

As a way of introduction into this topic, many people have requested some information about the history of Beekeeping. As a former history teacher (many years ago), I decided to take a look at the topic. I have relied heavily on Eva Crane's book *The Archaeology of Beekeeping* and Frank Pellett's book *History of American Beekeeping*. Both are highly acclaimed books and to study the subject in detail, it is recommended that you try to get a copy of either of these books.

The history of beekeeping is long. We have no direct evidence of when man began to keep bees (become a beekeeper). We do however, find many references to bees in the Bible, and in early writings by such people as Virgil who lived from B.C. 70 to 19 and earlier Egyptian paintings representing beekeeping. But we know that honey was gathered much before that. Possibility as long ago as ten thousand years, ancient

hunters were leaving a record on cave walls of hunts for animals and food. Included among these records are cave drawings that are commonly seen in bee books pointing to the past.

This is an era of honey hunting rather than beekeeping. Honey hunting continues to this day not only in Asia with individuals gathering honey from the Giant Honey Bee of India *Apis dorsata* to the individual in search of a bee tree *Apis mellifera* for its honey in the United States.

We are going to separate beekeeping into two basic eras. The first, the pre Francois Huber era. We will talk about Huber a bit later but he was the first to examine the behavior of honey bees in a folding leaf hive. Thus, he opened the book on modern beekeeping. A number of developments rapidly occurred in beekeeping after Huber but prior to his time, beekeeping had been carried out as a tradition in various countries without change from one generation to another. You must realize that there was a period of transition between the two era's. Some beekeepers maintained that the old way was better while more progressive beekeepers began to test old theories and seek new solutions to keep bees.

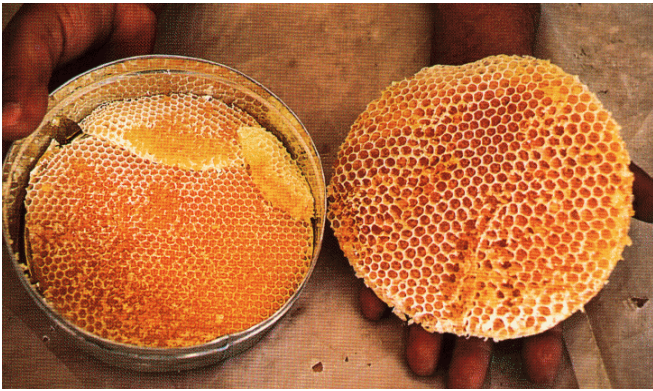
### The "Pre-Huber Era" of beekeeping

At some point in the history of mankind, he relied less on hunting and more on farming. This required that he establish a more permanent place to live. He most likely did not have to go find the bees -- they came to him. Honey bees swarm as a means of propagation. Man most likely discovered that bees could be transferred into vessels of some sort and would remain -- establish a colony producing honey.

The type of container used to keep bees in varied from region to region. Regardless, they all had something in common. They were for the most part natural hives. The comb could not be manipulated to examine activity inside the nest. Removing the honey also meant killing the bees. Due to the nature of annual swarms, the beekeeper could restock his hives from season to season and with some eye on the future, keep a few hives for the next season.

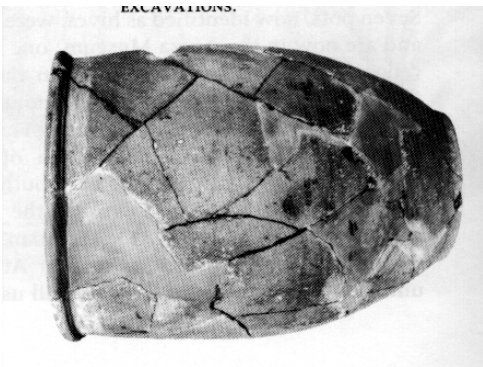
During the "Pre-Huber Era" bees were kept in many different types of hives/containers.

In ancient Egypt, we find painting of bees being kept in containers stacked one above the other. Eva Crane describes seeing examples of this on her trips into Egypt. She pictures one group of cylindrical hives stacked 8 to 10 feet high into approximately 400 hives. These were made up of mud spread over lath as she describes it. This lath was then rolled around a pipe and left to dry. The comb removed from such hives is round.



