

October 11,2020, Vol 2

CLUB INFORMATION

President-Doug Rush
Vice President- Richard Ratigan
Secretary-April Johnson
Treasurer-Kip Davis



Meetings are the second Sunday of each month at 1 pm. We have been meeting outside at the Apiary with masks and social distancing.

For information about becoming a member, please write to jeffcohoneebee@gmail.com
Dues include membership to Colorado State Colorado Beekeepers Association.

Facebook page is www.jeffcobees.org

LAST MEETING NOTES

August 9, 2020 - Group discussion about mite treatment, hands on experience doing mite checks and treatment.

September 13, 2020 - Getting ready for winter. Discussed rabbit brush blooming round table discussion about winterizing hives. Members brought examples of candy boards and quilt boards. Sue shared a fondant recipe that is posted on the JCBA web site.

Next meeting is October 11, 2020. Products from the hive, Brian and Jen Zavada will share their process and bring products to share and sell.

November 8, 2020 - meeting will be at the Apiary. We will get the club hives buttoned up for winter. Put on the quilt boards, fondant, mouse guards, and move the hay bales around them. All hands-on experience.

December no meeting.

If there is a topic you want us to provide let us know and we will to our best to get that information. Write to jeffcohoneebee@gmail.com

If you would like to write an article or have something to share let us know. Write to jeffcohoneebee@gmail.com attention Kathy Gill.

COLORADO STATE BEEKEEPERS ASSOCIATION

Winter meeting will be held November 14, 2020. It will be a zoom meeting and starts at 9:00 a.m. As a JCBA club member, part of your dues goes to membership in the state association. Member registration fee is only \$7.00, Non-member is \$20.00. The agenda is posted on the CSBA website under events. Dave Tarp, an entomologist, and professor will be speaking on overwintered bees and a historical perspective on humanity's relationship with bees. There will be other speakers as well. Go to the website to register.

MENTORING

There are many reasons why beekeepers are beekeepers. What are yours? To save the bees. For the honey? Or is it a business? Whatever the reasons, we must deal with or manage our hives. If you want to mentor someone or need a mentor let us know and we will help.

PROFILE:

April Johnson has been a beekeeper for 13 years. She started with a mentor, Jerry Webb, and has mentored many beekeepers herself through the years. She is a retired Art teacher in Jefferson county. April did the beautiful art on the club hives. She devotes her time and energy maintaining her six hives and takes care of the club hives at the Apiary. She reflects that when she started beekeeping there was little support at first. She became involved in the Denver Bee Club, when the ordinance was changed, and found out there were a lot of beekeepers in the area. She feels fortunate to have been part of the group that helped to bring in well-known speakers to Denver. Things changed and the need for something closer to home became important. She worked with others to resurrect the Jefferson County Beekeepers Association this year. Another great group of like-minded people. She says, she has had successes and failures and has made plenty of dumb mistakes but has learned from them. "I love working with my bees and love helping others with theirs. I plan to keep at it as long as my back and the rest of my old body holds out."

We are so fortunate to have April's enthusiasm and knowledge in our club.

WHAT DO YOU KNOW?

1. Honeybees can sense temperature differences as small as:
 - a. 3° F.
 - b. 1.5° F
 - c. 0.45° F
 - d. .2° F.
 - e. 1°F.
2. Various temperatures have a direct effect on the formation and functioning of the winter cluster. Please match the following phenomena with the appropriate temperature.
 - a. 57° F.
 - b. 23° F.
 - c. 60° F.
 - d. 45°F
 - e. 52°F

_____ Temperature at which honeybees use their honey reserves most efficiently.

_____ Temperature at which cluster begins to form.

_____ Threshold temperature above which the cluster expands in size and below causes the cluster to contract in size.

_____ Temperature at which cluster contraction stops.
3. Please explain why oval glass jars are preferred to round glass jars for packing honey?
(The answers to these questions are hidden somewhere in the newsletter!)

EXTRA

Here a link for an at home Beekeeping series from Lawrence County Alabama Extension, these presentations have been informative and free. The slides & pictures are fabulous. They record the presentations and keep them available for 2 weeks after the presentation date.



