin mush in the wash-basin

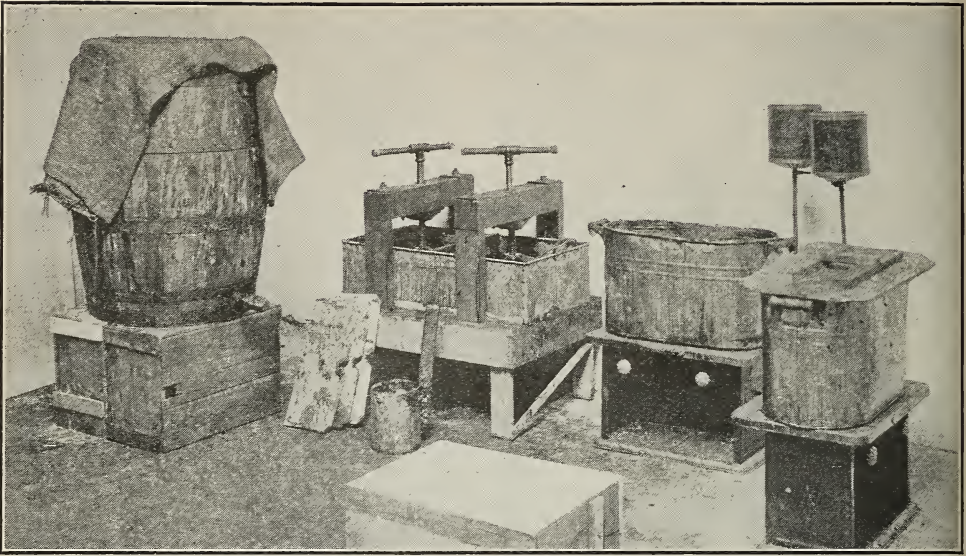
forming the bottom of the basket. Then, seizing the handle of the machine, I gave it a few rapid turns and found that the refuse had left the wash-basin and was climbing up the sides of the screen where it was deposited in a thin layer all the way round. I whirled it about half a minute, then poked this back into the wash-basin and again poured in boiling water. After repeating this four or five times I expected to find the refuse comparatively clean of wax, but was very much disappointed to find that, when I picked up a handful of it and squeezed it, the yellow wax would show all too plainly in the ridges between my fingers. I worked with one lot a full half-hour, the extractor meanwhile being set over a gas-stove, so that I could continually draw pails of boiling water from the gate at the bottom and pour over the refuse, washing it down into the wash-basin. After my half-hour of treatment there was wax—entirely too much—left in the cocoons, even tho many of them were fairly imbedded into the screen. I was forced to conclude, therefore, as I had years ago, that the method, while a very interesting one, is

THERE being on hand last season an accumulation of nearly 2000 old combs I decided to carry on some further experiments in wax-rendering.

I have often wanted to try laying a comb on a piece of burlap stretched over a screen, pouring a stream of boiling water on to it until "mushy," then constantly rubbing the refuse with a wooden paddle. My idea was that the stream of boiling water would wash the wax from the refuse down thru the burlap into the can beneath. The boiling water could be pumped in a continuous stream from the bottom of the can up on to the refuse. I tried it; and, while the plan possessed many advantages, it had one fatal disadvantage. Even tho the stream of boiling water was kept running for nearly 15 minutes, nearly 20 per cent of the wax remained in the cocoons; in fact, I could not succeed in washing out the last particle of wax, even with much vigorous rubbing. The last 10 per cent refused to separate.

I next turned my attention to the centrifugal scheme for rendering wax—a plan that I tried on a small scale about ten years ago. I rigged up a cylindrical basket made of wire screen to take the place of a reel in a small honey-extractor. The bottom of this basket, which was smaller than the top, was made of a galvanized iron wash-dish.

When everything was ready I broke up



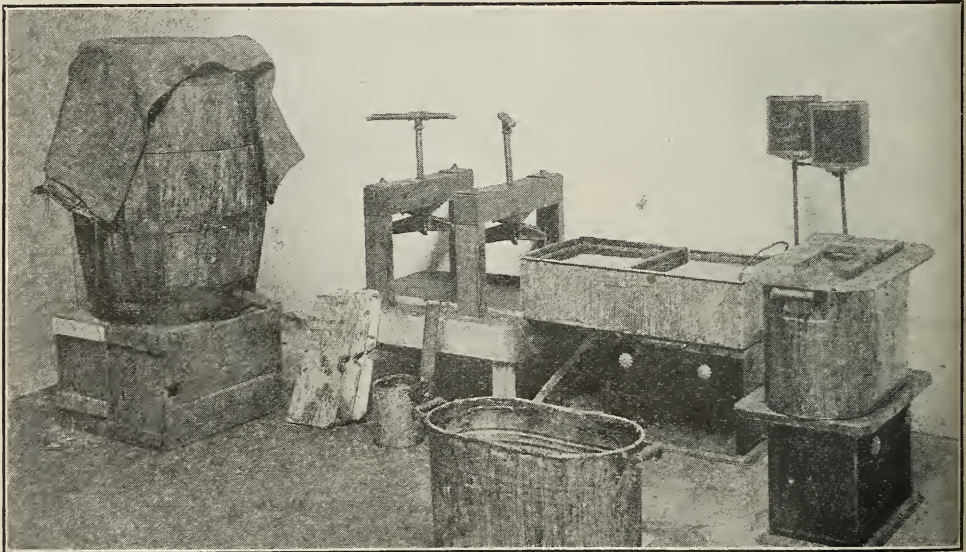
An outfit for rendering wax on a large scale. Only half a barrel of water is needed and as this can be used over and over again there is little heat wasted. The comb is melted in the two wash-boilers and after being transferred to the double press the hot water and wax are pressed out and poured into the barrel. Whenever more water is needed it is drawn from the bottom of the barrel, the same water being thus used over and over. About 40 combs fill the boiler and one boiler-full just fills the press.

an impractical one on account of the waste of wax.

The New Wax-Press.

Convinced that nothing but intermittent pressure on melted comb under hot water will extract all the wax, I turned back again,

as I always do, to the wax-press. This time wanting a press of larger capacity than that of the regular Hatch wax-press, I recalled the hot-water press that I used to use so much when I first began experimenting with wax-presses about 15 years ago. This had a round



To prevent chilling of the hot water and wax the boiler is set off the stove and the press can draw out over the fire where it is covered up and allowed to stand until the water boils. During this time the comb is again saturated with hot water. The can is then slid back under the screws and the pressure applied. Each lot of comb is pressed three times being brought back to the boiling point between each pressing. Allowing the water to boil results in nearly two per cent more wax.

can 20 inches in diameter and 16 inches high. It was made so that it could be set directly on a stove, the cross-arm holding the screw being secured to the hoop at the top of the can.

This old press worked well. The refuse after pressing was quite clean of wax; but I do not like a press that has to be located over a hot stove, on account of the fact that it is so very inconvenient. And, there is always the danger that, during the pressing, the heat can not be controlled, and the wax will boil over, resulting in a serious fire.

In the November issue of *Gleanings* for 1917 I described a method of introducing a small jet of steam into the Hatch wax-press, during the process of pressing, to prevent the water from chilling. This plan works to perfection for a small press, but is not very easily followed in case of a larger press unless one has access to steam from a large boiler.

In thinking over the subject one day, it occurred to me that there is really no need of having any heat applied to the contents of the press during the act of pressing. It is when the pressure is released so that the refuse is again saturated with water that the boiling is desirable. It was easy to build a press so constructed that it was not only the most satisfactory scheme for rendering wax I had ever tried, but also the most economical one—economical in the amount of fuel used and in the reduction of waste. Repeated tests showed that the total waste was less than two per cent when the screws were run down three different times, the can and its contents between each pressing being drawn out over the stove and left until the water boiled. Thirteen batches of comb averaging 40 combs to the batch were pressed in this manner in one day, the total amount of wax obtained in this manner being 142 pounds.

If the press were used as so many wax-presses are used (pressure applied to the refuse but once), its capacity would be nearly 400 pounds of wax in a day; but I do not recommend such a process, for there are few whose time is so valuable that they can not afford to wait for three separate pressings, the two second ones securing six to eight per cent more wax. Of course, as I have said so many times, there is no method of rendering wax that gets it all. An amount of waste not over two per cent is a good average result, and indicative of an efficient process of rendering. Plans which show a waste of four to six per cent of wax are antiquated and should be abandoned.

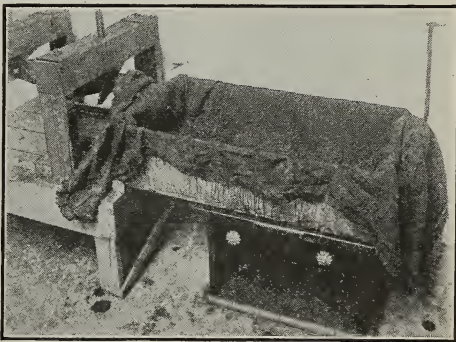
The construction of the press is clear from the illustrations. The rectangular can is 16 inches wide and 30 inches long, having a capacity of nearly four times that of the regular Hatch press. The contents of a whole boiler of melted comb is dipped and poured into the press at once—from 40 to 60

combs, depending on their age. In the bottom of the pan are cleats covered with screen; and the follower, made of $\frac{7}{8} \times 1\frac{1}{2}$ -inch cypress cleats, is also covered with screen on the under side. There is screen, therefore, above and below the refuse; and the follower itself, being built of these cleats spaced about $\frac{3}{8}$ of an inch apart, makes it possible for the wax when it is pressed out of the refuse to find its way immediately to the surface of the hot water. There are two layers of these cypress cleats, forming the follower, the lower layer placed vertically and the upper layer nailed flat side down on them. To prevent the spider on the lower end of the screw from crushing these cleats under the pressure, four straps of iron are screwed lengthwise of the follower on top of the upper tier of cleats.

Two screws are used instead of one at the suggestion of C. A. Hatch, the originator of the Hatch wax-press. I have tried large presses built with one screw in the center, but the arguments are all in favor of the longer, narrower can with two screws; for with this construction it is almost impossible to have one side of the "cheese" thicker than the other. For the greatest efficiency in wax-rendering, it is absolutely essential to have the pressure the same and evenly distributed. With a single screw, if one part of the contents of the burlap happens to be a little thicker than another it is impossible to keep the follower absolutely level. As the screw is turned down, the unevenness grows worse rather than better. This not only puts an uncalled-for strain on the screw itself, but results in inefficiency in the operation of the press, since there is always wax left in that part of the "cheese" which is thicker than the rest.

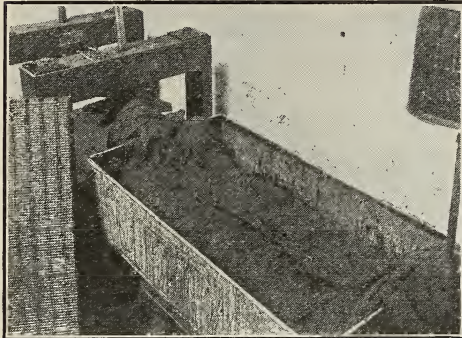
The Equipment Needed.

To render wax from old combs to advantage, a suitable equipment is necessary. There should be three tin wash-boilers, a water-tight barrel with a one-inch auger-hole close to the bottom containing a well-fitting plug, and two two-burner gasoline-stoves or



When the press is drawn out over the stove, the screws are entirely out of the way and it is therefore an easy matter to refill. A burlap 40×70 inches is used in order that the edges may be long enough to fold over and pin.

their equivalent. A cookstove would answer the purpose just as well, altho, being higher, it would not be quite so convenient. A large dipper is also needed, and this can easily be made by nailing a wooden handle to the side of a 10-lb. pail. The burlap used for holding the melted combs should be strong, and without holes or weak places. The size best suited for the purpose is 40 x 70 inches.

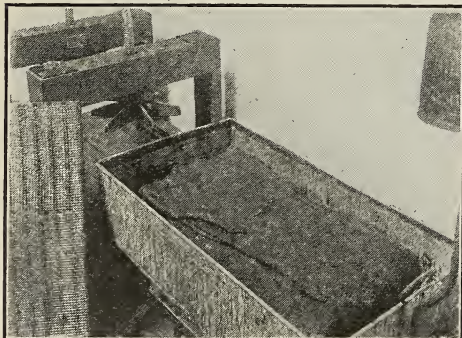


After pouring in the boiler full of melted comb fold over the sides of the burlap, with the edges doubled, and pin with five large nails.

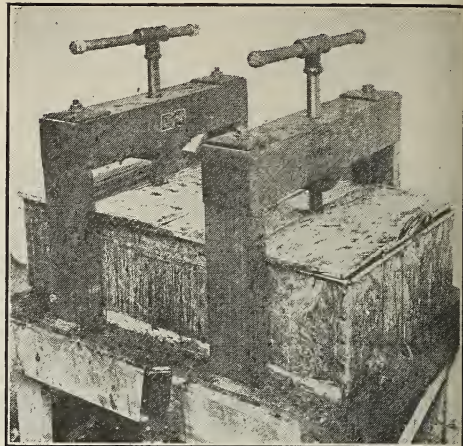
Half a dozen pieces should be sufficient for 500 or 600 pounds of wax. Half a barrel of water is needed. This can be used over and over again for several days if desired. If the barrel is kept covered up at night the water will still be quite warm in the morning, so it does not take so long to heat up as at first. If the water is hard, it pays to soften it with powdered borax, altho rainwater is best.

How to Proceed.

Fill two wash-boilers two-thirds full of water and put them over the stove to heat. When the water in both boilers is boiling, start putting combs into one, which I shall call No. 1, taking two or three at a time, poking them down in with a stick. Pour the boiling water in No. 2 into the barrel and cover

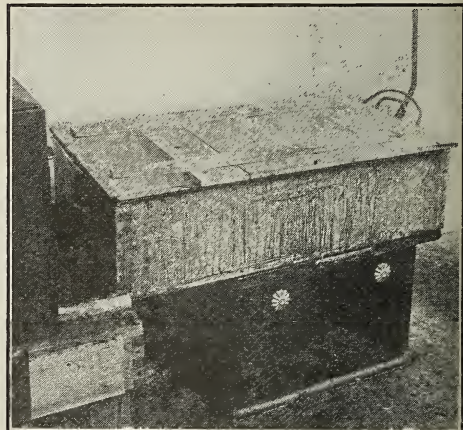


After pinning the sides, fold over the ends of the burlap and pin with two nails. As soon as the follower is laid on the press can and its contents are slid under the screws. Being hot, the can slides as easily as tho it were on rolls.



Once under the screws, and the pressure applied, four boards are laid over the top of the can with notches to fit around the screws. These help to confine the heat.

with an old piece of carpet to prevent loss of heat; then fill No. 2 again two-thirds full of cold water and put on the stove as before. Continue putting the combs into No. 1, poking each two or three down carefully. If the combs are old and tough the boiler will not hold more than 35 or 40. If the combs happen to be fairly new, as many as 50 or even 60 can be put in at a time on account of the fact that there are fewer cocoons. When all the combs are in, cover the boiler by putting over it a few thin boards cleated together. Do not attempt to start pressing before the contents have come to a boil. The mere fact that the comb seems to be

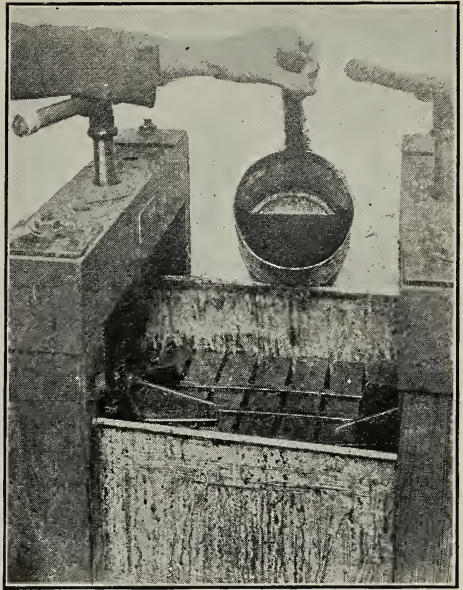


Likewise, when the can is over the stove waiting for the water to boil, the boards should be put on so that the water will boil more quickly.

melted and mushy is no indication that it is hot enough. Stir occasionally; and when the boiling commences, take the cover off to prevent the wax and water from boiling over. If it starts to boil over, stir it a

little with a stick; or, in an emergency, lift it off the fire altogether. Usually, however, this is not necessary.

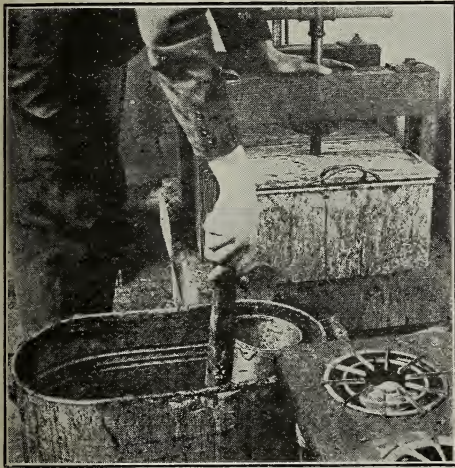
Put the cleated follower into the press-can; push the can under the press and turn the screws down. Draw off a couple of pails of hot water from the barrel and pour into the can so as to heat thoroly every part. Take boiler No. 2 (containing water only) off the stove and put the stove in a position in line with the press and eight or nine inches from it. Draw off the water in the press-can; pour it back into the barrel, close the gate on the end of the can, and, after raising the screws, draw the can out over the stove. There will be enough water in the bottom to prevent burning. Take out the follower; spread one of the pieces of burlap evenly over the can, tucking it down into the corners, and dip about half the melted



Hot water splashed over the follower rinses off the coating of wax left after the press has been drained.

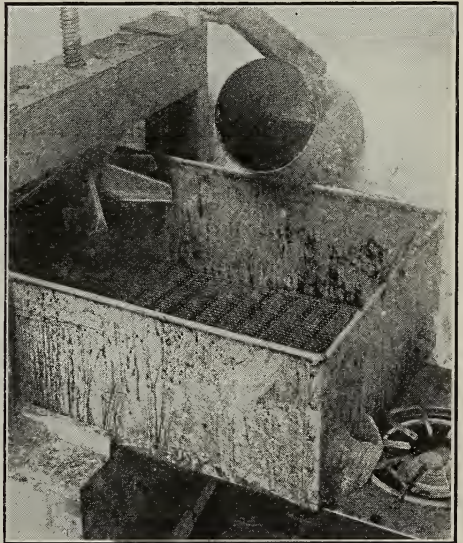
thoroly lubricating every surface. The longer the can is used, the easier it slides back and forth.

With the can in position, turn the screws down slowly. Especially at the start, do not make the fatal mistake of turning the screws down to the limit without stopping, for it is



The screws are run down three different times. After the third time, while the pressure is still on, the gate is opened and the wax and water allowed to run out into a boiler on the floor. A dipperful of water should be caught first to be used in rinsing out the wax later.

combs in boiler No. 1 into the burlap. Then pick up the whole boiler and pour in the rest. If there is a great wad of wires, as there will be if the frames were wired originally, pull these apart with a stick enough so that they will not all be in one place. Fold over the sides of the burlap, pulling over enough so that the mass is perhaps two inches away from the edge of the can, and pin with five large nails; then fold over the ends and pin with a couple of nails. It is better to double the edges so the nails will not tear the threads. Be sure that there is no wad of burlap in any one place, and that the edges lie smoothly. Put the follower over the burlap, screen side down, and quickly slide the can under the press. The can being hot it slides almost as if it were on rollers, especially after a few drops of wax have dripped on to the platform,



After the third pressing the wax and water are drawn off and the follower and "cheese" taken out. Before drawing the press can out over the stove preparatory to refilling, a little water is poured in to prevent burning the bottom of the can.

almost sure to burst the burlap. (If you burst the burlap just once you will always afterward be careful.) Turn the screws down only as fast as they turn easily, therefore. As soon as they turn a little hard, wait until some of the wax and hot water have had a chance to ooze out. It is all right to apply considerable pressure when the screws have been turned down nearly to the limit, for then the "cheese" contains so little liquid that there is practically no danger of bursting the burlap.

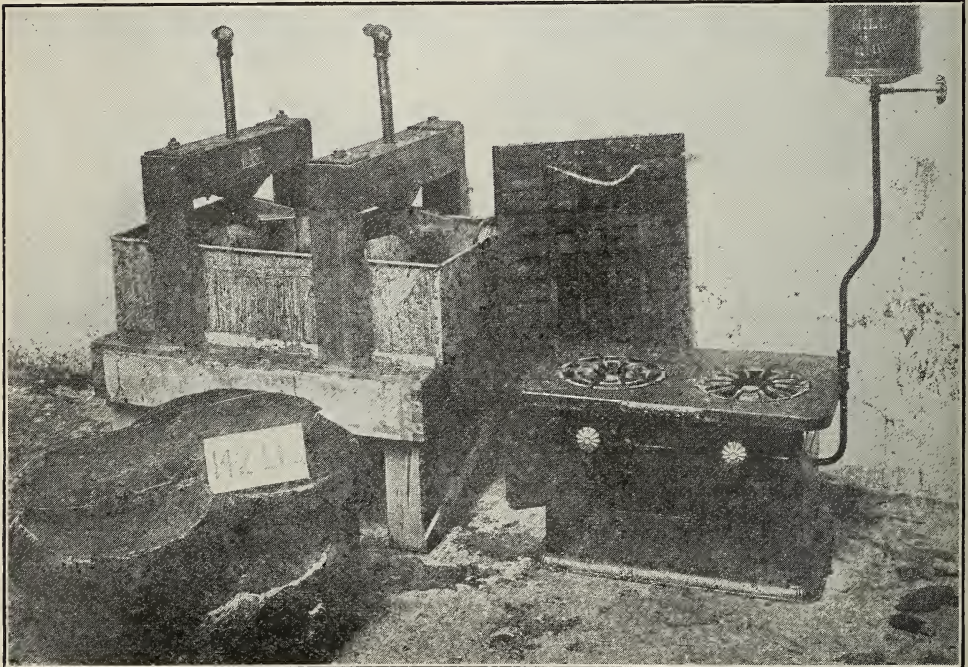
As soon as the can has been slid under the press, fill the empty boiler (No. 1) two-thirds full of hot water again from the bottom of the barrel and put it on the stove by the press. Put boiler No. 2 (which should now be full of partly melted comb) on the other stove to finish heating for the next pressing.

In order to make the process continuous, start putting comb in boiler No. 1 again, now on the stove by the press. Two lots of comb are thus in the process of heating at the same time, the one to be pressed next being the nearest finished, while the other is just starting.

As soon as the screws are down practically as far as they will go, release the pressure, turning the screws up out of the way; lift boiler No. 1 temporarily off the stove and pull the press-can out on to it. Cover it with short boards cleated together and leave it in this position until it comes to a boil,

then quickly slide back under the press and press again. Repeat this process until the batch has been pressed three times. Between pressings always draw the can out over the fire to come to a boil. The object of this is to permit the refuse to become saturated again with boiling water. Heating to the boiling-point between each pressing makes possible a saving of about two per cent of wax. Whenever the press-can is not occupying the stove the boiler should be put back over it, so that the heat will not be wasted. The contents of this boiler, therefore, has the intermittent heating while one batch is pressing, then during the pressing of the next batch it is transferred to the other stove where it has constant heating so that it will be ready by the time the press is empty again.