The photograph above is taken from January-February 1995 *Aramco World*.. It show some of the honey produced in Wadi Du'an just a few years ago. The bees in that part of the world are still kept in terra-cotta hives. Wadi Du'an is located in Yemen for your information. These beekeepers still use the time-tested techniques of ancient beekeepers. Honey sold is still far different from what consumers are accustomed in the U.S. According to the article, "traditional beekeepers prefer to sell honey in the comb to attest to its purity, or simply squeeze the honey from broken combs into plastic water bottles. Bits of wax and odd dead bee float into the neck of the bottle, offering another indication that the honey was locally produced." We can guess that honey has been sold this way from the very beginning minus the metal can shown in the picture or the water bottle.

Another tradition developed using pottery hives. Some of these have survived to the modern day. and are found in museums. Most of these artifacts have been found during excavations of ancient sites in Greece. Eva Crane also describes finding bees still kept in hives like this on her visit to Kashmir.



Like the Egyptian hives these hives were also set on their sides with the comb being built parallel to the circumference of the pottery hive.

Materials used to make such hives varies from region to region. For example, Crane refers to sun dried mud rather than pottery hives and even mud, dung, and chopped straw in some areas of the Middle East

The Romans were beekeepers as well. It may be from the Romans that beekeeping from 150 A. D. to well into the 1800's took a new look at hive materials. Again, I refer to Crane's book *The Archaeology of*

*Beekeeping* to find information. The Roman's seem to have kept bees in "a hollow tree", in hives made of cork bark, some references are to hives of wood boards, and the woven wicker. Some of these hives seem to have been of the vertical rather than horizontal design we have mentioned earlier.

Africa still finds the use of wood logs hung in trees in a horizontal fashion.. The horizontal fashion is found in many places around the Mid East into Asia and Africa.

Spain has archaeological remains known as bee walls. Both vertical and horizontal hives were used. Some colonies were kept in clay pots set into the wall in an opening called a *horno* which was kiln like opening. Other walls were designed much like the parallel pipe hive except that a woven straw conical hive was slid into them.

Northern Europe with its temperate climate and cold winters developed beekeeping a bit differently. Records indicate that bees were located in trees and an opening was cut into the tree to remove some comb and honey. The tree was not cut and the bees were managed. However, this was a cause for a number of court cases in which foresters complained that beekeepers were cutting holes into trees and destroying the value of the

timber. Tree beekeeping as it was called was soon replaced with ground apiaries -- keeping bees in log hives on the ground.



The transition from tree beekeeping to keeping bees in individual hives came about for several good reasons. First, the beekeeper often did not have permission to gather honey from land which was owned by the aristocracy. Often a payment in wax and honey was demanded. So some beekeepers (peasants) resorted to cutting a door into the tree which could be closed up to make it appear that nothing was noticeable on the tree. They had to sneak into the forest to gather honey and when caught were severely punished.

The second major change came with the reformation and the social changes occurring in Europe. As trade became more important, cities grew. The powerful landlords lost some of their power and eventually "the world turned upside down" when the peasants revolted against the Nobility. This social change gave some the opportunity to own land. Thus began a period of keeping bees in upright hives in an apiary.

Simple log hives have been found in peat bogs of Germany that date 1500 years old or more. The general design of one of those found indicate that it was 39 inches high and 12 inches in diameter. It was made of beechwood with a cover fixed on with wooden pegs. It was in three pieces and these fit together to form a hollow log. This hive is now located in the *Staatliches Museum* in Oldenburg, Germany. This type of beehive is very similar to the bee "gum" which was common in the early history of American beekeeping.

It wasn't long that bee boxes were being built from wood with doors in place so the beekeeper could have more access to the honey in the hive and do a little more bee management.

Wicker baskets went through a evolution of sorts and differ from the general idea of a skep we have today. Early skeps had what was called a crownpiece which was used to hold the skep (A handle sort of). These early baskets were shaped somewhat like a tepee. Later baskets were built by coils of straw by skilled craftsmen and had the characteristic crown or dome that we see in skeps today.