[At Home Beekeeping: September 29](#)

Recorded Live

[Lawrence County Alaba](#)



Bee flying to a sunflower at the Apiary

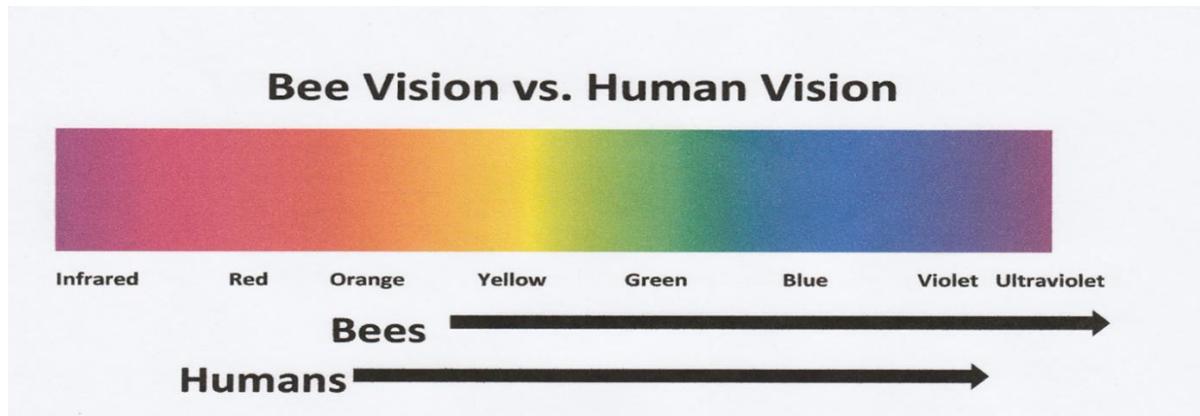
ARTICLE:

Bee Vision

I found research into bee's vision as far back as 1914. A researcher working at Munich university in Germany was the first to provide evidence that bees have color vision. Research into bee's color vision was done by training bees with colored cards rewarding them with a sucrose solution. When the sucrose was taken away, the bees still went to the specific colored card. Bees, like us, have photoreceptors, special cells in the retina that are responsible for converting light into signals, which are sent to the brain.

Humans see light in wavelengths from approximately 300 to 750 nanometers. Which means we can see red, orange, yellow, green, and violet. The color we see is based upon how a pigment absorbs and reflects light. That reflected light is the colors we see.

Bees see 300 to 650 nanometers, which means they cannot see red, but they can see in the ultraviolet spectrum. The ability to see in the ultraviolet spectrum gives them an advantage when finding nectar.



www.beeculture.com/wp-content/uploads/2016/05/4Eyes.png

What colors humans and bees see is dependent on which photoreceptors are within the eye. Humans and bees' eyes are trichromatic which means they have three photoreceptors and base their color combinations on those three colors. Humans base their combinations on red, blue, and green. Bees cannot see red, but base their combinations on ultraviolet light, blue, and green. The most likely colors to attract bees are purple, violet, and blue.

Bees have two compound eyes for general distance sight, and three small, simple eyes, called ocelli, located in the center of the bee's head. The compound eyes are composed of about 6,000 hexagonal facets called ommatidia. Each functioning as individual light receptors.

The ocelli, measures differences in overall light intensity and monitors the contrast between light and dark (sky and earth), at the horizon which helps with stability and allows level light when navigating to foraging areas.

The larger facets of the bee's eye towards the top edge are called the pol parts. This area can detect the direction of light polarization, allowing them to determine exactly where the sun is in the sky above, even on overcast days.

This compound system only gives the honeybee fair vision. As the bee moves, and as things around the bee move, the view of each lens changes, improving visual ability. Bees can distinguish between patterns if they are sufficiently different in amount of brokenness. (Caron, 2013).

According to scientists at the University of London in 2020, bees see five times faster than humans. Experiments revealed that it took more energy for the bees to see in color than they would see in monochrome. Since bees cannot afford to expend energy frivolously, they see colors at half the speed they see white light.

It is no wonder how amazing honeybees are. And this is only a small part of the biology of bees.

Sources for further reading:

Caron, Dewey M., and Lawrence John Connor, (2013). Honeybee Biology and Beekeeping, Published by Wicwas Press.

