Non-Langstroth Hive Designs

MD State Beekeepers Association

Kevin Inglin EAS Master Beekeeper

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THE Beekeeper's CORNER PODCAST

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  - *Credit, if possible, is given at the end in this format:* SLIDE #XX: Rose Hive http://www.rosebeehives.com/

The agenda

- **Bee "Vessels"**
  - *The origin of hives – Pre Langstroth and Langstroth and beyond*
- **Alternative Hives envisioned and in the marketplace**
  - *Creativity of hive design – a gallery of hives*
- **Hives in Practice**
  - *Hives in use around the world: What, where, and why…*

Vessels: Early Days

The Tree

- *Climbing trees or cliffs to get to cavities for honey and comb.*

Earthenware

- *Clay or mud pots to host colonies, sometimes in boles*

Barrel

- *In West Africa barrels, imported by the Portuguese, were adapted for use as hives.*

The Gum

- *Hollowing out trees for the purpose of housing colonies…*

The Skep

- *No wood, no problem… Hives made from reed or straw, sometimes cloamed.*

The Gourd

- *The gourd provides a natural hollow for bees, but most gourds are too small for an average bee colony, so that their use often induces swarming.*

Vessels: Woodenware

- **The carboy box**
  - *Precursor to a hive body?*
  - *There is some speculation that these storage/shipping boxes had some influence on the woodenware that ultimately became the Langstroth hive*

Vessels: Langstroth
Hive of today

Influenced by
Huber and Dzierzon's designs

Dzierzon
[JEER-ZON]

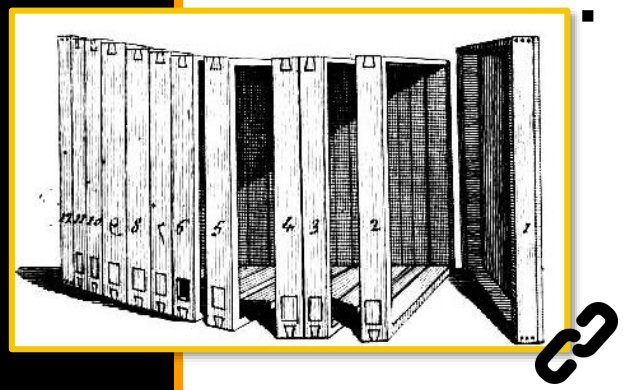
Vessels: We got there by way of…

Langstroth's Bee Space & Movable Comb System 1851 & 1852

Langstroth Influencers

❑ Huber's Leaf hive

- *Francois Huber* ***1789***
  - The leaf hive was a fully movable frame hive, but had solid frames that were touching and made up the "box".
  - The combs in this hive were examined like pages in a book.



❑ Dzierzon's designs

- *Johann Dzierzon* ***1835***
  - Some indicate that modern designs, and specifically Langstroth's designs, may have been derived by Dzierzon's designs.
  - It is said that Langstroth had access to Dzierzon's translated manuscripts.

