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The PEARCE New Method of Bee-Keeping

By
JOSEPH A. PEARCE

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By JOSEPH A. PEARCE
Expert in Horticulture and Bee Keeping.

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By JOSEPH A. PEARCE

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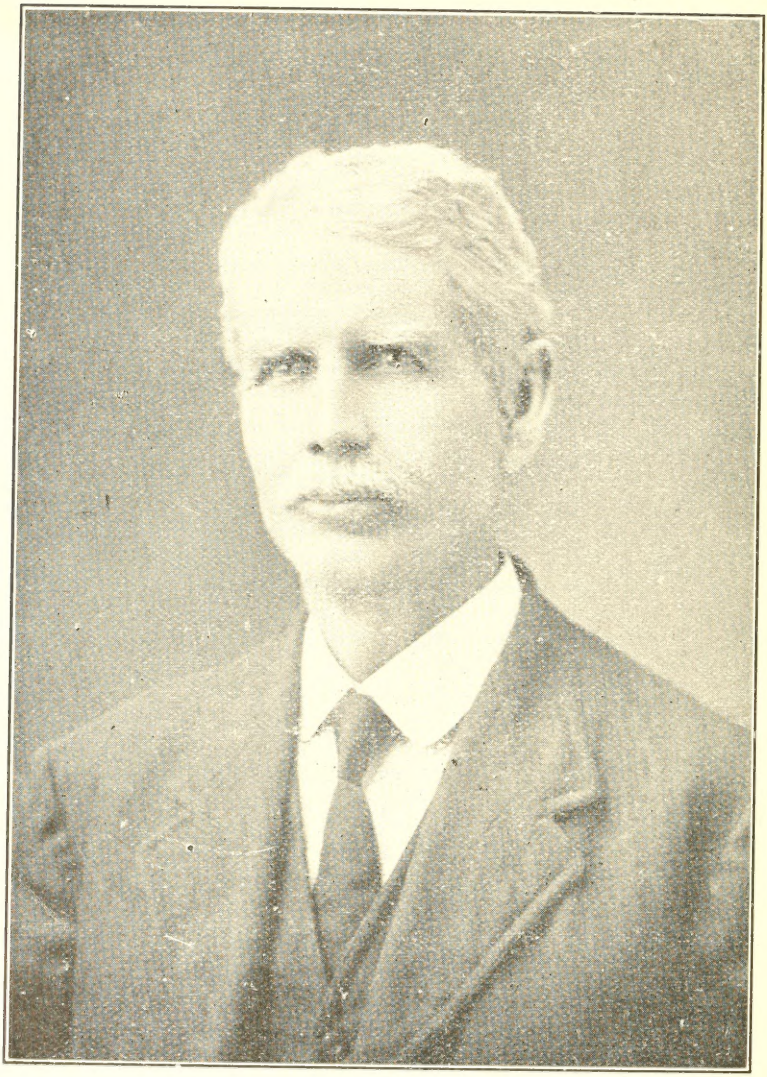

JOSEPH A. PEARCE

Author of the Pearce System of Bee-Keeping.

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PREFACE

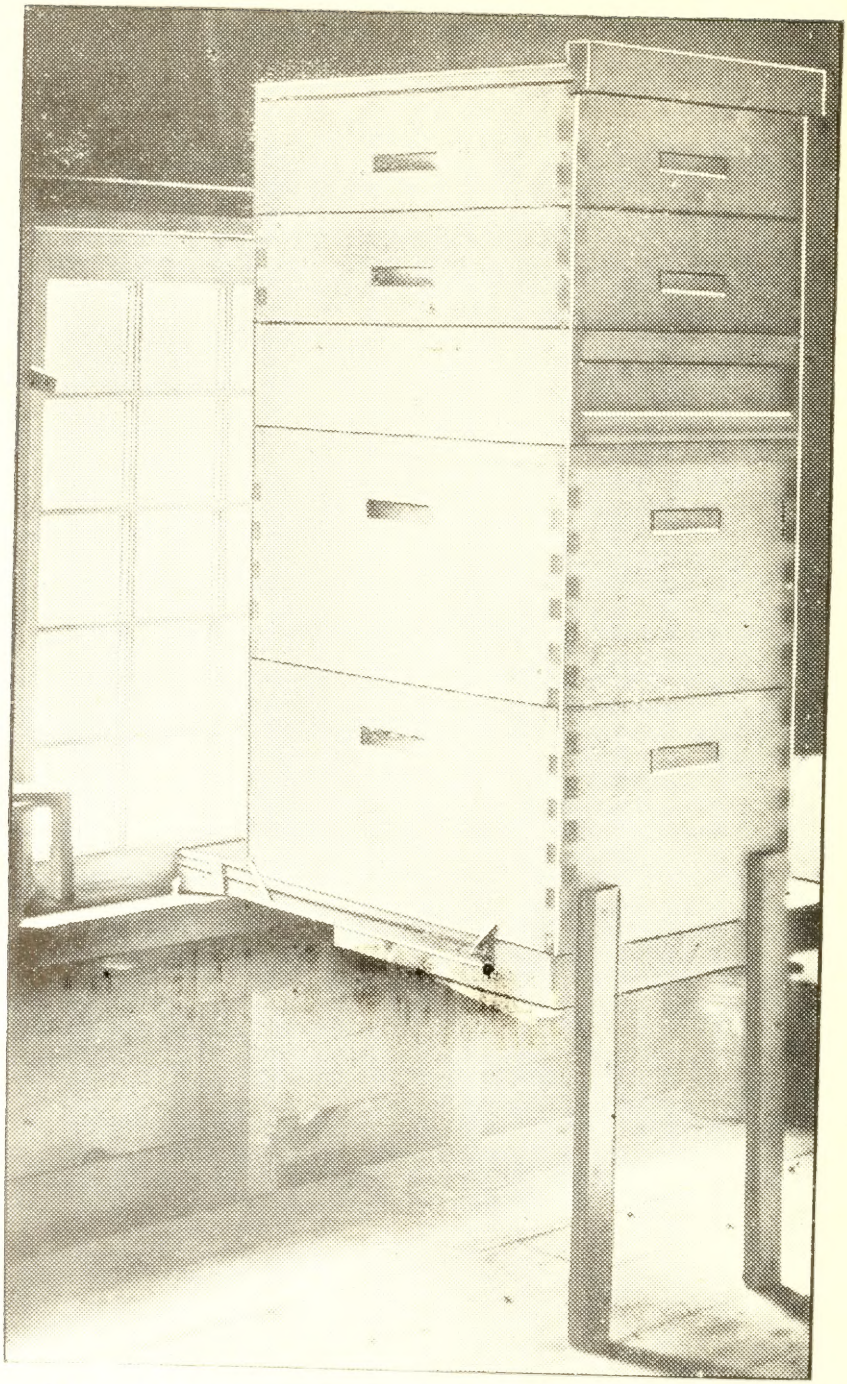
IN writing this book I do it for the purpose of putting the best things that I have learned in my thirty-five years of bee keeping, in condensed form so they may be perpetuated for the benefit of any who may wish to take up bee keeping for pleasure or profit.

Thanks to modern methods it can be electrotyped and thus be preserved and can easily and cheaply be placed in the hands of many who should have it.

By this method, bee keeping can be easily pursued almost everywhere in the cities and country. There should be very many more people interested in gathering this enormous honey supply which is now allowed to go to waste.

The money making possibilities in honey production is estimated to be worth millions of dollars and it is a refined, health-giving business which has wonderful possibilities for the young and a pleasing and interesting occupation for those who have retired from active business.

J. A. PEARCE



This hive is in the home of Alderman Welsh. It gave him $22.00 worth of comb honey the first year it was installed, and is still doing as well.

CHAPTER I

How I Discovered My Present Method of Bee Keeping.

Twenty years ago I began to put bees in buildings. One of the first I put up in a stable loft. I had known for some time that bees had been kept in small rooms or large places prepared for them and left to themselves to build their combs as they pleased. I was told that they would eventually fill these upper rooms or boxes, and stay there from year to year and would not swarm out, and that the people of the house could go up in the winter when the bees were dormant and open these places and cut off honey for themselves as wanted. This looked attractive to me, but it was said that the moths would get in and destroy the bees, and I did not like this chunk honey, as it would not be neat and nice, so with this much information I started in to see if I could devise something with our movable frame hives, large enough so the bees would not swarm and the moths could not destroy them, and that we might get the honey in nice one-pound boxes, as we were getting it out in our bee yard.

The first outfit that I put up was three hives set side by side. I cut holes into these outside hives from the middle one, for the bees to go through. Then I let the bees fly out doors from the middle hive, and I put my surplus cases on the middle hive. The bees soon began to fill these cases, but to my surprise and regret, I could not get the bees to go into these side hives. This, I saw was of no use and I took away these side hives and shut up the openings and put one of them on top of the middle hive. Very soon the queen began to fill this body with brood instead of swarming out, and I soon had seventy-five pounds of nice comb honey in the cases and was delighted. I then saw that I had been making a mistake in making my hive broad instead of high to enlarge it. Our bee-keepers think, many of them, that they should have a larger hive than the eight frame, and add ten, twelve or even fourteen frames in width instead of putting two of the eight-frame hives, one above the other, as I did twenty years ago, making a tall hive more like a hollow tree—the natural home of the bee.

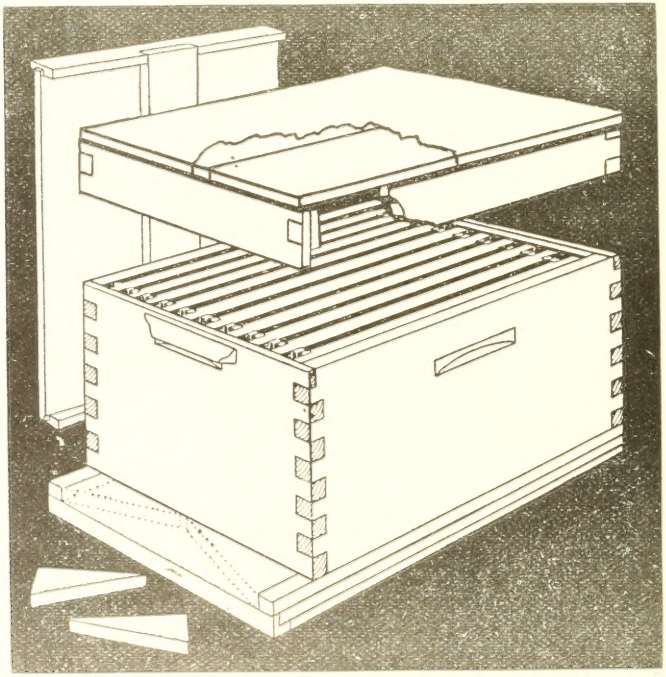
This hive is about a quarter larger than the Quimby hive and is about the right capacity for a queen to deposit all the eggs she wishes for the colony, so there will be no swarming, if sufficient surplus cases are put on in time so the honey may be carried above, to leave adequate space for the queen. Then again it is about the right size

and form to enable the bees to store an ample supply to carry them through any Winter and Spring without danger of starvation. Now, after twenty years' use, I do not see any need for changing to anything different. This, then, is the hive I used and recommend, as it is heavy enough to lift these bodies separately when they are filled, and seems right in every way.

You will please notice, then, that all that goes to bring the results that we get from this method, is doubling the size of the hive and placing these hives in buildings above ground where they can be amply protected. This makes all the other things possible which we will tell you about later.

Now, in conclusion, this introductory will get us better acquainted and has told you how big a hive I use to get best results.

I, therefore, think that in my first article I cannot do better than to tell you all I can about buildings above ground for bees and how to arrange the bees in them for best results, both for the man who only wishes to keep a few colonies and also a building for large apiaries. For our bees should be housed as much as our horses, hens or cattle, and they will pay larger dividends for less labor.