Jones, Richard, Sharon Sweeney, (2011). The Beekeeper's Bible. Abrams, New York. Science Daily, Science News, (2010, April 20)

By Kathy Gill

BOOK REVIEW

A Book of Bees by Sue Hubbell, 1988, Mariner Books.

This book is about beekeeping and life. She takes us through each season, adding poems and writing in a way that teaches and entertains the reader. Although there have been a lot of changes since 1988, her advice is still relevant. She describes herself as a beekeeper, writer, storyteller, and educator. The quote I liked most is, "You can look at people going by," she added. "Pieces of paper blowing! The important thing is to pay attention to what is happening to you wherever you are. To give the present your full attention." I give this book 4 stars.

By Kathy Gill

Answer # 1 C 45 F

ARTICLE

The Origins of the Modern Langstroth Hive and its Namesake

Lorenzo Lorraine Langstroth was born on Christmas Day 1810 in Philadelphia, Pennsylvania. Being born on a holy day for Christians might be seen as an indicator of his later profession—he became a reverend. He was also known for something else—his contributions to beekeeping! Friends and family members recall his early fascination with the ants and their colonies on the gravel driveway outside his childhood home in Pennsylvania, an early hint of his later work with bees and their colonies. In 1831, he graduated from Yale Divinity School with a degree in Theology. From 1834 to 1835 he held a tutorship at Yale. He took up beekeeping during this time to help with bouts of depression. He was pastor of the Second Congressional Church in Greenfield, Massachusetts from 1843 to 1848. He left the position to become the principal of a young ladies' school, also in Greenfield.

He briefly moved to Philadelphia for a couple positions that did not work out. In 1853, Langstroth moved back to Greenfield and published "The Hive and the Honeybee." The book is still in print today, over 40 editions later. He grew into continually poorer health, at the time described as suffering from "an air of malaise." During this period, he spent more time with his bees, continuing both beekeeping and innovating. Langstroth read the Latin writings of Publius Vergilius Maro, known as

“Virgil,” from Ancient Rome. Specifically, Virgil’s “Georgics.” Langstroth also learned French to read more contemporary works on bees.

François Huber invented the Leaf Hive in 1789 while living in Switzerland. It introduced fully movable frames which were examined like flipping through pages of a book. Langstroth liked the idea but wondered if there was a way to access the bees with less damage to the hive.

In his 1860 book “Langstroth on the Honeybee”, Langstroth wrote, “The use of the Huber (Leaf) hive had satisfied me that, with proper precautions, the combs might be removed without enraging the bees, and that these insects were capable of being tamed to a surprising degree. Without knowledge of these facts, I should have regarded a hive permitting the removal of the combs as quite too dangerous for practical use.”

In Europe, bees were sheltered in open-chambered boxes, hollowed logs, crudely crafted dome shapes, skeps, or elaborate and aesthetically pleasing bee houses. The combs were held in place with wax, and components of the hive were sealed together with propolis. For beekeepers, getting to the honey was incredibly destructive to the hive. Also, in Europe, both Jan Dzierżon and August von Berlepsch had been working on side-opening hives.

In the United States, Langstroth was working on top opening hives, and came up with the idea of “bee space,” allowing gaps between frames and above and below them. Before bee space, frames were often so propolised to the hive, they were immovable. The 3/8” gap referred to with “bee space” is enough space for bees to get through, but too large for propolis to be built across. Any gaps less than 1/4” would be filled with propolis by the bees. Gaps larger than 3/8” the bees would fill with comb. In 1893, Langstroth reminisced of his bee space realization, “Returning late in the afternoon from the apiary which I had established some two miles from my city home (at the corner of Chestnut and Schuylkill Streets) and pondering...the almost self-evident idea of using the same bee-space...came into my mind, and in a moment the suspended movable frames, kept at a suitable distance from each other and the case containing them, came into being...I could scarcely refrain from shouting out my marker ‘Eureka’ in the open streets.”

