

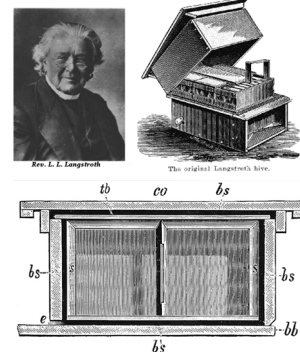
Complete Beekeeping Short Course Part 2

The Bee Hive

U of A DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System

the bee hive

- the Langstroth hive
 - encouraged straight combs
 - preserved the bee space
 - the worldwide standard
 - precise internal dimensions
 - preserves the bee space
 - interchangeable components
 - standardized sizes
 - widely available



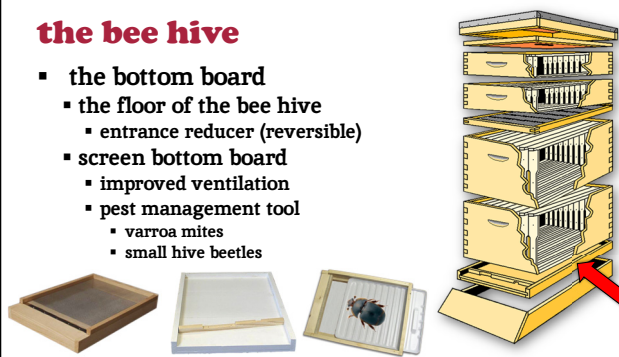
the bee hive

- the hive stand
 - keeps the hive up off the ground
 - avoid termites & wood rot
 - improves ventilation
 - easier to work in your hives



the bee hive

- the bottom board
 - the floor of the bee hive
 - entrance reducer (reversible)
 - screen bottom board
 - improved ventilation
 - pest management tool
 - varroa mites
 - small hive beetles



the bee hive

- brood chambers
 - where queen bee lives
 - lays eggs
 - brood develops
 - pollen stored



the bee hive

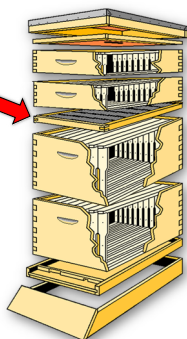
- honey supers
 - surplus honey stored
 - boxes added in as needed
 - removed at honey harvest
 - left off during winter



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the bee hive

- queen excluder



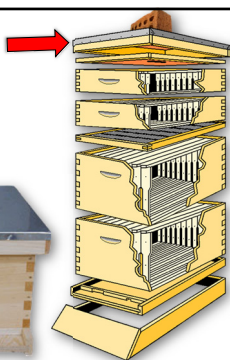
the bee hive

- inner cover
 - provides insulating airspace
 - easier to pry off the outer cover when sealed with propolis



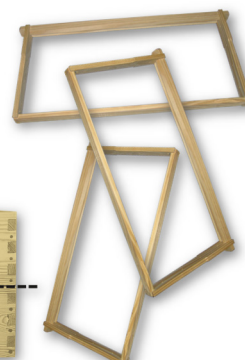
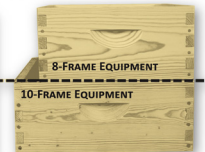
the bee hive

- outer cover
 - telescoping cover
 - keeps out the weather
 - metal & wood
 - plastic
 - polystyrene
 - migratory top
 - used without inner cover



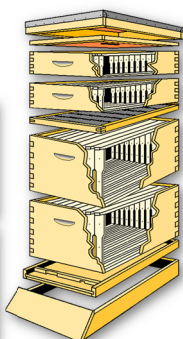
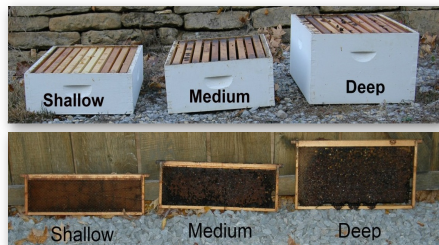
the bee hive

