

The Traveling Beekeeper

TRAVELING, THINKING, INSIDE THE BOX



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Thinking Inside the Box

Modern culture moans that more people need to be innovative and to think OUTSIDE of the box. I suspect we have all been advised, encouraged and even yelled at to break free of traditional ways of approaching issues when it comes to problem solving. In that same mindset, when it comes to beekeepers, I'd be happy if more of them spent time thinking about what goes on INSIDE the box—the bee box or bee hive. Right now I have a strong need to forgo my reports of travel to and visits with another beekeeper so we can spend some time MENTALLY digging into the hive many of us have in our backyard. So here goes, an exercise where thinking inside the (bee) box, may be thinking outside the box in the rest of the world!

A variation on the travel theme

Many new beekeepers have started colonies in the past year or two, and this visit is clearly going to be helpful to them. But since we will look at some things that the average beekeeper may not see, we need to remind ourselves of some basics of beekeeping. Maybe we are too busy and in a hurry. Maybe we don't know enough to process what it is we are observing (that happens to me all the time). Last February, during my interview with Dave Mendes in North Fort Myers, FL, he recommends that we all need to go back to basics, and revisit the stuff that we learned in Beekeeping 101, during our basic beekeeping training.

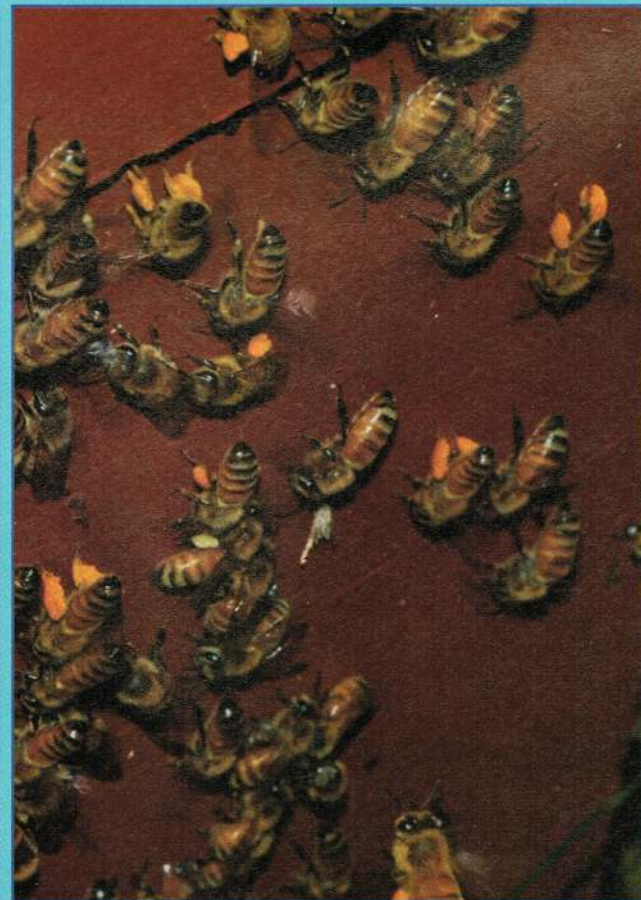
Therein, the challenge

Here is the problem or learning opportunity for many beekeeping teachers. There are many beekeepers who have never taken an organized beekeeping course, or they were taught by someone who lacked proper skills to teach bee basics (but successfully taught all of their bad habits and some factually incorrect information), or they have spent little to no actual time with another beekeeper while learning the basics.

Since I grew up in a generation of list makers, I have prepared a starter list of basic concepts every beekeeper should know after a few months of beekeeping. We may add to this as we dig into this issue. Here are some concepts that I believe every beekeeper should know after a basic beekeeping course—after taking Beekeeping 101 or its equivalent— and unfortunately they never

learned:

1. What is a well-balanced hive? – What does it look like, and how does it behave? They should be able to recognize a healthy hive as well as a colony in trouble with relative certainty. They should be able to recognize this rather quickly, within a minute or two of a hive inspection.