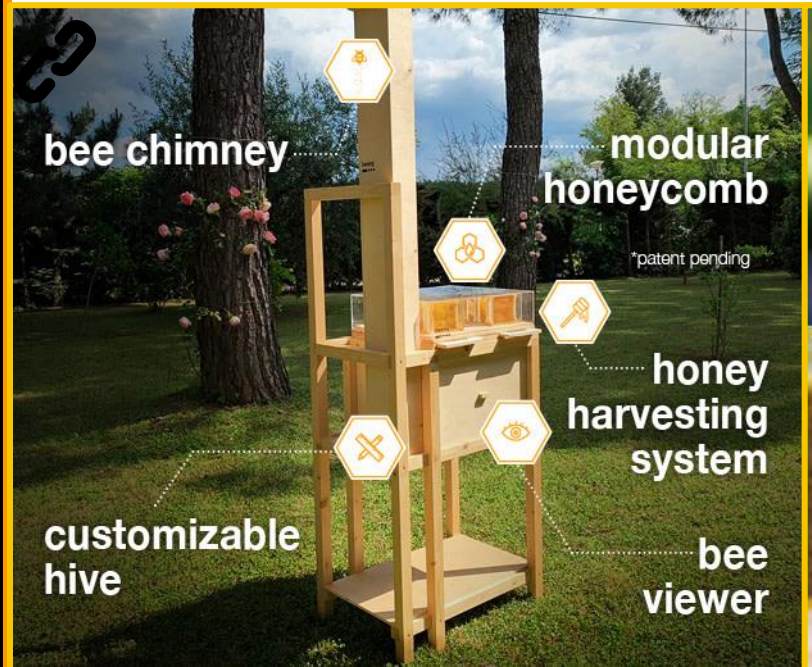
JOURNEY OF IDEAS

Langstroth is not the only way. Let us take a look at other ideas

The Bee Box Hive

Unique Features

- *Urban beehive that solves the problems of stinging insects in a close environment – and easy honey harvesting!*

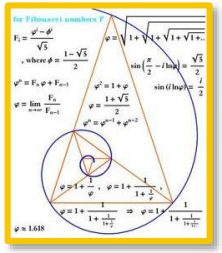


The T-Slant Hive

- **The premise of this hive is:**
  - *The bees start at the top of the hive and work their way down.*
  - *Question is how the heck would you work it?*

Birkey Hybrid Top Bar

- **Uses the premise that the Bees will build in a loop**



  - *Golden Ratio: also known as the divine proportion, golden mean, or golden section*

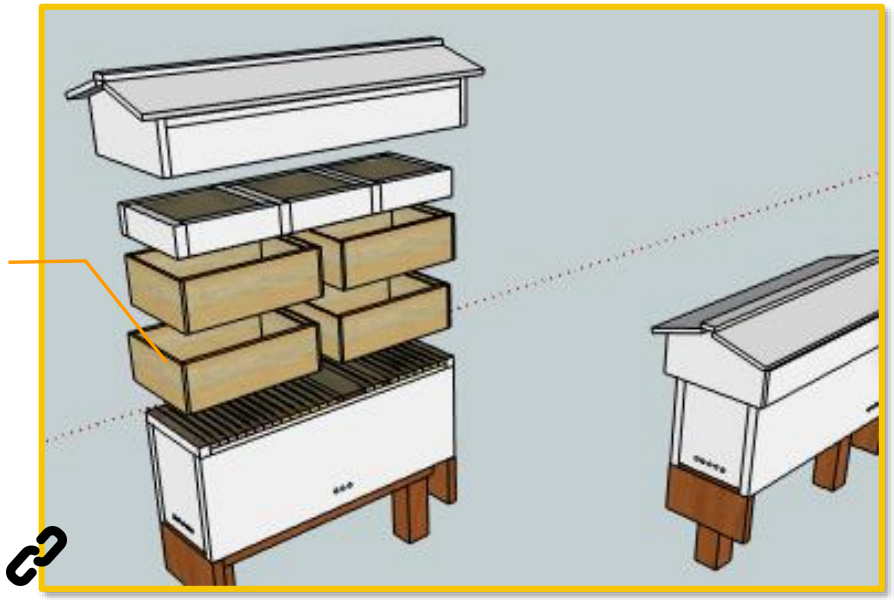
The Sun Hive

"free the bees from a principle at once earthbound and cuboid"

- **Combination of Skep and engineered structures**
  - *Mounted 8 foot in the air*
  - *No movable comb*
  - *Professed as a Natural Beekeeping "Biodynamic" way of keeping bees*
    - Honey 'production' is not the main purpose of the hive.
    - Similar Golden Ratio benefits

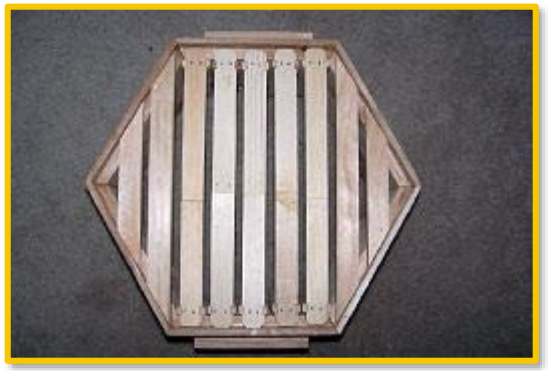
The “Frankenhive”