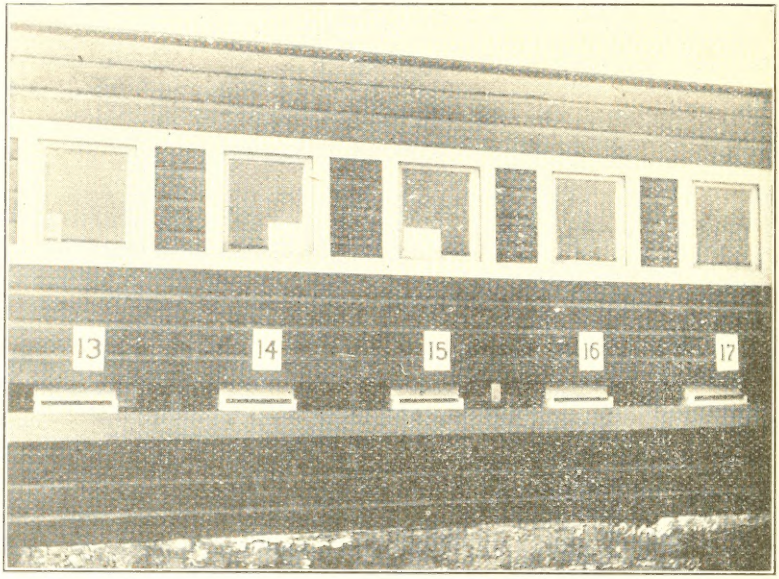
This is the hive used by nearly all Beekeepers, and is not tall enough to admit of honey sufficient to be stored above the bees for a winters supply; neither is it large enough to hold all the eggs a queen will deposit.

CHAPTER II

A Preliminary Explanation for the Benefit of Beginners in Bee Keeping, and Others.

In handling bees by bee keepers in general, there has been about four ways resorted to for the purpose of getting the bees through the season in a successful manner. The first that I will mention is to put the bees in a single hive body, with 8 to 12 frames, of the Langstroth or regulation dimension. This hive is left on the summer stand or place where it stood all through the year without much of any protection. Others not being satisfied with this method, resort to some kind of packing about the hives, either put about the hives in the Fall and removing it in the Spring, or by having a permanent case attached to the hives to remain through the whole year, such as the original Root double hive and the modifications of it that have come down to the present time. Then some few, but this class has not been large, have tried burying their bees in a trench somewhat as they would for vegetables.

Then another and much larger class, put their bees into cellars, below ground. All of these people use a single hive body for keeping their bees in. And without saying anything about the merits of any of these four methods for the present, I wish to bring to your notice the four places and ways that I use in my method of handling bees, which is known as the Pearce Method of bee keeping, in buildings above ground. The first place I will mention where they may be kept is in a barn or stable loft. The next is in house attics as kept in cities, next in poultry houses. Then in a house or shell, built especially for the bees. In all these ways, the bees are kept in two of the regulation hives, each hive being the same size and shape as the hive used by those who keep their bees below ground and out of doors. Thus you will observe that I use a hive with just double the capacity of my brother bee-keepers generally. These two hive bodies are used one above the other, making a tall hive that is divisable and may be made into two hives and used by others or put together as we use it. This little preliminary explanation will serve to show every one the different places and ways in most common use by the bee-keeping fraternity. Therefore, without saying anything about the merits of any of these different ways, leaving that for later on, I will proceed at once to tell you about a model bee house or shelter for your bees, so you can build one or more like it, as this is important.



Exterior of a Model Bee House for ten Colonies of bees at the home of the author of this book

CHAPTER III

A Model Bee House Above Ground for Ten Swarms of Bees and How to Build It.

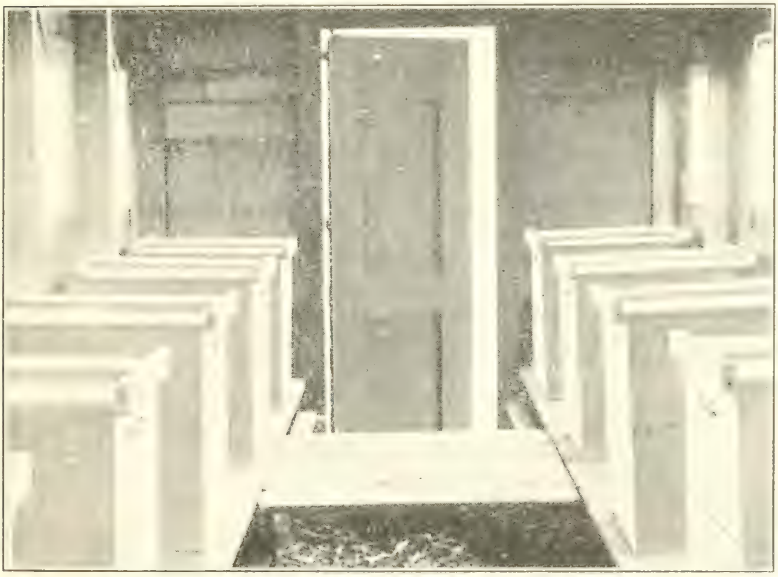
The above house is 13 feet 8 inches long and 6½ feet high and 6½ feet wide, with no floor.

The sides and ends are covered with German or shiplap siding. The roof is covered with dressed hemlock and roofing paper. The frame is made all of 2 x 4 scantlings. You can order this all 14 feet long, 24 pieces.

The siding and shelves for the hives will take 60 pieces 14 feet long. The roof will take 150 feet of dressed hemlock and two rolls of roofing. Then you need 200 feet running measure of 3 inch strips for corner boards. You will need 20 pounds of 8 pw. nails; 5 pounds of 20 pw. spikes; 2 pounds of 6 pw. finishing nails.

You want 5 windows 14 x 18 glass, the sash made just the thickness of your siding or sheeting; the glass to be cut ½ inch short at the bottom of the windows to let any bees that might, escape while working with them inside of the house. This will finish your house on the outside. Now cut a door in one end of the house and go inside and put on the finishing touches. Nail securely, your cleats on your stud-

ding, 20 inches from the bottom of the sill, and put a shelf 20 inches wide all along on each side of your building for your hives to set on. In siding up your building when you put on the first 3 or 4 pieces, up to where you wish your bees to fly out, leave one piece loose to slip out for your opening for the bees. Then when you get up where the top of your window sashes are to come, leave loose another strip, so as to have a starter to cut your windows out. Then after you have gotten your shelves built for the hives to set on, you can cut up pieces of 2 x 4 and put a piece laid flat-wise just at the top of the opening for your bees. This will then give you a smooth surface on the inside, even with your upright studding, to put your hives up against, and this will throw your hives in 5 inches from the outside wall. This is most important and those strips of scantling are fine to nail strips of board to on the inside to close the openings between the hives. As to our windows, we place 2 little notched buttons at the bottom and one in the middle of the window at the top to turn and take out all the windows in the summer for air if we want. Now put hinges and locks on your door and your house is done, all but making a little sliding table as you see from the picture of my house. This is made by leaving your supports for the shelf, 2 inches longer than the width of the shelf and cut a notch down 2 inches for your track, which is an inch and your sliding table is another inch. This makes it, so your table is just the level of your shelves. Now your house is done.



Interior of house shown on opposite page

Cut your 12 side studding, 6 feet, 2 inches long and place them 32 inches from center to center. This gives you 5 equal spaces, and a window is put in the center of each, as high as you can look out of nicely, and the piece of siding that you leave for the bees to fly out, you can hinge at the bottom with strap hinges, and there it will answer the double purpose of closing up this opening along the side of the building in stormy weather and it can be turned down level in good weather or may be dropped clear down out of the way, by the side of the house. This completes all the accessories and will give you a most complete home for your bees. Filled with our double sized hives, I know of nothing better. This house should always be built north and south, and on level land; if the land is not level you can easily grade it down or build shorter houses. But if you should be building one long house for say a 100 colonies or more, I would advise you to put safety first and anchor it down well in some way. Ours has strap iron spiked onto the side of the building and running down and bent off out in a trench 2 to 3 feet deep and cement and stones piled on this iron and the trench filled with rocks. This should hold it down. While with all these hives filled, so they weigh around a hundred pounds each, there may be no danger, but sometimes we get strong winds from the west; and I would rather go to a little trouble and always feel safe. If this house is on your own land it may stand for a long time and give you a good deal of pleasure and profit.

From the description here given and these specifications, anyone can build a house like this or as many of them as they like, or any length house on this same plan, and they can be built for about what those double walled hives per hive can be built and very much cheaper than the former Root or Hilton hives would cost, if built now. There should be a lot of these shelters, built for bees; for the practice of leaving bees out, exposed to the storms in any kind of a hive or putting them down cellar for so long a period should be discontinued, for we still remember how Mr. Geo. Hilton lost his fine apiary in Northern Michigan, although protected in the Hilton Hive. I will now give all the material for this house in a summarized form, so anyone can order it. This house will hold 10 colonies without crowding and leave room to double the apiary and leave the 20 swarms in this house till spring or longer if you were not going to increase again.

Complete Bili for a Finished House

(By the Pearce Method.)

200 feet of 3 inch strips, Pine or Cypress.
24 pieces of 2 x 4, 14 feet long.
60 pieces of 6 inch German siding, 14 feet long.
150 feet of Dressed Hemlock No. 1.
5 windows 14 x 18, one light cut ½" short.
2 rolls of Roofing.
20 pounds of 8 nails.
5 pounds of 20 spikes.
2 pounds of 6 casing nails.
8 pairs of 5 inch butts.
1 Rim Lock.
2 sacks of cement.

CHAPTER IV

How to Build a Shelter for Out Apiaries.

Having told you in a former chapter just how to build a shelter for ten colonies for the small bee-keeper, and given you the dimensions for that, I will refer you to that chapter for specifications which I do not give here.

The shelter that I shall recommend here is like the other, six and one-half feet wide by six and one-half feet high, and as to length, build for all the bees you have. About the only changes I would make from the other house, would be in the windows and the table in the aisle. It would not be necessary to put windows in these buildings if you did not want to, but could substitute shutters instead, as the boys are so liable to pelt the glass from an isolated building. For this reason and for the economy of it, I would omit them.

To make the shutters: If you build with German siding you could side up some four feet, and then you could tack on loosely, four pieces of siding that you intend for shutters. Then on the inside, in every space between the studding, you could put a cleat or more on these strips of

siding crosswise. Nail with finishing nails and clinch good. And when all is secure, you can then saw down these four-piece shutters between every other studding, taking care to saw perfectly square across, so they will open good. After this is done all along the length of your house, you can proceed to finish to the top of your building. Now with five-inch strap hinges, you can hinge these shutters at the top, putting on two or three pairs on each shutter. At the bottom of these shutters, you can fasten with a button inside, the shutters to swing outward. If you would like to open from the inside you could attach a rope to each shutter and have it pass over a pulley or over a hook high enough so one could draw the shutter clear up against the wall if you wished to. Now, I believe, for the benefit of having lots of air and light, I would put these shutters on both sides, to take advantage of light and wind, in order to get light for working with the bees. I wish to emphasize this, as bees are so much more apt to sting if it is at all dark, therefore, always and under all conditions in working with bees, see that you always have plenty of light. Father Langstroth also warned against working with bees in the dark, as they would sting badly.

Now about the little table in the aisle: If you should want to pull back a swarm to shake them in front for any reason, which does not often occur, this table would be a convenience, or for carrying tools on. I would make this table as follows:

Make it the width of the aisle and about as big the other way, which will be about 30 inches each way. Make supports by nailing two cleats on the under side, supports to be cut out of six-inch stuff, twenty-six inches long, and they will project two inches beyond your table; then you can saw down close to table into those pieces nearly two inches and split out; now lay an inch and a half or two-inch strip on this support, and on these slide your table. You will notice in the picture of the house shown, that we have rollers under the table, but these are not necessary, and we wish to economize, so they can be dispensed with—now this completes it.

You might think that bees would come in through these open shutters and bother you, but they will not. Bees are always looking how they can get out, never in.

CHAPTER V

Bee Keeping for the Far North.

We have all across our northern border, and stretching far away into the British possessions, a vast domain. This territory is well protected with snow and so all plants, wild and cultivated, thrive and blossom well, but the winter is long and the cold quite continuous. But if bees could be brought through the long winter safely, they are liable to store honey abundantly during the short summers, as the days are long and the bloom quite profuse; but in the low, flat hives that have been used, there is not sufficient room to hold plenty of stores to last through these long winters and through the spring until the spring blossoms come. And it is here that our big double hives will fill a very important place, and by having this large store of honey it will carry the bees through any winter that comes, safely, and thus will make it possible for the people living much farther north to keep bees and get a honey supply, because the abundant snow protects the clovers and other honey plants, so that they yield plenty of honey if the bees can be kept safely.