As soon as the screws have been turned down for the third time, practically as far as they will go, place a third boiler under the gate while the screws are still down and open the gate. Catch a dipperful of the water as it first comes out of the press and set it on the floor. When all the wax and water have run out, splash the hot water in the dipper over the follower while the screws are still turned down, thus rinsing off the coating of hot wax. Then tip up one end of the press so as to drain out the last of the water and wax into the boiler. Pour this hot water and wax immediately into the barrel and cover with the old carpet. The



While it sounds like a tedious process yet as a matter of fact it is possible to press a batch of 40 combs every 45 minutes. Thirteen batches were pressed in a single day yielding in all 142 pounds of clean yellow wax. The small cake on top about $\frac{3}{4}$ inch thick represents the amount of wax in a boiler after one batch is pressed,—about 10 pounds.

wax will rise to the top; and, when more hot water is wanted a little later, another boilerful may be drawn from the hole at the bottom.

As soon as empty, draw the press-can out over the stove. Take out the follower and the "cheese" and put the latter to one side for the present. If there is not enough water in the can to prevent burning, throw in a couple of quarts with the dipper. Spread a fresh burlap over the press-can and proceed as before. Later on, when there is time, the first "cheese" set aside may be unpinned and the refuse shaken out. The burlap should be rubbed between the hands so as to remove the cocoons that have imbedded in the cloth. Much depends on having the burlap clean when it is used over again.

A little experience will determine how much water to put in the boilers. There should be enough so that the surface of the liquid will be about an inch from the top of the press-can, when the follower is submerged by the screw. If the press-can is too

full it makes it difficult to slide back and forth without slopping, and if there is not enough, it detracts from the efficiency of the method. During the pressing, it is a good plan to cover the can with four boards, notched at one edge, to surround the screw. This confines the heat and makes it possible to do faster work.

The process as described in detail sounds complicated, but is really very simple. It is easy to finish a batch every 45 minutes. The average amount of wax secured each time is 10 pounds. As mentioned in the early part of this article, we pressed 13 batches in a day and secured 142 pounds of wax in all. The refuse, moreover, when we were thru with it, contained less than two per cent of the original amount of wax.

Before starting work the second morning the cake of wax on top of the water in the barrel should be broken up and taken out. The pieces require only a little scraping on the bottom to be ready for market. The water, still warm, is quickly heated so that the work can be resumed very shortly.



LAST year I rendered about a thousand pounds of beeswax. The method which I worked out for rendering is, I believe, for the average beekeeper a little ahead of any plan I have seen described. I do not mean that it will give more wax from a given number of combs than other methods; but for a person who does not care to buy a press and special apparatus I think it is the method to use.

The press is the most important part of the equipment. The main part consists of a box about 16 inches long, 14 wide, and 10 deep, with a tight bottom. Slats about $\frac{1}{2}$ inch square and 10 long are nailed vertically $\frac{1}{2}$ inch apart on the inside of the sides and ends. A hole about one inch in diameter is bored at the bottom on the middle of one side, and a short tin tube nailed on the outside as a spout. On two boards, which are 11 by 13 inches, are nailed $\frac{1}{2}$ -inch slats crosswise, and $\frac{1}{2}$ inch apart; and on top of the slats is nailed a piece of $\frac{1}{2}$ -inch wire cloth of the same size as the boards. One board is to be laid on the bottom of the box, with slats and wire cloth up; the other is the "follower," and goes on top of the burlap with the slats down. The bench-screws cost 25 cents. The whole press can be made in a day.

In addition to the press, two tanks are needed—one to melt the combs in, and the other to run the melted wax and water into

UNHEATED WAX PRESSES

Two Beekeepers Describe Their Methods of Pressing Wax in the Unheated Type of Press

By Oscar Ritland

can. These tanks both have faucets at the bottom; and with the method I now use, tanks without faucets could not be used, as one of the main points in the system is drawing the hot water from under the melted wax and using it over and over again. A few pails are also needed for dipping up water and melted comb.

It is a good plan to work out of doors where there is always plenty of room, and no harm done if one spills some of the black water. (The water soon turns dark if the combs are old and black.) I also prefer the summer time to do the work; and the hotter the day the better. Another advantage in doing the work outside and away from the buildings is that there is no danger of a costly fire in case the wax should boil over on the hot stove and ignite, as wax always does when it strikes a redhot stove.

I set up an old cook-stove and start a fire in it. Into the tank on the stove is poured about 40 quarts of water, making it about one-fifth full. When the water gets hot I add old combs until the tank is half full when they are melted. This may be 40 Langstroth combs, more or less, depending on how old and black the combs are. It is well to keep a good fire so that

For the former I use an old honey-tank about 30 inches in diameter and 30 inches high with a cover on it, and for the latter an old Novice extractor-

the combs will melt as rapidly as possible; for as soon as everything is melted and the water boils, one is ready for the first pressing.

To get the press hot, I draw off a pail of boiling water from the tank on the stove and pour it into the press. I let it stand a few minutes, then draw it off and pour

cork is pulled and the contents of the press run into the tank below. After repeating the washing process again the slumgum will be practically free of wax, and may be shaken out of the burlap. But before doing that I draw most of the water from the tank under the press and pour it back into the melting-tank so it will be boiling when the slumgum is shaken out, and I am ready for pressing the next lot.

As the press is now hot, no heating will be necessary as in the beginning, and another pail of melted combs is dipped into it and the pressing process repeated.

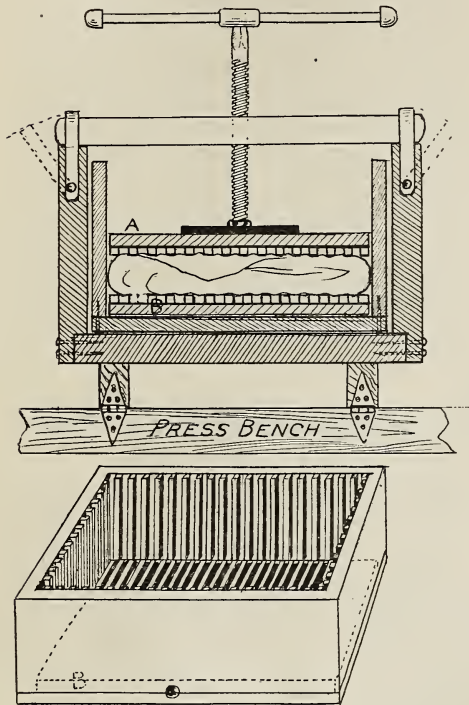
If the weather is warm, and a good fire kept going, several hundred combs can be rendered into wax in a day, the same water being used over and over. Of course some water disappears thru evaporation and in the slumgum, so it will be necessary to add a pailful of water occasionally. When the first half-day's work is over the melted wax may be dipped into molds and allowed to cool.

With this method that I have given I have been able to get nearly all the wax from old combs. Out of one lot of 1700 Langstroth combs I secured 535 lbs. of wax, or a little over 3.1 lbs. from every 10 combs. The average Langstroth size of comb, however, does not contain as much wax as this—about $2\frac{1}{2}$ to $2\frac{3}{4}$ lbs. from 10 combs being about the average.

In rendering beeswax one must work rapidly when doing the pressing, for the secret of getting all the wax is getting it pressed out before some of it cools enough to harden.

I have never had any trouble from bees bothering when I was melting combs out of doors; but I did the work when the honey-flow was good and the bees had no time to think of robbing.

Elroy, Wis.



Oscar Ritland's wax-press made of heavy plank.

back into the tank on the stove. After repeating this two or three times the press will be boiling hot. I then dip a pail of the melted wax from the tank, letting the pail go down deep enough so I get some water too. This I pour into the press on top of the burlap that has previously been placed there; and after folding the corners I put on the follower. The iron plate that goes on top of the follower is loose; and between pressings it is kept on the stove so that it helps to keep the wax melted until it is run out of the press. Pressure is now applied, and the wax comes to the top of the water. The pressure is released and the follower lifted (by a wire attached to it) enough for the water to soak into the slumgum again. After pressing again, the cork is pulled out and the wax and water run off into the tank placed underneath to receive it, the press being tipped up to make it run out faster. There will still be some wax left in the slumgum, so I draw a pail of boiling water from the tank on the stove and pour it into the press. This is allowed to soak into the slumgum as before, and pressure applied. Again the

A WAX - PRESS WHICH NEVER CHILLS

Having seen and worked with many different wax-presses, I have finally invented one of my own which I have termed "the hard-wood slat press." This box, which is 14 x 14 x 14 inches, and 2 inches in thickness, is set three-fourths of an inch deep into the two-inch floor or platform. The lower edges of the box are set in white lead, and there are also long screws running thru the bottom up into the sides.

The platform is $2\frac{1}{2}$ inches wider than the box, and on the under side of the platform are two stringers thru each of which a $\frac{1}{2}$ -inch anchor-rod passes above, loops over a 4 x 4 cross-arm of the same length as the stringers, and then passes down to the opposite stringer, where it is attached with a washer and burr, and thus the four ends of the rods are attached at the four corners of the platform. The cross-arm is not fastened to the rods, but is held up in place

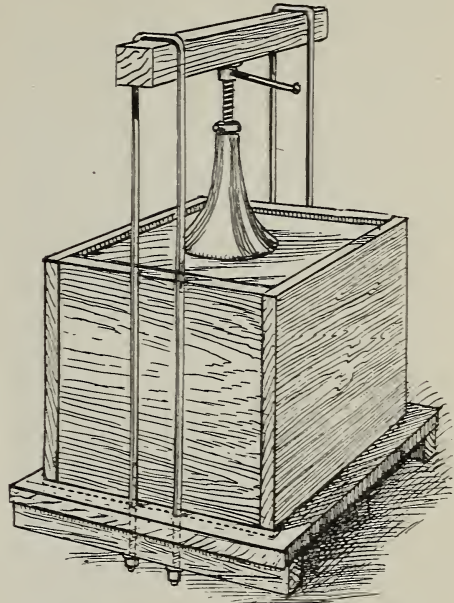
by two 1½ x 1-inch vertical strips of wood which are attached to the platform midway between the two ends of each respective rod. If the cross-arm becomes loose, it is only necessary to tighten up the four burrs.

I use a three-ton jack-screw with this press. The plunger has straps for handles, and is made very strong of 2-inch lumber with the grain of the wood turned at right angles. For a spout I use a 1½-inch nickel-plated pipe such as plumbers use, stopping it with a wooden plug when not in use. The inside of this press has ¾ x ¾-inch spaces intervening. Each side of the inside has a full sheet of smooth roofing-tin nailed over these ¾-inch strips, leaving ¾-inch passages between the tin wall and the sides of the press. Up and down in each of these passages I have made a row of 8-penny nail-holes thru the tin. The holes must not be too small nor too large. The slick tin makes the cheese slip down easily, and the rows of holes between the slats take care of all of the wax and water, or whatever liquid may pass thru. In this way the entire heating surface is on the tin, which therefore keeps just as hot as the cheese, and the contents goes thru the holes right down on the outer surface of the tin and never touches the press-walls. Thereby the cheese never gets cold while in the press, and boiling water never needs to be thrown in when getting ready for another cheese, altho the water may be replaced when it becomes too thick and sticky.

The bottom of the press has the same size of strips as the sides, but there are two layers which are crossed and have a half-inch space between. On top of the cross-slats there is also a heavy ½-inch-mesh wire cloth for the cheese to rest on.

With this press it is not necessary to have a hot-water and wax overflow, as everything

passes out of the spout. The plunger never gets daubed up with wax, and is always nice and clean to handle. Under this spout I use a water and wax separator, and a sepa-



In this illustration the four ends of the rods should be attached to the four corners of the platform. Narrow uprights are used to hold the cross-

rate screen to catch the slumgum in case I should get a sack with a small hole in it, or pour some of the contents out of the sack. By this method, as soon as my wax is run thru, it is in marketable shape.

Imperial, Cal.

F. J. SEVERIN.



THAT DISAPPEARING DISEASE

Suggestions About the Name, the Cause and the Cure

Is "disappearing disease" the right name for the malady so designated?

Certainly the bees disappear; and before the disease disappears, anticipated surplus also disappears (if anything you haven't got or can't see, can disappear). Nosema apis sounds more scientific, but we have the word of eminent authority that this is and has been found present in nearly every bee examined and, if it is found in healthy bees, surely we cannot consistently call our newly found disease by this name, nor can we reasonably insinuate that this is the cause. The name of "Isle of Wight disease" is tacked on presumably just because our British cousins in that vicinity first reported it,

but it may previously have been prevalent somewhere else in the hands of those who did not report, or, if they did report, only said their bees died. It will be remembered that many who kept bees on the lower Columbia River blamed moldy combs when they first reported that their bees died, but later foul brood was found to be the cause, and moldy combs the result. Likewise, how many have blamed moths for killing bees when their colonies were queenless and the moths simply took advantage of their weakened condition, and finished the job.

My individual experience with this trouble seems to be very much in line with that of others who have reported. Seemingly all reports agree as to weather conditions at the time of the visitation of the epidemic. All seem to unite on this circumstance, while



FROM THE FIELD OF EXPERIENCE



some offer, as an additional cause, lack of sufficient ventilation or air currents.

Accepting the theory that, if we can find the cause, a remedy will suggest itself, I offer the following, with the reasons for the said offering:

There must be a cause, and as wet and unsettled weather invariably prevails when the trouble appears, is it not fair to assume that part or all of the trouble can be charged to unfavorable weather conditions and not to individual colonies? It is true that some colonies are apparently immune, but of mine the best and most active were the first to be affected, the hardest hit and the most rapidly destroyed. Some were already working in two supers and were in a very populous condition, while but a few days after being stricken they were down to a hatful. The season was normal as to the time of orchard blossoming and as the first appearance of the trouble was just before the apple trees had reached the period of full blossoming I at first attributed it to arsenical poisoning by some who had sprayed too early. I found this incorrect, however, as none had sprayed at that time.

The weather prior to the attacks had been favorable and the bees were in excellent condition, really a little earlier than usual. Next I thought it might be a case of paralysis, but when, the next day, others were in the same condition, I began to take notice, and found it was not paralysis. By this time the epidemic had become fairly general in our vicinity and many appeals were made to me for assistance and help. This was a case of "physician, heal thyself," as I was in the same condition and could offer no cure but hope. Hope was deferred, and so was the good weather. Meantime the ground was covered with bees in all stages of the disease, but upon examination I could not find a single cell of hatching brood that was not apparently healthy, and healthy bees were hatching by the thousands. The temperature outside was about normal and bees that were able were working between showers, but there was an excess of moisture that soaked and saturated every opening blossom. Drones also were as bad off as workers.

By close watching I thought I found the older bees or the flying squad repelling the disease better than the rapidly hatching youngsters. This was noticeable especially in colonies re-queened where the difference in color made this more apparent. And right here was where I got in bad, for the uninitiated immediately claimed that the black or native bees were immune, and only the newer Italians took it and succumbed. I shall have to admit that it did look suspicious until I noticed that the blacks and natives were not flying as much as the more active Italians. So noticeable was this

difference in activity that it suggested that the trouble might be due to the moisture-soaked nectar that the active bees were bringing in. Is it not fair to assume that the watered nectar deposited in the cells might ferment or sour sufficiently to cause trouble when used as food by the young, by newly hatched bees and drones? Note that nothing apparently wrong was perceptible until after the young bees had fed themselves.

You may ask why the bees and not the queen should suffer from eating this food. I have to reply "I don't know," but I do know the queens were not affected and laid right along; also that queens removed from sick colonies produced normal, healthy bees in other colonies. But by the time these young bees had hatched, the weather had become settled and warm, which suggests that weather conditions alone were responsible. Moreover, queens in very weakened colonies, left to work out their own salvation, also showed no ill effects and finally built up respectable colonies.

You may say: "Why should the disease continue so long even if the food is the cause?" Well, it may be that the flying bees continued to bring in sufficient food for actual consumption, that is, enough to keep the disease going, for weather conditions were such that there was more or less flying about every day. Take into consideration that in Oregon moist weather prevails especially in apple-blossom time, and rarely do we have really good weather then. Notwithstanding this, our bees seem to adapt themselves to the climate, flying well during light rains.

Again you might ask why, if these conditions are normal, was the spring of 1916 different in this respect. I reply that we had long-continued rains and no let-up for some weeks, and this condition may have been responsible.

Again, some may say weather conditions with them were not excessively moist, but it is possible that there were conditions present to bring about a watery or diluted flow that soured or fermented. I could discover nothing wrong with it.

Regardless of the stagnant-air theory, I find that while the bees in my own yard were apparently the first stricken, this may be explained by the fact that I may have noticed it before my neighbors did. My own yard is well protected and not at all exposed but another apiary less than half a mile from mine is located on a knoll and is virtually windswept and here the trouble was fully as severe as in my own yard. This apiary is owned by my associate, a careful, painstaking, enthusiastic beekeeper, and since the early diagnosis was given as paralysis, he tried the sulphur cure. Needless to say it didn't work. Queens were changed from

FROM THE FIELD OF EXPERIENCE

weak colonies and given to healthy blacks and no sign of the distressful disease appeared afterward. This proved to us that the queens were not to blame.

All things considered, I believe the whole trouble points to the theory of infected food, as the great losses were as rapid as poisoning, and so severe was the disease that so far as I could discover, no cure of a single bee was brought about after the bee once was stricken.

The remedy I suggest is feeding—not medicated dope, but a good generous feeding of thick syrup. Just how the bees may be fed and how the young and hatching bees may be made to eat this syrup in preference to the thin nectar, will depend somewhat on man's ingenuity.

In closing I want to add that the spring of 1917 started much later than usual and cold rains were frequent during apple-blossoming time—so much so that we all looked for a reappearance of the trouble, but it did not materialize.

Portland, Ore. E. J. LADD.

A LOT OF HONEY FROM A LITTLE LOT

For 17 years I have been keeping bees and taking Gleanings. Last fall I wintered 44 eight-frame colonies in my cellar. On Apr. 10, I moved them out and found all, except a queenless one, alive and in fine condition. Tho all the beekeepers around here use eight-frame hives, I have been thinking for years that these hives are too small. So last

spring I bought all 10-frame hives, and fitted my frames with full sheets of foundation. The first of May I transferred 20 colonies to the new hives.

This season I received 4,068 sections of honey from the 43 colonies, spring count. All but 200 of these sections were white clover and all sold at 20 cents each. One colony alone produced 32½ sections of No. 1 honey. In addition to this surplus, I also obtained an increase of 48 colonies. A light fall flow gave us no surplus, but left a nice lot of stores in the brood-frames. Next year I intend to run half for extracted and half for comb honey.

As I have only a small lot, with my house in front and the railroad at the back, it is necessary to place my hives very close to each other. Over each hive I have a metal-top cover with an inside one which I use for a Porter bee-escape board. Since using these hives, I will not buy any other kind. Several of the 10-frame colonies did not swarm at all, and those that did swarmed only once.

The bees for 25 miles around me are all blacks, so every year I buy 10 new queens, hoping some day to run those German bees out, but up to the present I have never got any further than putting a band now and then on a few of the bees. An old friend of mine, who has 12 colonies, harvested only about 100 pounds from all 12. He said the reason for his short crop was that my bees took all the honey. I try to tell him what to do and he gives me this old saying: "I kept bees, my boy, before you were born." But in spite of his reluctance to accepting



W. W. Boutillier's back yard apiary that pays big.

FROM THE FIELD OF EXPERIENCE

suggestions, I have this year succeeded in getting his promise to try wintering in the cellar.

During the last three years I have never had a lower average than 100 pounds of white-clover honey per colony, spring count. Britt, Ia. W. W. BOUTILIER.

HIS FIRST POUND PACKAGES

As the 10-frame standard hive was not large enough to meet our needs, we decided to change to the Jumbo hive. Therefore we sold a number of our hives and bees with them. This left us a little short of bees, and so, deciding to try out the pound package, we sent to Ohio for 50 Jumbo hives and to California for 66 two-pound packages of bees with queens. Of these latter, we kept 50 and let our friends have the rest. These packages were shipped Apr. 21, 1917, and arrived Apr. 24. I was at the station to meet them on their arrival and found them in fine condition. They were given all the syrup they would take, loaded into the auto and given a 35-mile drive across the desert. As soon as the car started they formed clusters and arrived home all O. K.

We put them into the big Jumbo hives without any brood. They were each given two Jumbo frames with full sheets of foundation, one frame with drawn-out comb taken from the extracting supers of the standard hive, and a fourth frame which we made into a division-board by pasting over it a piece of paper reaching to the top, ends and bottom of the hive. Over the frames and under the inner cover we placed a sheet of paper, thus providing them with a snug little apartment at the side of the hive. As the weather was cold and stormy we fed about 75 pounds of sugar, using those cheap fiber plates about the size of a saucer. We found we could feed very fast by putting a plate on the bottom of each hive with the edge just under the division-board, which arrangement kept the bees from getting in the way, so that, without uncovering or exposing the bees to cold, we could slip the inner cover back a few inches, pour in the syrup, and replace the cover before the bees knew it.

On Apr. 24, the dandelions and apricots were in bloom; and by May 13 this first flow was strongly reinforced by that of the strawberries and fruit trees. So that from the arrival of the bees until the main honey-flow there was always a little honey in the fields, altho at least two-thirds of the time bad weather prevented the bees from gathering. At such times we fed syrup.

We soon learned that queen-breeders get blamed for weather conditions and the way bees act, for some of our friends who received a part of the bees, blamed me and the breeder for poor shipment because some

of the bees were dwindling and others would not leave their cages at all. We explained to them and showed them how to shake the bees from the cages, but nothing seemed to change their minds in the slightest until the main honey-flow was in full blast. Then they appeared to be satisfied.

It was not all joy with us, for we lost some queens and some of the queens were mismated. The first warm day we had, we made a hasty examination and, finding four queens gone, we wrote the breeder. There were no "ifs" and "ands" about it. By return mail we received the four queens. Later when fine weather came, we found more queens missing, but as it was getting late in the season and we knew the breeder was rushed to the limit, we united the queenless bees, thus leaving us 42 colonies out of the 50 packages.

On July 10 we extracted 100 gallons; July 22, 160 gallons; Aug. 8, 90 gallons; and Oct. 1, 130 gallons. That is, from the original 50 packages, we obtained 6,660 pounds of extracted honey besides 75 pounds of No. 1 wax, and one queen for which I refused \$35.

We are planning next spring to purchase pound packages again, as we believe this the best investment we ever made.

Parowan, Utah. M. L. SKOUGARD.

CONDITIONS IN CALIFORNIA

Last spring (1917) Dr. Phillips advised beekeepers to "spread out, get big colonies, in order to get big crops." Some of our neighbors did so, with the result of having a lot of star boarders to feed or allow to starve. During the six seasons I have been studying conditions in this location, two of them were quite similar to the winter of 1916-17, and it took sugar by the ton to get the bees thru those lean years. So, like the burned child that dreads the fire, I declined to "spread," but proceeded to do just the reverse by shaking bees onto foundation, and pinching queens and so on with the results of being able to bring 350 of the 500 through to date (Dec. 28.)