- **Contains up to three colonies >**
  - *Can be managed as multi-chamber hive vertically like three Warre hives.*



This is the two-chamber design

The Hex Hive

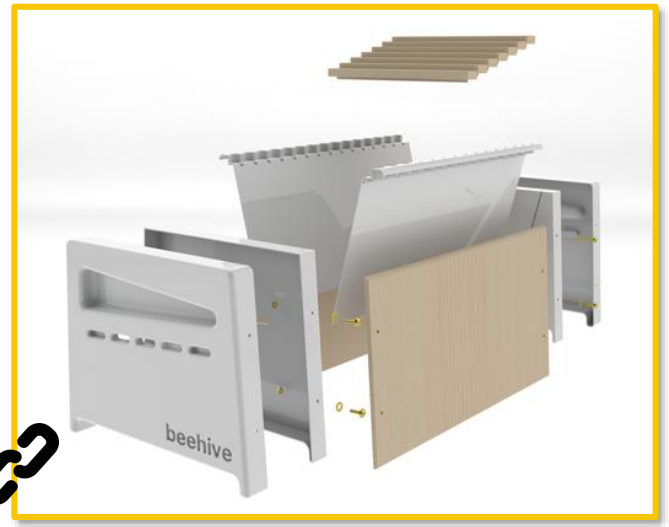


- **Made from cedar that is smooth on the outside and rough on the inside.**
- **The 5 middle frames are removable for easy honey harvesting.**
  - *(The 4 outside frames are intact for the bees to build comb on and left alone or could be removed if needed.)*

Dunford Urban Beehive

The Urban Beehive

- *Concept by New Zeland's Rowan Dunford*
- *Modular for shipping…*



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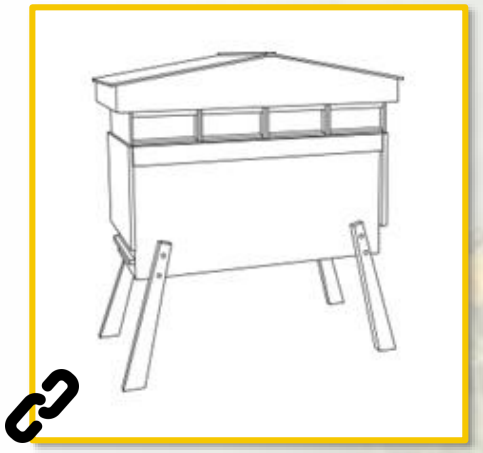
The Beehaus from Europe.

- **Plastic and Metal**
  - *Insulated design with mesh floor*
  - *Accepts supers on top*
  - *Many other engineered features but follows conceptually the Dartington Hive design*

