

Bottomless Beekeeping

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- Charles Martin Simon

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Scientists tell us that the judicious use of miticides, following the instructions exactly, will prevent resistance, but this is not true. They also say the miticide is harmless to bees and humans, and this is not true either. When I was using the stuff, handling it still sealed in its original foil wrapper, I could taste the toxicity in my gums. I also noted a negative effect in the bees. And, on top of that, the stuff didn't even work. And yes, I followed the instructions to the letter. My good friend, third-generation grandmaster beekeeper Ormand Aebi followed the instructions to the letter also, and nobody follows instructions better than Ormand, and in two years he was completely beeless for the first time in three generations.

Why is the *Varroa* devastating to the European honey bee while lived with so nicely by the Asian honey bees?

For one thing, the Asians have a faster metabolism. The pre-imagoes spend a day or so less time in the cells, and since it's in the cells that the *Varroa* does its dirty work, the time differential is sufficient to give the bees the edge.

For another thing, the Asian characteristically hangs its combs out in the open with minimum shelter, like under an overhanging ledge on the face of a cliff. The Europeans, however, seek a cavity. Obviously, with the Asian combs hanging in space when a parasite falls it is gone forever. And the scientists have shown that the parasite does drop from the combs on occasion. In a cavity, there will usually be a surface close to the bottom of the combs, a joist in a wall, the bottom board of a beehive, the solid part of a tree, some place for the falling parasite to land and wait for a bee to which to attach itself.

Several years ago, I reasoned that screened bottom boards might be of use and went to work designing when all of a sudden they appeared on the market, and with sticky board inserts too, so you could even count the parasites. But the problem wasn't solved.

So I decided to take it further: No bottoms at all.

My thinking was, obviously, that this would allow the parasites to fall away and disappear – like they do with the Asians. As for losing the ability to count them without the screened bottom boards and sticky inserts, who cares as long as they're gone?

First I planned on putting the bottom boards back when the weather got cold, but I caught myself thinking like a beekeeper, not an apiculturist. I was thinking of the bees as static things, not living, adaptable beings. And I reasoned it would be better for them if the bottoms were in fact left off during cold weather also. The bees would compensate for the increased exposure by tightening up the cluster, eating more honey to burn more calories to keep the temperature in the cluster up to where it needs to be, raising their metabolic rates. They would become more like Asian bees, not as the result of mixing the species with the disastrous consequences that engendered, but as the result of replicating the lifestyle, and end up healthier – those with the will to survive anyway. Survival of the fittest is always the rule, so why try to get around it? When we artificially prop up the weak ones, all we end up with is perpetual sickness.

Besides, the Asian bees often overwinter in cold weather, and they're not in a cavity.

Here's a quote from Jamie Strange's article "The Bournacq Hive," in the October 2003 issue of *Bee Culture*:

“It was not until after beekeepers began working in moveable frame equipment that foulbrood became a problem.... Also, because generally only strong colonies were Wintered, the beekeeper insured that he was keeping the best stock for the following year. These strong colonies did not have to be fed or treated for disease.... the beekeepers were selecting for disease tolerant stock.”

That is exactly what I am talking about, doing what it takes to make the colonies really strong and healthy. Except I don't think the moveable frames are the culprit. Moveable frames are helpful and not harmful, when used correctly. The problem is reusing combs too many times, which is the inevitable result of the pernicious practices of using foundation and extracting.

I keep my hives on stands at least 16 inches above the ground to prevent skunk predation, of which we have quite a bit around here. I have, however, worked with many feral colonies close to the ground and going strong, in the bases of trees for example. So placing bottomless hives close to the ground will probably be fine as long as the colony is strong enough, and if it isn't strong enough, nothing matters anyway.

Now the approach for a skunk would be different with a bottomless hive close to the ground. A skunk would have to stand up and expose its underbelly in order to scratch on the wall of the hive, or literally get up underneath it. Both approaches would subject it to serious attack.

I have been slowly converting my hives to bottomless, leaving some bottomed for comparison. Every single converted hive, after an initial short period of confusion, while the bees were figuring out what was going on and what to do about it, showed an immediate increase in vitality.