Now we are confronted by another problem that keeps us guessing. The present December has been as warm and sunny as May, and bees have been hustling in pollen at a great rate, which means breeding out of season. If spring comes early and is warm; the conditions are ideal; but if late and cold,—let us change the subject.

One of the local papers has an advertisement for a winter in the "lost, strayed, or stolen" column. It is a common saying that "no one can say what California will do next." To a Yankee it does seem strange to see rats build nests in trees, and squirrels dig holes in the ground and share their burrows with owls.

S. A. NIVER.

Greenfield, Cal., Dec. 28, 1917.

DELIGHTED to know Prof. Jager is safe back on this side the water, and I hope he has lost none of his enthusiasm.



* * *

J. L. Byer discusses interestingly, p. 37. packing front, back, top and sides, but not a word about bottom, in which he does not differ from others. But doesn't Dr. Phillips claim something like equal importance for packing under the hive? How about it?

* * *

Beeswax painted on foundation prevents sagging, but "beeswax is expensive; and if we can prevent sagging by any scheme of wiring we are that much ahead," p. 12. Vertical wiring will do the trick. I had thousands of frames wired vertically with never a sag. I like foundation-splints still better.

* * *

J. E. Crane, you say, p. 27, that you did not say "I don't worry if my bees have sugar and pollen." You said, p. 771, "and when we have a supply of pollen we do not worry." I understand you to convey the idea that when you supplied any lack of honey with sugar, you didn't worry if pollen was present. My question is whether the necessary mineral elements in honey and not in sugar, are contained in pollen. If not, then will there not be a loss in vigor of bees if even part sugar is used? Say—are you and ye editor in a conspiracy to make me tear my hair and turn black in the face by admitting that even "possibly" honey is no better than sugar for man or bee?

* * *

S. H. S. is advised, p. 40, to use the Alexander treatment for European foul brood, making the colony queenless for 20 days and then giving a ripe cell. That makes a break of about 30 days in brood-rearing, in which time there will be quite a slump in numbers. Is there any good reason why he should not cut out 20 of those 30 days by using the Alexander-Miller treatment? That requires, after seeing that the colony is strengthened if not already strong, that it shall be made queenless for 10 days, at the end of which time the old queen may be allowed to resume laying if she is good and the case mild, or a new laying queen may be given if the case is bad. Or a ripe cell, protected, may be given at the same time the old queen is removed. Is anything gained by having the cessation of egg-laying three times as long?

* * *

Mrs. Allen having said, December, p. 928. that every spring she had combs so moldy that the bees destroyed them rather than to repair them, P. C. Chadwick says, January, p. 36, that altho he has plenty of moldy combs he has never known the bees to de-

stroy them, adding, "I have never seen the combs too moldy for a new swarm to tackle and clean up in short order." Possibly the difference results from

Tennessee being further north than California. I'm still further north than Mrs. Allen, and have had many a case in which the combs became so bad that the bees considered them beyond repair and tore them down. Altho Mr. Chadwick may safely give a swarm on his moldy combs, very likely Mrs. Allen or I could furnish him a set of combs so bad that if he should give a swarm upon them the bees would promptly decamp in a body.

* * *

Stancy Puerden, I agree with your view, p. 30, that honey is better than sugar for our soldiers, altho that exasperating editor may say it's "possibly" no better (and I think the best is none too good for them), and I'm glad to know of the individual bottles for the soldiers; but I wonder whether bottles are the best containers. Early in the war, in Europe, they were sending honey to the soldiers in tubes. Instead of the trouble of melting the candied honey in bottles, the skin of the tube could be peeled back.

By the way, I may as well tell you that I think a good deal of you; but when I talk to my folks about you I don't know what to call you. I could get along with Stancy all right; but I'm trying to learn politeness, and when I call you "Mrs." I don't know whether to say Mrs. Pew'er-den, Pew'er'den, Pew'er-den', Pure'den or what.

* * *

Do you know that clover goes to sleep at night? J. J. Kettle says in British Bee Journal, p. 328, that the leaves close up, the two outside ones closing with their upper surfaces face to face, while the leading, or terminal, leaflet turns over the other two and forms a little span roof with the under surface up to the heavens. [We have never seen it.—Editor.]

* * *

A New Yorker wants a dispute settled as to whether the wax is swallowed when comb honey is eaten. I think it's generally this way: When it is eaten alone, the wax is left in the mouth and rejected; but when it is eaten with biscuit or some other food, then the wax is swallowed with the other food. Some have objected to swallowing the wax because it is indigestible—utterly so. But such people fail to understand that, for the sake of good health, it is of great importance that a goodly portion of food be of the indigestible sort so as to facilitate the movement of the contents of the colon. If a man should eat only such food as is perfectly digestible, he would not be long for this world.

EVERY apiary should be an experiment station. That which works well in one apiary or section may not in another. Paul's admonition holds good in beekeeping: "Prove all things, hold fast that which is good."



The past season, with all its drawbacks to breeders of bees and queens, has some things to its credit, for in the recital of their troubles, we honey producers have learned more of their business than we had ever dreamed.

On page 944, December, I mentioned seeing the combs of a colony of bees that I thought had wintered in the open air on the branch of a tree. Mr. Byard informs me that they wintered under a platform. Some small branches of bushes were mingled with the combs and this doubtless led to my wrong inference. The occurrence, however, remains an exceedingly interesting fact.

J. W. Tinsley, page 12, favors painting foundation with wax instead of wiring. O. F. Poppleton used to treat his in this way, but I noticed that, altho it seemed to help somewhat, many of his combs were badly sagged and out of shape. At present prices for wax I believe it would be more expensive than wiring.

I approve most heartily of Dr. Miller's view that wires are most helpful near the top of the frame. (See page 29.)

That is a most sensible article by Harry Hewett, on the "Other Side to Florida Beekeeping." One of the difficult things to do is to give satisfactory answers to inquiries in regard to good locations. I have several inquiries in regard to good locations here in New England, and I confess I do not know enough to give answers that will be satisfactory. Sometimes a few miles will make all the difference in the world.

There is no mistake as to the value of the Editor's advice, page 26, that those who make their own supplies should have a factory outfit for a sample. A bee inspector sees the folly of working without one.

We were helped out on labor the past season by Boy Scouts, and found them most willing and helpful. One or two to wait on an experienced man does very well.

J. L. Byer says, page 37, that he sold buckwheat honey in tins for 13½ cents and the

same grade of honey is now worth two cents more, and inquires, "Where is the limit?" Forty years ago the current price for "strained honey" was 20

cents a pound, and in those days I sold extracted honey by the barrel at that price. It would not surprise me if 20 cents was the ruling price for white honey next autumn.

Wesley Foster informs us that next season will see the passing of Colorado as a comb-honey producing state, page 39. Doubtless he is right, and what is true of Colorado is, or will be, true of a large part of the country. But it will be well for comb-honey producers to remember that there are many persons who greatly prefer comb honey and will prefer it to extracted at much higher prices. [Probably all true, but should people in these war times be buying luxurious honey, and should we advise beekeepers to produce more such?—Editor.]

Stephen T. Byington inquires on page 949 (December) as to the use of forest leaves for packing bees for winter. There is nothing better, if the leaves are well dried and in a burlap bag. The only trouble with fresh leaves is that they are apt to be a little stiff and not lie down compactly. But they improve with age, breaking up more or less and becoming very warm. If we wish for some woods mold in winter, we go to some hollow where the wind has drifted the leaves, scrape off the leaves and help ourselves to the earth that a month of zero weather has failed to freeze. This fact shows the protective value of leaves. [many beekeepers fail to pack with leaves who might well do so.—Editor.]

I am much interested in the capping-melter described and illustrated on page 936, December by our friend J. L. Byer. I tried one out some years ago, but, like Byer, I found it a "sticky and mussy job" to separate the wax from the honey. This simple device would seem to obviate that trouble. By the way, the printer appears to have got the names of the spouts interchanged in the illustration as the spout for wax is labeled honey and the spout for honey is labeled wax. [The engraver or Mr. Byer or the Editor or somebody did make just that error.—Editor.]

Having a number of tin bee feeders to mend while feeding our bees the past autumn and no acid or rosin at hand, I thought I would try beeswax in place of them and was surprised to find that it worked as well or better than the rosin.

WE are told "Everything comes to him who waits." Apparently this is coming true in my case. For months I have been planning a trip to New York city, where I was going to visit every food specialist, dietitian, model kitchen and cooking school that could be found. For the present, at least, the trip has had to be given up; and while it is obvious the interesting places are not going to come to me, it looks as if most of the interesting people on my long list were coming to The Home of The Honeybees sooner or later. Three have already done so, and I imagine they are willing to grant me longer interviews here in Medina than if I should beard them in their New York dens. At least, the lions so far have been remarkably good-natured and affable.

The latest one to visit us was C. Houston Goudiss, editor and publisher of the Forecast Magazine, and founder of the School of Modern Cookery. The latter is free to every one, and the former is a valuable food magazine. Dr. Goudiss is also lecturing and working for the Food Administration. I want to mention two or three points he made. The inspiration of meeting a man so enthusiastic, so earnest, so in love with his work cannot be passed on at second hand.

One reason Dr. Goudiss attaches so much importance to the study of food values is because there are children right in our own cities who are already plainly showing the effects of malnutrition. While this condition is caused primarily by the high cost of food, it is due even more to the ignorance of the mothers as to food values. Do you remember reading last winter of the food riots in New York city? They were caused largely by the scarcity and high prices of meat, potatoes, onions and cabbage. The poor women, many of them foreign born, knew how to set a good table when the above foods were plentiful, but did not know that there are available substitutes, equal in food value, for all these foods.

Another topic on which Dr. Goudiss touched is the prejudice against oleomargarine or butterine. He said good oleomargarine is a far better food than poor butter. This is a conclusion reached by the Puerden family also. Recently I have kept oleomargarine in the house for baking purposes, and at times the only butter we could get was so poor that we preferred the oleomargarine on the table. It is true that oleomargarine is lacking in vitamins, those mysterious little bodies considered essential to growth, and they are present in butter. For that reason butter is considered better for children. However, Dr. Goudiss pointed out that there is no lack of vitamins in a diet where there is plenty of milk, fresh fruits and vegetables

OUR FOOD PAGE

Stancy Puerden

and eggs in season. He also said he had visited practically all the large oleomargarine factories and found them scrupulously clean and sanitary. They

are all under government inspection. Uncle Sam even requires the factories to have the air in the mixing-rooms changed once in so many minutes. I wish we could be sure all the butter on the market is made under as sanitary conditions.

Now listen, every one, while I tell you the next point. Alfred McCann told me the same thing when he was here in October, and I have been waiting for a fitting time to tell it. There are vitamins in honey. I have been suspecting it for nearly a year back, but could find nothing in print about it. You see vitamins were discovered very recently. Some day I am going to tell you more about them.

Here is a quotation from Dr. Goudiss to which I should like to call the attention of all "sugar drinkers." "If all coffee drinkers would drink their coffee without sugar there would be no sugar shortage." This needs no comment from me. If you read the last issue you know my sentiments about sugar in coffee and honey in coffee.

A New Home Card.

The U. S. Food Administration is shortly to send out a new Home Card to all those who have signed the Food Pledge. The food situation is now found to be far graver than when the preliminary survey of the food supply of the world was made, and the American people will need to sacrifice far more than was at first thought necessary. The new card asks for a porkless Saturday, a wheatless meal each day as well as wheatless Wednesday, a meatless meal each day as well as meatless Tuesday, and a reduction of sugar to a monthly allowance of three pounds per person. This will work no hardship if we put a little study to it. Wheat substitutes are just as nutritious, most dietitians advise less meat than Americans eat, and they all agree that America will become a nation of dyspeptics if we keep on eating sugar at the rate we have been doing.

If you should look out of your window some morning and see a family consisting of a mother, little baby, older children and old grandmother, all emaciated and almost starving, their home destroyed thru no fault of their own, the father taken away from them, the children perhaps barefoot in the snow, what would you do? You would want to share your food with them, of course. That is just what the Food Administration is asking us to do for our unfortunate neighbors in the invaded districts of Belgium and France. And the only way we can do it is by cheerfully using meat and wheat substi-

tutes. Money alone will not help. It is food which can be most easily shipped that is needed. Even England has been put upon a bread ration.

Beans.

The Food Administration is urging us to use beans of all kinds on our meatless days. Navy beans are so high in price that at first there does not seem to be any economy in using them; but according to a table issued by Government experts, if you take into account their value in calories they are still very much cheaper than any kind of meat. And you may safely use all kinds of dried beans and dried peas, properly prepared, as meat substitutes, as, like meat, they are rich in tissue-building foods, or protein. Soy beans are still more like meat in that they are rich in fat as well as protein. They are very much cheaper than navy beans, but it is difficult to find them on the market. Pinto beans, grown in Colorado and New Mexico, are now being used by our army and navy. These should retail from 10 to 12 cents per pound, and contain more nourishment than some of the better-known varieties. If you are interested in trying them, and cannot obtain them from your grocer, write to the Bean Division, U. S. Food Administration, Washington, D. C. It will furnish names of shippers.

Speaking of beans, one of our subscribers of New England descent, at present living in Colorado, writes that her attention was attracted by my baked-bean recipe in the December issue. She is shocked at the short time given for baking the beans. Here is her recipe

BAKED BEANS, OLD BOSTON STYLE.

1 qt. beans ¼ lb. salt pork
3 tablespoons honey salt to taste

Wash and soak beans over night, place in bean-pot with pork on top and bake 24 hours with a slow fire, filling up with water every two hours.

Do you know that is the first recipe I have published without personally testing? The thought of tumbling out of a warm bed into a zero atmosphere every two hours these winter nights, creeping noiselessly down the back stairs and replenishing the water on those beans is too much for lazy Stacey; but I am perfectly willing to vouch for the recipe. Our correspondent writes they have these baked beans every Saturday night. If the beans are accompanied by Boston brown bread, and if there is a view of some of those magnificent Colorado mountains from the dining-room window, I should love an invitation to supper, wouldn't you? Meanwhile the Puerden family will have to worry along with their counterfeit baked beans. Really, they are not so bad. Notice I specified they should be boiled until tender, not broken, before baking.

Cornmeal (Yit or agin?)

A subscriber writes that he wishes I would go on talking about cornmeal, as he cannot get the ladies of his household to believe

that it is good human food. Come to Medina, Mr. Subscriber. Come to the Puerden home for lunch and I will make you some hoe cakes. Prudence warns me to extend this invitation only to those subscribers whose wives refuse to make hoe cakes and other cornmeal dainties at home. Let me confess something to you, ladies. I have a husband who likes fried foods, old-fashioned yeast buckwheat griddle cakes and popcorn. I dislike frying; don't care for popped corn, and have always thought yeast buckwheat cakes an invention of his Satanic majesty to promote indigestion. Some day I will tell you how I make my oven produce most of my fried foods. I have just ordered some popcorn; and as to buckwheat cakes, I have gracefully yielded the point, just as you are going to do when you bake hoe cakes for your husband. Both buckwheat cakes and hoe cakes are easy ways to solve the problem of wheatless meals.

Permit me to mention one or two ways of using cornmeal before I give recipes. You know there are people who find it hard to deny themselves pie, and yet piecrust takes much wheat flour. Try substituting part cornmeal in your piecrust. It produces a flaky crust, tasting much richer than it really is. If you use one-fourth part cornmeal the flavor will hardly be detected, but you will be sure to receive a compliment for your piecrust. The crust may be made with half cornmeal and is very good, but it is rather difficult to roll out and handle. Also, if you make all your pies "open faced" you save that much more wheat. These are what our English cousins call "tarts." Their "pies" are always of meat.

Here is an easy, quick method of making a crust for a pumpkin pie, or any pie with a semi-solid filling. Grease the pie-pan liberally and sprinkle cornmeal over it. Then put in your pie-filling and bake as usual. It can be cut as any pie, and the Puerden family pronounced it good.

Now that eggs are becoming plentiful I am giving you another recipe for Southern spoon bread which calls for four eggs. This is delicious. Serve it at a meal which is otherwise deficient in protein or tissue-building foods, as it might be called a meat substitute as well as wheat substitute. Eaten with honey it makes a nourishing dessert which children enjoy.

Notice that my new cornmeal muffin recipe calls for no wheat flour.

Wheat Substitute Dishes.

SOUTHERN SPOON BREAD.

¾ cup cornmeal 2 tablespoons butter substitute
2 cups milk
4 eggs 1 teaspoon salt

Let the milk come to a boil and then pour it slowly over the sifted cornmeal, and salt, stirring until smooth. Put over the fire in a double boiler and cook until it thickens, then add the beaten egg yolks and take from the fire. Fold in the stiffly beaten egg whites; pour in an oiled baking dish and

(Continued on adv'g pages.)

MR. Ernesto Tschudin, Luyaba, Argentina, gives in some recent letters interesting glimpses at sideline beekeeping in our southern sister republic.

Mr. Tschudin's chief work consists of the care of several acres of vineyard and orchard, peach, apple, pear, apricot, walnut and even almond trees, all under irrigation and all tilled with an American horse cultivator. Comparing the bees to the other things, Mr. Tschudin considers that the little pets, as he regards them, have given very good returns for the care devoted to them. Sierras de Cordoba, where this fruit and bee farm lies, is a very arid region, with irrigation a necessity—somewhat like southern California. Spring comes, of course, in September and October, and the bees build up at that time on peach and orange bloom. A little later comes the Algarroba (a near relative to the mesquite of Texas), with sometimes a little nectar from alfalfa, grown in only a limited way. Then there is not much else except wild vegetation until fall, coming in March and April, brings in goldenrod and a small white aster. The honey is amber with rather a pronounced aromatic flavor, and the surplus is sent to Buenos Aires in tin. Mr. Tschudin has most of his apiary in long-idea hives. He first tried out two of these, and it happened that during that season he had several weeks of half-sickness, when he found it practically impossible to lift off supers from the tiered-up hives, but had no difficulty at all working with these two. He was so pleased with them that even after becoming well and strong again he decided to use only this type for increase. In spite of these hives being made with two or three narrow boards running the long way of the sides, held together by vertical cleats, they neither split nor warped, tho the temperature ran to 112 degrees, that being the hottest and driest summer known in that section. Mr. Tschudin uses Jumbo frames, 20 or 21 to the hive, and finds a certain amount of shifting of frames necessary for best results.

Here is the keynote for success, in sidelines or main lines, in beekeeping or other work: "What's worth doing at all is worth doing well." Now here comes the season of 1918. We have our chance again, a new spring as yet unmarred by any slipshod work, any procrastination, any half-way doing of things. We can make it the best season we have yet had, perhaps not in honey obtained (that will depend largely on things without our control), but at any rate in personal endeavor.

It seems to me those are the longest long-idea hives I ever saw, page 17, January. I

Beekkeeping as a Side Line

Grace Allen

mean the longest and largest I ever saw pictures of, never yet having encountered the actual hive. But 36 Jumbo frames would naturally take something larger than a shoe box. I wish Mr. Roeder had given us some idea of their cost. It seems to me these hives are well worth trying for many a side-liner, especially women. We hope to have a few ourselves this year.

Other sideliners may be interested in the following on the subject of division-boards, from Mr. L. E. Webb, Morganton, N. C. "Division-boards seem to cause a lot of discussion, some claiming they are useless, others claiming they are O. K. You, I believe, do not use them." (I do not.) "And so far as it applies to 10-frame hives, they are of little use, but you just try eight-frame hives without them, and see what a mess of bum combs you will have on the sides. There is nearly an inch more vacant space in the eight-frame than in the 10-frame hives. But unless people have used both, they are generally not aware of this difference. The 10-frame beekeeper will be against them and the eight-frame for them. I don't use them in my 10-frame Jumbos, and I do use them in my eight-frame hives."

"How is this for a bit of practical patriotism?" writes a beekeeper from Massachusetts. "You know the sugar shortage hit us here in New England very hard indeed. It is weeks since any of the stores have had any at all, and only the forehanded housekeeper has any to serve. While conditions were this way, it became too cold for the bees to gather the goldenrod flow. There was no sugar to be bought for feed. Having some foul brood honey in the crop, I could not feed that back. I happened to mention at the Red Cross in town one day that several of my hives would have to be sacrificed to the sugar shortage. The next day friends got together and collected amongst them enough to carry the bees thru. Several of the contributors I knew only slightly."

And have you made your spring plans? Have you a fairly definite idea of what you are going to do and how you are going to do it? Have you ordered your supplies for next season? How about equalizing stores? How about equalizing brood? Do you know Dr. Miller's rule? Maybe he'll give it again. If you have files of Gleanings for a year or two, look up some good strong articles on "Spring Management." Or hunt it up in A B C and X Y Z of Bee Culture. Better still, do both. There will be still other articles appearing, of course, but you can't read too much, nor too often, nor too early.

GLEANINGS FROM THE NORTH, SOUTH, EAST, AND WEST

ALTHO the 29th annual meeting of the California State Beekeepers' Association was held nearly three months ago, part of the proceedings are of such importance that the readers of Gleanings living in the northern part of the state should receive a short account thereof. The meeting was held at Sacramento on Nov. 5 and 6, and presided over by B. B. Hogaboom of Elk Grove. The principal topics discussed were those of disease and co-operative marketing. Dr. E. E. Phillips of the Bureau of Entomology gave a lengthy and detailed account of both American and European foul brood. It will be difficult to estimate the great value derived from his talk, for it became apparent that thruout entire northern California there existed much confusion among beekeepers when it came to differentiating between American and European foul brood. Strange as it may seem, even carlot producers had been treating the former for the latter disease, i. e., by placing infected material above excluders and expecting the bees to clean up. In addition, it was found that many beekeepers firmly believed that European ultimately turned into American foul brood, and we owe much to Dr. Phillips in largely dispelling, thru his clear, concise and positive statements, this erroneous notion so generally prevailing among beekeepers. It is easily explained, the writer believes, why this wrong diagnosis in the symptoms of the brood diseases has prevailed. The history of northern California beekeeping teaches us that we have had always to contend with American foul brood, practically every year, in almost every beekeeping district. Several years ago, when we had our epidemic of European, its ravages were quick and widespread, and our attention was drawn almost altogether to this one disease. In its treatment during the past few years we have destroyed but few combs, and have paid but little attention to the symptoms of American during the devastation wrought by European. It must become evident, then, that the germs of American foul brood have had an excellent opportunity to spread. Lately the epidemical character of European has considerably subsided and those beekeepers that are careful observers have noticed that the old, reliable, hard-to-eradicate, American type is again with them. To further complicate the matter, not a few cases have come to light where a bacteriological examination showed that both American and European existed not only in the same hive but also upon the same comb. There is much need for an educational campaign in the matter of brood disease diagnosis and treatment, and this subject will receive the attention of the northern California readers of Gleanings in the not distant future. Owing large-

NORTHERN CALIFORNIA

Reported by M. C. Richter

ly to Dr. Phillips' talk, many of our beekeepers hereafter will treat doubtful cases as if they were American, and, likewise, those cases that do not respond readily to European treatment will also be handled as if American.

Colonel Harris Weinstock of the State Market Commission delivered an address on "The Value of Co-operative Marketing." As a direct result of Colonel Weinstock's able talk a resolution was passed which in substance read that it was the sense of the convention that the beekeepers of California should be organized into an effective marketing association and that the secretary of the association be authorized to appoint a promotion committee which should meet at an early date in Los Angeles to form and perfect an organization campaign. (This committee is making excellent progress and hopes to have its plan of organization perfected on Jan. 12.)