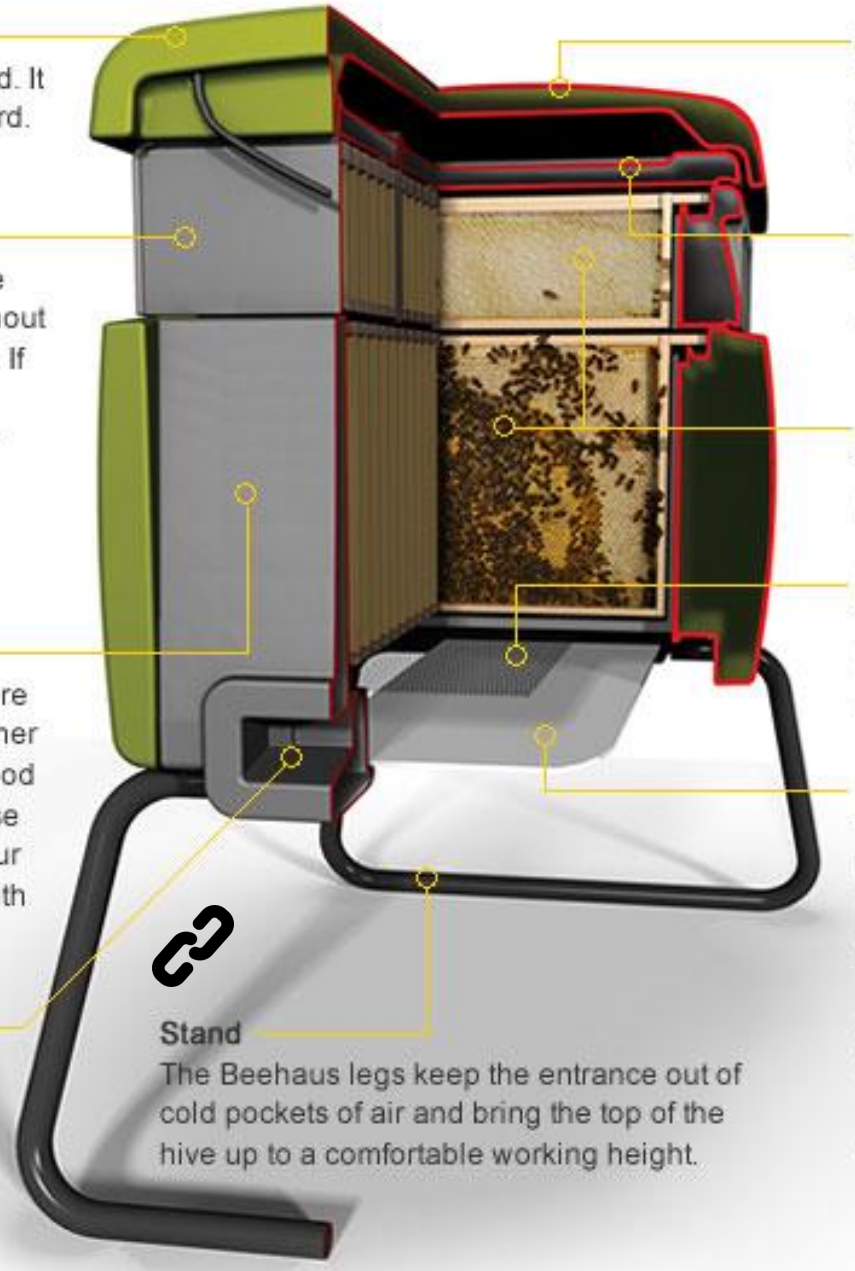


Outer Lid
This keeps the weather out all year round. It is secured using a strong, elasticated cord.

Supers
The supers are used by the bees to store honey. A colony will store honey throughout the summer in preparation for the winter. If your bees are successful they will have surplus honey which you can harvest for your family and friends. Your Beehaus comes with 10 super frames with wax foundation sheets

Brood box
This is the colony's home, the place where the bees live and where the queen lays her eggs. These large frames are called 'brood frames'. When inspecting your bees these are the frames that you look through. Your Beehaus comes with 10 brood frames with wax foundation sheets.

Entrance
This allows the bees to come and go. The entrance has a large landing board which is sheltered from the wind and rain. Because the Beehaus can be divided and used as two seperate hives it has an entrance at either end.



Stand
The Beehaus legs keep the entrance out of cold pockets of air and bring the top of the hive up to a comfortable working height.

Insulation
This is really important because bees need to maintain a constant temperature to raise their young.

Cover board
These sit on top of the brood box or supers and keep the bees in.

Frames
These hold the wax foundation that the bees build the comb on.

Mesh floor
The floor is made of mesh. This ensures your bees always have fresh air and it also allows debris and mites to safely fall out.

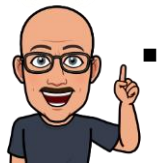
Inspection tray
This is located under the mesh floor of the house. It catches any mites or debris that fall from the hive which you can then examine to learn about the health of your bees.

Sterilisation
You can disinfect the plastic surfaces of the Beehaus against disease using common disinfectants such as bleach.