It is interesting to study the development of the coil straw skep. At some point beekeepers decided that something could be added either on top of the skep or the skep could be set on another coil and the honey collected in these devices rather than sulfuring the hive (killing the bees) to get the honey. By the 1800's many bee books were being written about the management of a hive of bees. As a result, we have excellent material to refer to when we want to study the art of keeping bees in straw skeps. Yes, some beekeepers were still advocating the use of straw skeps even after the introduction of the wooden hive body with frames. Primitive beekeeping overlapped modern beekeeping by more than 50 years and you should understand that in more primitive lands, keeping bees in clay containers (tubes), logs, etc. is still practiced. If you are interested in skep beekeeping, I refer you to *The Handy Book of Bees* by A. Pettigrew published in London, England in several editions. The copy that I own was published in 1875 and he is still insisting that this is the best way to keep bees.

The keeping of bees by most beekeepers in logs and skeps ended when the disease American foulbrood was fully understood. It is a very contagious disease and the above types of hives do not allow for inspection of brood and combs which is required to detect the disease. But we are getting a little a head of our story.

## Bees in the New world

There are many bees native to the North and South American continent. However, the honey bee is not one of them. Just when it arrived and by whom, we do not know. It did make the trip along with colonist that is sure. By 1638, a John Josselyn wrote "The honeybees are carried over by the English and thrive there

exceedingly." Thus the migration of honey bees westward began. Frank Pellett reports that the honeybee was not found in Western New York until 1790 and were not found in Kentucky until 1780. The honey bee was imported into Florida by the English in 1763 and from there in 1764 to Cuba.

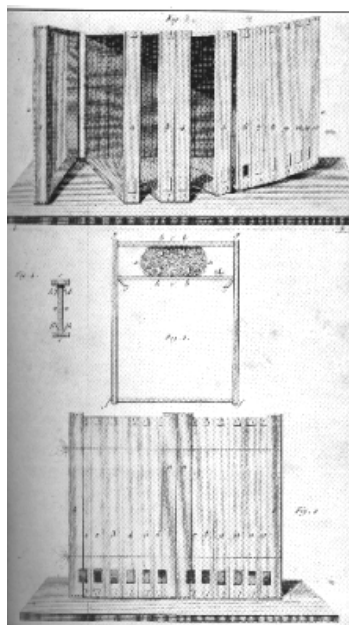
Fortunately we have many records that point to the early introduction of honey bees to the colonies. These are found in town records such as the one from the town of Newbury, Massachusetts. Pellett quotes his sources as follows, "The town received it first settlers in 1635, and five years later the "seven men" or, as we would say, the select me, established a town apiary which was undoubtedly intended as an educational experiment station. " A man by the name of Eels was put in charge of the apiary.

Again, in May 14, 1641 a case came up for trial involving a swarm of bees which had escaped and established itself in a hollow tree in Salem, Massachusetts. However, we find very little written about bees. John Greenleaf Whittier wrote a poem called, "Telling the Bees." But as far as books about keeping bees -- nothing. Then a number of things began to happen in the 1800's as patents were taken out for the various designs on hives. We have an interesting look at beekeeping in Ohio from the 1859 Annual report of the Ohio State Board of Agriculture. Evidently enough interest in honey production caused the board to ask for help in determining the amount of honey and number of hives each county could report. In addition, a question was asked about the type of hives. We get a very good idea of the state of beekeeping (I would assume that other states would have produced similar results). Types of hives used: box hives 14 1/2 inches square, common hives?, straw and gums, the Warren patent hive, the Pallace patent hive, the Weeks patent Hive, Eddy's patent hive, and a few mentioned the Langstroth hive. Quinby dismissed most patent hives as being a way for a beekeeper to spend his/her money foolishly. There were hives designed to allow wax moth to roll out of the bottom of the hive, hives designed with fancy windows and drawers, and one that revolutionized beekeeping "the Langstroth moveable frame hive." At the time Langstroth developed his patent hive, most people who kept bees used equipment based upon past tradition. The common box hive reported by county agents in Ohio was most likely built by the beekeeper along certain general standards (there were none for exact dimensions). A general idea of this common hives is as follows: It was made from 1 1/4 boards, so that it was approximately one foot square on the inside and about 20 to 24 inches high. A honey chamber was placed above a hole for the bees to store honey. Some were fancier with a chamber built into the top of the box with a door or drawer to fit the chamber so honey could be removed without affecting the bees in the box below.