The following officers were elected for the ensuing year: President, F. A. Alexander, of Ontario (Mr. Alexander is the son of the late E. W. Alexander, of Delanson, N. Y.); secretary and treasurer, M. C. Richter, of Modesto; executive committee, James F. Kerr, of Ramona, Chas. F. M. Stone, of Lamanda Park, J. C. McCubbin, of Reedley, and the president and secretary ex-officio.

The U. S. Department of Agriculture, thru its States Relations Service, sent us early in December a special field agent in beekeeping. Dr. Phillips, who has supervision over the various field agents in beekeeping thruout the country, fortunately selected E. F. Atwater of Meridian, Ida., for California field agent. Mr. Atwater is a large producer in his home state, a practical beekeeper, and is well known thruout the country generally. Mr. Atwater will spend two months of the year as agent in Arizona and New Mexico, but he is scheduled to spend the entire spring and summer in California, dividing his time between the north and the south. California is a big state and our beekeepers are so widely scattered that it will be impossible for him to see every one of us. He is at your service, however, and will answer to the best of his ability any questions you see fit to ask him. Let us suppose, for instance, that you and your neighboring beekeepers have a certain problem that baffles you and, as is quite frequently the case, have no club that can assist you in your troubles. You are then at liberty to write to your special agent, explaining to him your particular situation. It is almost certain that he will come and see you and help you solve your difficulty. A letter directed to Special Field Agent in Beekeeping, care of Division of Agricultural Extension,

College of Agriculture, Berkeley, Calif., will reach him. A special field agent is constantly visiting beekeepers and is learning new "kinks" and "wrinkles." He is ever increasing his knowledge regarding improved methods of manipulation, and in many other ways familiarizing himself with the more up-to-date phases of beekeeping.

* * *

The outlook for next season is anything but satisfactory. During the past 49 years we have never experienced such a dry sea-

son. At the present writing (Jan. 10) our section of the state has not averaged an inch and a half of rain for the season, and to make matters worse, a cold north wind has been blowing for the past two days, which will mean a considerable reduction in the early honey plants. Fortunately, most colonies went into winter with ample stores but, unless we have rain in the very near future, a large portion of our contemplated spring increase will never materialize. Foothill beekeeping will suffer especially.



WE had a fine meeting of California beekeepers in Los Angeles, Dec. 28. About 175 people were present. F. A. Alexander, president of the California State Beekeepers' Association, gave a good talk on buying and selling collectively. E. F. Atwater, special field agent for California, New Mexico and Arizona, told us what Uncle Sam hopes to do for the beekeepers of California. Harris Weinstock, state market director, told of selling methods as carried on by California producers of walnuts, almonds, raisins, prunes and other products. The problems of these people are much the same as those of the honey-producer. The formation of local organizations is perhaps the most practical method at the present time.

* * *

Our eastern friends often do not consider the location, general conditions nor sources from which the honey comes in California. In a state which is over 800 miles from north to south and over 300 miles from east to west, there is sure to be a great variation in the climate and flora. One man has his apiary in the great Imperial valley 200 feet below sea level, where rain is scarcely known and the Colorado river furnishes the water supply. Another, with an apiary in the Owens river valley at an elevation of 5,000 feet, has many different conditions to meet. Both depend largely upon alfalfa for their surplus honey and upon irrigation for moisture. In the Imperial valley it is necessary to have a brush-covered shed over all apiaries, and the weather is so hot that it is not considered profitable to produce comb honey. Often it is too hot to extract unless combs are taken into the house in the cool of the morning. In the Owens valley the conditions are the reverse, being such that they cannot produce extracted honey successfully. The nights are cold and the days often so cool that the honey is quite thick and the extractor can not throw it from the combs without tearing them to pieces. In the sage and orange districts the bulk of the crop is sometimes harvested by the first week in May, while there is a vast territory thruout the state where the honey flow

SOUTHERN CALIFORNIA

Reported by L. L. Andrews

scarcely begins before the middle of June.

Many apiaries

are so situated that the bees gather honey at elevations from a few hundred to thousands of feet, over which the blooming period is sure to vary considerably. Some ranges produce a very fast flow of nectar, while others give honey very slowly. Localities such as the sage and orange districts at times produce honey almost as clear as water, while there are places where a good crop is often harvested so dark that it is called "black-strap" or "bug juice." A banner season in southern California has occasionally produced more than 300 pounds per colony in large apiaries. On the other hand I have seen apiaries of a few colonies in Humboldt county (where our old beekeeper friend H. E. Wilder now resides) which were able to gather only a very little surplus honey—perhaps enough for family use, from five or six colonies.

* * *

In looking thru some hives a few days ago, (Dec. 31) I found several colonies that had one, two and even three frames with sealed brood in patches as large as your hand. All colonies with good queens had eggs and larvae. The extremely warm, sun-shiny winter has caused a very heavy consumption of stores. With brood-rearing starting so early, it will be well to look carefully to all light hives and see that they have enough honey to last until spring. There has been very little rain this season; hills and pastures are dry.

* * *

A company that operates very largely thruout Utah and Idaho has shipped a carload (300 colonies) of bees to Riverside and intends running there largely for pound packages and early queens for their northern yards. Early queens and the shipping of combless bees is becoming more and more an important industry in California. Many times the heavy winter loss thruout the northern states can be made good in this way and a crop of honey produced, sufficient to pay all expenses and leave a good profit. Some pound packages received in Idaho as

late as June 15 produced 60 pounds of surplus extracted honey the past season.

A large producer, who moved several hundred colonies of bees from the Imperial Valley to the lower Palo Verde Valley by train and Ford with much work and over very bad roads, reports the results not as good as with those left in the original locality. How often many of us think some other fellow has much the best chances when we can do as well right where we are. This question of locality is all right, but it is very much as a beekeeper told me a few days ago. One of his neighbors said, "If

I had your locations I could make big crops, too." Now this man told me he would gladly trade locations any time with this same beekeeper. Be sure it is not yourself instead of the location that is the weak point.

January is here and no rain of any consequence over the southern part of California this season. Hills and pastures are dry, with little or no grass. Old-timers say some of our best honey seasons have been those years when all of the rain, practically, came after New Year's. We will keep a cheerful heart and hope it will prove so in 1918.



THE beekeepers of Henderson county have recently perfected a county beekeepers' association. Those who attended the first meeting from out of the county were W. E. Jackson, of the State Entomologist's office; T. A. Bowden and Campbell, of Palestine, inspector and deputy of Anderson county. The presence of foul brood has not been determined in Henderson county, but the beekeepers have taken wise steps to prevent the introduction of the disease into their county. In addition to the protective quarantine the inauguration of the Inspection Service tends to elimination of box hives, a menace to the industry. Where the inspection work has been introduced of late there has been a very decided uplift in the beekeeping industry in the county.

There has recently been encountered in one of the counties where inspection service was contemplated the old-time spirit. It is a relief to say that this spirit is readily disappearing in this state, and it is to be hoped that the day is not far distant when it will disappear entirely. We have in mind the attitude of some who are hostile to organization, co-operation and community uplift. Such people take the attitude that they cannot afford to help those about them, feeling that by so doing they will bring more honey into the market, thereby lowering the price of honey, and perhaps flooding the market. Such a view is indeed very narrow, and fortunately it cannot persist long today. It was the popular view of five years ago when a trifle excessive local production meant disaster.

The time is at hand for each beekeeper to be considering spring activities in the apary. Of course, the larger beekeepers have already made their plans but too many have not yet thought of their bees. Those who did not give their bees attention last fall will not have to worry now about spring management. But even with ordinary attention, there will be some loss of bees this year.

IN TEXAS

F. B. Paddock, State Entomologist

Every owner should be anxious to learn how his bees have come thru the winter. Accordingly, as soon as weather conditions will permit each colony should be carefully examined. All hives where the bees have died should be taken care of and all combs should be protected from future wax worm attack. Where stores are light feed should be given. There are very few who will have honey available for spring feeding. In nearly every case, sugar must be used. Under present conditions sugar is not generally available in sufficient quantities except thru the Texas Honey Producers' Association. It is indeed fortunate that the efforts of the association have been able to secure for the beekeepers sugar for feeding purposes. Wherever bees have survived the winter they should be given all help possible. With the heavy losses suffered last year over such a wide area, bees will command an excellent price this season. So, too, honey prices are expected to rule strong.

The adverse climate conditions continue over most of the state. Only local rains have occurred, and hardly enough to settle the dust. A long period of heavy rain is necessary to make up the great moisture deficiency existing everywhere. With us, the total rainfall of 1917 was 15.28 whereas the normal for this locality is 37.55 inches. And this deficiency is in addition to a 1916 deficiency. Unusually cold weather prevailed thruout December in the form of sudden and decided "northers" with much high wind. In view of these continued adverse conditions it is necessary to take another inventory to see where we stand in the face of another season. In the extreme southern section the honey-producing weeds did not come up last fall, but the bulk of honey in this section is produced from trees and shrubs which are as yet only little affected. Prospects in this section remain very uncertain as much depends on good rains early in the season and no late freezes. Along the Gulf Coast conditions and prospects are anything

but cheerful. Fall rains are necessary to the fall germination of the horsemint, the chief source of surplus honey. No horsemint seed was produced in this section last year. With good spring rains mesquite will yield well. Thruout the southern section conditions and prospects for honey plants are equally as bad. If good rains should occur soon the shrubs would yield well. A continued drouth over this area would almost mean disaster. In central Texas apparently all of the native honey plants are dead, as no seed was produced this season. Much rain will be needed in this section. In East Texas conditions are about 75 per cent normal. This section has had a few rains and much of the honey is produced in lowlands which have not suffered from drouth. In North Texas the conditions of the honey plants is about normal but rain is needed during the spring to insure a surplus of honey. In the extreme southern section the bees now are in good condition. No feeding has been necessary nor is any contemplated. In December pollen was gathered from peach and orange. In the Gulf Coast section feeding is being done extensively in one locality; as high as 25 pounds of sugar has been fed to a colony. In the other localities feeding is not being done. In the southwest section feeding is being carried on extensively in one locality, but in another locality the bees are allowed to die. In another locality feeding is contemplated with those colonies that survive the winter. In central Texas, no feeding has

been done and none is contemplated. There will be very little if any loss of bees in the extreme southern section. More stores than usual were left with the bees last fall to insure against winter loss. In the Gulf Coast section where feeding has been done, the loss will be little but in other localities it will be great. However, over much of this section feeding has not been practiced and the loss will be heavy. With the unfavorable fall conditions, most of the colonies went into the winter with entirely old bees. In east and north Texas there will be very little, if any, loss. In the extreme southern section but few bees are being offered for sale and none have been sold. In the Gulf Coast section many colonies are being offered for sale but they are weak in stores and are not finding many purchasers. In a few cases bees are being given away, to those who will feed. Some are holding to a better price, but are due to be disappointed, for, if they do not feed, the bees will die before they are sold. Thruout the southwest section many bees are being offered for sale, but few are being purchased. In the central section many bees have been offered for sale, but few have been sold. No bees have been offered for sale in east and north Texas.

* * *

The Bell County Beekeepers' Association has recently elected a new officer, a publicity agent. Today, in these stirring times of progress, a publicity agent is an essential part of any organization.



THE month of December just passed has been bitterly cold here in Ontario—the weather man says it was the coldest December since 1871, and he ought to know. At any rate, the December just experienced was cold enough even for us fellows who are always used to a rigorous climate. How will it affect the bees? Really the question is hard to answer and we will postpone the matter till next April.

NOTES FROM CANADA

J. L. Byer, Markham, Ont.

We have just tumbled onto a nice easy way to liquify cans of honey, provided you have a furnace in the house. Our furnace, like many others, I presume, has a pit on top with about ten inches of sand to prevent the radiation of the heat into the furnace-room. That sand is always comfortably warm to the touch, but one would not think it would melt a 60-pound can of honey. However, a few weeks ago a 30-pound can was placed on top of this sand and we were agreeably surprised to find the honey perfectly liquefied in three days. Since then a 60-pound can was placed in the same place, and inside of five days the honey was clear. The beauty about the plan is that it is ab-

solutely safe there, no matter how long the honey is left, as it never gets more than lukewarm. The continuous heat, tho, does the trick, and I have an idea that honey would be improved by leaving it there, especially if none too ripe when it was extracted. At any rate, it looks as tho we should never go back to the hot-water plan so far as liquefying honey for our own use is concerned.

* * *

In the December Gleanings we stated that buckwheat honey was then worth two cts. a pound more than when we sold earlier at 13 and 13½ cts. The same firm we sold to, now quotes buckwheat honey at 17 cts. Watch the prices grow.

* * *

On page 18, January issue, I am made to say, "Miller feeders with square boxes," and it should read "and square boxes," as both types of feeders are used. The square boxes are still used at one yard, as we have them yet in good order. For feeding while the weather is warm they are all right—simply place the box on top of the frames in a super. Fill with syrup and throw a

handful of grass on top to prevent bees from drowning. Cover top of super well. If the top does not fit close enough, put a sugar-sack over first—that's all that is necessary. Don't worry about robbing.

* * *

On page 34 Grace Allen mentions the fact that she has no particular love for "crawling" bees, and, as the saying is, "that reminds me." Some years ago at a certain outyard where we had a very small extracting-house, a neighbor woman would be sure to call every time we were extracting. While we are always glad to have people call, yet there are times when folks are really in the way; and extracting in a small place, and having company sitting there for a long time watching operations, is not very profitable and may be annoying. This caller seemed to be very fortunate in not getting stung; and, honestly, it goes without saying that we sometimes wished she was not so fortunate. One day when coming in with a load of honey her presence was missed; and inquiry from the two helpers inside of the building explained matters. They said that "all of a sudden" they noticed a convulsive movement on her part—a look of agony on her face, and a sudden "well, I must be going." She never came back. While we have only this circumstantial evidence, yet we all voted that "crawling" bees had been the cause of her sudden departure. She was game, all right, for she never even hinted at the cause of her speedy withdrawal.

MORAL.—Even "crawling" bees have a mission in life.

* * *

Mr. Morley Pettit, having gone south for the winter, has resigned the secretaryship of the O. B. K. A. Mr. P. W. Hodgetts, Parliament Building, Toronto, is now secretary, and all business communications in connection with the association should be addressed to him.

* * *

Not exactly right, Dr. Miller, to say that I stated that you use too small a hive; for, frankly, I am not sure of that, page 28. What I tried to say was that for outdoor wintering, the 8-frame hive was too small unless made very heavy—in fact, practically solid in late September or early October.



THIS has certainly been an unusually cold winter, to date. The bees had a flight last week, and every colony answered to roll call. There seem to be fewer dead bees in front of the packed hives than the others. The one exception to this is one colony of the two facing west in the quadruple case. Somehow five hives missed having entrance contractors, and this was one of them. Now it may or

Of course what was meant about your not feeding, but giving honey instead, referred to the fact that you fed no sugar syrup but put heavy combs in the hives instead, taking out partly filled ones to make room for the full ones, just as we did last fall when we exchanged over 600 such combs. As for us, we were heartily disgusted before getting thru. You want to carry over two combs of honey for each hive for spring feeding if necessary; and from the fact that we seldom need any for feeding in the spring, even with the 8-frame hives, we are convinced that our hives are heavier in the fall than yours; for with good cellar wintering your bees will not use nearly as much stores as do our outdoor-wintering colonies in this northern country. This is especially true if Mr. Doolittle's figures on this question are anywhere near right. I again repeat that 8-frame hives normally strong in bees, will winter outside in very severe climates provided the hives are about solid with good stores in the fall, but if the 8-frame hives are not made heavy enough, they are decidedly risky for outdoor wintering in our locality—or in Marengo, Ill.—for that matter.

* * *

Mr. M.-A.-O., at great risks I am going to comment very briefly on your last sermon in January Gleanings. Please do not rise to call me a friend till you have read further. It appears there is a "moral" to your tale, so I say "sermon." When the pater read the sermon in question he laughed and laughed, and then laughed again, until he almost had a pain, as they say, and he recalled a case where two men actually acted, when mad, almost as badly as the two "f---s" did, as recorded among the advertising pages of January Gleanings. Then in the evening our 13-year-old lad got to reading the same story out loud; and as he came to some of those hybridized cuss words a certain woman of the house was heard to say, "I wonder that Roots allow such stuff to be printed." Needless to say, "yours truly" is at present the victim of mixed emotions, for, no matter how much one enjoys a good laugh, what is a fellow going to do when he dare not give vent to his feelings openly without getting into trouble with his wife? That's all.

THE DIXIE BEE

Grace Allen, Nashville, Tenn.

may not be due to this lack, but this colony has been the only

one of the packed hives that shows as many dead bees as the unpacked.

* * *

At the last regular quarterly meeting of the Davidson County Association this subject of wintering was the chief one discussed. And there was the old diversity of opinion. Mr. Adkisson, elected president for

1918, said that the colonies in his few double-walled hives came out spring after spring stronger than those in the single-walled hives, which convinced him of the value of protection. But whether results would ever justify the expense and labor of packing cases, he wasn't prepared to say. Mr. Lee, reelected secretary-treasurer, said that his bees, all in Danzenbaker hives, came out so strong in the spring that if they were any more populous he would have to fight early swarming. He didn't want then any stronger at that time.

This meeting of the county association, by the way, was made particularly encouraging by the presence of the county agent, Edw. Thomae, who volunteered to cooperate in any way he could to help put the organization into a booming position, with every beekeeper in the county on its list. That's what we want; our 1918 aim—every beekeeper in Davidson county a member. The county home demonstration agent was also present, and the two city home demonstration agents of Nashville.

Reverting again to winter packing, which I don't seem able to keep away from (it's like one of those electrical machines, once you take hold of it you can't let it drop), L. E. Webb, of Morgantown, N. C., agrees with our Mr. Lee as to spring results under his own present system. "Mine get strong enough to swarm or be manipulated," he writes, "before our climate will admit, anyway, and last year my colonies were just crowded over the first of April, and I wouldn't have had them stronger for pay."

I have heard J. M. Buchanan of Franklin, Tenn., say that, if his colonies came out in the spring with six more or less bees per hive, they'd swarm before locust bloom. Both Mr. Buchanan and Mr. Lee winter in two stories. Contracted brood nests sounds reasonable for heat conservation, and apparently many successful beekeepers practice that system. Yet here are others who find exactly the opposite method successful. Evidently everybody has to work out his own bees' salvation.

Here are some interesting extracts from a letter from A. B. Anthony of Sterling, Ill.: "Your query was 'to pack or not to pack'. Do neither one nor the other. Take the middle ground. Protect, but do not pack. Put an extra 7/8-in. wall, painted white, over your bees without packing, and contract entrances. . . . In putting an extra box over your bees, you will use consideration, and not let the space between be 2 or 3 or 4 inches. Make it 3/8 in. To make it much more would be something like having, between the plaster and the outside wall of your house, a four-foot space, instead of four inches. . . . My locality is much colder than yours; seldom a winter but what reaches 20 degrees below zero, and I insert in the 3/8-in. space corrugated paper board. . . . On the matter of overhead absorbents I would say it depends on whether frost

(more or less) lines the inside of your brood chamber. Whether it does, is a matter of your extremest cold, amount of protection, size of colony and size of entrance. If no frost accumulates, a tight cover will do; otherwise safety comes surest with absorbents. Did frost stay on the inner walls until spring, after once freezing, it would probably not do much harm. But the temperature rises, possibly not to thawing outside, but in the hive it does; and bees are not like fishes and mud turtles, but like man, in that they cannot stand dampness, a condition considerably less retained with tight covers. . . . Go ahead and pack your bees if you choose. You are safe so long as they are not allowed to run short of stores. But protection and not packing is all you need."

C. B. Palmer of Bradshaw, Neb., is of course not a Dixie beekeeper, yet I cannot resist quoting also from a recent letter of his: "The idea of you feeding sugar away down south, and I with honey to spare away up in this cold breezy state! Nothing as far north from our yard as the eye can see to break the wind but a barb wire fence."

THE BEEKEEPERS' CONVENTION

In Washington and London,
In Paris and in Rome,
Are meetings, meetings, meetings,
Like this of ours at home.

There men may meet by hundreds,
Sometimes but three or four,
Tho sometimes one grave man alone
In silence walks the floor.

They talk of kings and nations,
Of war by sea and land
And how this army must go on,
And how this line must stand.

And how to save the people,
And how to bring to birth,
From pain and death, a nobler peace
Upon a nobler earth.

While grave men thus are meeting
In Paris and in Rome,
In Washington and London-town,
We bee folk meet at home.

The nations take no notice;
No fleet shall sail away,
No men shall march or banners fly
Because we meet today.

We talk of swarming problems,
And when the clovers bloom,
And how to give at honey time
Unstinted storing room.

And how bees live thru winter,
And how they meet the spring—
The sun and scent and pollen dust
And fairy blossoming.

Oh, presidents and rulers
And ministers of state
And admirals and generals
Are very grand and great.

We've had our times of wishing
That we were great as these—
I wonder if they sometimes wish
That they were keeping bees!

L. F. C., Ohio.—The winter has been cold in my locality. It began early in the season, along in November, and has been growing steadily colder, followed by zero weather. What is going to be the effect on the bees, if any? My bees are in double-walled hives, on their summer stands, but they were short of stores, as I could not buy sugar to feed. Should I give cakes of candy now, or should I wait till toward spring? What effect do you think this cold weather is going to have in the beginning of winter?

Answer: Cold, snappy weather at the beginning of winter does not do anything like the damage that it does when the winter starts out warm and ends up by being awfully cold. Under such conditions the bees start breeding, and then when really cold weather sets in, both bees and brood are killed, and the results are often disastrous. We do not fear early cold providing it does not last too long. In any case, zero weather in Ohio is not likely to last more than a week or 10 days, when it will be followed by a warm spell. At such times the bees will move over to fresh stores, and then be ready for another snap should it come. What is hard on bees is too much zero weather for a month or two at a time. If the cluster contracts the bees eat all the stores within reach; and then, if the cold continues, the bees die of starvation because they cannot move to fresh stores on account of the extreme cold. If, however, a colony is strong, or if it is well packed, or both, the bees will survive continuous zero weather. If a colony would starve otherwise, give a cake of candy even in cold weather. Be careful not to break the cluster during extremely cold weather. Candy should be made according to directions given in the text-books, and placed on the top of the frames. Under no circumstances should the brood-nest be disturbed while it is cold. If one happens to have combs of sealed stores, one of these can be laid on top of these in place of the slab of candy, after which packing material is put on top. In the spring, when the first warm day comes that the bees can fly, colonies may be opened up to give stores and to repack. Sugar can be obtained by writing to the Food Administration, Washington, and asking for a permit on the basis of about two pounds of sugar per colony. This permit should be secured now, but not used till the sugar is actually needed. Should the cold weather continue, without any let-up, and the bees are not sufficiently packed, or are too weak, we advise putting them in the cellar, even if it is mid-winter and down to zero. We have done this many times to advantage.

J. B. M., Mississippi.—I noticed that Dr. E. F. Phillips, of the Bureau of Entomology, Washington, advises beekeepers in the South to pack their bees. It is the universal rule around here to winter in

GLEANED BY ASKING

E. R. Root

single-walled hives, and we winter successfully. What do you think of such advice?