On October 5, 1852, Langstroth received a patent for his movable bee-frame cabinet with individual hanging frames and 3/8” of bee space. Langstroth later noted in his hive design, that “... the chief peculiarity in my hive was the facility with which they could be removed without enraging the bees I could dispense with natural swarming, and yet multiply colonies with greater rapidity and certainty than by the common methods feeble colonies could be strengthened, and those which had lost their queen furnished with the means of obtaining another. If I suspected that anything was wrong with a hive, I could quickly ascertain its true condition and apply the proper remedies.”

Philadelphia cabinetmaker and fellow beekeeper Henry Bourquin crafted Langstroth’s first movable frame hives. By the end of 1852, Langstroth had more than 100 of these hives, and he began marketing them, selling them all over the United States. He spent many years trying to defend his patent without much success, it was easily and widely infringed upon. A slight tweak here or there rendered his original patent obsolete. He never earned any royalties from the hive style that still bears his name. His hives remained in production from 1852 until about 1920.

In 1858, Langstroth moved to Oxford, OH and set up a ten-acre beekeeping property. He planted linden and apple trees around the property, and sowed buckwheat and clover seeds. He dedicated one acre to plants he noticed bees loved. His house was built two years before he moved in and is now a dedicated landmark called Langstroth Cottage. He spent his time there beekeeping, researching beekeeping, writing about beekeeping, and playing chess.

In 1863, Langstroth received his first Italian bees. They were unusual in the United States as at the time, European honeybees were the norm. Langstroth found the Italians more productive and in one year he and his son produced over 100 queens, selling them for \$20 apiece across the United States. (Sources here are not specific. They were either sold for \$20 during his time, which is \$683.99 in today's economy. Or they were sold for about \$.57, which is about \$20 in today's economy. This writer leaves the opinion of the most probable to you, dear reader.) Today, the Italian is the most common commercial bee in North America. In 1887, Langstroth moved in with his daughter in Dayton, Ohio. He enjoyed almost eight years there.

Reverend Langstroth died in the pulpit October 6, 1895 at the Wayne Avenue Presbyterian Church in Dayton. He had just begun a sermon on "The Love of God." He is buried at Woodland Cemetery and Arboretum in Dayton. His epitaph reads: "Inscribed to the memory of Rev. L.L Langstroth, 'Father of American beekeeping,' by his affectionate beneficiaries who, in the remembrance of the service rendered by his persistent and painstaking observations and experiments with the honey bee, his improvements in the hive, and the literary ability shown in the first scientific and popular book on the subject of beekeeping in the United States, gratefully erect this monument."

Langstroth's contributions created hives that could be opened with less impact to the bees, and that honey could be extracted without destroying the comb— which increased honey production because less time is spent making wax and honeycombs. It also meant his hives survived the harvest season, and that hives could be periodically inspected.

Langstroth's discoveries increased honey yields in healthy hives by allowing stacking additional boxes of frames on top of one another and could even restrict the Queen to the lower box by use of a Queen excluder. Langstroth's contributions to beekeeping were incredibly important because at the time, honey was the number one sweetener in the United States.

His patents include his original beehive patent issued October 5, 1852 and re-issued May 26, 1863. He and Samuel Wagner received a patent January 15, 1867 for an "Improved Apparatus for Extracting Honey from the Comb."

Wagner was a newspaper publisher and beekeeping enthusiast from York, PA. Wagner was the driving motivation behind Langstroth publishing his groundbreaking work, "The Hive and the Honeybee." From the 1850s, Langstroth and Wagner also frequently discussed the need for a professional beekeeping periodical like was present in Europe. In 1861, Wagner published the first issue of the American Bee Journal, with Langstroth writing the lead article. ABJ ceased production during the United States' Civil War, but continued publishing in 1866.

It continues monthly issues today. Langstroth Cottage was donated to the Western College for Women and is today used as the Miami University Center for the Enhancement of Learning and Teaching. His papers are at the American Philosophical Society Library in Philadelphia. You can comb through them. Langstroth published two groundbreaking books, *The Hive and the Honeybee* (1853) and *Langstroth on the Honeybee* (1860).

By Eric Skougstad

Answers:

#2 d. 45, a. 57, d. 45, b. 23

#3 Oval glass jars are preferred over round glass jars for packing honey since oval shape allows more light to pass through the honey enhancing its appearance.