A hive fitting the description of the "common hive" came up for auction on eBay during the winter. Pictures of that hive are included here to give you some idea of the common box hive.



There are several interesting things that can be seen in these pictures. 1) The box is 13 1/4" by 14 1/2 inches (not quite square). It is made of single slabs of boards nailed together with square headed nails. 2) A cap is permanently nailed to the top of the box and as you can see in the photo above a hole was provided so the bees could enter a box placed above it. You can still see the impression of the box that sat on this hive in the center picture. It was used to collect honey. Often these boxes were made of glass and the honey collected was sold right in the glass box. 3) Looking down into the box from the bottom, a pair of hand hewn cross bar supports for the wax comb were placed about 1/2 of the way from the top.



These bars supported the comb which was prone to break if the hive was moved. 4) The box was set on a wood board for support. The bees would fly into and out of the box through the cuts made in the bottom as shown in the front view of the hive. This was the modern "common hive" hive until Langstroth developed the moveable frame hive respecting bee space. You need to remember that other less progressive beekeepers were still using "gums" or straw skeps. "Gums" were parts of tree trunks cut from a bee tree that held the "swarm" of bees. These were then set on the ground and boxes were set above them as in the example above. Then again some beekeepers just sulfured their bees. The quantity and quality of honey sold during this period was not great. Moses Quinby who began beekeeping in 1828 and would become the father of commercial beekeeping kept hives much like those shown in our pictures. In reality there is very little difference in the "common box hive" and a skep except the material the hive is made. Skeps were also designed with flat tops so a container might be placed on them. Some beekeepers continued to use such hives well into the early 1900's.

### The Post-Huber Era

Huber was not the first to observe bees. Many times people had observed bees through glass jars set on top of Skeps to gather honey. What Huber did was scientifically set about making observations from which he arrived at fact "not speculation of what goes on in a hive of bees." It is his scientific inquiry into bee behavior and bee truths that cause me to consider him the dividing line between primitive beekeeping and modern beekeeping. *Huber's Observations on Bees* is perhaps the most important bee book ever written. It's followed closely by Langstroth's *A Practical Treatise on the Hive and Honey-Bee*.

During the early 1800's general interest in building a better hive began and would continue well past the introduction of the Langstroth hive which is the model for today beekeepers. I think it is important to take a look at the hive Huber used to make his observations.

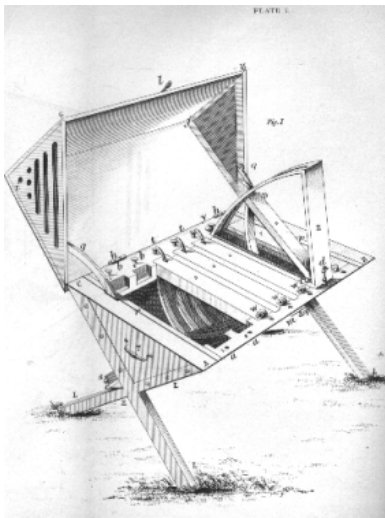
Now compare this hive with those of earlier make. The page to the right is from *Bee-Keeping New and Old Described with Pen and Camera* by noted British writer W. Herrod-Hempsall.

I should point out that most books published in the U.S. are very pro Langstroth equipment books while the British books consider many more options for the bee keeper.



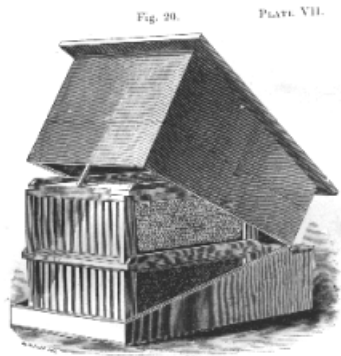
But if you were a beekeeper prior to Huber, your choices would vary widely as to what type of hive you would put your bees. The hives to the right are made from straw and represent many different designs.