Therefore since the bees can be kept and handled in these large hives as described by this method, and kept in fairly warm shelters, built with lumber and roofing paper and so arranged, they can always avail themselves of a flight whenever the weather is suitable, as late in the fall and as early in the spring, by having their entrances kept well open at all times, winter and summer, for good ventilation. A great deal of damage comes to bees from their entrances becoming clogged with dead bees and cappings on the inside, and snow and ice or other causes on the outside, which causes the bees to become damp. More bees are lost in this manner than in any other way. If bees can be kept dry, there is very little danger from cold of any reasonable degree. We almost forgot that our forefathers kept their bees successfully for years in single-walled box hives, and we have seen so many examples where bees have withstood low temperatures, that I feel sure many bee keepers are unduly alarmed about their bees suffering from the cold. An extensive bee keeper here told me he bought five colonies of bees that passed through that worst winter of the seventies in long box hives set up on the edges of two wide boards and no bottoms on the hives, and they came through in fine shape and did better than any he had the next season. If cold could have killed bees, surely these should have been dead. And I saw a light after-swarm go through a winter in a double ten frame hive, one

above the other and nothing but foundation in the upper hive, and only a small supply of stores in the lower hive, but they wintered well, being very dry, hence pay more attention to keeping your bees dry and not being afraid they will freeze in a single thickness hive. I therefore feel sure if the people of the far north will place their bees in those large tall hives that will hold sufficient stores to carry them safely through any winter, and will put them in suitable shelters properly built, it will be possible for the people of the north to keep bees long stretches of miles farther north than they could have been kept in ordinary hives as formerly. I am confident in this way bees may be successfully kept away into the land of the Assiniboins, and far above Winnipeg, even to Alaska in our own territory. This would be a good thing for our neighbors of the north to practice on and see how far north the successful line of bee keeping can be pushed. And our people who are so favorably situated with plenty of bees in California, should push bee keeping north to Alaska. But for these great extremes, I would have large deep hives and would place first in house attics and allow to fly at all times when they can.

CHAPTER VI

Wintering Bees.

The wintering of our bees successfully has been the great problem confronting bee keepers. The winter losses have been so great some winters as to almost threaten to wipe out the industry.

Cellar wintering has been resorted to very extensively of late years, but it is found that while the bees will live in the cellar through the winter, on account of their long confinement without a flight or an opportunity to unload their bowels, they come out of the cellar in a weakened condition, so much so, that many are looking for a better way. And our trials of buildings above ground would lead us to feel confident that this way of wintering will entirely solve the wintering problem. Because the disasters to bees wintered in the old ways in the past twenty years, have been enormous; while the percentage of losses of bees in buildings above ground have amounted to nothing, although they have had little or no care, except perhaps the care a novice might bestow upon them, or had to get along with the care they could give themselves as they would have to do in a tree in the woods.

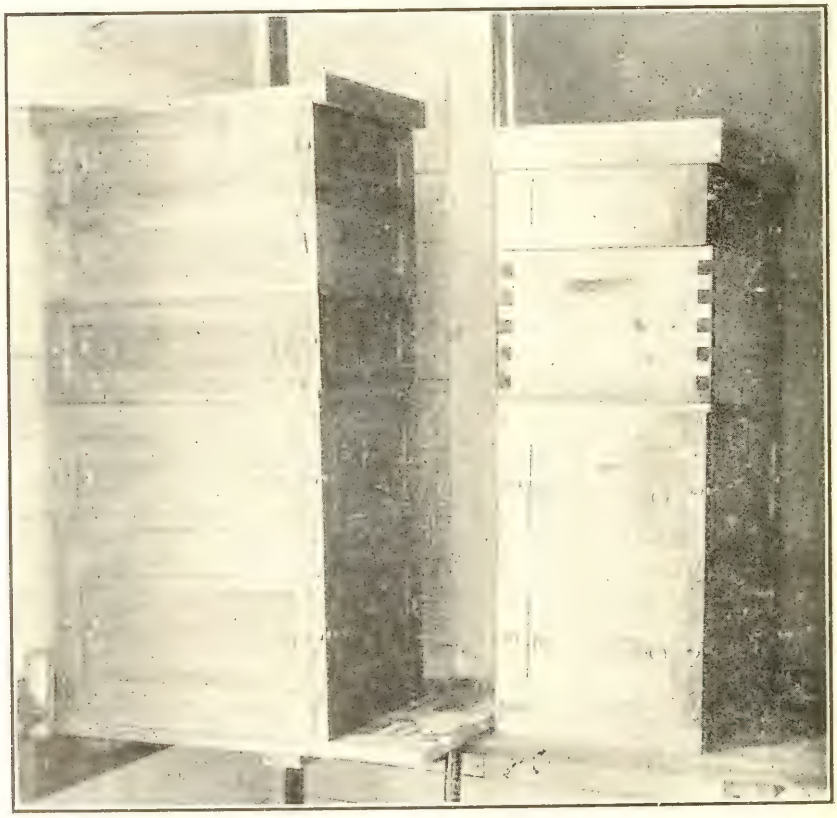
I will now briefly explain some of the reasons why the bees in buildings have so much better chance to survive the winter. These bees are in two hives, one above the other, while those the old way are only in one body, consequently have less than half the stores. These big double hives inside are so amply protected, being five inches from the outside wall, which relieves them of all danger from snow, sleet or ice clogging the entrance; and being twenty inches from the ground, gives an opportunity to keep the entrance from inside and out entirely clear at all times—a thing of vast importance in wintering bees successfully. After having a sufficiency of good stores directly above the bees, I would place keeping the entrances open and clear at all times next in importance. Therefore, if we can winter and summer so successfully in buildings in this way and get so very much more fine honey, our bee men and every one engaging in bees keeping should not be slow in keeping their bees in buildings or at least testing these buildings. The value of the bees lost during the recent hard winters, that hermetically sealed all exposed hives out doors, would have built buildings for all the bees in the country.

CHAPTER VII

Bees in House Attics and Barn Lofts.

House attics and barn lofts are about the only places where bees can be successfully kept in the cities. As there, on account of the proximity of the neighbors it would be impossible to keep them on the ground. It may not be known to every one that bees when placed anywhere above the second floor do not give any annoyance to anyone on the ground, but this is the fact, and so it enables the people in the cities to keep bees and get a supply of this most pure and luscious sweet as well as their neighbors in the country. And as about all the city dwellers have spacious unused attics, these make very good places to install a few colonies of bees on this plan, which gives them a good deal of pleasure and profit, for there still remains a strong love in these city dwellers for something that resembles the farm from which many of them have come to take up the more artificial life of the cities. Brick walls and asphalt pavements do not quite satisfy them, and a few colonies of bees with their busy hum, seems to go a good ways towards filling this longing in their nature for something that reminds them of the old farm. Therefore, I hope those that are better acquainted with the business will hear me while I make a minute explanation in this chapter for the use of

these people who have perhaps never kept bees before. Then I want to say that bees when properly placed seem to get equally as much honey in the city as those in the country. And now I want to caution everybody that attempts to keep bees inside of rooms or attics or lofts, to look well to their windows and make them so any bees that do accidentally get in, can readily get out. Bees do not purposely come into a room, but if they do get in through some hole, they go on the windows and die there. Then if you take out all windows, all bees will go out immediately and no more will come in, so the way to fix all windows that you do not darken, is to cut the glass about half an inch short at the bottom of the windows, or to darken all windows that are not so cut at the bottom. Be particular about this, for I feel sure that bees dying on windows was the prolific cause for the abandoning of old time house apiaries. And I feel sure that



Two outfits put up a dozen years ago in a stable loft for a Banker. They are still doing well.

of the things I have found out, nothing has been of more importance to me than making this half inch cut at the bottom of the windows. This matter is of such importance that it would pay to have a carpenter or glass man, for in a half day or less they could fix all windows in the attic perfectly that you cannot darken. With this explanation I will try to tell the dwellers of the cities and others about the kind of hive we use, and why we use it, and how to summer and winter the bees, and generally care for them. I feel sure anyone following these directions cannot very well make a mistake. This is somewhat a lengthy chapter, but it is important and it will pay you to read it more than once.

The Hive We Use and Why We Use It.

In a former chapter, I have told you quite plainly the kind of a shelter I use for our bees and I think it is plain to you by this time that we use a hive made of two of the ordinary Langstroth hives, that we formerly used and that is still used by the great mass of bee keepers, generally. In this article I will tell you all about it, and why we use it. The first great reason is because the small hive we formerly used did not hold an adequate supply of honey to carry the bees through the winter safely and it was just as inadequate to give the queen sufficient room to deposit all the eggs she would in the spring up to the honey harvest. Two very great defects. The one caused tremendous winter losses and the other prevented the queen from giving us the enormous swarm of bees early for the honey harvest that she would have given us if she could have been supplied with a more spacious hive. In talking over winter losses with that veteran bee keeper, Geo. E. Hilton, he remarked that he felt sure that nine-tenth of the bees that had died have died of starvation. The cause for this was the hives were too shallow. They do not in any way provide space enough above the bees to hold enough stores for a winter's supply. When we think the matter over in regard to these shallow hives, we wonder that as many have been gotten through the winter without starvation in these hives as there have. Bees as every one knows, store their honey above them and they should be given a hive of sufficient height to allow them to store a full supply to last them through any winter and spring and this is just what this tall hive made up of two bodies that I use and recommend, does. It is well known now that bees in the Fall drop down to the bottom of any hive they are in and get into a circular mass and eat upward and do not or cannot go in any other direction and if there is not sufficient stores directly placed above them, starvation is inevitable. So I

feel sure our duty is plain from now on. It is this, to give our bees a taller hive than we have been giving them, and then see that it is well filled with winter stores, and then place these hives in shelters such as we recommend where you can give them the protection they should have from all storms that blow and where you can see that their entrances are open at all times so they will have proper ventilation and have a flight at any time in the winter when the weather is suitable. For it has been starvation and want of ventilation that has been two of the great causes of mortality in our bees. Many of our hives weighed in the Fall around a hundred pounds. A hive that weighs a hundred pounds in the Fall, is good for 100 to 200 next summer.

A Long Chapter for the City Dwellers, Who Are Usually Amateurs, So Please Excuse Close Explanations.

The house attic, loft in the barn or out-buildings are the best places to keep bees, becaues they are entirely out of the way there. They are dry and warm and do not disturb anything on the ground, and nothing disturbs them, since when placed anywhere near as high as the second floor, they seldom disturb anything below them, thus giving no annoyance either in city or country to anything about them when so placed.

If the hives are installed in the attic of a house, the space from the floor up should be as much as four feet; if higher, all the better, as the tall hives with their honey cases extend upward some distance. If there are some windows in the attic, cut a piece out of the lower sash-bar a little longer than the width of the hive. Then put a two-inch piece around it on the inside on the top and on the ends, as the hive bottom fills up the bottom space so that when the hive is pushed up in place, it is two inches from the window. This will admit a window curtain to shade the bees from the hot sun, and will also facilitate the putting on and taking off of the honey cases and winter coverings. Build a shelf as high as the window or nail legs on to the back of the hive, which must be level, or the back end one-half inch higher. Put the hive up in place, and all is done. If, however, the bees are to be set by the wall, which is often done in attics or lofts, cut a three or four-inch slot level with the floor as long as the width of the hive; put a piece of binding or scantling at the ends and on top of this opening, and then it is ready for the bees.

If you have never handled bees, it is best to get a regular bee-keeper to furnish the bees and put them in for you. In case, however, this is impossible, the following method will be found of value:

An outfit by the Pearce Method in the high school in Grand Rapids which gave the teacher far above a hundred pounds of comb honey while away on her vacation. Repeats this each year.

If the bees have to be moved some distance, go to the bee-yard in the day-time and carefully put a covering of burlap or wire screen over the whole of the top of the hive and tack it to a little frame the size of the top of the hive. This is done so that it can be tacked to the hive and taken off quickly. Wait until the bees are all in at night, then go and stop up the entrance, using some old cotton or calico rags pushed in with a screwdriver or knife. Leave one end out a little to get hold of, if desired. Take them in a good spring wagon or buggy and handle carefully. The spring is the best time to install bees—from the middle of April to the middle of May—because then it is possible to get a honey crop to pay for them the first season. But if necessary, it can be profitably done in July, or the first of August, just after the first honey flow is over.

There are two ways to be considered. A good swarm of bees can be obtained in the spring and another hive-body placed on them with some frames of foundation on this, the honey-cases being put on top of all; or with a little extra expense, two full hives can be purchased, and one placed over the other, having the top one only in a rim.

To place the bees in position and liberate them after you have them home, move them up to the opening and when all is ready to push them up to it, pull out the rags quickly and push them up in place before many bees get out. If preferred, push them up in place, and if they do not quite fit, take some bits of rags and make all tight so no bees can possibly get into the building. Now go outside, take a ladder and climb up and pull the rags out from the outside, first putting a veil on to shield the face. If, however, the situation is too high to reach conveniently from the outside, then pull out the rags from the inside and push the bees into position before many get out. When all is quiet, proceed to take off the top screen or burlap. Screw this frame on with four screws so that it can easily be removed. If you have a little smoke—every bee-keeper should have a smoker—it is a wise plan to give the bees a little smoke to make the most of them go below before removing the screen. After removing the screen or cloth, put on the section cases, which must be ready and filled with foundation starters. These will probably have to be procured from your local supply dealer, for if you are keeping only a few bees, it will hardly pay to rig up to prepare them for yourself; and, as all they cost can be obtained when they are sold with the honey, nothing is lost.