- frames
 - standard = 10 frame boxes
 - 8 frame boxes also available
 - 9 frames in 10 frame supers
 - all medium boxes



the bee hive

- frames & boxes



purchasing bee hives

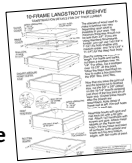
- many mail-order suppliers
 - shop online or request a paper catalog
- some local merchants
 - arbeekeepers.org/links.html



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the bee hive

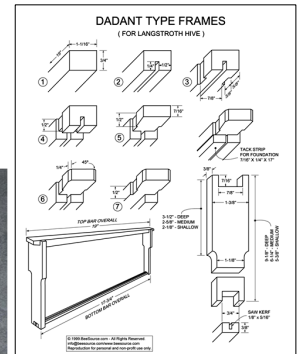
- so where do you get a bee hive?
 - order a hive pre-assembled
 - may come painted & with frames
 - easiest way
 - most expensive
 - order a knock-down kit
 - pre-cut lumber
 - nails together quickly
 - moderate cost
 - build your own woodenware
 - least expensive?
 - respect the bee space!*
 - use precise plans: www.beesource.com



*be wary of buying
homemade hives*

the bee hive

- make your own frames?
 - very time-consuming
 - cheap to purchase



the bee hive

- make strong, tight corners
 - use rabbet or finger joints
 - hives will be exposed to weather for years
 - wood will try to swell and warp
 - simple box corners will pull apart, leaving gaps



the bee hive

- use glue!
 - strong waterproof glue
 - at every joint
 - stronger than the nails



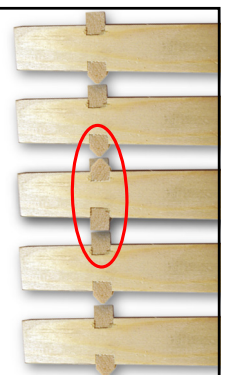
the bee hive

- paint your hives
 - protect your investment
 - latex or oil-based are both fine
 - don't paint the inside of hives
 - find bargain paints at local stores
 - bees don't care about color
 - don't forget primer!



the bee hive

- assembling frames

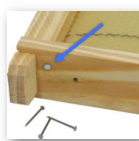
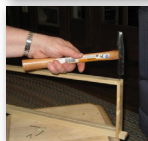


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assembling frames



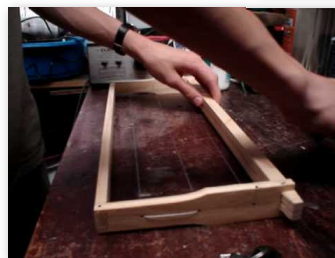
GLUE
EVERY
JOINT!



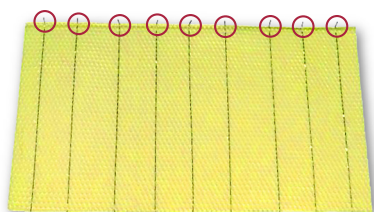
DON'T
FORGET
THIS
NAIL !

the bee hive

wiring frames



installing foundation



"crimped-wire"
foundation

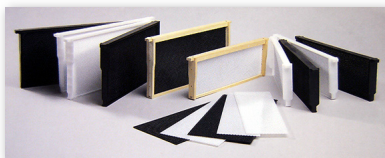


is wiring necessary?



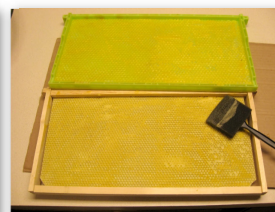
plastic foundation

- **waxed vs. unwaxed?**
 - rarely comes with enough wax on it!
- bees will move some wax where they need it more
- bees will accept more readily if you add some more wax

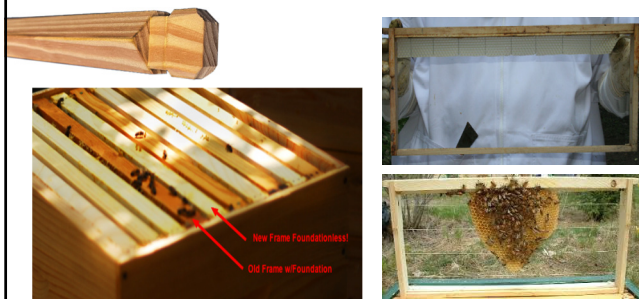


plastic foundation

- bees will accept more readily if you add some more wax



foundationless frames?