### Hive development after Huber



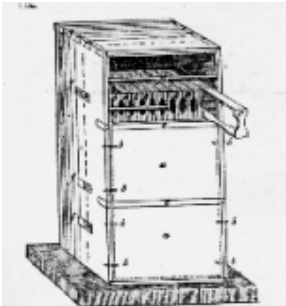
There is evidence that bar hives existed as early as the Greeks. Bars placed over a bee container (hive) encouraged bees to build comb down from the bars. The bees would attach the comb to the bar as well as side of the container. To remove the bar required the beekeeper to cut the comb from the side of the container prior to lifting the frame from the hive. So the idea of a bar hive was not new. Bees had also been observed behind glass. From Huber's point of view, the observation in a single comb behind glass did not reveal the true nature of what occurs within a hive. To solve the problem, he designed a hive





which opened up like the leaves of a book. In this way, observations could be made of each leaf (frame) of his hive.

This was a fine hive for observation, but it was not designed for getting a honey crop. What followed in Europe and in the United States was vast experiments in hive design. This was driven most likely by the desire to profit from patents which could be secured to prevent others from using the hive unless they paid a small royalty for the privilege. In many instances the designer and owner of a patent hive also published a book describing the use and design of the hive. We are going to give you just a brief look at some of them. There are so many that it is impossible to visit them all.



This is a drawing from W. Augustus Munn's book *Bevan on the HoneyBee*. This hive is a bar-frame hive as he calls it and evidently had been in development as early as 1827.

In Russia, a Russian by the name of Prokopovitch designed the hive below with frames. Many hives had drawers and this hive used frames that were slid out to be removed from the hive (drawer like fashion).

If one visits the Ohio State University Bee Museum in Wooster, Ohio, you can find hives of various design and some using the pull out frame idea like the hive above.

Beekeeping took a remarkable step forward with the publication of *A Practical Treatise on the Hive and Honey-Bee* by L.L. Langstroth. It was first published in 1853, and many editions followed. The title but not the content is printed to this day by Dadant.

This book detailed plans for building this hive and provided the beekeeper with a handbook on bee management. It is a remarkable book. The pictures I am including in this short history are from the 1857 second edition. The plates are so interesting for modern beekeeping that I am including a number of them for you to look at.

This hive really doesn't look like the hives we have today. The fact that it had frames was not new. The discovery by Langstroth that bees would not build wax comb or propolize parts together if there was a space of 1/4 inch to 3/8 inch between all parts of the hive was the difference. In fact, Langstroth did not make a fortune from his patent. Many people saw the distinct advantage of being able to remove frames from the hive without the need to pry or cut them out because the bee space had been violated. From 1853 on, a number of hives of different frame sizes existed in the United States as shown in the page below from an old *ABC and XYZ in Bee Culture* published by the A.I. Root Company in 1908.

All fit into boxes of varying size and depth. Beekeepers as individuals had preferences for hives that fit their particular whims and beliefs. The controversy over hives continued well into the early 1900's. As can be seen in the picture below, frames varied considerably. The closed-end Quinby hive was really a frame that included a slid clip on one end which allowed the hive to be built to varying widths depending on the number of frames being used and the Danzenbaker hive was hive that used rivets to pivot the frames in the hive body.

A close up of the Danzenbaker frame is shown below.

A major headache occurred in beekeeping when a beekeeper acquired equipment which included the various sizes. Frames were not interchangeable.

By the 1870's the A.I. Root Company in Medina, Ohio was producing a number of manufactured hives based on the Langstroth size of frame. The Dadant Company also used the Langstroth size and a standard size developed because these manufacturers of beekeeping equipment realized that commercial honey production depended upon interchangeable equipment. That does not mean that all hive boxes were the same. The A.I. Root Company designed a double wall hive called the "Buckeye Hive" to help beekeepers in colder climates and the Dadant Company provided a "Jumbo Hive" called a Dadant Hive which held more frames and was deeper. However, the manufactures of this equipment all used the principle of "Bee Space."

By the 1920's the hive controversy had ended and the now standard hive holding a frame with a top bar 19 inches long and a depth varying from a deep super of 9 1/8 inches, the medium with a depth of 6 5/8 inches and the shallow super of 5 11/16 inches in depth.

Our standard bee hive today