Answer: We do not know positively but we feel sure that many bees in the

South are weakened by the want of suitable protection. We would have all apiaries in a shielded locality, and we believe it would be an advantage to have some packing—a division-board on each side of the brood-nest with a super containing leaves on top. While the mercury does not drop very low in the southern states, there are many days of chilly weather there. When colonies are properly packed, the brood will be very much better protected. Bees can breed in the southern states nearly every month during the winter, and it is always an advantage to protect the brood. It is our opinion that the advice of the Government representative is right. Try out this advice by having some colonies packed and leaving some unpacked, and report the result.

W. E. O., Colorado.—I moved into this state two or three years ago. I discovered that beekeepers here winter in single-walled hives, notwithstanding the mercury is sometimes below zero. Would it be an advantage to use double-walled hives?

Answer: It probably would; but it is not nearly so necessary to pack in your climate with its dry atmosphere and its bright sunshine as in a locality where the temperature goes down to zero and stays there when the sky is overcast with dull leaden clouds for weeks at a time. The dry atmosphere of Colorado, with its bright sunshine, bringing the temperature up to a little below freezing during the daytime, renders this method of packing less necessary. But windbreaks, where they can be secured, are an advantage; and it is our opinion that at least a moderate amount of packing will do no harm, and probably do a great deal of good in protecting brood in the spring.

F. J. R., Minnesota.—Does deep snow piled around colonies do any harm? If not, is it an advantage? Would you advise shoveling snow around the hives and up against the entrance?

Answer: We always like to see the snow around and on top of the hives. Even if the hives are out of sight, no particular harm is done if the snow is dry and light. As a general thing, the warm breath of the bees will melt the snow around the entrance. As the warm air ascends it melts the snow away from the front of the hive, leaving a gap half an inch or more deep from the top clear down to the entrance. But when the snow melts and runs down into the entrances, and freezes, there is sure to be trouble. But a powerful colony will usually give off enough heat to prevent such freezing. As to the question whether one should pile snow in front of the entrances, we would advise it, if the weather is extremely cold and the

wind is blowing. Usually the wind will scatter snow all around the hives; but we would never pile wet or soggy snow around the entrances. A lot of fluffy snow, or snow that falls in extremely cold weather, will do no harm.

L. O. P., Florida.—I moved into Florida this winter and bought a few colonies of bees; but some red and some black ants seem to be making some trouble. What should I do in such a case?

Answer: We would advise putting the hives up on posts and putting around the posts some smeary and sticky substance like tar. Setting the hive on four legs, each leg in a little dish of water, is often practiced. The ant nuisance in the southern states is serious only in certain localities. In some cases it may be abated by having a flock of chickens. The large red ants that live in the trunks of trees are particularly ferocious to man and beast as well as to bees. In some cases it may be practical to hunt out the nests and destroy them with bisulphide of carbon.

J. C. M., Indiana.—In view of the shortage of sugar would it be possible to use grape sugar, glucose, or Karo? I can buy plenty of Karo, but only a very limited quantity of sugar.

Answer: We tried feeding raw glucose years ago, but we could not get the bees to take it. Bees will eat commercial grape sugar, but it is very apt to cause dysentery in the spring. It is not a good winter food. We should be afraid of Karo because it consists of a large percentage of glucose as compared with cane sugar. It might work all right, however, in preventing starvation in the spring. We would advise trying it. The glucose in Karo may be of a superior quality—it probably is. The presence of the cane sugar would probably insure the bees taking it down into the hive.

J. E. H., Michigan.—Some three or four years ago you told how you put four and five frame colonies in the cellar along in January, and built them up to 10-frame colonies by April. How did you do this?

Answer: In order to make bees breed in the cellar the conditions must be just right. The temperature should be somewhere about 40 or 45 degrees, and the ventilation nearly perfect. During the latter part of January cakes of hard candy, if set on top of the clusters, may be given. The bees will appropriate this sweet very slowly, and start breeding providing the cellar temperature is not too low. Contrary to the general belief, young bees do not necessarily need a flight; but, if cellar conditions are bad, or if the stores are poor in quality, there will be dysentery and the bees will die.

The experiment of breeding in the cellar is risky, unless conditions are good. Moreover, bees won't breed when sealed combs or stores are given.

Making bees breed in the cellar is a nice operation and we would not advise the average beginner to attempt it except on a few colonies; and then if there should be flight days out doors, those colonies should be given a

flight and set back again after it has turned cool.

F. A. B., New York.—My bees in the cellar are flying out and dying on the floor. They keep coming out, and there is now about an inch of dead bees on the floor. Is there anything I can do to stop it?

Answer: Your cellar is probably too warm, with insufficient ventilation. The remedy for bees flying out is plenty of fresh air, and a lowering of the temperature down to 45 or 50. If the cellar is too cold, running down to 38 or 39 or lower, bees in their efforts to keep warm become uneasy and fly out on the cellar floor, and, of course, die. With plenty of fresh air the temperature may go up as high as 60; but it is advisable to have it between 45 and 50—fresh air, either continuously or given at night. All daylight should be shut out—keep it dark.

Avoid, as much as possible, disturbing the bees in the cellar. If they begin to show signs of dysentery toward spring, set the soiled hives out during the first warm day when bees can fly, and set them back again after they have had their flight.

W. C. J., Idaho.—What is the reason that sometimes bees in single-walled hives in an exposed location winter better than other bees in double-walled hives in a protected location?

Answer: This is hard to answer. Lack of protection and exposure in exceptional cases of successful wintering do not prove that such conditions are good for wintering. A man may drink whisky all his life, and yet live to be 80 years old; but that does not prove that whisky promotes health and longevity. It is the exception that proves the rule. The colonies in single-walled hives in an exposed location may have been made up largely of young bees on good stores, while those in the double-walled hives in the protected location may have been made up of old bees on stores of inferior quality. That being the case, it can be very easily explained why the first-mentioned bees came thru in better condition.

J. M. C., Alabama.—I recently moved into this state. I understand that there is no wintering problem in the South. Is this so?

Answer: Indeed there is a wintering problem in the South. There is great danger of starvation and of robbing. When the bees can fly out almost every day they are inclined to breed. Breeding causes bees to go for water and pollen. Many are lost on these trips, with the result that the colony gradually dwindles. Sometimes the hatching bees just about make up for the lost bees going to the field to get pollen and water. In any case, stores are used very rapidly—much more so than in the North. A good colony in the Southern states requires about twice as much honey or syrup as a colony in the North. It is, therefore, advisable that the owner of the bees look into his hives every now and then to see if the bees are in danger of starvation or are dwindling down to a small cluster.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Mother Bee NURSERY RHYMES
G. L. B. M. G. P. (Mother Goose Plagiarized)



Ride a Cock Horse
To Banbury Cross
To see a queen-breeder
rear queens he
can boss,
Queens in his fingers
and queens in a cage,
He shall have queen bees
of every age



Diddle Diddle Dumpling, My son John
Went to the Bee-yard with his gloves on,
Best coat off and bee-veil on,
Diddle Diddle Dumpling, My son John,

How to Winter Bees by Burying. My method of wintering is to bury my bees.

On Nov. 15, 1913, I buried 14 hives. After spending the winter in Scotland I returned and about Apr. 10 took out my bees and found all in good condition, one hive even swarming as early as May 24. In general I have had fewer dead bees from my buried colonies than from those wintered in the cellar.

In preparing for winter, I make a stand five inches high, 44 inches wide and 28 feet long. This is made of three boards. The outside ones are 10 inches wide and the center one is 12 inches wide. Under the boards and at right angles to them are placed blocks, about three feet apart, so that the weight of the hives will not bend down the boards. Having arranged the stand, the hive bottoms are removed and the hives placed on the stand in two rows facing each other. All the entrances are at the center of the 12-inch plank, and the opposite ends of the hives are at the outer edges of the two 10-inch planks. At the inner end of the two rows of four hives each, is placed a perpendicular air pipe, 4 ft. long and 3 ins. in diameter, thus, connecting the air space with the outer air. Next two rows of eight hives each are placed in the same way and

then another 4-foot airpipe. Two more rows of four hives each fill the stand. The whole is then covered with hay or straw and eight inches of ground on top. The two pipes mentioned give plenty of ventilation for the 32 colonies. A high and dry location should be chosen so there will be no danger of water getting under the hives in the spring.

This year I have 67 colonies which I buried Nov. 23. One stand has 32 hives and the other 35. In December the snow was about two feet deep around the stands.

Winchester, Ont. N. SUMMERS.

A Spraying Solution Not Fatal.

Hark ye, all who have suffered from the inconsiderate spraying by city or town officials; all ye who have lost bees and honey, yea, who have lost even hopes of future share in the good things of the earth going to waste in the flowers around about because of the bullheadedness of public servants who learn not, care not and shoulder their respective ways thru matters over delicate for their comprehension. All ye, read the following from a public official of quite another kind, and take hope again. Also, show it to your own officials, first discretely cutting off this preface which is intended for your eyes alone, and the reading of which by said officials might cause a moral obfuscation and strabismus and various other mental and physical ills with sonorous-sounding names and shorter meanings, sometimes compressed into one curt phrase—"sheer cussedness."

Optimistic tho the letter be, and worthy of all praise from its spirit of helpful cooperation, the last word on safety hasn't been spoken yet, as there is still room for further perfection in the mixture, or so I am told. But it surely does help, and I hope will encourage other sprayers to experiment further in their turn, until a perfect spray in effect and safety has been found.

Here is the letter, received by me from Wm. H. Colton, forest commissioner of the beautiful city of Newton, Mass.:

"Dear Mr. True:—I was very glad to hear from you again regarding the possibility of keeping honey-bees without danger of losing them thru the spraying of trees with arsenate of lead.

"I am pleased to report that after two years' experimenting with the solution which we have added to our arsenate of lead spraying material, we feel pretty well satisfied the effect on honey-bees in that locality has not been detrimental. I have not heard from any of the beekeepers in Waban as yet regarding the results of our 1917 spraying but have concluded that 'no news is good news,' and that there were no fatalities this year from our spraying. Last year I kept in pretty close touch with them and in spraying with this solution mentioned they all reported favorably regarding it. I am planning to use the same solution the coming year and think that you will be safe in trying to

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keep bees again. I certainly hope that if you do start again, you will have success and I assure you that I am ready to do all I can to help you and at the same time perform the duties which are a necessary adjunct to my office."

All ye beekeepers, take notice.

JOHN PRESTON TRUE.

Boston, Mass.

[Can't you tell us what the solution is? Or is that a secret formula?—Editor.]



An Exhibit That Was a Great Success.

October 18 to 23, 1917, Fort Smith, Arkansas, celebrated its 100th birthday; and in getting up a suitable celebration the centennial committee asked the writer to get the bee men together and exhibit honey and beeswax. But when the few beemen got together they decided to show not only honey and beeswax, but to get up a bee exhibit. With the help and encouragement of Gleanings and other publications, we got our exhibit under way. The display consisted of bees, wax, honey, one-frame nuclei of three-banded and golden bees, a full eight-frame glass hive with a super of honey on top, and a collection of queens of every race that could be secured at this season of the year and in this locality.

W. H. Laws of Beeville, Tex., and W. H.

Milam, of Moore, Tex., both managed to be present to assist in demonstrating. Besides acting as judge and helping to demonstrate, Mr. Laws also brought one of his finest golden queens and gave her as a prize in the contest, which was won by J. W. Rice, with his big glass hive of bees. As Mr. Laws judges bees in many parts of the country, he could hardly be expected to contribute a fine breeding queen at each place, but this happens to be his own home town.

The bee exhibit was about the most talked-of feature at the centennial and it kept one or two men busy constantly answering questions and helping people to find a queen bee.

The colored population held their part of the centennial in their own part of town, where they have a street with every line of business run by members of their own race. At the request of their committee, Mr. Milam and the writer took several glass cages containing bees, queens, etc., and talked bees for the colored people. I never appeared before a more interested and respectful audience. This kind of friendly separation of the races works satisfactorily to both races here.

The farm demonstrators were so well pleased with the educational feature of the beekeepers' exhibit that they arranged with me to take most of the display to the Green-



A very successful exhibit at Ft. Smith, Ark., centennial, and those who made it.

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wood, Ark., fair the following week and talk bees. This fair was just like Fort Smith in most respects. As a direct result of this exhibit, the Fort Smith high school has purchased a hive of bees and started a class in apiculture.

The accompanying photograph shows some of the prize winners at Fort Smith and their displays.

The boy on the left is Harry Davis, age 15 years, the youngest exhibitor. Next is W. D. Strong. Third from the left is E. J. Cline, and next to him is J. W. Rice, who won several prizes. Fifth is W. H. Laws, the judge. At the end is H. P. Gannaway, the dean of the beemen of this vicinity. Mr. Gannaway is probably the largest producer of comb honey in this county.

Ft. Smith, Ark.

E. J. CLINE.

How Much More Extracted Than Comb Honey.

On page 941, Dr. C. C. Miller seems to think the claim that colonies run for extracted honey will produce 50 to 100 per cent more honey than when run for comb, isn't anything more than loose guessing. We supposed this was common knowledge. At any rate, in our old location in Minnesota and our present one in Montana, we have proved to our own satisfaction that this is a fact.

Corvallis, Mont. FRANK MORGAN.

When Introducing, Why not Daub Bees Alone, and not the Queen?

In an editorial, September 15, 1916, the philosophy of the daubed queen is admirably given in these words: "The general spill and apparent ruin of the combs so diverts the attention of the bees that the queen is forgotten." Some people will object to this method of queen introduction on the score of injury done to the queen by her honey bath. We all know that when honey is spilled over the combs a bee or two will sometimes be drowned; and even if the queen escapes with her life she may not be any the better for her rough experience. I don't see why the bees that are cleaning up a catastrophic mess should not forget a dry queen as well as one that has become an animated honey "blob." Why not pour the honey in, and then (or very soon after) release the queen dry? I don't think much of the strange-odor theory, but the odor of evaporating honey would correct the smell of a strange queen quite as well as her actual immersion.

I was astonished to learn from A. C. Miller that a bee takes only ten trips for honey in a day. Astonished as I was, I soon saw that what he said was true. Take a hive of forty thousand bees—that is, a moderately

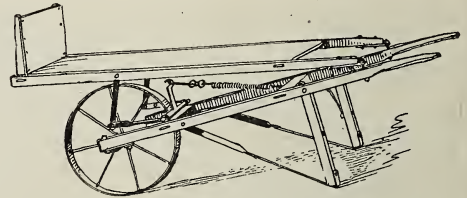
strong one that would cast a five-pound swarm. You can count the number of bees that fly out every minute; and I find that when things are pretty busy they number 200. That is 12,000 an hour, and 96,000 in a working day of eight hours—a fair length of day when allowance is made for comparatively slack hours morning and evening. If we presume that each bee takes ten trips this will give a working force of about ten thousand bees, which seems about right. The man who imagines that each bee takes, say, twenty trips a day, will have to say that there are only five thousand gatherers in such a hive, which, as Euclid would say, is absurd.

G. G. Desmond.

Sheepscombe, England.

Make It Now if You Need It Next Season.

This wheel-barrow was manufactured by a friend of mine, W. R. Pennock of Stouffville, Ont., who, in addition to being a beekeeper, is also an expert mechanic. This barrow is the best thing of the kind I have ever seen, for while quite light, weighing less than 40 pounds, yet it is very strong. By simply removing a cotter pin and shifting rods so as to give you a different leverage, the barrow can be made to carry a heavy load and still retain its resiliency. For ordinary use it



A very handy wheelbarrow.

will carry three full 10-frame supers; but by making the shift mentioned, a much heavier load can be handled easily. Mr. Pennock has made quite a few of these barrows this season and every user with whom I have spoken is enthusiastic as to its merit. The picture shown gives a good idea as to general construction.

Markham, Ont.

J. L. BYER.

Unfinished Sec- tions of Previous Season

In The Domestic Beekeeper for January, p. 13, Floyd Markham, of Ypsilanti, Mich., says: "No one can produce fancy honey nor even No. 1, in sections that have drawn comb in them from the season before." What is the consensus of opinion in regard to drawn comb in sections? I really thought that I was fortunate in having so much drawn

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FROM

DIFFERENT FIELDS

comb for next season. I extracted all that were partly filled, and am using them for baits for first supers, placing four on each side of the super. C. V. Rice.
Lawrence, Mich.

[There seems to be a general belief that sections containing fully drawn combs of the previous season, and which are filled with honey the second year, are not as nice as those sections containing new comb filled with honey of the same season. The explanation of this may lie in the fact that the cappings do not join as well upon combs of the previous season as upon comb of the current season.

The late B. Taylor, of Minnesota, overcame the difficulty by melting down the cell walls to about half depth. This was accomplished by a little device which he called a comb-leveler. A hot plate a little smaller than the inside of the section was placed against the comb on one side; and when the other side was leveled down the section was ready to be given back to the bees. Mr. Taylor claimed that comb honey from such drawn combs was fully equal to any other, with the further advantage that the bees entered supers containing them much more readily than supers containing full sheets, and in this he was probably right.—Ed.]

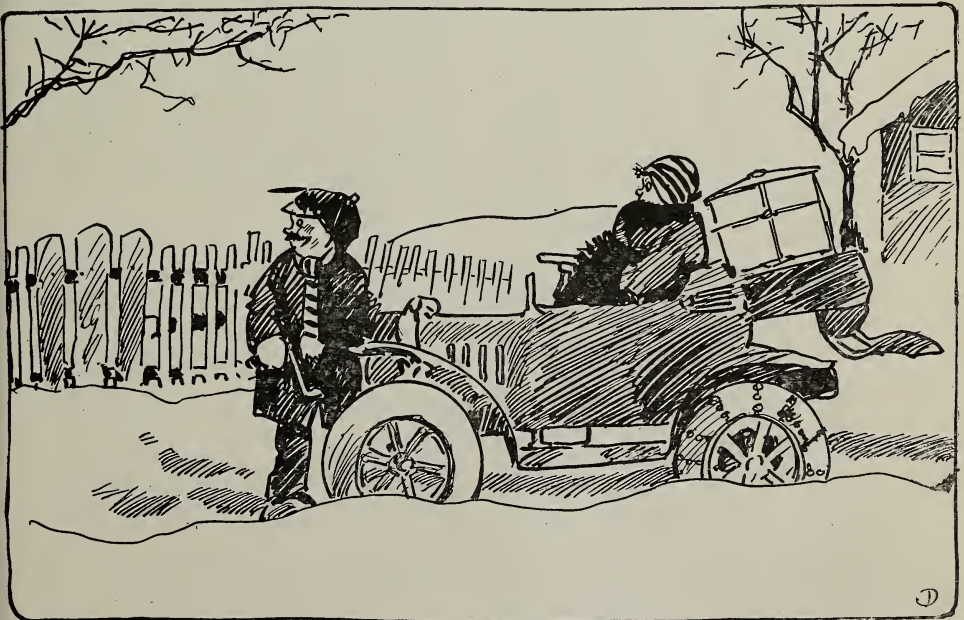
102 Barrels From One Porto Rican Apiary.

The picture shows one of my three apiaries. It is located in the Bario de Lares, Porto Rico. From this apiary in 1914 I secured the large amount of 102 50-gallon barrels of



A Successful Apiary in Porto Rico. honey. However, owing to the heavy winds that almost totally destroyed the flowers, the crops in 1915 and 1916 were very light, hardly paying expenses. This year the crop is 40 barrels.

Lares, Porto Rico. S. COLOM SOTO.



THE BACK LOT BUZZER

Uncle Benny Sourweed has fixed the hole in his fence at last. Been that way ever since his neighbor went through it when the hybrids swarmed last summer. Uncle Benny says it wasn't right, the feller shouldn't have been in such a hurry, he ought to have gone around by the gate.

"YOUR advice to order supplies early should be printed in caps."—Dr. E. F. Phillips to Editor E. R. Root, Jan. 4.

BEES, MEN AND THINGS

(You may find it here)

"Being single, I was subject to the first military call, but made a claim for exemption on the ground of the importance of honey production to the nation, which claim, altho without precedent in this military district, was granted 'so long as I continue producing honey in goodly quantities.'"—R. C. Fretz, Forest, Ont., Nov. 29, 1917.

"Have to sell my bees. Have been drafted into the army."—L. L. Fereber, Co. B., 118 Inf., 30th Div., U. S. A., Camp Sevier, Greenville, S. C.

"With three sons enlisted and the other rejected for service but now working in the United States Navy Yard, there is need of rigid economy. My bee helper has quit the city letter-carrier service and expects to be with the 'Regulars' on Atlantic Coast soon. Will renew our bee interest when a lasting peace shall have been won."—Clark S. Fuge, Oregon City, Ore., Dec. 24.

"I never enjoyed work more in my life and never had a better appetite. The recent freeze killed many fish. I saw two girls carrying so many big fish on a pole that they had to stop and rest every few rods, and a man had a wheelbarrow full."—A. I. Root, Bradentown, Fla., Jan. 5.

"Open windows while breakfasting, flowers blooming, spring bulbs already up, garden peas six inches high. Come west, young man."—E. J. Ladd, Portland, Ore., Dec. 26.

"Now having a temperature from four to ten degrees below zero and one foot of snow covering the ground."—Watson Allen, Bernardsville, N. J., Dec. 29.

"Have read Gleanings since its first issue. Happy New Year."—F. H. Cyrennius, Oswego, N. Y., Dec. 31.

"I will never forget an armful of old Gleanings dated from wind-mill days till along in the 80's, given me by an old neighbor. I carried some of them in my pockets and when the team was resting from dragging I enjoyed some of the happiest moments. The team never told tales and I dare say dad's horses had many a good rest."—C. R. Morts, Mohawk, N. Y.

"Bees wintering fine so far. Need a flight, tho.—Geo. Chrisman, Homer, N. Y., Jan. 7.

"We had a complete failure in crops this year. It was dry all the year and is still dry. No beemen made any honey here. There was no honey to be got, and I expect every beeman to lose half of his colonies.

I know a beekeeper that owns 900 colonies who says he does not think he could have got 500 pounds of honey last season and never extracted a single pound.

It is the first year we have been out of honey in 22 years."—Lucy Dentler, Taylor, Tex., Dec. 22.

"Bees are wintering well here altho have had it 30 degrees below zero twice. Buried them in snow where they have been for four weeks now, with a board leaning over the entrance for ventilation. Putting my ear to the entrances, I can hear the low sweet hum that says everything is all O. K."—Raleigh Thompson, Underwood, Ind., Jan. 2.

"The defeat of Germany will be of no avail, unless we, at the same time, throw off the shackles that for half a century corporate interests have been welding upon the limbs of American freemen."—G. M. Doolittle in Skaneateles, N. Y., Semi-weekly Free Press, Dec. 25, 1917.

"We are having a very mild winter in Idaho. Today, Jan. 3, it is just as warm as April. The bees are all out."—F. A. Young & Son, Mt. Hume, Ida.

"I never handled bees until this season, so I am a new hand. The writers in the bee journals tell so many things to do I don't know what to do."—A. I. Marston, Mapleton, Ia.

"I wintered four late made colonies last winter in two 10-frame hives, with tight divisions between. In the spring I gave them each 10 frames of honey, but they did not build up rapidly like colonies on 10 frames, and gathered little honey."—D. F. Rankin, Bankston, Ind.