Tanzanian Long Hive

- **Similar to a Kenyan Top Bar**
  - *Straight sides*

Tip:



- T Shaped = Tanzanian
- K Shaped = Kenyan

Polystyrene – Bee Box

- **Developed in Finland.**
  - *High Density – Harder polystyrene Hive in a Langstroth form factor.*
    - 8X more insulation that wood hives
    - Resistant to mold, Impervious to Rot

< Lyson Poly Hive

Large Format Layens

- Pennsylvania Dutch Vendor Layens hive

Drebbieville Hive

- US Based “Slovenian Hive”

Rose Hive

Kind of like the US centric all medium approach

- **Inventor Irish Beekeeper, Tim Rowe,**
  - *Standardized a 'European' style hive to single sized boxes*
  - *Same dimension as a British National hive for the box, but the frame is shorter*
    - 11-inches vs. conventional 12-inches for national

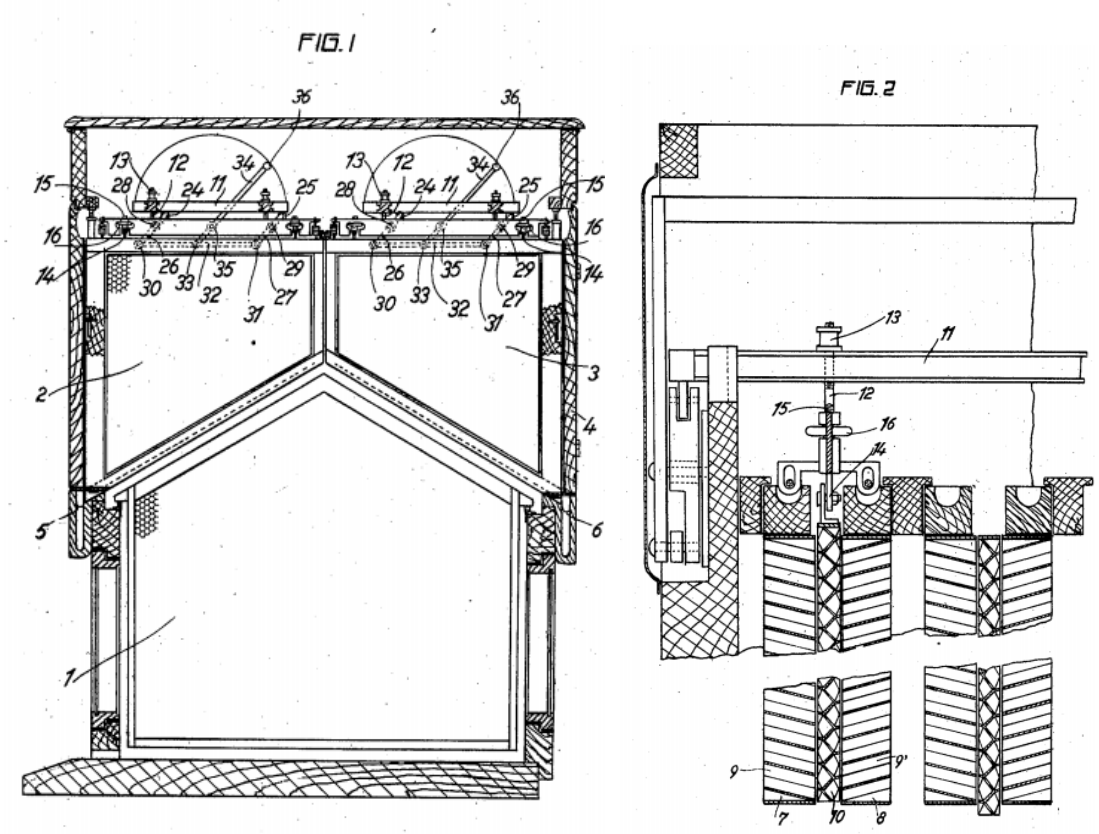
HoneyComb Hive

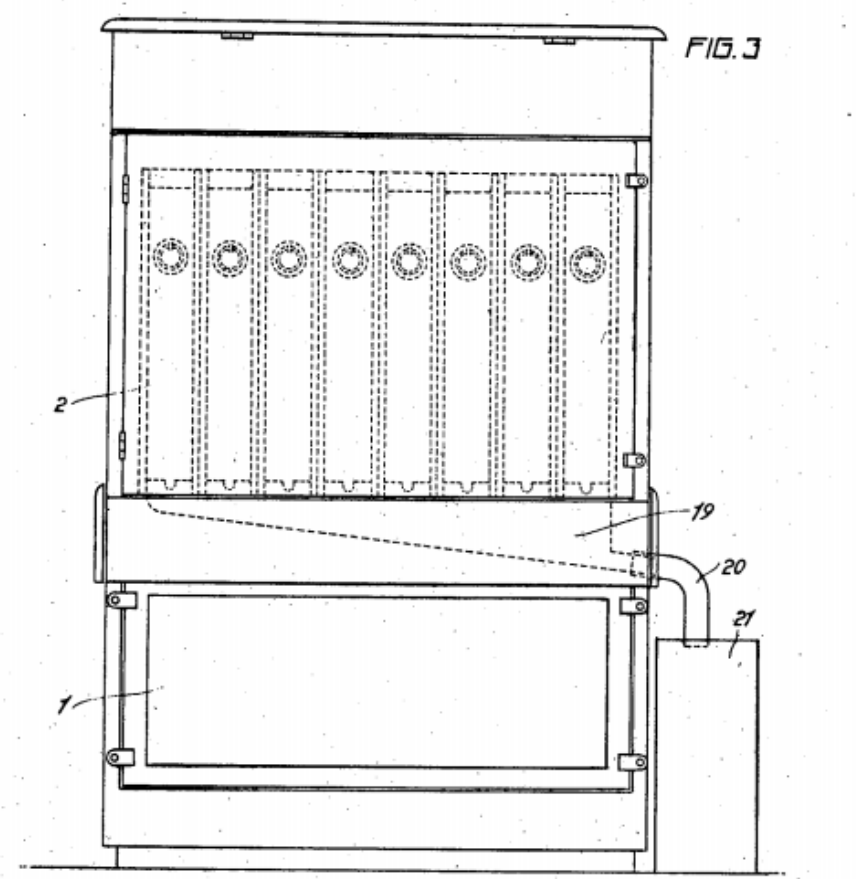
- **Sold from North Carolina**
  - *"Machined" & Engineered approach to hive construction*

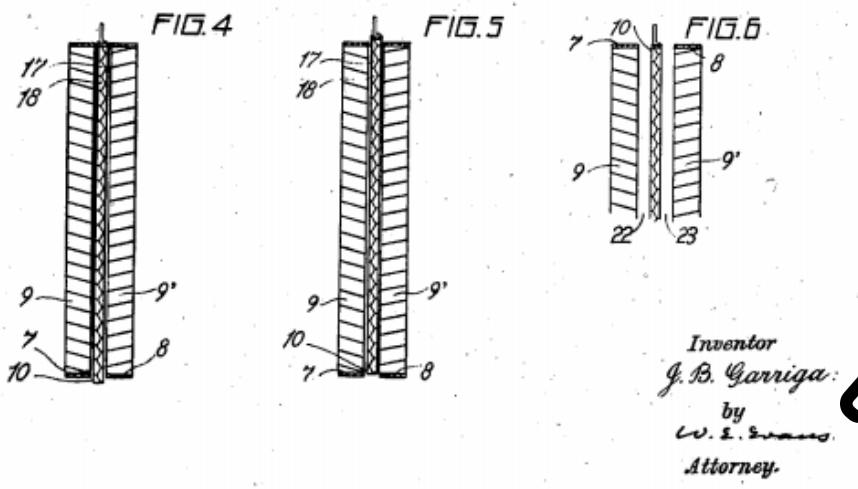
LAST ONE...

Garriga Hive – Dec 1940

- Look Familiar?







REAL WORLD HIVES

National Hive
2019- London

- **Talking Points**
  - *~1" Wood Panels*
  - *Deep Frames.*
  - *Box is 18 1/8" x 18 1/8" Square*
  - *Thin but long top bars*
  - *Widely spaced – 10 or 12 frames*
  - *Square shape, warm or cold way*
  - *Run with single with honey super*
  - *Deep National Frames are 14 x 10*
  - *"Regular" National frames are 14 x 8 1/2*

