Buzzing from the Back Garden

When the seasons turn over from summer to fall, and that familiar chill returns to the air in the evenings, autumnal traditions begin. For some people, it's decorating their home with amber hues or making a trip to the apple orchard. For others, it's watching football or drinking pumpkin flavored coffees. But for me, the return of the fall means the return of tea. In scorching summers, I can't stand the thought of drinking anything warm, the thought of it is torturous rather than relaxing. Though, in the colder months, it is my favorite part of my days. A mug of hot water, a bag of black tea steeping in it, a wedge of lemon, and a tablespoon of my grandmother's honey. Tucked away in a glass jar in the back of my cabinet, there's a stockpile of honey for my use at tea-time. It's the best time of the year, and the perfect way to end the day.

A few hours away in Malvern, Pennsylvania, my dear old grandmother lives in her midcentury modern home. From the front, it appears the same as any other home in the suburban neighborhood. But behind the wooden façade, there are acres of gardens. And in the very back, there are five buzzing wooden structures, spaced five feet apart. Hundreds of thousands of additional family members. Beehives.

I remember when my grandparents first bought the hives. They were already well into their 60's at that point, and my mom thought that her mother was going crazy. "She can barely walk as is," I remember her lamenting to my dad, "How are her and John going to manage thousands of bees?" That was nearly ten years ago now, and the hives are still thriving even as the garden became too much for my grandparents to take care of. Each year, they harvest 20 pounds of honey per five hives, jarring, storing, and distributing it. My grandmother immigrated here from Germany when she was 18 years old; she has been a wife, a mother, a secretary, a lunch lady, a grandmother, a gardener, and, most notoriously, a beekeeper.

Bees don't get enough credit for all that they do for us. According to the United States Department of Agriculture, honeybees pollinate 80 percent of all flowering plants in the US. This percentage translates to honeybees pollinating $15 billion worth of crops each year. Some of these crops include more than 130 types of fruits, nuts, and vegetables.[1] Take a second to consider the magnitude of that figure: 15 *billion* dollars. Dollars that humans benefit from, humans who push and sell the products that bees are quintessential towards making. As the main insect pollinators, bees pull their weight in the production of produce that we consume. It's important to consider what our diets would look like if bees weren't there to bolster them.

In a study conducted in 2006, researchers from all over the world worked together to form a consensus on the importance of animal pollinators in crop production. Comparing data from 200 countries, the researchers found that "fruit, vegetable or seed production from 87 of the leading global food crops is dependent upon animal pollination, while 28 crops do not rely upon animal pollination," meaning that more often than not, the popular crops require animal assistance in their production.[2] This is not to say that without bees we would starve, or all of our food would be bad; rather, without bees, our food would lack vibrancy and excitement. We could eat as much rice or bread as necessary to live, but what fun would it be to never have watermelon on a summer day? In another sense, how boring would our scenery be without the flowers bees pollinate? Whether or not they get the appreciation they deserve, bees are responsible for much of the natural joy we experience.

Our respect only amplifies when we learn that the honeybee species is not native to the United States. The honeybee species is a part of the *Apis* genus, and they are the only surviving group of bees from the Apini Tribe.[3] The species is native to mainland Afro-Eurasia and were

imported from Europe to North America in the 17th century. Being from Europe, the early settlers in North America brought with them the Northern European bees they were familiar with. In fact, once brought to America, the honeybees adapted to the new conditions and colonized far faster and wider than the settlers themselves.[4] This is all factual, but it's also a story of resilience and resettling that could be compared to hundreds of other existing narratives, one of them being my grandmothers.

When she was 18, she left behind her entire family in Germany to come to the United States. Here, she married my grandfather at 19, and had my mother at 21 years old, the same age I am now. She had her second daughter at 24, all the while managing her home, learning to drive, and learning the language of a new, daunting country. At 41, her husband died suddenly. At 50, she remarried her current husband, John. At 52, she started a garden that would win prizes at the county fair, and the bounty of which she would share with those she loved. At 64, she started beekeeping.

Much like bees, I've come to realize that my grandmother's resilience is underappreciated. She has suffered, but she has overcome. And she still finds joy. She likes doing crossword puzzles. She is an excellent cook. She treats going to Kohls like the Olympics. She drives to her best friend Sheelagh's once a month, and they drink gin and tonics and play Trivial Pursuit. She loves mystery novels and always reads the ending first. She buys me pajamas every Christmas. Many years ago, now, she resituated herself here in unfamiliar land. But she has made it her own, just as the ancestors of the bees in her backyard did centuries ago.

I stir the tablespoon of honey into my tea. "It's nature's medicine," my parents always remind me. For the longest time, I hated honey. It was too sticky, too thick. I would avoid

mentioning a sore throat or any congestion to my parents, because I knew what they would tell me to do: take a spoonful of honey. When I was a kid, I would have rather just been sick. Now, I opt to stir it into a cup of tea, instead. Because it's power really is undeniable; it does always make me feel better.

Self-centered as usual, humans tend to think that honey is made for us. This is simply incorrect; the reason honey is made is so that bees have food to eat when there aren't many flowers in bloom or if weather prevents them from leaving the hive. Ahead of the winter season, bees must make sure that the colony has stored enough honey to sustain them for months. When there is excess, or at least enough to keep the bees alive, is when honey is harvested for human usage. Beekeepers must be diligent in making sure there's enough honey left for the bees before we can enjoy the fruits of their labor.