"I am one of the few that have taken Gleanings from the very first issue. I wonder how many of us are left."—O. R. Coe, Windham, N. Y.

Kansas City, Mo., Dec. 15, 1917.—Bees are declared to be wild animals, according to a jury in the Wyandotte County Court. W. T. Holland was acquitted on a charge of grand larceny, as it was shown to the satisfaction of the jury that the bees swarmed to his place. Holland rented a farm from J. C. Hume on which there were 11 hives of bees. When Holland left there were 16 hives and he took five of them. Hume accused him of taking them unlawfully. The attorney for Holland was able to prove that bees were wild animals and so won the case.

"Have been here with the American Forest Unit for a year. Have between three and four million feet sawed at present. They are just beginning to draw it away and load it on the cars enroute for France. If

it were not so rainy this would be the greatest country in the world for bees. There are thousands of acres of heather loaded with nectar. The bumblebees here in a good year will make a pailful of honey, so you can imagine what a good swarm of Italians run on the American plan would do. Most every one here keeps a few swarms of bees, many of them in the old straw skeps. The heather honey has a strong odor, and a pound cut in an ordinary-size room will perfume it so you would almost think yourself out on the moor among the flowers. The honey also has a strong flavor but it is very nice."—Geo. H. Day, Ardgor, Scotland.

"In spite of all the big war news the honey bee gets the entire first column on the front page of the Washington, D. C., Times."—H. L. Kelly, Washington. Mr. Kelly sends along a copy of the great Washington daily to prove his statement.

"We have had a number of days with temperature ranging from 40 to 60 degrees above. Bees seemingly on some days are gathering pollen—something very unusual."—J. W. Beckley, Salem, Ore., Dec. 28.

C. M. Sheafe, Chicago, calls attention to the account of a very early bee hunt in this country told of in "Astoria," by Washington Irving. It is to be found in Chapter 9 of the book, detailing a tour of the prairies.

"This southern Georgia country is the finest bee country I have ever seen."—Z. T. Crawford, Jesup, Ga.

"I want my subscription to run the remainder of my natural life. If I die I may not be prominent enough to be mentioned, but I want the journal just the same."—J. G. Puett, Callbran, Colo.

"As I am a reasonably good mechanic I keep my hives in the best of condition. I think the best is none too good for the sweet little bees."—A. J. Knepp, Middlebury, Ind.

"Wife says she gets nothin' out of me when I get started readin' bees." "I don't mind a sting half as much as a sting by a 'skeeter.'"—Dr. H. C. Bennett, Lima, Ohio.

"We are having high water and the whole country around is flooded. People drive thru water on the main highway with horses and buggies and the water runs into the buggy boxes. We have all the way from two to a dozen such 'spells' as that every year between November and July."—C. D. Wright, Oakville, Wash., Dec. 28, 1917.

"Past year a hard one on the bee men here. Very light crop and colonies weak for winter."—W. L. Pearson, Hermiston, Ore., Jan. 3.

"In the May number of Gleanings, page 243, for 1882, S. D. Moscher of Holly, Mich., referring to A. I. Root's having received an

answer to prayer, suggested that he widen his field of usefulness by offering up business petitions for the benefit of beekeeping. He said: "Ask to have revealed to you the secret of wintering bees without loss, especially your own, and then sell the receipt. Ask about the origin of foul brood; find out whether bacteria are to be feared," etc. Now it was all as plain as the nose on one's face that this was all sarcasm and infidelic. But it was all wasted on Mr. A. I., however, for he innocently and patiently explained at length why that kind of a plan would not work. "Friend" Moscher must have looked a trifle wall-eyed when he read that reply."—From a Reminiscent Friend of Gleanings.

"Thanking you for the best bee journal in the world."—Frank Campbell, Hoy, Ala, Jan. 10.

"Is not M.-A.-O. a Root (er) too?"—M. Johnston, Cayuga, Ont., Dec. 26.

"Has been below zero for two weeks. Have been a beekeeper 25 years, and have never seen the weather so bad as this year." Ray Harder, Catawissa, Pa., Jan. 4.

"Will continue Gleanings as long as I can read."—H. W. Bass, Riverton, Va.

"This has been the worst winter on bees in western Kentucky we have had for years. Bees flying every day up to Dec. 5. On Dec. 6 it was 65 above—and 48 hours later it was 14 below."—M. B. Gill, Olmstead, Ky., Jan. 5.

"I predict heavy winter losses over this part of the country."—Amos Miller, Ashland County, O., Jan. 2.

"Mr. A. I. Root Co.:—I have been told by an old cuss from N. Y. state that you publish a honey bee journal. Now I would like a dozen of those journals from August to now down, and I can read and give them away. Lots of bees in this country and hives are loaded to the bottom. This old cuss took up an old hive of bees for me and I got as much as 100 lbs. strained honey, and the bees he added to a weak Italian swarm I had caught from somewhere. Beat all how he handled those bees and swung them all over himself, and folks around here are afraid of him because he don't get stung. No less than 30 beekeepers within 7 or 8 miles of here. Not one of them has ever seen a bee journal. Some of the honey is bitter. Some is white. He told us the difference was in what it was made from. He has got us all stirred up or nearly crazy. Bees now are storing honey from a white blossom. He the old feller says it is Seneca snakeroot. If that old rascal has lied to us Southerners and he comes this way again he will get killed 20 times or more. It is hotter'n — here yet, and he said it was cold up North. Well, goodbye."—S. Purgeon, Polk County, Ga., Oct. 30, 1917.

THE inspector of apiaries for Massachusetts, Burton N. Gates, in sending out directions recently for "Feeding and Saving Bees," gives the following:

"Candy is procurable in paper pie plates or paper dishes. These are to be inverted (candy side down) directly over the bees, on top of the frames, in an empty super. A two pound package is estimated to serve a colony about three weeks. One or more slabs of candy may thus be placed in a super and replaced as often as necessary. Over the candy, fill the super with insulative packing (any dry, warm material) in order to conserve all the heat possible. Keep everything dry. If it is a cold day work rapidly, but feed rather than to starve your bees. Do not delay feeding."

Under date of Jan. 15. John C. Bull, secretary-treasurer of the National Beekeepers' Association, sends word that the program for the National meeting could not be completed at that date. He says the following speakers are expected to be present or send papers: E. R. Root, "Present and Future of Beekeeping"; F. Eric Millen, "The State Agricultural College and Beekeeping in 1918"; Dr. E. F. Phillips, "Extension Work"; E. D. Townsend, "Some Proposed National Work for 1918"; C. P. Dandant, "Making Honey a Staple"; J. W. Stine, "Legislation — What Can Our Government Do to Help the Industry?"; Geo. W. Williams, "A Merger of All Beekeepers' Societies"; E. S. Miller, "The Future of the National"; John C. Bull, "Government Aid for Beekeeping." As before announced the National Convention is to be held at Burlington, Ia., Feb. 19 to 21. But arrangements have been so changed that instead of the convention meeting in Remy Hall it will have headquarters and hold sessions in the banquet room of the Burlington Hotel. There will be an evening session on Feb. 19, three sessions on Feb. 20 and two sessions on Feb. 21. The secretary gives notice that all who expect to attend should make reservations for rooms in advance so that the hotel management will be able to take care of the beekeepers attending. Address the secretary at Valparaiso, Ind., for a program which may be had for the asking.

Michigan beekeepers are being lined up for a larger honey production in 1918 than ever before. State Inspector of Apiaries B. F. Kindig, co-operating with the special field agent of the U. S. Dep't of Agriculture, P. W. Erbaugh, has been holding a series of county meetings. Up to Jan. 16 meetings had been held in the counties of Marshall, Mason, Williamston, Munith, Adrian, Hills-



dale, Coldwater, White Pigeon, Fenton, Birmingham and Ypsilanti. One of the objects of these meetings has been the organization of county beekeepers' asso-

ciations, and many counties have organized such associations. The following places had been scheduled for meetings during the rest of January: Jackson, East Lansing, Grand Rapids, Scottville, Big Bear Lake, Elk Rapids, Traverse City, Tawas City, Caro, Saginaw and Owosso. The severe storms experienced interfered somewhat with the attendance, but all meetings were held as scheduled. The attendance has been very satisfactory. The matter of organization has been taken up enthusiastically and the fact that interested and public-spirited beekeepers have been made the officers of the associations assures the success of the organizations. In many cases local beekeepers have taken part in the program. Mr. Erbaugh and State Inspector Kindig have spoken on "Wintering," "Spring Management," "Swarm Control," "The Necessity for Increased Production," "Foul Brood" and "Extracted Honey Production." It will be necessary to discontinue these meetings during the month of February because the state inspector also teaches apiculture at the Agricultural College. The work will be taken up again in March.

Word comes from Los Angeles, date of Jan. 12, that many bees are being fed in the sage districts, but the eucalyptus is bearing wonderfully, and all bees in the eucalyptus districts are building up very rapidly.

Of the 2,000 tons of honey shipped to Italy last fall, as mentioned in September Gleanings, 1,200 tons were lost. This honey was originally loaded into a comparatively small boat. We infer that the pitching of the boat, due to heavy seas, caused the packages to be jammed against each other, with the result that they sprang aleak. It is reported that the bottom of the boat was a veritable lake of honey—and such a mess. The incident emphasizes the importance of using better cans and better barrels, and bracing them in the hold of the boat. Why the consignee did not cleanse and use the honey afloat in the hold of the boat, we don't know, unless it was mixed with other commodities of a character that would ruin it.

In connection with the effort to increase food production, the Bureau of Entomology, U. S. Dept. of Agriculture, has enlarged its extension work in beekeeping by the appointment of several new men. During the winter months, an effort will be made to reach beekeepers with the message that an

immediate increase in honey production is needed and during the active season field meetings will be held to assist beekeepers with practical production problems. The following men have been appointed as special field agents: E. F. Atwater, of Meridian, Ida., assigned to California, Arizona and New Mexico; J. H. Wagner, of Wetmore, Colo., assigned to Washington, Oregon, northern Idaho and Montana; C. E. Bartholomew, transferred from Tennessee and assigned to Colorado, Utah, southern Idaho and Wyoming; E. W. Atkins, of Ames, Ia., assigned to Iowa, Missouri Kansas and Nebraska; G. C. Matthews, of Hansen, Ida., assigned to Illinois, Wisconsin and Minnesota; P. W. Erbaugh, of East Lansing, Mich., assigned to Michigan and Indiana; David Running, of Filion, Mich., unassigned (Jan. 1.) Kenneth Hawkins will continue work in the Southern states, and C. L. Sams will remain in North Carolina. The work in Tennessee has been discontinued. The increased activity in extension work in beekeeping is made possible by the assignment of funds from the emergency appropriation to the Department of Agriculture for stimulating agriculture and the distribution of products, as noted in the January Gleanings.

* * *

The Iowa State College is making special efforts to induce Iowa beekeepers to produce the maximum of honey the coming season. In order that a large number of beekeepers may be aided, a correspondence course in beekeeping has been prepared. The course includes 10 lesson outlines, which will be sent out one by one, as needed, throuout the season. Besides the 10 lessons, each student enrolling will be supplied with two reliable books on beekeeping management. Anyone having one or more colonies and wishing to keep bees with more pleasure and profit, is urged to enroll for this course. A fee of \$3 will be charged to cover the cost of the books and this will be the only expense, all correspondence being included. Besides the correspondence course in beekeeping, there will be a one-week beekeeping short course in May, notice of which will appear later. A large number of field meets will also be arranged for the working season and apiculture instructors will meet a large number of Iowa beekeepers. This good educational work is at the direction of F. Eric Millen, State Apiarist of Iowa.

* * *

The beekeepers of Massachusetts met at the call of the Secretary of the Board of Agriculture, Wilfrid Wheeler, at Horticultural Hall, Worcester, Mass., on Jan. 9, and organized a bee association known as the "Massachusetts State Beekeepers' Association." Dr. B. N. Gates, of Amherst, was made temporary president. The action was voted unanimously. The intention is to incorporate the organization and to affiliate with it all the local societies in Massachu-

setts. E. R. Root was present and spoke on the "Present and Future of Beekeeping."

* * *

The "First Manual of the North Carolina State Beekeepers' Association" has just been published and distributed among the members of the association and others. This association, altho only organized in January, 1917, is an energetic organization. This first manual contains a history of the organization and how it came into existence, the association's constitution, "Recommendations" for better beekeeping that have been made to the members, "General Information," as well as a complete list of the membership. (North Carolina has great possibilities as a beekeeping state which now seem about to be encouraged and developed. The second annual meeting of the association was held at Newbern on Jan. 10 last.

* * *

At a meeting of the Venango County (Penn.) Beekeepers' Association held Dec. 27 at Franklin, Pa., the name of the association was changed to that of the Northwestern Pennsylvania Beekeepers' Association. Geo. H. Rea, chief apiary advisor of the Department of Apiculture, Division of Zoology, of Harrisburg, was present and gave an interesting address. The annual meetings of the association hereafter will be held in September, and a field meeting will be held next May. The president of the association is C. H. Williard, of Franklin, and the secretary, J. A. Scannell, of Franklin.

* * *

The South Dakota Beekeepers' Association held a joint session with the South Dakota State Horticultural Society on Jan. 23, at Aberdeen. Among the beekeepers who spoke were L. A. Syverud, of Yankton; R. A. Morgan, of Vermillion; W. P. Southworth, of Sioux City, Ia.; E. G. Brown, Morning Side, Sioux City, Ia., and Geo. F. Webster, Sioux Falls, S. D. The beekeepers were given a part in the horticultural society's program under the headline, "Beekeeping in South Dakota."

* * *

At the annual stockholders' meeting of the Idaho-Oregon Honey Producers' Association held recently at Ontario, Ore., the following members were elected directors: C. E. Dibble, Payette District; J. M. Stark, Middletown District; J. F. Weaver, Ontario District; L. P. Peterson, Vale District; H. E. Crowther, Parma District; P. R. Randall, Nampa District; Homer Cheney, New Plymouth District. At a later meeting of these directors the following officers were chosen; C. E. Dibble, president; J. M. Stark, vice-president; P. S. Farrell, secretary-treasurer. At the annual meeting no attempt was made to carry thru any program, the entire session being devoted to business pertaining to the season of 1917, and to discussion relating to ways and means to widen the scope of the association's usefulness in the future.

AFTER the Home paper for January was in print, in searching thru our back numbers of thirty years ago I accidentally came across something that illustrates so vividly a part of the text of that Home paper that I reprint that part of it:

A little explanation may be needed. We had a very interesting convention (30 years ago) at Saginaw, Mich. In my talk on high-pressure gardening I mentioned the growing of lettuce. One of the friends there said I ought to visit Grand Rapids and see what was being done *there* with the *new kind* of lettuce. Therefore I decided to take in Grand Rapids on my home trip. Now comes the little incident that fits in a remarkable way the little text—"Try me, and know my thoughts, and see if there be any wicked way in me."

I was ready to start home; but for certain reasons I wished to purchase a ticket at first only to a neighboring city, and I asked the agent how much it was. He said \$3.35. I gave him four paper dollars. The train was ready to start, and he hurriedly handed me a silver dollar, half a dollar, a dime, and a nickel. In my haste I came pretty near not counting it; but when I got the silver dollar in my fingers, and held it up, it occurred to me that I ought not to have a whole dollar back in change. In other words, he had made a blunder. Now, I am ashamed to say it; but I guess I had better acknowledge that self suggested putting all the change in my pocket, without telling him. I believe I have boasted several times that the "almighty dollar" never tempted me from the path of duty; but there I was, actually coveting that bright round silver dollar that I knew was not my own. I did not hold it in my fingers, I presume, a whole second; but in that second, self (or Satan) whispered, "You must have misunderstood him. He probably said \$2.35." Then came the thought, "Why did he not give me back one of the paper dollars I gave him?" But self put in again, "There is not time to bother with it now, anyhow; besides, it is his business—not yours. You gave him the money, and he gave you back what you ought to have." Self seemed to get a little bolder here, and added, "Your expenses on this long trip will be larger, doubtless, rather than less than you had calculated; better hurry up, or you will lose the train." I can not tell even now, dear friends, why such thoughts should have come into my mind. It seems, as I think of it, that it was a remnant of that old life before I belonged to Christ Jesus. Then I used to have such temptations, and I used to yield to them, too, thinking, poor silly fellow! that I was adding to my stock of this world's goods. Why, it made me fairly tremble as I reflected of a professor of religion, and one who even presumes to point out the way for others, listening to such suggestions as the above.



Try me and know my thoughts, and see if there be any wicked way in me.—PSALM 139:23.

Now I know that thou fearest God.—GEN. 22:12.
God forbid that I should glory, save in the cross of our Lord Jesus Christ, by whom the world is crucified unto me, and I unto the world.—GAL. 6:14.

I do not know how long it took for me to recoil with my whole nature, and bid these evil thoughts to be down and away, as I would speak to some ill-natured cur that, with muddy feet, might try to spring up and soil my clothes. I said, mentally, "Get thee behind me, Satan; do you suppose I am so silly as to think I could be happy with a dollar that is not really my own—a dol-

lar for which I have rendered no sort of equivalent? For shame!"

I believe it was Moody who once said that no man could be a Christian, with a single dollar in his pocket that belonged to somebody else; and I believe we should have better Christians if there were more who felt convinced of this. If this be so, you had better lose even your life, than to go off coolly and deliberately with only a single dollar in your pocket that is not justly your own. "What shall it profit a man, if he gain the whole world and lose his own soul?"

"My friend, I gave you only four dollars," said I. He looked at me, somewhat embarrassed; and as I showed him the change which he had given me back, he took the dollar and colored a little to think I had caught him, a ticket-agent, in such a blunder. I thought if he could forgive me, I could forgive him; and I took great pleasure in remarking to him that I did not want a dollar belonging to anybody else; and with a good-natured smile I suggested that "mistakes will happen," etc. He caught my eye, and his face brightened. The happy look that shone forth from my face seemed to have touched his spirit just right; and who knows but that the glimpse of sunlight went along with him as well as along with me? As I thought it over, it occurred to me that possibly God was trying me as he tried Abraham of old. Is it not possible that he is waiting and watching for men whom he can trust? Who knows but that he has been saying, "I have a great deal of work for Mr. Root to do for me, and I want to be sure that he can resist temptation"? You know he said to Abraham, "For now I know that thou fearest God."

This trial, however, was but a preface to another. May be you will come to the conclusion that your old friend A. I. Root is but a poor weak sinner after all; and if you do, dear friends, you will think just as I do about it. I will now explain to you, that the object of my journey to the great city of Grand Rapids was to see the immense lettuce-houses, which I had learned at the horticultural convention were there. I had also learned they had a new variety of lettuce, superior to anything else in the world.

Skipping the account of my visit to the lettuce-greenhouse, and paying \$50.00 for half a pound of seed, and giving the name "Grand Rapids" to this new lettuce to be grown under glass, we come to the point where I was once more starting for home.

A few minutes more, and I was almost startled when the agent of one of the great union ticket-offices handed me two silver dollars more than I ought to have. I felt glad in my heart, however, to find there was not even the faintest trace of a desire to

keep them. If Satan made just a little impression the other time, he didn't a bit here, and with it came the feeling, "This money *all* belongs to the Master, and not to myself." So long as he supplies me with all I want and all I need, why should I covet anything? Oh, the unsearchable riches of those who have their whole trust in the resources of Him who is Lord of all!

All at once one of the friends whom I had left at the convention came into the car where I sat. He was on the way home, and was as much surprised on seeing me as I was on seeing him. I did not know how soon he would be called on to leave me, and so I came, pretty soon, squarely up to the work I felt the Master had given me to do. Said I, almost abruptly,—

"Friend—, you are a Christian, I believe."

He looked up at me with a smiling face and said:

"Mr. Root, just the very moment my eye fell on you as I came into this car, I felt that I should be called upon to meet this question. And now I want to tell you that I am glad that you have said just these words to me, even tho' it be true that I am not and never have been a member of any church. The reasons why I have never united—that is, if they are fit to be called reasons—are, that the church I had thought I must unite with, if any, is not near at hand. I have been helping in another church; and my wife and I have been studying the Bible, and have even gone so far as to have family prayers, but we are not members of any body of Christian people. I have known my duty, but somehow I have longed to have somebody assure me, as you do, in your earnest way, that it was just what I ought to do."

The church he mentioned is a new one in a new section of country, and it is doubtless weak and very much in need of the energy, intelligence, and spiritual strength which these two young bee-friends can give it. Its influence for good on the community round about will, without question, be ever so much greater for having these two come forward and take a bold stand, and let their faith be shown by their works. As we parted he took me by the hand and promised that, if his wife approved (and he felt sure she would), they would at once, before another Sunday, go to the pastor and tell him of their determination and wish to become members of the church. A strange feeling comes over me when I think of his remark, that he *expected* me to labor with him on this very question. If such responsibilities are coming upon me, how great is the need that I be pure in heart and honest in deed! "Lord, help!" comes up again and again; and when I think of the little conflict—yes, perhaps even *feeble* conflict—over that bright round dollar, how earnestly can I pray that I may be cleansed, both soul and body, from all temptations of a like nature, taking no thought for what we shall eat or what we shall drink, nor yet for the body that we shall put on; for is it not true, that a life with Jesus is incomparably more than meat or raiment, or *any thing else* that the world can offer?

My good friends, I will now take the liberty of telling you that the beekeeping friend I had that talk with on the cars was none other than George E. Hilton, who has now gone to his reward. The result of the promise he gave me was that he himself and his wife united with that little church, and cheered up a poor discouraged minister. Not only did *he* unite, but a near relative also, and *his* wife; and friend Hilton was immediately appointed superintendent of the Sunday-school, and became a most earnest and devoted Christian worker for the rest of his life. Nobody will ever know

the final outcome of the talk we had in just one little hour on that train. Let us now go back a little.

Suppose I had given way to the temptation to keep that silver dollar. It makes me tremble, even yet, to think how nearly I had given way. The train was ready to start, and I think the conductor had called out, "All aboard!" But the consequence stood fairly before me. I had recently stood up before the great wide world—that is, so far as I could thru that little journal; and if I had gone off just then with that dollar in my pocket, how could I plead with anybody for Christ Jesus? It could not be done. "If I cherish iniquity in my heart, the Lord will not hear me." Had I kept that one single silver dollar, I should not have had the honest and innocent enthusiasm to hunt up and give to the world that Grand Rapids lettuce.

Now, if that experience is not something almost miraculous, then it certainly *is* wonderful that, for the second time in 24 hours, an expert ticket agent in the great city of Grand Rapids should hand me *two* silver dollars that did not belong to me. Please do not think I am boasting of what I did, dear friends; for "God forbid that I should glory save in the cross of Christ." And in the same manner I want to tell you that it is *not* what A. I. Root did that I am now writing about, but what the Holy Spirit did *thru* me. I suggested, as you may have noticed, that God was *trying* me. In the early days of my Christian work there were some wonderful answers to prayer, as our older readers will remember. They amounted nearly if not quite to miracles; and will it be too great a stretch of the truth to suggest that the Holy Spirit did actually plan to have that Grand Rapids agent hand me two dollars by mistake? Had I not been possessed of a clear conscience, "void of offense toward either God or man," how *could* I have plead with friend Hilton as I did that afternoon with money in my pocket that was not honestly my own? The thing would have been impossible.