It is November as I write this, and several of my *bottomed* hives have already died from *Varroa*. Whereas the bottomless are going strong, much stronger than other hives in past seasons at this time of year, even those that went on to survive the Winter.

Advantages and Disadvantages of Going Bottomless

Bottomless hives are difficult if not impossible to steal. The bee thief, looking for the easy way, will find exactly the opposite of what he or she was looking for. It goes against his or her nature to mess with a bottomless hive, especially a big, strong, competent colony housed in falling-apart equipment (my favorite kind).

The breathing capacity of the hive is immediately and dramatically increased. No more moisture build-up or moisture-related diseases. No more debris on the bottom boards. Bottom board rot is a thing of the past, along with the need to replace.

No more slanting hives forward. Vertically straight hives make straighter combs (not that that matters), support weight better, and ride earthquakes better (that does matter around here).

And no more mouse worries. Without a bottom board and sufficient space between the board and the bottom of the cluster, mice can't even get started.

No more facing the entrances to the sun. You might think this is not important but it can be. I moved some colonies onto a lovely piece of land overlooking a large slough designated as a wildlife preserve, faced to the sun as I had been taught to believe was right. They steadily lost vitality and died. There is a fierce wind blowing straight up the slough directly into the hive openings facing south, which is the direction they need to face to get the most sun. Most sun means quickest warm-ups and most light for the longest duration, which means most work which means most production. I still catch myself feeling uncomfortable about it from time to time. Unlearning is apparently harder than learning.

With bottomless hives, smoking for manipulations is much more effective with much less smoke.

There are some disadvantages: Decreased honey production for one. Or, is that a good thing?

You might think bottomless hives could be invaded easier by yellow jackets and cleaned out by robber bees. But there is a difference between how the guard bees function with bottomless as opposed to conventionally bottomed. In the conventional setup, the robbers have only to get past the guards, which are positioned at the entrance looking out. Once in, yellow jackets can have their way virtually without challenge. With bottomless, the guards cover the complete territory, scanning in every direction, and it is not possible to get past them. I have watched yellow jackets working the bottomed hives while avoiding the bottomless. I think with the guards out in the open, the yellows get attacked a lot quicker and heavier, and they learn fast. Of course, the strength of the colony is going to be the key, as it always is. I just can't see a good strong colony getting invaded by anything except maybe bears, but we don't have bears around here. (Earthquakes, yes. Bears, no.) And besides, a bottomless hive would be no more vulnerable to bears than a bottomed one. And if a weak colony gets wiped out, maybe that's a good thing too, saves the trouble of nursing it only to have it die off anyway, and it will; they always do.

For moving, each hive has to have a bottom board available. But there are probably better ways to close hives for moving than standard bottom boards with screened entrances. Come to think of it, I have many tops with feeder holes, left over from the bad old days when I used to feed. They would adapt excellently for moving bottoms, the end cleats forming convenient legs to keep the screened openings up and away from truck beds or floors or other hives when stacked, and allow the air to circulate. These could be stapled or duct taped on.

Loss of directionality. Bottomless beekeeping may not be for those who want to practice the safety procedure of staying behind the hives when manipulating, so as to keep out of the flight paths. Keeping out of flight paths is not what really reduces stinging incidents anyway. I'm sure it helps the keeper relax more to think he or she is doing it the "right way." What really does the trick is when the handler maintains a cool, level, detached state of mind, when there is no fear, and, most importantly, when that state is not forced or faked but real and native – and, of course, slow, deliberate, smooth, assured movements and appropriate smoke.

Don't assume the bees will be flying every which way in a 360-degree chaos. They will establish flight paths and preferred ways in and out of the hives, but they won't be consistent among the hives, as when an entire traditionally bottomed apiary is pointing in the same direction, and the handler will be able to work with that if he or she deems it judicious to do so. Conversely, to not work with that means to ignore it, which is my preferred method. It makes no difference whether I am in a flight path or not, as long as my slate of mind is correct, which it always is. But don't get me wrong, I'm not saying I never get stung. I do from time to time, and I usually like it. But a few weeks ago, I was just standing there minding my own business, when a bee got right up in my face and stung me on the end of the nose. Ouch! Hurt my feelings too, that she would do such a thing to me without provocation.