The process of honey-making is a stellar example of bee's teamwork: it begins with honeybees visiting a flower, taking nectar, and transporting it back to their hive. There, the nectar is passed mouth-to-mouth by bees, a process that breaks down it's sugars and decreases its water content. It's then deposited into the stereotypical hexagonal cells – the ones that look just like the result of a "honeycomb clip art" Google search. Once the water content in the honey below 20%, it's "ripe," and the bees seal the honeycomb with a wax capping.[5] From there, the honey is extracted and enjoyed, or stored for them to have throughout winter.

As I've come to learn more about bees, I found a statistic that I continue to think about. In her short lifetime of one to two months, a single bee will create only about 1/12 a teaspoon of honey. It takes 2 million flower visits for a honeybee colony to produce 1 pound of honey.[5] Every time I consume any kind of honey now, I think about this number. A twelfth of a teaspoon is miniscule compared to the amount of honey used in just one cup of tea or swallowed to soothe

a sore throat. In a way, it makes me feel very guilty. Who am I to take the product of multiple bees' lifetimes and use it all in a matter of seconds without a second thought? It feels so careless, so selfish.

They work so hard to create, and humans, me included, make it disappear. Grocery store shelves may be lined with plastic bear bottles full of honey, but this abundance only serves to represent the millions of bees out there working hard, dedicating their lives to their hives. What hardworking little creatures.

Along with honey production, bees have even more responsibilities that are often unknown to the average person, work that is very admirable. A colony of bees depend on the hard work of one another to complete their goals and maintain the hive. In fact, each bee in a hive has a designated role that ensures proper functioning. There are the worker bees, which are all female, who make up the majority of the hive. They do what their name implies: work. Worker bees complete the jobs that need to be done to keep the colony fed and healthy. They work both inside and outside of the hive, doing tasks like feeding their queen, tending the larvae, maturing honey, producing wax, pollinating plants etc. They are, quite simply, very hard workers.[6]

The next kind of bee is the drones, which are the only males in a colony and serve the purpose of mating with queens. They travel away from their hives to specific mating areas, where they find the queens. Drones promote genetic diversity and spread their genes via mating. Drones don't generally survive mating, as the process rips off their abdomen.[7] Drones, too, sacrifice themselves for their kind.

Last, and most certainly not least, is the queen bee. There is only one queen per hive, and her sole responsibility is laying eggs. The average queen lays about 2000 eggs per day, in order

to maintain a large colony. The bees in the colony recognize the queen through pheromones she gives off, and they work to meet her needs and defend her from harm.[6] The status of "Queen Bee" has permeated from nature to popular culture as well. The phrase is associated with Beyoncé, it can be used to describe a dominant woman in a social group, and overall represents a matriarch – a powerful woman.

There's something to be said about a matriarch. A woman who is the head of a family or tribe. Of course, this makes me think of my grandmother. I see her at the head of the table each Christmas, her home filled with her daughters and grandchildren – the family she raised in a country that wasn't her own. She put down these roots, and her family is what grew out of it.

I finally move to my living room, with my tea, to call my grandmother. My fascination with her bees has given me a wonderful excuse to pick her brain. The FaceTime rings and rings, and she eventually picks up. I know her well enough to know that her iPad is propped up on the sugar jar on her kitchen counter, and she was most likely in the middle of cooking something. We get to talking about life and the weather and her thousands of backyard friends.

"Does it really hurt?" I ask when we settle on our topic.

"Kind of," she responds calmly, "But being stung makes me feel worse for them than I do for myself. I just let John go out to the hives, now. I tell him to thank them each time he harvests the honey." It's one of the core tenants of beekeeping, treating your bees with respect. I have no doubt that they do – they love their hives. They originally got them to support their garden, but now they're an entity of their own in the backyard. And as an additional bonus, they are able to harvest around a hundred pounds of honey each year. Dispersed each year to family, friends, neighbors, mailmen, people all over can enjoy the products of their bees. There was just one flaw to their plan, one entirely unanticipated.

“Isn’t it kind of ironic,” I ask my grandmother, “Being a beekeeper that’s allergic to honeybees?” She laughs, “Well, yes. It’s ridiculous,” her German accent comes out on that word, replacing the sound of each *u* with an *a*. A few months after getting the hives, she was back in the garden and was stung by a bee. Her allergy is minor, but still warranted a trip to the emergency room. Ever since, she has taken care of the honey work inside the house, occasionally making it out to the hives but keeping her distance. “The sting hurts me, but not as much as it hurts them. I don’t want them to die,” she speaks of the thousands of bees like they’re each her own child, “so I just stay away. The jarring is plenty of work anyways.”

“Okay, my last question,” I say, knowing she wants to get back to her crossword puzzle or the reruns of NCIS that are permanently on her TV, “would you do anything differently with your bees, if you could go back in time?”

She considers for a moment, “No, I don’t think so. Except maybe get them sooner – we really love them,” she smiles.

From here, consider the bee: they are essential to agriculture, provide us with wonderful honey, and are stellar examples of the product of teamwork and dedication. Any person could serve to learn something from the way bees are, the way they work and live and create. And in correspondence with my grandmother’s sentiments, only one question remains: what’s not to love?

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