When the honey is removed in the fall and the hive is open, prepare to cover it with some porous material such as folded quilts, carpets, or one of the honey cases with the honey boxes removed. Lay a piece of burlap in it, fill with chaff and set it on the hive; but before doing this, it is well to put a piece of wire netting over the hive and put the case over this to keep the mice out. This porous material is put on because there is moisture which rises from the bees which this lets through, and they winter better for it. Some winter successfully with just the board covers sealed down, but the porous quilts are to be preferred; too many cannot be used in winter or summer.

In the Spring.

Put as many as four or even more honey cases filled with foundation on top of these two hives. Be sure to have enough, letting them go as they please till near the first of November, when the bees will cluster down in the large hive-body out of this sealed honey.

Then, with a strong knife or screwdriver, quietly pry loose these honey-cases, as they will be stuck fast with bee

glue. Across the corner is the best place to pry first to loosen them, and it should not take more than five minutes to take off the honey cases in the fall, nor more than that amount of time to put them on in the spring. Do not fail to put the honey-cases on the first of May and take them off the first of November, and, since it is quite probable that these two visits are the only ones which will of necessity be made during the year, it is essential that the work be carefully done at these times.

Remember to take off the wire screen if you have had one on during the winter, and set on the honey-cases carefully and straight, making all movements around the bees very quietly, thus avoiding all stings. Do not pound or thump on the hive, as the bees are apt to come out and resent it. Put on plenty of honey cases, as many as four at a time; or if you are at all acquainted with bees, put on two at a time every two weeks until six have been used. On top of these honey cases, pile all the winter covering. A piece of oil-cloth can be put on top of the cases first, oil side down, and the winter covering on top of this. Now let them alone, unless it is possible to have a bee expert look them over. About the first of November, when the good wife gets the buckwheat cakes started, take the honey-cases off and cover up the hive for their long winter's nap.

There must be no crevices where the wind from outside can blow up through the hives. Remember that if all is tight above, the draught from below will do no harm.

CHAPTER VIII

The Cause of Swarming and Swarm Control.

It is very probable that the cause of swarming, and its control is not very well understood by many of our bee-keepers, and I feel sure that these two things are of greater importance than almost anything else in our pursuit, for so many other things are affected by them. For it would seem as if on these "hang all the law and the prophets" of bee-keeping. It is generally supposed that swarming is the natural and legitimate way of increase for the Bee family, and therefore it is not much use to try to prevent it or find out the cause.

But it has been noticed that usually when there is a big sudden honey flow there is a spell of excessive swarming and therefore these two conditions seem to be in some way connected. So then bees do not swarm at all times alike as might be expected if they were just fulfilling the law of increase to perpetuate the race. It also has been observed that when bees swarm, about all available space in the hive is filled up. It does not necessarily follow that all the combs are wholly filled or sealed up, for as soon as ever so little honey is placed in the cells they are of no more use for the queen to deposit eggs in until this honey is moved. Then if a sudden large honey flow comes on and all available space in the hive is filled, there is nothing for the bees to do but start queen cells and swarm out as there is no place for the queen to deposit eggs. Bees will not cease gathering honey for any cause if any is to be had and if there is a goodly number of bees in a hive and a large honey flow comes on and the queen depositing one to two thousand eggs in a day with pollen being brought in to feed the bees, it is only a question of a very short time till there will not be an available cell left for the queen to deposit eggs in and then swarming is inevitable as it is the only way to make more space for the queen to deposit eggs whether we want swarming or not. Therefore, it seems as if there being no more space available in the hive for the queen to deposit eggs in, is the prime cause of swarming.

If this is so it would be an unwise thing for a bee-keeper to not provide a queen with adequate space to deposit all the eggs she is capable of, especially in early spring when a big stock of bees are so essential. It is no use raising bees after the harvest comes. It is said that no bee carried in more than a spoonful of honey in her life time. If so, it is only by securing a great number of bees early that we can

be assured a large honey crop. Several different ways have been adopted to give the queens more room.

Our veteran Bee Keeper, Alexander, used to extract from the brood chamber in the spring to give his queen room and feed back as needed. But this was a great deal of trouble and would not fill the bill as a very prolific queen might soon overflow a small hive with eggs alone. Then others run for extracted honey and extract from the surplus cases in order to give more room. But this is not much use if the brood chamber is too small and unless the queen is allowed to go above, swarming is liable to occur. None of us want swarming as early as fruit bloom, it is an intolerable nuisance. A large bee-keeper a number of years ago, I do not now remember his name, said if he "could only control this everlasting swarming he would surely have a great thing." Many devices at different times by different men have been gotten up to prevent swarming, but nearly all have failed as it did not provide for the making of increase artificially if increase is needed. Therefore it seems almost certain that the great cause of swarming is the queen becoming hampered by inadequate space to deposit eggs in spring. Then if this is the cause, what is the remedy? Everything points to a larger brood chamber. More and more I feel sure bee-keepers are making up their minds to this. When we look at the little straw hives used in Germany and other countries we see clearly that our forefathers did not realize the capacity needed for their bees, why a good swarm such as we now have in our large hives would fill one of these little hives in two days on a good honey run and have to swarm out. To prevent this, we use and advise a very much larger brood chamber and find that two of these hives that we formerly used is none too large to hold an adequate winter supply of honey and is just as much needed to hold all the brood a good queen can supply up to the honey harvest. And surely it would be the height of folly to not supply the queen with all the needed room at such an important season. And then we find it is the whole thing to prevent natural swarming; not one of all these 200 hives here have swarmed this year to my knowledge and I believe I would know of it if they had. It has not been as bad a year for swarming as last year, but a lot of fellows have had to chase around after swarms and climb trees. All of this might have been spared by just putting another hive body on the one the bees were in about the first of May and then putting on some honey cases early so the bees could carry the honey up out of this big brood nest to give the queen room and go about your business till you take off your honey. If you want increase, you can have it by setting these hives apart and putting two more hives on these, one on each and a queen in the queenless one. As both our hives used are alike and interchangeable, 8 frames dove-tailed hives, and

both bodies boiling over with bees, no loss from ascending or other cause, no climbing trees as these large hives control swarming naturally and give us the stuff and save us untold labor and annoyance and enable us to get unlimited quantities of comb honey of the highest quality, a most valuable thing, as the production of comb honey is most desirable in so many ways. It is clean, it is nearly double in price, and honey in the comb is by far better flavored than extracted honey, and farther, its production should greatly assist us in eliminating foul brood.

Of all the things that I have found out about bee-keeping there is none of near so much value to the bee-keeping world as this method of swarm control, as it is accomplished by the use of two of the regular Langstroth hives used as one. No new fangled things are brought in or are necessary. And not only is this made possible for extracted, but we can produce, as you see, unlimited quantities of fine comb honey without having the bees swarm naturally and then later if we want increase we can have it easily, quickly and cheaply in three or four ways, by just setting these hive bodies apart at the end of the white honey harvest. First give a new queen to the queenless part and put on extra body on each hive and you have all fall to build them up for winter to be prepared for the next year. But if your own stock is good and you do not wish to go to the expense of sending to a queen breeder, for a queen, you can see that the queen has been laying good in the upper hive. Then you can drive her below and raise up your upper hive and put in a super below it and an excluder on the super and let your hive down onto that and in two or three days you will have a fine lot of queen cells started. Then if you wish to you can take out the super and let the hive down on the excluder and the lower hive and then in about four or five days more you will have a fine lot of queen cells capped over which you can remove and divide your swarms and give queen cells to each hive, not caring where the queen is. This is a very easy and economical way of making increase and this method would get a number of good queens from your best colonies, a very desirable thing, and they surely would be raised under what is known as the swarming impulse, in the middle of this mammoth swarm boiling over with bees. In fact, this is about identical with the way a prominent breeder is raising superior strong queens that look almost a third broader than the ordinary good queens on the market. There are other ways, such as starting nuclei ahead, etc., but these two ways of making increase are good enough and by this latter way of raising your own queens you have queens enough so you can give a queen cell to each hive, and in this way you do not have to even look out for the old queen unless you want to and it makes it most economical and almost automatic and if you determined you

have increase enough or do not want to make any increase, all you have to do is to keep on your surplus receptacles till later, then remove and cover with good porous material for the coming winter and again in good season put on your surplus cases. So you see you have increase or no increase, as you yourself determine, a thing not dreamed of when I started bee keeping years ago.

CHAPTER IX

The Real Mission of the Bees.

We have all of us been, I think, inclined to look upon the bees as gatherers of honey, mainly as this is what they were made for and there has been some good reason for this for the honey has been the thing which they produce that we all have had our eye on and it has appealed to our taste as well. But the polen they bring in is not so attractive to us. We have looked upon it as a by-product rather in the way as we used to get our honey. We formerly used to call it bee bread.

Even Dr. Watts (that almost matchless poet) wrote for us those memorable lines. "How doth the little busy bee improve each shining hour and gathers honey all the day from every opening flower." But he does not say a word about the polen she gathers, although he seemed to have knowledge enough of the bee, even at that early day to know that it was the lady side of the house that did all the work. As he wrote: "How skillfully she builds her cell. How neat she spreads her wax. And labors hard to store it well with the sweet food she makes." But not a word about polen. And yet it seems that polen gathering and polen distribution is the real great work for which the bees were designed, because it has been made by the great designer, imperative in two ways: That the bees must have and use polen. In the first place, the bees cannot rear their young without this polen; and in the second place the honey is placed below the polen and in going down after the honey, her head comes in contact with the polen which she hastens to deposit fresh on the next blossom. No other agency known can do this work so perfectly and economically as the so-called honey bee. As she does not allow this polen to get stale, for every so often she rubs off this stale polen and places it in her hip pockets and when she gets a load of honey she carries it home to feed the babies on, for honey alone seems to be too strong, or something, and so imperative is this need for something to mix with honey, that in the spring before the

blossoms come the bees will carry in horse feed and in the absence of this they will take in soft wood saw dust to mix in the honey. And so we see the beauty of this all. And why bees are the greatest friends of the orchard man as they will give him very much more and larger and better fruits. Turning many of his second apples into firsts, and besides doing this work for nothing and boarding themselves, a good swarm of bees with our modern appliances will store for its owner from 50 to 200 pounds of comb honey per year. In looking the matter over from my view point, I wonder that so many orchard men do not keep bees of their own and rake in those benefits from both ways instead of running the precarious risk of having the other fellow keep the bees for you and eat all the honey gathered from your blossoms. In the near future, as soon as man becomes more advanced, when we visit a large fruit establishment and after being shown by the owner his great spraying outfit, I should expect to have him take me to visit his fine apiary in modern up-to-date hives, well housed and cared for like the other stock on the place, for if they are thus cared for they will bring a larger dividend for very much less labor than the other stock or even fruits.

CHAPTER X

When and How to Change from the Single to the Double Hive.

If you are keeping your bees as you probably are in a single hive and would like to change to our double method, you can do so most easily as we use no new fangled appliances and our hives are of the latest pattern in use. The best time to change would be just after you take off your white honey in July, in our latitude. Then you can fit up another hive body the same as the one you have and set these on your parent hives, and have them build up good, if the season is good and a good fall flow, they will build up enough but if it is not good it may be well to feed some as it is so important to have them have plenty of stores for winter. If you should think well to feed, you can put another hive body on top and in this put a 10-pound pail nearly full of syrup well dissolved with hot water and perforate the lid with fine holes, not too much and see that the lid is well put on and invert the pail on the frames right over the bees.

This is the most natural way for bees to get their stores right above them, and invert the pail and the suction will hold the syrup in only as fast as the bees suck it out. When all is done cover up well with some porous material like old cloths or quilts or a tray filled with dry chaff is the best. If you should ever think this double system not the best and wish to change back all you have to do is to set your top hive off again, and you would be just as before. But none that have tried it feel like going back to the old way. There is another time when it will do to change to the double hive and that is about May the first, in this latitude. If you put another body onto the hive, as you already have, it will prevent swarming, which is such a nuisance and your bees will be held together through the honey season without swarming and the results in honey are liable to be as large or larger than if they are worked the other way and allowed to swarm. At least that was our experience this year when I moved a load of bees home from an apiary where the conditions seemed much more favorable than where mine were placed, and I doubled mine right up while those in the more favorable yard were left single and yet mine filled the top hives and gave considerable more surplus than those in the single hives and were fine for winter. And this is a fine plan, as where they are doubled in this way in the spring, they are sure to be alright for winter or to be set apart at the end of July to make increase at the end of the white honey flow, if you wish it.