As we shrink in size to that of a bee, we are at the entrance of the hive, surrounded by returning pollen foragers who are helping cool the hive on a hot, humid day. Today we are in Connecticut, and the tulip poplar trees are in full bloom and the bees are busy gathering pollen.

2. Don't damn the queen for the failure of unrelated worker bees. When we purchase worker bees in a package supplied with an unrelated queen, or make up or buy a nucleus hive made up of brood and bees from queens genetically inferior to the queen we introduce, we must be careful to help these disease-prone, substandard

bees let the new queen repopulate the entire colony with her bees. Only then can we evaluate the queen's performance.

3. Feeding a colony is essential to new beehives. Feeding sugar syrup is not a loss. The bees either save the food in the honey comb or make bees with the food. If you feed a protein supplement, the bees will

take it when natural supplies are inadequate.

4. There is considerable variation from one hive to another. Celebrate and study the wide diversity in the apiary!
5. Chalk brood is a major problem for many beekeepers. Nearly every apiary I have visited in the past four or five years before July 1st has had colonies with chalk brood; enough chalk brood to weaken the colony and even contribute to its death.
6. Bees are flexible organisms, and the bee colony is highly adaptive to different hive types and management systems beekeepers throw at them. They adjust to the unskillful (I first wrote stupid) habits of beekeepers because they can work it out (when the beekeeper cannot). Too many beekeepers seek rigid management plans with black and white rules. The bees have their own view, their own special vision of the world we share with them.
7. A properly lit and well-filled smoker is a wonderful thing.
8. Comfortable use of the hive tool speeds colony inspection; forgetting to bring the hive tool with you to the apiary leads to a bad colony visit.

A Mental Exercise

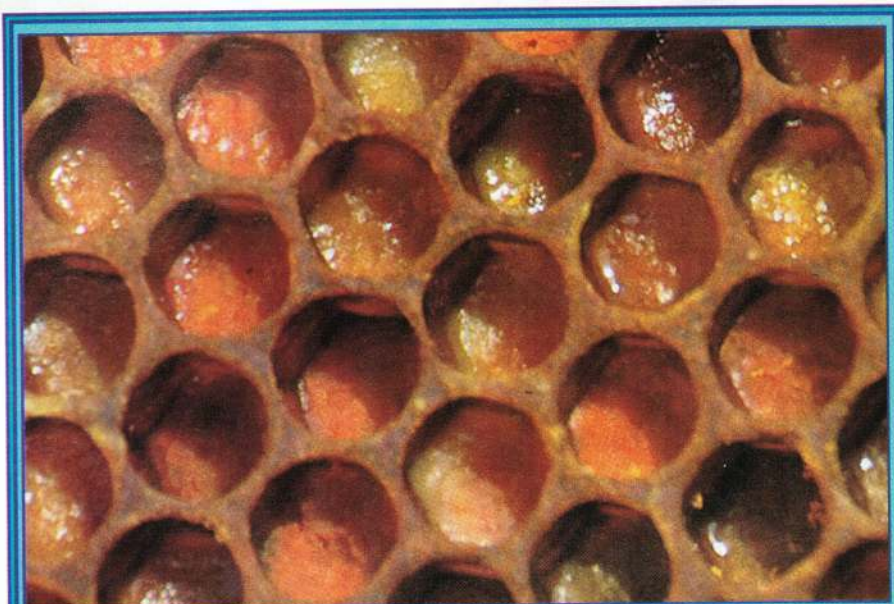
As you read this section, I want you to shut your eyes and imagine yourself inside your hive. Imagining you are small like a bee and able to move like a bee inside the colony. You carry with you special glasses that let you see what bees see. You are equipped with sensors that let you feel and smell what the bee does, since they are insects and you are human.

Walk into the hive with purpose and intent, like a returning forager. Offer some nectar to the guard bees and a house bee and then climb into the brood nest and the honey combs.