the bee hive

- what kind is best?
- just a matter of opinion



other types of bee hives

- the "Flow Hive"



other types of bee hives

- top bar bee hives
- Kenyan Top Bar Hive
 - angled sides
- Tanzanian Top Bar Hive
 - straight sides



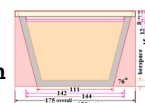
other types of bee hives

- top bar bee hives



other types of bee hives

- top bar bee hives
- many designs
- one critical dimension
- top bars should be 1 3/8" wide (3.5 cm)



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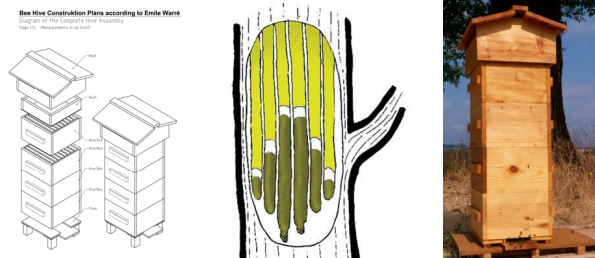
other types of bee hives

- growing body of resources for top bar beekeeping



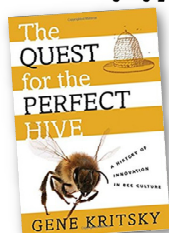
other types of bee hives

- Warré vertical top bar hive: *The People's Hive*



how to choose a bee hive

- many types of bee keepers
- many types of bee hives

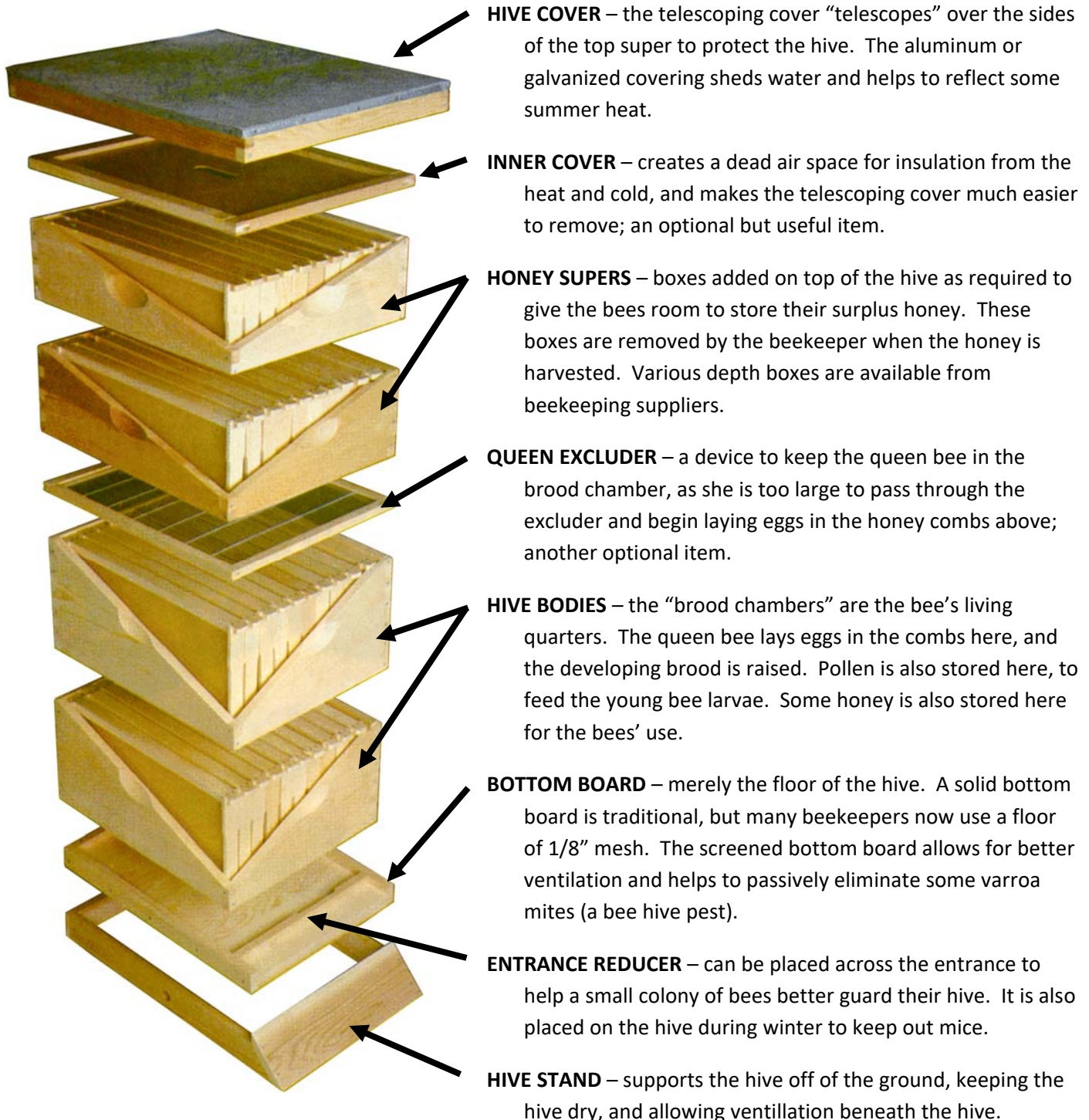


- don't be overly dogmatic about your particular style
- honey bees are highly adaptable, and can make themselves at home in just about any suitable cavity
- *bee hives are for beekeepers!*



Components of the Modern Bee Hive

The modern “Langstroth” bee hive is like a highly efficient multi-storied factory with each “story” having a specific function. These “stories” work together to provide a home for the bees and a honey factory for the beekeeper. This modern hive design allows for easy manipulation of the frames of brood and honey to manage the bee population and encourage a surplus of honey beyond that needed by the bees to live on and rear their replacements. It is this surplus honey that the beekeeper removes and markets.



Beekeeping Woodenware

The term **woodenware** refers to the individual components of a bee hive. While these have traditionally been made from wood, today a variety of bee hives are available from plastics and even polystyrene foam. Treated lumber should never be used to make bee hives. Paint your hives with an exterior grade paint to protect your equipment from the elements, unless hives are constructed from cypress, cedar or some other weather-resistant material.