Making my first swarm by setting the two bodies apart as shown.

CHAPTER XI

Making My First Swarm in Public By Division By the Pearce Method.

The above cut shows us making my first public demonstration of how easy I make my swarms by the Pearce Method, by dividing, i. e., by just setting the two hive bodies apart.

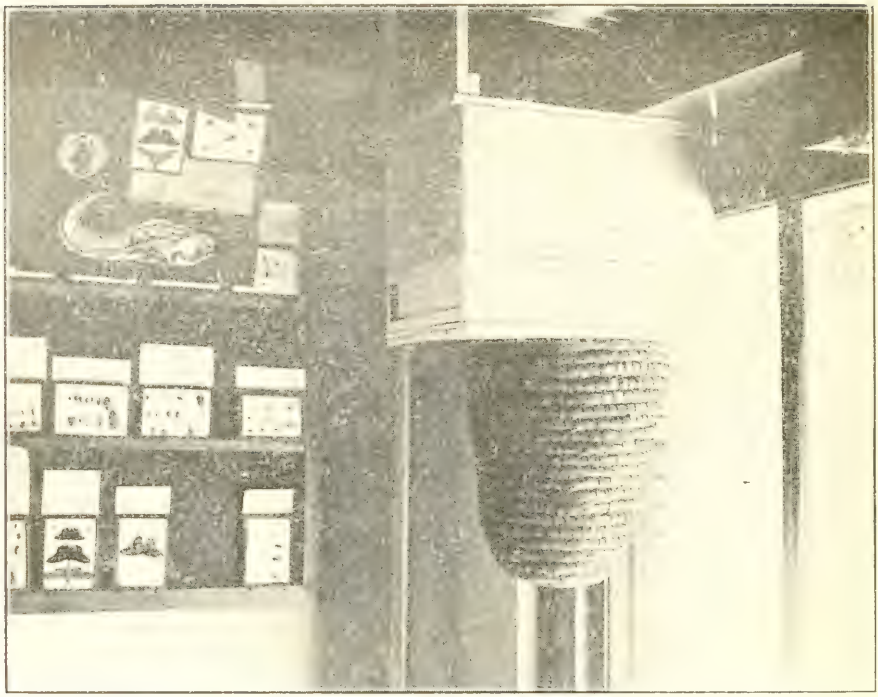
I naturally feel proud of this scene, as a boy would getting on his first pair of trousers. For I felt sure I had found out a good thing for myself as well as my fellow bee keepers in being thus able to control swarming and make our swarms by division so easily and quickly and so very much better this way. I have expressed it in this way, that it is as much better than the old way of swarming as the Westinghouse is better than the old brake to stop a passenger train. And now after all these years of trial, I feel sure there is very much more in it than I at first supposed. For I did not then have the conception that I now have, of the vastness of our great honey resources, which is estimated to be even greater than all of our agricultural products and live stock, which is placed at about ten billions of dollars. Therefore you will readily see that when man becomes a little more intelligent and begins to go after this vast amount of

good property which is all about him, it will mean something to him to be able to control this everlasting swarming and make his swarms in ten seconds instead of an hour, as formerly, and then, too, that they will be so much better and will be made when he wants to make them, or not at all if he so determines. It is little wonder that we should become enthusiastic.

You will notice that the hive body just in front of the boy with the smoker in his hand, was on the other hive body that has the honey cases on now, and both of these hive bodies are just alike, and are regular Langstroth sized hives, and so are interchangeable, and make up one hive as we used it for a brood nest, and now each part is to have another like body placed on each and be filled up to go through the winter again.

The gentleman in the center, holding his watch to take the time required to make a new swarm by this method, is Senator William Alden Smith. He found that the time required was ten seconds, quite a shortening from the old way of one hour.

We formerly advocated separating these hives at the beginning of the honey flow like this outfit was, but we now think it is better to wait and not divide till at the time of taking off the white honey, for if you are careful, you have all fall to build them up, and they should be all right and we think we get really better honey and more of it by keeping all the bees together during the honey gathering. But it is may intention to try some colonies both ways this year again to see if I can be more sure which is the best way. We sometimes grow impatient and think more ought to adopt this easier and better method of bee keeping, but we have to be patient till others see it as we do. But time will bring it about. When young Westinghouse presented the air brake to the elder William Vanderbilt, he asked him if he meant to say he could stop a passenger train with wind, and Westinghouse replied, "Yes," and Vanderbilt said he had no time to waste on fools.



A little German straw hive in the High School, which is of value to show how small a hive was formerly used. One of our large swarms in our large hive would fill this little hive in two days on a good flow and be obliged to swarm out. In this cut we show the mothod of transferring from small Old Style German hive to removable frame hive above, giving more room to bees and making them produce straight combs.

CHAPTER XII

Transferring Bees from One Hive to Another.

When I first kept bees, if we wished to get bees out of an irregular hive into one of modern make, the only way we knew of was to break open the irregular hive and cut out the best of the combs and fasten them into the frames of the new hives, but this was a mussy job and anything but nice, and these combs fitted the new hive but poorly and were more or less uneven. Then came the Alexander plan of transferring by placing the new hive on top of the one we wished to get the bees out of and in a short time the queen would go up and commence to lay in this hive and then we could slip a queen excluder between the old and the new hive

View of bottom of Old Style German Hive. Bees were transferred to regular moveable frame hive. While this hive is filled with honey, it is almost useless as there is no way to remove it without destroying contents.

and the queen could not go below again and in three weeks, if we wished, we could remove the old hive, as the brood in it would be all hatched out, or you could leave it longer till fall. This was a great improvement over the old way and a great relief, as we could then break up the old hive and extract any remaining honey and melt up the wax, and in this way we got all good straight combs.

But now comes a plan of transferring for foul brood, about the only disease of any account we have to contend with. The old way was, of course, to shake the bees from the diseased combs onto clean foundation or an empty hive for a time and then give the combs, but this way has many troubles. To start with, it is anything but a pleasant job. If you've ever tried it you know. You get a lot of stings, some honey is sure to drip and bees are liable to be on the job if you don't look out, and you will disease more bees than you will cure. If there is anything that makes a man feel like cursing, it is shaking foul brood. And now comes

this new way given in the March Review, by Mr. Joy in Idaho, and is called the "water treatment" for foul brood. It is like this: He takes the diseased colony and sets it into a tank with a little water in, enough to come up to the top of the entrance. Then he puts a clean hive with foundation on top of this, with a screen on top for air, and a good weight on top of all, so the hives cannot rise. Then he begins to pour water in the tank and lets it rise to the top of the old bottom hive he is transferring from, or just to the bottom of the combs in the top hive. He says to take about twenty minutes to pour in the water, and the bees rise of course with the water and are all pushed up in the upper hive. Then you can put a clean bottom board on where you lifted the diseased hive from, and set this hive with the bees in on this board and the job is completed. Now, while I have never tried this way, still I believe it will work and should be a great relief, and believe it should go a long way towards helping to eradicate foul brood, for with this plan no bees can get in and none get out, and with no combs to handle or no bees to come in contact with, it surely ought to be a relief. One reason why I believe it should be a success is, because I had my bees wrecked by a hail storm, and the whole apiary was turned into a pond of water, and the hives floating. It was the last of May and the hives were heavy; there was only about two inches of the hives above water and the bees were all pushed up in that little space. I fished the hives out and set them on the ground, but I think I lost no bees nor queens, nor did there seem to be much loss of brood, and in a few days they had the mud cleaned out and gave us a good crop of honey, so I believe that this water treatment will work. Let us all try it on one.

CHAPTER XIII

Some of the Advantages of Having Bees in Buildings Above Ground Instead of Outside as Formerly Kept.

One of the first I will mention is, less liability of bees stinging when properly placed in buildings during the handling of them. The operator being shut away from the active flying bees from the hive entrance is not much disturbed by what few bees that leave the combs while handling them, and instead of annoying the operator they are looking for a way to escape from the building, and if the windows are provided with suitable openings, all bees will rapidly escape and make no trouble. Then bees in buildings do not have to be moved winter nor summer. When we used to place our bees in the cellar in the late fall and remove them in the spring, it was always attended with a good deal of anviety to know just when to make these movements, without much disturbance and considerable loss to the bees, and I feel greatly relieved without these two movements a year, besides the advantage of a much superior wintering and healthier condition of the bees in the spring. When it comes to working the bees, we have them elevated in the house about 20 inches, which makes all kinds of difference in working with them. Outside on the ground, it is without the shade that the house affords, which reminds me of what a relief such shelters would be in the far south where the houses could have shutters to open on the sides for air and light. And working under such a canopy must be greatly valued by our southern bee-keepers, lumber also being much cheaper there than here. The advantage of having a shelter at hand with the bees, where we can keep our appliances to work with, cannot be too highly appreciated, as we do not have to go back and forth to a honey or supply house to get the fixtures we need. The value of this alone and the benefit of the shelter from storms and the shade afforded would go far towards paying for the construction of the shelter. And when we look at our bees so nicely housed away from all the severe storms, it makes one wonder that any one should ever leave their bees out where it is impossible to keep the entrances of the hives open for proper ventilation that is so essential most of the time. But one of the greatest benefits from a shelter is that we can work with our bees in almost all kinds of weather. When if they were outside we would

not think of working with them. I looked through a light colony the 15th of March and saw that they had a queen and brood, but I would not have thought of this if they had been outside, so I feel sure if our bee keepers will carefully weigh the advantages and disadvantages of these three prominent ways of keeping our bees, they must become convinced of the vast superiority of building an inexpensive shelter for the bees where they are safe at all times from storms and marauders, and where you can examine them at any time and keep the entrances of the hives open at all times from within and without, which is so very important for the well-being of the bees. And where the bees can remain winter and summer, no lugging up or down stairs twice a year, no packing and unpacking fall and spring, nor trouble and annoyance with double-walled hives during the working season. I feel sure if you reflect on these things, you will wonder that we all have not housed our bees before instead of keeping them in the different ways that we have, subjected to so much uncertainty, annoyance and inconvenience.

CHAPTER XIV

Feed, Feeders and Feeding Bees.

There have been a great many devices made for feeding bees, and I have tried quite a number of them, and while I would not want to be discourteous to any, I would like to tell something about them and the one I like best and why.

Before we can feed anything intelligently, we have first to understand how that being takes its food. For instance, if we were going to feed a giraffe, we would not want to place its food down near its shoulders as you would feed a man or other short-necked animal, for if we did, it would probably starve to death, but if we put its food away up where none of these other animals could reach it, then it could get along very well and would have a monopoly of the food because no other animal could reach it. Likewise with the bees, they take their food from above, like the giraffe, but not in so marked a degree, and to feed them intelligently, we have to understand this fact. The bees always store their food above them, and that would prove where they expect to feed during the winter. In the late fall in our climate, the bees drop down to the bottom of the hive or tree and prepare for the winter. They cluster in a round mass between the combs, in empty combs where the brood was last hatched out, but if all frames are full, they first eat out the honey in the cluster or this ball of bees as we call them, because if that was left there, it would keep the warmth from passing from one division to the other. Then as colder weather approaches

they take their honey from above and thus extend the empty combs upward as they pass up, and so they continue till the approach of spring, and upon a moment's reflection, you will understand that they could not have gone in any other direction. These separate divisions of bees could not get out of the spaces they are in and they could not cluster with their heads downward, or they would have a rush of blood to their heads and die of apoplexy, and if they would try to lie down on their sides all this time, they would probably have to have an operation for appendicitis before Spring, or had some bad adhesions, so "it is all up with them," as the sweeper said when he was stuck in the chimney, and therefore they pass upward to success if there is enough honey above them or to sure death if there is not. Should they reach the board, if it is a sealed down cover, or the burlap, if it is porous material as it should be, and if the honey is all gone, they will die. Nothing but good stores directly above them is of any use, as they cannot change to other combs outside of the cluster and would perish with plenty of honey in the sides of the hives, as has often been seen, for when they consume all above them, they cannot reach any of the honey stored on each side of them and so die.

But I must stop to tell you about feed, feeders, and feeding. It will not be very long, however. I use granulated sugar, as we all do, when obliged to feed. With our bees in our two-body hive, we do not have to feed much, as the bees feed themselves. To make the feed or syrup, I put sugar into a pail or dish and mark or measure to where the top of the dry sugar comes, and pour boiling water on it till the sugar is dissolved or melted, continuing to stir as the sugar settles down and to pour in water till it comes up to where the dry sugar was, and you will have a syrup about right for the table or for the bees, and after the first batch, you can make it thicker or thinner by raising or lowering the water from this mark, but keep on stirring till the syrup looks perfectly clear and all the sugar is dissolved. This is important so as not to clog the feeders.