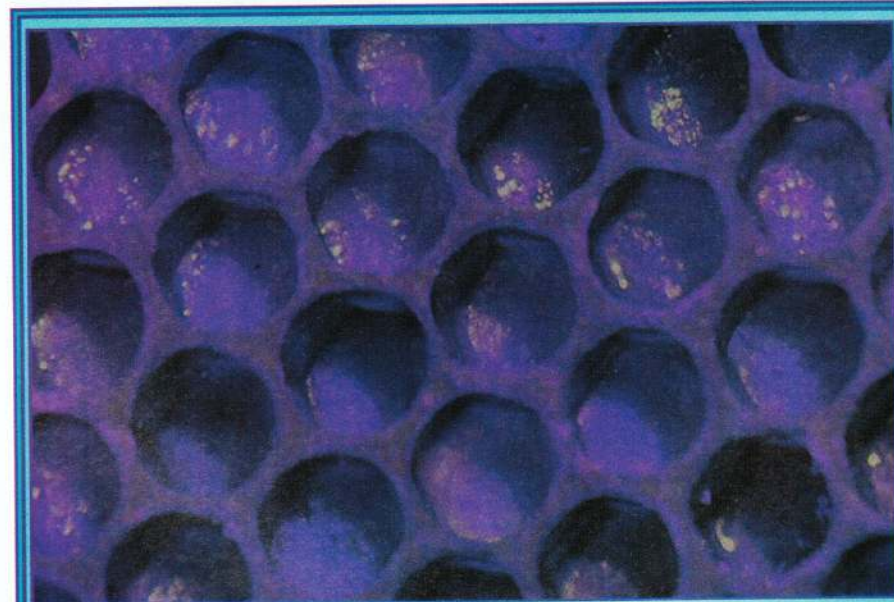
You need to recall that it is dark inside the hive, although there may be daylight at the entrance and from the screened bottom board. Gaps between hive bodies create bright shafts of light streaming into the hive, creating bright spots but the rest is dark. But when you put on your special glasses, you see the ultraviolet range that we cannot see, and all this strangely familiar and yet slightly magical as you climb the combs in the hive. What does this look like? Close your eyes and try to imagine.

Do you smell the odor of the hive, that magical combination of wood, wax, plastic, propolis, honey, fresh nectar and pollen? Some of the newly collected, fresh pollens are strong in their aroma, while others are less pungent. Take some time to put your head into several of the pollen cells and breathe. Bees don't breathe like humans—they have a tracheal system while you have lungs. Imagine how a bee must sense the differences between the different odors of the hive. You must recall the sensors on the bee's body, especially on the antennae.

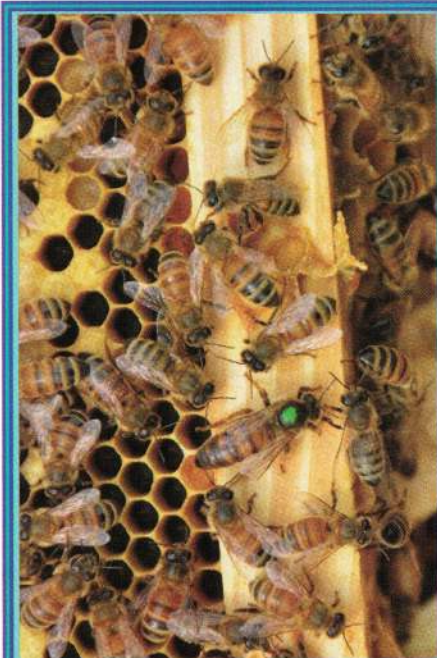
Oh! The smell of the nectar and ripening honey! What are they bringing in today? Is it the heady scent of the apple blossoms, or



We have followed the pollen foragers into the hive where they are storing pollen. This pollen has been packed into the cells by house bees. Nectar or honey has been added to preserve it and give it a moist appearance. When the human eye sees pollen in the honey comb, we receive the color wave lengths in the yellows, reds and oranges.



We put on special bee lenses that let us see what the bee sees. What would that be like? It is dark in the bee nest, but light comes in at the entrance, from the screened bottom board, and from cracks in the edges of the hive. Plus, bees do not see red, but they do see ultraviolet. Would it look like this, but through the multi-faceted lenses of the bee?