United Kingdom Hive Variations

Understanding the form factors

- ***Deep National*** *= 18 5/16" x 18 5/16" with (11) 16" x 10" Frames*
- ***National*** *= 18 1/8" x 18 1/8" with (11) 14" x 8 1/2" Frames*
  - Most commonly used due to weight
- ***Commercial*** *= 18 1/8" x 18 1/8" with (11) 14" x 12" Frames*
  - These are promoted for more honey production (2" deeper = more honey)
- ***Dadant/Langstroth JUMBO*** *= 20" x 16 1/4" with (11) 17" x 11 1/4" Frames*
  - *Rectangle*, not square. Takes "Langstroth" like frames

Dadant Blatt
2016 - Italy

- **Talking Points**
  - *Dadant Variant*
  - *2 ½" deeper than Langstroth but with a 1 1/8 shorter top bar*
  - *Can have 10 to 12 frames*
    - 11 Frames seemed conventional
  - *Used as one 'deep' nest with honey super placed on top*

Dadant Blatt

Features

- *Luggage Handles*
- *Front Porch*
- *Thick Wood Boxes*
- *Front Porch Pollen Trap*

WBC Hive
2019 - London

- **Talking Points**
  - *Wide spacing; A hive "in a shell"*
  - *Considered Boutique, Expensive*
  - *Telescopic Design:*
    - Originally double wall; now it is in essence an interior with a shell
    - Insulation and shedding water is the catalyst for the design
    - Now most use national hives.

WBC Hive
2019 - London

- **Another shot…***the interior*
  - *8-Frame design with frame guards*

Top Bar
2018 - Malawi

- **Talking Points**
  - *Very crude, low quality wood*
  - *Hung from 'greased' wires*

Langstroth
2019 - *South Africa*

- **Talking Points**
  - *Simple construction and inner covers. Conventional frames*
    - Placed on ground, or some makeshift hive stand
  - *Harvest means taking the whole box*
  - *Kept away from populated areas*
  - *Worked in early morning, and mostly on the overnight, in the dark*

The Flow Hive

2019 – My Apiary

❑ Talking Points

- *Incredible engineering, beautiful*
- *Hit and Miss on building out*
- *Requires super strong colony*
- *Prime the frames*
- *Wish me luck*

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The "Garden" Hive

2019 – My Apiary

- **Talking Points**
  - *Considering queen banks*
  - *Unfortunate turn of events*
  - *Shows potential*
  - *Planning to put it in the um, Garden…*

Bee Box Poly Hive

2015 – My Apiary

- **Real World** ❤
- **Talking Points**
  - *Great in winter & summer*
  - *Prolific hive*
  - *Regular wood boxes can go on top*
  - *Some fussiness with glue, fixed…*
  - *Space above frames little too small*

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Did I mention that
I love this hive?

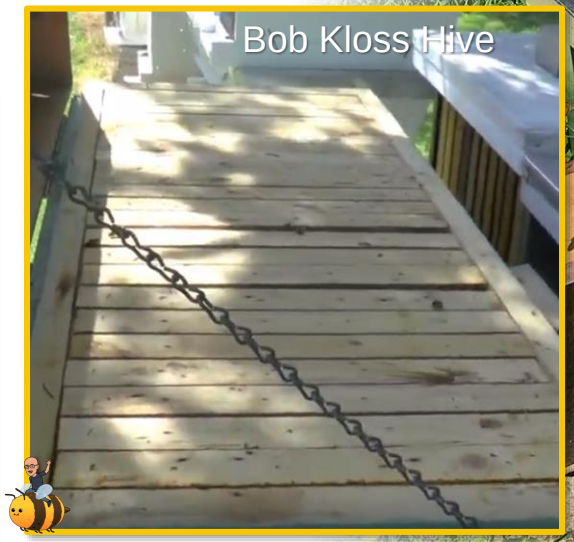
Warre Hive
2016 - My Apiary

- **Talking Points**
  - *Pleasurable Hive*
  - *Small form factor / boxes*
  - *No extraction capabilities*
  - *Requires some expertise*
  - *Nadir Concepts*

Layens Hive
2019 – My Apiary*

❑ Talking Points

- *Hive commonly used in Spain*
- *Leo Sharashkin promotes these*
- *20 frames, 13" x 16" frames typical*



Top Bar Hive
2016 - My Apiary

- **Talking Points**
  - *Originally fussy… not very successful at getting it populated*
  - *Attempt at an innovative hybrid design in Langstroth format*
  - *Bigger is not better*
  - *Want to keep trying*

Are you alternative?