About feeders. I just use a ten-pound honey pail with friction top. This makes the best all-around feeder I have ever tried. I perforate the lid with fine holes, with a sharp small awl, the only thing to be considered being to get this perforation done as it should be. For a light colony, do not perforate out too far from the center, as the syrup might drip dwn if you get the holes beyond where they are any bees.

Fill your pail up to an inch or two of the top, so as to leave a vacuum, but you can feed a half pail or less if you wish. When your warm syrup is in, put on the lid and see that it is on good so as to exclude all air and not leak. Then invert it over the bees right down on the naked frames, then put a hive body, or hive rim with neither top nor bottom,

around this can on top of your hive, and fill it with rags or crumpled paper, or most anything porous, and pack it down snug. Then you can put on your cover and your job is done. Your bees will take down this syrup winter or summer, and if you will keep your bees in buildings as we do, above ground, you can feed at any time or look at your feeder at any time of the year, in any weather, only do not open a bee-hive unless it is above 45°.

CHAPTER XV

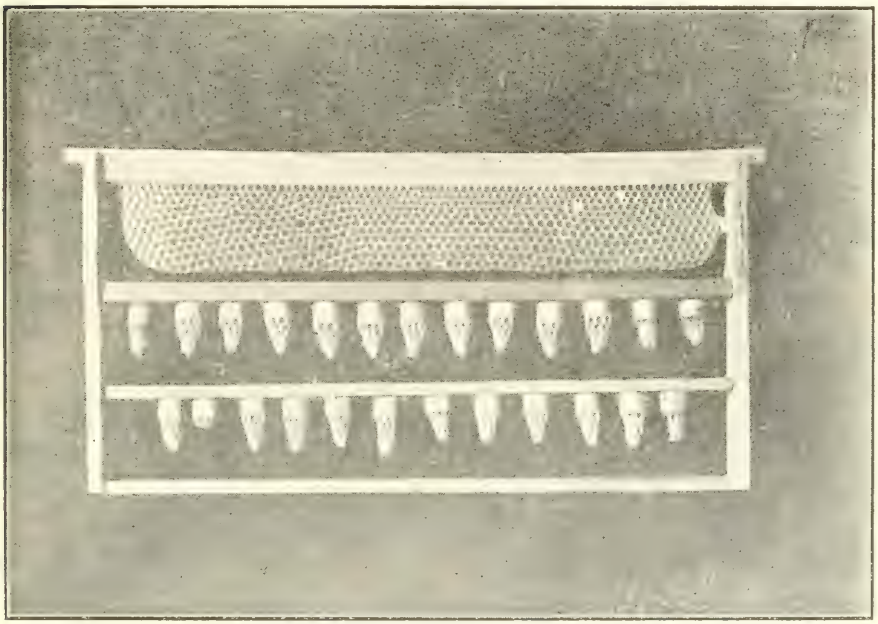
Getting Our Honey Supply With Only Two Visits a Year.

Are bees destined to give man his greatest and most easily obtained sweet supply? It really looks as if they are. There is a honey supply coming down to us each year that is greater in value than all our farm crops and cattle, and is allowed to go to waste when it might be gathered up so easily.

Bees have spread themselves, or have been spread by man, until now there is scarcely a place where man is, where bees are not. They have, as it were, been running parallel with man, sometimes getting a little too near to him, but always as if it were saying to many, "Take me and use me," but man has not been intelligent enough to do so. He now seems to be waking up to the great possibilities of the honey bee, so let's canvass the situation a little to see where we are at.

As we have said, man is on the job, the bees are with man and this enormous honey supply comes down to us each year unsolicited, and unlike our mineral wealth, which once used is gone forever, the honey supply is renewed for us each year. Then all that seems to be needed is for man to put this great combination together and use it for his benefit. Heretofore, he had not had proper understanding of the bees, nor the proper appliances to work with, but now, I feel sure that both the knowledge of the bees and the appliances to handle them have been so improved, that there should be a great advance on the double quick, to gather up this great store of the purest of all sweets and most valuable commercial product for man's benefit. So at this point it seems very fitting that we have emblazoned on the front cover of our national magazine this advice, "KEEP MORE BEES." In the past the farmers and others have had no knowledge of the bees other than to have them increase by natural swarming and in the little hives that

they have been kept in, they are sure to swarm out at haying time, when the farmer is so pestered with other jobs all coming at once, that he voted bee-keeping a failure and quit. But now with the modern appliances, in which bees do not swarm naturally and give him this annoyance, he should take this matter up with vigor and secure for himself and family all of this sweet supply which is all about him, and the bees will go out and bring it in for him, so if he desires he need not even go out doors for it. It is along this line that I will now write.



Set of artificially raised Queen cells. Most Queen Breeders prefer to have a special house for raising Queens. All our bees are housed at all times, so with our method, we do not need special houses.

I will suppose, then, that you have one or more swarms of bees. Instead of letting them swarm naturally as they have been doing, or will do if you leave them as they are, about the first of May, or just before the fruit blooms, just put on another hive body filled with good straight foundations or combs, and give access to this, that is, do not have anything between the two hives. Then put on top of these, comb honey cases for 50 or 150 pounds, and put this outfit in a shelter where they will be away from all storms and marauders, and you can go about your business till about the first of November when the bees will have clustered down in this big hive out of your surplus honey and you can lift off your honey without seeing or hearing a bee and you will receive your sweet supply with far less labor than you have

received a like valuation of property from any other source on the farm. And this method may be repeated from year to year; just set on your honey cases about the first of May and lift them off about the first of November, two visits a year, this being about as nearly automatic as we should expect to get things in this world. And it opens great possibilities, not only for our farmers, but city dwellers as well where they have attic room. And it should be of still greater value to our men with large apiaries in out yards where bees are kept on a large scale. For with a modified plan the apiary may be doubled artificially in one visit at the time of taking off the white honey, the latter part of July, with little or no labor.

CHAPTER XVI

Bees, Poultry and Fruit.

Here are three industries, either one of which, if well followed, will make a full-fledged business or occupation, but after having had the privilege of studying the whole three for some 35 years, I have fully come to the conclusion, that the best results can be obtained from a judicious combination of all of these industries.

Each of these vocations are helpful to the others and in some respects absolutely necessary for the best results, for instance: The fruits are a great help to the bees and the bees are just as essential for the proper pollenation of the fruits; but some may wonder how the poultry could be benefitted or be a benefit to the bees or fruit.

Well, it is like this: the poultry needs and must have shade. We might about as well cut the heads from our poultry as to turn them into a barren lot without shade, and fruit trees, especially plum trees makes a very fine shade for the poultry, and the poultry does not seem to care for or trouble the plums. On the farm our plum orchard came right down to the chicken yard, but I never knew the chickens to, in any way, trouble the plums.

But why select plums for the poultry yard? The first consideration would be because the curculio, this troublesome insect that stings the plums and destroys the fruit, cannot well exist where plenty of poultry is kept in the plum orchard. This insect in early spring burrows in the ground about the plum trees and where the poultry is kept to work the ground over under the trees this insect cannot live.

For this reason the keeping of poultry is the best means to employ to rid the plum orchard of this troublesome pest.

Then again, the plum trees are gross feeders and the droppings from the chickens is a great help in keeping up the fertility of the orchard and where a large flock can be kept, this amounts to considerable, as the chemists tell us the droppings from eight hens is equal to one cow, and if much poultry is kept they will keep the orchard entirely free from weeds, so nothing will have to be expended for cultivation, therefore the avails from the plum orchard can be had with little or no expense, and we find plums one year with another, one of the surest and most profitable crops.

If the ground is kept thus clean by the poultry it would be well to divide the grounds with a netting and sow down one-half of it at a time to oats to furnish green feed for the poultry and to draw out any strong odor from the ground.

A word about the varieties of plums to plant. With my present knowledge I think I should plant half each of Lombard and October Purple. I know that the Lombard is all right and from what I have learned of the October Purple it is in every way reliable. They could be set 12 to 16 feet apart. If other fruits are to be planted they could be set outside of the poultry enclosure. But apples might also be in the chicken yard.

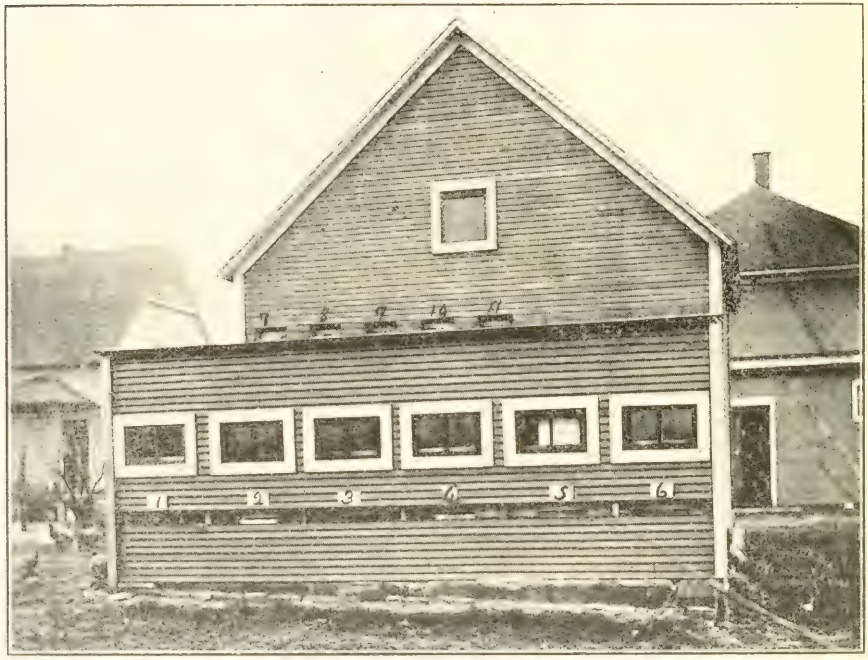
Now that we have learned with our improved method of bee keeping, we can just as well keep our bees and our poultry together in the same houses and same yards with no loss to either. This will greatly increase the profits and reduce the expenses as the poultry houses are the big item of expense, and if we can utilize them for the bees also that will yield as much or more profit than the poultry it surely should be profitable.

With these three pursuits carefully arranged on a three to five acre lot or more extensive farm, I feel sure a larger revenue can be realized from it than from any other rural pursuit I have any knowledge of.

I would try to locate on a good line of communication with a good market near one of our interurban roads if possible. I would want a good elevation on account of the fruit. The soil should be medium, not too heavy or too light. Care should be exercised in avoiding mistakes in laying out the grounds, and putting up the buildings, if none are on the ground or re-arranging buildings if any are on the place. and the selection and planting the fruits which should be started as soon as possible to attain a growth for shade and fruit.

In building the poultry and bee house, I would build it 12 feet wide and as long as you need for the flock and no higher than you need, say 7 feet. I would face it to the east as all of your windows and openings are supposed to be on that side and will be away from the direction of our prevailing severe storms and the west side against which

the poultry roosts should be, made as tight and warm as possible, and then on that side fast growing vines might be planted like grapes for shade to keep off the severe west sun in the later part of the day. This will be a great relief to the chickens when they go to roost at evening. I know that facing the house to the east is quite an innovation. It has so long been the habit to face them to the south, but if you will reflect on it for a moment, you will see if you face toward the south, you make almost an equatorial heat with the sun shining on the front of the long house, and then it spoils your opportunity to protect your house, as it should



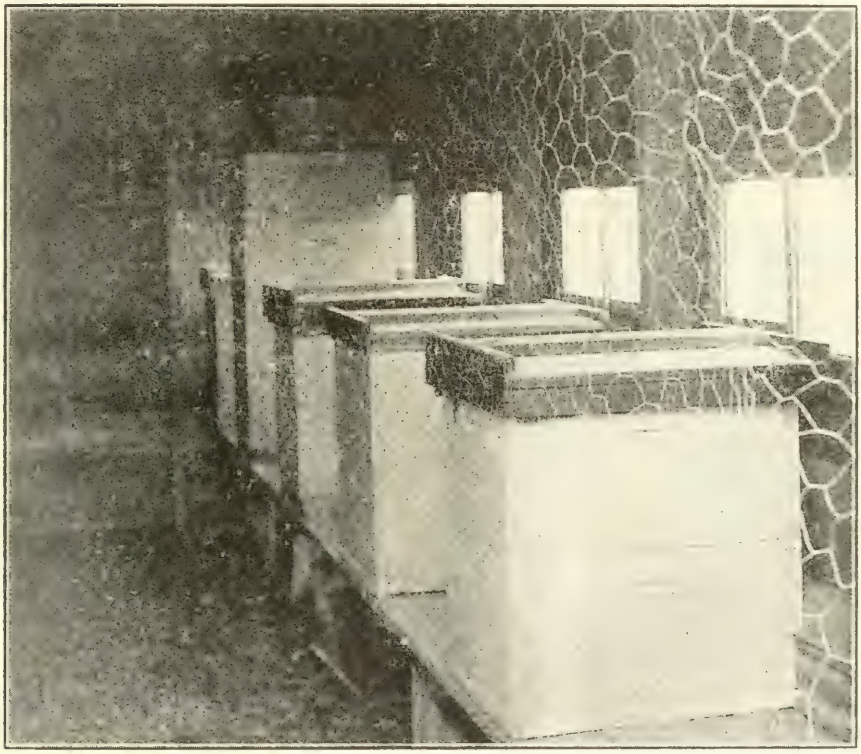
Exterior of a combined Poultry and Bee house at the author's home, showing where bees are kept in barn loft and poultry house.

be, from the west and southwest storms and wind or shade as it should be, and then the early morning is the coldest time and if the windows open to the east the poultry will get the benefit from the morning sun.