Let me now hold up before you another beautiful text that has been a shining light to me thru all the years of my Christian life. David said, in the anguish of his soul, after his great crime, "Create in me a clean heart, O God, and renew a right spirit within me." A little further on he says again, "Then will I teach transgressors thy ways, and sinners shall be converted unto thee." David himself recognized the fact that it was utterly impossible for him to plead for forgiveness and righteousness so long as he felt oppressed by a guilty conscience. After he had repented—yes,

thrown himself prostrate in the dust, and plead for forgiveness, then, and not before, could "sinners" be "converted."

My good friend, by the time these words come before your eyes I may be dead and gone, for it is now October 27 that I am dictating, this Home paper; but whether I am dead and gone or not, please consider the far-reaching consequences of having a single dollar in your pocket, whether by accident or otherwise, that is not *honestly your own*.

Orce more

Your old friend,

A. I. Root.

PREACHING THE GOSPEL TO DEAF-MUTES.

I confess it was a pleasant surprise to me to find that the gospel has been preached by the sign language to the unfortunates who cannot hear, in different institutions more or less throught our nation. Read the following:

My Dear Mr. Root:—Thru GLEANINGS I note that you are greatly interested in uplifting or bettering humanity. Lately you spoke a word for the deaf-mute. But this time you failed to strike the right chord. Are not all materialistic advantages futi'e compared with the "one thing that is needful"?

Perhaps you will be glad to know that the Lutheran Church maintains missionaries throught our country who preach the gospel to the deaf-mutes in their sign language.

If you should publish in GLEANINGS the names and addresses of these laborers in the Lord's vineyard, as given on a separate sheet, much good would result therefrom. It may become the means whereby sooner or later the one or the other of these unfortunate people, who as yet do not know Jesus, shall learn the Way of Life—truly a noble, act and surely a work of upheaval of humanity!

E. C. STIEG, Lutheran Pastor.

Clayton, Ill., July 10.

PASTORS OR MISSIONARIES FOR THE DEAF-MUTES.

Rev. Arthur Boll, New York, 115 E. 31st St., preaches at three mission stations in the East.

Rev. G. W. Gaertner takes care of six stations in Oregon and Washington.

Rev. Louis Jagels, Kansas City, Mo., 4124 Angas Ave., has ten stations in Kansas, Missouri, Nebraska, Oklahoma, and Iowa.

Rev. N. F. Jensen, Los Angeles, Cal., has five stations in California.

Rev. John Solvner, Minneapolis, Minn., 1221 N. 22d Ave., has eleven stations in Minnesota.

Rev. Otto Schroeder, Detroit, Mich., 1366 Trumbull Ave., has eleven stations in Michigan, Indiana, and Ohio.

Rev. C. Schubkeggel, St. Louis, Mo., 4536 Lohade Ave., has six stations in Missouri, Kentucky, and Indiana.

Rev. N. P. Uhling, Chicago, Ill., 1412 N. Fairfield Ave., Humboldt Station, has six stations in Illinois and Indiana.

Rev. Tr. M. Wangerin, Milwaukee, Wis., 1711 Meinecke Ave., has eight stations in Wisconsin.

GAS FUMES FROM THE EXHAUST OF AUTOMOBILES.

We found the following in the Cleveland *Plain Dealer* from the excellent doctor who gives us a short health article every day:

There have been a number of deaths attributed to inhaling gasoline exhaust fumes. The poisonous substances in exhaust fumes are odorless, colorless, and tasteless. The inhalation of even a small amount of these substances daily will undermine your health. Some of the symptoms caused by the carbon monoxide which is present in engine gas are headaches, pain in the stomach, palpitation, "stiff" neck, dizziness, or throbbing in the temples, loss of appetite, etc. The danger in garages or workshops can be eliminated, however, by providing plenty of fresh air. Open doors and windows of the garage, or discharge exhaust gases directly to the outside. Do not run your motor in a closed garage.

I at once carried the above clipping to the foreman of our garage; and he suggests that, while the above is all true, those who work in garages become in time more or less *immune*, to the effects of the carbon monoxide, much in the same way that beekeepers become immune to bee stings. In proof he says that people who come in from outdoors are badly affected right away, while the men who work in the garage right along do not seem to mind it. I made the remark that, even if this is true, it will be better for the general health *not* to become immune; and Mel Pritchard (our queen man) who was present, suggested that, in his opinion, it is better, in like manner, to avoid as much as possible "*becoming immune*" to bee stings. In other words, while it is true that one after being stung a good many times does not mind it, he had better by all means have a veil, smoker, etc., in order to avoid being stung severely.

A HOME-MADE VULCANIZER.

I have made me a vulcanizer to mend my own tires. I use the top of a large tin box set in a wooden clamp, this clamp to have a set-screw to clamp over the patch, and then fill the box-cover with hot water; and by the time the water is cold the patch is vulcanized. I can patch a tire in a few minutes that the garage man charges me 75 cts. to fix. If I do not have hot water ready I use wood alcohol or coal oil.

J. H. Root.

Pima, Ariz., Oct. 2.

The above, from my brother, I have submitted to the man who has charge of our garage; and he says that, altho he has never tried hot water, he thinks it would, without doubt, work all right. Perhaps some question might come up as to whether the water should be boiling hot or not. No doubt the plan will work.

THE HEN THAT LAYS THE EGGS.

With the present high price of grain, and, in fact, almost everything else that you can get hold of for chicken feed, it is exceedingly desirable to keep track of the hen that lays the eggs. I notice that the poultry-journals of the present time seem to agree that the best layers are *not* the "yellow-legged" handsome-looking hens. The hen that lays 200 eggs a year, or anything near

that, must be a hard-working hen; and if you will notice carefully you will see that the legs of these extra layers have a bluish tint. Dr. Sanborn, in the *American Poultry Advocate*, writes as follows:

Over and over again, day by day, it was urged on us to get rid of the hen with the yellow shank, yellow beak, yellow skin, contracted pelvic bones, because such a hen in September had been, and would still be, a low producer of eggs. We were told that, if we had any doubts in the matter, to divide our flock by this method, hold the two parts, and see what the egg record was of the two lots. It was well put, I thought, when we were told in simple words that we should find that one of the flocks would be found doing the bulk of the laying.

In another part of the journal he gives expression to the following:

One of my friends paid eighteen dollars for the use for three weeks, last spring, of a good bred-to-lay cockerel. He got over fifty chicks from the eggs set, and the added cost per chick was not at all high. You want to get bred-to-lay stock, not culls from some backyard breeder of show birds. In almost

all the breeds you will find certain strains that have been handled to breed for large egg production. Do not for an instant think that all birds of a variety or breed lay alike. There is as much difference in their lay-work as in the color of feathers.

Most of us would think that a dollar a day for the rent of a cockerel is an awful price; but if this cockerel were a "select tested," as beekeepers express it, it might be a good investment after all. But I confess I do not know how one could be sure that a cockerel is worth that much until he had been "tested and tried," or, in other words, he would have to be a bird two or three years old, so that he could be the father of pullets that had shown themselves to be extraordinary hens. Such a cockerel might be worth a great deal of money; and if you could not afford to buy him, it *might* pay a pretty good price just to put him a few days with a flock of laying hens that had in a like manner made a big record.



HIGH-PRESSURE GARDENING

OUR FLORIDA GARDEN.

When we reached our winter home, Nov. 9, we found it a worse wilderness of weeds, velvet beans, cornstalks, etc., than any summer before, probably because Wesley gave it less care. The reason for this was that usually he looks after it when not particularly wanted elsewhere. Well, during the past summer he had plenty of jobs with better pay than usual. He got seven bushels of beautiful hard "Cuban Flint Corn" into the crib of poultry netting that I made, but with nobody around the rats managed to get in and ate perhaps two bushels, and the shelled cobs on the stalks out in the garden would have made perhaps 10 bushels altogether of beautiful, nice corn. We ground some in our little mill, and I think it made the finest mush I ever ate with some Wisconsin honey to go with it.

By the way, I am eating more honey this winter than I have for years, and my health and digestion are better than for years.* Maybe the cold Florida weather we have been having agrees with me.

Well, among the great rank weeds (besides the corn) there was the Roselle, or "Florida cranberries," as some call it, and the chayote. I have been telling you about having hanging from the overhead trellis 20 or 30 large fruits, ready to eat, and

also ready to grow; in fact, some of them had started to grow already hanging on the vines overhead. I pronounce the fruit full as good as egg plant, but Mrs. Root doesn't quite agree with me.

Now comes the sad "sequel" to my garden story. On Dec. 9 (my 78th birthday) we had a freeze, and, as usual, just after a rain. Our potatoes, knee high, were covered with empty burlap sacks, and were but little injured, but chayote and Roselle couldn't be covered and so were brought to a sudden standstill. We tried various ways to protect corn, beans, eggplants, tomatoes, etc., by hoeing dirt over stuff just out of the ground, covering with newspapers, etc.; but the empty sacks gave best results, and were less trouble.* If there is wind, the papers must be held down with dirt, and if soil is hoed over the plants, they are more or less injured in getting it off.

Well, we got thru the first cold snap with but little loss, but we had so many such frosts and freezes, just after every little shower, that the plants got discouraged, and I am sorry to own up that I got more or less discouraged. We have perhaps covering for about 100 hills, but along in early January came another cold spell, and after putting on about a dozen sacks I decided

*A porous blanket or comforter of wool is warmer than paper or tight cloth. Oil cloth over potatoes seemed almost no protection at all, while coarse sackcloth that you could almost see thru, caught the white hoar frost, and green stuff under it was unhurt.

*This beautiful hard corn came from corn planted where potatoes were dug in March and April, and after May 1 had no care whatever. It just pushed its way with the weeds, velvet beans, etc.

to let the rest take their chances. The weather turned suddenly cold, and all I saved of the tender stuff was the melons under these dozen sacks. Of course the lettuce, onions, beets, peas and hardy things came thru, with no protection, but they look a little sick, yet. All potatoes above ground look dead, but all except those "knee high" will probably start up again.

Now here is a discovery—new to me at least. Just before the freeze, a sack of Triumph potatoes, buried close together to make them sprout, were getting so far along that we were hurrying to get them out in the field; in fact, they were just beginning to push thru the ground, some of them. Now all the potatoes, out in the field, that were just pushing thru in like manner, were killed black and dead. But this "starting bed," with no protection at all,

kept right on growing, and are now a mass of green. Some of the potatoes were quite large, and being near each other, they, in some way, generated heat that kept the frost off. Is it not true that germination, or vegetable growth of any kind, generates heat, in some way as growing animals give out heat, more or less?

Please, kind friends, don't come to visit my garden just now. It isn't pretty. Wait a little. We have had the coldest November and December, by far, down here, of any in my 10 winters past in this region.

You may come and see the electric wind-mill, if you wish. The garage for the electric auto is done. Piers and anchors of cement are ready for the tower, which we expect to put up next week, to await the outfit from North Dakota.



TEMPERANCE

A KIND WORD AND SOMETHING ELSE FROM AWAY OFF IN WYOMING.

Mr. A. I. Root:—As I know you are very much interested in Ohio going dry, and every other state for that matter, I am going to send you a song composed by a neighbor of ours. It might be you could use it there for good. If you could I know Mr. Shope would be glad, as he is the right kind. I am always glad to get GLEANINGS, and I always read your part first. The last issue about harnessing the wind for all kinds of uses is all right. I believe our state is the richest spot on earth as regards wind. It is also very rich in oil, coal, and pure air. We also raise fine honey. I will not look for an answer to this. I just want to say that I am glad there is such a man as A. I. Root, or, in other words, "pat you on the back."

F. S. HARTER.

Wheatland, Wyo., Dec. 17.

"WYOMING'S GOING DRY."

Words by P. A. Shope.

Tune, "The Battle Hymn of the Republic."

Our people soon will have a chance to vote the traffic out;

We'll win in every county with a glad, triumphant shout;

We'll beat Old Booze with ballots and we'll put the foe to rout—

Wyoming's going dry.

CHORUS.

Glory, glory, hallelujah!

Glory, glory, hallelujah!

Glory, glory, hallelujah!

Wyoming's going dry.

The fifth of next November we will finish up the fight;

We'll put Booze in his coffin, and we'll nail the lid on tight;

We'll win because we labor, and we know our cause is right—

Wyoming's going dry.

Author's Note.—This was written for and first used in the Sunday-school which has elected me its superintendent twelve consecutive times. (You know we sometimes take undue liberties with "our own folks.") A number of friends were kind enough to express their appreciation of the effort, and to say that it ought to be sung in every Sunday-school in the state. It therefore gives Mrs. Shope and me pleasure to present this to the cause with our compliments and prayers, and to say that, so long as the supply lasts, more copies can be obtained free by addressing us at box 103, Wheatland, Wyoming.

It is respectfully suggested that the best results will be obtained by teaching the words to your folks and pasting the copy in the back of your song-book.

Wheatland, Wyo.

P. A. SHOPE.

USES BEER AND TOBACCO, HAS GIVEN UP GLEANINGS, AND YET WANTS GLEANINGS FOR ITS TEMPERANCE ARTICLES.

Dear Sir:—I received your letter of Oct. 5th and wish to state that I do not want to renew my subscription. I have only two colonies of bees, and no proper tools to handle them with, nor means to get them, and having been stung more than once I have decided to quit bees for good. If I could afford it I would keep your paper for the sake of the articles you write against booze and tobacco. Altho I smoke, and enjoy a glass of beer when I get it, about once in six months, I have no respect for anybody who wants to justify the use of these articles; and I enjoy your booze-fighting as much as a glass of beer. Strong liquors I consider poison of the worst kind; and if beer has to go for the sake of killing whisky, then it ought to be killed too.

JOHN A. K. SCHLICHTING.

West Swanzy, N. H., Oct. 11.

My good friend, I am sorry to know that you have become discouraged about keeping bees; but it rejoices my heart to have you say you agree with me in regard to booze

and tobacco, especially as you use both, at least to some extent, and especially do I rejoice at your concluding sentence; and in consideration of this remarkable and honest acknowledgment we take the liberty of sending you GLEANINGS a little longer, free of charge. May God bless and guide you in whatever you do.

CIGARETTES FOR THE SOLDIERS—MORE TO BE FEARED THAN GERMAN BULLETS.

We clip the following from the Jacksonville (Florida) *Times-Union*:

It seemed to be the universal conclusion, based on experience, that the cigarette was a coffin-nail. Now the papers that exploited this conclusion are asking for money to provide cigarettes for our boys in France.

We clip again from the *Association Men* for October:

The millions of cigarettes now being fired at our soldiers will every one hit its mark and will do its mischief. More American soldiers will be damaged by the cigarette than by German bullets.

The above clipping is from an article by Dr. J. H. Kellogg, of Battle Creek, Michigan, entitled "The Decay of American Manhood."

The *Times-Union*, it seems, has hit the nail on the head. It has for some time past been beyond my comprehension how sane people, after having banished booze from the army, should recommend sending cigarettes to our soldiers, especially just after almost every periodical in our land has had more or less to say about "coffin-nails."

I heartily indorse Dr. Kellogg; for I do believe that cigarettes are more to be feared than Germany or German bullets, or almost anything else that can happen. How can a just and righteous God hear and answer our prayers when not only the Red Cross but even some of the churches are sending cigarettes to our soldiers? The Y. M. C. A. has been accused of the same thing; but they come out square and fair, and declare themselves "not guilty."

FROM BRADENTOWN, FLORIDA, TO FORT COLLINS, COLORADO, IN A FORD CAR.

Let me explain that friend Ault purchased the above car and trailer about a year ago, I think. The trip mentioned below includes his wife and three children. I presume they did considerable camping in order to save expense. In that way the cost is less than a railway ticket for the family, besides the expense of shipping the auto by rail. Of course, nothing is said about the wear and tear of the machine on such a long trip; but as the little Ford seems to be doing good service year after year, the slight expense for upkeep, we presume, was

not very much. Below is his account of the trip, etc.:

Mr. Root:—I sold 200 colonies, nearly all of which were very strong, with one or two supers and heavy stores, together with a lot of supplies and an extensive outfit, for \$1200. If I had the bees and outfit here in the condition in which I sold them, they would be worth nearly twice as much. I am told that bees here, consisting of brood-chamber of only eight frames, are difficult to secure at \$7.00 a colony.

We came north with our Ford car and had a delightful trip. We came thru Florida, Georgia, Tennessee, Kentucky, Illinois, Missouri, Iowa, Nebraska, Wyoming, and south again to our friends and our home at this place.

We started July 31, and reached here Aug. 18. We stopped several days on the road with friends and relatives. We could have made the trip in two weeks or less if we had come direct and without stops.

It may interest you to know that the total expense of the trip was considerably less than it would have been for railway fare alone. In nearly all the country we passed thru, crops were good, but nowhere any better, if as good, as right here in north Colorado; and nowhere did we find apples so plentiful and so good; neither did we see any scenery so fine.

A. E. AULT.

Fort Collins, Colo., Aug. 22, 1917.

FRIEND AULT BACK IN HIS COLORADO HOME.

Crops of grain and hay have been heavy, and prices are higher than ever before. Sugar beets are yielding well. I see many fields that will yield one hundred dollars or more to the acre.

Beans were grown extensively here the past season. They are grown on "dry land," a land that is not irrigated. I have seen thousands of acres planted to beans, and they are yielding a profit of thousands of dollars.

The apple crop is heavy, and the quality of the fruit is fine. I have picked box after box of the finest apples, and I rarely found one that was wormy.

Today I saw "spuds," or just potatoes, that were grown on dry land. The best of them would weigh about two pounds, and were four inches or more in diameter. Irrigation causes the potatoes to grow larger, but the quality is not so good.

Feeding cattle and sheep is a great industry here. Millions of sheep and lambs are finished here; also large numbers of cattle.

Wages are high, and help is in great demand.

A. E. AULT.

Fort Collins, Col., Oct. 21, 1917.

A KIND WORD FROM "WILD JIMMIE," SEE P. 749. AUG. 15, 1916.

Dear Mr. Root:—I shall never forget the words you said to me up at our orchard last summer when you were in Michigan. You know I was leader at prayer-meeting, and you asked me to promise you I would stick to it and do my best. Those words come back to me often, and I have done my best ever since; and before I left home I was teaching the young people's Sunday-school class at Bingham, and there were more than twenty in the class.

I know if I have faith God will help me thru life. May God bless you, dear friend, for speaking those words to me last summer, for they have been a great help to me.

Alliance, Ohio.

JAMES HILBERT, JR.

Classified Advertisements

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeier & Arpe
Co., 139 Franklin St., New York.

Small lots of off-grade honey for baking purposes.
C. W. Finch, 1451 Ogden Ave., Chicago, Ill.

FOR SALE.—60,000 lbs. of No. 1 clover honey and
10,000 lbs. of fall white-aster honey of good
quality, put up in 60-lb. cans. Will sell to highest
bidder. W. B. Wallin, Brooksville, Ky.

HONEY FOR SALE.—Light color, amber color
and dark color. All in bbls., 700 lbs. net each.
Granulated. Mostly from sweet clover. Make me
your highest offer F. O. B. cars here (29 miles east
of Montgomery). W. D. Achord, Fitzpatrick, Ala.

HONEY AND WAX WANTED

WANTED.—Comb and extracted honey.
J. E. Harris, Morristown, Tenn.

WANTED.—To buy a quantity of dark and
amber honey for baking purposes.
A. G. Woodman Co., Grand Rapids, Mich.

WANTED.—Extracted honey in both light and
amber grades. Kindly send sample, tell how honey
is put up and quote lowest cash price delivered in
Preston. M. V. Facey, Preston, Minn.

WANTED.—Beeswax. We pay higher than market
price; let us know how much you have, and if
possible send sample; get our quotation before selling
your wax. Queen Mfg. Co., Falconer, N. Y.

BEE SWAX WANTED.—We are paying higher
prices than usual for beeswax. Drop us a line and
get our prices, either delivered at our station or your
station as you choose. State how much you have
and quality. Dadant & Sons, Hamilton, Illinois.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's
prices. A. L. Healy, Mayaguez, Porto Rico.

BASSWOOD AND EVERGREEN TREES.—
Send for list. W. M. Hansen, Jr., Niles, Mich.

FOR SALE.—500 extracting-supers, nailed and
painted, with frames. Will sell cheap.
A. F. Stauffer, Delta, Colorado.

Read McQueen's advertisement for legume inocu-
lation. It points the way to more for your work
and money.

FOR SALE.—White sweet-clover seed, hand
gathered. Write for quotations.
E. C. Bird, Boulder, Colo.

Beekeepers, let us send you our catalog of hives,
smokers, foundations, veils, etc. They are nice and
cheap. White Mfg. Co., Paris, Tex.

FOR SALE.—Comb honey apiary, 100 colonies,
best of location. Alfalfa and sweet clover.
E. J. Cheek, Merino, Colo.

FOR SALE CHEAP.—50 Danz. hive-bodies with
frames, 100 Danz. supers, 25 slotted section supers
and 25 plain section supers.
The Stover Apiaries, Mayhew, Miss.

NORTHWESTERN BEEKEEPERS.—Order
Root's Supplies near home and save time and freight.
Geo. F. Webster, Valley View Farm Apiary, Sioux
Falls, S. Dakota.

Printing for beekeepers; 100 envelopes, 100 letter-
heads or noteheads, 75 cts. Stationary and printing
price list free. Alfred Bentz, Granton, Wis.

FOR SALE.—Yellow bloom sweet clover seed,
95.64 per cent pure seed, Gov. test, 15 cts pound.
C. Shinkle, Williamstown, Ky.

FOR SALE.—400 dovetailed supers for 10-frame
hives, 300 pattern slat, 100 T tins; good condition.
J. A. Everett, Edgewater, Colo.

FOR SALE.—100 Root 8-frame comb honey su-
pers for 4¼x4¼x1½ sec., nailed and painted, no
disease, 62 cts. each or \$60.00 for the lot. Also
one 4-frame Root extractor, \$30.00. All good as
new. T. C. Asher, Brookneal, Va.

THE ROOT CANADIAN HOUSE.—73 Jarvis
St., Toronto, Ont. (Note new address.) Full line
of Root's famous goods; also made-in-Canada goods.
Extractors and engines; GLEANINGS and all kinds of
bee literature. Get the best. Catalog free.

FOR SALE.—One thousand bee hives with supers.
Three-fourths dovetailed. Balance halved together
at corners and nailed both ways. Hoffman frames
throughout. We will guarantee them to be sound and
free from disease. Will sell all or any part at about
one-half what new hives will cost. Apply to
The Hyde Bee Co., Floresville, Tex.

\$30,000 worth of Bee Supplies all boxed, ready
to ship at once; 275,000 Hoffman frames, also
Jumbo and Shallow frames of all kinds, 100 and
200 in a box. Big stock of Sections, and fine
polished Dovetailed Hives and Supers. I can give
you big bargains. Send me a list of what you want.
I can save you money. Will take beeswax in trade
at highest market price. Charles Mondeng, 146
Newton Ave., N., Minneapolis, Minn.

WANTS AND EXCHANGES

Edison phonograph, records, and cabinet, to ex-
change for bees. E. W. Armstrong, Wichita, Ks.