On one of my removal jobs, I have a hive hanging 36 feet up, leaning against a two-inch pipe. Now, form-wise, a two-inch pipe against the side of a hive should be very much the opposite of a landing board in front, but those bees use that pipe like it was designed for just that purpose. Which leads me to think bottom boards and landing boards are functions of anthropomorphism, not proper bee culture. We want the bees to have what we would want if we were them, a nice cozy tight room with a comfortable entrance, as though they were good little people that shared our sense of functionality as well as goals. As though they didn't have incredible abilities that we don't have, like the ability to fly, to take off from and land on virtually any surface in any position, to crawl vertically and upside down – abilities they enjoy exercising. Everything that lives has the ability to enjoy, and when bees enjoy life rather than struggle against impossible odds, their health will reflect their lack of stress. And every time we loosen of the regimentation of Langstroth-derived modern beekeeping, the bees respond positively.

A note on pollen trapping with bottomless hives

Bottom-positioned, self-cleaning pollen traps on standard bottomed hives provide a little help against *Varroa*. Parasites get knocked off when the bees squeeze through the screen and fall into the pollen drawer and die. But the board that covers the drawer on the top of the trap, which prevents debris from entering the drawer, forms another hive bottom where bees can walk around and fallen *Varroa* can wait for a ride back to the brood area.

The solution is an eighth-inch mesh screen above the debris board, positioned on its own frame which is not attached to the pollen trap so that it can be easily removed for cleaning. With this screen in place and the trap used on a bottomless hive, it is more effective against *Varroa*.

There is a wire-meshed space across the rear of the pollen trap and exit holes at the front, which could allow some mites to fall through. But when the trap is placed over a bottom board, any mites that might fall through will end up on the bottom board, and they might get rubbed off when the bee returns through the screen or they might not. But without the bottom board, any that fall through will be gone forever, and those that fall through the debris board screen onto the debris board will die there waiting for bees. If it's not true, then a sticky board could be placed on the debris board, or it could be coated with an essential oil.

With my first converted pollen traps, I ran a half-inch strip around the outer top of the traps to provide space between the comb bottoms and the screen. Then I started using an empty super, between the pollen trap and the next super up, that had comb, which made the spacing strips unnecessary. I manage the colonies so they build new combs above not below the bottom combs.

The space added by an empty super decreases the number of bees that would be walking around on top of the debris board or screen, since the bees mostly crawl up and down the inner sides of the super going to and from the combs, and might even make the screen unnecessary, especially when the pollen traps are removed in the Fall and Winter, which they should be. I realize some keepers simply open the flyway and leave the traps in place, but that's not a good idea because the exit cones, unused, get plugged with debris. So since you have to take them off to clean anyway, you might as well leave them off for late Fall and Winter.

Our traditional modern ways mollycoddle the bees with one hand while abusing them with the other. Is it any wonder they can't get it together?

What I am proposing is not good for business. Instead of adding products, I'm taking products away. Instead of increasing honey production, I'm decreasing it. But a little honey is better than none, and dead bees make no honey at all.

Bottomless beekeeping, combined with foundationless (one of my favorite not-things), will result in a smaller, faster, stronger, healthier bee, less susceptible to disease and predation.

My intention is not to return beekeeping to the dark ages, but to take stock of what works and what doesn't and to mix and match methods toward the goal of maximum health rather than maximum production. Bees are incredibly powerful creatures. Given half a chance, they are unstoppable.

Both philosophically and practically, the *Varroa* has been a benefit to bee culture if not beekeeping. To use the words of my good friend, the revolutionary British apiculturist Ian Rumsey: "We have overcome an enemy by making it our friend." Actually, we have overcome many enemies. What we must do is get out of the way to allow the bee to develop into the world-beater it can and should be, the very capable creature that can triumph over the harsh realities of life as it is not as it used to be or we wish it was.

Charles Simon is a student of beekeeping, and a bee remover by trade.