I think if you reflect on these points you will never again want to face a bee house or poultry house to the south. A house as good as we need can be built of dressed hemlock and covered all over with roofing material on the outside with some closed ventilators coming down to perhaps a foot of the floor, but for the convenience in keeping it clean I want a good cement floor in the house. It need not be thick

as you never intend to drive a loaded wagon over it. Then you can scatter a little dry sand or litter over it and everything will be clean and nice.

If you will please notice the inside cut of my house, you will notice that the shelf the bees sit on is 20 inches high from the floor and 20 inches wide. Under this shelf is an admirable place for the hens' nests. I use old bee hives for this purpose. The glass of the windows should all be cut one-half inch short at the bottom to let any bees go out, so



Interior of the Poultry and Bee House shown on opposite page.

they will not die on the windows if you work at the bees when the windows are closed.

But in the summer all windows can be taken out as no bees come inside enough to bother you.

In winter, we stop up this cut in the bottom of the glass with a bit of lath.

Before I close I would like to speak of the dropping board I use. I had become disgusted with dropping boards,

they were so hard to clean. So I thought I would try one of oilcloth and to my delight nothing sticks to it. We throw a little sand or dust over it when ever we clean it off. If you have old wooden boards, by all means cover them with oilcloth. All poultrymen should know of this as it makes easy what used to be a hard job. I use a trowel to clean it with.

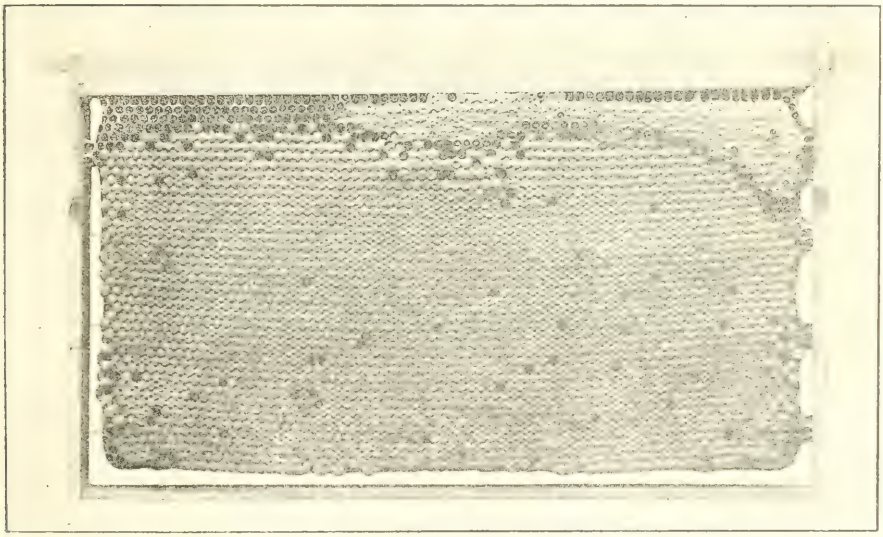
CHAPTER XVII

How Bees Behave in a Chicken House Where Bees and Poultry Are Kept Together.

This is a subject about which there is not much known. At least I did not know anything about it till I tried it. I never had heard of anyone trying it, but on the fruit farm our Brown Leghorn Chickens spent a good deal of their time in the bee yard, so much so that I thought seriously of making the bee yard into a run for the poultry. I have heard that bees sometimes sting chickens, but I never saw a case of it, so I do not believe it is prevalent enough to give any harm.

Last year we had 30 hens and 6 large colonies of bees together all summer and they did not seem to give any trouble to the hens, and the hens seemed to take well to the bees. The poultry house was 10 feet wide and 18 feet long. It is built across the end of the barn and faces to the east. As we understand, poultry house construction, there always should be one dark side and one very light side for the poultry themselves so it makes it easy to arrange it for bees after it is built for chickens. The roosts were arranged on the dark side of the house, as they always should be, and all along the front as you see, there is a row of windows and just below these windows we built a shelf 20 inches high and 20 inches broad. The length of the house, and on this shelf the bees are put. This places them high enough to work with well and also they are high enough so the chickens can go under this shelf where they have their nests in some unused bee hives, and we hang a curtain down from this shelf and this makes a dark place for the nests, which the hens like. The hens have all the floor space they would have had if the bees were not in and to keep the hens from flying up on the bee hives, we just screen down from the top with 2 inch poultry netting to the edge of the shelf behind the bees. This neting we have in 6 foot lengths and a light bar across the bottom which we hook up to the roof

when we work at the bees, which is not very often, as we keep them. Two visits a year will do, if we don't care to give them more. Once to look them over in the spring to see if they are free from foul brood, and put on our honey cases and again to take off honey and fix them for winter. But the hens we have to visit over 700 times a year, if we only see them twice a day, and the feed we give these hens for the year, if seen all together, would frighten us. And yet poultry raising is lauded to the skies while bee keeping it is not thought amounts to much, but you will find a few colonies of bees will bring you more clear money than quite a large flock of chickens, and will not require a hundredth part of the labor to care for them, as the bees work for nothing, and board themselves and so require no feed from you, and little attention.



A perfect healthy frame of sealed brood or bees almost ready to hatch.

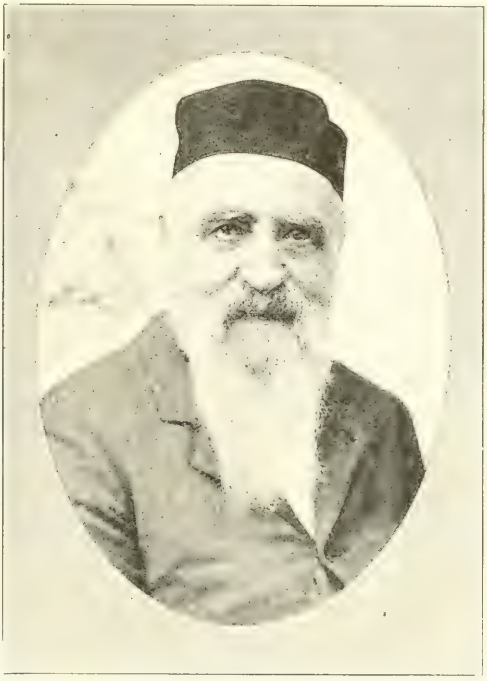
FATHER L. L. LANGSTROTH
The Originator of our Removable Frame Hive

LORENZO LORRAIN LANGSTROTH, sometimes called the "Father of American Apiaculture" was born in Philadelphia, Dec. 10, 1810. He entered Yale College graduating in 1831. In 1837 he became interested in bees by seeing a glass vessel filled with beautiful comb honey at the house of a friend. He became enthusiastic and at once purchased two colonies of bees. In 1848 he began to experiment with hives of different forms and after much study and experimenting he devised the Movable Frame Hive

This invention gave him perfect control over the combs of the hive and gave a new impetus to the easy and profitable management of bees.

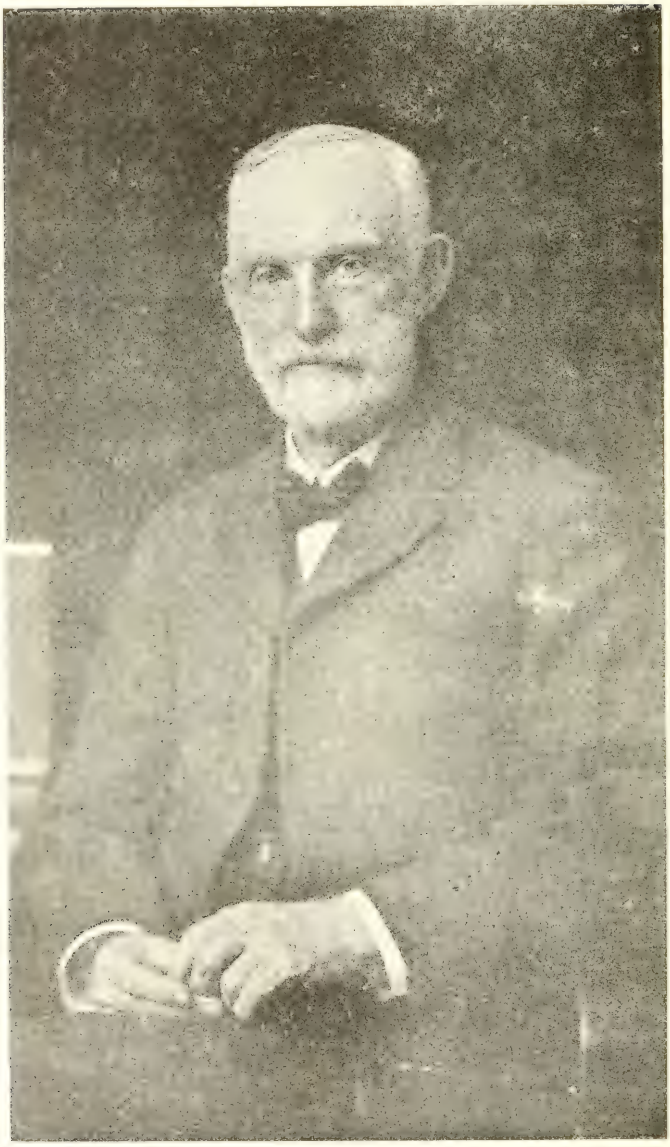
Mr. Langstroth afterward engaged in the propagation of Italian Queens on a large scale.

His many writings on the subject of bees have made his name venerated by American Bee Keepers, who are aware of the great debt due him by the fraternity.



CHAS. DADANT

MR. CHAS. DADANT was born May 22, 1817 at Vaux-Sous-Aubigny, France and came to America in 1863, settling in Hamilton, Ill., and engaged in Bee Culture, which in his hand yielded marvelous results. He soon became noted as one of the Leading Apiarists of the world. Mr. Dadant has been a prolific writer and his contributions to the Leading American and European Bee Journals have made his name thoroughly familiar to apiarists all over the world.



A. I. ROOT

The name of A. I. ROOT deserves to be considered a household word. His great crowning work, the A-B-C and X-Y-Z of Bee Culture, which is an encyclopedia on this subject would be enough to immortalize any man.

The great work he has been doing later for the upbuilding of the home and the elevation, morally and physically of his fellowmen, must endear him to every lover of the good, the pure and the true. It is a great thing to so live that all our lives, like his, are devoted to the uplift of humanity.

THOMAS G. NEWMAN

The American Bee Journal is the oldest and one the best periodicals relating to Bee Culture. THOMAS G. NEWMAN was the Editor and for many years identified with the publication of this paper and through his writings has become familiar to all who are engaged in the raising of Bees.

While Mr. Newman was never a large honey producer, the information and instruction which he has furnished through the American Bee Journal have been sufficient to endear him to the many who have been seeking this information, and have looked to him for the knowledge to enable them to carry on this work and to solve the many problems which always come to those in the pursuit of any business.

"The pen is mightier than the sword" and as such Mr. Newman was a Master Mind.

It is estimated that we are producing a railroad train-load of honey, fifty miles long, in this country each year. Yet the Bee Industry is only fairly begun. These four men, who have a place in our book, may well be designated as the wheel horses that have done so much for our pursuit to make it what it is. Others have done well and we would not detract from any, but I feel sure that all will join in doing these men special hono and perpetuating their memory.