WANTED.—300 all-zinc queen-excluders 14x20 or
larger. F. W. Lesser, East Syracuse, N. Y.

BEE SWAX WANTED.—For manufacture into
Weed Process Foundation on shares.
Superior Honey Co., Ogden, Utah.

BEE SWAX WANTED.—From 1 to 200 colonies, within
200 miles. Also second-hand apiary equipment.
John E. Geiger, East Syracuse, Kansas.

WANTED.—1 to 100 strong colonies of Italian
bees in 10-frame dovetail hives.
Bernard Benzinger, Beckman Terrace, Summit, N. J.

WANTED.—Bees in eight or ten frame hives,
free from disease. Particulars.
J. F. Garretts, Bound Brook, N. J.

WANTED.—Barnes foot-power circular saw, sec-
ond hand. Give description and price in first letter.
D. C. Noble, Columbia City, Ind.

WANTED.—To buy bees in Southwest or work
apiary on shares. Give particulars.
575 Box 1291, Tucson, Ariz.

FOR SALE or exchange for wax, one Root mill,
for thin or extra thin foundation; also 1800 3¼x
5x1½ sections and about 500 fence separators for
same. G. W. Belden, Berkshire, N. Y.

WANTED.—Shipments of old comb and cappings
for rendering. We pay the highest cash and trade
prices, charging but 5 cts. a pound for wax rendered.
The Fred W. Muth Co., 204 Walnut St., Cincin-
nati, O.

WANTED.—By experienced and competent bee-
keeper, apiary of not less than 200 colonies in good
location in north east states to run on shares. I can
furnish excellent location if desired. Write for par-
ticulars. Address care of Gleanings. 198

Our Food Page—Continued from page 92.

bake about 20 minutes. Serve from the baking dish with a spoon.

CORNMEAL MUFFINS.

- | | |
|-------------------------|---------------------------|
| 2 cups cornmeal | ½ cup sweet milk |
| 1 teaspoon salt | 2 eggs |
| 1 tablespoon shortening | 2 teaspoons baking powder |
| 1¼ cup boiling water | |

Sift together the cornmeal and salt, and add the shortening. Scald with enough boiling water to moisten (about 1¼ cups) and then add ½ cup sweet milk. Beat out any lumps and then beat in the yolks of the eggs. Fold in the stiffly beaten whites, sift in the baking powder, and bake in well-oiled muffin-pans in a very hot oven. This will make one dozen muffins.

CRACKLINGS CORN DODGERS.

- | | |
|-----------------|--------------------------|
| 2 cups cornmeal | 1 cup chopped cracklings |
| 1 teaspoon salt | 1¾ cups boiling water |

Pour over the cornmeal and salt enough boiling water to make a stiff dough, about 1¾ cups. Set aside to cool and swell. When cold add the cracklings; shape into very small oblong pones and bake in a moderate oven 25 minutes, or until brown and crisp. These are very rich in fat, and should be eaten without butter.

POTATO BISCUITS.

- | | |
|-----------------------------|---------------------------|
| 1 cup freshly mashed potato | 4 teaspoons baking powder |
| 1 cup flour | 1 teaspoon salt |
| 2 tablespoons shortening | |

Add melted shortening to mashed potato. Mix and sift flour, baking powder and salt, and cut into potato mixture with a knife. Roll out, cut with a biscuit-cutter, and bake in a hot oven.

Meat Substitute Dishes.

BOSTON ROAST.

- | | |
|-----------------------------|----------------------------|
| 2 cups navy or kidney beans | 2 teaspoons salt |
| | ½ cup liquid |
| 1 cup bread crumbs | 1 tablespoon chopped onion |
| 2 cups grated cheese | |

Soak beans 12 hours or longer. Cook until soft. Drain; put thru food-chopper; add onion, cheese, crumbs and enough of the water in which the beans were cooked to moisten (about half a cup). Form into a loaf and bake in a moderate oven 40 minutes. Baste occasionally with hot water and fat. This should yield ten servings. Save the bean liquor that is left for soup. It contains valuable food elements.

BEAN LOAF.

- | | |
|-----------------------------|----------------------------------|
| 2 cups lima beans | 1 tablespoon meat drippings |
| 1 cup bread crumbs | |
| 4 tablespoons peanut butter | 1 tablespoon dried celery leaves |
| 2 tablespoons grated onion | 2 teaspoons salt |
| | ½ teaspoon pepper |
| | ½ cup liquid |

Soak beans over night and cook until tender, about 45 minutes. Drain and when cool, chop coarsely. Add crumbs mixed with seasonings and peanut butter, then add bean liquor or rice stock enough to moisten, and

(Continued on next page.)

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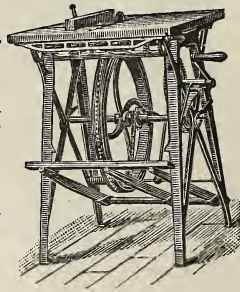
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545 Ruby St
ROCKFORD, ILLINOIS



Our Food Page—Continued from page 119.

melted fat. If dried bread crumbs are used in either of the above recipes more liquid will be needed. Put into greased bread-pan and bake about 30 minutes in a moderate oven. This should yield eight servings.

SPANISH BEANS.

2 cups kidney or navy beans	½ cup pimento or sweet pepper
2 cups tomato	2 tablespoons drippings
1 cup finely cut onion	2 tablespoons flour
1 tablespoon honey	1 tablespoon salt

Soak beans over night and cook until tender. Drain, and add sauce made as follows: Put fat in frying-pan; add onion and chopped pimento, and fry until tender, but not brown; add flour, and stir until smooth. Add the salt and tomato sweetened with honey, and boil five minutes. Pour over the beans and simmer ten minutes.

Sugar Substitute Recipe.

HONEY DEVIL'S FOOD CAKE.

1 cup honey	¾ teaspoon soda
3 tablespoons melted-but-ter substitute	½ cup sourmilk
2 squares Baker's un-sweetened chocolate.	½ teaspoon salt
	2 teaspoons baking powder
	1 2/3 cups flour

Blend the melted-butter substitute and the honey; add the chocolate, which has been melted over hot water, and beat smooth; break in the egg, and beat again. Add the sour milk alternately with the flour in which the soda, salt and baking powder have been sifted. Beat well and bake in a rather slow oven. Measure the flour after once sifting.

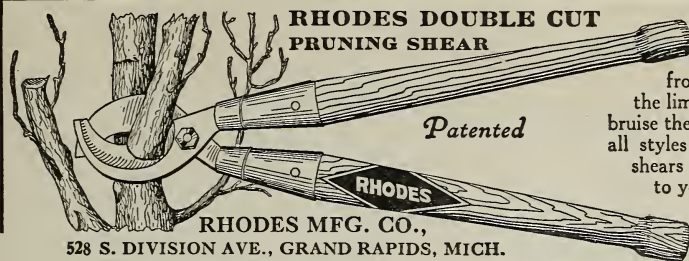
All measurements level.

BOOKS AND BULLETINS

THIRD ANNUAL REPORT OF THE MINNESOTA STATE INSPECTOR OF APIARIES.

A report that is something more than the usual collection of dry statistics is that of State Apiarist Chas. D. Blaker to the Governor of Minnesota, for 1917. Mr. Baker rightly points out in his introduction that producing the largest possible crop of honey is like purchasing a Liberty bond. While one is aiding the government he is at the same time making a good investment for himself.

All beekeepers are urged to familiarize themselves with the characteristics of each disease. American four brood is more likely to appear in the stronger colonies first, since it is most generally carried by robbing, and strong colonies are more apt to rob than weak ones. In case of European foul brood the weak colonies are more apt to be attacked first. It is pointed out that black and hybrid bees are much more likely to be attacked by European foul brood than are Italians, and, inasmuch as this disease has secured a firm foothold in Minnesota, all who



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THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door. Write for circular and prices.


Books and Bulletins Continued

have blacks or hybrids are urged to requeen with leather colored Italians as soon as possible. The hopeful and truthful statement is made that if one uses vigorous Italian stock and gives careful attention to his bees, his apiary will be practically immune from European foul brood. Italian queens can be secured from the University Farm at St. Paul where the queens are reared under the supervision of Prof. Jager, chief of the Division of Bee Culture.

The last Minnesota legislature increased the annual appropriation for deputy inspection work to \$1,500. This becoming available Aug. 1, made it possible for the department to plan for more extensive work in the future. Out of 711 apiaries visited, 136 were found to be infected. Fifty-seven of these apiaries had to be visited a second time, making 768 visits in all. The total number of colonies in the apiaries visited was 11,895. Out of this number 673 were found infected. Six deputy inspectors put in a total of 179 3/4 days. There were also four others who put in a total of 14 3/5 days. The expense of all the inspection was \$971.75.

The three recognized brood diseases are fully described and recommended methods of treatment given, and then follows a report of the county beekeepers' associations by Prof. A. W. Rankin, president of the Minnesota association.

A beekeeping survey has been under construction by L. V. France, instructor in bee culture at the University Farm at St. Paul. In this survey Mr. France estimates from the reports that about 65 per cent of the bees in Minnesota are black or hybrid stock. For the winter of 1915-16, 10 per cent was the winter loss experienced by 190 apiarists that reported. Eighty-one per cent of the 190 beekeepers reported, winter their bees in the cellar only; 9.7 per cent winter outdoors only; 8.7 per cent winter both in the cellar and out of doors. Of the 6,733 colonies reported, only 6.1 per cent were wintered in the open. Mr. France calls attention to a map which will be ready in one or two years' time, giving the good and poor bee territory of the state with locations already stocked, those partially open and those entirely unoccupied. He rightly says that any one wishing to keep bees or moving to an-



Free!

A 50-gallon barrel of Scalecide free to any any one who will suggest a *fairer* guarantee than that given below.

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As proof of our confidence and to strengthen yours, we will make the following proposition to any fruit grower of average honesty and veracity:
Divide your orchard in half, no matter how large or small. Spray one-half with "SCALECID", and the other with Lime-Sulfur for three years, everything else being equal. If at the end of that time, three disinterested fruit growers say that the part sprayed with "SCALECID" is not in every way better than that sprayed with Lime-Sulfur, we will return you the money you paid us for the "SCALECID".
Send for new free booklet, "Profits in Fall Spraying".

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We guarantee them to reach you safely, even in coldest of weather and to blossom satisfactorily this winter in your home. Potted in rich earth and fertilizer. They are rooted and ready to make instant growth. Your choice of Narcissus, Hyacinths, Tulips and Crocuses, 2 pots for 25 cts, 10 pots for \$1.00 Postpaid.

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STRAWBERRY PLANTS
AND OTHER SMALL FRUIT

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Why not plan your 1918 honey production in advance? And let your plans include an immediate order for Kretchmer goods. If you produce more honey you must have everything ready when needed by the bees.

There is no time to lose,—freight is moving slow and conditions may become worse.

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terms and prices—Cash, Payments or No
Money Down.—ED. H. WITTE, Pres.

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Books and Bulletins—Continued

other location will find such a map very valuable.

The report closes with the Minnesota law relating to bees, especial attention being called to Section 7, which is as follows:

VIOLATION A MISDEMEANOR.—Sec. 7. Any person who shall sell, barter or give away or remove to another location without the consent of the inspector any bees, honey or appurtenances from an apiary known to be infected with contagious disease, or having done so either with knowledge or in ignorance of its condition, shall refuse to give the name and address, if known to him, of the person to whom the same was disposed of, or who shall import into the state any bees infected with disease, or who shall cause other bees to become exposed to infected comb, brood, honey, beehives or other appurtenances so infected, or who shall after knowledge thereof conceal or neglect to report to the state inspector the existence of disease in any apiary owned by him or within his charge, or who shall refuse to permit or to assist in the inspection and necessary treatment or destruction of his brood, bees, honey or appurtenances, or who shall impede or hinder or obstruct an inspector in any of his duties shall be guilty of a misdemeanor and liable upon conviction to a fine of not less than twenty-five dollars (\$25.00) nor more than fifty dollars (\$50.00), or to imprisonment in the county jail for not less than thirty nor more than sixty days.

PATENTS Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.
Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.

ROOT'S Bee Supplies

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PROMPT SERVICE



AROUND THE OFFICE

M.-A.-O.

[N. B.—Don't anybody read this dep't who's liable to get their feelin's hurt and then jump onto my back for it. My poor old back has got enough onto it now and some more.—M.-A.-O.]

This here around the office department of mine has been wanderin' some lately. For a fact, it's been concernin' most everything but the office. Epileptic cats, fishin', potato diggin', potato neglect, skunks, Ab. Lutz and injuries to my face, don't look much like office affairs to me now as I look back on 'em. They don't seem to be very invitin' subjects, either. But I am for mental freedom and liberal expression, as you all know, and I don't spend half of my time harnessin' my mentality and putting in the other half goin' around and askin' people if they like it. I am either fishin' or doin' somethin' else I like to do or else insurgin' agin things as they be. Of the three, I prefer fishin'. The last of the three enoomerated makes me the most trouble. But lump 'em all three together and practice 'em faithfully, and you'll get more fun out of life and do less general injury than President Wilson, Reed Smoot, Dr. E. F. Phillips or even one Mr. E. R. Root, Esq., of Medina, Ohio. You will so, especially if you lay emphasis on fishin', and remember what old man Seneca said long ago, viz.: 'The least bit more than enough that a man has is just a burden onto him.

Well, I see I am wanderin' off the subject again, which was to be a little more about skunks. I hate to own up that I don't clean a subject clean up as I go along. But there is considerable about a skunk that don't clean up very fast if you go deep into the subject. Anyway I am finding out, too, that this skunk subject is a pretty broad one. I have also got in some later returns on Mel Pritchard as a skunk specialist and odorless operator. Mel didn't send 'em in.

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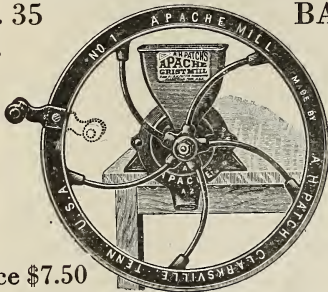
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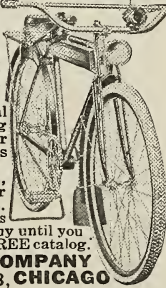
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Around the Office—Continued

So far as I can find out, Mel don't report anythin' only successes in his skunkology experimentae. Praps he thought this partickler time was a success. I don't know about that. I feel pretty nigh certain the old skunk must have regarded it in the light of somethin' like success. I would have if I had been in her place. The eye witness who told me about it seemed to lean toward allowin' the skunk as havin' as good as half the argument at least. But praps if I'd shut up my advance introductory yap about it and tell you folks the cold facts you could judge for yourself. I guess I'll try that. The facts are these: A year ago last summer, it seems Mel got the skunk breedin' beetle into his head. Anyway, he found a old mother skunk and five little ones somewhere around his diggins, and without lettin' the skunks have very much to say about it one way or another, he shut 'em up tight in a old chicken coop and began supportin' 'em there out of his own funds. This didn't look like any more freedom for the skunks, and the neighbors began hearin' talk and romancin' about a skunk farm and fur raisin'—that it went right along with the queen rearin' and apiary success, for if he interned skunks in chicken coops on his skunk farm he would know they weren't lunchin' on bees and young queens continuous from sunset to sunup. So Mel, his neighbor tells me, figgered on a double wallop agin the skunks when he began farmin' 'em—he'd take their bee lunches away from 'em during the summer and a little later on he'd take their skins away from 'em, too. It wasn't much he was goin' to do to the skunks up in his region, was it? Mel ain't cruel, either, but from this it seems he's a callullatin' cuss. But onè thing he didn't callulate on. That was, the old skunk gettin' out of her coop in the day time and goin' on the rampage. No, sir, he didn't. For you know, Mel's odorless recipe of pick-'em-up-by-the-tail-before-they-think ain't guaranteed to work well only after dark and when you've got the skunk mentally stampeded and optically blinded with an electric flashlight leveled into said skunk's eyes. A loose, clear seein' skunk in the day time, it seems, is somethin' different to Mel from an electric blinded skunk at night. Anyway, he proceeds different. The fact is, I can't get any satisfyin' proof that Mel tries his own odorless system ever when he's alone and is tryin' to play the game safe. He's great on recommendin' it to his neighbors, tho, and he'll try it to show off, if he's got some ignorant, undersized, inexperienced, young skunk electrically twisted. So, as I was sayin', the old she skunk's breakin' out unexpected in the day time put it up to Mel different. But he didn't propose to give up skunk farmin' and wealth via the fur route just because the female head of his herd was found unexpectedly surgin' loose around his old straw stack. He'd cage her,

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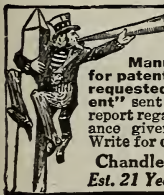
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Around the Office—Continued

even if her wings weren't clipped, he would. She'd got to be outgeneraled and, as I say, Mel wasn't for pickin' her up odorless. He figured he and his reputation as a odorless operator weren't bein' seen. There's a lot of us do things different, back of the straw stack back of the old barn from what we do 'em on the rostrum of the farmers' institoot or before a beekeepers' convention. So, Mel, right then and there got up the worn-out dishpan method of catchin' loose skunks in the day time. Praps he wouldn't have been able to get it up so quick if a old, worn out, rusty dish pan hadn't been layin' right out there by the straw stack. Mel knew, too, that action was what was needed afore his wanderin' skunk could sasshay off under the barn. Bonyparte saved a whole battle oneet by just crackin' the ice in a river with cannon balls. Just so Mel grabbed up that old dishpan quick, and, as Mother Skunk went agoin' around the straw stack in one direction, he ambushed hissself on the other side, the dishpan raised high up and ready to clap down on her. In the course of time she came along to where Mel was camooflashed (I like big words when I can get holt of 'em new)—camooflashed, I repeat, under more or less loose straw. Down came the old dishpan over her kerflop, and, to make sure it staid down, Mel came down on it strong with both hands. He also simultaneously kept on coming down thru the top of it, that is, both his hands did and the front forepart of his countenance. Thoroly rusted tin ain't for pouncin' on if you want to stay up on top. This wouldn't have been so bad, tho, if the proceddin's in general hadn't seemed to annoy the old mother skunk considerable, and if Mel hadn't got his hands, the skunk and the rusted tin so mixed together they wouldn't come apart no way. She began resentin' it her

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Around the Office—Continued

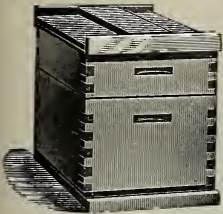
way right sudden, too, and this resentment of hers filled the dishpan and anythin' contiguous to the same full up and overflowed into the next township some. His neighbor says when Mel got his countenance disconnected from the general situation he pointed it straight out mostly in the direction of fresh air, and his earnestness in separatin' his hands from mixed tin and skunk made the best efforts of any dog with a can tied onto his tail seem like nothin' but inaction.

I don't know as there is any use in lingerin' any longer around this scene. Mel didn't. He called out from the barn window a little later on to his wife for a complete change of clothes, shoes and all. He also ain't got no skunk farm, and whilst I wouldn't say this incident done it, yet to this day if Mel comes sudden onto a piece of rusted tin he shys way off to one side just like a scared horse.

The lastin' moral I extract out of this dishpannin' of skunks is, if you are goin' to clap somethin' down on top of somethin' else that's likely to make a offensive smell if it gets out, be sure your clapper ain't rusted any.

And now, right onto the top of what I have hinted about Mel's lackin' some skunk expertness sometimes, think of W. H. Mills of Arden, Nebr., coming right out and tellin' me by letter that Mel doesn't know anything about skunks. He did just that, and I am goin' to print it right here, whether Mel ever speaks to me again or not. Here is what Mills says: "M.-A.-O.:—Your skunk story is all right in part. You are right as to the skunk's destroying and weakening a great many bees. They do that. They also destroy thousands of nests of bumble bees; also a great many ground nesting birds. In giving Mel Pritchard's mode of killing skunks, when you got to the main point you fell off. You said that Mel said when his neighbor got the skunk carefully lifted from the ground by the tail, that he should hit the skunk on the head. That shows that he does not know anything about skunks! If he had said, 'Now hit him a smart blow across the small of the back,' then there would have been no smell. I have picked up skunks by the tail and put them in a sack and carried them home on horseback and they did not stink. I have kept skunks and raised lots of them and they are the easiest and gentlest animals to work with that I ever saw. I have trapped 160 skunks in one fur season. I have never yet found it necessary to make a very great fuss about skunk odor. It is something like bee stings—it don't amount to anything after you get used to it."

That's right—when a feller's down everybody pile onto him. Lambaste him while the lambastin's good. Dr. Miller has his



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Around the Office—Continued

"opinion of any one indulging in such language." Good old Mr. Nelson from away up in Centralia, Wash., sends along "the thought of foolishness is sin," Provs. 24:9, and some last-judgment considerations that ain't pleasant to me. The Roots take their regular mornin' and evenin' exercise on my back. There's more like 'em, too, that don't seem to think I've got any feelin's that weren't made to be tromped on by anybody any time. But there are some good fellers in the world just the same. They ain't all for makin' me miserable here and burnin' me hereafter. Oscar Brandt out at Muscatine, Ia., put in a word for me with the Roots. E. G. LeSturgeon of San Antonio, Tex., sends this word: "Darn the censors, anyway. If this censor thing keeps up, I'll become pro-German or anti-Root or something just as awful." He also sends real sympathy on my side of gettin' potatoes in late and nobody's business. I'm goin' to take to that man LeSturgeon if he stays on my side. There's some more good Samaritans that have written me and I am keepin' every one of their precious names separate from any of the rest of the Root business. They are too good to get mixed up that a way.

Mt. Pleasant, Ala., Dec. 30, 1917.

"Dear M.-A.-O.:—I had wanted to ship a car of bees this spring, and was just thinking how thick a screen would be, and that it took 700 screens for a car of bees,

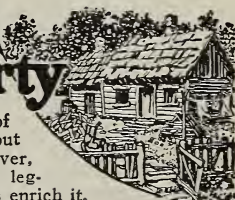
and, if they were stacked up together in one pile, the pile would be nearly 70 feet high. As a car is only eight feet high at the highest part I would like to know where I would put the bees after I got all these screens in the car, provided I got them in the car.—Jos. S. Schott." That's easy, Joe. Lower the car floor and knock the roof off.

In a lucid interval of mine last year I said somethin' sensible oncet. It was about a beekeeper and his wife at Brownstown, Ind., who from 23 colonies of bees had sold enough honey durin' the season of 1916 to send their oldest boy to college. I said somethin' about his learnin' more than football, cigarets and a college yell. Those bees have grown to 46 colonies now, and they are keepin' that boy in college yet and doin' somethin' besides. The boy is doin' his part, too, his grades bein' pretty nigh perfect.

Roy L. Johnson of Groveland Sta., N. Y., wrote me a sort of philosophisin' letter. I owed him and finally paid him all up when he wrote this: "Time is passing swiftly by whether our debts are paid or not." That sentiment is all o. k., Roy, but I've noticed time when it didn't slip by so durnd fast when I owed a man and he was present and continuin' to be present and insistin' on talkin' about it. I rather be fishin' myself. That's when time slips by just a-whoopin' with me.

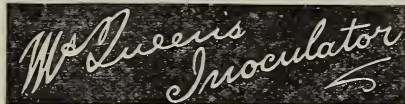


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