A **bee hive** is the structure that houses the honey bee colony. It could be a hollow tree or other cavity, or one or more stacked wooden boxes provided by a beekeeper, with a lid and bottom board.

A **hive body** is an individual box that makes up a part of a bee hive.

A **colony** refers of the group of living bees that occupy a bee hive. A colony is composed of many thousands of worker bees, a few hundred drone bees, and a single queen bee.

“Deep” Hive Bodies

Until recently, most beekeepers kept their bees in standardized stacked hives with **deep frames** (9 5/8”) for both brood and honey. The deep frames provide a large, uninterrupted area for the queen to produce her brood nest. However, because a deep honey super can weigh more than 80 pounds, many beekeepers have begun to use shorter boxes for harvesting surplus honey.

“Medium” hive bodies

A full **medium frame** (6 5/8”) honey super weighs about two-thirds of a comparable deep super. Using all medium hive bodies is increasing popular with hobbyist beekeepers. One advantage of using all medium frames is that the beekeeper only needs to have a single size frame and box on hand, rather than a combination of deeps and mediums. Beekeepers can use 3 medium boxes for the brood chamber, roughly equaling the volume of two deep boxes. However, when using all mediums, a beekeeper must handle more frames to do a complete inspection. Also, most nucleus colonies are sold with deep frames, making the establishment of nucs more difficult. When starting new colonies with all medium frames, a beekeeper should consider beginning with package bees, or seek nucs that were made with medium frames.

New VS. Used Equipment

It is not advisable for a new beekeeper purchase used equipment. The spore of some highly contagious honey bee diseases could be present, but not be obvious, in old equipment. If the history of the equipment is unknown, it should be avoided.