- **Tips**
  - *For different, but known hives, do some research first. Learn the ways.*
  - *Think of all the angles,*
    - Extra non conforming equipment, extracting, expansion, robbing guards, hive stands, feeders, and all of the other one off things you have to think through
  - *Be willing to go it on your own. Maybe there's a community…*
  - *Follow the basics – mind bee space and cavity size*
  - *If it is too good to be true, it probably is*

Bonus Slide, what's next?

- **Which end up?**
  - *This End Up!*

- **Fish Tank Fun**
  - *Aquarium Hive*

Comments and Questions?

Kevin Inglin
kevin@bkcorner.org

After this weekend this will be posted at www.bkcorner.org

❑ Slide Image Credits

- *Slide 6 | Carboy Box*: http://etsy.com/*
- *Slide 8 | Leaf Hive: https://www.smithsonianmag.com/arts-culture/the-secret-to-the-modern-beehive-is-a-one-centimeter-air-gap-4427011/*
- *Slide 10 | The Bee Box hive: https://www.indiegogo.com/projects/b-box-1st-ever-hive-designed-for-home-beekeeping#/*
- *Slide 11 | T-Slant Hive: https://mylocalbees.wordpress.com/category/beehives/beehive-7/*
- *Slide 12 | Birkey Hive*: http://www.beesource.com/resources/elements-of-beekeeping/alternative-hive-designs/hybrid-top-bar-hive-barry-birkey/ https://www.pinterest.com/sharpe1943/fibonacci/ https://www.partyrama.co.uk/wp-content/uploads/2017/08/2-prestige-brass-poles-with-1-red-velvet-rope-product-image.jpg*
- *Slide 13 | The Sun Hive: https://offgridworld.com/the-sun-hive-a-majestically-beautiful-bee-hive-that-could-save-the-honey-bees/*
- *Slide 14 | The Frankenhive: http://www.ruchewarre.net/viewtopic.php?f=49&t=2319*
- *Slide 15 | The Hex Hive: https://randysuesbeehaven.wordpress.com/2010/06/13/hex-hive-is-now-for-sale/*
- *Slide 16 | The Dunford Hive: https://grossmannsbees.wordpress.com/2015/03/05/015914110/*
- *Slide 17 & 18 | The Beehaus: https://www.omlet.ie/shop/beekeeping/beehaus/*

❑ Slide Image Credits

- *Slide 17 | Dartington Diagram: http://www.eastdevonbk.co.uk/?page_id=368*
- *Slide 21 | Bee Box: https://beegood.co.uk/blogs/news/11957677-why-we-use-polystyrene-beehives*
- *Slide 22 | More than Honey Poster | https://www.mainefarmlandtrust.org/event/more-than-honey-film-screening/*
- *Slide 23 | Rose Hive: http://www.rosebeehives.com/*
- *Slide 24 | Honeycomb Hives: https://www.honeycombhives.com/*
- *Slide 25 | Garriga Hive: https://www.frameapatent.com/farming-patent-prints-c-33/*
- *Slide 35 | Flow Hive: https://www.honeyflow.com/*
- *Slide 42 | Fish tank Image: https://www.amazon.com/Aqueon-Aquarium-Fish-Tank-Size*
- *Slide 42 | This End Up: https://thisendup.com/collections/classic-collection/*

** These images are no longer available at the source location from where they were obtained.*

Johann Dzierzon - Wikipedia

- **In 1838 he devised the first practical movable-comb beehive, which allowed manipulation of individual honeycombs without destroying the structure of the hive.**
  - *The correct distance between combs had been described as 1½ inches from the center of one top bar to the center of the next one.*
  - *In 1848 Dzierzon introduced grooves into the hive's side walls, replacing the strips of wood for moving top bars. The grooves were 8 × 8 mm—the exact average between ¼ and ⅜ inch, which is the range called the "bee space." His design quickly gained popularity in Europe and North America.*
  - *On the basis of the aforementioned measurements, August Adolph von Berlepsch [de] (May 1852) in Thuringia and L.L. Langstroth (October 1852) in the United States designed their frame-movable hives.*