In the hive light we encounter the queen. Do we smell her before we touch her? Can the bees smell the odor of the queen pheromone she produces, or do they simply react to the chemical, involuntarily? Is the chemical power of the queen a strict behavioral order, or is it simply a strong suggestion many bees follow?

the sharp, bright odor of the lime/basswood? Can you smell the clover fields, the acres and acres of sweet yellow and white clover that the bees have visited to fill the honeycombs? Is there something exotic, like the eucalyptus trees of Florida or California, or nectar from raspberry flowers in a northern state or the powerful sensory hit from the nectar from mint flowers? You visit different parts of the honey comb and you smell different odors, as honey gathered early in the season is capped, while the new wax is

being constructed and the bees are moving from place to place as they secret the wax scale, chew it until it is pliable and then add it to the developing comb. Nectar processors are combing in the honey they have just ripened and put it into the growing cells. The comb is not finished yet, but already the bees are filling the cells. Step carefully, as the comb is soft in the heat of the hive and it bends easily unless you spread your arms and legs out to distribute the pressure over the comb. This is no place for a lead-foot!

You crawl down the side of the comb and return to the bottom hive bodies, or brood boxes. You are on the outside comb, where some of the oldest comb has been completely filled with new honey from that season. Maybe the flow is heavy, or may be it is August or September and the bees are bringing honey from the combs above and storing it into the brood frames so they will have food close at hand for the coming fall/winter.

On the second comb inside the colony you find a frame of honey and pollen. There are many drones there, and some have just returned from mating flights. These (so far) unlucky-at-love males are tired from flying farther and farther from the hive as they attempt to find a mate. They leave with a provision of honey in their stomach, but when they return their food reserves are nearly gone, and they must go to the honey combs and drink. After they finish feeding, they may go out of the hive to make the flight again. As the evening approaches, they find a place on the honey comb, perhaps out of the way of the workers, but probably not, and they congregate, a few dozen to a few hundred sexually active drone bees who must rest and be strong and able to catch the queen on the next mating flight. While there is no shame in being a drone that dies of old age, there is no genetic legacy to pass via the sperm to be released by the queen over her lifetime. The successful drone may father hundreds of thousands of worker bees, and maybe one or two queens, if the randomness of nature allow.

Maybe there are no drones in the hive. Maybe it is very early in the season or very late, and the bees and the queen are not ready to produce drones.

As you climb onto the combs containing

brood, there is a change in the odor of the hive. The pollen and nectar are present, but now there is the brood smell, the odors produced by the eggs, the larvae and the sealed brood. You notice differences on the drone comb. Maybe that is what the varroa mite smells to find the drone cells and invade them. As you smell and feel these combs in the darkness, you realize that you have bumped into the queen as she moves from cell to cell, inspecting each one and depositing an egg, fertilized or not, depending on the size of the cell. You make out her body with the special bee glasses you are wearing and you sense her strong attention to her work. You can feel worker bees near her, feeding her, taking away her feces, grooming her body and collecting the odor of the queen. As a human you do not smell the queen, but you sense something different when you are near her. As a bee, the queen is a powerful stimulant and unforgiving repressor by the odors she produces. Fortunately, this does not affect you. Yet.

Quite close to the area where the queen is laying eggs you find several worker bees chewing off their wax capping made of the beeswax the workers put on the cell to seal it, and the thin but strong cocoon the bee spun as a larva. You reach to move the flap of wax out of the way, but the bee pulls herself out of the cell. She's damp and you sense her determination as she walks, a bit shakily, on the surface of the combs.

The nurse bees rub against you as you move about. They are filled with their activity feeding the thousands of larvae in the hive. They take food from the pollen cells and from each other. They drink honey and share it with their hive mates. Many bees have offered you a sample, and others have looked to you for such food. Each larva must be fed hundreds if not thousands of times. You feel a varroa mite crawl over your body and you brush it away instinctively. The experience helps you decide you need the open area and head to the hive entrance, where you take off your bee glasses and sensory equipment and think about all you have seen.

Dr. Connor has a website: www.wicwas.com, where you can check his travel schedule as well as purchase his books from his on-line bookstore.

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