BEE VET

Human-Bee Bond?

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Mutually beneficial relationships have existed between humans and animals for thousands of years, but in the1990s the recognition and importance of the **human-animal bond** began to permeate veterinary medicine and our society in general. As dogs and cats moved from the backyard or the barn to the house, our animal's status changed from pets to family members. Many pet "parents" today find it perfectly normal to share much of their beds with their beloved canine, feline and/or other furry creatures.

While attending veterinary school at Ohio State University in the mid to late 90s, I was one of the founding student officers in our Human Animal Bond Club. At that time, we did not fully understand the meaning of our club's purpose, we just liked bringing animals around to visit folks in nursing homes. Since then, I have watched the human-animal bond relationship evolve from a near front row seat. Volumes have been written on the subject in the past 30 years. Laws have changed. How we handle animals in scientific research, in veterinary medicine, and in agriculture has changed. How we acknowledge and treat animal pain has changed. How we value animals in society has changed. The human-animal bond has become its own subject of study (just check Google scholar), and has meaningful, beneficial, and economical applications for both humans and our animals.

During one of the first bee vet medicine disease courses I took, another veterinarian asked if bees recognize their keeper. "No . . . (with a laugh)", was the response from the instructor. However, over time, my research and observations with honey bees and beekeepers are leading me to another conclusion.

I am not saying that your bees are going to love you like a devoted, slobbering Labrador Retriever. They will not. But let us consider what the science, both biological and social tells us. I will also throw in some anecdotal evidence that I believe most keepers can relate to.

Behavioral and Physiological Science:

There are many reasons for aggressive or defensive behavior in bees: genetic predisposition, extreme weather, queenlessness/pheromone imbalance, underlying diseases, and lack of reserves/hunger. Notice these reasons are not unlike the major causes of defensive action in all animals. One factor that induces defensive behavior that you can control every time you interact with your hive is your behavior. Honey bees, like most animals, recognize and communicate threats and non-threats. They will change their behavior toward you based on their assessment. Anecdotally, after shadowing dozens of beekeepers, I have observed that "rougher" beekeepers tend to have "crankier" bees.

Honey bees' brains have incredible capacity for memory, and they are capable of passing this memory on to the hive collectively. Honey bees have keen visual, mechanical, and chemical senses. If you visit them on a regular basis, it is likely they know what you look like, smell like, and whether you and your behavior are perceived as a threat or not.

Social interactions:

Many backyard beekeepers may view their hives like pets. One's hives may even make your Christmas card picture along with your kids, your dog, your cat, and your spouse! However, the human-animal bond does not just apply to pet owners.

*The **human-animal bond** is a mutually beneficial and dynamic relationship between people and animals that is influenced by behaviors essential to the health and wellbeing of both. This includes, among other things, emotional, psychological, and physical interactions of people, **animals**, and the environment.* – The American Veterinary Medical Association (AVMA) definition of the Human Animal Bond

Anyone who has spent some time with a family farmer knows that most love and care for their animals. Growing up in dairy farm land and in my early vet days, I can remember watching dairymen calling in their cows from the field for milking. A cow's ear tag may have said #49, but to the dairymen, she was "Susie". He would call her by name, she knew his voice, and he helped direct her to her stall. To me, they looked like a bunch of black and white Holsteins, but to the farmer these animals were his life and livelihood. Granted the dairyman knew if Susie's production dropped, she would have to "go down the road", but he still stewarded an empathy for her life's contribution to his family. In commercial bee yards, I have observed a similarity amongst beekeepers with bees much like a dairyman caring for his cows. I have heard these bee farmers lament and struggle with the choice of moving their bees and disturbing their peaceful "porch sitting" evening. Many bee farmers worry about their bees' health and stress, understanding the relationship that their bees' wellbeing has on their own.

Other Bond Benefits:

Included in the definition of the human-animal bond are the mutual benefits of the bond between the animal and human, including emotional, psychological, and physical aspects. The environment also plays a role in the interaction of this relationship.

On the bee's side, a good keeper will provide proper shelter, nutrition, health and preventative

care. Unfortunately, without a knowledgeable, involved keeper intervention many *Apis mellifera* colonies will perish within a few years due to pests, disease, exposure and/or poor nutrition.