SUMMARY

I present these few testimonials from these very busy people, who are well known to all of us, for the encouragement of those who may not have had much of any experience with bees to show them with what ease these people get this large yield of honey from year to year by this method. None of these people, as I am aware, had ever kept bees before.

This you will notice is all made possible by having the bees in this large hive, made of two ordinary hives, and then placing this hive inside of a building or shelter where it is safe at all times and can be most easily cared for. The fact that we can get such a large supply of comb honey should appeal to every one.

It has heretofore been impossible to produce comb honey without swarming, and this swarming was a great trouble to any one starting with only a few colonies of bees. They did not have enough time to spare to watch them, and swarms would issue and go away in the absence of the keeper. This made it so uncertain and has been the great cause of so many starting in bee keeping and being obliged to give it up. Now with this new way, where the bees do not swarm till you wish them to, it makes it possible for people with other business to begin bee keeping and pursue it till they can give up their other occupations and devote themselves wholly to the bees if they wish. For this reason it will make a fine vocation for ladies as well as gentlemen, as it is an open air business and you are not confined to it except for a minimum of time through the summer months, as the bees are dormant in winter.

This is so different from poultry keeping, which many have tried, but in which the constant care has been so great that many have been obliged to abandon it. I know of

nothing that should appeal to teachers and others in various walks of life so much as bee-keeping by this method. It can be taken up almost anywhere that you happen to be, in city or country, as honey is found plentifully in any locality. Not much capital or land is needed to start. Neither does it require an expensive outfit to begin. You can start with one colony if you wish. It is all very simple and you should learn it in a day or two. It is nothing to learn as compared to the poultry business or fruit raising or many other pursuits, and vastly more profitable.

Should this book become interesting to many and be instrumental in helping some young person to a start in life, or make life easier and more pleasant for some aged person, it will be a source of gratification to the author and his efforts will not have been in vain.

WM. H. ANDERSON, PRES. FOURTH NAT. BANK.

Grand Rapids, Mich., July 9, 1907.

To all whom it may concern:

This is to certify that I have been keeping bees on the Pearce System. They have wintered well and are doing fine. I am so well pleased with the system that I have this day ordered another outfit.

WM. H. ANDERSON.

Grand Rapids, Mich., Feb. 26, 1909.

This is to certify that I am keeping bees by the Pearce System. Last year one outfit gave me 150 pounds of fine comb honey in one-pound boxes. The work in caring for them was merely a pastime as compared with the old way when they used to swarm out just when we were at our haying, fighting potato bugs, and perhaps a dozen other jobs. It would be well if this plan could be brought to the notice of all our farmers. I am a dairy farmer in the Grand River Valley north of Grand Rapids.

L. A. HUBBARD, R. R. No. 9.

I have kept bees in my city home in Grand Rapids, using THE PEARCE METHOD OF BEE KEEPING for the past two years. I had absolutely no experience with bees and gave them little care. I followed the instructions in THE PEARCE METHOD and in addition to harvesting 144 lbs. of the finest clover honey this past summer, I had such an increase in bees that I made another colony by following the Pearce instructions. There was no swarming during the entire year and both hives went into the winter in good, healthy condition. The original outfit cost $15.00 and this year's crop of honey was worth $22.80, besides the new colony of bees.—George W. Welsh, publisher of The Fruit Belt.

Grand Rapids, Mich., April 10, 1915.

Mr. J. A. Pearce,
City.

Mr. Dear Mr. Pearce:—

I take great pleasure in recommending your system of bee keeping, and for the benefit of those interested, will give a very brief statement of results obtained in three years.

In 1911 I began with one swarm of bees, keeping it according to the "Pearce Method." The following year I had three swarms of bees and 170 section boxes of finest white honey from the one swarm. The next year I took 360 section boxes from the three swarms.

Last summer was not a very good one for the honey crop, there being almost no white clover near here, however my three swarms stored nearly 300 section boxes.

About August 20 I divided two swarms, making five in all, which I now have in fine condition for this year's work.

I shall always be grateful that I learned of your "method."

MATTIE J. ROGERS,
R. R. 1.

Mr. Joseph A. Pearce,
Grand Rapids, Mich.

My Dear Mr. Pearce:—

Permit me to express my gratitude to you for suggesting the plan of having a swarm of bees so arranged in my barn as to give continuous satisfaction at a minimum expenditure of energy and thought. Since you placed the hive of bees with me, I have found scarcely any care necessary and they have returned to me forty to sixty pounds of honey per year, which has enabled me to make a good many friends happy, for I know of no more delightful gift to a neighbor than a card of beautiful honey. The venture has been in every way a success and I wish more people would take advantage of your plan.

Yours very truly,
CHARLES A. GARFIELD.

THE WIDDICOMB FURNITURE CO.

Grand Rapids, Mich., July 16, 1907.

My Dear Mr. Pearce:—

I have taken no small amount of interest in your recent exposition of bee culture, especially that phase of it showing how simple a matter is the care of a single hive of bees for a family supply of honey.

I think it is twelve years ago that I installed in my barn a hive of bees received from you. During all these years we have had an abundant supply of honey, and no attention whatever has been given to them other than an occasional examination that we might note they were prospering. During this time we have taken from the hive all the honey we required for our personal use, and in addition to that all needed for the lunch room of The Widdicomb Furniture Company in the exposition seasons, for my hive has grown to be exceedingly productive.

Very truly yours,
Mr. J. A. Pearce, City. WM. WIDDICOMB.

THE BELKNAP WAGON COMPANY.

Mr. J. A. Pearce,
City.

Dear Sir:—

I take pleasure in writing and thanking you for the swarm of bees bought of you a little more than a year ago and placed in the attic at my home on Madison avenue. Last summer I found that the hive was completely filled with honey and on taking it out found that I had 134 pounds of the purest and whitest comb honey.

As a money investment it is one of the best I have ever made and the pleasure of having the bees and seeing them about is of greater value to me than any profit I may make out of the honey. As it is I have had honey to give my neighbors, have sold quite a bit of it and have plenty left to supply my friends for the entire year. I think I shall have to put in another swarm during the coming season.

Very respectfully,
C. E. BELKNAP.

A. J. VANDENBERG.
Savings Teller, Grand Rapids Savings Bank.
Grand Rapids, Mich., Feb. 26, 1909.

Mr. Jos. A. Pearce,
City.

My Dear Mr. Pearce:—

I wish to say just a few words relative to your method of keeping bees.

In the autumn of 1907 you suggested that I try a swarm and handle them under the "Pearce system." I did not have very much faith in it at the time, but on your strong recommendation I bought a swarm. In the spring of 1908 they showed up strong and went to work at once. At the end of the season I was surprised to find that they had gathered 156 pounds of comb honey, and I at once ordered another swarm.

The results were beyond my highest expectation as several of my neighbors have bees under the old method and scarcely ever get any results. The fact that they use their bees in connection with their greenhouses may have something to do with their lack of success, but I feel that your system is certainly the right one, as there is practically no work connected with it excepting the removal of the honey and taking care to cover the hives in winter.

Yours respectfully,
A. J. VANDENBERG.

EDWARD M. DEANE & COMPANY.
Grand Rapids, Mich., March 1, 1909.

Mr. Joseph A. Pearce,
City.

My Dear Mr. Pearce:—

In reply to your inquiry as to whether I was satisfied with the swarm of bees purchased from you two years ago, will say that they have been highly satisfactory. Your method of having bees so that they do not swarm is certainly very satisfactory to the amateur bee-keeper as they require no attention whatever, only to take the honey off in the fall.

The hive that I have did not become thoroughly established until about the middle of the season of 1908, but I am pleased to tell you that we took off in the fall about 35 pounds of very superior honey, leaving for the bees themselves in the lower sections of the hive, I should estimate, nearly 100 pounds of honey. At the present time they are in fine condition and I have no doubt but what the coming season, if it is a good one for honey gathering, I will get from 100 to 150 pounds of merchantable honey.

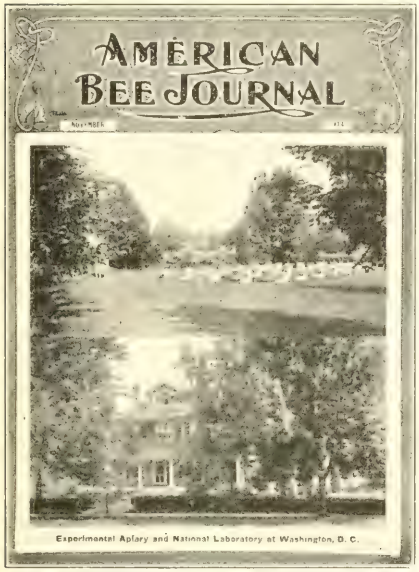
Hoping that this may be of some assistance to you in inducing people to adopt the "Pearce System," I am,

Very truly yours,
ANNA BISSELL, by Dwight Smith.

Here is the Bee Literature You Want.

A Bee Book and a Bee Journal.
Both Authorities and the Best to be Had.

"THE HONEY BEE" Is the title of the 575 page cloth bound Bee Book We offer. Profusely Illustrated. It was written by the Father of Modern Bee-Keeping L. L. Langstroth, whose name is known the world over, and was revised by the Dadants, to bring it right up to date. Used by many schools and colleges as a text-book on account of its thoroughness and accuracy. This book has also been translated into French, Russian and Spanish. It contains all you need in the line of information to make Bee-Keeping a success, and the contents are arranged so as to make the most interesting reading.



The American Bee Journal

Is a monthly publication of 40 pages with many interesting illustrations, and

Monthly Magazine. $1.00 per Year
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articles for each section of the country, as well as special articles by some of the leading Bee Keepers of the country.

A Question Department where perplexing questions of subscribers are answered is a special feature.

The editor of this magazine, Mr. C. P. Dadant, has been a bee keeper over fifty years and still operates over 500 colonies of bees. Sample copies of the American Bee Journal will be sent on request. The oldest Bee Journal in the English language and the best.

575 Page Bee Book, Price Post Paid $1.00

The American Bee Journal sells regularly at $1 00 a year, and Langstroth on the Honey Bee at $1.25.

OUR PRICE ON THE COMBINATION IS $1.75. ( )

American Bee Journal

HAMILTON, ILLINOIS

BEEWARE

LEWIS BEEWARE

Quality First

Start right by equipping your bee yard with strictly first-class articles. In purchasing your hives, you should take into consideration that a hive made out of clear white pine, accurately constructed in all its parts, properly put together and kept well painted, will last practically a lifetime; it therefore pays to buy the best.

We have been making bee hives and other bee supplies for over forty years, and our customers everywhere tell us Lewis Beeware is better than the best made by any other manufacturer. We absolutely guarantee our goods to be perfect.

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It will be mailed promptly on request and will give you the name of the Distributing Point for LEWIS BEEWARE nearest to you.

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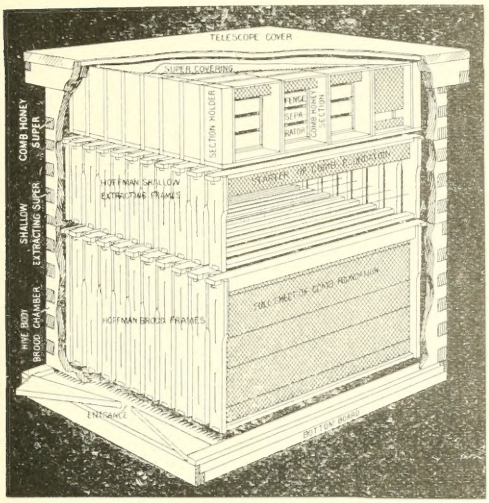

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We will furnish any style recommended by the PEARCE SYSTEM

Just a word of caution to beginners in Bee Culture. Do not try to handle bees until you get a good smoker, a bee veil, a hive tool and a pair of cotton oiled gauntlet gloves. These will make it safe for you on the start. You can procure these articles from your supply dealers at small cost.

Always start right in bee keeping, using the best Italian Bees, the best dovetailed hives and Hoffman frames. It is awful to start wrong in anything, especially for the young just starting in life.

Bees are without doubt the greatest material gift to man from the Creator. And are destined to give man his sweet supply as soon as man becomes intelligent enough to understand and use them, he is just about there now.

Care for your bees gently and they will repay you. Be courteous to everybody, and especially to your own family; it always pays to be courteous, nothing will bring us larger dividends and cost less.

Don't put your bees down cellar or leave them out in a snow drift exposed to all the storms that blow. Be kind to everybody. "Man's inhumanity to man makes countless millions mourn."

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The superiority maintained by careful attention to the needs of the craft has made the name Root the sterling mark in world-wide apiculture.

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By
JOSEPH A. PEARCE