Beekeeping Woodenware

10 Frame Equipment

The 10 frame “Langstroth” bee hive has been the industry standard for nearly 150 years, and is still the most commonly used hive in the US. Because they are the most common, it is often easier to resell equipment to another beekeeper, or to find additional equipment for yourself. Another advantage in large hives is that each 10 frame box has more space for bees, honey and brood. A comparable 8 frame hive will be taller and use more boxes than a 10 frame hive.

8 Frame Equipment

An 8 frame hive is lighter by approximately 20 percent. When full of honey, a full 8 frame medium super will weigh 40 to 48 pounds while a full 10 frame medium may weigh 50 to 60 pounds. There is some thought that the smaller size and cross-section of an 8 frame hive is closer to the typical hollow tree cavity seen in nature. Some feel that overwintering is better in taller 8 frame hives than the comparable amount of stores in 10 frame boxes because the cluster can move up more readily in a smaller 8 frame hive as stores are consumed.

9 Frames in a 10 Frame Box?

Some beekeepers evenly space 9 frames in a 10-frame honey super. If done correctly, the bees will draw out the cells of these combs deeper, leaving the standard “bee space” between all finished combs. Thicker combs are easier to harvest, because the surface of the honeycomb that is removed when uncapping is not blocked by the edge of the wooden frame. Also, because there would be one fewer empty “bee spaces” between combs, there should be slightly more honey stored in a 9-frame setup. Do not use 9 frames in a 10 frame brood box, however, as this will only result in fewer cells in which the queen can lay eggs. When giving the bees new foundation to draw in any hive body, place all 10 frames (not 9), pressed tightly together, in the middle of the hive body. Once the combs have been drawn, a beekeeper can remove one frame and then evenly re-space the remaining combs. Starting bees with 9 frames of foundation to draw will often results in poor quality combs, because the bee space between foundations is too large, and comb may be built parallel to the foundation, or even perpendicular to it.

Other types of bee hives

Because of concerns about honey bee health, all managed colonies must be kept in hives with **moveable combs** that allow the brood nest to be inspected. The Langstroth style bee hive is the most common, and is therefore the easiest to purchase. It will also be easier to find advice and information on colony management when using these hives. However, there are other types of bee hives in use, including Warré hives and Kenyan or Tanzanian Top Bar hives.

Alternative Bee Hive Types

There is a growing body of knowledge and resources (both online and in print) available for those interested in **Top Bar Beekeeping**:

- beeculture.com/experiences-top-bar-hive
- tbhsbywam.com
- biobees.com
- beekeepinglikeagirl.com/langstroth-vs-top-bar-hive
- en.wikibooks.org/wiki/Beekeeping/Top_Bar_Hive
- bushfarms.com/beestopbarhives.htm
- outdoorplace.org/beekeeping/kenya.htm

The above websites provide numerous photos and plans for variations on TBH design, but most lack good explanations on how to work bees in a TBH. While these hives are inexpensive to construct, they may require more frequent inspections and manipulations to ensure that the bees have adequate space for brood and honey storage. Also, TBHs typically do not produce as much honey as Langstroth hives, but they do produce more beeswax, since combs are not reused by the bees after harvesting honey. Top bar honey combs are also very fragile, since they are not built inside of a rigid frame, and are easy to damage when you are inspecting a colony.

Resources for **Warré Hive** construction and management:

- thebeespace.net/warre-hive
- warre.biobees.com/
- thewarrestore.com/warre-hives/

Download a free e-book copy of *Beekeeping for All* by Abbé Warré (in English):

- www.users.callnetuk.com/~heaf/beekeeping_for_all.pdf

Another type of hive is the **Layens Hive** or **Horizontal Hive**.

This European design features taller frames and a wider hive body than the standard Langstroth design. The entire hive fits in a single box, with no supers, heavy lifting, or other seasonal manipulation.

- www.beeculture.com/the-layens-hive
- horizontalhive.com
- www.beekeepingfornewbies.com/horizontal-hives

There are many choices for styles of bee hives, and none of them are perfect, despite strong opinions on just about every topic. What's important to remember that bee hives are mostly for the convenience of beekeepers, and not bees. Choose a style that fits your personality, your budget, and your goals as a beekeeper. And don't be afraid to continue learning and try new things in the future!