On the human-side consider everything bees do for us! Like many agricultural animals, we may feed them but ultimately, they feed us. Bees provide honey, wax and other hive products, **and** pollinate a substantial number of crops that human and other animals eat. Beekeeping itself also provides a means of physical activity. Our benefits from the bees go much further than just the physical benefits. Beekeeping is acknowledged as an activity that can improve mental and emotional health, one of the biggest public health issues we face. Many beekeepers have expressed how their hives gave them something positive and "safe" to do during COVID-19 lock downs.

Ways to Improve Your Bond

Know your bees. Keep records. Learn how to do regular, gentle inspections. Move smoothly, at "bee speed". Try not to crush too many bees or bang on the hive. If you are afraid to inspect your bees on a regular basis for whatever reason, get some help. Your developing knowledge and technique will keep them healthier and both of you "happier".

Try less smoke. Imagine if every time you met someone; they thought their house was burning down. Yes, there are times and places for smoke. I am not saying throw your smoker away. Certainly, commercial settings or dealing with Africanized bees are a different story. But a smoker is essentially what we call in veterinary medicine, a restraint device.

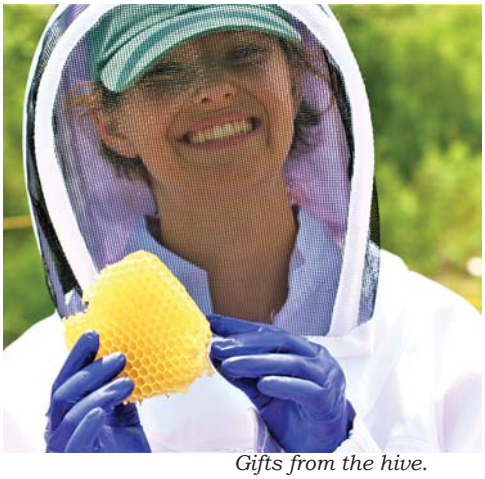
A restraint device is a tool or technique that veterinary professionals use to control an animal's movements for the safety of the animal, the animal owner, and the veterinary professional. However, if too little or too much restraint is used, specific to the situation, control and safety may be lost. An example of a restraint device would be a dog muzzle or a cat bag. Most veterinary professionals will start with the "less is more" approach, especially with felines. Most of the time this is the best approach with most cats. However, a few cats may still end up jumping to the ceiling, no matter what you have tried. I have found *European* honey bees to be somewhat like cats, in that less smoke is more for most hives, on many days. Keep your smoker lit, but use it judiciously, only when needed.

Drones don't snuggle.

Food for thought

I am writing this in August in Western Pennsylvania, where we are experiencing an extended dearth, exacerbated by severe drought conditions which we have not experienced for years. One recent evening while sitting on the back deck with my husband, I had bees hovering and crawling all over me, but not my husband. "They know you," he said with a smile. I think he is probably right. I have been in so many hives I probably "smell" like a queen pheromone cocktail mixed with sugar syrup. Every evening my bees are following me around like a puppy, as I water my plants, hoping to get a sip of precious water. They just want fed, right?... But is this not a major way we form bonds with most animals? We feed them. Nothing wins over a cat like their favorite treat. My horses come running into the barn after I call them, yes ...**and** after I dump grain in their buckets. The very first human relationships with canines developed thousands of years ago around our campfires where food scraps were easier to come by than typical prey. Are our bees really that different?

The human-bee bond. A bond with of tens of thousands of stinging insects? I believe we and our bees absolutely meet the definition of this important relationship... but these babies are still staying outside in the yard for me. BC



Gifts from the hive.

Photos by Deidra Ressler

References to help you explore further:

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M.E. Villar et al., "Redefining single-trial memories in the honeybee," *Cell Rep*, 30:2603–13.e3, 2020.

The Human-Animal Bond Research Institute: **https://habri.org/**

AVMA's definition of the human animal bond. **https://www.avma.org/one-health/human-animal-bond**

I found one master's thesis on the subject of the human-animal bond and bees: **https://aquila.usm.edu/cgi/viewcontent.cgi?article=1213&context=masters_theses**